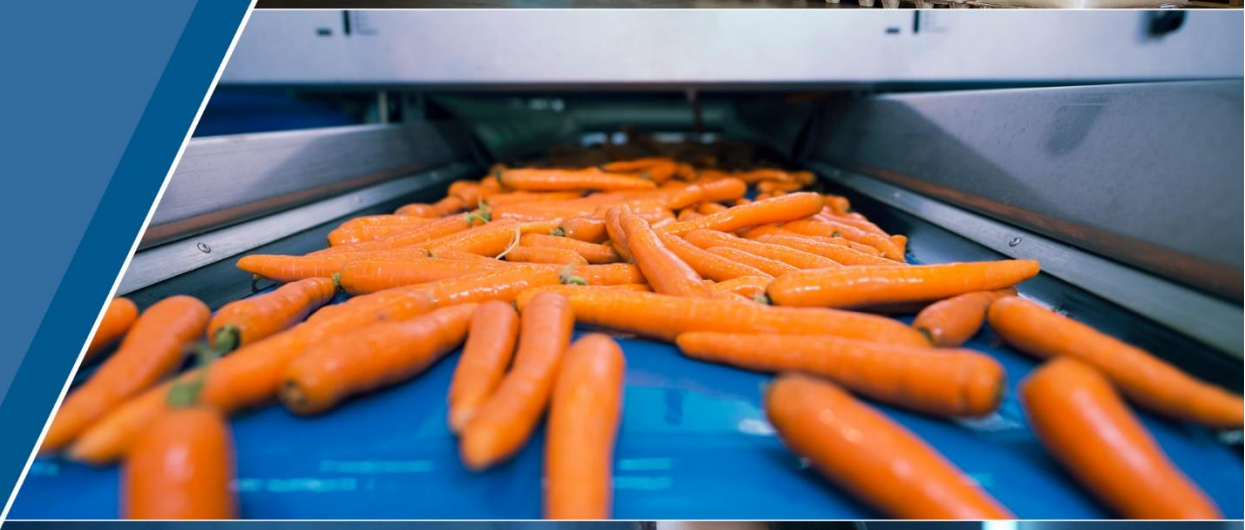
National Agricultural Workforce Strategy

Learning to excel

National Agricultural Labour Advisory Committee

December 2020



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Chair's letter to the minister

NATIONAL AGRICULTURAL LABOUR ADVISORY COMMITTEE

The Hon. David Littleproud MP
Minister for Agriculture, Drought and Emergency Management
Parliament House
CANBERRA ACT 2600
Via email: Minister.Littleproud@agriculture.gov.au

30 October 2020

Dear Minister,

I would first like to express my appreciation to the Australian Government for appointing me to chair the National Agricultural Labour Advisory Committee, which has prepared this strategy. The exercise has been an illuminating and stimulating one.

I am pleased that the report has the unanimous support of this diverse, talented and expert group. All its members have validated its contents, including the recommendations, in discussions with their respective spheres of influence. Although the Committee had to conduct its inquiry during the pandemic period, it did succeed in consulting over 300 stakeholders, as well as receiving 117 submissions.

The report has 2 main, interrelated, themes. The first is that agriculture is not just the farm. It is a whole spectrum, starting from before the farm, with custodianship of the land and the sea; moving on to the farm itself; progressing to the value-add stage; progressing to point of sale; and lastly, beyond the point of sale, moving to strategic planning, evaluation and learning. Each of these stages is connected to the others in an intricate web. Supply chain is a constant in each stage. The sector is so diverse that throughout the Strategy, the Committee has used the term 'AgriFood' to indicate its variety and sophistication.

The second, and perhaps the more important, theme is that continuous or lifelong learning should lie at the centre of activities at every stage along this spectrum. In 21st century Australia, AgriFood faces stiff international competition, rapid technological development, and ever-increasing complexities. None of these can be handled without proper development of the capabilities of the people working in the sector. The Committee considers that people come first, and the right technology will follow. 'Continuous learning' should be the watchword of the leaders of all the many subsectors in AgriFood, at every stage along the spectrum.

Among the Committee's recommendations are 2 that have inspired the particular enthusiasm and commitment of all its members: the proposed Australian Land and Environment Service, and a 21st century AgriFood capability development fund.

I would like to pay particular tribute to my 2 deputy chairs, former Senator John Williams and Prof. Ruth Nettle of Melbourne University, who brought expertise, generosity, creativity and untiring effort to the task. Secretary Metcalfe and Deputy Secretary Deininger were supportive

and constructive throughout. And I cannot close without making special mention of Fiona Hill-Stein and her team at the Department of Agriculture, Water and the Environment. Going well beyond the call of duty, these talented and unfaltering public servants were available and indeed eager to follow an often demanding and unusual schedule. They rose admirably to the challenge and the whole Committee is indebted to them. Australia is lucky to have such officials serving it.

Yours sincerely,

John Azarias
Chair, National Agricultural Labour Advisory Committee

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The report in a nutshell

Over the course of this inquiry, an encouraging trend emerged from the over 300 consultations held and 117 submissions viewed by the National Agricultural Labour Advisory Committee. It became clear that many Australian enterprises in agriculture and related sectors, both on the farm and off, were independently insisting on proper learning for all their staff, from senior managers down to temporary workers. The enterprises brought to the Committee's attention came from horticulture, cropping, sheep farming, dairy, seafood, retailing, transport – a wide variety of Australian companies whose owners and managers, just like generations before them, were grasping a simple fact, that poorly trained people mean poor technological advancement, low productivity and low profits; and conversely, that modern training is required for advanced technology, high productivity and profits in the 21st century. These same enterprises also tended to be innovators, to reward their workers adequately, and to provide proper conditions. It was no accident that they were the companies that were looking at the 21st century with optimism and confidence.

This is the by no means universal trend that the Committee has sought to encourage in this report. Not simply for the sake of higher productivity and profits, or even for the motivation and engagement of staff, or the introduction of more innovations. The current pandemic has shown all too clearly how vulnerable every stage of Australian agriculture (pre-farm, farm and post-farm) is to workforce shortages, from both local and overseas sources. Globally, it has also revealed how important the quality of the workforce and the traceability of products are at key points of the chain. It has aroused an uneasy concern that other pandemics may arrive in the years to come. If we don't find a way, or ways, to prepare our local workforce adequately, and better than adequately, for the future, the consequences for Australian agriculture could be serious.

After nine months of intensive work, the Committee has come to two main conclusions: that the best way of facing the 21st century, and preparing all levels of the agriculture workforce for its challenges, is to focus hard on learning in all its forms, at all levels, in all the relevant parts of the nation; and that the best way of doing that is for the learning to be driven by the enterprises' owners, managers and workers themselves.

The urgency does not just come from possible pandemics. Australia's main competitors in agriculture are either ahead or running very close. In many ways, Australia is at a crossroads. Either its enterprises go all out to modernise by learning and adopting new methods, or they fall behind the others, occupying increasingly uncomfortable niches, relying on inadequately trained, low productivity workers, using the same old approaches that worked yesterday, and then finding themselves in a situation where business as usual has suddenly turned into business in decline.

We do not believe this will happen. We have confidence in the lively entrepreneurial spirit we have seen so often during this inquiry. But this does not mean that governments can sit back and passively observe. There are many steps that governments, and only governments, can take to help maximise potential productivity, to enable and facilitate learning and innovation, and to turn what is good into something outstanding and world-beating. Some of those ways are proposed in this report.

But at this point, the Committee needs to outline one of its main definitions. Very early on, we recognised that the term 'agriculture' does not properly convey the true range of activities in the sector. These range from the pre-farm stage, where the main concern is the custodianship of the land and the sea; to the farm itself as it cultivates, treats, feeds and tends to its outputs; to the processing of those outputs, whether on or off the farm itself; to the transport of those products; through to the stage where the products are marketed, advertised, exported and in general reach the consumer; and ending up in a loop where consumer feedback reaches the farmer, and in turn suggests what to produce. To encompass every part of this world, the Committee decided to use the term 'AgriFood', which will be found throughout the report. When the Committee refers to 'AgriFood' learning, it means workforce learning at every point along the AgriFood chain.

In the same spirit of lively innovation that the Committee noted during the inquiry, it decided to break some new ground of its own in its main recommendations.

We have recommended that the Australian Government establish a large-scale multi-year AgriFood Capability Development Fund delivering competitive grants to AgriFood entrepreneurs, with the purpose of supporting existing enterprises and encouraging new ones as they train their staff for the future.

To increase the responsiveness of education and training programs to industry needs, we have recommended that the Australian Government and state and territory governments devote significant financial support to establishing multiparty state-level AgriFood labour advisory committees (SALACs and TALACs) to co-design demand-driven capability programs across the whole AgriFood sector. In addition, we recommend the creation of an AgriFood Tertiary Education Council on the model of the Minerals Tertiary Education Council.

Our other recommendations include the creation of a dedicated Agriculture Workforce Data Analysis Unit, guided by industry advisory committees, which would be intended to address the shortcomings of the current data system; the creation by states and territories of agricultural industrial zones; and instant tax write-offs for field robotics.

We have also recommended a variety of ways of regulating the labour hire industry to help eliminate the unscrupulous and unethical practices that some of these companies use. In this connection, we recommend the adoption of the Queensland model of regulating those companies. We have also recommended a greater alignment among temporary worker visa programs, and a one-off regularisation of the undocumented workers in the country.

Perhaps the most exciting and innovative of our recommendations is the one based on an old, traditional model. This is for a scheme (which could be a legacy of the minister and government) matching willing farmers with willing, fully-trained young Australians, in an effort to alleviate, with one stroke, two of our most serious problems, namely the shortage of AgriFood labour and

the glut of local young unemployed. We believe this scheme, which we have called ALES (Australian Land and Environment Service) could boost production, the environment (including carbon-neutral production), tax revenues, worker participation and engagement, the ethical treatment of workers, and educational benefits, all in one package. We have worked out the details of a pilot covering all Australian states and territories. The government may decide to try it out in one state alone.

But the main thrust of our report remains the same: a tight and determined focus on boosting learning at every point in the AgriFood chain. There is already a great deal of good work to build on, in both formal and informal learning institutes and systems. New AgriFood entrepreneurs in the regions are appearing every day. The challenge is to turbocharge what is already there. Here we believe our proposed fund and the SALACs and TALACs could very usefully help in ways that suit each particular state and territory.

It is vital to involve the states and territories in the right way. By far the best course is for them to be brought 'inside the tent' at the earliest, design stage, so that they become partners in design and implementation, rather than recipients of an Australian Government direction after the fact. That approach would work well for the 21st century AgriFood capability development fund, the SALACs and TALACs, ALES, the Data Unit, the regulation of the labour hire companies – in short, that approach would be critical for the successful implementation of the National Agricultural Workforce Strategy.

NALAC could assist in the early engagement of the states and territories by providing individual phone briefings to the relevant ministers.

This approach stems from a basic strategy adopted in this report – that inclusion, alliances, consultation and communication are important as a way of combating the fragmentation common in the AgriFood sector – a strategy that would be particularly useful in the multiparty committees guiding the Data Unit.

In conclusion, the Committee has been highly impressed with the buoyant entrepreneurial spirit it found in Australian AgriFood, and with the emphasis on learning that the most successful enterprises in the sector have adopted. Certainly there are shortcomings and gaps. And certainly there is a great deal that the Australian, state and territory governments can do to help. As far as the Committee is concerned, public and private sectors working hand in hand on practical solutions is the best, indeed the only, way that Australian AgriFood can meet, with optimism and confidence, some of the fearsome challenges that could face us in the 21st century.

Summary

Preliminaries

The National Agricultural Labour Advisory Committee (the Committee) was appointed with 11 members in December 2019 to develop a labour strategy for Australian agriculture. The Committee spoke with over 300 organisations and viewed 117 submissions. Almost all of the Committee's consultations were carried out during the current pandemic.

Seeking to underline the breadth and diversity of the sector, the Committee has deliberately employed a number of terms: 'AgriFood' instead of 'agriculture' (to stress the transformation occurring in the sector where producers themselves are adding value to their primary products – in other words, that agriculture should not be viewed as a primary industry); 'workforce' instead of 'labour' (to embrace everyone working in the sector, including owners, producers and directors as well as employees); and 'capability development' instead of 'training' (to indicate the breadth and variety of education possible, and needed, at all levels of the sector).

The historical context

The historical analysis of the Australian AgriFood sector in Chapter 3 shows that at specific crossroads in its history, it has chosen the route of training, education and upskilling, which led to the adoption of the latest technical and scientific advancements, rather than the use of low-cost labour. This has led to Australia's remarkable reputation for the excellence of its AgriFood produce, which in turn has led to the premium prices that it commands.

International approaches

Long-term workforce

AgriFood workforce attraction, retention and development are a challenge for all developed countries. Planned, collaborative, long-term strategic responses are a feature of national efforts in AgriFood by countries like New Zealand, the Netherlands and Canada.

Seasonal and transient workforce

The dependence on an overseas seasonal and transient workforce is one of the biggest issues faced by a number of developed countries, such as the United States where 73% of the agricultural workforce is foreign. Experience in the United States suggests that using low-cost labour is not a long-term solution, and indeed can be a highly risky option. In New Zealand and Canada, active regulation is a feature of seasonal migrant employment programs.

Main themes

Interdependency and cooperation

The AgriFood sector is not limited to the farm but is a spectrum comprising a number of stages. Starting before the farm with custodianship of the land and the sea, it progresses to encompass the farm itself; the stage between the farm gate and the point of sale, which includes value-adding; and shaping of, and by, buyers' preferences. Ultimately it is the end consumer's preferences that dictate the workings of each stage. Throughout the process, there is a significant supply chain component.

None of the players in any of these stages stands alone. They are all linked in a web of interdependencies, where harm to one weakens the whole (for example, poor labour hire practices injure the reputation of the whole sector); and, conversely, enhancement of one strengthens the whole (for example, a focus on continuous learning in one industry spills over into another). Cooperation among the players in the various stages benefits the entire sector more than if one gains a temporary benefit by disadvantaging another.

Unlike the 20th century, the 21st century has seen a growing realisation in the various elements of the Australian AgriFood sector that they all hang together, and that cooperation is more constructive than conflict.

Local empowerment

Local empowerment also strengthens the AgriFood web. The Committee was so impressed by the numerous entrepreneurial local initiatives it found that it has made a major recommendation aimed at supporting them.

Consumer preferences for authenticity and provenance, combined with modern technologies (automation, ICT and robotics) that facilitate value-adding at a regional level, considerably empower local-level AgriFood producers and can turn them into price setters instead of price takers. In order to realise benefits, those producers need to be fully cognisant of supply chain links. In cases where producers take advantage of these new opportunities, significant wealth is brought into the regions.

Excellence

The theme of excellence pervades the report. Australian AgriFood is already justly famous for the excellence of its regulatory regime and the quality of its products. Extending the principle of excellence to all the non-product aspects of AgriFood, such as capability development and management expertise and innovations, can yield enormous reputational and practical benefits. Commitment to continuous improvement in all areas will mean Australia will become known for its excellence in AgriFood at all stages of the journey, not just for its products.

When Australia and its AgriFood become known globally for excellent thought leadership, global talent will be attracted to study at our universities and learn about our methods; and that will add to the lustre of the Australian AgriFood brand.

The global pandemic has shown how important the image of Australian AgriFood as excellent, clean and well-regulated is, both locally and in the rest of the world. That image is dependent on strong capability development.

Continuous capability development

Perhaps the paramount theme in the report is the decisive importance of capability development. Every component of the AgriFood web depends on its people, so all the components are strengthened if one adopts continuous learning for its people as a given in its management. Learning is supported through university and TAFE courses, extension programs, registered training organisations (RTOs), agriculture colleges, agriculture high schools, apprenticeships, on-the-job training, and courses by remote delivery. All these programs should be driven by industry leaders and designed by them in cooperation with academics, public servants and industry associations. Not only should the learning be continuous but also a major element of it should be an emphasis on the interdependencies in the whole sector.

The Committee emphasises that the future of the whole AgriFood sector can justifiably be said to rest on the quality of its capability development efforts. In the recent past, the solution has been to put technology first, rather than capability development. To the Committee, this is like putting the cart before the horse. Only well-educated and skilled people who understand the importance of business and HR management, of land and sea custodianship and of the potential of technology are able to take advantage of technological solutions. In other words, it is people who come first and the right technology will follow naturally.

The recommendations that follow are based on these themes.

Recommendations

The Committee's recommendations are divided into 2 categories:

- recommendations that span the entire AgriFood workforce system
- recommendations that target individual areas for AgriFood workforce development.

Recommendations that span the entire AgriFood workforce system

Australian, state and territory ministers to endorse capability development as paramount

It would be desirable for Australian, state and territory ministers of agriculture, at their next Agriculture Ministers' Forum (AGMIN), to endorse the main message of this report, namely that Australian AgriFood is a complex and sophisticated system that will thrive in the 21st century only if all its component parts give top priority to continuous capability development of their entire workforce, including owners, managers and workers (Recommendation 1).

The Australian Land and Environment Service (ALES)

The Committee noted with concern the converging problems of agricultural workforce shortages, reduced employment opportunities for young people and poor perceptions of agricultural jobs and careers. With this initiative, rural and regional Australia will be offering hope to young people across the country during the pandemic-induced slowdown, while assisting agriculture and the environment, including carbon-neutral production, in the future. The Committee considered that a bold and inspirational program to target these problems would be warranted in view of the gravity of the situation. Recommendation 13 was the result: the Australian Land and Environment Service (ALES) (Recommendation 13).

Drawing on precedents such as the Women's Land Army during 2 wars, ALES is envisaged to be a voluntary paid service supporting agriculture and the environment, including carbon-neutral production. With several modes of entry, it would train young Australians, match them with willing farmers, and reward them with formal accreditation, which will help them to find jobs at the end of their service. The aims are to increase agricultural production, enhance the environment and give the young participants new skills, discipline, purpose and self-worth.

In addition, ALES would go a long way to paying for itself through extra tax revenues from the increased production and the neutrality gained from simply replacing JobSeeker and Youth Allowance payments with ALES wages.

ALES should be trialled in a pilot project. If the trial is successful, ALES could be a legacy of the minister and government.

A 21st century AgriFood capability development fund

Believing that those at the grassroots are likely to know and target the real problems better than anyone else, and being highly impressed with the entrepreneurial zest it found in regional Australia, the Committee recommends the establishment of a large-scale, multi-year fund to support practical projects like the ones presented to it from those sources (Recommendation 19). A number of such regional initiatives are outlined in Section 6.4 such as Thoroughbred Industry Careers; Backtrack; the Robinvale Euston AgriBusiness Workforce Network; the Junior Indigenous Marine and Environmental Cadets Program; and the Rural Research, Leadership, WHS, Internet Barriers and Employment Issues project. The reader is encouraged to go to this section and view these admirable grassroots initiatives. The Committee proposes a number of eligibility criteria, including a strong track record, commitment to self-sufficiency in 4 to 5 years, an AgriFood capability development focus, and leadership and endorsement by producers, employers and employees, with a particular emphasis on partnerships and co-contributions.

Research and development projects initiated by universities to support capability development in partnership with industry should also be eligible.

AgriFood leaders in states and territories to drive capability development

To increase the responsiveness of the education and training system to industry needs, the Committee recommends that the state and territory governments establish multiparty AgriFood labour advisory committees to provide leadership in the development of demand-driven capability programs across the AgriFood sector (Recommendation 17). The committees should comprise AgriFood business leaders and thought leaders in tertiary and vocational training.

The Committee recommends that the Australian Government match any state and territory funding allocated to such AgriFood labour advisory committees, to give them enough resources for these programs.

Fixing the problems faced by seasonal and transient workers

Australians face severe bureaucratic hurdles getting on and off JobSeeker to take up temporary AgriFood roles. Research has found this is a bigger factor than any purported laziness. The Committee recommends that farmers could simply advise the government that a worker is starting on a particular date and finishing on another (Recommendation 20). JobSeeker payments would temporarily stop during that period and automatically restart when it is over. Family Tax Benefit calculations and rent assistance should not be affected by any seasonal work payments.

There is no app enabling seasonal transient workers to identify employment opportunities, regional support infrastructure available, or their work rights in their language. The Committee recommends that one be developed (Recommendation 26).

Discrepancies between the Seasonal Worker Programme (SWP) and the Working Holiday Maker (WHM) visa program, the 2 main temporary migrant employment schemes, have led to segmentation within the seasonal transient workforce. The SWP is a better run scheme. It requires some adjustments, which the Committee has recommended (see Recommendation 21). In the WHM program, on the other hand, the employers are not identified, and the location of the employees is not known. The Committee recommends that the regulatory regime prevailing in the SWP be the model for the WHM program – that is, employers wishing to employ working holiday makers should register with the Department of Education, Skills and Employment

(DESE) (Recommendation 22); and applicants, in line with the renewed emphasis on tax file numbers in the 2020–21 Budget, should be required to apply for an Australian tax file number as a condition of obtaining their visa (Recommendation 23), and to attend an in-person induction at regional Harvest Trail Services offices prior to being employed in the AgriFood sector (Recommendation 24).

The Committee believes that, in the current exceptional circumstances caused by the COVID-19 pandemic, there should be a one-off regularisation of the status of the undocumented AgriFood workers in the country (Recommendation 25).

The Committee considers that the well-known problem of the unethical practices currently followed by some labour hire companies is best addressed by all states and territories introducing legislation mirroring the Queensland law that regulates such companies. The Committee considers that if this does not occur within 12 months, the Australian Government should establish national legislation (Recommendation 26).

A dedicated Agriculture Workforce Data Analysis Unit

Currently Australian AgriFood workforce data is gathered over different time frames, with limited scopes and on inconsistent schedules by a wide variety of organisations, and is poorly coordinated and integrated. The Committee recommends the establishment of a dedicated AgriFood data unit in the Department of Agriculture, Water and the Environment on the model of the Workforce Data Analysis Section in the Department of Health (Recommendation 33).

Some recommendations that target individual areas for AgriFood workforce development

Sustainability

Australian farmers are the first group of people who understand how important good custodianship of the land and the sea is for their own prosperity, as well as that of the nation. The Committee believes they would also welcome a government initiative to develop flexible online learning modules aimed at building the ability of farmers, fishers and foresters to improve AgriFood productivity through environmental sustainability, including carbon-neutral production (Recommendation 2).

Supply chain

A number of corporate businesses (suppliers, retailers, manufacturers and logistics companies) that benefit from AgriFood produce have established programs partnering with other participants in the AgriFood value chain. The Committee believes that the government could encourage other corporate businesses to play a similar role (Recommendation 3).

Value-adding

Value-adding on farm allows wealth to be generated and kept in the regions. State and territory governments should support this development by facilitating the creation of agricultural industrial zones. This in turn would lead to the growth of skilled AgriFood jobs in rural and regional Australia (Recommendation 5).

AgriTech

Australian AgriFood should be encouraged to invest in field robotics. To that end, the Committee recommends that the instant tax write-offs announced in the Commonwealth Budget 2020–21

be extended indefinitely for field robotics and other high-end AgriTech assets (Recommendation 6).

Attraction and retention

The Committee recommends that a major research project be commissioned on community perceptions of work in AgriFood, in order to address community attitudes to careers in the sector (Recommendation 10).

The Committee recommends that the Australian Government commission the development of a comprehensive interactive digitised map of the AgriFood workforce, to demonstrate the breadth of jobs, careers, and education and training opportunities (Recommendation 11).

Education and training

AgriFood and mining companies operate in both urban and regional areas. The Committee believes that they should share their experiences and best practices. It therefore recommends that the government encourage the establishment of an AgriFood Tertiary Education Council on the model of the Minerals Tertiary Education Council (Recommendation 15).

The Committee also recommends that the government's Drought Resilience Research and Adoption Program hubs make strong links to AgriFood workforce capability development and extension (Recommendation 8). The principle that technology is not the solution on its own but must at least go hand in hand with capability development and extension should be stressed in this program.

Conclusion

Today Australia has a stellar reputation for the cleanliness and good regulation of its AgriFood sector, which should allow it to thrive in the 21st century, potentially the era of pandemics. But to continue to thrive in the future, today's business-as-usual approach will not be good enough. If Australian AgriFood is to become a $100 billion sector, a new approach will be essential. What will be needed is a fundamental reimagining of the role of AgriFood as a complex, modern, sophisticated sector that encompasses value-adding, supply chain considerations, a change of perspective from 'farm to fork' to 'fork to farm', sustainability issues, and adoption of field robotics and automation.

The key theme of this report is that none of this can be achieved without a motivated, well-trained workforce. Such a workforce does not emerge by itself. Industry leaders have to place workforce capability development planning at the core of their businesses and do so collaboratively across all parts of the sector, including value-adding, supply chain, manufacturing, government and private sectors, unions, and retail.

Some of the other themes in this report fit in closely with the main focus on capability development. The Strategy notes the great contributions made by Australia's Aboriginal and Torres Strait Islander people, who, the Committee has observed with pleasure, are active in numerous projects across the AgriFood sector. Indeed, the renewed focus on the custodianship of the land takes up the approach over millennia of Australia's Aboriginal and Torres Strait Islander population.

The Committee has also noted with considerable interest the importance of women as cultural and business leaders in Australian AgriFood. Women spearhead many entrepreneurial

initiatives in regional Australia. Most of these are sophisticated value-adding enterprises that require a range of skill levels. The industry leaders putting capability development at the core of their business could do a lot worse than to tap into the successes achieved by women in AgriFood. That would also help supplement the traditional image of AgriFood as one of a middle-aged man wearing an akubra out in a field with that of a young woman in a factory managing a team creating, on the farm itself, mixed cut salads for sale to consumers.

Value-adding in the regions can itself spearhead the renaissance of regional manufacturing in Australia, making full use of new digital and supply chain techniques. The regions, through spirited new initiatives like ALES, could become a beacon of hope for the whole country.

The more modern and sophisticated the whole AgriFood sector becomes, the less room there is likely to be for unethical operators, particularly in labour hire, and the mistreatment of transient workers. The Committee is strongly of the view that every possible means should be brought to bear to stamp out these ugly practices.

To sum up, Australian AgriFood will only succeed in the 21st century if it thinks of, and projects itself as, a cutting-edge, sophisticated, best-in-class sector that is a custodian of the land and the sea, has the best trained people, and is just as much at home in value-adding, traceability, business management and capability development as it is in traditional primary production. If the sector places capability development of its people at its core, if a general recognition prevails that this is a highly diverse sector encompassing a number of stages, if the ultimate arbiter is acknowledged to be the expectations of citizens and the tastes of consumers, if industry leaders rise to the challenge, and if they unite to plan actively to recruit and educate the new workforce, Australian AgriFood will not just survive in the 21st century.

It will thrive.

List of recommendations[1]

Recommendation 1[(a)]

The Committee recommends that at their next meeting the Agriculture Ministers' Forum (AGMIN) endorse the main message of this Strategy, namely that Australian AgriFood is a complex and sophisticated system that will thrive in the 21st century only if all its component parts give top priority to continuous capability development of their entire workforce, including owners, managers and workers. (Section 2.4)

Enhancing sustainability in AgriFood systems

Recommendation 2

The Committee recommends that the Australian Government commission the development of flexible online learning modules to build the capability of farmers, fishers, foresters and advisory (extension) services to improve AgriFood productivity through environmental sustainability – including carbon-neutral agricultural production. (Section 5.2)

AgriFood supply chains

Recommendation 3

The Committee recommends that the Australian Government encourage all corporate businesses (suppliers, retailers, manufacturers et cetera) and all companies benefiting from produce of the sea and land to play a larger role in capability development of the AgriFood workforce through co-designed partnership programs such as the Coles Nurture Fund and the Woolworths Organic Growth Fund. (Section 5.4)

Value-adding

Recommendation 4

The Committee recommends that the Australian Government commission a brief review comparing food technology courses in North American, European and Australian universities to set a best-in-class benchmark for Australian AgriFood capability development. (Section 5.5)

Recommendation 5

The Committee recommends that governments recognise on-farm investment in value-add processing facilities with appropriate rezoning of land to support the growth of skilled AgriFood jobs in rural and regional Australia – for example through the designation of agricultural industrial zoning. (Section 5.5)

AgriTech is driving new skill needs in the workforce

Recommendation 6

The Committee recommends that the Australian Government extend indefinitely, for field robotics and other high-end AgriTech, the full tax write-offs announced in the Commonwealth Budget 2020–21. (Section 5.6)

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[1] (a) denotes that the recommendation spans the AgriFood workforce system

Recommendation 7

The Committee recommends that the Australian Government consider collaborative approaches, including co-funding models with state and territory governments, to build knowledge of AgriTech developments among advisory (extension) services and their staff. (Section 5.6)

Recommendation 8

The Committee recommends that the Australian Government's *Drought Resilience Research and Adoption hubs* make strong links to AgriFood workforce capability development and extension. (Section 5.6)

Attracting and retaining the future workforce

Recommendation 9

The Committee recommends that the Australian Government, in partnership with the state and territory governments, establish an 'Employer of Choice' academy and award scheme to raise awareness of, and to demonstrate, leading human resource and workplace management practices in the AgriFood sector. (Section 6.1.1)

Recommendation 10

The Committee recommends that the Australian Government, in consultation with the AgriFood sector, commission research on community perceptions about work in the AgriFood sector to inform an evidence-based campaign encouraging people to enter the sector. The Australian Defence Force and Minerals Council of Australia campaigns could be models. (Section 6.1.2)

Recommendation 11

The Committee recommends that the Australian Government commission the development of a comprehensive interactive digitised map of the AgriFood workforce to demonstrate the breadth of jobs, careers and education and training opportunities.

The Committee recommends that the Australian Government develop workforce diversity case studies to demonstrate AgriFood workforce opportunities to women and to Aboriginal and Torres Strait Islander people and incorporate these case studies into the interactive digitised map of the AgriFood workforce. (Section 6.1.4)

Recommendation 12

The Committee recommends that the Australian Government, in collaboration with the state and territory governments, ensure that the expenditure of the Skilling Australians Fund levies benefit the whole AgriFood workforce. (Section 6.1.10)

Recommendation 13[(a)]

The Committee recommends that the Australian Government commission a pilot of the Australian Land and Environment Service to provide an opportunity for young Australians to engage with and work in agriculture and land management. (Section 6.1.14)

Education and training

Recommendation 14

The Committee recommends that the Australian Government establish skills organisation pilots for the agriculture, fisheries and forestry, food and logistics industries. The forward work program for these pilot organisations should include activities such as:

- developing stronger relationships with registered training organisations to improve the delivery of qualifications and enhance outcomes, for example by:
  - better aligning training and assessment with the expectations of employers
  - trialling alternative assessment and delivery models to address issues with rural and regional delivery
- strengthening links between schools and industry
- strengthening links between the VET and higher education sectors
- promoting the use of skill sets within training packages
- considering ways to address issues in recruitment and retention in the sector. (Section 6.2.3)

Recommendation 15

The Committee recommends that the Australian Government provide seed funding to establish an AgriFood Tertiary Education Council, modelled on the Minerals Tertiary Education Council, and invite participation from leading AgriFood employers, universities via the Australian Council of Deans of Agriculture, and the rural research and development corporations. (Section 6.2.4)

Recommendation 16

The Committee recommends that the Australian Government establish a task force with state and territory governments, the National Farmers' Federation, the Australian Forest Products Association, and Seafood Industry Australia in order to develop a flagship AgriFood apprenticeship and traineeship scheme with training providers. The scheme should address issues of employer demand and allow flexibility for employers such as the sharing of apprentices and/or trainees among small to medium businesses. (Section 6.2.7)

Recommendation 17[(a)]

To increase the responsiveness of the education and training system to industry needs, the Committee recommends that the state and territory governments establish multiparty AgriFood labour advisory committees to provide leadership in the development of demand-driven capability programs across the AgriFood sector. The committees should comprise AgriFood business leaders and thought leaders in tertiary and vocational training.

The Committee recommends that the Australian Government match any state and territory funds allocated to such AgriFood labour advisory committees to give them enough resources for these programs. (Section 6.2.19)

Improving capability in workforce planning, management, health and safety, and wellbeing

Recommendation 18

The Committee recommends that the Australian Government commission research and analysis to support small and medium enterprises and business leaders in evaluating novel approaches to workforce organisation and job design, leading to recommendations for possible AgriFood workforce strategies that enhance employee attraction and create opportunities for business growth or change. (Section 6.3.3)

Empowering locally led approaches

Recommendation 19[(a)]

The Committee recommends that the Australian Government establish a large-scale, multi-year fund to support innovative, collaborative projects to attract, retain and upskill the AgriFood workforce. (Section 6.4.6)

Securing the seasonal and transient workforce

Recommendation 20[(a)]

The Committee recommends that, in order to make it easier for a person on JobSeeker to accept seasonal agricultural work, a system be devised whereby willing AgriFood employers would advise Services Australia that that person will be working for them for a designated period.

During that designated period:

- all the person's JobSeeker payments would cease completely. They would restart automatically at the end of the designated period.
- Family Tax Benefit calculations and rent assistance payments would not be affected by any seasonal work payments. (Section 7.1.2)

Recommendation 21[(a)]

The Committee recommends that the Australian Government, in close collaboration with the Seasonal Worker Programme Advisory Group, continue to refine the Seasonal Worker Programme and the Pacific Labour Scheme to:

- mobilise overseas workers more effectively across the country
- improve accessibility to the program for smaller business and for businesses with short, intense harvests
- improve portability of overseas workers among farms, commodities and regions in the program
- expand the length of stay for the Seasonal Worker Programme to 12 months
- look for synergies and quadripartite approaches to bring the Seasonal Worker Programme and the Pacific Labour Scheme closer together and reduce administrative burden where possible. (Section 7.1.5)

Recommendation 22[(a)]

The Committee recommends that the Australian Government establish a 'fit and proper person' registration process for employers seeking to employ working holiday makers (visa subclasses 417 and 462). This registration should include:

- a database of registered employers who wish to access working holiday makers
- verification that the employer has not been prosecuted for breaches of relevant laws administered by the Fair Work Ombudsman or the Department of Home Affairs, and is not subject to any current compliance action
- an agreement by the employer to list job vacancies on the Harvest Trail Services website
- the opportunity for an employer to be deregistered (and thus unable to access working holiday makers for the next 5 years) should they be prosecuted for breaches of relevant laws administered by the Fair Work Ombudsman or the Department of Home Affairs. (Section 7.1.7)

Recommendation 23[(a)]

The Committee recommends that the Australian Government require all 417 and 462 visa holders, prior to arrival in Australia, to apply for an Australian tax file number.

Information should be provided to 417 and 462 visa holders in their own language, on their rights and entitlements as migrant workers in Australian workplaces, and on how to take action if they are not being treated ethically and lawfully. (Section 7.1.7)

Recommendation 24[(a)]

The Committee recommends that the Australian Government require that:

- working holiday makers attend an in-person induction prior to being employed in the AgriFood sector. Such inductions should be identical to the quadripartite model used in the Seasonal Worker Programme. These inductions should be conducted at the Regional Harvest Trail Services offices.
- Registered employers ensure Working Holiday Maker visa holders attend these in-person inductions. (Section 7.1.7)

Recommendation 25[(a)]

The Committee recommends that the Australian Government allow a one-off regularisation of undocumented AgriFood workers. (Section 7.1.9)

Recommendation 26[(a)]

The Committee recommends that the Australian Government develop an app to promote seasonal job opportunities, building on the Department of Education, Skills and Employment's work on a digital employment service model for job seekers.

The Committee considers there could also be scope for extending this recommendation to support the coordination of job seekers across the whole AgriFood sector, including allied AgriFood supply chain and freight logistics jobs more broadly.

The Committee recommends that the app include regionally relevant information on accommodation, services and work rights, and that this information be available in multiple languages. (Section 7.1.10)

Protecting the entitlements of the seasonal and transient workforce

Recommendation 27[(a)]

The Committee recommends that all state and territory governments enact mirror legislation to regulate labour hire providers operating in their jurisdictions. This legislation could mirror the *Labour Hire Licensing Act 2017* (Qld). If this does not occur within 12 months, the Australian Government should establish national legislation for mandatory regulation of labour hire companies. (Section 7.2.4)

Recommendation 28

The Committee recommends that the Australian Government regulate that any director of a labour hire company be a permanent resident of Australia. (Section 7.2.7)

Recommendation 29[(a)]

The Committee recommends that the Australian Government include labour hire companies under single-touch payroll provisions. (Section 7.2.7)

Recommendation 30

The Committee recommends that the Australian Government develop a memorandum of understanding between the Australian Securities and Investments Commission and the Department of Home Affairs to allow for better coordination and to act as a deterrent for individuals and companies who operate unlawfully in AgriFood workforce matters. (Section 7.2.7)

Recommendation 31

The Committee recommends that the Australian Government encourage all supermarkets to commission and fund random independent audits at all levels of the supply chains such as for the Sedex and Fair Farms programs. (Section 7.2.8)

Workforce data and information

Recommendation 32

The Committee recommends that the Australian Government commission an analysis of the number of long-term AgriFood jobs in each region of Australia, and the future growth expected in these jobs.

The Committee considers this analysis will support the work of the Agriculture Workforce Data Analysis Unit. (Section 8.6)

Recommendation 33[(a)]

The Committee recommends that the Australian Government establish a dedicated Agriculture Workforce Data Analysis Unit in the Department of Agriculture, Water and the Environment to:

- develop a data architecture for government and the AgriFood sector

- acquire, build and make available high-quality datasets
- design and construct data models
- develop and update workforce demand and supply methodologies
- undertake data analytics
- utilise agile approaches to regularly publish market updates as well as short (seasonal), medium-term and long-term forecasts by commodity and region
- manage relationships between key stakeholders and data custodians
- operate as a clearing house for stakeholders.

The Committee recommends that the unit be supported by quadripartite advisory groups (representing government, industry, community and unions) to provide advice on the acquisition and analysis of data to ensure value for users. (Section 8.6)

Recommendation 34

The Committee recommends that the Australian Government, as part of the National Agricultural Innovation Agenda, support coordination of research, development and extension (RD&E) efforts to understand the changing nature of the AgriFood work, careers, recruitment, retention and training needs, and implications of technology development on AgriFood workforce demand and supply. (Section 8.7)

Recommendation 35

The Committee recommends that:

- ANZSCO classifications be reviewed and expanded by the Australian Bureau of Statistics, with collaboration across government agencies, to better reflect current AgriFood occupations.
- ANZSIC classifications be reviewed and expanded by the Australian Bureau of Statistics, with collaboration across government agencies, to better reflect industry linkages across the supply chain.

The Committee recommends that in the shorter term, development of interim expanded standards that can be used by those collecting and classifying agricultural workforce data is needed. In the longer term, these should be incorporated into revisions of ANZSCO and ANZSIC. (Section 8.8.1)

Working together to implement the Strategy

Recommendation 36

The Committee recommends that the Agriculture Ministers' Forum (AGMIN) and Agriculture Senior Officials' Committee (AGSOC) commit to ongoing strategic discussions on the AgriFood workforce at their 6-monthly meetings. (Section 9.2)

Recommendation 37

The Committee recommends that the Australian Government establish an AgriFood Workforce Interdepartmental Committee (IDC) chaired by the Department of Agriculture, Water and the

Environment to drive collaborative implementation of the Strategy recommendations and develop and implement responses to AgriFood labour supply and demand issues as they arise.

The Committee recommends that the AgriFood Workforce IDC be heavily informed by the work of the Agricultural Workforce Data Unit within the Department of Agriculture, Water and the Environment. (Section 9.3)

1 Introduction

1.1 Background

1.1.1 Genesis of the Strategy

In December 2019, the Australian Government appointed the National Agricultural Labour Advisory Committee to develop a National Agricultural Workforce Strategy and provide advice on how to secure a sustainable agricultural workforce for the future. The Committee's terms of reference are at **Appendix A**.

The agricultural sector has an ambitious goal: to be a $100 billion industry by 2030. The work of the Committee is a key plank in enabling that vision. The issues the government saw as requiring examination in the inquiry included the fragmentation of the sector, with concomitant absence of a unified vision for workforce management; a lack of understanding about career prospects in the industry; and concerns about the ability of the current education and training initiatives to upskill the industry workforce.

The composition of the Committee was intended to be comprehensive. Its 11 members come from the worlds of academia, horticulture, international trade, fisheries, food processing, forestry, meat processing, supply chain and hands-on agriculture (**Appendix B**).

1.1.2 The Committee's methodology

The pandemic made it impossible for the Committee to travel, visit farms and factories, or have face-to-face meetings. The Committee determined to engage in extensive consultations by phone and teleconference. In the event, over 5 months the Committee spoke with over 300 organisations – employers, peak industry bodies from the agricultural services, unions, the agricultural production and food processing industries, retailers, supply chain companies, rural research and development corporations, other research organisations, academic experts, education and training providers, and local councils. Many of the recommendations in this report emerged from these interviews.

State and Commonwealth political leaders and officials were also consulted. They received frequent briefings on the progress of the inquiry, and fruitful dialogues were established. A list of those consulted can be found at **Appendix C**.

In addition to the consultations, the Committee received 117 submissions (**Appendix D**).

1.1.3 The term 'AgriFood'

Throughout the report, the Committee deliberately uses the term 'AgriFood' instead of simply 'agriculture'. This is to underline one of the report's main themes: that in the 21st century the sector needs to think of, and project, itself as encompassing primary, secondary and tertiary industries – farm production, value-adding in factories, and use of digital and automated production techniques, including robotics. The term embraces all the subsectors in AgriFood, including agriculture, food, fibre, fishing and forestry, as well as service and supply chain industries. It is important to note that it also covers the pre-farm world – the sustainability sector, which is concerned with the custodianship of the land and the sea.

The image the Committee seeks to convey by this term is that of a sophisticated, challenging, varied and interesting sector that can attract and retain a skilled workforce.

1.1.4 The term 'workforce'

Similarly, the term 'workforce' as used in this report is an all-encompassing one, covering everyone involved in AgriFood – owners, managers, workers, academics, marketers, retailers, drivers – people at all levels and in all sectors. The list is eclectic and comprehensive. In other words, the term 'workforce' as used in this report does not apply only to temporary or permanent farm workers.

Again, the Committee's aim in adopting this definition was to underline the complexity, sophistication and interest of this highly diverse sector. By this definition, the Committee also sought to highlight that despite the sector's diversity, its constituent parts share a number of commonalities, particularly the need for high-quality capability development of its people.

1.2 The AgriFood sector's goals and constraints

The AgriFood sector has set an ambitious vision of growth to reach $100 billion of value by 2030, from an estimated $66.5 billion in 2019–20 (ABARES 2020a). This level of ambition requires careful thought to workforce planning and workforce development. The predicted leaps in innovation on farm and across the value chain through application of sophisticated quality and traceability systems and leading-edge technology to grow markets and meet consumer needs can only become a reality with a motivated, well-trained, creative and passionate workforce.

The AgriFood workforce extends from the farm through to contracting, professional services, processing, manufacturing, transport, freight, logistics and sales, and there are many interdependences with other sectors of the economy (Figure 43). Until recently, employment from Australia's growing participation in global AgriFood value chains led to an overall increase in employment in the whole value chain from 2002 to 2014 (Greenville 2019). Employment in food and beverage manufacturing, fibre manufacturing and wholesale trade connected with food and fibre production is estimated at 466,625 (excluding fisheries and forestry) in 2016 (Binks et al. 2018). When manufacturers, drivers, retailers, teachers, research scientists, veterinarians, technology developers, agronomists, biosecurity officers and engineers are included, employment of 1.5 million people is estimated (Wu et al. 2019). Therefore, across this diverse workforce are approximately 2 million people working in every occupational category in the economy.

The current pandemic has had major implications for the AgriFood workforce, particularly on farm and in food processing, with restricted movement of Australian farm workers and a reduced pool of workers available, particularly casual and contract workers from overseas. Between 14 March and 3 October 2020, the number of payroll jobs in agriculture, fishing and forestry in Australia declined by 8.1% and total wages in the sector declined by 3.5% (ABS 2020e). Some of these declines can be explained by seasonal variation in labour demand, but the impact of the pandemic remains significant.

Most casual and contract workers from overseas enter Australia on Seasonal Worker Programme (SWP) and Working Holiday Maker (WHM) visas. The most recent Department of Home Affairs data indicates that the number of working holiday makers in Australia declined by

54% from 137,461 at 20 March 2020 to 63,668 at 5 October 2020 (this figure does not include workers currently on bridging visas). Only a small number of additional workers engaged under the SWP have entered the country during this time.

As the Australian economy emerges from the pandemic-induced shutdowns and businesses look to grow, the AgriFood sector will have a role to play in the recovery. Regional infrastructure developments arising from economic stimulus packages will have a positive effect on AgriFood supply chains via increased efficiencies. More broadly, as consumer confidence increases along with recovering global demand for Australian produce, the AgriFood sector will be well placed to take advantage, especially with the easing of drought in many parts of the country.

The pandemic presents a new situation for us all, and Australia cannot assume the next 5 years will resemble the last 5 years. Australia is an island nation located at great distances from most international markets, so air or sea transport is essential for all imports and exports. The International Air Transport Association (IATA), representing the world's airlines, forecasts that the pandemic-induced global collapse of the aviation industry will begin to recover in 2024 (IATA 2020). This means the transport by air of Australia's highly perishable high-value agricultural and fisheries products has not been possible without government intervention. The Australian Government's International Freight Assistance Mechanism (IFAM) was introduced as an immediate response to the pandemic, and a subsidy of $669 million (to end in June 2021) has enabled some planes to fly but only under highly specific circumstances. At the same time the global maritime industry faces continual disruption as ports and markets close and governments refuse entry to vessel crews infected with the virus. Ships are delayed, and the reliability and predictability of sea freight logistics is no longer normal.

No-one understands what lies ahead in the short to medium term, but a preliminary conclusion learned through the pandemic response and recent bushfires, floods, drought and other natural disasters is the need for resilient supply chains. There is no silver bullet or technological 'solution' that can solve the current dilemma, and it looks like the impact of the pandemic will continue for a number of years. To achieve economic recovery, urgent transformation of the AgriFood industry is required. At the heart of this transformation is the creation of a new and agile high-quality workforce.

The pandemic has triggered rethinking across all sectors about the way things are done. Vulnerabilities have been exposed, strengths have been highlighted, and what matters most has been discussed. New ways of doing things have become part of daily decision-making. For the AgriFood sector new policies and projects need to be created to increase the participation of Australians in AgriFood jobs. For the future, the pandemic provides an opportunity to reposition AgriFood's importance in the broader community.

However, there are significant challenges that must be faced. While the AgriFood sector may have an enviable reputation for innovation, this is less so when it comes to addressing workforce challenges. The sector is fragmented and 'siloed' when it comes to identifying and responding to workforce challenges. The reputation and awareness of the sector as a quality destination for jobs and careers and for making a difference is not strong. The treatment of seasonal workers – backpackers, young people, visitors and immigrants – too often has been poor. There is no overriding vision for enhancing the image of the sector or for the role of education and training in workforce development. Yet countries like New Zealand and Canada are years ahead in

mobilising collaboration across their AgriFood sectors to address workforce issues and build national and cross-sectoral responses to address shared problems.

1.3 Strategies for reaching goals and managing constraints

An Australian AgriFood workforce strategy is a critical step in turning this situation around. Making the most of opportunities can only be achieved to the extent that the sector can build a workforce aligned with the global aspiration. The development of a national workforce strategy, in the context of the pandemic, provides a once-in-a-generation opportunity to rethink and reset workforce planning, workforce deployment and workforce development for the future.

The approach in developing the Strategy under the constraints of the pandemic has been through broad consultation and engagement to understand different categories of workforce and the future capabilities envisaged, and to hear about the initiatives currently in place to address workforce challenges. From grassroots innovations of small business and communities through to programs of rural research and development corporations, TAFEs, universities and big business, and from every industry and state, these consultations and submissions indicated an overwhelming collective interest in change. There is clearly a realisation of the importance of workforce to the ambition of AgriFood growth. Building from this intent, the Strategy presents bold ideas for workforce planning and development that will need to be operationalised to achieve the level of ambition the sector has set itself.

2 The shape of 21st century Australian AgriFood: cooperation and capability development in a complex, sophisticated system

The picture of Australian AgriFood that emerged during the Committee's work was unambiguous: the sector is not limited to the farm. It actually starts before the farm, in the custodianship of the land (and the sea). It moves on to the farm itself, up to the farm gate; it continues beyond the farm gate to the point of sale; and it goes even further, to the shaping of preferences in the public at large and in trade buyers.

At each stage in the AgriFood world, there are of course very numerous subsectors.

Although the whole sector is very sizeable and diverse, its constituent parts form a web of interdependencies, so that damage to one part can easily weaken the whole structure. One example among many will illustrate this: the reputational damage caused by unethical labour hire companies adversely affects the image of the whole sector, so that young Australians and their parents are wary of getting involved in it at all.

With this diversity in mind, the Committee developed a set of 3 basic principles it believes should determine the shape of Australian AgriFood in the 21st century, and a single purpose towards which the principles should be directed. These principles are interdependency with cooperation; local empowerment; and excellence – all of which the Committee considers should be directed to one purpose: the best possible development of the capabilities of the AgriFood workforce. This is because the Committee believes that the one thing all of the stages in the AgriFood trajectory, and all of the subsectors, have in common is the need to create and implement the best possible capability development for their people.

2.1 Interdependency with cooperation

One of the many lessons from the global pandemic is that an entire system, an entire community, is only as strong as the weakest link in its chain. One failure of oversight, one case of cutting corners, one disregarded regulation can bring down a whole economy. The broad principle is clear: the various elements of complex systems are linked in a web of interdependencies, so it is essential to view each element as a part of a whole rather than as a lone entity.

An illustration of the principle can be found in Australia, specifically in the AgriFood industry.

It would be fair to say that, by and large, fragmentation and disconnection prevailed in 20th century Australian AgriFood. Each segment of the industry tended to fight for its own interests, with only a sketchy reference to the health and future of the industry – retailers in opposition to logistics companies and farmers; owners resisting workers' needs and demands; some workers not understanding the pressures faced by producers; universities unmindful of the constraints faced by employers; ecowarriors battling with foresters; some Australian farmers indifferent to

the practices and wishes of Aboriginal and Torres Strait Islander people; training institutes following their traditional paths with inadequate industry input (all of these examples also operate just as much in reverse). By and large, there was only a shallow understanding of, or support for, a vision of the sector as a single Australian entity whose rising prosperity would lift all boats.

In the 21st century, which could be a century of pandemics, a wider and deeper vision is needed for Australian AgriFood, a recognition that all the actors in the AgriFood chain are bound together. In this more contemporary perspective, the AgriFood sector is thought of as an entire 'ecosystem', with a chain, or a web, of interdependencies, in which a weakening of one constituent element ultimately impairs the whole structure.

This is a vision that encompasses every stage of the AgriFood sector: pre-farm, where the custodianship of the land and the sea, with lessons learned from Indigenous practice, is the main concern; pre–farm gate, where the management of technical, financial and human resources on the farm is the main focus; and post–farm gate, which involves transport, supermarkets and consumers, among others.

It is a vision in which cooperation is a precondition for growth and even survival, since the web of interdependencies cannot hang together without cooperation among its various parts. This means, for example, the Australian Government and state and local governments collaborating with each other and with grassroots entrepreneurs; trainers and industry leaders working together to devise education programs; and subsectors and their opponents cooperating to arrive at compromise solutions that do not seriously harm one party for the temporary benefit of another, because damaging one section of the web will ultimately weaken the whole.

2.2 Local empowerment

The concept of federal–state cooperation is reinforced by the plethora of grassroots AgriFood initiatives presented to the Committee during the inquiry. These projects came from local grower groups, communities, entrepreneurs, councils, universities, TAFEs, cooperative research centres, and rural research and development corporations. They focused on capability development in new value-adding projects, new marketing strategies and new product development. It was very clear to the Committee that these local entrepreneurial initiatives should be empowered. Indeed, the whole concept of local empowerment naturally suggested itself to the Committee as a basic principle that should inform the shape of Australian AgriFood in the 21st century. The Committee has made a number of recommendations based on this principle, one of which is that the various levels of government should work together to help finance and support these locally based initiatives.

2.3 Excellence

Australian AgriFood is justly famous for the excellence of its regulatory regime and the quality of its products. This does not mean that the battle for excellence has been won in all AgriFood endeavours. Extending the excellence principle to all the non-product aspects of AgriFood can yield enormous benefits. These encompass broad aspects like governance and cooperation, as well as narrower sectoral elements like transport, communication and marketing. 'She'll be right' in the non-product aspects of AgriFood will not serve in a competitive world.

And striving for excellence is a never-ending battle. Continuous improvement may be an old-fashioned concept but for Australian AgriFood it does not need to be just a slogan. It should apply to every part of the AgriFood universe. Every part of the AgriFood web – government, industry, academia, unions, workers – regularly and honestly asking themselves 'Can this be done better? What does excellence really look like?' would mean that Australia could come to be known for the excellence not just of its products but also of its systems and its intellectual firepower.

2.4 A single purpose: capability development

The Committee believes that the 3 principles of interdependency with cooperation, local empowerment, and excellence should all be directed to a single purpose – namely, the best possible development of the capabilities of the AgriFood workforce.

Capability development is one thing that all the actors in Australian AgriFood have in common. All AgriFood subsets are run by people – owners, managers, producers, drivers, farmhands, factory workers, retail personnel, lecturers, lumberjacks, computer experts, forklift drivers, freight forwarders, robot operators, entrepreneurs, strategic planners, tractor drivers, statisticians, agronomists, soil scientists, or any other of the myriad backgrounds and occupations in this eminently diverse sector, this complex web of interdependencies.

And, because all AgriFood sectors depend heavily on people, in order to prosper in changing times, *all* of them need to train and develop their people's capabilities up to 'best-in-class' level. Numerous ways exist: extension programs, agricultural colleges, university and TAFE courses, and on-the-job training. This report will make the case that capability development needs to be driven by leaders in the various subsectors and designed by them in cooperation with academics, public servants and industry association staff.

In that context, it is important for the country that university-level expertise in agriculture and its social position be properly supported by both government and the whole AgriFood sector.

Education programs should be designed on the basic understanding that training in one area should never be done in isolation from other areas, that it should stress the linkages between every element in the AgriFood web and, in short, that in the training programs the AgriFood sector should be presented as a whole rather than as a collection of sporadically related elements. If these principles are followed, then high quality of staff will be more likely to result; with higher quality staff will come higher quality products; and with higher quality products will come higher product prices – all in keeping with the image of excellence of 'Brand Australia' in AgriFood.

The fact that there are commonalities and links between one of the ecosystem's elements and all the others does not mean that the solutions should always be uniform, centralised and driven by Canberra. As a general principle, each state needs to deal with its own context in its own way.

However, there are practical exceptions to this principle. For example, one of the main findings of this inquiry was that there is a pressing need to improve the collection and analysis of AgriFood data on a national basis. This can only be done by Canberra. For that, cooperation between federal and state levels is essential – another example of the principles of interdependence and cooperation.

The pandemic has reinforced a number of relevant messages. One is that the various parts of the AgriFood web are interdependent. One example among many will illustrate this: the blow the pandemic delivered to air transport has immediately been felt on the farm. As well, the pandemic has highlighted the importance of first-rate capability development: it will encourage, and enable, the development of new products and processes to replace those damaged by the virus; and, as well, it will show that Australia can produce great training as well as great products.

The 3 principles may be lofty, but the Committee believes that they should not be allowed to remain at the theoretical level. It recommends many constructive ways of putting them into practice. Key ones include a pioneering scheme that responds at the same time to farmers' and to young people's needs, requires a range of cooperative measures, and results in local empowerment; a new federal fund to support local capability development initiatives; and straightforward ways of rectifying visa abuses and the exploitation of vulnerable transient workers.

Solutions like these need to be championed by federal and state and territory ministers of agriculture. The practical implementation and embedding of this new approach could be entrusted to the Committee, which has been appointed up to the end of 2021.

Recommendation 1

The Committee recommends that at their next meeting the Agriculture Ministers' Forum (AGMIN) endorse the main message of this Strategy, namely that Australian AgriFood is a complex and sophisticated system that will thrive in the 21st century only if all its component parts give top priority to continuous capability development of their entire workforce, including owners, managers and workers.

3 Historical trends shaping the AgriFood workforce

3.1 Introduction

When settlers arrived in Australia, they found a range of sophisticated agricultural practices that had been adopted for centuries by Aboriginal and Torres Strait Islander populations – complex systems of haystacks holding grain grasses ready for threshing; grain crop production and seed trading across the continent; garden terraces in the south; sophisticated irrigation sites like very large dams; and highly developed aquaculture.

In the early years of the colonies, wool production dominated, carried out in large pastoral estates run by what has become known as the 'squattocracy'. Those estates depended on the ready supply of low-cost labour, from convicts to Aboriginal and Torres Strait Islander workers. European agricultural systems and practices were imported, and these turned out to have adverse impacts on the soil and on the production of the food, particularly yams, that Aboriginal and Torres Strait Islander populations had cultivated on the land.

Those early years were characterised by trial and error, as initial attempts to use equipment and rear animals unsuited to the context were progressively replaced, through farmers' ingenuity and persistence, particularly with machinery.

As transportation was gradually abolished (in New South Wales in 1840, in Tasmania in 1853 and in Western Australia in 1868), the era of very low-cost labour came to an end. The squatters' plantation-style business model began to be joined by the more competitive family farm model, which was not reliant on convicts. Nevertheless, the demand for low-cost labour did not disappear. It was met by importing South Sea Islanders to work in sugarcane plantations in Queensland, on pastoral estates in New South Wales, and in the pearling industry in Western Australia.

In 1904 the new Australian Government made it illegal to import South Sea Islanders for agricultural work, with the result that wages in agriculture rose. Although the sugar industry continued productively, the plantation business model, faced with these higher wages, collapsed in favour of smaller-scale family enterprises. It is noteworthy that a feature of such family farms is the fact that much of the labour has not been costed or recognised, particularly that of women.

The restriction on importation of labour seems to have created at times the need to focus locally, initially on the local Aboriginal and Torres Strait Islander population and then on providing training institutions specifically to train 'farm boys'. These include the agricultural high schools and agricultural colleges that were established at the turn of the 20th century.

3.2 Educating the farmer

Workforce education and training in agriculture has been a complex issue throughout. For most owner-operator farmers in Australia, the pathway to their career is 'genetic' – by inheritance. The dominant model is the 'farm family', but note that inheritance practices often excluded female members of the family. Formal credentials for farm owner-operators were not

particularly relevant, since 'farmer for life' has been the general work situation. As late as 1974 a study showed that male farm inheritors had little interest in attaining credentials, and formal education was listed last of 5 options for learning about farming (Hawkins et al. 1974). Bamberry, Dunn and Lamont (1997) reported that much of a farmer's education at that time was continual, informal and derived in the workplace. Seymour and Barr (2014) indicated that such trends still held true in 2011, although this ought to be seen not as an indication of a farmer's aversion to education but more as a response to the incentive structure they face. Sections of the non-agricultural workforce with similar incentive structures behave in much the same way. It is important to note that the common practice of male farmers marrying women with tertiary education qualifications facilitated a more educated family unit. Qualifications, however, have become important for employees who want to position themselves for a career change or promotion.

The formal agricultural education system developed from the early days of colonisation and has continued to evolve. Specialist high schools and agricultural colleges were established along with universities very early before and after the turn of the 20th century, in many cases explicitly to educate 'farm boys'. Around 1910, in New South Wales and Victoria, fewer than 5% of the school population progressed beyond primary school. By the middle of the century the 'intermediate certificate' (Year 9) was the education standard for entry to agricultural colleges, which by then were mainly producing extension officers to service the needs of farm families (the Murray Report of 1957 indicated the difficulty of maintaining and expanding the agricultural advisory services across Australia). By the 1970s the Higher School Certificate became the passport to further education and to professional employment. Compulsory minimum school-leaving age became 15 years in the 1940s, to be raised around 2010 to 17 years. Education of the population had become an expectation, not a privilege, and the farming community was required to conform in spite of its reluctance to embrace formal learning.

The 1960s and 1970s were the start of major agricultural transformation. Australian agriculture had been protected by a mostly benevolent political system that was slightly skewed towards higher representation for rural people. There was a strong association between farm families and their communities; links with metropolitan folk were maintained at that time, as their holidays were often with their rural relatives on farms. An artefact was that until the 1970s women were not permitted into the agricultural high schools or the agricultural colleges. This had a significant impact on young women from farm families, reduced the human capital available to agriculture and was a serious constraint for women seeking recognition as farmers.

3.3 Social change

The election of the Whitlam Government in 1971, albeit for a relatively short period, resulted in significant social and economic change. The 'one man, one vote' paradigm removed the electorate gerrymander, thereby reducing significantly the political power of the 'bush'. This change was exacerbated by the continuing decline in the proportion of the population living in rural areas, down to around 10% in 2016. Included in the rural numbers are the major rural centres, so the trend is somewhat understated. It follows that, over successive generations, the link with the cities became weaker, as did city people's understanding and appreciation of the source of food and fibre for the nation and the role played by agriculture in export earnings. This

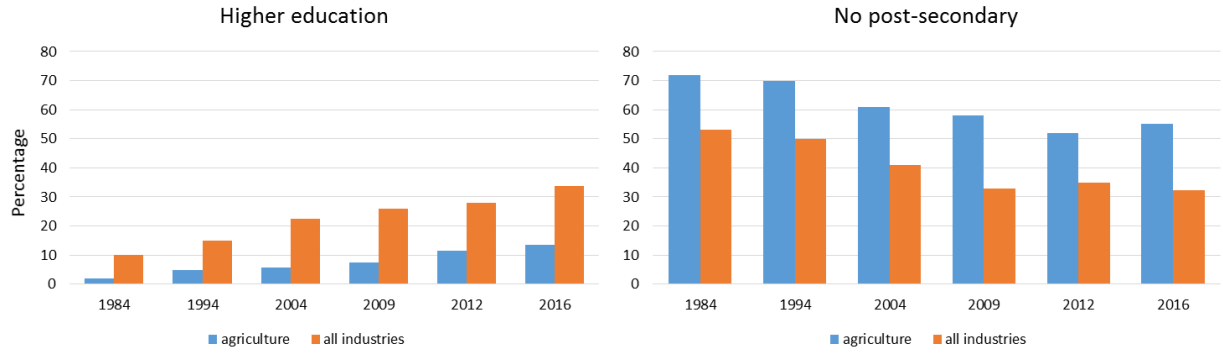
understanding and bias remains, to a significant extent, in the cities. It is an issue in some bureaucratic corridors, where agriculture was a sunset industry as late as 2008.

Tertiary education became free in 1972 and this resulted in mainstream uptake. Agriculture, however, was late to this party. There was a reluctance among farm managers/owners to employ apprentices (it was the policy of farmer peak bodies not to embrace apprenticeships) or to encourage their workers to attain qualifications, because qualifications lead to increased labour costs. This regressive attitude was to impact significantly and negatively on the attraction of new workers into the sector in the 21st century.

Study became necessary, however, for children of farm families where farms were too small for multiple generations and parents were staying active and in control for longer. Despite recent improvement, the discrepancies between farming and the wider community in university qualifications and post-secondary qualifications remain significant (Figure 1). The exclusion of young women from farm ownership and agricultural education had the added effect of drawing young women to the cities for their education and work. The educational attainment of young women from rural backgrounds is thus much higher than that for young men. This has also had the impact of skewing population figures in rural communities, with many communities having a higher percentage of men than women in the younger age groups. This has the further social impact of young men having difficulty finding partners.

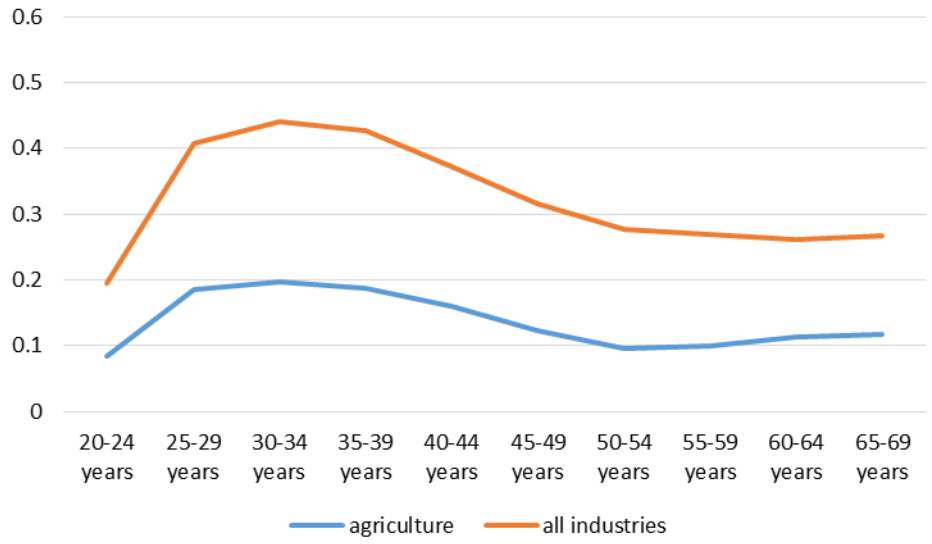
To some extent these data hide a more positive trend: a higher proportion of the younger age groups in agriculture have qualifications (Figure 2), and an increasing share of employed managers need to be credentialled. The education system has facilitated, against the odds, higher education standards throughout the agricultural sector, and that has recently created a paradigm of professionalism across the value chain not hitherto experienced.

Figure 1 Post-school qualifications of the agricultural workforce compared to the workforce of other industries



Source: Prof. Jim Pratley, pers. comm., September 2020

Figure 2 Higher education (university) qualifications of the agricultural sector compared to all industries, by age group



Note: Derived from Australian census 2016.
Source: Prof. Jim Pratley, pers. comm., September 2020

Thus the incoming generation of farmers and farm managers are likely to be employed and salaried, have formal qualifications and be potentially more skilled as business managers than previous generations. They probably have greater competence in labour and information management, business analysis and produce marketing. Many have wider social networks and have spent time away from the family farm to develop skills and knowledge that complement farm management and ownership. Similarly, their family partners are likely to be better educated, further supporting farm business management and household decision-making. This greater human capital will facilitate the assessment and uptake of technologies and practices that meet environmental expectations and build social licence.

3.4 Practice change

The 'new' agriculture framework was in its infancy in the 1970s. There was a high labour requirement and the workforce often comprised the farmer and children, together with unqualified labour units as required. 'Jobs for life' was a common occurrence. Nonetheless, farm families were reliant on all family members to attend to the myriad farm and community labour demands required. For example, shearers' wages contained a factor called 'found wages', which required that they be served morning and afternoon tea and a hot lunch each day. For a workforce of at least 8 in a shed, this was a significant impost on women's labour on farms. Many invisible tasks like these were expected but not 'counted'.

At that time, agronomy was about cultivating seedbeds and weeds together with some chemical inputs that required intensive cultivation for incorporation. The reliance on cultivation had consequences outlined in a government report (Anon. 1978) that described the widespread soil degradation across the agricultural lands. Fortuitously key herbicides, notably glyphosate (Roundup) and diclofop-methyl (Hoegrass), became available and facilitated the revolution of conservation agriculture that is practised today. Conservation agriculture changed the practice of cultivation to a greater dependence on chemicals, which in turn required more training –

'ChemCert' – in the safe and effective use of chemicals for both agronomy and livestock husbandry. It took about 3 decades to achieve this change, with about 90% of Australian farms now practising conservation agriculture in the 21st century. To achieve this, though, required much research and extension provision and increasingly a higher level of managerial oversight and training of workforce (see Llewellyn and Ouzman 2019 for detailed description). Some industries have gone further and accredit growers/farms for best management practice (BMP) entitling them to a premium price for their crop (for example, the cotton industry).

Labour rationalisation was most apparent in the cropping sector, which is well suited to mechanisation, and there seems to be little sign of diseconomies of farm scale (see Table 1). The maxim 'get big or get out' has been a sensible direction as labour-saving devices have evolved. Major factors in achieving this have been the internal combustion engine and agrichemical inputs. The current expectation is for digital technologies to continue this trend, although the balance of demand is shifting from unskilled to skilled labour.

The livestock industry also evolved from a system of high labour and time demand to one where individual animals are now automatically identified and monitored. Performance is recorded for productive traits, and high selection pressure ensures higher productivity. On large properties in particular, sensors enable remote monitoring of watering points and even live weights of animals. Animal handling facilities are designed for labour savings and automated for, for example, drafting. Robotic abattoirs have become a reality, thereby reducing labour and increasing safety. Particular industries have their own accreditation schemes to meet market specifications. Labour savings have been least apparent in grazing industries, where the management of livestock has been less amenable to mechanisation. A notable symbol, however, was the historic conflict over the use of wide-comb shears by New Zealand shearing teams.

In the dairy industry there has always been a sweet spot in farm scale, beyond which diseconomies of scale emerge. However, technology has gradually shifted this sweet spot, as shown in the transition from walk-through sheds to herringbones, to rotaries, and currently the emergence of robotic rotary dairy systems.

Table 1 Labour trends in a range of agricultural industry sectors

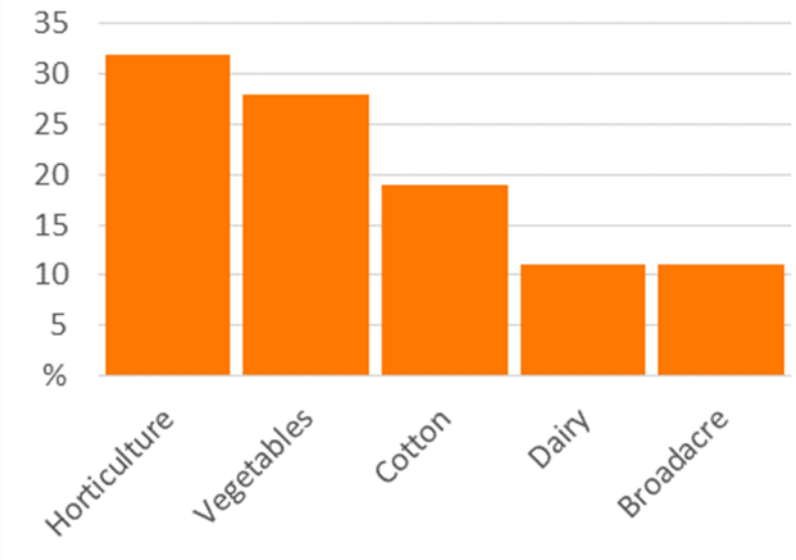
Industry	Trend
Crop industry	Most successful at substituting labour for capital; high labour peak at harvest, often filled by family and longstanding relationships; regular use of skilled consultants
Dairy industry	Moderate mechanisation; steady labour demand; increasing skills; perishable product; internationally set prices; likely able to offer secure on-going employment; access to skilled staff has been an ongoing issue.
Sheep industry	Limited mechanisation, with the main issue being shearing; long history of competition between capital and labour, which played a pivotal role in the nation's history; shift to sheep meat production reduces importance of the shearer
Beef industry	High rainfall properties are small; effort made to keep labour within family unit; northern employs staff on an ongoing basis; high turnover due to isolation
Poultry industry	Highly vertically integrated; highly mechanised; very large businesses with large staff in ongoing

Industry	Trend
	employment; limited skills for many; proximity to centre of population
Horticulture industries	Very heterogeneous sector; commodity groups able to mechanise include olive oil, almonds, grapes; those unable to exploit mechanisation at harvest need highly variable peak demand for cheap, low skill workforce in a country where that form of employment is not highly desired; this part of the industry is highly bifurcated – a large number of small businesses able to maintain themselves mainly with family labour (for example, wine grapes) and a smaller number of very large businesses that are tied into the supermarket duopoly supply chain; highly variable labour requirements, perishable commodities and dependence on domestic market mark this subsector as location for some unethical hiring practices; trend for businesses to establish in peri-urban areas undercover at high intensity to overcome labour issues.

Source: Prof. Jim Pratley, pers. comm., September 2020

Labour costs as a proportion of total farm costs are much higher in the horticulture industries, which still require manual labour for, for example, fruit and vegetable harvesting (Figure 3). This manual labour is provided for only part of the year, largely by itinerant overseas workers, and thus is at the whim of the politicians and also, it seems, pandemics. Some industries, such as olives and almonds, have been amenable to mechanisation at harvest. An interesting difference is the mechanisation of the wine grape industry but not the table grape sector. It is to be expected that such labour will be gradually replaced in time by, for example, robots, as outlined in Section 5.6.

Figure 3 Total expenditure on labour as a proportion of total cash costs by industry, 2014–15 average per farm



Source: Valle et al. 2019

3.4.1 Environmental challenges

The environmental movement had its beginnings in the 1960s and 1970s. Agriculture had, by its unsustainable management of lands at that time, provided ammunition to the movement and thus became a target. Agriculture struggled with this pressure and there was considerable loss of prestige and tarnishing of image over the ensuing decades. Issues such as soil degradation, animal welfare and pesticide use became of global importance and the protesting environment led to further separation, even polarisation, of city and country. Some of these issues have been addressed by the National Landcare Program from 1989 (Lockie 2015) but attitudes linger. In the livestock industries, animal welfare became a focus, and the issue of mulesing in sheep remains a polarising practice. 'Social licence' has become in vogue over the last 30 years, thereby necessitating changes in operations to increase community acceptance and minimise market implications and image deterioration.

3.4.2 National general economic transition – agricultural labour impacts

The reduction in the labour force of agriculture is one facet of the developmental transformation of national economies across the world. The decline in Australia is more volatile, which may be partly explained by the volatility of Australian agricultural production but also by some of the quirks of how Australia implements the Labour Force Survey (Barr 2017).

An alternative view is that income growth results in food and fibre accounting for a progressively decreasing share of household purchases. The labour share must adjust for this to happen. It raises the question as to whether competition from other sectors of the economy attracts labour from agriculture or whether mechanisation reduces labour demand. Causality probably works in both directions and the signal for change is the relative incomes that can be earned in agriculture or in the rest of the economy.

At the same time as the workforce appears to have been in decline, women on farms have been drawn into farm labour. This decline has levelled off and there is recognition that some of the workforce is not being counted. The levelling-off comprises a significant increase in employed workforce and slightly less reduction in owner-operators. Following the global trend, women now account for 29.9% of the official agricultural workforce in Australia (ABS 2019). However, this official figure would be much higher if the additional work of female family members were counted.

There is no neat equilibrium between the labour requirements of agriculture and the demands of the other sectors in the economy. Different industries occupy positions due to their relative ability to substitute capital for labour. The economic transition for Australia has involved a steady growth in the labour share of the services sector, which currently provides 66% of employment in Australia.

Unlike the agricultural and mining sectors, much of the services sector is not geographically constrained by the location of resources (soil, water, minerals). Instead, service sector employment tends to be driven by 2 factors: population location and the economic advantages of agglomeration.

High-skill service industries gain benefits from agglomeration. Co-locating with similar competitors provides access to a larger pool of skilled potential employees, and greater opportunities to build strategic alliances (for example, Silicon Valley in the Bay Area of

California). In Australia in recent times, agglomeration developments have occurred in consultant engineering (for example, Docklands in Melbourne) and in medical science businesses around university campuses with strong medical research faculties. Thus, most growth in Australia's economy is captured by the largest metropolises. This has driven population decline in regional areas and encouraged settlement of new migrants in Australia's 3 or 4 major population centres.

Flow-on effects provide growth in employment in the skilled trades and the less skilled services. Thus, the greatest concentration of people employed in trades is generally found in a ring on the outskirts of the major cities with high growth rates. The greatest concentration of high-skill white-collar employees is in the high-income suburbs or in the commuter landscape outside town.

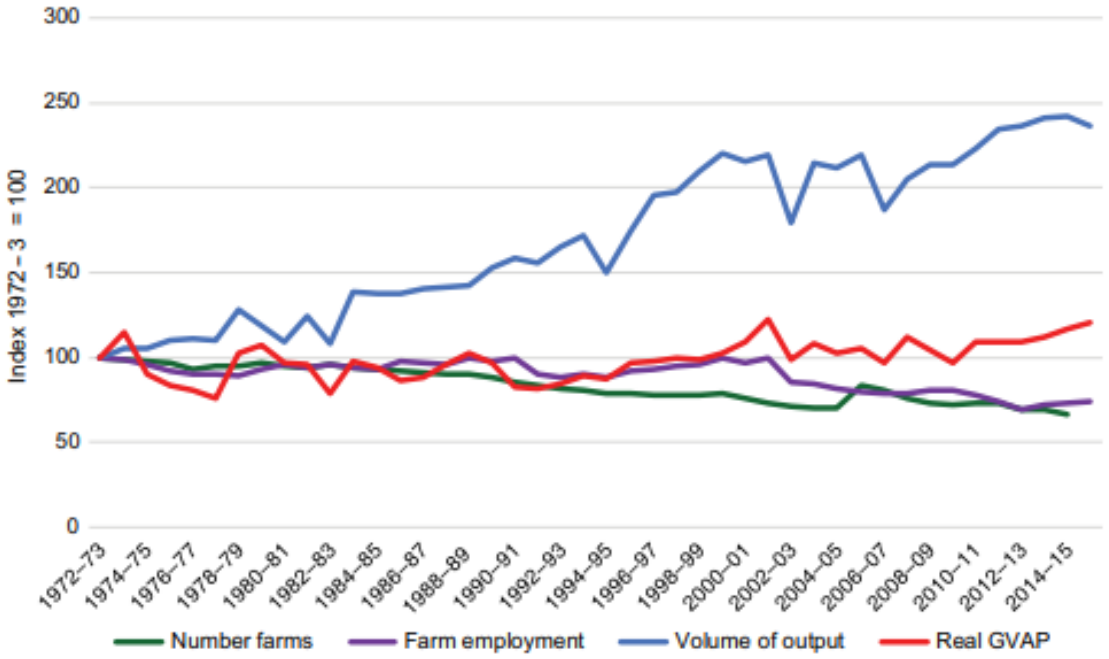
Interestingly, the impact of COVID-19 may be to blunt past trends towards urban agglomeration. However, this is likely to benefit the higher amenity landscapes rather than traditional farming locations.

The mining sector, on the other hand, is a relatively small employer but a major contributor to the nation's export earnings. Its impact on agriculture is twofold. During times of growth, this sector can bid up the price of labour, causing great difficulties for the agricultural sector (as in the first decade of this century). Its other impact is its influence in maintaining a higher exchange rate and associated standard of living, thereby lowering the benefits of labour to agriculture. This, together with labour costs, has necessitated the increased workload taken on by women on farms.

3.4.3 National agricultural economy transition

Concurrent with the national general economic transition and the farming systems evolution were changes to economic policies with direct effect on agricultural operations. These include the floating of the dollar in 1983 and the progressive removal of subsidies (the superphosphate bounty was removed in 1974) and tariff protections. Keogh (2018) indicates that by the early 1990s there were in excess of 100 statutory marketing arrangements, largely to protect producers from competition and price risks in the domestic and export markets. He reports that, from 1995, such statutory marketing arrangements in agriculture were progressively dismantled. Examples are the collapse of the Wool Reserve Price Scheme in 1991, the deregulation of the dairy industry by 2000 (depending on state), and the removal of the wheat single desk monopoly in 2008. The intention of deregulation was to expose Australian agriculture to increased competition in the expectation that it would stimulate innovation and enhance farm productivity. Australian agriculture was thus transformed from a heavily protected sector in the 1900s to, with New Zealand, the least government-supported agriculture globally. There can be no doubt that these changes were transformative, and agriculture has had to come of age by modernising, professionalising and engaging with communities and markets. The impacts of these changes are reflected in the farm sector indicators shown in Figure 4. The trends are clear: an increase in farm size; a reduction in the labour force on farm, particularly related to the millennium drought (although some resurgence, it seems from current indicators, is shown later), and a substantial and consistent increase in output volume.

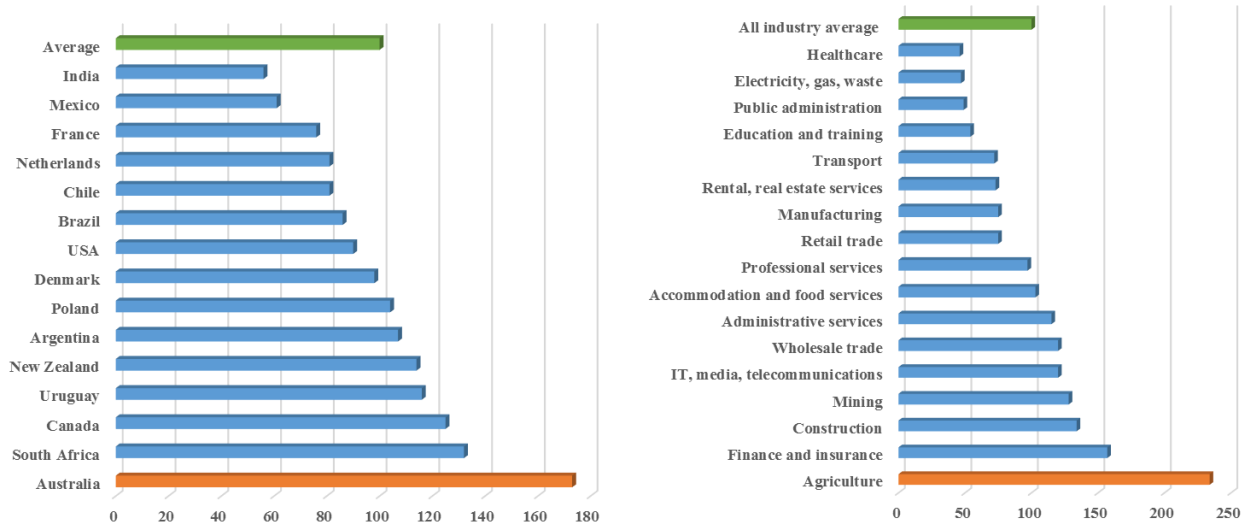
Figure 4 Australian farm sector indicators, 1972 to 2015



Source: Keogh 2017

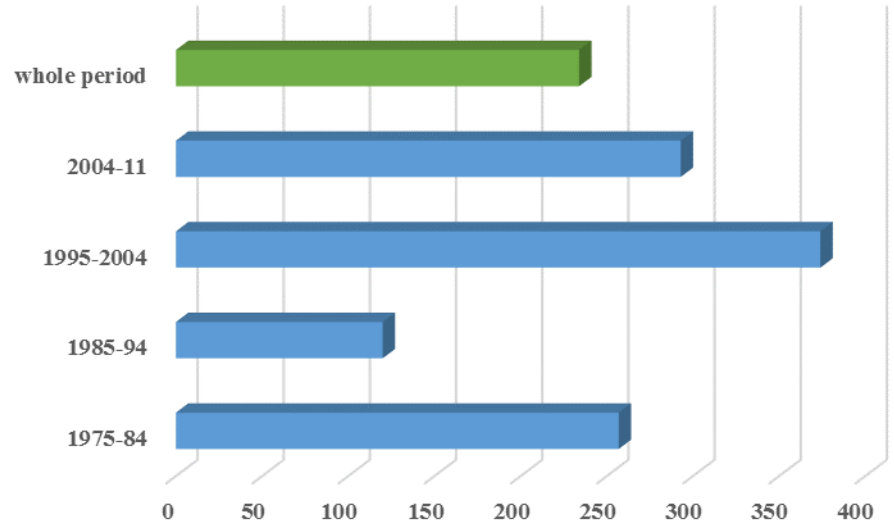
Figure 5 shows the stark reality faced by agriculture in its search for competitiveness and profitability. Since the 1970s the volatility for agriculture has been about 2.4 times that of the economy generally and more than double that of most industry sectors. As well, Australian agriculture has a volatility index 1.7 times that of its global competitors collectively and higher than all of the major players. Figure 6 shows that it is not getting easier – in all likelihood, climate change will make it worse.

Figure 5 Volatility of crop outputs for 15 nations, 1969 to 2009 (LHS) and volatility of Australian economic sectors, 1975 to 2011 (RHS)



Note: Overall average (green line) = 100.
Source: Keogh 2012

Figure 6 Relative volatility index of annual Australian output of agriculture for selected periods from 1974 to 2004

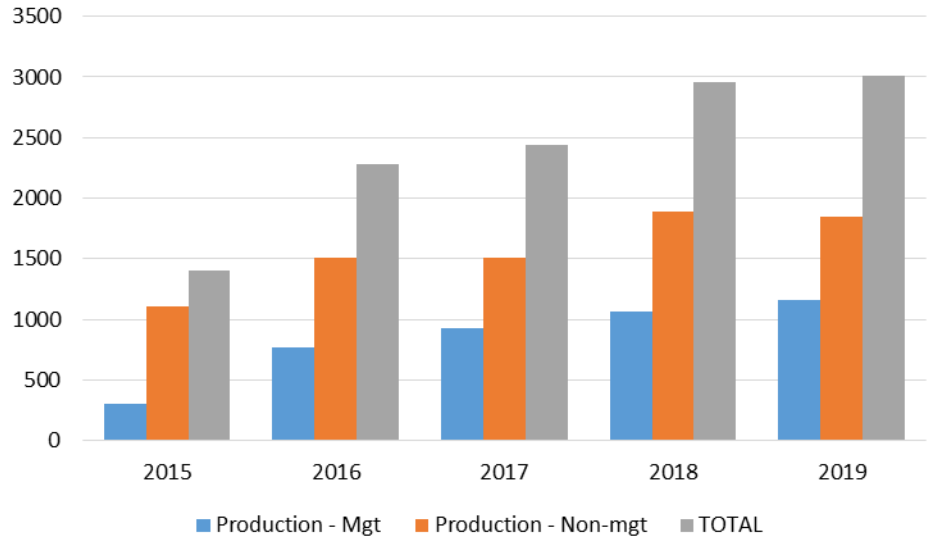


Source: Keogh 2012

3.5 The on-farm workforce – recent trends

The farm workforce has been considered by many commentators to be in decline over a long period. That decline is particularly noticeable from around 2002, when the millennium drought was impacting agriculture. More recent data (Figure 7), however, show that there is a strong demand for on-farm employment and that the demand has intensified in the last 5 years. While there has been a threefold increase in non-management advertisements over that period, there has been a fourfold increase in management advertisements. This trend likely reflects high turnover, increases in corporate farming, greater corporate-like management of bigger family farms, and/or the generational change taking place on Australian farms. This speculation may be settled by the data from the 2021 census through its inclusion in the Australian Census Longitudinal Database. Discussion on the labour force components is warranted.

Figure 7 Number of advertised positions for farm staff in Australia, 2015 to 2019



Source: Prof. Jim Pratley, pers. comm., September 2020

3.5.1 Owner-managers

The decline in workforce numbers over time is directly related to the introduction of mechanisation, which generally requires an investment in capital and requires a large turnover to repay debt in order to justify the investment. This tends to be associated with farm aggregation, which in turn results in fewer farm owner-managers (Barr 2005). Most exits occur at the point of intergenerational transfer (Barr 2014) and occur most commonly in the cropping industry and more recently in dairy, but less so in the grazing industries, resulting in the related ageing of their owner-operators. One-third of people describing owner-operator farming as their main occupation are female.

There is no shortage of aspirants to this form of agricultural employment. The constraint is the capital barriers to entry. Except for some in the dairy industry, and retirement beef farming, entry to this form of employment is generally via the 'genetic lottery' through inheritance. Most members of this group are likely to be highly socially advantaged given the value of their asset base.

Due to later retirement of owner-operators, and changed education patterns in society, the new generation of this group can be expected to be formally well educated compared with previous generations. Education change has not been driven particularly by credential pressure, but by the need to earn an income while waiting to farm. In this regard, farmers are not much different from other Australians when faced with similar incentives based around credentialism (Seymour & Barr 2014).

3.5.2 Skilled management employees

The number of more highly skilled employees in agriculture has been relatively static over the past decade (Barr & Kancans 2020). As a result, the proportion of farmers who are salaried is increasing due to the decline in owner-operator numbers. This occupation is more likely to be chosen by men: 80% were men in 2016. As a result, the occupation of farming is masculinising

as the salaried share of farmer positions increases. In the 2021 census we can expect to see this being the main pathway for entry into the occupation of farmer.

Turnover is high, with half of those employed as salaried farmers leaving the industry every 5 years. This is comparable with several other sectors of the economy, suggesting that an agricultural training is also a pathway to employment outside agriculture in the long term (Barr 2014; Barr & Kancans 2020).

Job advertisements per se do not imply an increased number of positions. The stable counts of salaried farmers and skilled employees in part reflects unmet labour demand. At the very least, the agricultural sector needs to address turnover rather than expect an increase in supply of job-ready graduates from universities and TAFEs. Maintaining staff in remote locations is likely to be an issue and may require similar efforts as with maintaining medical and other essential staff in such locations. The role of amenity and lifestyle cannot be underestimated.

3.5.3 Craft-skilled employees

These employees need to be distinguished from those in skilled management positions. In many cases (for example, shearers) they may be not farm employees but contract staff brought in for the task.

3.5.4 Less skilled farm employees

There is very limited statistical information on this category, due to employment variability and volatility, lack of employee documentation and dubious labour hire practices. There is a steady stream of media stories of unethical hiring practices and exploitation, particularly related to seasonal work, and this cannot be ignored in a workforce review. While it cannot be concluded that this is the sector norm, those complicit in unethical practices do a great disservice to the agricultural sector as a whole. The image of the nation as a destination for agricultural workers is tarnished. Some responsibility must rest with the whole supply chain: prices paid by oligarchical purchasers implicitly consider the capacity to get away with unethical practices. It is recognised that supply chain responses to eliminate unethical hiring may have impacts on shelf prices for some products. The regressive nature of this may need to be addressed by other income and welfare policies.

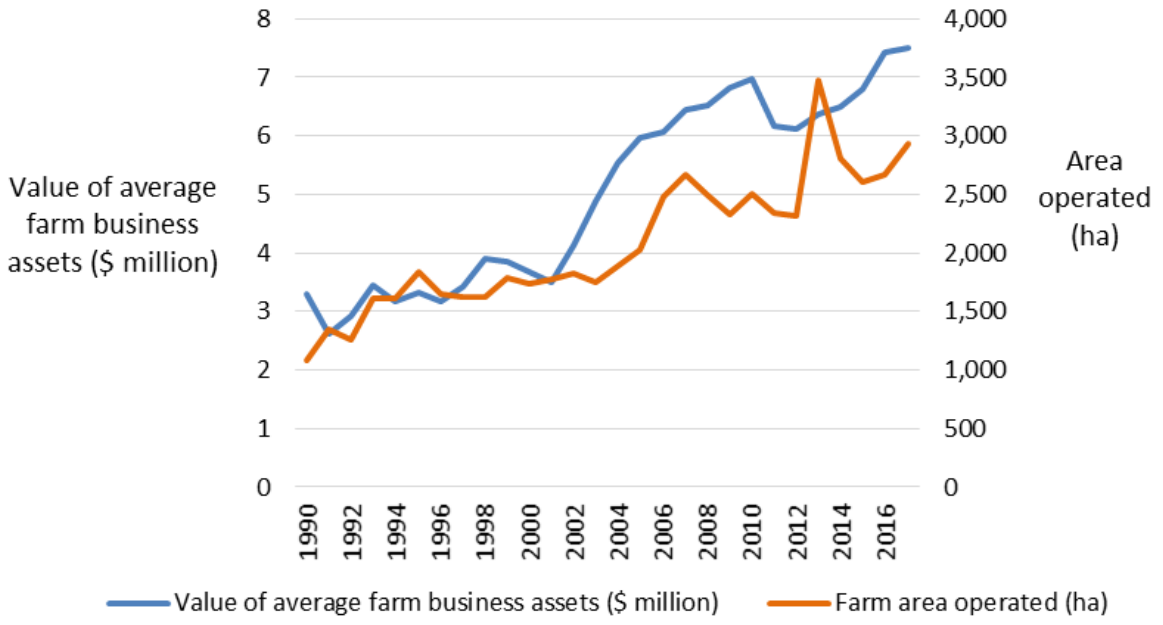
Data on the job market do not show the change taking place in the skill sets required for modern agriculture. There is an increased awareness by farm employers that new skillsets are required. In the not too distant past, employees would be sent to pick up a skill set but not a qualification (colloquially referred to as 'just-in-time training'). While this was advantageous to the employer (as no pay increases were involved), it was less so to the employee, who had no qualification with which to seek higher remuneration or to move forward in an advanced career position.

This impasse contributed to agriculture being seen as an unattractive career option: potential employees looked elsewhere, thereby creating a significant workforce shortage, which continues to exist. There has been an evolution of thinking in terms of the merits of qualifications. Across Australia there has been a consistent trend in qualification attainment in agriculture, including at the higher levels, particularly since about 2010 (see Section 6.2). However, it is also clear that production horticulture is in need of catch-up, as the numbers are very low and the trends are not encouraging despite the high demand for workers in the horticultural industries (Pratley 2015).

3.6 Farm business changes

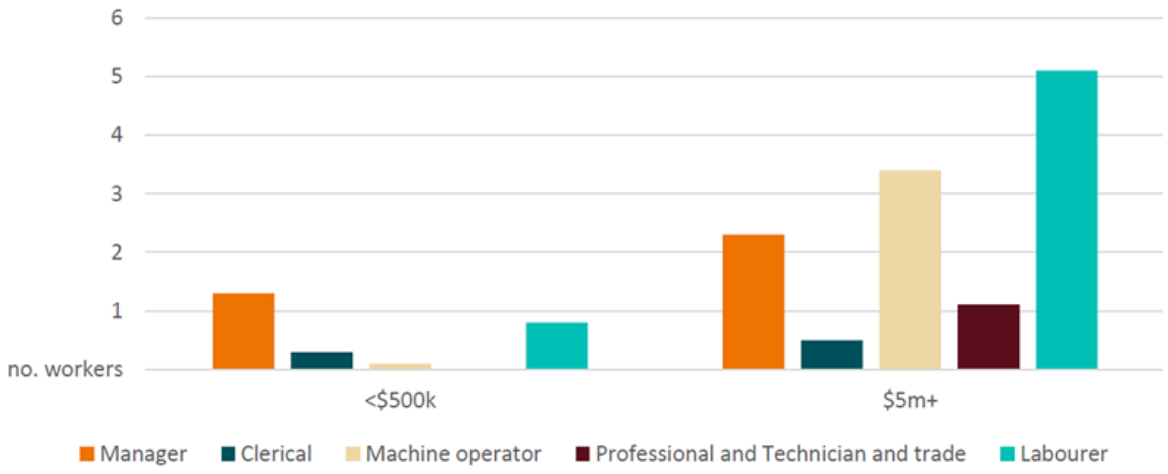
Broadacre farms in particular are becoming larger and fewer (Figure 8), resulting in part from corporate farm increases and from family takeovers of neighbouring properties as opportunity arises to obtain benefits of scale. In such cases they become less reliant on family labour but increasingly reliant on a range of contractors and professional services. However, it does not mean that the labour force on farm is necessarily reduced but rather that the labour force requirement is different, as shown by Figure 9. The challenge is to have access to well-trained and affordable service providers, as these are in short supply in many rural areas. Such personnel are likely to be graduates of rural university campuses (Pratley & Crawley 2018).

Figure 8 Increase in average farm size for the broadacre crop industry and in corresponding value of farm business



Source: Kingwell at al. 2019 from ABARES data

Figure 9 Average number of workers by occupation and farm size, 2017–18



Source: Dufty et al. 2019

- There is a positive relationship between farm size and total factor productivity: larger businesses produce a more generous return on capital, outperforming equities.

Figure 10 shows that for 2016 the top 5.3% of establishments were responsible for 32.4% of agricultural production whereas the bottom 22.3% of farms delivered only 2.8% of production. As well as outsourcing services, larger farms are better able to purchase new equipment and technology (Sheng and Chancellor 2018). Often these businesses benefit from their managers being well educated. While productivity data are for the sector as a whole, disparities exist between industries in respect of the top producers and the lowest contributors, as shown in Table 2.

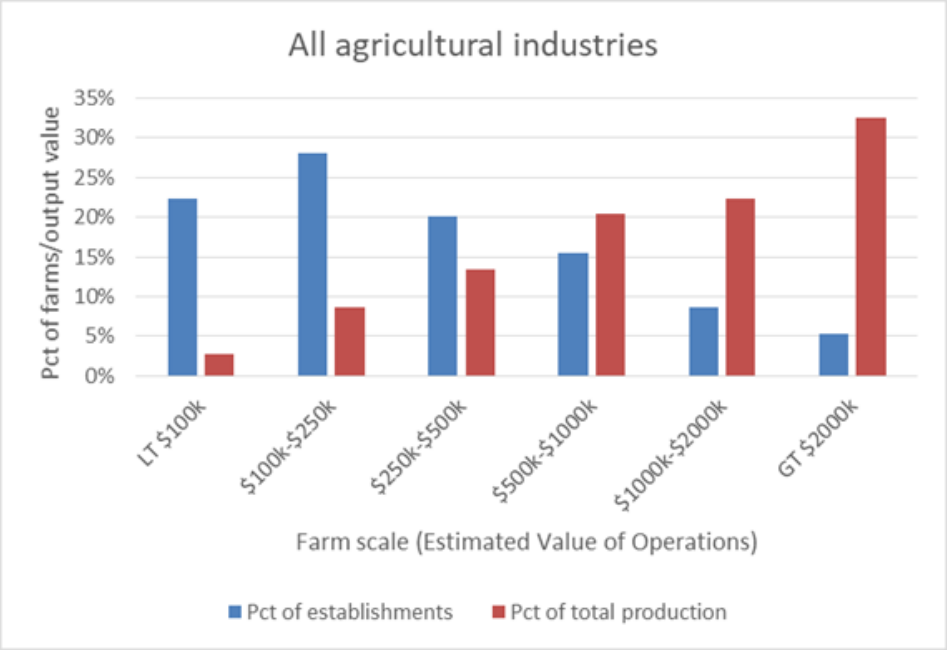
The reasons that a larger share is generated from capital are twofold:

1) Greater efficiencies of scale occur in industries that are amenable to mechanisation (dairy is a clear exception here, but livestock in general is less amenable).
2) Larger farms are either highly capital intensive on land close to labour or are located in areas where land values are not inflated by competition from lifestyle farmers.

When all broadacre industries are included in the same table, some trends emerge:

- The small farms are mostly beef and to a lesser extent horticulture (for example, many small wine grape businesses in old irrigation settlements); small cropping businesses make little sense.
- Smaller farms are located in a different landscape to larger farms and so are unlikely to be swept up by the growth of larger farms.
- Larger farms will gradually subsume middle-sized farms nearby and will continue to increase in efficiency and scale. The 2 sectors will continue to diverge, resulting in a 'disappearing middle'.
- Because of the nature of dairy farming, the middle will be represented increasingly by dairy.

Figure 10 Impact of farm scale on the estimated value of farm production, 2015–16



Source: Prof. Jim Pratley, pers. comm., September 2020

Table 2 Financial performance and output by farm size in broadacre, vegetable and dairy industries

Broadacre farms (2016–17 to 2018–19 average)

Size decile	Output share (%)	Average farm business profit ($)	Average rate of return to all farm capital (%)	Average farm equity ratio (%)
Bottom 10%	0.7	–65,427	–4.2	94.9
20%	1.2	–52,180	–0.9	97.6
30%	1.9	–38,450	0.1	96.1
40%	2.8	–36,257	1.8	94.1
50%	4.0	–19,598	3.7	94.7
60%	5.5	–12,227	4.1	92.9
70%	7.5	32,695	3.2	89.7
80%	11.1	107,018	5.9	89.4
90%	17.7	257,352	7.8	86.8
Top 10%	47.7	770,777	8.3	81.3

Vegetable growing farms (2015–16 to 2017–18 average)

Size decile	Output share (%)	Average farm business profit ($)	Average rate of return to all farm capital (%)	Average farm equity ratio (%)
Bottom 10%	0.5	–95,328	–7.4	93.2
20%	0.6	–69,417	–2.4	89.8
30%	1.1	–39,183	–0.8	96.9
40%	1.7	–20,591	–0.2	93.4

50%	2.3	–1,171	1.1	97.4
60%	3.1	32,014	3.4	94.0
70%	4.4	79,274	3.2	92.1
80%	6.3	158,359	6.9	89.9
90%	12.7	307,550	6.9	85.7
Top 10%	67.3	1,653,799	12.1	81.6

Dairy farms (2016–17 to 2018–19 average)

Size decile	Output share (%)	Average farm business profit ($)	Average rate of return to all farm capital (%)	Average farm equity ratio (%)
Bottom 10%	2.3	–133,305	–4.1	97.7
20%	3.1	–93,540	1.7	93.4
30%	4.9	3,777	1.8	90.5
40%	5.9	17,151	3.1	75.1
50%	7.6	41,849	1.5	83.6
60%	7.5	103,865	5.0	82.9
70%	10.2	88,888	1.9	82.9
80%	12.3	187,113	5.3	75.5
90%	17.1	233,210	5.8	76.7
Top 10%	29.1	386,611	5.0	74.6

Source: Boult 2020

3.7 Regional impacts

Rising expectations of quality of employment now set a higher bar for the farm sector to match. Demand for a quality job drives the behaviour of many young people. A quality job has a reasonable level of remuneration, work satisfaction, reasonable job security and safe and comfortable working conditions (OECD 2014). It does not impose social isolation either. There is an increasing need for employer capability in human resource management (HRM). The ability for agriculture to attract new workers will be dependent to some extent on the working conditions comparable with other industries.

The stereotypical expectation is that farm families aspire for their children to farm. However, many families have a very realistic view of the prospects of achieving such a goal. In cropping areas, the size of a viable farm has doubled every generation. For a stable farming future, a farm business must be able to generate enough income for a standard of living commensurate with urban opportunities. It must produce additional income to allow for investment to match growth in community standards of living and to counterbalance declining terms of trade (Wilkinson et al. 2012). Many farms are not large enough to achieve these objectives, and often it is the investment that is reduced. With this comes the inevitable recognition that the next generation may need to make a future off the farm. The choice these families make is often to pursue a good education targeting professional employment (Kingwell et al. 2019). It is no coincidence that some of the government schools with the highest tertiary entrance scores are in isolated cropping communities.

3.7.1 Amenity pressure

This drives broadacre agriculture further from urban labour markets. High incomes in the urban centres create an amenity ring in the surrounding peri-urban area. The shape of this ring depends in part upon the quality of transport links, the scenic amenity and cultural factors (Barr 2008). There is also a need for health and education services, both as employment prospects for farm family members and as critical components of quality of life for those families. Broadacre farming in this zone is hampered in its capacity to purchase land to expand, so farm businesses gradually shrink in financial size. This further separates farming from the larger labour markets, complicating recruitment with issues of accommodation and travel.

Highly intensive agriculture can compete in these land markets, if it is allowed by statutory planning rules. Trends are for intensive glasshouse horticulture to relocate closer to labour supply in lower amenity peri-urban locations (for example, the coastal plains of Virginia, north of Adelaide).

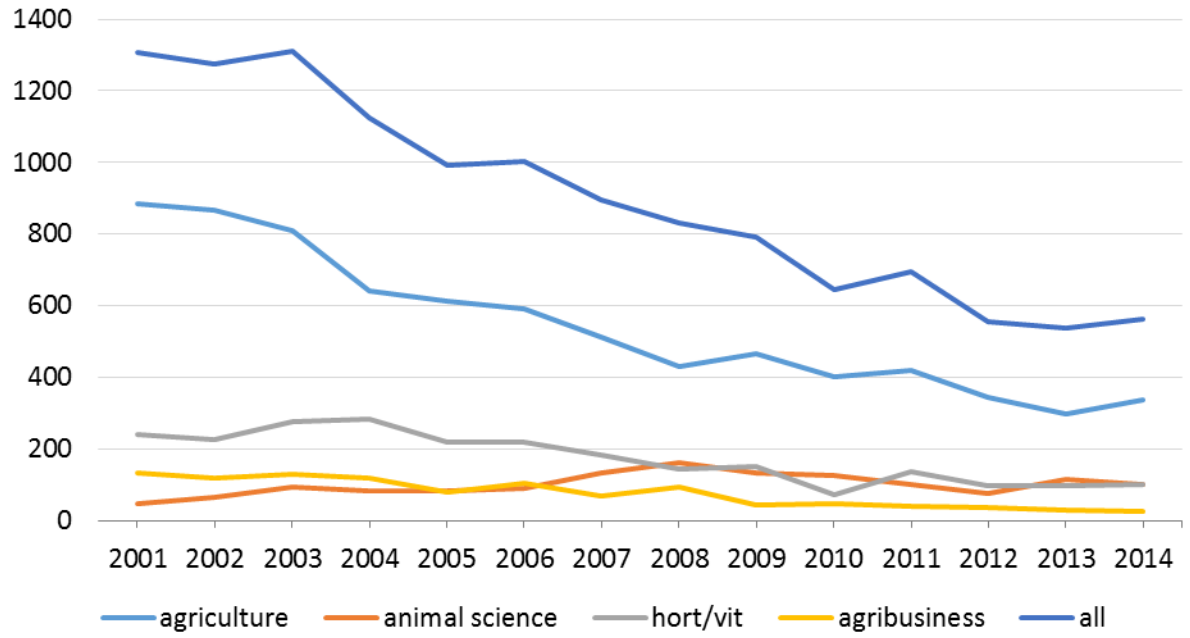
3.7.2 Structural ageing in rural communities

The attraction of quality jobs in the metropolis drives the gradual depopulation of rural areas beyond weekender distance from the centres of urban employment. Young people migrate to the city and, despite long-held hopes, return migration is very small in these areas. The result is a shrinking local workforce as the town population structurally ages (Barr 2008). The employment remaining is mainly in health, education and retail, and mainly located in regional service centres. Thus, there is an ever-decreasing pool of local labour upon which the farm sector can draw. The farm sector shares this problem with the local football club, which must recruit from outside the area if it is to survive. These trends decrease the social and cultural amenity for (and attractiveness to) potential farm labour recruits.

3.8 Value chain non-farm workforce

Thus far this report has focused on the on-farm workforce. However, that workforce makes up a relatively small proportion of the labour component that delivers a high-quality, internationally competitive agriculture for the nation. While farmers produce, they do so on the back of research and extension outcomes as well as the pre-farm and post-farm value chain workforce that ensures the supply of inputs, including finance, and the path to market of either fresh produce or processed product to the domestic and international markets. In contrast to the on-farm paradigm, this support component of the sector generally has been advanced in its desire for a qualified workforce. Most companies providing inputs have long employed graduates, as has the finance sector. Most resellers and distributors sought university graduates from about the 1990s. The dilemma created was that the supply of graduates has not kept up with the increasing demand. This lack of graduate supply was first mentioned in the McColl report (McColl et al. 1991) but the tarnished image of agriculture in the 1990s and, later, the lack of promotion of careers by the agricultural sector and the lack of realisation that jobs in agriculture also exist in metropolitan centres resulted in graduate supply declining from that time until 2012 as shown in data since the turn of the century (Figure 11). Since 2014 the number of higher education completions in agriculture has increased (see Section 6.2).

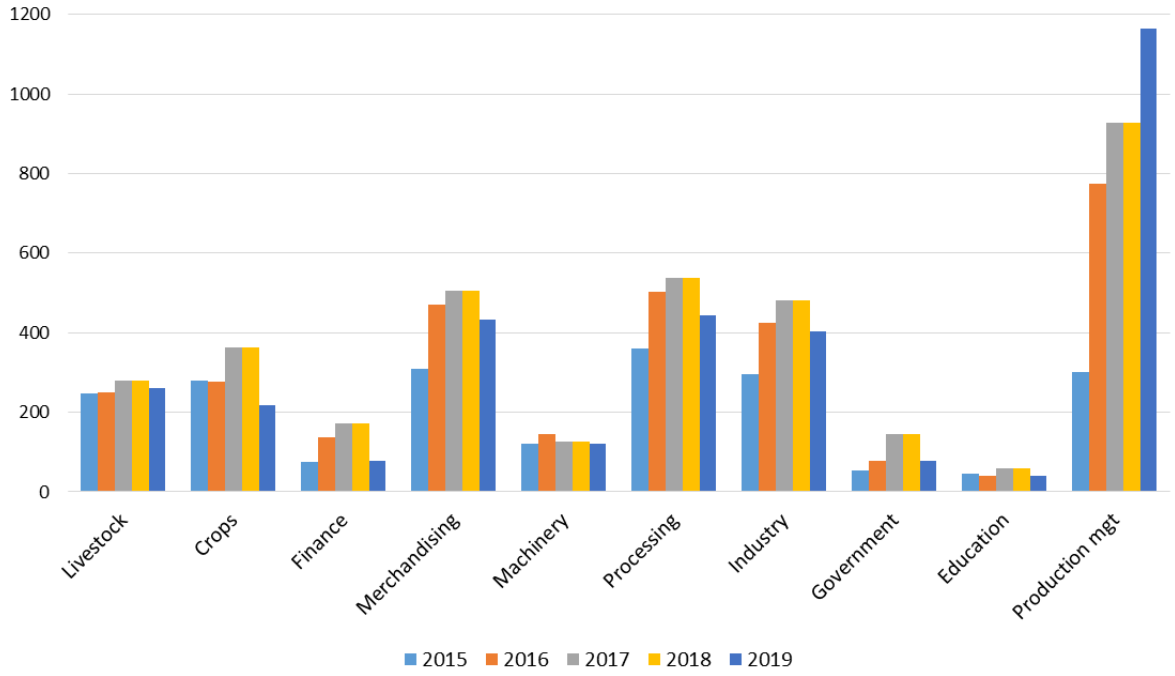
Figure 11 Graduates in agriculture and related undergraduate courses from Australian universities, 2001 to 2014



Note: Each year is a coloured column.
Source: Pratley 2016

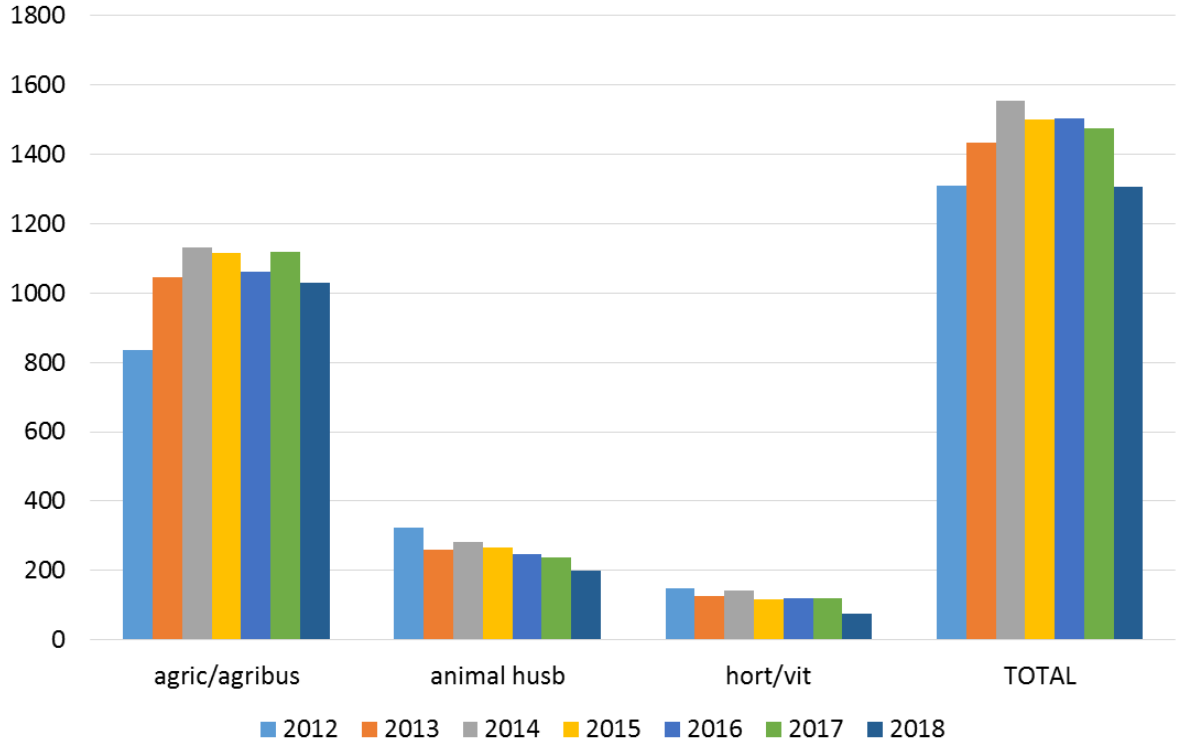
The employment opportunities for graduates can be estimated by the pattern of advertisements over time. Figure 7 shows that across Australia there are more than 3,000 jobs advertised per year, with Figure 12 showing the split by various industries. Demand held up even during the severe drought conditions of 2017 to 2019. The challenge, shown in Figure 13, is that intakes are well below those needed to satisfy the employment market (see Section 6.2). The theoretical relationship of supply to demand is working in this case, as salary levels have increased substantially over the last decade and are very competitive with most other avenues of employment. The question remains as to how best to promote these opportunities to students and encourage them to take up employment in the agricultural sector.

Figure 12 Range of employment available for agriculture graduates across Australia, 2015 to 2019



Note: 'Production …' is production management.
Source: Prof. Jim Pratley, pers. comm., September 2020

Figure 13 Intakes into Australian university agriculture and related courses, 2012 to 2018



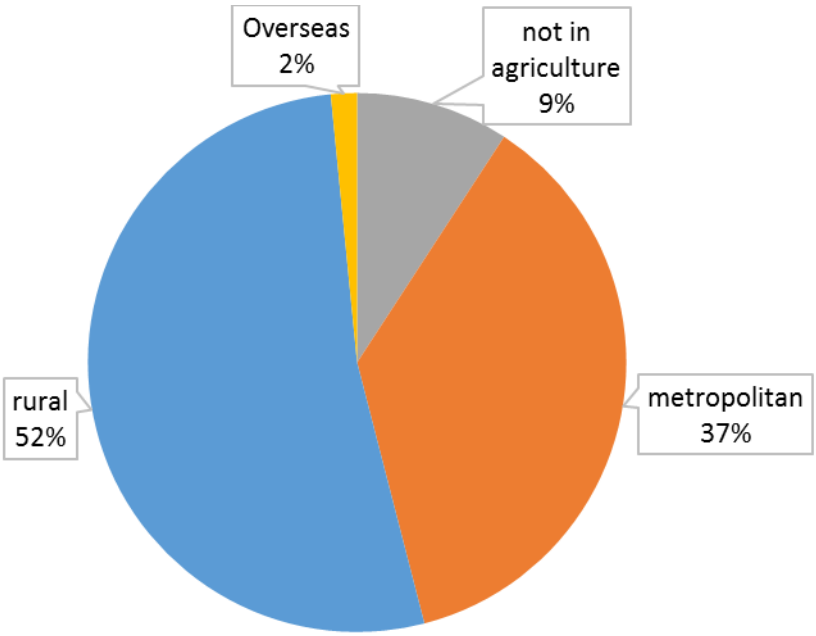
Source: ACDA unpublished

One of the barriers for students is their perception that a career in agriculture means being a farmer. This was shown in a recent survey undertaken for the Primary Industries Education Foundation Australia (PIEFA) when more than 1,000 school students of various ages were asked what jobs existed in agriculture. The resulting word cloud (Figure 14) clearly showed the common response to be farming. A study of more than 1,000 graduates of university agriculture over a 10-year period (Pratley & Crawley 2018) showed how misleading that perception is, since only about 10% of graduates go back farming and some 37% of the graduate positions taken were in metropolitan Australia (Figure 15). This clearly indicates that career promotional efforts need to address the misperceptions if we are to bridge the need/supply gap in agriculture graduates for non-farm employment.

Figure 14 Word cloud association regarding jobs in agriculture from >1,000 school students across Australia

Source: PIEFA 2020

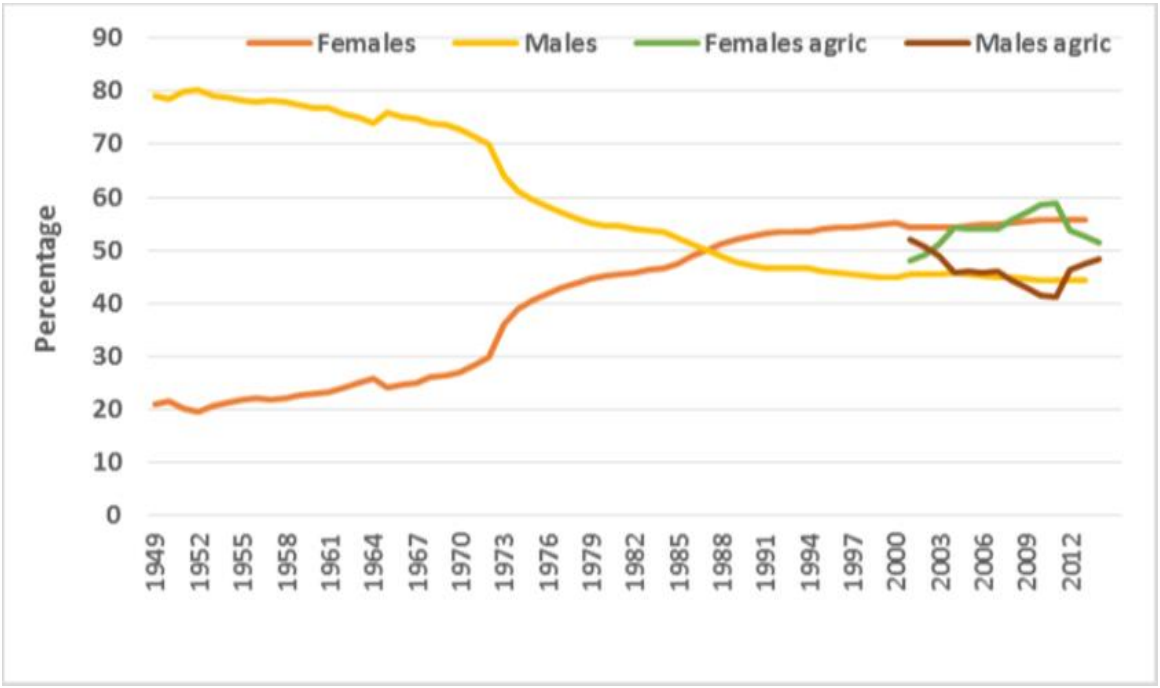
Figure 15 Location of employment of >1,000 graduates in agriculture from Australian universities



Source: Pratley and Crawley 2018

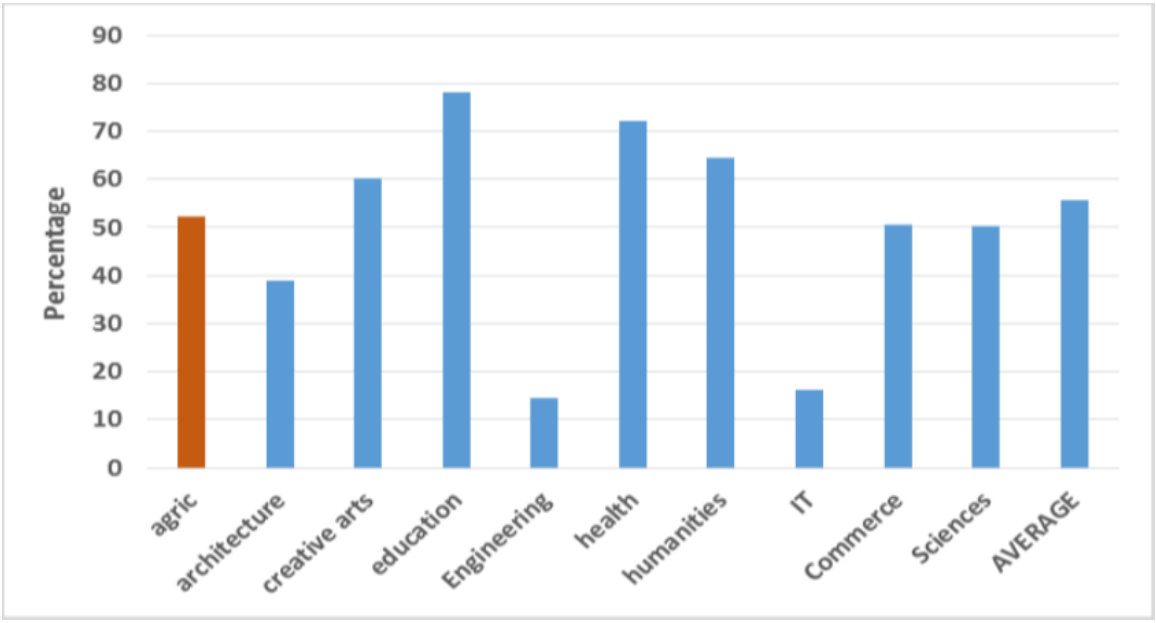
The question of equity in the workforce is worthy of consideration. Gender imbalance and Aboriginal and Torres Strait Islander contributions in particular warrant evaluation. It has previously been mentioned that agriculture evolved as a largely masculine industry, with female students being unable to enter agricultural courses at various levels until the 1970s. Today only Farrer Memorial Agricultural High School in Tamworth remains for boys only. At post-secondary level, agricultural colleges have been integrated into the university system. Only Tocal College and Longerenong College remain of the vocational education and training (VET) colleges. Evaluation of gender in university courses in agriculture reveals that in 2003 women for the first time outnumbered men, and that relationship has continued since (Figure 16). The proportions for agriculture are very similar to the overall proportions of students in universities and far superior to architecture, engineering and information technology (Figure 17).

Figure 16 Annual enrolments of all students by gender in Australian universities, 1949 to 2012



Source: Pratley 2017

Figure 17 Proportion of women in agriculture compared to other university courses in Australian universities, 2016

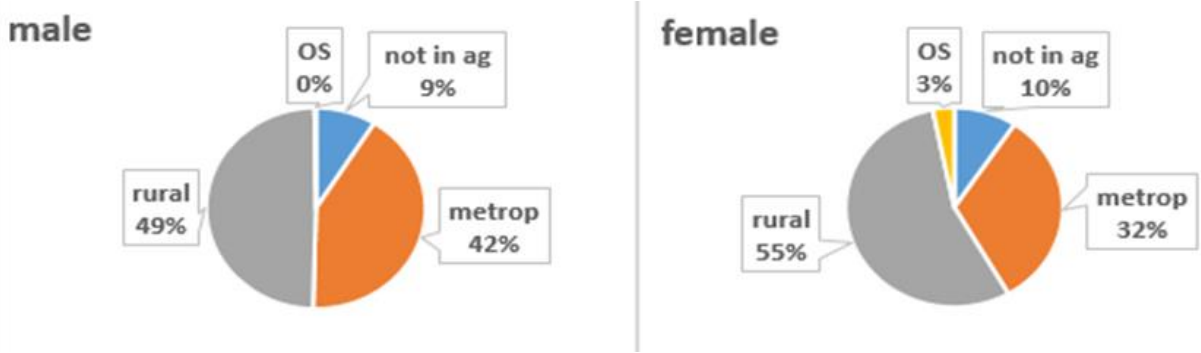


Source: Australian University Rankings 2017

In the comparisons undertaken regarding graduate destinations (Pratley & Crawley 2018), there were no major differences in where male and female graduates were first employed – a slight increase in rural employment for women over men (Figure 18) – or in starting salaries. Scrutiny of the types of jobs also failed to identify major bias towards a particular gender. There were

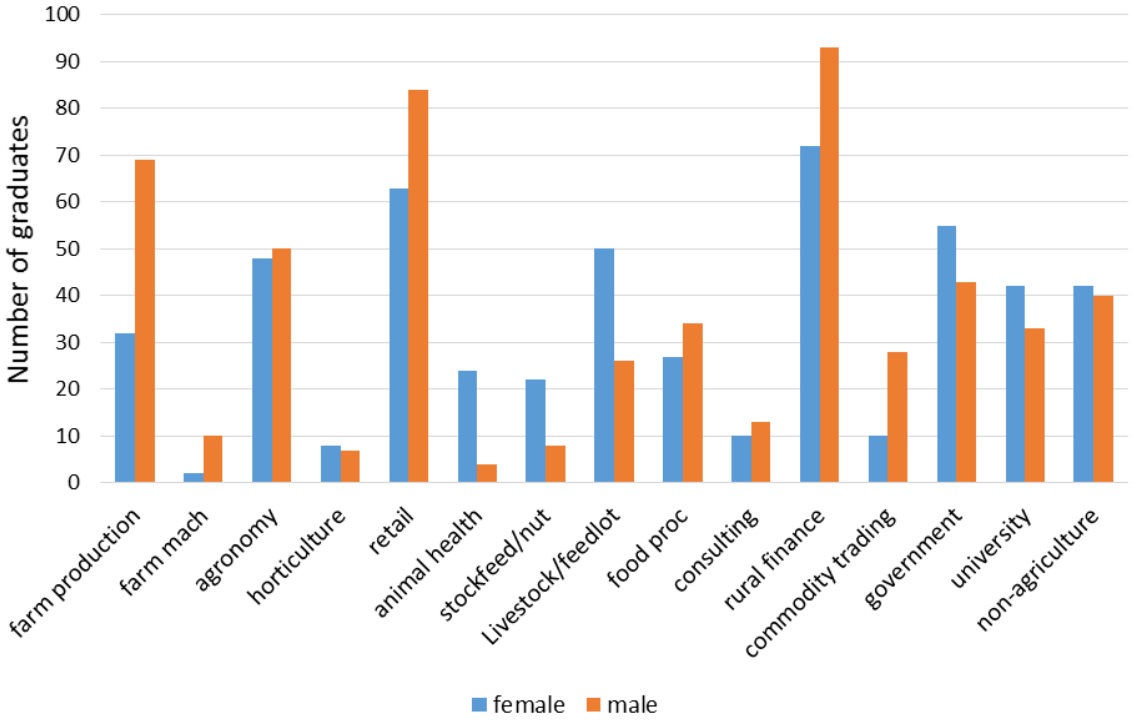
more women in the livestock areas and more men in farming, machinery and finance. However, both genders were well represented in nearly all categories (Figure 19).

Figure 18 Employment destinations for Australian university agriculture graduates, by gender



Source: Pratley and Crawley 2018

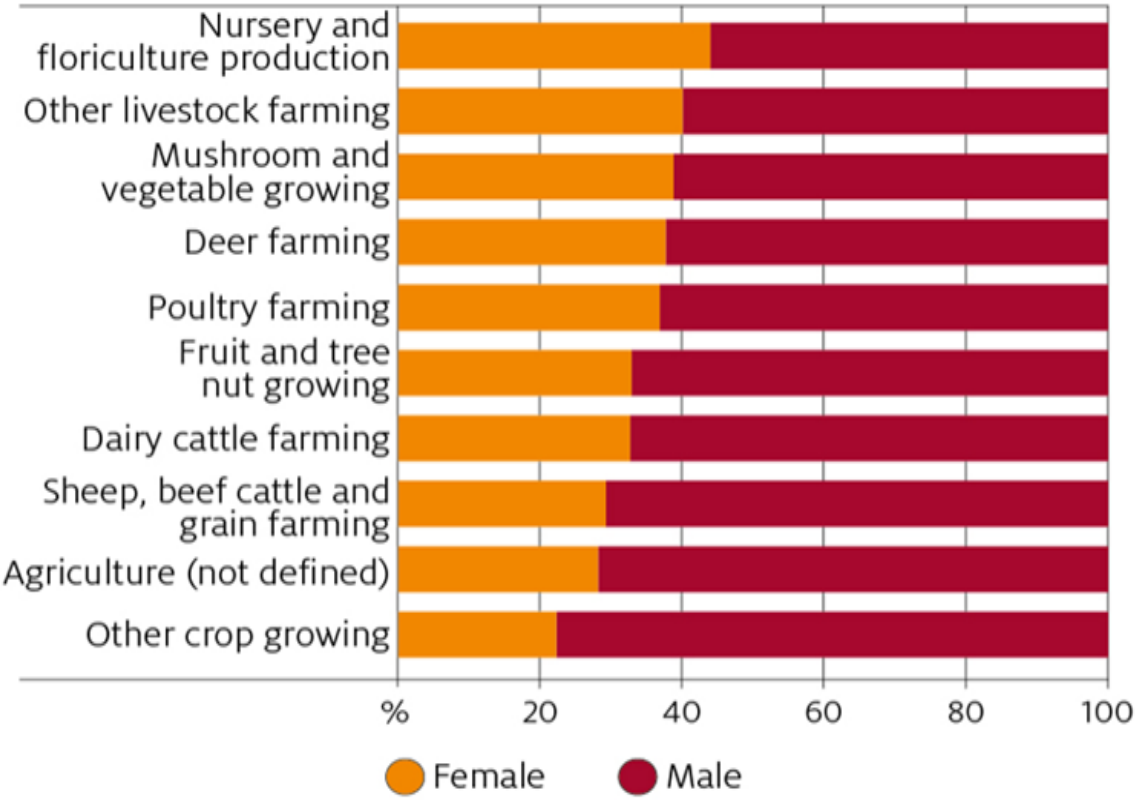
Figure 19 Employment across agricultural areas, by gender



Source: Pratley and Crawley 2018

Across the various agricultural industries (Figure 20) the proportion of women varied from around 40% to 20% of the workforce in 2016. Women made up 28% of all managers in the agriculture industry in 2016, with about half the women in agriculture working as managers. Binks et al. (2018) report that women are increasingly achieving qualifications, including in agriculture, agricultural science, animal husbandry and wool science. In 2011 there were 22,310 women with a tertiary qualification in agriculture, increasing to 27,384 by 2016, an increase of 23% over 5 years. This compares with an increase of only 8% for men holding tertiary qualifications in agriculture over the same period.

Figure 20 Gender representation in agriculture and sub-industries, 2016



Source: Binks et al. 2018

The issue to be addressed though, as with some other industries, is the flexibility of work conditions. It is evident that while starting salaries are anecdotally similar between male and female, the discrepancy widens as families are established. Creating conditions that allow career progression during these challenging periods of life would facilitate a greater proportion of women to assume senior positions in the sector. The importance of equity at every level needs to be stressed, as agriculture needs all available talent and the diversity that comes with it.

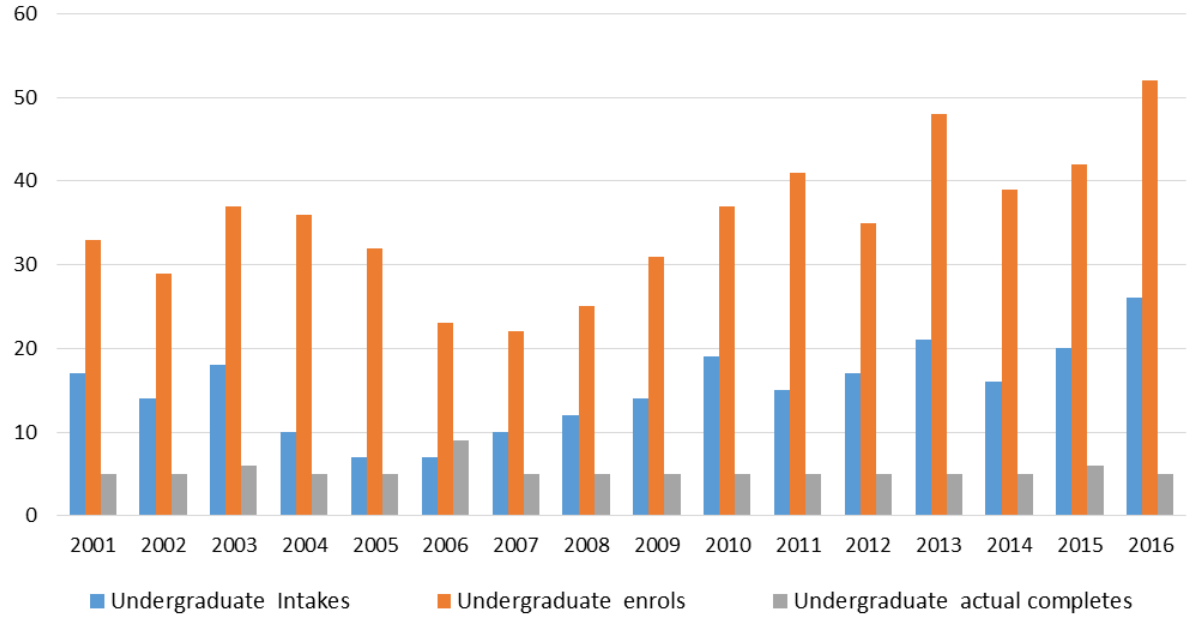
The option of working remotely through internet technology, as demonstrated during the COVID-19 pandemic, is a critical part of that scenario. It is important to note that currently we have the first female president of the National Farmers' Federation and she is participating in forums and spreading the word where no man would have been invited. There are many examples of women in senior roles in the public service as well.

The increasing feminisation of the graduate cohorts and the availability of jobs in major population centres may make it harder for farm businesses in more isolated areas to attract such potential employees.

Another area of negligence that remains is the potential for Aboriginal and Torres Strait Islander peoples in agriculture. Binks et al. (2018) indicated that only 1% (3,278) of the agricultural workforce self-identified as Aboriginal or Torres Strait Islander. Only 2% of those had a university degree (relative to >30% for the general population), although 29% had a VET qualification. A study by Pratley (2019) showed that Australian universities as a whole were not attracting Aboriginal and Torres Strait Islander students and were graduating barely 5 per year nationally (Figure 21). It would seem to be a priority in any agricultural workforce strategy to

engage with the Aboriginal and Torres Strait Islander communities and provide them with the educational opportunities enjoyed by their non-Aboriginal and Torres Strait Islander counterparts. This is perhaps an imperative given that Aboriginal and Torres Strait Islander peoples now control and manage around 40% of the national landscape.

Figure 21 Aboriginal and Torres Strait Islander intakes, enrolments and completions in university agriculture, 2001 to 2016

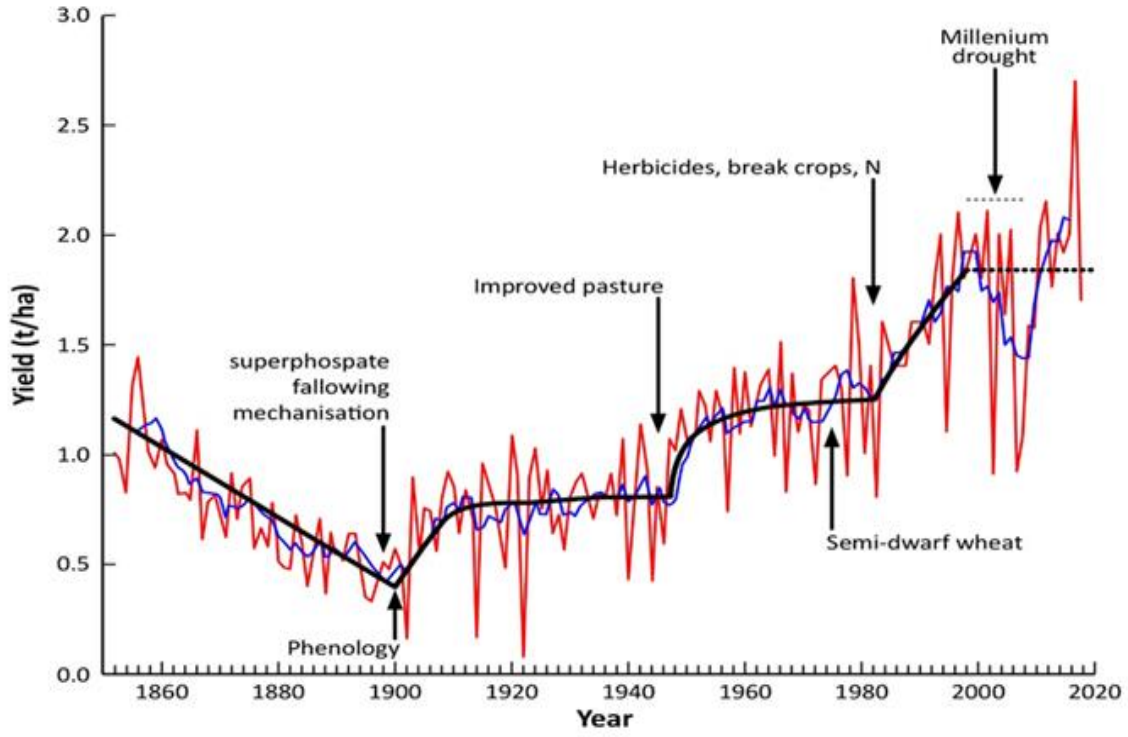


Source: Pratley 2019

3.9 Moving forward by research

Risks will be managed by a well-educated and trained farm workforce but are unlikely to be sustained and progressed without ongoing research, development and extension (RD&E). There can be no doubt that, to date, Australian agriculture has been well supported by its RD&E. This is exemplified by the evolution of wheat production in Australia (Figure 22). Here stepwise increases in wheat yield can be attributed to innovations over a long period of time. It emphasises the point that R&D is an ongoing process by which industries can remain profitable and still compete in the international marketplace. The research does, however, need to be supported by an active process of implementation – in the past supported by a professional public extension workforce.

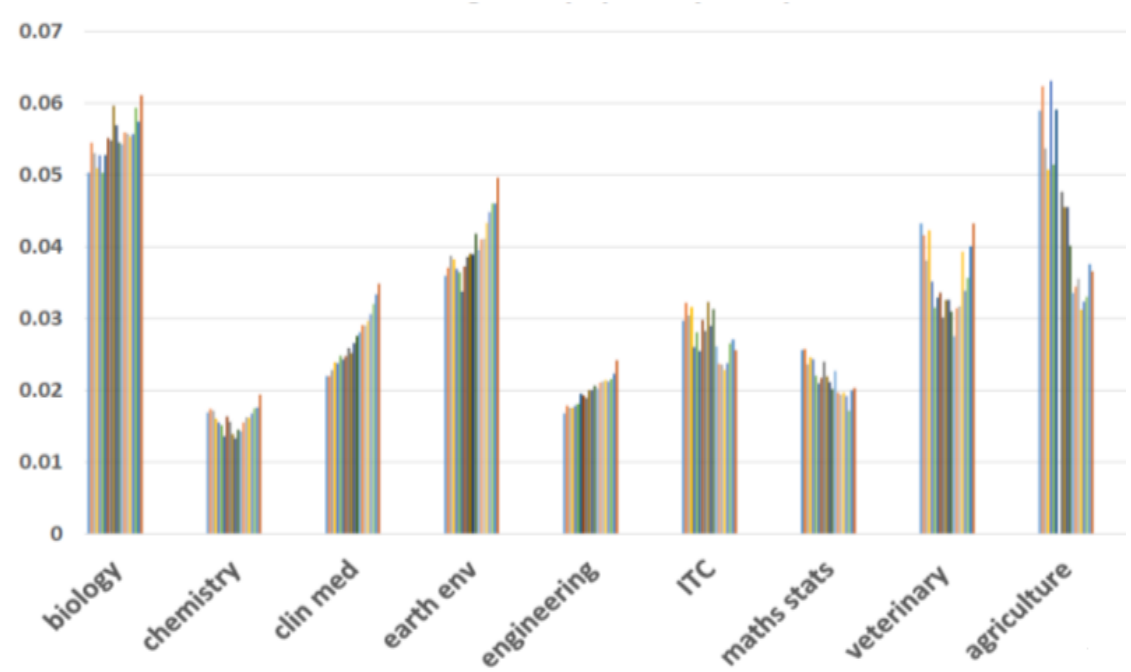
Figure 22 Growth in Australian wheat yields through technology-driven changes



Source: Modified from Pratley & Kirkegaard 2019

Agricultural R&D in Australia has undergone its own transformation. Such research traditionally has been undertaken by state departments of primary industries (under various names over time depending on the party in power and the minister of the day), the CSIRO and various universities. Comparison of R&D output (research papers) shows that agricultural research in Australia is falling behind other research areas, as indicated in Figure 23. Whereas most other disciplines are showing increasing shares of the global publication output, agriculture, in stark contrast, has declined by nearly half, from a 6% share in the mid-1990s to just above 3%, despite an increase in absolute publication numbers.

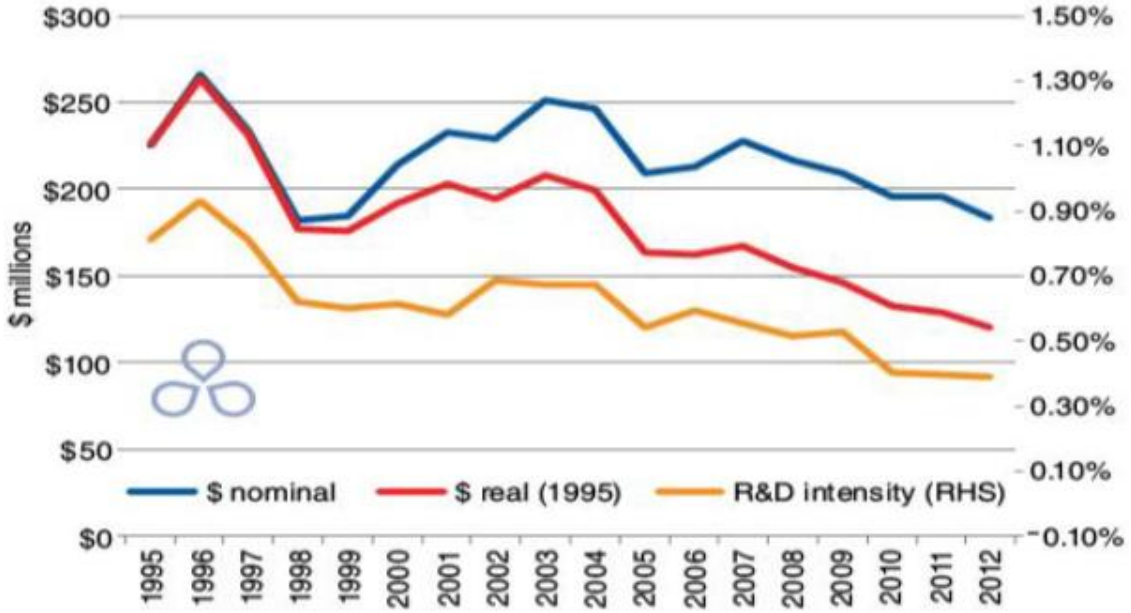
Figure 23 Australia's share of global research papers in various disciplines, 1996 to 2019



Source: Prof. Jim Pratley, pers. comm., September 2020

State and territory governments, together with CSIRO, have historically been the major public performers of rural R&D. Figure 24 shows both the decline in investment by state agencies in nominal dollars for the period 1995 to 2012 and in real dollars, where the decline is around 60% over that period. Other data by ABARES show that the value of rural R&D performed by the state and territory governments declined from $535 million in 2006–07 to $393 million in 2014–15, a drop in real terms of 37% for this recent period. This reflects the funding challenges of state and territory governments in recent times, and we can expect the decline to continue.

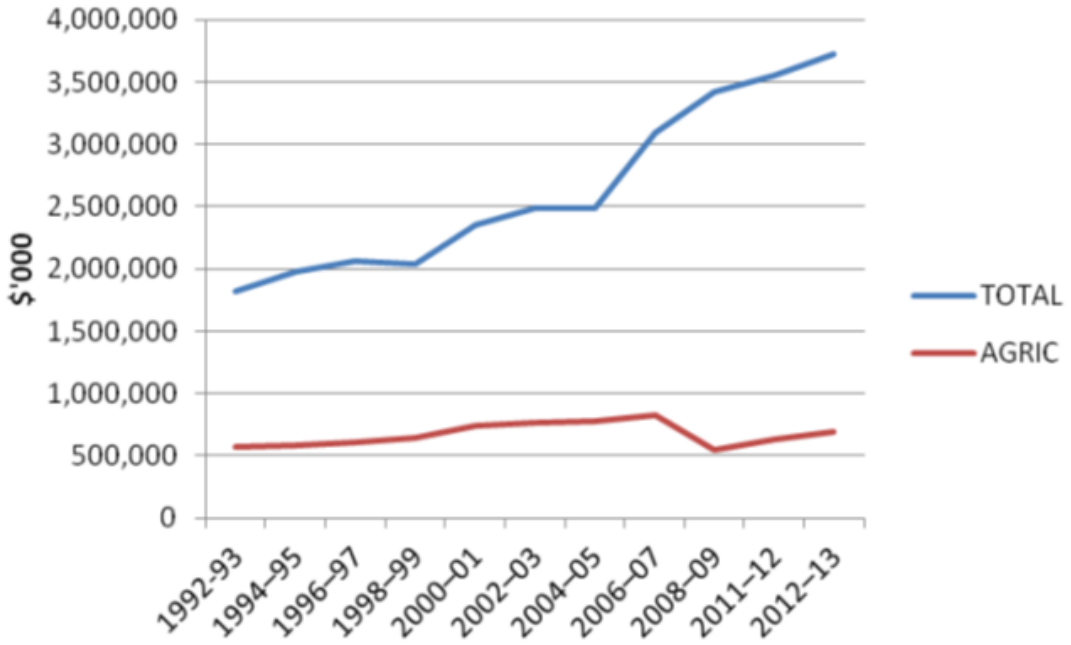
Figure 24 State agency agricultural R&D investment



Source: Keogh 2013

Even more concerning is the increasing discrepancy in government investment in agricultural research. Figure 25 shows the almost static investment for agricultural research over an extended period compared with a doubling of investment for research overall over 2 decades. During that period agriculture declined from over 3% of the investment to about 1.9%. This raises the question of why the food system and an industry sector so important to export earnings, health and standard of living continue to lose ground relative to the rest of the economy. There are clear implications for the research workforce, as explored later.

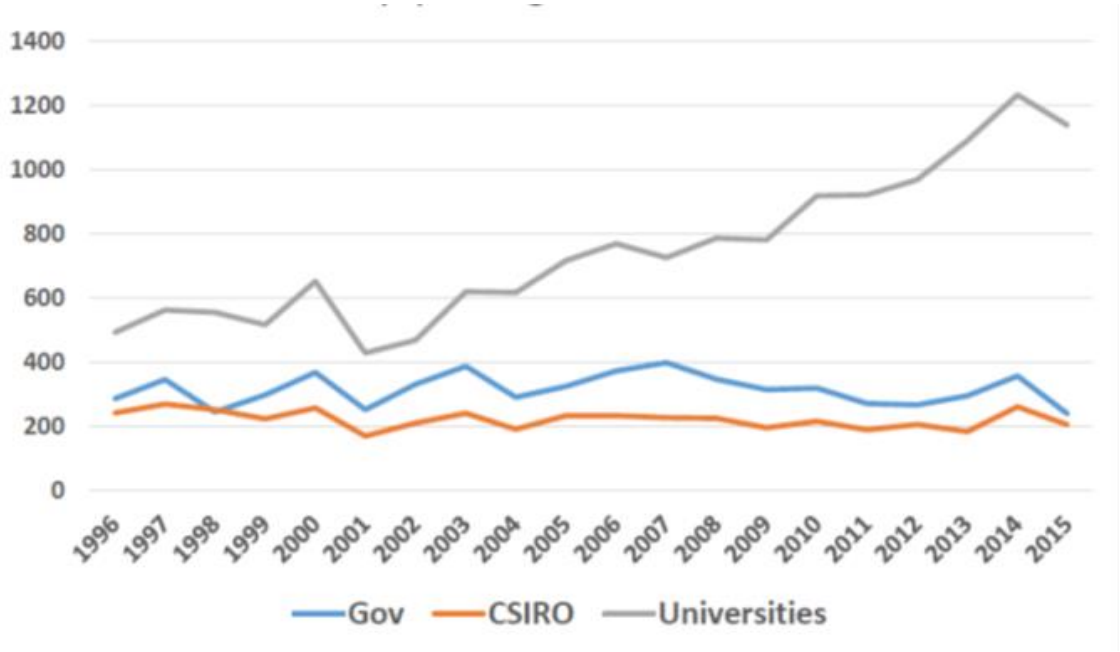
Figure 25 Government investment in agricultural research relative to overall research investment, 1992–93 to 2012–13



Source: ABS 2014

Research outputs show that universities now contribute more than 70% of research papers in agriculture (Figure 26). Thus much of the research is being done by research students in the universities or by researchers who are commonly funded only on short-term contracts through funds generated by, for example, the research and development corporations (RDCs).

Figure 26 Output of papers in agriculture by public research providers, 1996 to 2015



Source: Prof. Jim Pratley, pers comm., September 2020

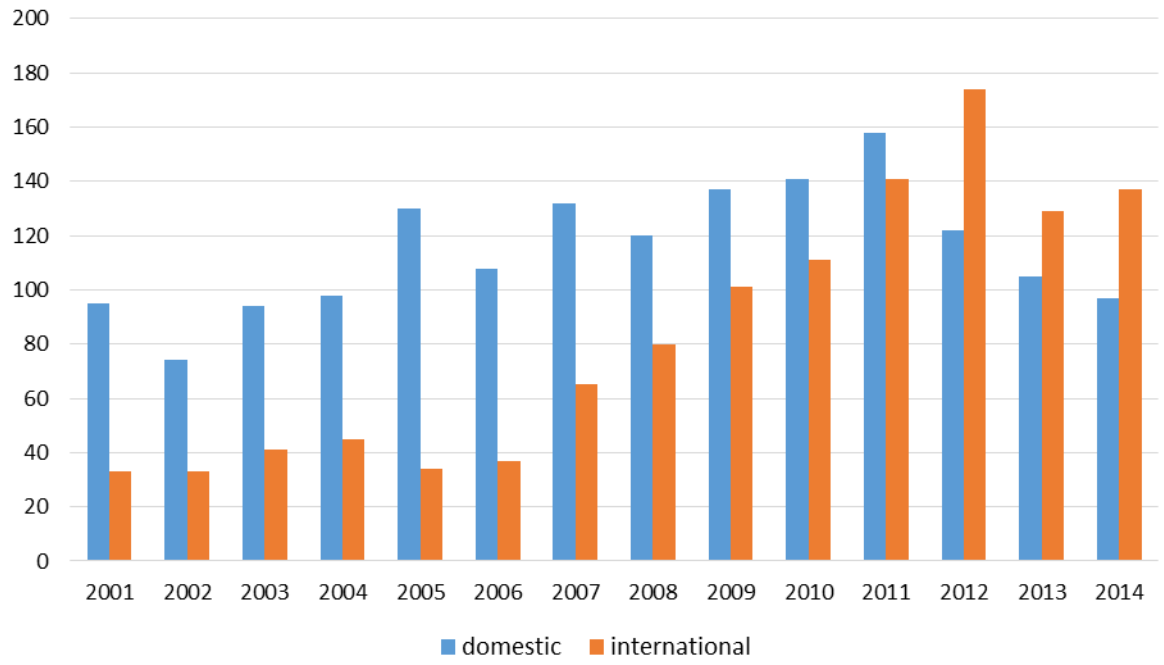
The scientist pipeline thus becomes an important agricultural workforce consideration. The National Committee for Agriculture, Fisheries and Food (2017) identifies that as postgraduate scholars are important contributors to the university research effort, research training pathways need to be enticing to the 'best and brightest'. Unfortunately this is not the case and higher degree conditions are uncompetitive with the high salaries and working conditions of commercial industry. Explanation is warranted.

As explained by NCAFF (2017), eligibility for entry to postgraduate research study requires a 4-year degree at Honours level (First Class or Upper Second Class). An agricultural science student will have accumulated a Higher Education Contribution Scheme Debt of around $30,000. That debt becomes progressively payable through the taxation system at a salary of around $45,000 and continues to accumulate interest based on CPI adjustment for the duration of the debt, including time as a postgraduate scholar. The standard scholarship for a research student is currently around $28,000 tax-free, which approximates to the poverty line in Australia. The tax-free status is of little use in modern times, as the minimum tax threshold is just over $18,000. Relativities over time with minimum wage rates continue to deteriorate. There are no increments and no superannuation entitlements. Scope exists under taxation laws for funders to top up the stipend by 75% but even that improvement falls far short of comparability with industry salaries and conditions. All universities in most disciplines now find difficulty in attracting high-quality domestic applicants for postgraduate study and this is particularly acute in agricultural science.

Figure 27 shows the data for PhD scholars in agriculture from domestic and international sources. The graphs show that domestic scholar intakes increased until 2011 but there has been a significant decline since then. Over the course of this evaluation period, international students have assumed greater importance, increasing from 30% of the cohort in 2001 to 60% in 2014 (Figure 28). There have been consistently around 80 domestic scholars graduating per year,

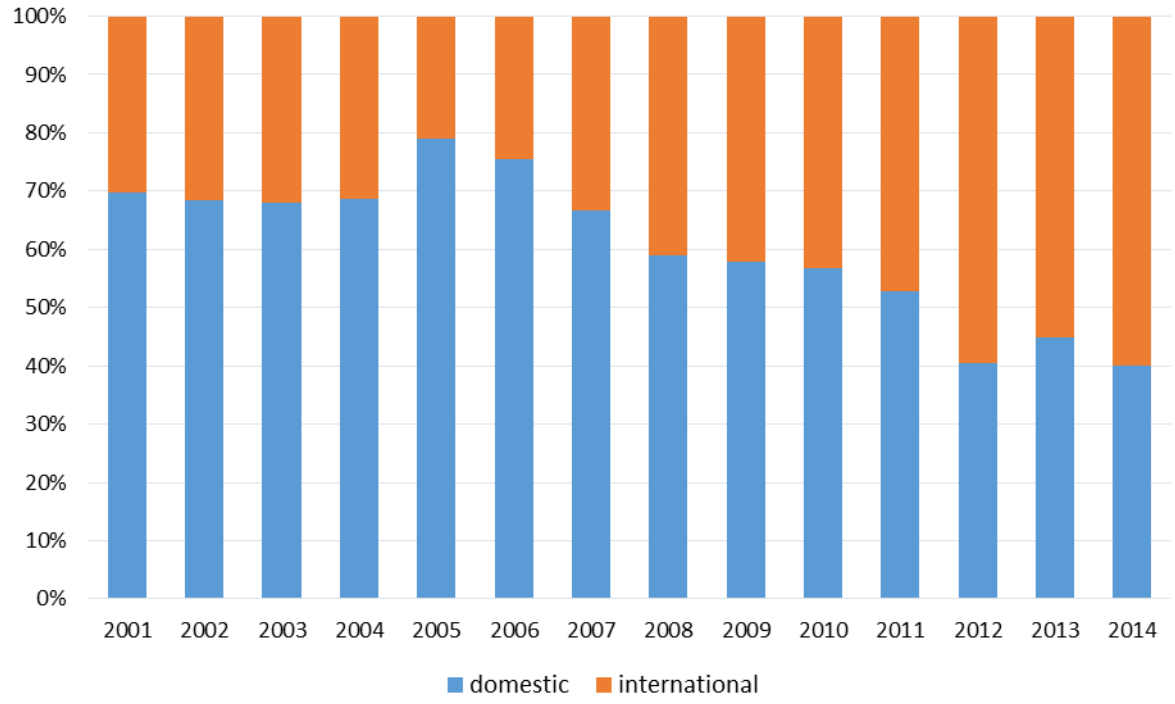
whereas international graduates have increased from under 40 to around 140 in the same period. Data are not available to indicate what proportion of international graduates remain in Australia but there are several each year. The impact of COVID-19 is likely to be substantial and the R&D effort is likely to be greatly compromised.

Figure 27 Intake numbers of domestic and international PhD students in agriculture, 2001 to 2014



Source: Prof. Jim Pratley, pers. comm., September 2020

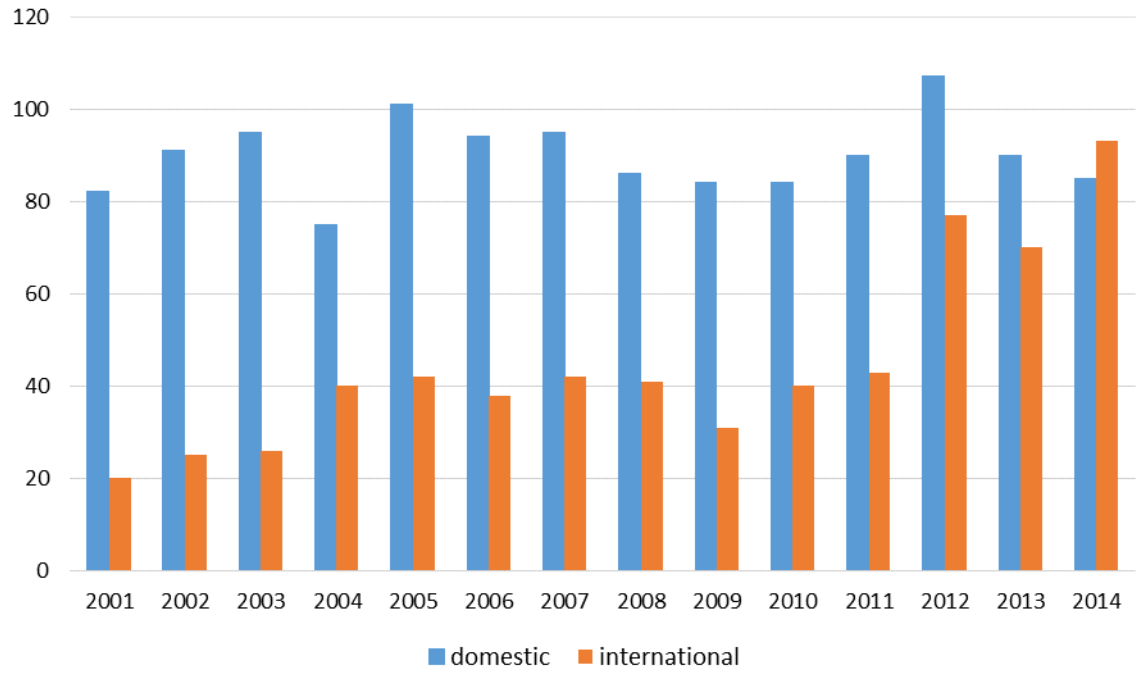
Figure 28 Intake proportions of domestic and international PhD scholars in agriculture, 2001 to 2004



Source: Prof. Jim Pratley, pers. comm., September 2020

When completions are compared with their respective intakes to estimate attrition (Figure 29), differences exist between international student and domestic student cohorts in completion rates. A close correlation exists between intakes and completion rates in international student cohorts, whereas Australian completion rates are roughly two-thirds of intakes in most years. This likely reflects the attractiveness of the job market in agriculture and the uncompetitive nature of postgraduate conditions and prospects.

Figure 29 Completions of PhD degrees in agriculture by domestic and international students, 2001 to 2014



Source: Prof. Jim Pratley, pers. comm., September 2020

At the end of their research training, graduates expect reasonable prospects of a research scientist appointment. This is not the case currently, as state agencies in particular contract their R&D effort. Both CSIRO and state agencies are dependent on external funding for research, and most of that comes in 3-year funding cycles. New graduates therefore are on short-term funding arrangements where they exist. This 3-year cycle is highly inefficient, due to start-up and wind-down components; is demoralising for the postdoctoral scholars; and eventually is wasteful of expertise, as significant numbers leave the industry. Together the conditions for training and then for postdoctoral employment provide a highly unattractive option for the keen minds that we would want to entice into research careers.

3.10 Moving forward with extension

Extension in Australian agriculture has had a long history from the 1880s. It has evolved with agriculture, and theories have gone in and out of favour over time. Nevertheless, extension has had a major influence in adoption of research outcomes and in the implementation of the 'public good' (for example, environmental imperatives) aspects of landscape management. The developments have been summarised by Boon (Table 3).

Table 3 Summary of chronology of developments in extension, 1880s to 1990s

Period	Agricultural extension issues
1880s	Extension movement concerned with macro-consequences TOT (transfer of technology) model Agricultural colleges
Early 1900s	World Wars I and II Returned services farm allocations

Period	Agricultural extension issues
1950s	Social and economic concerns, attitudinal change of producers
	Increase in extension grants, capital intensive agriculture, agricultural research institutes
1960s	Micro-level methods focusing on early adopters
	Beginning of Green Revolution
	Diffusion of innovations
	Scientific solutions to production barriers
1970s	Integrated rural development projects
	Equity concerns for resource-poor
	Soft systems approaches
	Farming systems approaches
	Beginning of recognition of producer knowledge
1980s	Increased participation
	Producer knowledge more recognised
	More participatory and systems models
	Knowledge and information systems
	Equity issues in industrialised countries
	Social sciences debate
	Self-reliance and sustainability appear
1990s	Closing the gap between developed and industrialised world
	Systems movement
	Agricultural sustainability
	Recognition of knowledge systems
	Community-based programs
	Social capital and empowerment appear
	Decade of Landcare

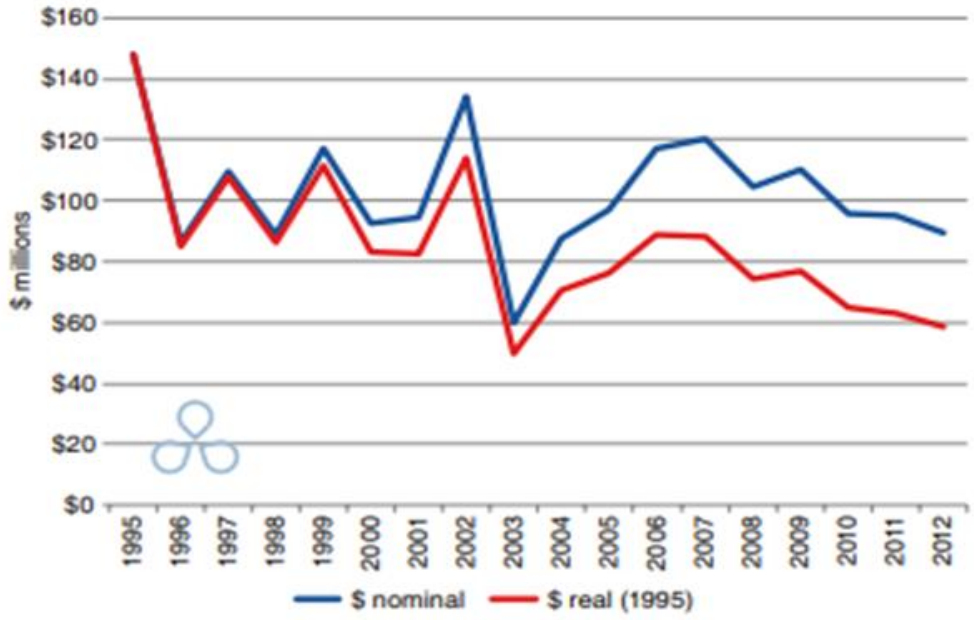
Source: Boon 2009

Traditionally advisory services have been the domain of, and funded by, the state agencies. The particular characteristic of that provision was the intensive training of advisory officers, usually graduates of the agricultural colleges, in all matters relating to that profession. From the 1990s, however, these services were progressively wound back to varying extents in each state (Figure 30). Governments argued that such advice would be taken up by the private sector on a fee-for-service basis; that has happened and is reasonably successful (but variable between industries – see Figure 31). There are 2 main deficiencies that arise:

- There is no longer the intensive training in extension that used to occur.
- Advice nowadays is largely related to private good, with public-good issues largely overlooked.

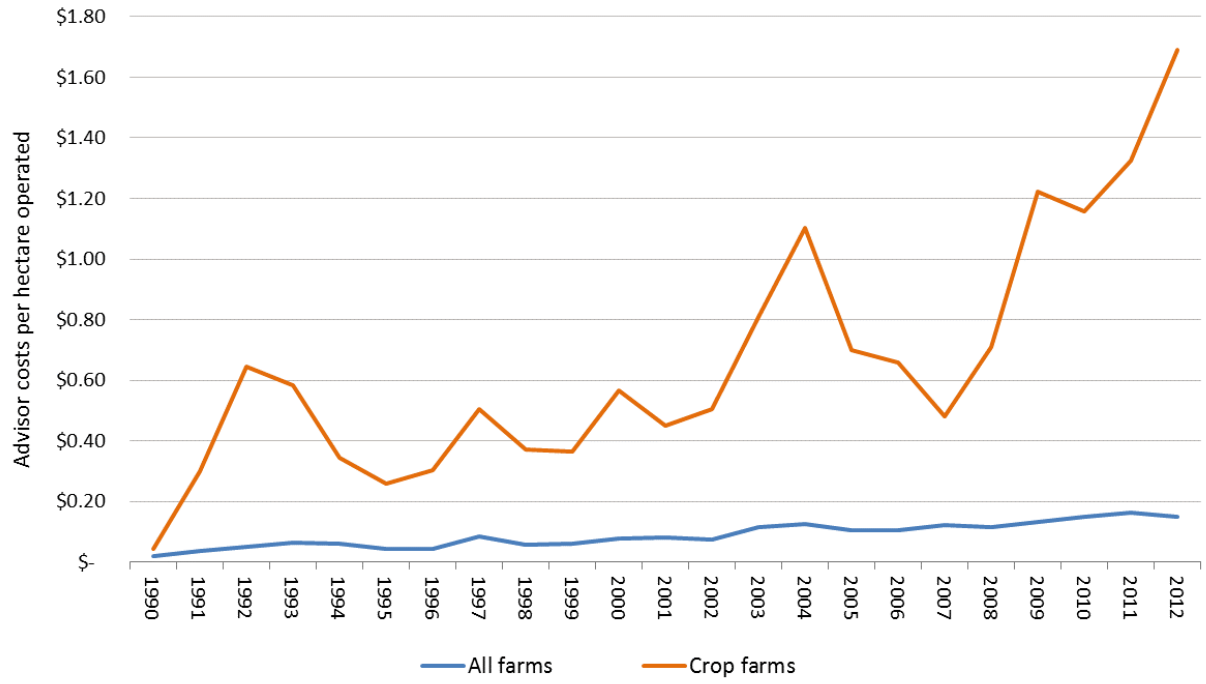
This raises questions regarding, for example, the innovation of conservation agriculture and whether it could have been achieved without the state agencies being involved. Agriculture may well be different today if it had been left solely to the private-good agenda. However, it is unlikely that governments will get back into this space and so that gap is left open. In some areas of Australia, strong Landcare organisations play a role in facilitating extension activities for public good.

Figure 30 Agricultural extension investment by Australian state governments, 1995 to 2012



Source: Keogh 2013

Figure 31 Increase in adviser costs for crop farms relative to all farms, 1990 to 2012



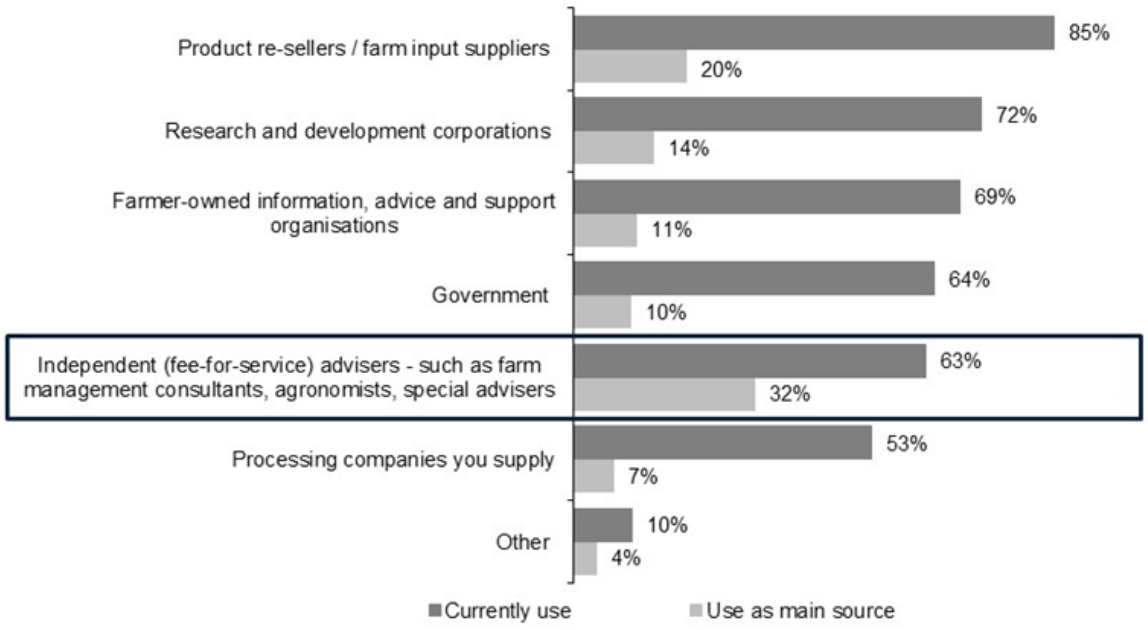
Source: Keogh and Julian 2014

It is noted that there is a lag between research and broad-scale adoption in agriculture – commonly 10 to 20 years. It took about 30 years for 80%+ adoption of conservation agriculture in Australia and we lead the world in that development. The low level of productivity growth in the last decade reflects the reduction in RD&E investment 2 to 3 decades previously, and that

looks likely to continue unless there is intervention. Adoption of research requires persistent effort by champions of the technology, often closely linked to researchers, to demonstrate benefits against years of entrenched experience. Delays in the adoption of new practices represent a substantial lost opportunity cost to the efficiency and competitiveness of our agriculture.

With the demise of much of the public extension system in Australia, the diversity in information and advisory sources for farmers (Figure 32, Nettle et al. 2018) and the incomplete extension delivery of the private providers, there is a strong argument for ensuring the agricultural universities are involved in, and contribute to, the implementation phase of the process. This, however, should not be in isolation but rather through the development of strong public/private partnerships (Paschen et al. 2018).

Figure 32 Australian farmers' sources of information, advice and support, 2018



Source: Nettle et al. 2018

This is an important workforce issue going forward, as there will be a substantial need for advisory services for a range of new issues such as digital disruptions, the handling of big data, the management of information and social media, and the modern public-good imperatives of water, soils, biodiversity, biosecurity and other environmental imperatives. In addition, due to the interconnection between these issues and the increased need to manage the workforce effectively as a key part of business flexibility and productivity (Nettle et al. 2018), there is increasing demand for advisory services to support improved human resource management on farms (Nettle 2015; Dockès et al. 2019).

3.11 The future AgriFood workforce

What, then, are the prospects for those entering the AgriFood sector? In many cases it will be like other sectors as the digital age consolidates. Innovation and Science Australia (2017) identified 5 urgent imperatives that need to be addressed in any innovation system. These affect employment prospects. They are:

- Education: the importance of professional development for teachers, targeted interventions to improve below-average learning levels, and ensuring the VET system responds to changing skill needs
- Industry: the problem of disconnect between the production and consumption processes, capabilities in technical and technological areas; and internet limitations for data capture and utilisation
- Government: regulation inadequacies and hindrances; appropriate infrastructure facilitation; and stability in ongoing, or otherwise, government involvement in research and extension (it needs to be either permanently in or permanently out)
- Research and development: the lack of attractive and competitive conditions to entice highly skilled graduates into research training; and then provision of appropriate research career structures
- Culture and ambition: the AgriFood sector needs to have an overall strategy for workforce – one imbued with inclusiveness, one that appropriately values and rewards employee inputs appropriately, and one that provides conditions of employment commensurate with 21st century expectations and is competitive with other sectors. Employees matter – otherwise they will not be there, as recent sector experience has shown.

Ernst and Young (2019) reported that Australian agriculture faces unprecedented challenges. These will have impacts on the workforce of the future. Some are playing out currently. These challenges include changing global markets; increasing international competition; technological disruption; transformation of industry structures; climate variability and change; water scarcity; and increasing threats from pests and diseases. Farming will thus be very different.

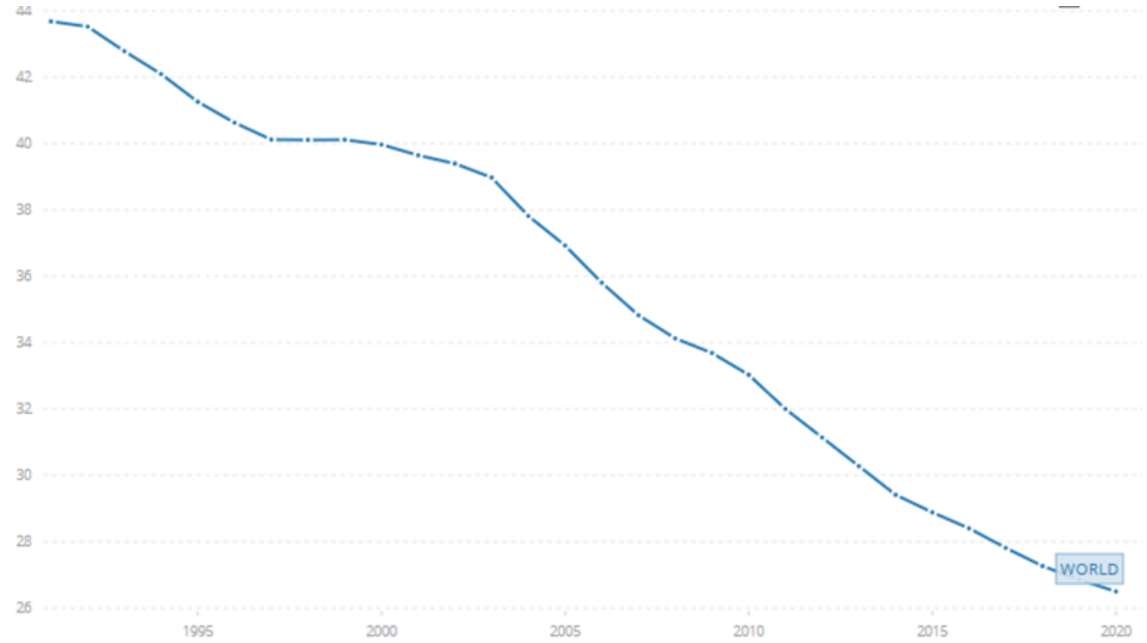
Agriculturalists have always been integrators (see NCAFF 2017). This will not change but will become more intense and complicated as the range of disciplines to integrate continues to expand. It means that expertise will need to be sought from outside the business from time to time. It also means that people trained in agriculture will be even more marketable to other sectors of the economy (emphasising the importance of the culture and ambition component). Whereas sentiment was a strong part of agriculture in the past, there will be no sentiment going forward unless the sector plays a significant part in constructing it.

4 International approaches to addressing AgriFood workforce challenges

Australia is a developed economy with a strong export-oriented AgriFood sector. More than two-thirds of agricultural production is exported. More than 90% of the fresh food consumed domestically is locally grown. Agriculture thus must comply with the requirements of both the local market and markets internationally, and these demands can vary widely and quickly. Australia's agricultural competitiveness needs to be attuned both to developed competitors like ourselves (for example, the US, Canada, New Zealand, the Netherlands) and to developing nations (for example, Argentina and Brazil).

The workforce issues differ, but a clear principle exists in that as the national economy develops, the proportion of the national workforce involved in agriculture will decline. Figure 33 shows this relationship whereby the agricultural proportion of the total workforce across the globe declined from around 44% in 1991 to around 26% in 2020. This reflects an average that varies widely depending on the extent to which the economy of the country has developed (see Table 4).

Figure 33 Employment in world agriculture (% of total employment), 1991 to 2020



Source: ILO 2020

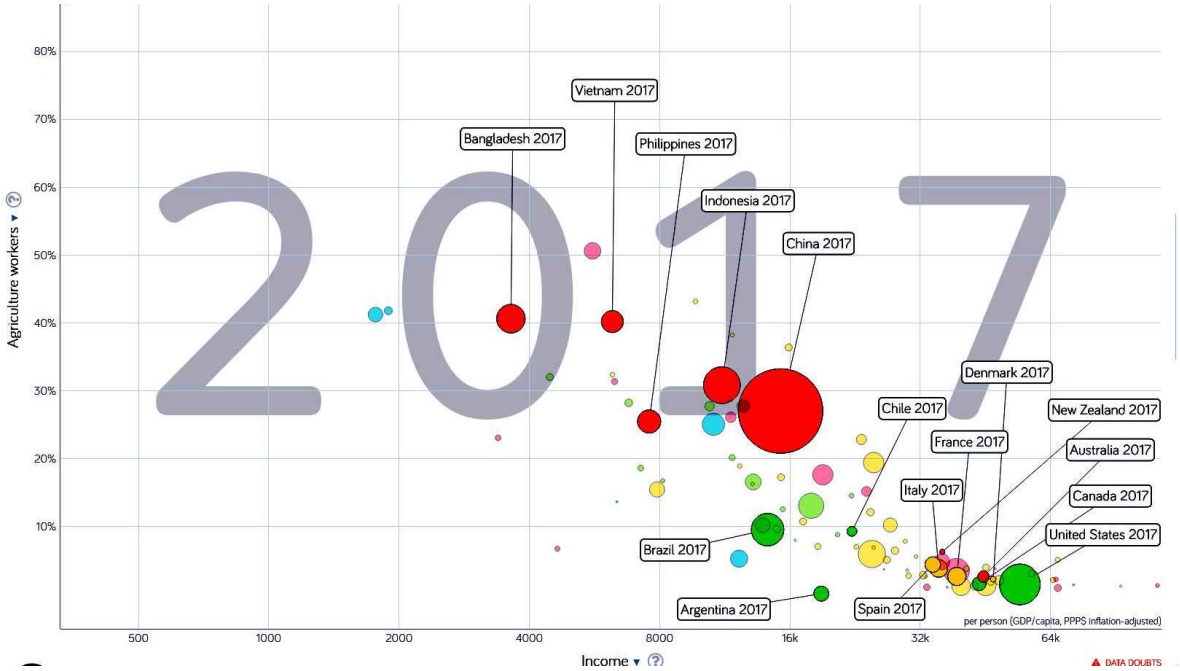
Table 4 Agriculture as a proportion of the total workforce in selected countries, 2020

Country	Agriculture (% of total workforce)	Country	Agriculture (% of total workforce
Argentina	0.09	Iran	18
Canada	1	Egypt	23
Israel	1	Philippines	23
United Kingdom	1	China	25
United States	1	Indonesia	28
France	2	Fiji	36
Netherlands	2	Pakistan	36
Australia	3	Vietnam	36
Japan	3	Solomon Islands	37
South Africa	5	Bangladesh	38
New Zealand	6	India	41
Russia	6	Papua New Guinea	58
Brazil	9	Nepal	65
Chile	9	Ethiopia	66
Mexico	12	Niger	75
Ukraine	14	Somalia	83

Source: World Bank 2020

To evaluate whether there are workforce policies and practices that might benefit the Australian agricultural workforce, it follows that countries with similar or higher levels of economic development are the most likely to be particularly relevant to the Australian agenda. Figure 34 identifies those countries with which a comparison could be made. This comparison is achieved by comparing the proportion of the workforce in agriculture relative to gross domestic product (GDP) per capita (income). Australia ($45,000) is near the top of the income category, which also categorises countries such as New Zealand ($36,000), the United States ($54,000), Canada ($44,000), France ($39,000) and the Netherlands ($49,000). Agricultural employers in these countries operate in a high labour cost environment where there are strong incentives to invest in capital, such as mechanisation and robotics, to reduce labour costs.

Figure 34 Gross domestic product per capita relative to percentage of total workforce employed in agriculture, 2017



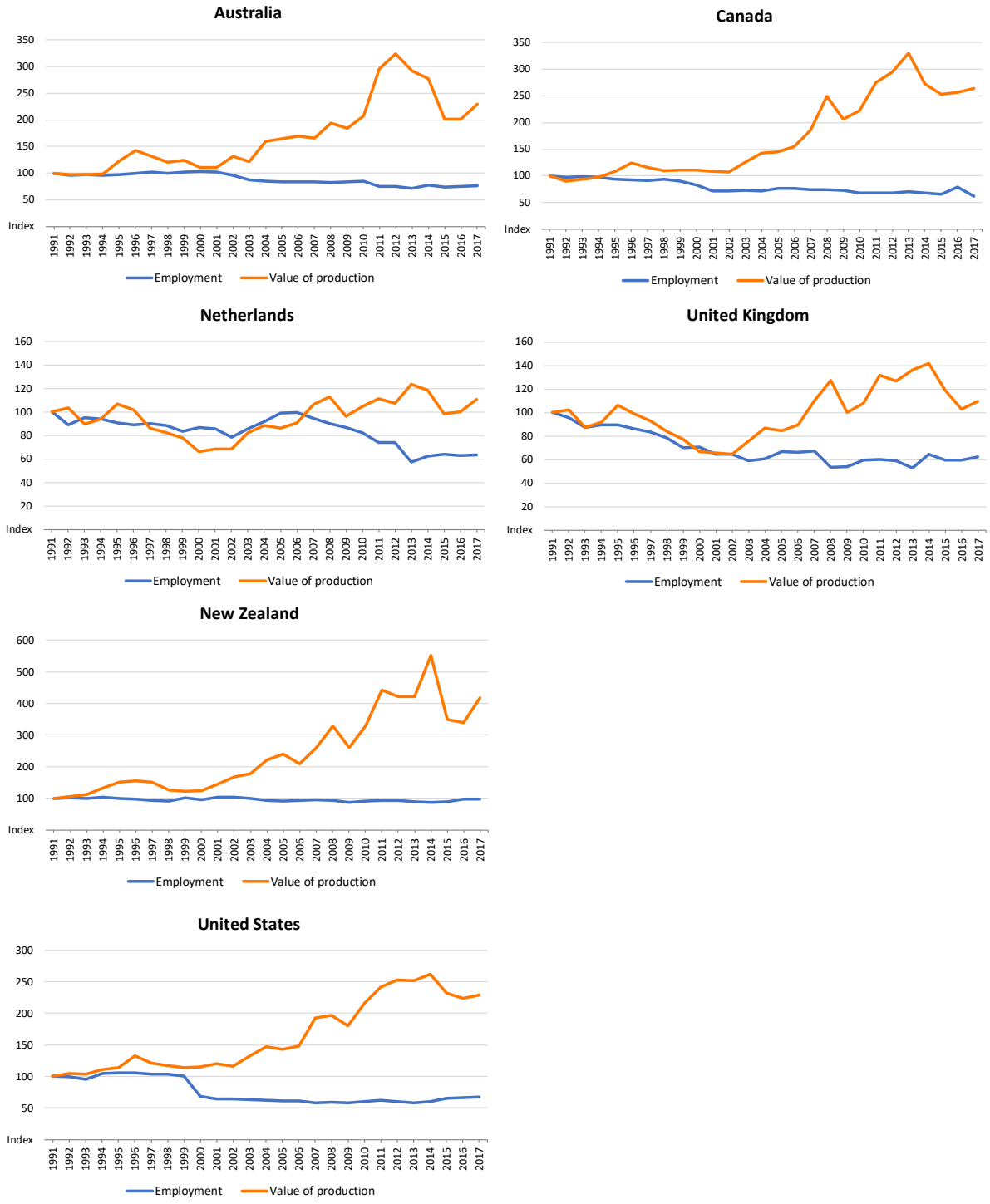
Note: Adjusted for differences in purchasing power, in 2011 US dollars.
Source: Gapminder 2020

4.1 Increased production despite falls in agricultural employment

A consistent theme across developed countries has been the substantial decline in the agriculture workforce over time. AgriFood industries in all developed countries have difficulties in meeting their workforce needs. This is caused by a common set of social and demographic trends associated with long-term economic development, including a shift in the workforce towards higher paying, less physically demanding jobs in services and other industries, higher costs of living and rural-to-urban migration (Taylor & Charlton 2018; Zahniser et al. 2018; note: it is unclear what effect the COVID-19 pandemic might have on the long-term pattern of economic development and its related trends).

Figure 35 shows the gross value of production in agriculture from 1991 to 2017 relative to the change in agricultural workforce over the same period.

Figure 35 Index of value of production and agricultural employment, selected countries, 1991 to 2017



Note: Indexed with 1991=100. Includes forestry and fisheries.
Source: FAO 2020a & FAO 2020b

Despite the falling numbers in the agricultural workforce, agricultural gross value of production (GVP), in nominal terms, across these countries has risen and production levels have been maintained. This is due to a number of factors including commodity price rises and increases in labour productivity, due in large part to innovation and capital investment. These countries have a long-term agricultural workforce, including unpaid family labour, but are increasingly

dependent on a seasonal workforce involving migrant labour. A plentiful supply of low-cost employees seems a deterrent to investment in technology; when this supply is unavailable, the threat of higher wages for the workforce usually results in investment in machinery, robotics and artificial intelligence or, alternatively, ceased production of crops that have not been mechanised.

4.2 The long-term workforce

Other comparable countries have responded strategically to the long-term challenges in attracting and developing the AgriFood workforce.

4.2.1 United States

Agricultural industry background

The United States is the world's third largest producer of agricultural products. Over 5 years to 2016, gross value of US agricultural production averaged $458 billion (Howden & Zammit 2019). Primary agriculture accounts for only 0.9% of GDP and 1.6% of employment, although AgriFood exports account for over 10% of total exports. Key industries include grains (maize and wheat), oilseeds (soybeans), cotton, cattle, dairy, poultry, fruits and vegetables (OECD 2020). The US is a net exporter of AgriFood products and the world's largest agricultural exporter. Canada, Mexico and the European Union were the largest markets for US agricultural exports in 2018 and were also the largest suppliers of US AgriFood imports.

Agricultural workforce strategies or programs

The USDA National Institute for Food and Agriculture (NIFA) has an education and workforce development program with 3 goals:

- workforce development through grants for scholarships and fellowships; preparing students and researchers for a variety of careers in the STEM agricultural pipeline
- enhancing the research, teaching, and extension capacity at minority-serving institutions; facilitating access to higher education and supporting research, teaching and extension activities at minority-serving institutions outside the land-grant university system
- fostering learning and engagement in the food and agricultural sciences through programs and opportunities at secondary and post-secondary institutions.

These programs fund projects that develop curriculum and instructional materials and support teacher training to strengthen students' critical thinking, communication, and leadership skills. NIFA offers professional development opportunities to secondary school teachers to incorporate agricultural STEM education into their classrooms (USDA 2020a).

4.2.2 Netherlands

Agricultural industry background

The Netherlands is among the world's leading AgriFood producers and exporters. This performance is based on natural and geographical conditions favouring diverse agricultural activities, resilient primary production structure of family enterprises, a well-educated labour force, integration of AgriFood product value chains and a strong international orientation (OECD 2015). The industry has developed in the context of scarce land resources, high welfare standards and high wage rates, under the gaze of a critical population in one of the most densely populated countries. Notwithstanding its obvious small size and relatively high population

density making it easier to travel for work and access potential workers, the Netherlands also experiences issues attracting workers to agriculture.

Agricultural workforce strategies or programs

Despite the strong global standing of its AgriFood industries, the Netherlands has faced challenges in attracting sufficient numbers of skilled workers to meet the sector's needs (OECD 2015). In 2015 the sector projected a shortage of 1,600 technically qualified workers per year to 2022 (Taskforce Human Capital Agenda Food & Feed 2015). To respond, and to retain the Netherland's international competitiveness, the government, business and education sectors ('the golden triangle') came together to develop a Strategy for Green Education 2016–2025, covering the agriculture, nature and food sectors (collectively the 'green sector'). The objective behind the tripartite Human Capital Agenda has been to increase involvement and responsibility of food and feed businesses in education and skills development and in attracting students, to ensure an adequate supply of qualified employees (OECD 2015). The strategy comprises 5 goals and 3 related actions:

- Increase the capability of the green education sector to meet labour market needs
- Increase the speed of renewal of education and training materials and strengthen the contribution of innovation in green businesses
- Increase the responsiveness of the education system to labour market requirements
- Increase the impact of the education system across its full continuum, focusing on 3 areas:
  - Strengthen the international orientation of the green knowledge and education system
  - Strengthen and renew education and linkages to other disciplines
  - Strengthen lifelong learning and innovation culture (see Box 1 for example)
- Develop a positive image for the sector as being a relevant, innovative and attractive sector in which to study and work.

Box 1 Netherlands Centres for Innovative Craftsmanship

The Netherlands has 8 regionally based clusters – Centres for Innovative Craftsmanship – bringing together education providers and the business sector to support vocational education and training in the food and feed sectors of dairy products, meat, bread and pastry products, cake and sweets, spices and other ingredients, fruit and vegetables, pet and animal feed, and drinks. These centres improve connection between the education and business sectors and ensure sufficient critical mass to organise education efficiently.

Within these clusters, education institutions and companies jointly determine the content of education programs for vocational training, including:

- Which technologies are considered, and in what level of detail?
- Which subjects are taught by teachers and which by representatives of industry/companies?
- What work experience do students and teachers do with companies in the region?

The centres provide state-of-the-art industry knowledge, their strength coming from joint ownership between educators and companies.

The regional clusters lead to:

- a base infrastructure for a continuing educational pathway between vocational and technical education
- a more direct transition for students from vocational training to employment in companies
- lower costs of retraining for people who are employed in industry
- opportunities for broadening and deepening vocational education.

Source: Taskforce Human Capital Agenda Food & Feed 2015

4.2.3 United Kingdom

Agricultural industry background

Agriculture makes a small contribution to the total UK economy, at less than 1%; its share of employment is 1.45% or 476,000 people. Gross output was £27.3 billion in 2019, with agriculture contributing £10.4 billion to the GDP. Field crops, dairy, beef and sheep meat are key primary agriculture industries. The value of food, feed and drink exports was £23.6 billion. The UK AgriFood sector accounted for a total estimated gross value added (GVA) of £120 billion or 6.3% of national GVA, employing just under 4 million people (DEFRA 2020).

Agricultural workforce strategies or programs

The Agriculture and Horticulture Development Board, a statutory levy funded board, commissioned the development of the AgriFood Industry Workforce Skills and Development Strategy (Swadling 2018). The strategy was developed in the context of:

- UK agricultural productivity lagging behind other countries; a lack of skills identified as a key factor
- poor uptake of continuing professional development; fewer than 35% of farmers with formal management training
- a mismatch between available training and industry needs
- an industry culture that does not value formal training
- the implications of Brexit for workforce availability.

The strategy's recommendations included:

- the development of a new, independent Institute for the Agriculture and Horticulture Industry to formalise collaboration across a fragmented range of bodies. It would drive transformational change including positive attitudes towards personal development
- valuing training and skills as an investment, not a cost
- improving the sector's professional profile to new recruits
- inspiring employees and employers towards lifelong learning.

The initiative is currently being progressed by industry stakeholders, government and the education sector (AHDB 2020).

4.2.4 New Zealand

Agricultural industry background

New Zealand's agricultural sector is highly export oriented. Agriculture has comparatively high importance to the economy, accounting for 7% of GDP and 6% of employment but nearly two-

thirds of New Zealand's total exports. Grass-fed livestock products represent the backbone of the agricultural sector. New Zealand is the world's largest exporter of sheep meat, and among the largest exporters of dairy products (OECD 2020). Much of the agricultural sector's employment is generated indirectly through its domestic dairy processing sector (Greenville et al. 2019). Beef, fruit and horticultural products also contribute significantly to the country's agriculture and food exports (OECD 2020).

Agricultural workforce strategies or programs

New Zealand's agricultural industries and government collaborated to develop the Food and Fibre Skills Action Plan 2019–2022. The plan was developed to help the sector address challenges in meeting its workforce needs arising from:

- an ageing workforce
- projected employment growth of around 50,000 between 2012 and 2025
- growth in the skills needs of the industry
- a 30% fall in the number of students studying agriculture and horticulture between 2013 and 2018
- competition in the labour market from other regional industries
- changing attitudes to work among young people.

The plan contains 4 areas of activity:

- Knowledge – generating accurate information on skills and labour needs
- Attraction – changing perceptions to attract people with the right skills into food and fibre careers to support a high-quality, adaptable and innovative workforce
- Education – celebrating the food and fibre sectors with students, teachers and New Zealand
- Employment – creating workplace conditions to attract and retain talented employees.

Early in its implementation, the plan is led by a group of industry, employee and employer representatives, Māori leadership bodies and government agencies (Primary Industries Skills Leaders Working Group 2019).

In addition, the NZ Government developed the Fit for a Better World plan in response to the COVID-19 pandemic (see Box 2).

Box 2 New Zealand's 'Fit for a Better World'

To stimulate economic recovery from the COVID-19 pandemic, the NZ Government developed Fit for a Better World to accelerate economic growth of the primary sector over the next decade. The plan has 3 headline targets:

- Productivity: add $44 billion in export earnings over the next decade through creating value and building off New Zealand's core sectors
- Sustainability: contribute to New Zealand's journey to a low-emissions economy, by reducing biogenic methane to 24% to 47% below 2017 levels by 2050, including to 10% below 2017 levels by 2030, and by restoring New Zealand's freshwater health within a generation
- Inclusiveness: employ 10% more Kiwis from all walks of life in the primary sector by 2030 and 10,000 more New Zealanders in the primary sector workforce over the next 4 years.

It proposes action in 4 areas:

New Zealanders in jobs

This is aimed at increasing the visibility of employment opportunities and the attractiveness of career pathways in the primary sector, including in support industries such as farm advisory services.

Safe and healthy food

This is about building supply chain capacity to enable the redistribution of products to struggling communities and to improve capability to proactively detect, and respond to, food safety issues and work more with consumers to enable them to make good decisions about food.

Connect rural New Zealanders

This brings together isolated or unsupported businesses with funding to support innovation, best practice and wellbeing. Investment in improved digital infrastructure will enable rural businesses to 'work smarter' and be more productive and sustainable.

Thriving rural communities

Government has spent $20.2 million to help rural and fisher communities recover from COVID-19 and ensure rural communities are places people want to live, through support of community hubs and social support networks such as rural support trusts and attractive employment opportunities. This will improve living standards and ensure rural communities remain vibrant, resilient and sustainable.

Source: NZMPI 2020

4.2.5 Canada

Agricultural industry background

Primary agriculture accounts for 1.8% of GDP in Canada. Canada is a large net exporter of AgriFood products, accounting for about 11% of total exports. More than half of Canada's AgriFood exports are destined for the US. Most of Canada's AgriFood exports are either primary products for processing (37% in 2018), forming part of another country's production system, or processed products for consumption (36% in 2018). Over half of Canada's AgriFood imports are processed products for consumption (OECD 2020).

Agricultural workforce strategies or programs

Labour shortage has been a recurrent issue in Canadian agriculture. The Canadian Agricultural Human Resource Council (CAHRC) was created in 2006 to provide solutions to agriculture's

human resource issues. Although initially funded by government, it subsequently transitioned to be industry funded. CAHRC manages 5 key programs:

- AgriLMI – assessing the current agricultural labour market, projecting future supply and demand for agricultural workers and recommending potential solutions to the sector's labour issues
- Emerging AgriWorkforce Issues – addressing emerging workforce issues and leading the implementation of the Agriculture and AgriFood Workforce Action Plan
- AgriJobs – working with industry stakeholders to clarify the work conducted in modern agriculture
- AgriSkills – providing practical, targeted training options for agricultural employers, employees, associations and educations
- AgriDiversity – supporting diversity improvements.

In 2019 the Canadian government funded CAHRC to lead the International Phase of the Quality AgriWorkforce Management Program, designed to clarify best practices for recruiting and retaining international workers. This involved communications and training products for employers.

4.2.6 Reflections on international experiences in long-term workforce development

Agricultural workforce attraction, retention and development is a challenge among all developed countries. Among those reviewed, common elements emerging from their response to these challenges include:

- early recognition of the challenge and a planned long-term strategic response
- close genuine working relationships between government, employers, employees and the education sector, sometime referred to as the 'triple helix' or 'golden triangle'
- development and maintenance of necessary education and training institutions.

4.3 The seasonal workforce

A common challenge for the high-income countries is satisfying the labour requirements of agricultural industries with a seasonal demand for lower-skilled workers. As economies transition away from agriculture and towards other industries that offer better pay and other conditions, these industries can find themselves unattractive to the local labour market. Generally countries turn to temporary migration arrangements to meet the needs of their domestic industries for these less skilled workers.

4.3.1 United States

The workforce issue is nowhere more intense than in the United States, which has experienced an extreme decline of 73% in family farm workers in the 70 years from 1950 to the present as well as a decline of 52% in hired farm workers (USDA 2020b). Several factors are thought to contribute to this trend, including a declining interest in agriculture, inefficient labour programs in agriculture, and ageing farm operators. A consequence of this pattern has been the increasing dependence on migrant labour, as shown in Figure 4. Whereas migrants are 13% of the US

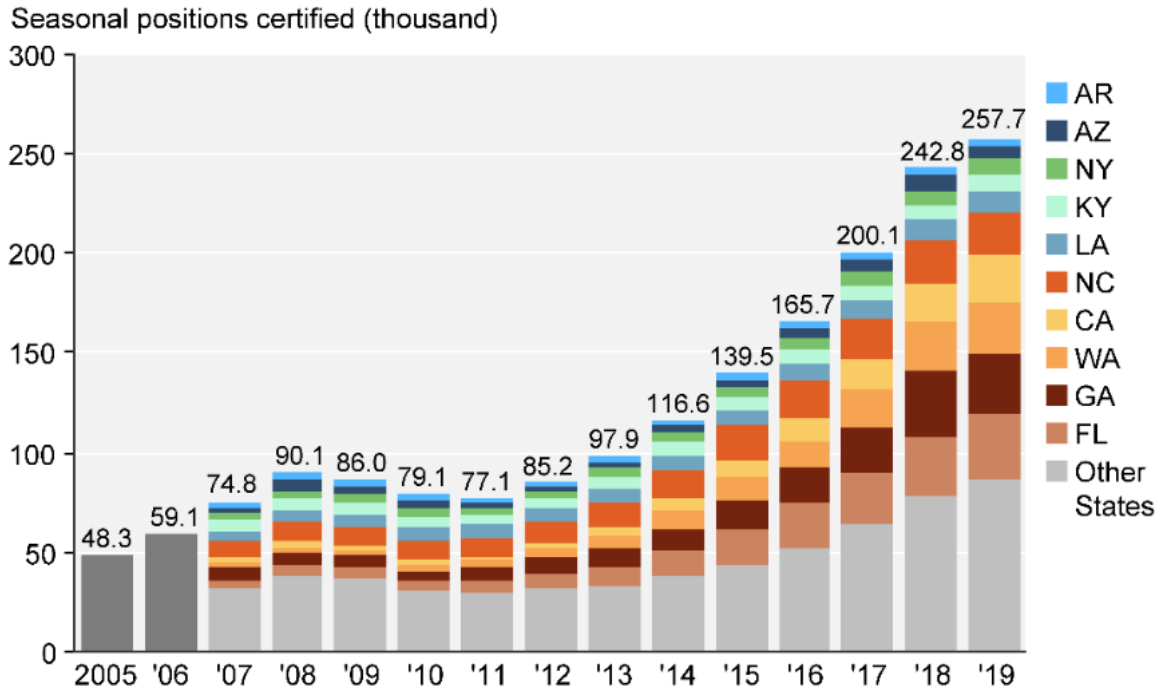
population and 17% of the US workforce, they comprise 73% of the agricultural workforce (AgAmerica 2020).

The United States H-2A visa program provides for foreign-born workers to be brought in to perform seasonal work for up to 10 months. In general, such positions cannot be used year-round. Conditions that apply to the program include:

- efforts to recruit US workers must not have been successful
- employers must pay a wage that is not lower than the average wage for crop and livestock workers in the region in the previous year
- employers must provide housing and pay for international and domestic transport.

The scarcity of seasonal farm labour is signified by the large increase in H-2A positions over time, climbing from 48,000 in 2005 to 258,000 in 2019 (Figure 36).

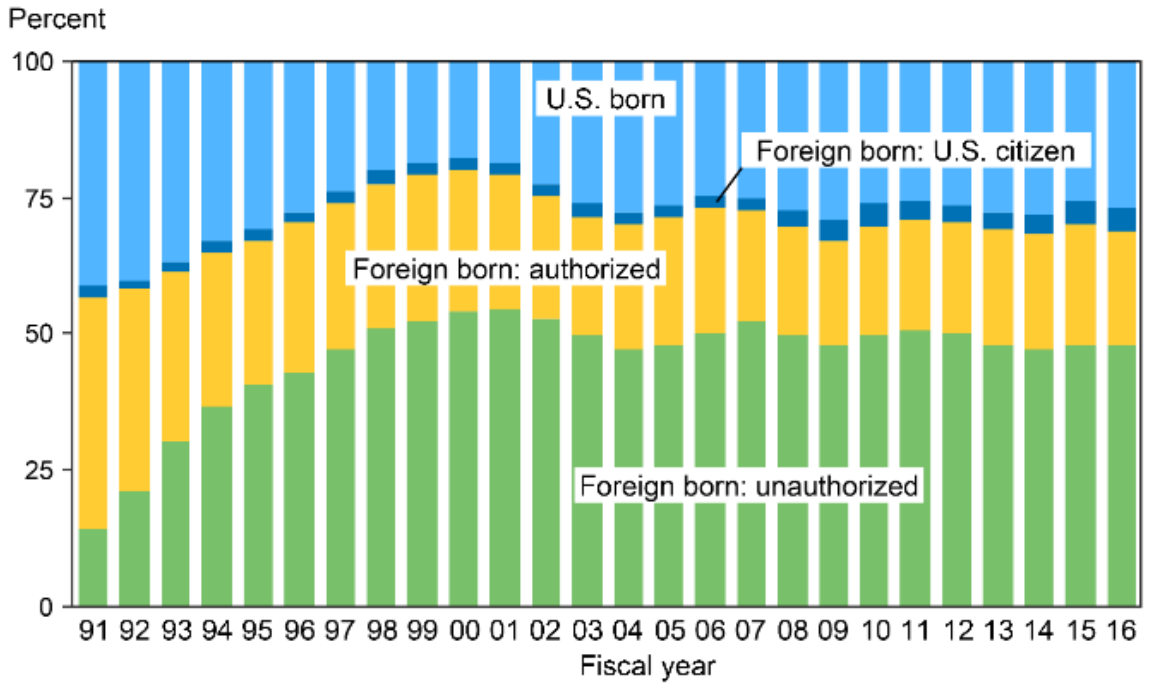
Figure 36 US temporary agricultural program (H-2A) positions certified, 2005 to 2019



Note: State-level data are not available for fiscal years 2005 and 2006. The states included in the chart had more than 2,000 H-2A positions certified in 2010.
Source: USDA 2020b

The H-2A program's requirements to meet the local farm wage and to pay for housing and transport increase the temptation to employ migrant labour outside the program. A substantial proportion of farm workers (around half) are not legally authorised to work in the US (Figure 37). Undocumented employment creates high risk of labour exploitation. Undocumented workers receive poorer remuneration, have substandard employment conditions and living conditions (Kandel 2008) and have a greater chance of being subject to exploitation, both financially and in conditions including housing, safety and sexual exploitation (Preibisch & Grez 2010).

Figure 37 Legal status of US hired farm workers, 1991 to 2016



Note: Values for each year are 3-year moving averages to smooth fluctuations due to small sample sizes. US born includes those born in Puerto Rico.
Source: USDA 2020b

In the United States the workforce shortage continues to intensify. Some of the contributing issues appear to be:

- poor remuneration – AgAmerica (2020) indicates that wages 'continue to rise' for farm workers. Its data show that rates have increased by just 29% to 36% over the 30-year period 1990 to 2019. However, consideration of the CPI in the US over the same period shows an 80% increase. The H-2A program requires employers to pay the 'Adverse Effect Wage', set at a level deemed not to impact negatively on American farm workers. This wage varies from $11.71 in the southern states to a little over $15.00 in the north-west (USDA 2020b).
- more education – the immigrant workforce traditionally has been uneducated. AgAmerica (2020) reports that global literacy rates have increased from 56% in 1980 to 85% in 2014. Further, in 2016, 13% of immigrants 25 years and older entered the US with postgraduate qualifications and 17% with graduate qualifications, and so are more likely to find work in other trades or corporate businesses where pay and conditions are far superior.
- decreasing supply of undocumented labour from Mexico (Zahniser et al. 2018) – a public reaction to migration from Latin America has resulted in increased migration restrictions and stronger border security. In the period 2007 to 2015, there was a 19% decrease in the number of undocumented immigrants in the US, suggesting economic migrants are increasingly judging that the potential benefits no longer outweigh the risks.

4.3.2 European Union

In the European Union, agriculture is a major sector for employment, at around 4% of total employment, although the proportion varies substantially between countries, with Germany at

1.4% and Romania at 23%. In all cases the trend is downwards. Schuh et al. (2019) report that in 2011, 1.6% of migrant labour was sourced from other EU member states and 2.7% of migrant labour came from non-EU countries. Since that time, however, migrant labour in agriculture has increased significantly as more than 1.3 million in-country agriculture workers left the sector between 2011 and 2017. In that period the intra-EU worker proportion increased by 26% and extra-EU workers, largely from North Africa, Central America and South America, by 31%.

It is also important to realise that there has been a change over time in the scale and the pattern of change. The nature of farm work has changed as machinery, robotics and other technologies have substituted manual labour, thereby increasing farm size and labour productivity, or have shifted the activity. This has enabled, perhaps required, more focus on the business management and less on the physical activity. In some cases there is a change to a more corporate style farm operation, with the farmer becoming an employee. The increased labour productivity has tended to reduce manual labour demand but increase demand for skills and specialised labour, where complex, unpredictable and heterogeneous environments are involved. Schuh et al. (2019) report that in 2016, 19% of young farmers had received full agricultural training whereas only 2.6% of farmers above 65 years had. This helps to explain the statistic that more young farmers were managing the medium-sized and large farms.

4.3.3 United Kingdom

The United Kingdom is heavily reliant on the overseas seasonal workforce – around 70,000 to 90,000 people, mainly from Eastern Europe. Nye (2017) reports that there is considerable difficulty in recruiting seasonal workers, particularly since the Brexit decision. The UK has introduced a sponsored seasonal worker visa for migrants for up to 6 months farm work but it seems that few migrant workers want to come to the UK, because of the fall in the value of the British pound making it an unattractive proposition to earn money. The current coronavirus pandemic has imposed travel restrictions that limit migrant worker participation. There is poor likelihood of British labourers filling the void, as there is a separation between where they live and the location of the work and there is a mismatch between workforce and operator expectations as to reasonable conditions. One option for addressing the labour shortage is to use contractors for farm activity – reports indicate that more than 87% of farmers exercise this option, although contractors now report difficulties in finding labour to employ. Another is to substitute capital for labour through the use of, for example, mechanical harvesting, robotics and artificial intelligence where such option exists, or to change enterprises to those where mechanisation does exist. Crops such as strawberries would not be grown.

4.3.4 New Zealand

New Zealand introduced a recognised seasonal employer program in horticulture and viticulture industries in 2007, targeted particularly to Pacific Islanders. By 2017 this had grown to 11,000. The scheme is facilitated by the Recognised Seasonal Employer Limited Visa. Workers must meet health and character requirements and provide evidence of arrangements to leave New Zealand at the end of their stay. Businesses must meet eligibility requirements to become recognised employers. The number of visas was capped at 14,400 places for 2020. A World Bank evaluation of the program found that it produced desirable development benefits in the home countries of the workers.

Some exploitation of migrant seasonal workers exists on some farms. A University of Auckland Business School report describes practices such as underpayment, poor safety, illegal wage

deductions and unreasonable piecework rates. These practices culminated in 2016 in New Zealand's first human trafficking conviction (Stringer 2019).

4.3.5 Canada

Canada operates a temporary working visa program, the Canadian Temporary Foreign Worker Program, with 4 streams: the Seasonal Agricultural Worker Program; the Agricultural Stream; and streams for lower-skilled and higher-skilled occupations. Across all streams, around 55,000 agricultural jobs in Canada were filled by temporary foreign workers in 2018 (Statistics Canada 2020). Most temporary foreign workers work in the horticulture sector, with around 46,500 jobs filled in this sector in 2018, or 84% of the total for the whole of agriculture. The arrangements for each stream vary but common elements include requirements that employers:

- show that they have taken reasonable steps to recruit local workers
- pay workers a specified prevailing wage
- ensure working conditions provided are consistent with federal and/or provincial standards.

Chronic labour shortages, however, have led farmers to rely heavily on foreign workers, who now account for more than 17% of the workforce (CAHRC 2019). The labour gap in 2017 was 16,500 jobs and this is predicted to be 123,000 (or over 30%) by the end of this decade. The domestic labour force is expected to contract as the ageing workforce moves to retirement and fewer young people enter the industry. CAHRC has addressed the issue through 'creative solutions' including encouraging employers to:

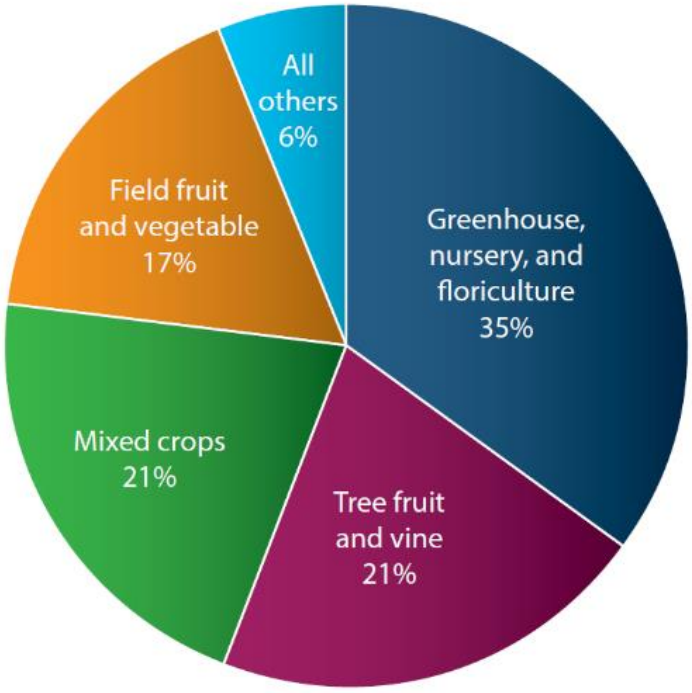
- provide more attractive, stable terms of employment
- increase flexibility in work hours and working conditions
- offer part-ownership of the business to the best employees.

CAHRC has identified 2 key principles:

- Increase the supply of workers by improving access to foreign workers, attracting more domestic workers and increasing awareness of agriculture careers.
- Improve the skills of workers through enhanced worker knowledge and skills, aligning training resources with workplace needs, and improve human resource management.

The biggest issue, however, is seasonality and its influence on the workforce needs in horticulture. Figure 38 shows the foreign worker demands of various industries – three-quarters at least in horticulture. While this industry sector has so far been successful in attracting seasonal labour, it remains the sector with the greatest gaps. This makes the sector highly vulnerable to policy changes and, as recent events have demonstrated, pandemics as well. As with other similar jurisdictions, there are regular cases of labour exploitation in the form of wage theft and poor conditions (Stringer & Michailova 2019).

Figure 38 Horticulture needs for foreign workers in Canada, 2017



Source: CAHRC 2020

As in other countries, there is a trend towards consolidation of farms and this increases productivity of individuals through more mechanisation and robotics, thereby changing demand for labour and reducing unpaid labour. Consistent with other similar countries, the larger farms are operated by younger farmers who are generally more educated.

Looking forward in respect of seasonal demands, it might be expected that mechanisation, such as robotics and artificial intelligence (AI), may address the issue. To some extent that is already happening for some horticulture products but for others personal judgement and fine motor skills have not been replicated by machine. Other options include spreading the wage payments over a longer period through banking of overtime or providing non-salary incentives such as health and dental cover, transport and on-site housing.

Employers in Canada have indicated that lack of qualified workers with appropriate skill sets is a barrier. This becomes more important when labour is employed on the larger farms with high-value machinery to operate. This seems at odds with the finding that only 48% of agricultural employers had offered any training to workers in the previous year. Human resource management seems a clear deficiency (CAHRC 2020).

4.3.6 Reflections on international experiences regarding seasonal workforce

There can be no doubt that other developed economies with a significant agricultural sector are facing a labour shortage. A suite of strong social and economic drivers associated with the pattern of economic development inevitably lead the AgriFood industry to face challenges in attracting people to work in the industry. These have led to the industry offering comparatively uncompetitive employment against alternative sources. The industry has not been an employer of choice for new entrants as it does not always view the workforce through the eyes and

aspirations of the employee. It is therefore unsurprising that there is an international agriculture workforce dilemma.

Changes are afoot in respect of the structure and direction of the sector in most jurisdictions. It is fair to say that labour costs are a significant part of the agriculture business, but it is not always the cheapest that is the most economic. It follows that labour productivity is an important metric to profitability and this is achieved when mechanisation or other labour-saving devices can be employed to increase the pace or accuracy of the work or to improve safety. In most situations such devices increase the sophistication involved, thereby requiring increased labour skills and better qualified staff. This is indeed happening in all areas investigated (see Section 5.6, AgriTech is driving new skill needs in the workforce). There will need to be a paradigm shift in thinking away from just filling labour gaps towards creating better jobs and career paths (Nettle et al 2018).

International experience suggests that young people entering the labour market now are more highly educated and trained in technology and in business and that they take on management at an earlier age than previous generations. The younger managers are more prepared to take on new technology, make informed decisions and employ experts as needed. Attitudes to employees are likely to be different, and the employees are likely to be better educated and connected. Isolation from others is a thing of the past, due to social media and the internet, so employment issues are more readily canvassed than before. One of the big issues is the seasonality of production and hence of labour need, particularly in horticulture but also to some extent in crops. The dependence on an overseas seasonal workforce is of particular concern. On one hand it is understandable, as there seems to be little option. It is also cheap labour, but experience in the United States suggests that it is only for the short term and can be a highly risky scenario. Sometimes unacceptable practices are reported in the jurisdictions reviewed. In jurisdictions such as New Zealand and Canada, active regulation is embedded in migrant employment programs.

Agricultural workforce attraction, retention and development are a challenge among all developed countries. Planned, collaborative, long-term strategic responses are a feature of national efforts in AgriFood by countries like Canada and New Zealand.

5 Farm gate to the end consumer: a demand-led, 'fork-to-farm' approach

The people working in the AgriFood industry are at the heart of some of the most significant challenges facing the modern world. The need to generate more production, particularly value-added production, while maintaining and regenerating the support systems that underpin the productive potential of the environment is already well understood. In addition, the emerging imperative for the industry to be part of the solution to climate change provides both additional challenges and opportunities. To meet these challenges and seize these opportunities the AgriFood workforce needs to be 'best in class'.

The opportunities created by the growing demand for high-quality food and fibre products are clear. Diverse consumer tastes have opened many niche markets to innovative AgriFood producers and processors (Klein & Kerr 1995). Australia needs to build on this opportunity, as close to 50% of employment in the Australian AgriFood sector has been derived from this trade (Greenville et al. 2019). Australia more than most countries has been reliant on an open global trading environment. Before the pandemic, Australia exported around 70% of the total value of its agriculture, fisheries and forestry production (Jackson et al. 2020), and the freight transport and logistics task and its effectiveness underpins this export performance. Increased access to global markets is essential.

However, social, economic and technological changes continue to bring challenges to the sector:

1) Industry consolidation and globalisation are leading to the emergence of more complex and fast-moving businesses and commercial environments, with new sources of risk.
2) Consumers in the developed world are more interested than ever in the origins of their AgriFood products, who has produced them and how they have been produced.
3) Like all other sectors of the economy, the AgriFood sector is being shaped by the opportunities and challenges arising from new digital, robotic and engineering technology.

The skills and capability required for the sector to be able to rise to these challenges and opportunities intense, particularly considering the lack of investment in Australia's AgriFood workforce over the last few decades. This refers to both specific technical skills and critically important enabling capabilities such as collaboration, critical thinking, complex problem solving and entrepreneurship, which are broadly applicable across all roles in a modern AgriFood sector. Innovation at each step of the supply chain, especially considering the pandemic, is essential to create a new future for the AgriFood sector – a future in which the industry strives towards excellence in everything that it does and can demonstrate its excellence to its customers around the globe.

This section of the Strategy considers the increasing importance to the AgriFood sector and its workforce of:

1) the current pandemic

2) sustainability
3) changing consumer expectations and commercial requirements
4) supply chains
5) value-adding
6) AgriTech.

5.1 The current pandemic and the AgriFood workforce

The pandemic has restricted the movement of Australian farm workers and reduced the pool of workers available, particularly casual and contract workers from overseas.

According to the most recent ABS data, from 14 March 2020 (when Australia recorded its 100th case) to 3 October 2020, the number of payroll jobs in agriculture, fishing and forestry in Australia declined by 8.1% and total wages in the sector declined by 3.5% (ABS 2020). Some of these declines can be explained by seasonal variation in labour demand, but the impact of the pandemic remains significant.

In the AgriFood sector, most casual and contract workers from overseas enter Australia on Working Holiday Maker (WHM) visas or via the Seasonal Worker Programme (SWP). The most recent Department of Home Affairs data indicates that the number of working holiday makers in Australia declined by 54% from 137,461 at 20 March 2020 to 63,668 at 5 October 2020 (this figure does not include workers currently on bridging visas). Only a small number of additional workers engaged under the SWP have entered the country during this time.

5.1.1 Labour shortages in the horticultural sector

A shortage of overseas workers, induced by the pandemic, will present a major challenge for horticultural farms during harvest time in summer and autumn of 2020–21. ABARES data for 2019 shows that during peak harvest time in February, around 57% of casual and contract employment on fruit, grape and nut farms in that month was supplied by overseas workers. In comparison, for broadacre farms in October 2018 – October being typically the peak harvest month for grain crops – overseas workers accounted for around 4% of the casual and contract workforce.

Pandemic-associated border closures and other travel restrictions have increased the cost of production or, at the extreme, limited production as producers weigh up the higher cost of production against likely returns. Farms are competing for limited labour and, provided the movement of agricultural workers is largely unimpeded, workers will likely shift to higher productivity farms that can offer the greatest incentives.

Many submissions from the horticultural industry highlighted the challenge posed by the pandemic to labour availability across the production process.

> *COVID-19 is negatively affecting employment opportunities for young Australians in rural and regional Australia, while employers are facing uncertainty which is affecting their ability to take on new employees. (Australian Fresh Produce Alliance)*

> *The impact of COVID-19 on WHMs and on the horticulture industry cannot be understated. There has already been approximately a 35% decline of WHMs in*

Australia, which is likely to worsen as we get closer to Christmas and leave Australia with a significant shortfall of workers in early 2021. Industry is attempting to break that information down into regional areas to better understand the workforce needs of industry, as well as fully gauge the impact that COVID-19 will have on the sector. (AUSVEG)

5.1.2 Labour shortages in AgriFood industries more widely

Although the impacts of labour shortages on the horticultural industry have been and will remain significant, many other industries that rely on overseas and interstate workers will also be impacted by pandemic-induced restrictions on travel. For example, the wool industry typically relies on many skilled shearers from New Zealand each year and many grain farms in Western Australia typically rely on workers from the eastern states during harvest. Submissions from other industry groups also highlighted further impacts of the pandemic on the agricultural workforce.

With international travel severely limited by measures taken to manage COVID-19, Australia's thoroughbred industry faces uncertainty around the availability of skilled overseas staff. (Thoroughbred Industry Careers)

Seafood is seasonal and looking for increased workforce coming into spring and summer. October sees the start of the Southern Rock Lobster fishing season. Availability of skilled crews will be restricted by the lack of foreign and transient workers. (Seafood Industry Australia)

COVID-19 will mean a significant shortfall in labour in the coming vintage. Examples of this shortfall include seasonal workers for harvesting; vintage preparation; technical workers such as winemakers, who often travel to Australia from overseas to complete vintage before travelling back to their own country for the European vintage; and technical workers and engineers required for the servicing and maintenance of high-value machinery. (Australian Grape and Wine Incorporated)

5.1.3 Impact on production and profitability is uncertain

In the horticultural industry, if labour shortages reduce harvests, then fresh produce prices will increase and provide increased revenue for the businesses that were able to secure labour. Equally, the prospect of higher prices may encourage some producers to increase wages to secure additional domestic labour. The overall impact on farm profitability is unclear, due to the unknown extent of reduced production, price changes and increased labour costs.

Due to the effect of the pandemic in reducing the supply of seasonal workers being well known in advance, on-farm risk management strategies are expected to lessen the possible disruption to overall crop production. This has already occurred in the grain sector, with some farms increasing their capacity for on-farm grain storage in New South Wales. However, not all types of AgriFood production can be stored in this way.

5.1.4 Implications along the supply chain

A significant section of the AgriFood workforce exists beyond the farm gate, such as in contracting, professional services, processing, manufacturing, transport, freight, logistics and sales (see Section 5.5). The pandemic has impacted the AgriFood workforce across the whole supply chain, but most strongly in reducing producers' access to seasonal workers at peak times

such as harvest. In the meat processing sector there have been virus outbreaks at several facilities, and increased regulations that have reduced processing capacity and added costs, or in some cases caused shutdowns.

Broader impacts such as restricted movement of skilled and unskilled workers and fewer workers being available to fill specific roles have led to inefficiencies and increased costs in the wider agricultural sector. The supply of international seasonal workers has been disrupted as working holiday makers in Australia have returned home and Australia's borders have closed. Further, restrictions on the movement of many workers between states and territories resulting from domestic border closures have implications for the sector. As the AgriFood producers now try to recruit Australians to agricultural work, the pandemic has further accentuated a trend towards requiring a step-change in workforce health and safety standards and integrity throughout the supply chain.

Freight and transport

Along with restrictions on the movement of people, the pandemic has also restricted the movement of some AgriFood products. Due to the struggles of the aviation industry globally, Australia's highly perishable high-value agricultural and fisheries products have been mostly unable to leave Australia without government intervention. The Australian Government's International Freight Assistance Mechanism (IFAM) was introduced as an immediate response to the pandemic, and this measure of around $670 million (to end in June 2021) has enabled some planes to fly but only under highly specific circumstances. Until the pandemic, Australia's highly perishable high-value AgriFood producers depended on passenger airline services for transporting their exports in the belly of passenger planes. Pre-pandemic, Australians were the third most travelled people in the world. The same planes brought to Australia international backpackers and other itinerant workers who were relied upon to pick and pack the harvest.

IATA – the International Air Transport Association, representing the world's airlines – forecasts that the effects of the pandemic will mean the global aviation industry will not fully recover until 2024. Other forecasts expect that prices for Australian export freight will not return to the pre-pandemic discounted cost structure. Around 1% of Australia's AgriFood export trade by volume and 18% by value has relied on discounted airfreight rates to reach overseas markets.

The maritime industry also continues to be impacted by the pandemic. Port cities carefully monitor international vessel crews for the virus and many ports and markets across the world are closed, affecting crew changes. However, movement of imports and exports has largely recovered from the initial effects of the pandemic on the movement of cargo. To a large extent Australia's 'tyranny of distance' and the lack of a land border helps protect Australians from the pandemic, but without air transport the tyranny of distance once again is a barrier for Australia's AgriFood exports and essential imports.

5.1.5 Opportunities

Some of the impacts of the pandemic on the AgriFood workforce present an opportunity for increased productivity and growth in the agricultural sector moving forward. New structures and strategies put in place by individual farms and industries during the pandemic could become permanent, while economic and social changes more broadly will provide opportunities for innovation (see Chapter 1, Introduction). A number of submissions raised the prospect of new opportunities:

The situation is also bringing to a head many workforce-related issues that have previously been highlighted by the agricultural sector. While the challenges are not new, the current situation may be providing an incentive to find innovative ways to address the challenges in addition to providing an incentive to government to take action to support access to the employment opportunities provided by the agriculture sector. (Grain Producers Australia)

5.1.6 Government and industry responses

Steps have been taken by the Australian Government, state and territory governments and industry to mitigate the effects of the pandemic on the seasonal workforce. The key initiatives, as at October 2020, are listed in Table 5.

Table 5 Government responses to the pandemic on the seasonal workforce

Australian Government

Program	Description
Relocation assistance	From 1 November 2020, changes to the existing Relocation Assistance to Take Up a Job program with $17.4 million to be provided in relocation support to attract workers to our farms and regions. Applies to job seekers who temporarily relocate to take up agricultural work of at least 6 weeks. Those relocating to take up short-term agricultural work may be eligible to receive up to $6,000 if they are an Australian worker; or $2,000 if they are a visa holder with general work rights, not restricted to an employer or a type of work, to work in Australia.
Temporary changes to Youth Allowance (Student) and ABSTUDY	Youth Allowance (Student) and ABSTUDY independence eligibility criteria are changing temporarily to incentivise young Australians to take up work in the AgriFood sector.
Supply Chain Resilience Initiative	Announced on 1 October 2020 as part of the $1.5 billion Modern Manufacturing Strategy, of which 'food and beverage' is one of 6 National Manufacturing Priorities. The COVID-19 crisis has highlighted the need to better understand and address our supply chain issues and opportunities. The $107.2 million Supply Chain Resilience Initiative will support projects that address an identified supply chain vulnerability.
National Agriculture Workers Code	The code was agreed by National Cabinet on 4 September 2020 and will deliver consistent approaches to facilitate movement of critical agriculture industry workers, including harvest workers, across New South Wales, Victoria, South Australia, Northern Territory and Australian Capital Territory borders.
Changes to the Seasonal Worker Programme	Enabling workers to remain and work in Australia for up to 12 months and be exempt from the requirement to work for a single employer. In addition, the Australian Government announced the Pacific Labour Mobility Safeguarding the Welfare of Workers package on 6 October 2020. The Australian Government will invest $9 million in additional measures to support the Seasonal Worker Programme current model and ensure the program continues to protect the welfare of Pacific and Timorese workers.
Changes to the Pacific Labour Scheme	Workers who are part of the Pacific Labour Scheme with visas due to expire can apply for a new Temporary

Program	Description
	Work (International Relations) (subclass 403) Pacific Labour Scheme stream visa.
Changes to the Working Holiday Maker visa	Temporary changes to visa arrangements in response to COVID-19 enable workers to remain and work in Australia for up to 12 months. Working holiday makers who are working in the agricultural sector are exempt from the 6-month work limitation with one employer and eligible for a further visa to keep working in this sector if their visa is due to expire in the next 6 months.
Harvest Trail Services	Commencing on 1 July 2020, Harvest Trail Services covers up to 5 new horticulture regions, with providers now operating in each of the 16 major horticultural regions across the country, promoting seasonal work opportunities to Australian job seekers.

New South Wales Government

Program	Description
Changes to the Health Order	In order to implement the Agriculture Workers Code. A worker's permit is already available for Victorians wishing to work in agriculture in NSW.
COVID-19 Primary Industries Liaison Team	Established to help primary producers navigate the challenges and impacts of COVID-19.
Help Harvest portal	The NSW Government has launched the Help Harvest NSW web portal, designed to connect displaced employees and seasonal workers with producers and growers around the state who have seasonal work available. Help Harvest NSW brings together a range of information about seasonal work and how to find a job, as well links to opportunities to upskill for a new career in the agribusiness sector
TAFE NSW – subsidised courses	NSW TAFE is offering subsidised training and qualifications in a number of sectors, including agriculture.

Victorian Government

Program	Description
Agriculture Workforce Plan	This initiative provides targeted support to agriculture, food processing and critical food supply chain businesses to meet their labour needs during COVID-19, including assisting with recruitment and financial support. Includes $1.5 million for an E-Commerce and New Marketplace Transition Package to help farmers and producers transition to online markets. Includes financial support for onboarding, online marketing, registration fees, freight and logistics, delivery fees, and online marketing support.

Queensland Government

Program	Description
Agriculture Workforce Advice and Agriculture Coordination Officers	Agriculture Workforce Advice officers can assist with workforce planning advice, sourcing labour and skilled workers, recruitment and induction. Agriculture coordination officers support producers, the agriculture industry and local governments to manage COVID-19 impacts.
TAFE-funded training: COVID-19 support	Skill sets are made up of one or more industry-recognised competencies. Skill sets are fully subsidised by the Queensland Government and are available only to Queensland residents who have been impacted by COVID-19. TAFE Queensland is offering a Farm Labourer Skill Set course.

South Australian Government

Program	Description
Seasonal Jobs SA	Brings workers and employers together to help keep South Australia's supply chains flowing during COVID-19.

Western Australian Government

Program	Description
Jobs in WA Food & Ag	A database of 10,900+ job seekers who are suitable for seasonal work opportunities. Full access to the database and telephone support is available to any WA primary producer or AgriFood business.
Primary Industries Workers Regional Travel and Accommodation Support Scheme	Will assist agriculture, fisheries and food processing businesses in regional areas experiencing labour shortages. Eligible workers will be able to claim up to $40 a night in accommodation rebates for up to 12 weeks and a travel allowance to those relocating more than 100 km from their usual place of residence.
TAFE training packages	TAFE WA is delivering targeted skill sets for free or with reduced fees to eligible participants under WA initiatives that seek to improve availability of skilled workers to rebuild businesses and communities following the COVID-19 pandemic. This includes a Work in Agriculture Skill Set, an 8-day course (no charge for eligible students) that is designed to get participants job ready for entry level positions in the agricultural sector.

Tasmanian Government

Program	Description
Interstate workers	From 21 September 2020, agricultural workers (including seasonal workers) from non–COVID-affected interstate regions will be permitted to enter Tasmania for the purpose of participating in the 2020–21 Tasmanian agricultural harvest season. Workers will be able to semi-isolate on-farm.
Agricultural Workforce Resilience Package	Will help mobilise Tasmanians looking for work to help with the upcoming planting, production and harvest seasons. The package will include a local agricultural jobs campaign; support for industry resilience; promotion and targeted development of skills and training; an industry-sponsored boost to regional transport; extending the FarmPoint one-stop point of contact for primary producers; and assistance to ensure agricultural employers are workforce ready.

Northern Territory Government

Program	Description
Seasonal Worker Programme Northern Territory mango trial	Created and administered in conjunction with the Australian Government, the trial tests arrangements for entry and management of workers by allowing up to 170 workers, of the estimated 1,000 workers required, from Vanuatu to enter Australia to work during the 2020 mango season for participating approved employers and growers.
Melaleuca refugee initiative	A partnership between the Northern Territory Farmers Association and the Melaleuca Refugee Centre to place willing refugees from the centre in employment on local farms to assist with the mango harvest.
Communications campaign	A comprehensive communications campaign to attract workers, in particular fruit pickers, to the Northern Territory for the harvest season.

Industry groups played an active role in collaborating with state and territory governments in creating and implementing many of these initiatives. In addition, specific industry responses have included local town accommodation being provided for contractors to self-isolate before beginning work, the creation of sanitising stations and the introduction of temperature checks. These responses are aimed at complying with new regulations to limit the risk of a COVID-19 outbreak.

5.2 Enhancing sustainability in AgriFood systems

> *Our food systems are failing us. This is the message from the wealth of literature on food systems. (Steiner et al. 2020)*

Arguably the most important factor impacting on the AgriFood sector in both Australia and globally is the simultaneous challenge to, on one hand, increase productivity to supply enough nutritious food for a global population still growing at around 160 people per minute and, on the other hand, do this in ways and using systems that also enhance ecosystem health. Progress towards the United Nations Sustainable Development Goals around hunger/food (Goal 2: zero hunger) and the environment (including Goal 13: climate action; Goal 14: life below water; and Goal 15: life on land) is behind schedule. The pandemic has had particularly catastrophic impacts on progress towards zero hunger in many developing countries.

The magnitude of this challenge to the sustainability of our AgriFood systems, both globally and nationally, will continue to increase. Sir John Beddington (2009) described the 'perfect storm' that could face the world in 2030 as a growing population requires more nutritious food but from less land, with less water, with less energy-rich inputs and less greenhouse gas emissions, and all of this under the scenario of a changing climate that is already threatening food production in some key regions and oceans.

While sustainability challenges must be met both globally and by each country individually according to its own specific needs and circumstances, the 'front lines' of this battle to enhance the sustainability of our AgriFood systems are farms and agribusinesses and they will require much support to do this. An essential component of this support must be an upskilled, fit-for-purpose workforce.

5.2.1 Challenges to sustainability in the Australian AgriFood sector

Degradation and loss of natural resources, including soils, water and atmosphere, and adaptation to climate change, including greater climate variability and extreme events, are among the 'grand challenges' facing the AgriFood sector.

Soils

> *Many ancient civilisations declined as soil fertility declined – 'Civilisations rise and fall on the quality of their soil' (Scholes & Scholes 2013) – let us not join them. (Reeves 2019)*

Soil health is defined as 'the capacity of the soil to function as a living system that sustains plant and animal productivity, maintains or enhances water and air quality, and promotes plant and animal health' (Doran & Zeiss 2000). Much has been written about soil degradation on Australian farmlands (for example, State of the Environment 2011). It is generally acknowledged that the major problems affecting Australian soils are:

- declining levels of carbon and nitrogen, particularly in intensive cropping rotations
- acidification
- compaction and subsoil constraints
- salinity and sodicity
- erosion.

Soils are the 'engine room of productivity, profitability and sustainability' and failure to enhance soil fertility will have substantial deleterious effects on future prosperity in Australia, particularly as the growing impacts of climate change are felt. The current 'spiralling down' trend in soil health now being experienced on many farms and the steady losses of soil nitrogen (N) and carbon (C) could be interpreted as a slow path to financial demise where the largest impacts are likely to be endured by the next generation.

In relation to soil C levels under intensive cropping, Baldock (2019) made the following salient points:

1) Stocks of soil organic matter and N are limited resources and current trends across Australian agricultural soils indicate that these are declining (Luo et al. 2010).
2) Taking a long term (decadal) view of the economic implications is critical to ensure future productivity will not be compromised to maximise short-term (annual) profits.

In addressing the steady and relentless decline in soil N across our farming systems, Lake (2012a, 2012b) and Peoples et al. (2017) have described the importance of including more legumes in these intensified systems, with the greatest impacts on soil N accretion resulting from pasture legume phases or 'brown manuring' of grain legumes. There are a number of well-proven options to increase soil N and organic matter (Baldock 2019), including the reintegration of livestock.

The outstanding challenge for intensive-cropping farmers is how they can efficiently and effectively move from their current all-cropping rotations to a more diverse and restorative mixed farming system and remain profitable. In regions where cropping has dominated for many years, there have been instances where advisers with livestock expertise have not been available to help farmers transform their systems.

The management and operation of more complex and diverse farming systems is a key workforce capability to be developed.

Water

At least 70% of global freshwater withdrawals are used for agriculture (OECD 2017), with around 45% of global cereal crop production coming from irrigated systems. However, the irrigation efficiency of some of these systems is less than 50%. There has also been a rapid increase in competition for water resources between agriculture and other uses, including for urban, industrial and environmental purposes, and this competition will only be exacerbated in coming years. On current trends, global blue water withdrawals would approximately double by 2050 compared to 2000 levels. With 'business as usual' this additional water would simply not be available. Water stress will increase in many agricultural areas by 2025 due to growing water use and higher temperatures. Agriculture must not only increase water-use efficiency but also reduce overall water consumption – a major challenge.

Australia is a microcosm of the global scenario and needs to consider its use of this vital resource in the context of what is happening in other comparator countries. In 2015–16, water extractions by agriculture accounted for 59% of total usage in Australia (Jackson et al. 2020).

More efficient water use, reduced water use and the development of new secure sources of water – also an opportunity yet to be fully explored – are major challenges facing the AgriFood sector in the coming years and decades.

In many regions of southern Australia, rainfall has declined significantly in recent decades (BOM 2020) and together with the increased competition for water usage in many regions – for urban developments, for industry and for the environment – the combination will further exacerbate the complexities for the AgriFood sector. In addition, intensification has also brought changes in the ways that water is being used by the sector. Barr & Kancans (forthcoming) 2020, have identified some of these changes:

1) the shift in irrigation water from pasture and broadacre crop production to the production of fruit and nuts, particularly almonds, in the Murray–Darling Basin (Gupta & Hughes 2018)
2) the shift in land use from grazing and dryland agriculture to irrigation in Tasmania as a result of the expansion of irrigation schemes (or mangoes in the Northern Territory).

Addressing the sustainability of water management in the AgriFood sector will see the development of new systems and technologies, which creates demand for new knowledge and skills across occupation categories including in-farm infrastructure services, automation, and data analytics.

Greenhouse gas emissions from agriculture

Greenhouse gas (GHG) emissions from agriculture are a major issue for the sector. It is estimated that around 14.5% of current global GHG emissions come directly from agriculture (Gerber et al. 2013), with a further 10% arising from land use changes including deforestation. If food production is to be doubled by around 2060 and current production methods are used, then it is estimated that this figure could rise to over 50% of global GHG emissions, a clearly unsustainable scenario. GHG emissions from agriculture must therefore be mitigated and reduced if the social licence to farm is to be maintained.

These principles also apply here in Australia, where agriculture produces around 13.5% of current national GHG emissions. As the sector seeks to increase production to achieve an export earnings target of $100 billion (NFF 2019), it is clear that this will need to be accomplished without increasing the GHG 'footprint' of the sector. In order to achieve this outcome, reduced emissions intensity will need to be combined with measures to reduce total emissions from the sector. This could be achieved in part through abatement measures designed to increase soil carbon levels, as set out in the Australian Government's recent Technology Investment Roadmap: First Low Emissions Technology Statement (Box 3).

Public concerns around the current GHG footprint of meat production, for example, are increasingly being reported in the media and there is a range of publications on this topic. For example, Scarborough et al. (2014) found that the GHG emissions of selected high-meat eaters in the UK were double those of individuals with a vegan diet. Meat and Livestock Australia has recognised the need to address this issue with its visionary and ambitious CN30 program, which states that by 2030, Australian beef, lamb and goat production, including lot feeding and meat processing, will make no net release of greenhouse gas emissions into the atmosphere (MLA 2020).

Increasing production, productivity and profitability in the AgriFood sector at the same time as reducing its GHG footprint will clearly not be based on business as usual; new knowledge, skills and technologies will be required for these essential changes to be made. Each of these will require an upskilled workforce if Australia is to maintain and enhance its competitiveness in global markets, which are becoming increasingly discerning in relation to the environmental impacts of agriculture.

Box 3 First Low Emissions Technology Statement 2020 – soil carbon stretch goal: carbon measurement under $3 per hectare per year

Why is this a priority?

Australia has untapped potential as a globally significant source of carbon sequestration in our soils. Improving land management practices on a quarter of Australia's crop and grazing lands could draw between 35 million and 90 million tonnes of CO_2 per annum from the atmosphere while improving agricultural productivity and soil quality and resilience. Offsets created by soil carbon projects can provide a valuable additional revenue stream for farmers, and provide decarbonisation pathways for new and existing industries, which will preserve jobs. However, the current cost of accurately measuring changes in soil carbon is a barrier to widespread adoption of practices that would unlock soil carbon sequestration on a broad scale.

Setting the stretch goal

Industry experts confirm that achieving a stretch goal for soil carbon measurement of under $3 per hectare per year would transform the economics of soil carbon projects for Australian farmers. It would remove measurement as a barrier to participation in Emissions Reduction Fund soil carbon projects and enable farmers to be credited for the emissions reductions these projects would achieve. Currently, soil carbon measurement for Emissions Reduction Fund projects cost around $30 per hectare per year.

Indicative deployment pathways

Options proposed by industry and researchers involve the expanded use of remote and proximal sensing technologies, improved national soil carbon datasets and the development of the next generation of soil carbon computer models. If successfully developed and deployed, these measurement approaches would enable farmers and other landholders to reduce the number of direct physical measurements needed to understand soil carbon changes, while maintaining accuracy.

Source: DISER 2020

Adaptation to climate change

The second of the 'grand challenges' to the AgriFood sector identified by Reeves (2019) is the need for both incremental and transformational adaptation to climate change. In February 2015 the Director-General of the Food and Agriculture Organization stated:

> *The impacts of climate change are no longer an anticipated threat. They are now a crystal-clear reality right before our eyes. Climate change will not only affect food production but also the availability of food and the stability of supplies. And in a global, interdependent economy, climate change makes the global market for agricultural products less predictable and more volatile.*

There is no doubt that if the world is to achieve global food and nutritional security, adaptation of farming systems to climate change is critical. Climate-smart agriculture is required, and

sustainable intensification can help to deliver more adaptive and more resilient production systems.

Many studies project net adverse impacts on crop yields due to climate change, and many of those adverse effects will be felt in regions that are at the forefront of both food production and food consumption, including South Asia; West Asia and North Africa; parts of East Asia; major areas of sub-Saharan Africa; and large areas of South America (World Bank 2010).

Most of the indicators for climate change in Australia paint an equally concerning scenario (Alexander et al. 2017). These include annual average temperature increases, with 2017 being Australia's warmest winter on record, an occurrence that the Climate Council reports was 60 times more likely to have been caused by climate change; greater climate variability; a higher incidence of extreme events more likely to have occurred due to climate change (Graham & Eckard 2017); and reduced run-off in many regions (BOM 2016). A paper by Hochman et al. (2017), 'Climate trends account for stalled wheat yields in Australia since 1990', was a clarion call for more emphasis on adaptation to climate change and that 'business as usual' will not be viable. On the positive side, the authors pointed out that while wheat yield potential had decreased by 26% over the study period due to increased temperatures and reduced precipitation, actual yields had generally not fallen so markedly, as technology gains – that is, 'adaptation' – had been able to offset the potential losses.

The question remains as to whether the future rate of technology gains can keep pace with the impacts of a changing climate, where much of the Australian cropping regions is likely to get hotter and dryer. Effective and efficient adaptation to climate change is a major challenge for the Australian AgriFood sector if it is to remain sustainable and become more resilient to future climatic perturbations. The development, evaluation and implementation of new production systems (Hunt et al. 2019), new supply chains (Fleming et al. 2014) and new technologies will add further complexities to future production in the sector. As noted in Cotton Australia's submission:

> *The Australian cotton industry is in an era of significant change with rapid advances in technology transforming the way we farm and undertake research. The environment in which we operate also poses challenges, with climate variability and natural capital constraints testing the resilience of our farming systems. It is essential that we maximise the opportunities afforded by the agricultural technology revolution and minimise the disruptions posed by climate variability and natural capital constraints.*

Similarly, Wine Australia's submission observed:

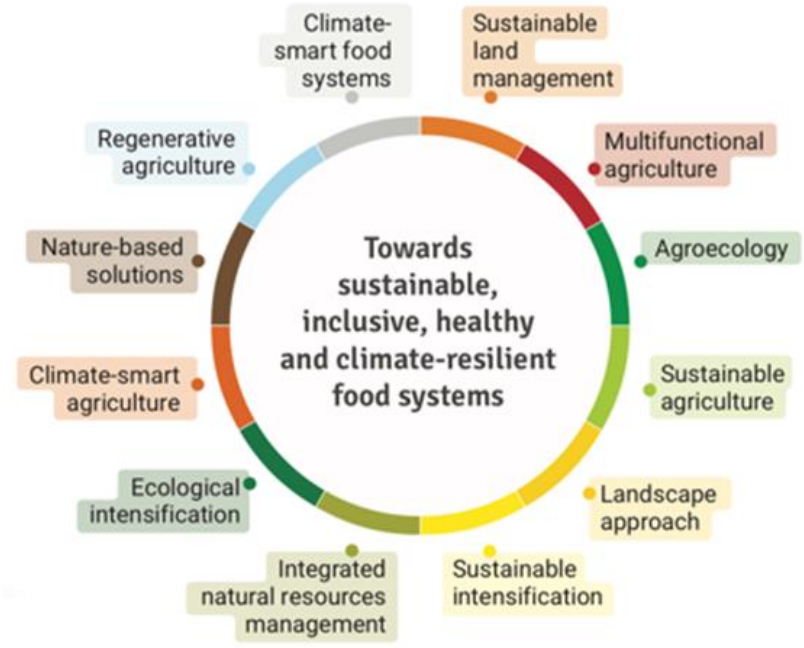
> *Innovation is key to driving profitability. Winegrape production requires investment and change to respond to climate challenges and to become more resilient. Australia's efficiency in the use of resources, especially water, will provide an international benchmark and the sector will produce zero net emissions and zero waste. Innovative, consumer-friendly wine and grape products will be packaged and distributed in ways that are radically different to those of 30 years ago.*

This level of adaptation will have direct workforce implications, most strongly felt at the regional scale, where changes to what is grown and how it is grown will lead to changing demand for skills and workforce profiles.

5.2.2 Transforming the Australian AgriFood sector to greater sustainability

The workforce implications of the potential solutions to these challenges need to be considered as part of an integrated approach to food systems transformation (Steiner et al. 2020). Figure 39 shows a range of approaches being taken globally to transform food systems to greater sustainability and all have valid contributions to make. Some have many overlaps and commonalities – for example, 'sustainable intensification' and 'climate smart' agriculture have many similarities (Campbell et al. 2014).

Figure 39 Approaches to transforming food systems



Source: Steiner et al. 2020

Among these, sustainable intensification of AgriFood systems is gathering strong momentum globally. From the perspective of the AgriFood workforce, pathways to greater sustainability increase complexity and systems focus, which will require new knowledge and skills. As the Australian AgriFood sector moves towards greater sustainability and enhanced resilience to future climatic and financial shocks, the successful implementation and scaling of sustainability pathways needs to factor in the workforce implications of these pathways (Box 4).

Box 4 Management options for modernised system diversification

- Improved soil management with minimal or no disturbance, surface and subsoil amendments where appropriate, with lime, gypsum, organic materials and major and macro-nutrients to stimulate soil biological activity and overall soil health
- Greater range of crop options – wheat, barley, oats, triticale, millets, sorghums, maize, canola and various pulses and other legume options
- More diverse crop varieties/species – range of planting times, flowering times and crop maturities, and greater resistance to biotic stresses and tolerance of abiotic stresses (dryness, heat, frost)

- More diverse crop management – differential grazing/defoliation regimes, N timing and forms including more biologically fixed N, cover crops/mulches, differing stubble heights and spreading
- Livestock integration for enhanced crop, residue, weed and pasture management and N cycling and for diversification of farm income streams
- Incorporation of trees and shrubs to provide a range of ecosystem services, including shade and shelter for livestock, as the incidence and magnitude of heat stress for animals is likely to increase as our temperatures rise and more 'high heat' days are experienced. Reinvigoration of 'adaptive agroforestry'
- More innovative ideas that will require more research and evaluation, which could include sowing 'shandies' of crop varieties; strip cropping – alternate strips of, say, a cereal and a pulse side by side across the paddock; inter-cropping – different crops in different rows; 'fan' drones to aid frost protection; biopolymers for soils to reduce evaporation (and perhaps, one day, to protect crops)

Source: Reeves 2019; Pratley and Kirkegaard 2019

Ideas parallel to these have been put forward for dairy and beef production (SRUC 2013; de Oliveira et al. 2017) and for the aquaculture sector (Little et al. 2017).

Building 'sustainability' capability

Sustainability transitions are clearly a team effort with significant implications for greater knowledge and a broader range of skills, not just for the on-farm workforce but also for workers in other parts of the value chain and the service sectors such as agronomists, input providers, banks, and farm insurance agencies. Linking progressive growers/suppliers to value chain partners, and to consumers, to reward the best efforts (De Vivo et al. 2016) will require cohesive policy goals, including value chain engagements, local community involvement, and government support (Garnett et al. 2013).

Sustainability transitions will create new job opportunities in the AgriFood sector and require the current workforce to be upskilled. FIAL 2020) estimates that opportunities to create healthier soils could increase job numbers by 30% from 2019 to 2030. Equally, it estimates that employment linked to waste collection, disposal and recycling services could double from 2019 to 2030. The food waste industry is labour intensive and is expected to remain so in the future, even as labour productivity will likely improve further, and more routine processes could be automated.

Box 5 highlights the changing work of agronomists now and in the near future with respect to the increasing importance placed on sustainability by AgriFood businesses and in the sector more widely.

Box 5 Sustainability as a workforce skill in agronomy

Taking the example of agronomy and the occupation of agronomist, Pratley and Kirkegaard (2019) outline the sustainability capability required. Digitising supply chains for great transparency in sustainability will need agronomic expertise and there will be a range of agronomy roles needed such as in research, advisory services and input supply. Further, the imperatives of minimising greenhouse gas emissions, ensuring land management meets community standards and satisfying increasingly stringent market requirements create demand for agronomists with greater environmental as well as production credentials. Further still, the digital and spatial capabilities of technology will provide increasing scrutiny of farm practices and environmental outcomes, and this capability may assist in measuring the role of farmers in respect of ecosystem services, such as carbon capture. For farmers to capitalise on these opportunities, agronomists would need to play a bigger role in support of mitigating risk in crop production. The role of the agronomist and, by extension, of other occupations, change and extend when the focus on sustainability becomes more central.

Source: Pratley and Kirkegaard 2019

Recommendation 2

The Committee recommends that the Australian Government commission the development of flexible online learning modules to build the capability of farmers, fishers, foresters and advisory (extension) services to improve AgriFood productivity through environmental sustainability – including carbon-neutral agricultural production.

5.3 Changing consumer expectations and commercial requirements

Australian AgriFood businesses are required to meet increasingly high and exacting government standards and customer requirements. The number of private sector supply chain requirements for AgriFood products and their influence on trade have risen steadily since the early 1990s under the combined forces of globalisation, policy liberalisation, corporatisation, changing consumer preferences and progress in ICT technology (Liu 2009). Consumer expectations and government standards promote the need for end-to-end supply chain traceability and visibility, and the scope of requirements is being extended to support environmental sustainability and social responsibility. While these conditions impose additional costs on Australian AgriFood businesses, they also open opportunities for export into niche markets and build brand recognition to obtain a price premium.

The current pandemic would appear to have had its origins in an uncontrolled food market supply chain. This has further heightened the need to build and maintain the high standards and integrity of Australian supply chains in the current era of global concern about the origin and safety of food. In practice, standards and commercial requirements are set by:

- Regulatory standards
  - government regulations, such as environmental policies, food safety, and occupational, health and safety
  - Australia's obligations in international trade agreements – such as sanitary and phytosanitary measures (SPS), anti-slavery legislation and importing country protocols

  - major global organisations, such as GS1, that maintain global data standards such as barcodes.

- Commercial requirements
  - producer led practices, such as organics, sustainably caught fish (Box 6) or sustainably harvested timber, in response to consumer or community expectations
  - commercial customers in Australia, such as retailers, restaurants, aggregators and food manufacturers
  - requirements of international buyers of Australian products in response to country of purchase expectations
  - the need for value-adding in all industries and supply chains of the AgriFood sector to transform commodities into higher value products.

Box 6 Austral Fisheries traceability

THE PROBLEM – Too much of the world's fish is caught illegally in protected areas or by unregistered vessels. Austral Fisheries has a commitment to responsible fishing but, given controversy in the industry, consumers seek reassurance that they are buying sustainable, ethical products.

THE SOLUTION – In collaboration with the Boston Consulting Group and WWF, Austral developed a machine learning algorithm called OpenSC that combined multiple data sources to verify that its vessels had only fished in legal areas. This helped Austral share this information with consumers on a dedicated website.

ORIGIN – OpenSC allows Austral to determine the exact origin of its fish. An RFID tag is attached to each fish just after it is caught. This records the exact GPS location of the vessel that caught it at the time and links that information to the tag. Austral designed a management dashboard to help it use this information to optimise its fishing operations.

JOURNEY – Austral can trace the journey of each fish from catch in Antarctica through to filleting in Perth and distribution across Asia, Europe and the Americas. As each fish is filleted, data on its RFID tag is linked with a QR code and attached to the packaging. The RFID tags and QR codes are scanned at key points throughout the supply chain. Austral can trace temperature from catching to consumer, thus bringing efficiencies in cold storage and recalls.

This blockchain tool allows Austral to share the story and journey of its carbon-neutral products through engaging a digital experience in restaurants, seafood stores, online and on their products.

By being able to verify, trace and share, Austral can:

- show to the consumer that its fish is sourced from a legal managed fishery
- be connected to its consumer
- optimise its fishing operations
- manage the cold chain and logistics.

OpenSC creates an unprecedented opportunity for producers at the beginning of the value chain to connect all the way through to end consumers. Moreover, the data OpenSC captures puts Austral at the cutting edge of scientific fisheries management and supply chain operations.

Source: Consultation with Austral Fisheries

5.3.1 International standards and consumer expectations

Consumers of today, both domestically and in export markets, are more informed than ever. They are seeking better nutrition from the high-quality food they expect to purchase to meet their extreme convenience choices and other demands, while understanding the provenance journey of their food from farm to plate. In addition, consumer expectations for products to be made using sustainable practices is becoming a minimum entry point for many international markets, while the heightened awareness arising from the pandemic is leading to traceability and safety also becoming key requirements.

In commodities, the trend towards value-add production has also been increasing. For example, Australian noodle wheat (ANW) is a wheat class grown in Western Australia typically for export into Japan to make udon noodles. CBH (the WA bulk handler) ensures a patent flour extraction to produce a maximum ash level of 0.36% to 0.40% with minimal bran contamination (Wheat Quality Australia 2020). Wheat classifications identify varieties with proven capability to deliver specific requirements, creating a foundation for consistent processing and end product performance. This type of value-added product development is an important trend in Australian agriculture.

Until the pandemic, Australian agriculture had a long history of reliance on world markets, with the sector exporting about 70% of production to 192 countries (Duver & Qin 2020). The development of global value-added supply chains has largely been driven by commercial customers and their representation of consumer interests, and consumers' growing demand for differentiated attributes in AgriFood products. Demand-led supply chains have transformed the expectations and conditions placed on producers. Examples of attributes required by downstream firms include traceability, free range, hormone free, organic, and carbon neutral (Greenville 2019).

Foreign regulatory standards and import protocols are often outlined in trade agreements, in the form of sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT). These measures impose biosecurity, health and food safety requirements on imports to protect domestic production, human health or the environment from pests, weeds and diseases that may be present in import consignments. For example, the UK has a sophisticated and highly scrutinised food market, where an ability to meet exacting commercial customer requirements, above those required by local food law, is a prerequisite for Australian suppliers and retailers in many product sectors (USDA 2020c). Complying with standards and consumer expectations can also have a direct value-adding effect by enabling AgriFood producers to obtain higher prices (Liu 2009).

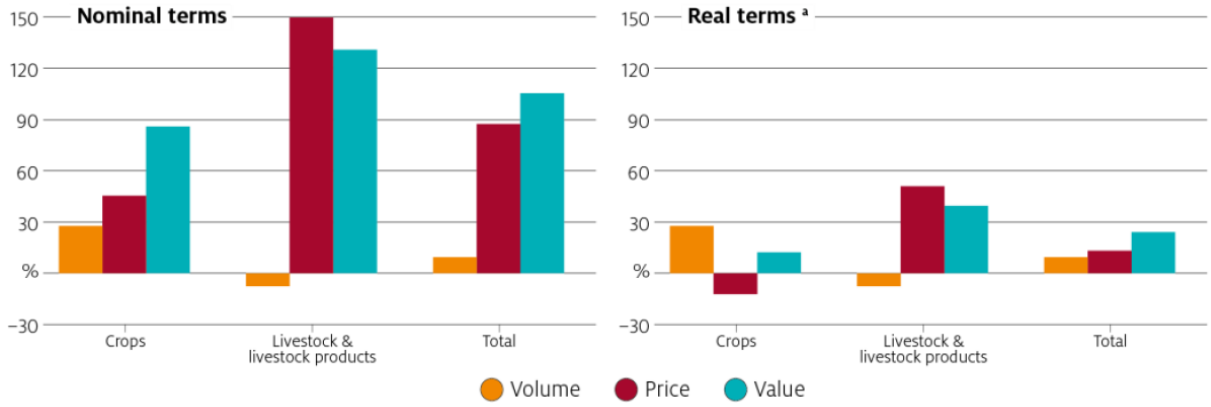
5.3.2 Changing demand structure for Australian AgriFood

As a developed nation with high workplace relations and other regulated standards, Australia is positioned as a 'high cost' operating environment. For example, a comparative analysis of meat processing costs in Australia, the United States, Brazil and Argentina found that average costs per head (excluding livestock purchases) incurred in processing beef in Australia were 24% higher than in the United States, more than twice as costly as in Brazil, and 75% more than in Argentina (AMPC 2018). These statistics highlight the difficulty many Australian AgriFood businesses face in having capacity to increase labour and other input costs while also remaining internationally competitive. Instead, Australian AgriFood producers, both at the farm gate and at

each stage of the supply chain, seek to take advantage of shifting consumer preferences to add attributes to products to create additional value.

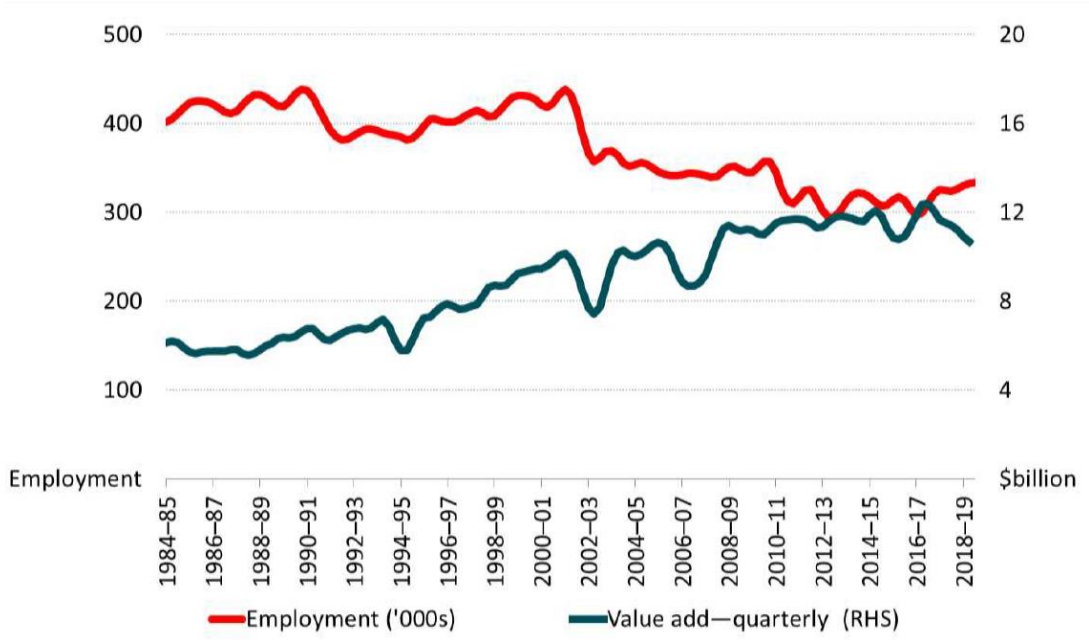
Value-adding in the Australian AgriFood sector, for domestic and export markets, has increased significantly in the last 30 years and will likely become even more important over the coming years. Growth in prices (value), rather than volume accounted for 90% of the growth in agricultural output over the 20 years to 2017–18 (Figure 40). Over the last 35 years, while on-farm AgriFood employment has fallen, AgriFood value-adding has increased significantly (Figure 41).

Figure 40 Price and volume contribution to Australian agricultural output growth, 20 years to 2017–18



a Adjusted to remove the effects of inflation.
Note: The contribution of changes in price and volume to growth value of agricultural output. Does not include fisheries and forestry. Crops includes horticulture.
Source: Jackson et al. 2018

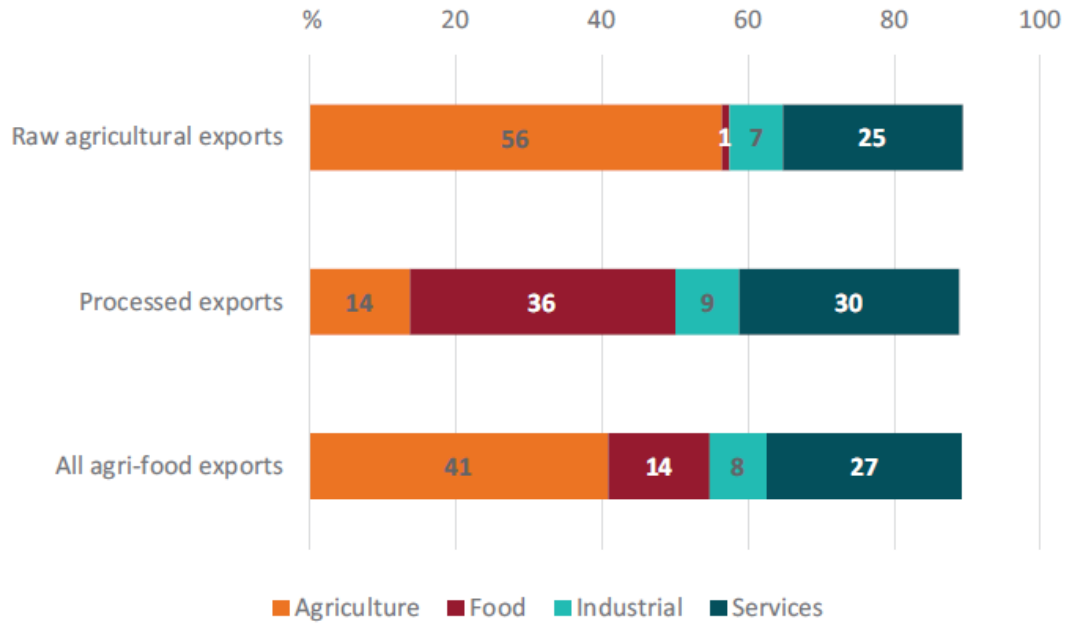
Figure 41 Agricultural employment and gross value added, Australia



Note: Agricultural employment includes farmers and all those who work on farms, including managers and labourers. Value added is output value less the costs associated with producing the outputs.
Source: Adapted from ABS Labour Force Survey Cat. No. 2691 and Australian National Accounts Cat. No. 5206

The largest component of value creation in Australian AgriFood exports occurs before the product leaves the farm gate (see Figure 42 – 'Agriculture' category), such as in meeting commercial specifications for raw commodities like wheat and red meat. However, value creation more generally results in the creation of additional jobs and income for Australians across the whole supply chain. The combined employment of producers and service providers across the AgriFood sector in Australia, including manufacturers, freight transporters, drivers, retailers, teachers, research scientists, veterinarians, technology developers, agronomists, biosecurity officers and engineers, is estimated to be 2 million people (Binks et al. 2018; Wu et al. 2019).

Figure 42 Composition of Australian export value by sectoral value added, 2014



Note: Remaining share of value in exports is foreign value added.
Source: Greenville et al. 2020a

Value-adding involves seizing the potential of supply chains to leverage the Australian AgriFood sector's reputation as a clean, green and safe producer. This reputation is at the core of why Australian food is demanded globally, and the need to prove a clean, green and safe reputation through end-to-end supply chain traceability is increasing in importance. The AgriFood sector needs to accelerate the shift to more consumer-focused, sustainable and inclusive production systems and collaborative supply chains. In the domestic market and in some of Australia's key export markets for AgriFood products, such as parts of Asia, rising purchasing power, education levels, urbanisation and evolving lifestyles are likely to lead to changing consumption patterns moving forward with a greater focus on food provenance, sustainability and ethical supply.

The impact of the COVID-19 pandemic

Post COVID-19, it is likely that demand for safe food will increase (Greenville et al. 2020b), which may open new avenues for food manufacturing. Changes in consumer preferences may also create opportunities for AgriFood products that showcase provenance, aiming at a growing

number of middle-class consumers in major export markets. Looking to the future, achieving competitiveness through innovation and product differentiation is a way to create value and jobs in the sector.

5.3.3 Food traceability, provenance and ethical supply

Collaboration between producers and their suppliers, intermediaries, retailers and other supply chain operators, such as freight logistics companies, is needed for supply chain traceability, and workforce development is required to understand the complexity and to develop practices that benefit all stakeholders in the AgriFood sector. The pressure to address supply chain traceability comes from various sources:

3) changing consumer expectations
4) governments seeking to uphold regulatory requirements – for example, biosecurity
5) suppliers' interest in demonstrating best practice
6) corporate supermarkets' aim to meet their consumers' expectations and mitigate risk – to be able to pinpoint where things went wrong in the supply chain
7) brand building for competitive advantage by producers, suppliers and commercial customers in the supply chain.

The issue of food traceability and proving provenance and ethical supply chain is complex and involves cost and competing commercial goals and perspectives. Box 7 exemplifies the complexity from a producer, retailer and supply chain partnership perspective. This complexity is required in building workforce knowledge.

Box 7 Case study in complexity: the development path of supply chain traceability

The fresh produce grower and packer

For 15 years Freshcare and other HACCP-based quality assurance systems have been used in Australia's fresh produce industry to enable producers to demonstrate their adherence to quality assurance. Fresh produce growers and suppliers participate with their own and their customers' home-branded products. The costs are borne by industry.

The supermarkets

Many corporate retailers have their own supplier specifications that growers and all suppliers must meet. The 4 largest supermarkets in Australia accounted for over 80% of food and grocery store revenue in 2019–20, with Coles and Woolworths accounting for 65% and ALDI and Costco 15% (Youl 2020). The opportunity for retailers to develop supply chain traceability is also linked to the extension of an already sizeable food export trade. Retailers have an incentive to promote traceability and value-adding best practice among their suppliers to achieve profit, to offset cost, and to meet, exceed and lead customer expectations and traceability requirements.

Implementing Food Traceability (IFT)

IFT is an industry-led partnership program initiated by Deakin University's Centre for Supply Chain and Logistics Food Traceability Research Laboratory. A partnership of industry (retailers and meat, fish and fresh produce suppliers), government and academia identified the highest priority issue – how to implement end-to-end supply chain traceability – then scoped and are funding the program to provide industry-wide benefits.

The program is developing guidance on how to achieve end-to-end supply chain traceability through generic and product-specific guides, industry demonstrations and the creation of a knowledge hub with e-learning. The focus is on global data standards and system interoperability between food supply chain partners, regardless of the technology or IT systems used. The purpose is to provide a non-proprietary method to lift the capability of Australia's AgriFood industry to verify the provenance, integrity and traceability of export and domestic food. Growers who can verify product claims are able to capture additional value of up to 10% for traceable product. The first red meat generic supply chain guide will be shared nationally in January 2021.

Source: Consultation with Deakin University's Centre for Supply Chain and Logistics

Improving workplace safety and encouraging innovation are other clear supply chain priorities. Good corporate citizenship mitigates risk for the corporation, supports workers, consumers and community and supports brand development. It also helps improve the image of the whole supply chain and influences consumer preferences around products (Box 8).

Box 8 Addressing consumer expectations through a coordinated supply chain

Coles Nurture Fund (CNF)

Launched in April 2015, the $50 million CNF helps small and medium-sized businesses to develop new market-leading products, technologies, systems and processes. The aim of the CNF is to drive product differentiation, extend growing seasons, improve productivity and reduce reliance on imports.

So far, the CNF has offered more than $24 million in financial support (both in grants and in interest-free loans) over 8 funding rounds to more than 60 Australian food and liquor producers (a business does not need to be a supplier to Coles to apply). Small and medium-sized businesses (less than $25 million in annual revenue and 50 or fewer full-time employees) can apply for a grant of up to $500,000 to help them develop new market-leading products, technologies and processes. Included in the most recent funding round were AgriFood supply chain businesses such as recycling manufacturer Plastic Forests from Albury, New South Wales, which will receive a $300,000 grant to manufacture fence posts from recycled plastic, emphasising the CNF's whole of value chain approach. Funding is paid in instalments based on project expenditure and mutually agreed milestones.

Woolworths Organic Growth Fund

Launched in October 2018, this $30 million fund offers interest-free loans (in partnership with Heritage Bank) and grants, on top of contracted purchase volumes, to support investment in organic farming projects. So far the Organic Growth Fund has awarded loans and grants to multiple businesses over 3 funding rounds.

Interest-free loans are offered to existing fruit and vegetable growers with organic operations for land acquisition, new varieties of produce, new facilities and equipment. In addition, these loans are available for Australian fruit and vegetable growers who are ready to convert their conventional operations to organic production. The Organic Growth Fund also awards financial grants up to $500,000 for proposed projects with a higher risk profile or with longer payback, such as research and development or innovative organic fruit and vegetable production methods designed to boost supply in the medium to long term.

Source: Coles Group 2020a; Woolworths 2020b

In addition to traceability and worker safety, corporate supply chain businesses (retailers and suppliers) are often committed to improving the social and environmental sustainability of their businesses and the products that they sell. These commitments have flow-on consequences for

businesses that supply these retailers, such as new policies and associated compliance scheme costs relating to:

1) sourcing environmentally sustainable commodities, such as seafood from ecologically sustainable sources or soy products from sources that do not contribute to deforestation
2) protecting animal welfare
3) protecting workers' rights in global supply chains (see Box 9)
4) measuring and benchmarking greenhouse gas emissions.

Box 9 Embedding responsible treatment of workers in supply chains

Coles Ethical Retail Supply Chain Accord

Signed in November 2019 by Coles, the Transport Workers' Union (TWU), the Australian Workers' Union (AWU) and the Shop, Distributive and Allied Employees Association (SDA), this accord aims to safeguard human rights in the horticulture supply chain by promoting ethical employment practices and treatment of workers.

The accord aims to achieve a safe, sustainable, ethical and fair retail supply chain for all workers regardless of their employment status, citizenship or visa status. Representatives from Coles, the TWU, the AWU and the SDA will meet regularly to plan collaborative activities and discuss the investigation of complaints. The accord members will also hold regular town hall meetings to hear from workers and provide information on workplace rights.

Coles and the unions will work on initiatives to embed ethical principles in the broader retail supply chain, commissioning research on the social and economic benefits of ethical sourcing as well as liaising on potential regulatory or legislative reforms to workers' rights, including in relation to labour hire providers. The accord will also create more opportunities for work education initiatives, such as development and dissemination of worker guidelines, freedom of association, migrant worker arrival training and using technological solutions for greater penetration of education and training materials.

Woolworths responsible sourcing program

Through its responsible sourcing program, Woolworths segments its suppliers based on their (or the source countries') level of risk for worker exploitation. The program applies increasing levels of due diligence as the level of risk increases. Its due diligence framework consists of 8 elements:

- Woolworths' responsible sourcing policy
- responsible sourcing standards
- training and education
- supplier self-assessment
- mutual recognition audit schemes
- sharing of audit reports
- implementing corrective action plans
- annual unannounced site visits.

In its 2020 risk assessment, Woolworths identified horticulture as a high-risk industry. It commenced a compliance program for categories at higher risk for worker exploitation: berries, grapes, stone fruit, brassica, tomatoes, cucumbers and citrus. The compliance program includes 5 key activities:

- implementing corrective action plans

- pre-harvest briefing sessions with suppliers
- supplier, grower and labour provider due diligence
- information checks by Woolworths of supplier and grower data
- worker engagement in key locations in partnership with other retailers, labour hire providers, suppliers and the United Workers Union
- site visits during peak harvest, as part of due diligence and to hear directly from suppliers and workers.

Source: Woolworths 2020a; Coles Group 2020b; Coles Group 2019

5.3.4 Continuous improvement requires investment, innovation and new workforce skills

New commercial customer requirements and government regulations require farmers and employees to be educated and trained to understand and satisfy these requirements. In turn this will ensure agribusinesses and the wider Australian AgriFood sector maintain and improve their competitiveness as 'clean, green and safe'. Australia's image as clean and green is no longer enough: our international competitors continue to innovate and develop.

Workforce development is not only required for commercial reasons; roles such as auditors and compliance officers are also becoming increasingly critical. Achieving compliance requires workers in the AgriFood supply chain to be skilled in certification, monitoring, record-keeping, labelling, quality assurance procedures and auditing. This theme was highlighted in submissions and consultations to the Committee. For example:

1) CBH reflected on increased investment in traceback capabilities and specialist staff expertise required to meet export market expectations, such as those relating to chemical use and residues
2) Australian Pork Limited reflected on the increasing level of training required to meet animal welfare standards in Australia
3) AUSVEG reflected on the trend towards horticulture businesses employing quality assurance specialists and other skilled roles to manage much of the food safety element of the supply chain
4) Tuna Australia reflected on the need for short vocational courses about fisheries management to upskill the broader base of commercial fishers so they could meaningfully engage with regulators, researchers and scientists
5) Growcom reflected on the need for auditing and training programs to ensure that employment standards are upheld in the horticultural supply chain and that this compliance can be demonstrated to the major retailers.

5.4 AgriFood supply chains

Supply chains underpin 'everything', including the survival and success of Australia's AgriFood sector no matter the product, state, region or market. The performance of the freight, transport and logistics services sector is critical to the competitiveness of the sector and its ability to meet the needs of domestic and international customers. Competitiveness through the supply chain incorporates a variety of factors, from farm productivity to distribution and marketing. As noted

by CBH, the grain bulk handler and supply chain operator servicing the Western Australian grains industry:

> *The vast majority of grain produced by WA growers (approximately 90%) is exported to international markets, primarily to South-East and North Asia. WA has historically had an advantage in these markets due to its geographical proximity, and because of the quality and consistency of its grain. However, the international competitiveness of WA growers is currently under significant threat, primarily due to the rise in supply from lower-cost (including lower labour cost) alternative grain origins, like the Black Sea region. Those factors are increasing pressure on the grains industry, including the CBH supply chain, to remain globally competitive by reducing paddock-to-port costs, through increased efficiency and lower supply chain costs.*

More than ever the pandemic shows that supply chain knowledge and collaboration is essential in overcoming logistics and geopolitical barriers within Australia and beyond. Skilled and well-trained people are required, as are people who fundamentally drive AgriFood supply chains and determine service quality. Practical capability-building initiatives that leverage the intellect, expertise and imagination of diverse groups of people provide a blueprint for moving forward.

The scale, complexity and sophistication of the logistics task is growing

The demands being made on the freight, transport and logistics services sector are increasing in response to a suite of trends, including:

1) the increasing volume of freight carried – expected to grow by over 35% from 2018 to 2040, bringing the total volume to just over 1,000 billion tonne kilometres
2) the changing nature of the freight challenge in conjunction with growing population density pressures – urban freight is forecast to grow by nearly 60% over 20 years to 2040 (DITRDC 2019)
3) increasingly complex and dynamic supply chain structures arising from expanding business networks
4) the expanding nature of supply chain functions, for example traceability and tracking the identity of goods in transit to allow retailers to manage their inventory and meet customer demand
5) growing consumer expectations for timely delivery, through multiple channels, and consumers placing increasing importance on e-commerce and online purchases
6) greater importance of technology and big data, for example autonomous vehicles, digital monitoring and AI optimisation of delivery routes
7) the need to manage increased supply chain risk in line with increasingly complex customer requirements, multimodal connectivity, and high-quality protection of food travelling over great distances (Australian Industry Standards 2019; Rogers & Park 2018; Gunasekera & Parsons 2017; Deloitte 2018).

AgriFood supply chains are based around people, companies and the many networks of relationships, information flows and communications that occur between the farm and the consumer. There are many different types and sizes of businesses in multifaceted sequences of highly interdependent functions in AgriFood supply chains. They cover planning supply and

demand, farming, product development, quality assurance, marketing, innovation, infrastructure, finance, logistics, operations, post-harvest handling, distribution, transport, processing, wholesaling, retailing and many service providers in between.

Supply chains begin pre-farm (planning supply) and extend well beyond consumption (understanding consumer purchasing and forecasting future demand) in a continuous cycle of planning efficiency and productivity improvement, contributing value-adding, innovation and insights on consumer behaviour.

5.4.1 Consequences for workforce demand and skill needs

The Australian AgriFood sector has demonstrated its success in working together to innovate and empower people. The complexity of global and national supply chains, however, needs new investment in developing workforce capacity, diversity and workforce capability to meet the continuously evolving challenge of supply chain complexity. Our competitiveness on global markets requires this investment: 'business as usual' is not a path to success.

Prior to the current pandemic, the AgriFood sector was experiencing a capability gap driven by the growing freight task and the demands of technological change. The Australian freight logistics workforce (8.6% of GDP) is forecast to see growth in the next 5 years of 6.6% (from 659,400 to 703,100 or around 44,000 people), reflecting increased projected freight volumes over the period (DESE 2019).

It is significant, however, that while the freight transport workforce and that sector's contribution to GDP have been measured by government, the significance of Australia's much broader supply chain sector (in AgriFood and more generally across the economy) has not. This fundamental and essential enabler is a hidden capability and the pandemic revealed the problem; freight logistics was declared an 'essential service' and Australians realised, firsthand, their daily reliance on a previously unknown and hidden supply chain workforce. Australia needs to build a mature and clear statistical understanding of the supply chain sector (workforce and GDP) and build the talent and capability to support Australia's AgriFood sector.

While freight volumes are forecast to increase (through e-commerce and increased import and export trade), technological innovations are transforming the freight logistics and poorly understood supply chain sector. This includes the increased use of automation and robotics, for example at container ports and in warehouses; and new digital technologies, which will enable more efficient, reliable and transparent transport systems (Australian Industry Standards 2019). Greater efficiency through the adoption of technology, however, requires dedicated skilled and highly skilled workers to maintain the technology. There are many other identified skills gaps (for example in optimisation, AI, and data / data analytics), and companies will require the competencies that will enable them to deal with future supply chain challenges. As highlighted by the Wayfinder: Supply Chain Careers for Women initiative and by the Australian Meat Processor Corporation in their submission:

> *The continual integration of technology to automate processes within plants has the potential to increase demand for skilled workers who can operate and maintain these technologies, as well as create a compelling case to upskill existing labour.*

Firms need their workforce to be agile and responsive to meet the skills demands created by new technologies, automation and other innovations as they evolve (Gunasekera & Parsons 2017).

An estimated 63% of Australian supply chain practitioners surveyed recently believed that 'big data' would have the largest impact on the industry over the next decade. Digitisation has reshaped and will continue to reshape the supply chain model to be more consumer-centric and predictive, such as through marketing, merchandising and ordering being available 24 hours a day with multiple methods of delivery (Australian Industry Standards 2019). The workforce must be digitally adept and literate in data analytics and higher order skills; this will require upskilling and increased training. Importantly, these same skills and the young talented workers who often hold these skills are highly sought after by many other industries and sectors in the Australian economy; AgriFood supply chains are not alone in requiring a modern skilled and educated workforce.

Increasingly, the hallmark of a successful 21st century supply chain workforce will be a combination of technical knowledge, multidisciplinary education and 'soft skills' that enable agile thinking and complex problem solving. Guggenberger et al. (2020) noted in their research into the consumer goods industry that more and more jobs will require social and emotional skills and higher-level cognitive capabilities, such as logical reasoning and creativity. The burgeoning world of automation will provide an opportunity to fast-track the transformation of repetitive jobs traditionally undertaken by unskilled workers. This could significantly impact the workforce capacity needs of various aspects of the AgriFood sector, but the quality, diversity, talent and capability needs of the AgriFood workforce remain mostly unresolved.

Multimodal freight transport

Multimodal freight transport in the Australian AgriFood supply chain comprises road, rail, sea and air transport. One example of a skills shortage is that freight transport globally faces a severe shortage of truck drivers. However, the sophistication of the vehicles, the skills of the drivers, the commitment to safety and the distances covered are testimony of the drivers' abilities and work ethic. In Australia, over 80% of transport and logistics employers surveyed by Australian Industry Standards (2019) reported experiencing skills shortages in the previous 12 months. Freight transport related occupations reported as being in shortage were:

- heavy vehicle drivers
- drivers (general)
- educators, trainers and assessors
- warehousing staff
- supervisors/managers.

Given the growing freight transport task in Australia, maintaining the current transport workforce and addressing workforce gaps, including those relating to vehicle fleet maintenance, are all-important. The distribution and vehicle fleet needs to be constantly maintained through regular servicing and mechanical upgrades, yet skilled workers in mechanics and truck servicing are in short supply.

In consultations to inform this Strategy, stakeholders reflected on initiatives that are underway to address the truck driver shortage and diversify the transport and logistic services workforce. One of these is profiled in Box 10.

Box 10 Workforce capability initiatives in transport and logistics

Victorian Transport Association Driver Delivery Program

The Victorian Transport Association (VTA) Driver Delivery Program is a 9-day program that provides training to new drivers of heavy vehicles. The program is supported by the Victorian Government and is run in conjunction with Armstrong's Driver Education. The program is fully subsidised, and this allows it to be offered at no cost to participants and employers.

The Driver Delivery Program has been designed in consultation with the transport industry. It provides new-entrant drivers with exposure to the driving environments that they will face as a professional driver, including rural driving.

The program is designed specifically for highly motivated first-time drivers and for drivers who are new entrants to the transport industry, and no previous heavy vehicle driving experience is required. The program provides intensive practical driver training, meaning that applicants get all the behind-the-wheel experience they need to be truly 'industry ready'.

The program has been designed so that approved applicants will obtain their Heavy Rigid (HR) or Heavy Combination (HC) licence during the program, subject to the approved applicant satisfying standard VicRoads licensing criteria. Upon successful completion of the program, the VTA will facilitate interviews with reputable transport and logistics organisations in order to help secure a heavy vehicle driving position for a participant.

Source: VTA n.d.

The pandemic and the future of AgriFood supply chains

The pandemic exposed the fragility of Australia's AgriFood supply chains when markets and logistics systems collapsed. It revealed vulnerabilities that were unexpected and not guarded against but it has also showcased examples of agile responses and opportunities for innovation (for example, pop-up customer fulfilment centres and the way in which industry has leveraged the shared economy to meet surging online demand).

The pandemic has highlighted issues around concentrated supply chains for certain goods and services – that is, where countries and sectors have a heavy dependence on single markets, export pathways and suppliers. The recent trend to a hub system in global AgriFood trading has been a driver of this concentration, as from 2004 to 2014 almost 45% of growth in global AgriFood exports used as inputs to other-country exports was concentrated in just 6 countries (Greenville 2019). Increasing diversification in supply chains has been discussed widely in response to identified bottlenecks and disruptions to international trade. A diversified supply chain, in terms of input sourcing and product markets, allows for risk mitigation and continuity of supply. Recent OECD analysis has shown that greater supply chain diversity, in terms of both products and locations, boosted competitiveness and market performance (Greenville et al. 2019).

One of the positive outcomes from the current pandemic is that government, community and industry are more aware than ever before of the extent to which Australia's supply chains underpin every aspect of business and community wellbeing. AgriFood supply chains face

unprecedented stress and are drawing an increased level of scrutiny, raising new issues and questions about how to make them more agile, resilient and effective in a new economic age. The pandemic has led to things changing quickly, like the increased use of 'tap and go' payments, and contactless and signature-less deliveries are likely to stay. Microsoft's CEO Satya Nadella stated in the media:

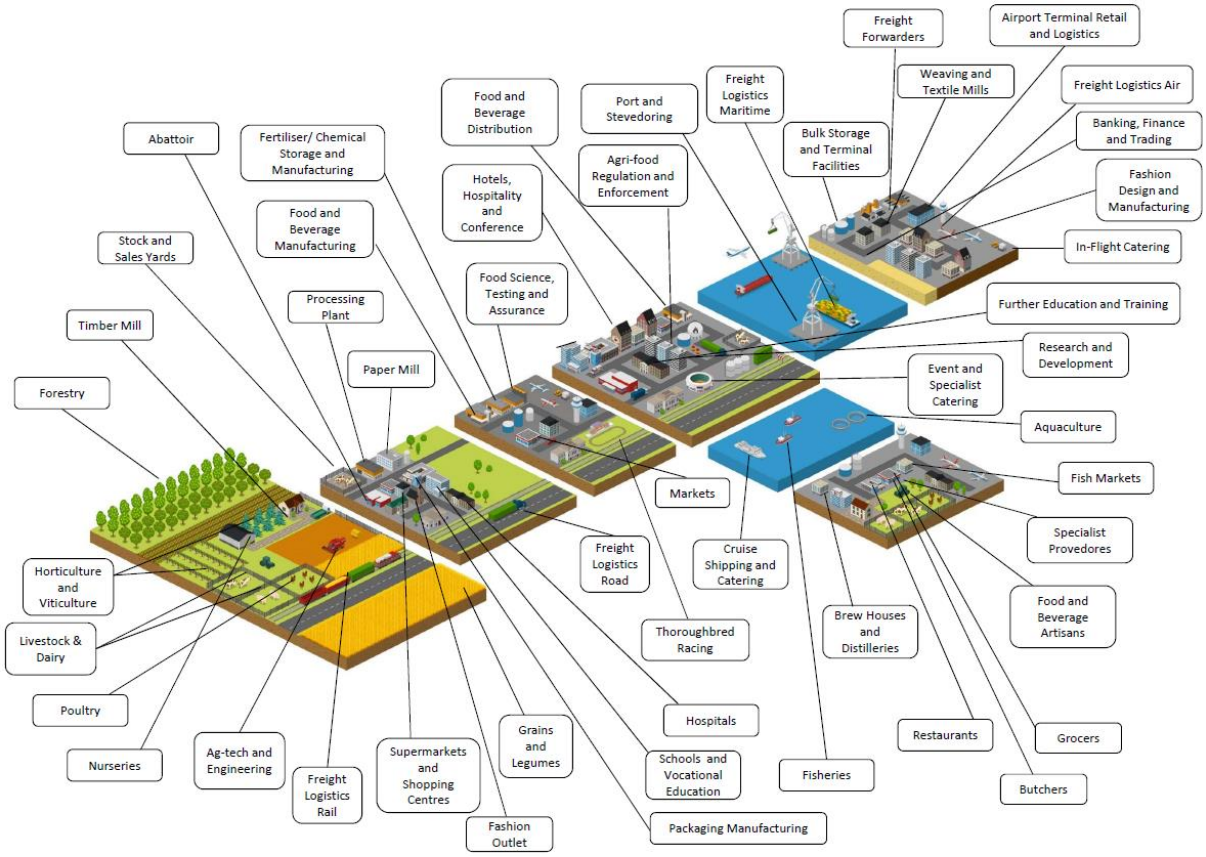
> *'We've seen two years' worth of digital transformation in two months.'*
> *(Microsoft 2020)*

These changes in consumer behaviour and the rapid advancement in technology use, particularly in response to the pandemic and AgriFood supply chain challenges, provide a new opportunity for Australian AgriFood supply chains.

The Executive Group of the Supply Chain Talent and Capability Research Laboratory at the Centre for Supply Chain and Logistics (CSCL) at Deakin University involves the CEOs of Australia's leading supply chain and logistics companies (retailers, food manufacturers, suppliers, transport and logistics companies). In 2019 the group determined that significant talent, capability, capacity and diversity shortages exist in the Australian workforce. The impact of the pandemic on the number of worker shortages is unknown, but the deficiency in the quality of the supply chain workforce remains. In its new Supply Chain Career Map, CSCL outlines 150 positions across 18 sectors – only one position is truck driving. Many other advanced and highly skilled workforce shortages exist in Australia's contemporary supply chain and logistics businesses, and improving an understanding of AgriFood supply chain talent and capability need is required.

Figure 43 identifies the complexity and breadth of the AgriFood supply chain. Workforce development is required to ensure the industry develops the advanced skills and cohesion for domestic and international supply chain competitiveness. Complex problem solving, critical thinking, modelling and the utilisation of data analytics and technology are required to ensure that agility, innovation and value-adding become possible.

Figure 43 AgriFood supply chain



Source: 2020 Deakin University Centre for Supply Chain and Logistics for the Committee. pers. comm.

Recommendation 3

The Committee recommends that the Australian Government encourage all corporate businesses (suppliers, retailers, manufacturers, et cetera) and all companies benefiting from produce of the sea and land to play a larger role in capability development of the AgriFood workforce through co-designed partnership programs such as the Coles Nurture Fund and the Woolworths Organic Growth Fund.

5.5 Value-adding

Increased value-adding in the AgriFood sector flows from a need to create product differentiation to drive profitability in the face of changing consumer and customer preferences and government regulations. Value-adding can come from several sources. It can occur when there is a change in the form of a product (for example, changing grain into flour) or it can occur through the addition of an attribute to a product (for example, creating traceability of animals) (Greenville et al. 2020a). Equally, value-adding occurs both within the farm gate, such as through adopting organic, chemical-free, or low-emissions farming systems; and further down the supply chain in packaging, AgriFood manufacturing, marketing and traceability tracking.

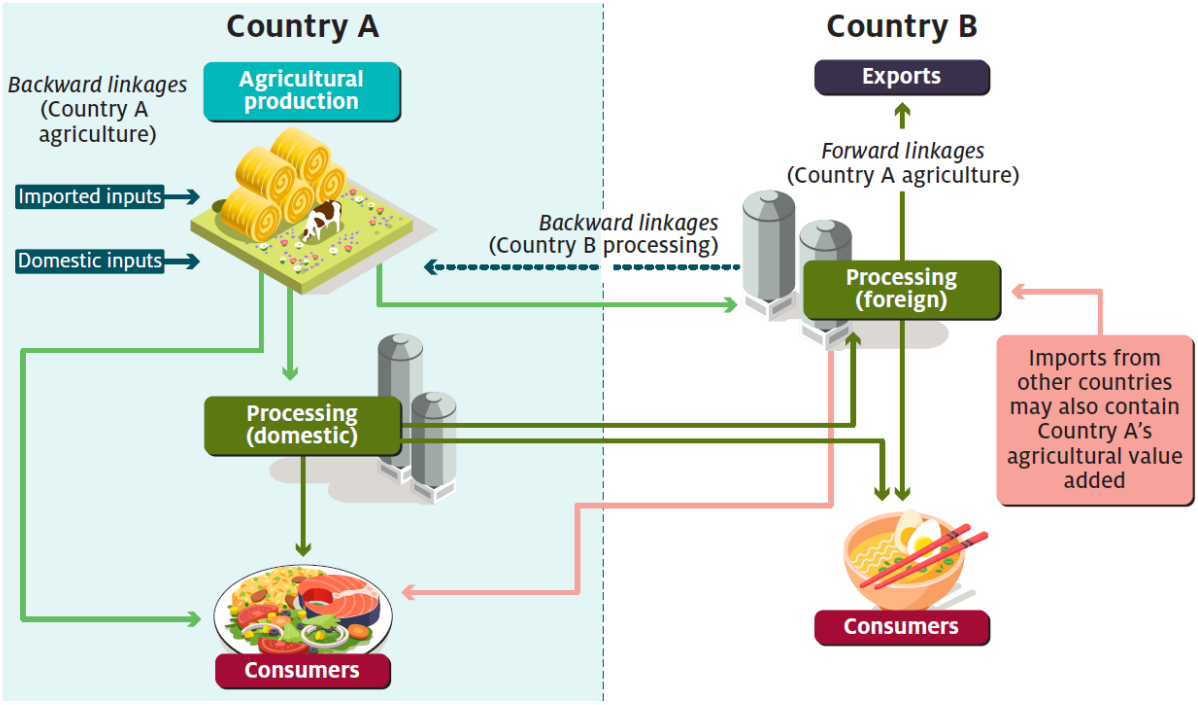
An indication of the pace of value-adding uptake is that the organic crop farming industry in Australia recording an average growth of 16% per year from 2015 to 2020 and consumer demand for organic produce is forecast to continue growing strongly over the next 5 years (IBISWorld 2020). Increased value-adding in the AgriFood sector has significant implications for

the workforce and for agribusiness owners in terms of changing capabilities and requiring new skill needs, while also driving a need for more coordinated value chains.

5.5.1 Global value chains

Agricultural employment growth has been spurred by Australia's participation in global value chains (see Figure 44). On average, in 2014 around 11% of the value of raw agricultural exports from Australia was made up of foreign inputs; the result is similar for food exports (Greenville et al. 2020b). For example, with Australian dairy exports, infant milk in particular, the industry has leveraged both its reputation for food safety and its access to imported inputs into production (dairy products from New Zealand), in combination with domestic production, to create value (Greenville et al. 2020a).

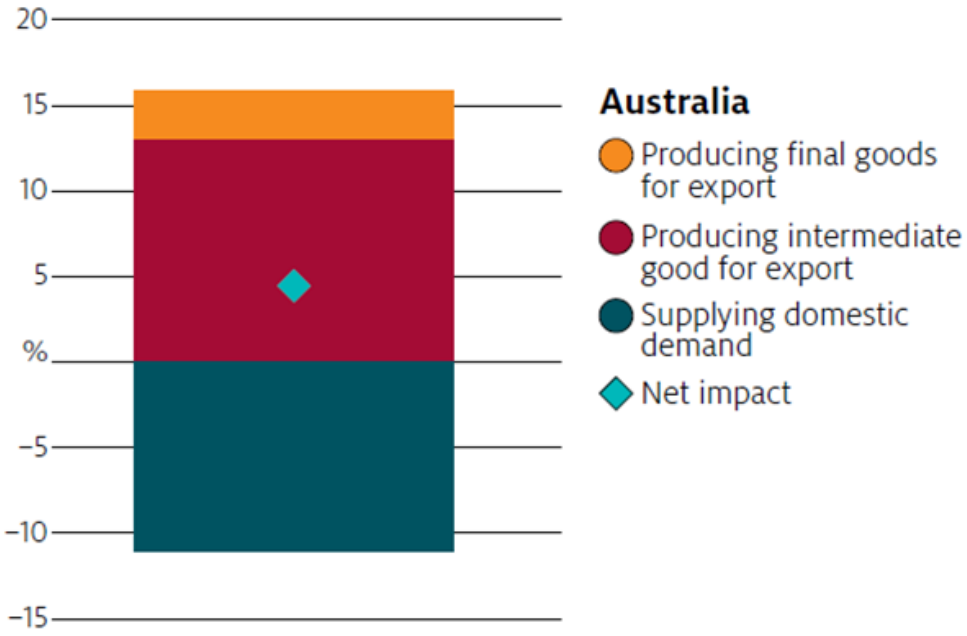
Figure 44 Example of a global value chain



Source: Adapted from Greenville 2019

From 2007 to 2014, increased productivity in the agricultural sector led to a decrease in the number of jobs required to supply food and fibre to the domestic economy, with the number of jobs falling by 10%. However, this effect has been offset through growth in trade within global value chains. Jobs created in supplying inputs into global value chains grew by 12% from 2007 to 2014, with a further 3% increase in trade jobs associated with exporting goods directly to foreign consumers (Greenville 2019). The net effect of these changes has been an overall increase in AgriFood sector employment (Figure 45).

Figure 45 Growth in source of employment for the agricultural workforce, 2007 to 2014



Source: Greenville 2019

Australian exports of value-added products nearly doubled in value from 2004 to 2014. Around 29% of the total value of Australian agricultural exports in 2014 came from services sectors, with the majority of that outside of transport and logistics (in areas such as business services, which includes a range of on-farm service providers, from agronomists to machinery contractors) (Greenville 2019).

5.5.2 Value-adding requires a coordinated supply chain

To date the majority of the AgriFood sector has seen agriculture as a primary industry and separated the agriculture and food-manufacturing industries. Stakeholders need to start looking more holistically at the food production system, where agricultural inputs are not just a commodity but lead to value-added foods and beverages. This approach – an 'AgriFood production system – has the potential to enable the sector to be an even greater wealth creator in Australia. The concept of a 'Team Aussie AgriFood' needs to bring together all the actors across the AgriFood supply chain in metropolitan and regional communities to advance and unlock the potential for increased value-adding for sustainable growth.

Successful implementation of value-adding in one part of the value chain benefits the whole chain by creating a more premium product. A coordinated and innovative value chain involves taking advantage of technology. A third of the companies surveyed (Guggenberger et al. 2020) had accelerated the digitisation of their supply chains and half had sped up digitisation of their consumer channels. Technology of all types can better support business. Essential to this new era are data and information systems, where interoperability and systems 'talking' to each other are critical. Traceability is fundamental to Australian agriculture – capturing data at each point of the supply chain so the information 'moves' with the product to mitigate risk, improve responsiveness, and enhance Australia's clean, green and safe reputation. In the red meat industry, the benefits of new DEXA technology are shared across the whole supply chain (Box 11), an example of enhancing supply chain coordination through data.

Box 11 DEXA technology – better decisions and profits for businesses in the red meat supply chain

DEXA (Dual Energy X-Ray Absorptiometry) is an objective measurement tool that measures meat, fat and bone in a carcase (carcase composition). This information can help the entire red meat value chain make more informed business decisions to improve on-farm and processing efficiency and deliver a product that is preferred by consumers. Sharing the data provided by DEXA along the value chain to complement other industry systems will allow all sectors to make more informed business decisions based on objectively measured information. Providing feedback along the value chain would place Australia at the forefront of global competitors in the area of feedback to producers about carcase quality. Economic modelling indicates that the gross benefits from the more widespread adoption and greater measurement accuracy enabled by DEXA could be $280 million per year by 2030. These benefits are shared between producers and processors.

Source: MLA n.d.

Government leadership to encourage the AgriFood sector to move to a fork-to-farm production system will assist the sector to meet changing demand patterns, as discussed earlier in the Strategy. A fork-to-farm production system starts with understanding the market, consumer needs and the product design required, then growing the desired crops and sourcing raw materials, moving to processing at the growing region through distribution to either on-demand platforms or selling directly to consumers.

Producers need to step into this opportunity by creating brands that showcase the provenance story of their food, highlighting more boldly 'made or grown in Australia' to create a point of difference. In Australia we have great examples of this approach already happening today, where true value-adding is being undertaken close to the growing region. Entrepreneurial initiatives, such as those outlined in Box 12, need to be supported along with further investment in regional locations, enabling supply chains to move food from source to consumers. Targeted investment to attract the brightest minds with capability and skills to build high-quality amenities is a big part of this imperative; equally important are bolder actions to enable rapid commercialisation to happen within regions.

Box 12 Local value-adding initiatives

Mountain Milk

Mountain Milk is a farmer-owned dairy cooperative located in north-east Victoria. It has developed a strong brand based on its commitment to triple-bottom-line social, environmental and regional development outcomes. With a view to creating a pathway for the next generation of farmers and generating pride in the industry, Mountain Milk supports the Alpine Dairy Pathways Program. This program allows secondary school students to meet farmers and other industry professionals and gain insight into the careers in the industry.

Eureka blueberries

Eureka blueberries are produced by Mountain Blue Farms. They are larger than traditional blueberries and result from the breeding of 2 existing varieties. Mountain Blue Farms has strong links with World Vision, and in 2019 donated 5 cents for every punnet purchased to World Vision to support farmers in Africa and Asia to adopt regenerative farming practices.

Natural Evolution

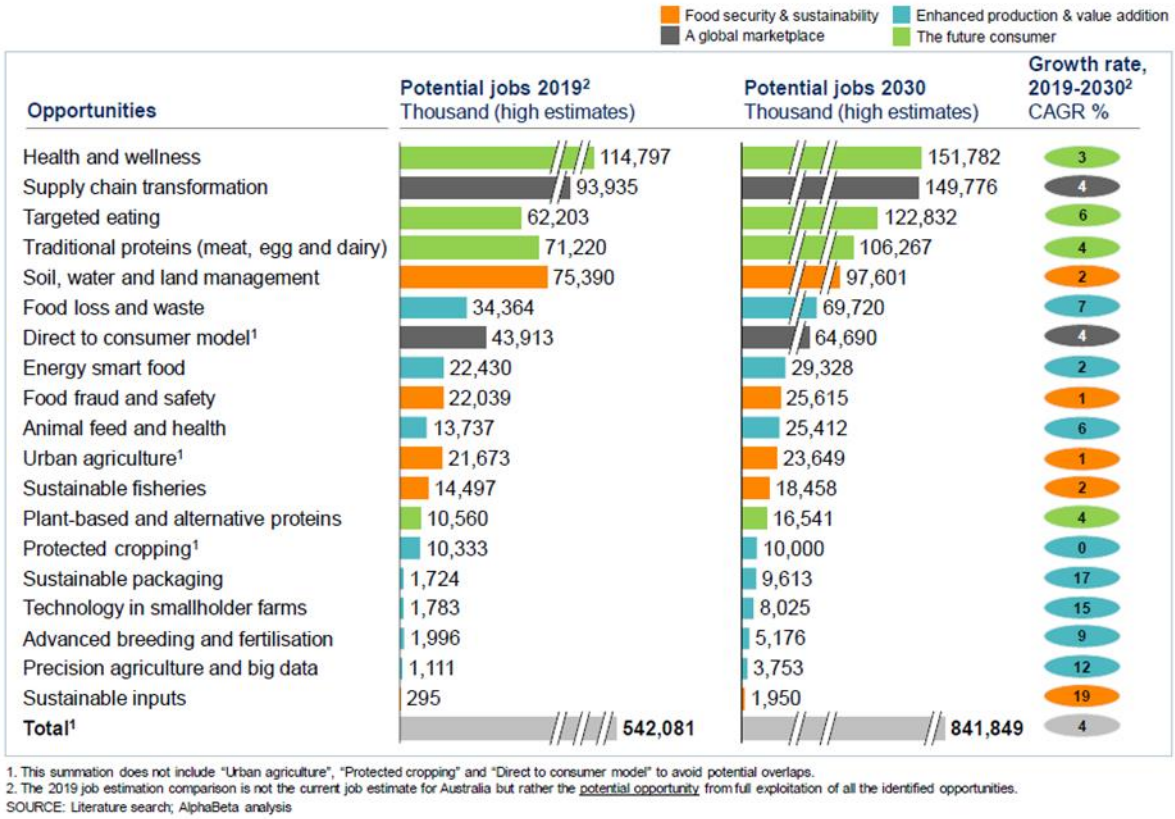
Natural Evolution Foods is a Queensland company focused on biodynamic farming principles where produce is grown for maximum nutrition while remaining pesticide and chemical free. Its first product, designed in 2008, was a fully recyclable packaging system known as 'Banana Blankey'. Banana Blankey reduces the cost, handling and plastic packaging that bananas require for transport. Banana Blankies are made from a fully recyclable PET liner that fits into a fruit carton, cushioning the fruit during transport. Another product is the Natural Evolution Banana Ointment – a healing and antioxidant-rich natural ointment that aides in healing arthritic pains, burns, cuts, skin abrasions, skin rashes, irritations, nappy rash and cold sores.

Source: Mountain Milk 2020; Natural Evolution 2020; World Vision 2020

5.5.3 Growth in value-adding requires new workforce skills and thinking

As value is created within the AgriFood sector, more jobs will also be created. In a forthcoming report the Australian Food and Agriculture Growth Centre, trading as FIAL, estimates potential for an additional 304,000 new jobs to be created by 2030, with 842,000 employed in total across the AgriFood supply chain, if the value of 19 growth opportunities is fully captured (Figure 46). The report identifies that the greatest job potential will be found in the health and wellness, supply chain transformation and targeted eating opportunities. In addition, the skills most in demand will be technical, managerial and numeracy, while critical thinking and problem solving will become more important (FIAL forthcoming 2020).

Figure 46 Potential jobs growth in the AgriFood industry



Source: FIAL forthcoming 2020

The skills and capability to innovate are a critical component of successful value-adding. Innovation requires critical thinking and the ability to make and leverage connections within and outside Australia. Most of these skills and capabilities need the 'how'– practical tools and

techniques that can be applied daily in jobs across the sector. These skills are also transferable, with talent becoming more transient to allow for more cross-pollination and job opportunities across sectors. The Australian Meat Industry Council in its submission noted the importance of worker capability in value-adding:

> *During the next 10 years the meat processing industry will require a smarter and more skilled workforce. It will need new skilled persons to undertake design, installation, calibration, maintenance/service, troubleshooting etc. There will be many new jobs generated.*
>
> *It is likely that average wages will increase commensurate with greater skills – however there must be sufficient incentives/programs in place to attract and retain these skilled workers in the rural/regional areas, otherwise we risk a technology lag in non-metropolitan areas across the country.*
>
> *Improvements in supply chain traceability and distribution (for example, shelf-life) will likely improve Australian exports and underpin ongoing sustainability of the sector (and jobs) Greater emphasis on end-to-end distribution and dedicated supply chains will likely result in greater investments in jobs to ensure these technical capabilities can be met.*

The act of innovation is a key enabler of successful value-adding. Innovation is defined as purposeful creativity and change that creates value. It is important to contextualise this, as innovation can have multiple meanings and perceptions across the sector. If it is purposeful and starts with the demand or need up-front, any change – no matter how small or big – that creates value across the food production system and ultimately for the consumer or end user is innovation.

In that connection, the adequate training of food technologists by Australian universities is essential.

The skills and capability to innovate are a critical component to address alongside industry and sector skill-based training. Capability development across the sector needs to work with technology adoption. This calls for more rapid and agile ways of continuous training and education, such as outlined in Box 13.

Box 13 A strategic approach to increasing AgriFood value-adding

Monash Food Innovation Centre (MFIC)

Established in 2013, MFIC partners with the fast-moving consumer goods industry to address future challenges and unearth opportunities through leading design innovation, education and research in AgriFood. Its projects and initiatives include:

- providing access to high-quality food innovation services and support to explore and validate food-related product or service offerings from concept stage to market execution with network partners
- working with industry and farmers to transform food waste into profit by researching the potential opportunity and market value of food by-products
- helping the dairy and food industry explore the next frontiers in the manufacturing of new products, efficient distribution and sustainable resource use via the Monash-led Food and Dairy Graduate Research Interdisciplinary Program
- supporting strategic science, technology and innovation collaboration of mutual benefit to Australia and China via the Australia-China Joint Research Centre in Future Dairy Manufacturing
- improving the sustainability of global food systems by applying research excellence in the field of agritech, focusing on the 3 key thematic areas of (1) data science, artificial intelligence and simulation; (2) robotics and automation; and (3) sustainability and ecosystem health (including human health through food)
- developing future talent for the food and agricultural sector with the launch of the Master of Food and Agribusiness in 2020.

Source: MFIC 2020

Other barriers to successful value-adding

Apart from needing to foster and develop workforce capability and raise awareness among agribusiness owners, there are other significant barriers to value-adding in the regions. These include high up-front capital costs, lack of sufficient infrastructure and ICT services in regional locations, and inaccurate asset valuations in AgriFood businesses (banking valuations have at times not kept pace with the changing nature of AgriFood production and increased value-adding being undertaken on farm, as outlined in Box 14).

Box 14 Barriers to value-adding

For the past 30 years, horticultural industries have seen a time of rapid consolidation. This transition from small family-run production to larger conglomerates has all the advantages of economies of scale, better technology and modern systems – thus a more resilient business model.

Packing on-farm

The consolidation process over the past 30 years has seen many large packhouses built on what was once the old farm shed. The value added by not only growing in the regions but also packing to 'retail ready' format has increased the value retained in the regions and is a driver of regional prosperity. On-farm packing also minimises handling and freight, allows for waste products to be dealt with more effectively by composting rather than landfill, enables the multi-use of water, and the like. Moreover, products with the advantage of a minimised harvest-to-packing window and immediate unbroken cold-chain processing have proven to be tastier and more nutritious and have an extended shelf life.

Processing on-farm

A more recent opportunity for food producers is the consumer trend towards value-added products. Products previously packed on-farm for retail sale are now being processed on-farm into ready-to-eat, pre-prepared and portion-controlled products, which have expanded the product range for retailers, widened the scope of producers and driven consumption among consumers. While driven by convenience, consumers are also heavily influenced by food hygiene, product visibility and the desire to reduce waste.

Horticultural value-adding requires enormous investment

The step from commodity production to value-add production brings with it many changes and challenges. First a mindset change in placing greater importance on food safety, food handling, hygiene, and cold-chain maintenance is required. Then a greater change is in the investment required in facilities and processes. These investments are often physically located on-farm in an area that was previously devoted to a different part of the production process, for example a processing factory located in an old shed. This can raise a challenge in accurately defining and valuing such investments, with some local councils not recognising 'agricultural industrial' as a category of planning use.

Furthermore, some local councils will impose industrial compliance on new processing sites without granting an upgrade in planning title. These regulations require farm-based packers to comply with parking, access, stormwater, wastewater, and hygiene rules, for a value-adding facility that is categorised as a shed.

Additionally, as there is often no recognition beyond farm use, large value-adding facilities can be valued as farm sheds. This is the major barrier to building value-adding facilities, at many times the value of commodity processing sheds, on farms where they belong. Commonly a valuer will not even recognise the full cost of a new facility in revaluation, meaning an immediate loss of value. This makes investing in value-adding even more capital intensive for farmers.

Source: Robert Hinrichsen, pers. comm., September 2020

Recommendation 4

The Committee recommends that the Australian Government commission a brief review comparing food technology courses in North American, European and Australian universities to set a best-in-class benchmark for Australian AgriFood capability development.

Recommendation 5

The Committee recommends that governments recognise on-farm investment in value-add processing facilities with appropriate rezoning of land to support the growth of skilled AgriFood jobs in rural and regional Australia – for example through the designation of agricultural industrial zoning.

5.6 AgriTech is driving new skill needs in the workforce

A technological revolution is currently underway. Commonly referred to as 'Industry 4.0', this revolution is being driven by advances in information technology, field robotics and artificial intelligence. This revolution promises significant benefits to the AgriFood sector. An estimate of the potential scale of benefits is that the implementation of digital agriculture (one aspect of Industry 4.0 technology) across all Australian production sectors could lift the gross value of food and fibre production by $20.3 billion, a 25% increase on 2014–15 levels (Leonard et al. 2017). Looking at the broader supply chain, FIAL (forthcoming 2020) estimated a total value of $200 billion in 2030 from adopting 19 areas of opportunity, which are underpinned by these emerging technologies.

One of the key implications of this revolution is how the technology can push forward the mechanisation frontier, enabling tasks that are still performed by hand to be fully or partially automated. While this may make some jobs obsolete, it will create new jobs that are more sustainable and change the skills required of many occupations throughout the AgriFood supply chain (Adeney 2018). AgriTech adoption will lead the workforce to transition from manual low-paying jobs to more technical high-paying jobs that are also more attractive to Australian workers in terms of reputational appeal and career development. This transition will require new education and training structures, because farmers and other AgriFood workers need support to familiarise themselves with emerging technologies and to obtain the specialist skills required to maximise their use (Lockie et al. 2020).

This section outlines the opportunities presented by emerging technologies and the challenges that need to be overcome to ensure the AgriFood sector can fully embrace those opportunities. Recommendations to achieve a collaborative and enabling approach to technological adoption, in addition to developing enhanced awareness and training structures, are outlined.

5.6.1 Economics underpins increased innovation

Increased technological innovation in the AgriFood sector has been driven by a variety of economic trends. At the farm level, technological augmentation and automation typically lead to gains in productivity and in turn profitability. Equally, a failure to embrace new technology places individual farms and industries at a competitive disadvantage relative to international competitors who do. This is particularly true given that new technology underpins modern supply chain traceability programs, which are gateway requirements to supply global value chains.

The other key driver of technological innovation in the AgriFood sector is risk minimisation around labour inputs. Availability of sufficient labour at harvest time is crucial in many industries like horticulture, meaning that labour shortages can have a significant impact on the profitability and viability of a farm business. Substituting labour inputs for capital upgrades can save costs in the long term and reduce the economic risk caused by volatile labour availability. The application of automation to horticultural packhouse operations is a similar substitution of labour by technology and is already a well-established practice in Australia.

The gap between expectations of AgriTech robots and their capability is closing quickly. In the United States in particular, the subtlety, dexterity and judgement of robotic fruit pickers has advanced significantly. For example, Root AI's robotic fruit pickers grip produce using an embedding and twisting motion, so the robotic fingers and wrist mimic the human hand. In addition, Root AI's vision hardware, combined with the company's custom convolutional neural networks, allows the robot to make judgements on ripeness, size and quality (Gonzalez 2020).

5.6.2 The pandemic is fast-tracking investment in AgriTech

Geopolitical and social trends relating to access to labour are accelerating the investment focus on AgriTech, especially in the United States (KPMG & Skills Impact 2019; Zahniser et al. 2018). The pandemic has exacerbated labour issues in some industries due to restrictions on international travel and movement of workers, with the extra labour shortage risks expected to accelerate automation adoption. The effects of the pandemic have been felt right across the AgriFood supply chain, such as in transport, processing and food safety. Current AgriTech

initiatives will play a major role in adapting to circumstances induced by the pandemic and there will be new opportunities for technological innovation in all parts of the supply chain.

5.6.3 Australian initiatives are gathering pace

Stakeholder submissions and consultations provided examples demonstrating that the technology frontier continues to advance in both animal and plant production and in downstream processing sectors (Box 15). For example, Cotton Australia's submission cited the benefits from the recently introduced on-board module building system for cotton pickers:

> *One producer was excited about the labour savings the on-board round module building system would bring to his operation. He was able to take his existing picking fleet down from six machines to four machines and significantly reduce the support staff that goes along with them. With a traditional fleet, he was running 22 to 24 people on any given day but could likely reduce that number to about seven.*

Larger and more powerful farming and transport equipment can complete operations in less time. Automatic milking reduces labour requirements in the dairy industry. Horticultural packhouses increasingly use sensor technology and automation to sort and pack products – tasks previously performed by hand. Advances in genetics and plant breeding have also improved labour efficiency. Examples are the use of semi-dwarf apple trees, which reduce tree size, making apple picking faster and reducing the need for pruning; and Roundup Ready cotton, which removes the need for weeds to be pulled by hand.

Box 15 Augmentation and automation

Augmentation

This term refers to the use of robotics or mechanisation to assist human operators to perform tasks, enabling a worker to do higher value work or to work more efficiently. Augmenting technologies require the upskilling of the workforce to build new digital and enabling capabilities to operate the new technology. For example:

Cotton picking – The industry first began with single-row and 2-row cotton pickers where the labour force requirements were minimal but the operation was extremely slow. The next stage in the advancement of the cotton picker was the development and widespread adoption of the 4-row cotton picker. However, each cotton picker could require up to 5 staff to drive boll buggies and operate module builders, and several ground crew to assist the operation.

Nearly 10 years ago the cotton industry quickly adopted the latest technology in cotton picking with the introduction to the Australian market of the CP690 cotton picker, which has made possible non-stop round module making and has drastically reduced the labour force requirement.

Meat processing – The manufacturing industry, including the red meat processing sector, is currently experiencing a shift in operation capability with the introduction of Industry 4.0 technologies, including the Internet of Things and intelligent automation. The use of technologies such as intelligent automation in the sector can be applied to areas such as animal welfare monitoring, plant cleaning and hygiene, cutting and deboning operations, grading and trimming meat products, ergonomics and employee safety, machinery maintenance, and meat packaging and warehousing.

Forestry – A range of advanced techniques in biotechnology, geospatial technology, field robotics and automation are being integrated into operations of leading forestry, transport, logistics and wood product companies. Adoption of these technologies will benefit industry by improving tree characteristics, forest

growth rates, log utilisation, process management, pest management, species' climate adaptability, and general value-add and productivity.

Advanced technologies with significant implications for current and future commercial forest management and harvesting include:

- biotechnology: clonal propagation, marker-aided selection and breeding, genetic engineering and genomics
- geospatial technologies: remote sensors, drone technology (UAVs), wearable and mobile technologies/apps, and new-generation satellite imagery technologies
- robotics and automation: automatic (X-ray) log-measuring systems, on-board computers with wireless data transfer, and remote-controlled felling.

Self-driving vehicles that use artificial intelligence may also have the potential to transform commercial forest practices over time.

Border biosecurity – International trade is growing; the volume of goods entering Australia is forecast to significantly increase by 2030. Other factors such as globalisation, increasing complexity of international supply chains and changes to operating environments due to the pandemic are making biosecurity risk management more challenging. The Department of Agriculture, Water and the Environment has initiated the Biosecurity Innovation Program to help develop emerging technologies and approaches with the potential to improve early detection. Initiatives of the program include drone surveillance, artificial intelligence, robotics, next-generation sequencing and new biological controls.

Automation

This term refers to the capacity of technologies to complete tasks and activities previously performed by hand. Successful implementation of automation technologies requires the redefinition of workforce roles and the development of capabilities to operate and service the new equipment. For example:

Tasmanian aquaculture and fisheries – Modern wild fishing and aquaculture operations employ an increasingly specialised workforce that relies on automation, often with remote or off-site control. Most feeding, environmental monitoring and surveillance operations of Tasmanian salmon producers are now performed from central control centres. As a result, there are fewer workers on salmon farms and employees increasingly have tertiary qualifications in fields beyond the biological sciences, such as computing and electronics. A similar technological shift is underway in many global/high-seas wild fisheries, with increased use of artificial intelligence to track operations and measure the catch and by-catch.

Field robotics – Agricultural robotics and sensor-based precision agriculture for in-field operations are initiatives that are beginning to become commercially available. Many of these robots take advantage of big data and can be programmed to use machine learning or artificial intelligence (AI). The Australian Centre for Field Robotics at the University of Sydney is an Australian leader in this area, with its robotics spin-out Agerris using AI mapping and decision systems in the field. In general, robots can be remote-controlled by a person or go through a pre-set route while applying collision avoidance algorithms and GPS. Specific robotic initiatives include:

- robots with moisture sensors that only water specific parts of a field
- fertiliser application equipment that only sprays select plants at optimal times
- detailed sensors that track animal health
- robotic fruit pickers and precision non-chemical weed pullers
- digital agronomy via drones and ground robots that use 3D-imaging and map-building to monitor soil, plants and crops.

These initiatives not only reduce labour costs and enhance on-farm productivity, such as through increasing crop yields, but also create co-benefits in environmental sustainability, such as through reduced chemical use.

Packing sheds – Automated packhouse equipment is technology that has been adopted in the Australian horticultural supply chain over the last few decades. Packing shed automation involves processes and equipment such as pre-sizers, automatic labelling, palletisers, integrated weighing systems and robotic forklifts. Automated packhouses still need technicians to plan production, run the line and perform maintenance, preserving the need for human capital within these businesses (Oladele 2019). One such example in Australia is Geoffrey Thompson Holdings, a vertically integrated apple and pear horticultural business that combines packing shed automation with human employees throughout the production process.

Source: Consultation with Agerris, Cotton Australia, Australian Meat Processor Corporation, Tasmanian Government and ForestWorks

5.6.4 The skill requirements of future jobs are changing

Modelling on the effect of emerging technology on the AgriFood workforce estimates that 41% of jobs in the sector will be transformed through the impact of augmenting and automating technology over the next 10 years (KPMG & Skills Impact 2019). By 2030, one in 3 new jobs created in the industry will be technology related, mostly navigation and process automation technologies. Securing the range of skills required by this technological revolution will be a complex task, particularly as they will also be in high demand in other parts of the economy.

Roles not traditionally associated with the AgriFood sector such as software developers, data engineers and data scientists will be needed to extract the most benefits from navigation technology, process automation and robotics (KPMG & Skills Impact 2019). It is critical that the workforce is equipped with the skills needed to embrace these changes and ensure the future viability of the AgriFood sector through awareness of career pathways. This can be done through the transformation of traditional agriculture or horticulture programs to STEM-infused agricultural science programs (Oladele 2019). Additionally, upskilling in data literacy and knowledge will be essential to ensure the reliability and value of on-farm data streams (Lockie et al. 2020).

Similarly, Cotton Australia's submission stated:

> *As highlighted in the Workforce Development Strategy developed for the Australian cotton industry, the expansion of digital capacities more generally will reinforce the requirement for a smaller pool of more skilled labour with the ability to operate complex systems. Additionally, the adoption of newer production technologies will also result in employees needing to have a greater skills base, as the average number of employees on farm may decrease.*
>
> *Increasingly, multidisciplinary skillsets are required. For example, staff with deep technical knowledge complemented by an understanding of supply chains, relationship management skills, and experience in digital platforms are proving increasingly appealing for employers to hire. Researchers will need to have more on-farm and production experience to increase their understanding of the potential solutions that can be developed to address business needs.*

FIAL's assessment of growth opportunities in Australia's food and agribusiness sector found that to realise those opportunities, the number of workers with technical, managerial and numeracy skills would need to increase significantly. The assessment found that administrative work and manual labour are the jobs facing the greatest average skills change from 2019 to 2030 (FIAL forthcoming 2020). This suggests the need for training programs that are broad based and consider the education and training needs of the full spectrum of the workforce.

The Western Australian Government also reflected on the increasing skills needs of the agriculture machinery services sector:

> *The Farm Mechanisation sector is vital to WA's broadacre farming sector and is critical to crop yield outcomes and profitability. A key industry concern has been the lack of training in new and emerging technologies for farm machinery technicians as well as the importance of developing a central location in regional WA to enable industry to partner with Registered Training Organisations (RTOs) including the local TAFE.*
>
> *There are currently an estimated 130 agricultural machinery apprentices in training in WA at any one time across all years of the apprenticeship, and industry demand for apprentices is expected to grow significantly over the next ten years as the rate of technology adoption escalates.*

Traditional husbandry skills and general labourer positions will remain important to the AgriFood sector for the foreseeable future as the uptake of technology is unlikely to proceed evenly (Wu et al. 2019). Although the greatest gains are likely to come from the subsectors that are still highly labour intensive, such as fruit and vegetable picking, those are also the sectors that most resist mechanisation due to the human judgements and physical dexterity required (RBC 2019).

5.6.5 Challenges

A relative lack of digital maturity and technological understanding

International comparisons suggest that the digital maturity of the agriculture industry is very low compared with other industries. The related transport and manufacturing sectors are also lagging (Table 6; Office of the Chief Economist 2018). Recent research suggests that these findings are true of the Australian AgriFood and related supply chain sectors (KPMG & Skills Impact 2019), with a consistent lack of proficiency in operating technologies and digital devices across supply chain businesses.

Table 6 Brookings Digital Score and McKinsey Digital Index measures of industry digitisation in the United States

Measure	Ag.	Mining	Manuf.	Utilities	Constr.	Wholesale	Accom. & food	Trans.	Finance	Health care
Brookings Digital Score	16	30	33	44	33	44	30	33	55	46
McKinsey Digital Index	Low	Low	Medium	Low	Low	Medium	Low	Low	High	Low

Note: The Brookings Digital Score is based on survey responses to questions on technology, including knowledge level, knowledge importance, work activity level, and work activity importance. The McKinsey Digital Index measures digitisation across several indicators: digital spending, digital asset stock, transactions, interactions, business processes, market making, digital spending on workers, digital capital deepening, and digitisation of work.
Source: KPMG & Skills Impact 2019

A number of factors are thought to contribute to the relatively low digital maturity of the Australian AgriFood sector, including:

1) a lack of leadership and strategic direction
2) low levels of awareness of available technologies and the benefits they could deliver
3) low levels of digital literacy and a lack of specialist agricultural data scientists
4) perceived low value from the technology or the provider
5) lower payoffs for smaller businesses, which are predominant in the industry
6) a lack of necessary infrastructure or connectivity in regional areas (KPMG & Skills Impact 2019; Zhang et al. 2019; Nolet & Mao 2018; Leonard 2017).

The role of advisers

The roles of key agribusiness advisers, agronomists, vets, retailers and the finance sector are likely to expand by including greater use of data and an ability to advise clients on appropriate technological solutions that fit with their business needs. These sectors will need to invest in infrastructure, training and collaborative linkages to better serve the needs of their clients (EY 2017). As noted by the Australian Council of Deans of Agriculture:

> *Advisory specialists such as agronomists therefore need to be trained in evaluating and integrating all the data into management advice. So rather than replace labour, these technologies increase the need for specialists to interpret and provide advice on management changes based on the data.*

Similarly, Crops Consultants Australia advised:

> *The question for industry is how do we use AgriTech in our business to add value for our clients? AgriTech now is much more than a drone and the amount on offer in this space can be overwhelming. There is a key role for Agronomists in assisting their clients through the purchase decision making process and the ultimate implementation of their chosen 'tech' into their farming system. It is evident that in order to fulfil this role, ongoing training in tech products and implantation will be*

essential for our future agronomy professionals. Such training is expensive, and once again, is as quickly outdated as the equipment.

AgriTech exhibits potentially disruptive features for farm management. The absence of objective advice on the selection of technology has at times created the impression that technology is being forced onto industry – which erodes confidence and creates a barrier to investment (Nolet & Mao 2018). This necessitates greater input from a farmer's advisory network to facilitate optimal farm system adaptation (Eastwood et al. 2019). Government initiatives aimed at upskilling the workforce in the face of the AgriTech revolution must identify and work with agricultural advisers and service organisations to co-develop models for provision of new and needed services. Additionally, advisers represent an efficient and effective point for government or industry interventions designed to increase the adoption of technology in the AgriFood sector.

5.6.6 Opportunities

The Australian AgriFood sector can become a leader in AgriTech education and training

There is an opportunity for the wider Australian AgriFood sector to become a world leader and exporter in AgriTech robotics and precision agriculture. This is due to the significant technical expertise and experience among individuals, AgriFood businesses and industries across the country, as well as the successful introduction of such technologies and world-class operations in parallel sectors such as mining, construction and energy. The technological knowledge and skills the mining sector has developed over the last 30 years presents a blueprint for future whole-of-supply-chain automation and optimisation in the AgriFood sector. The AgriFood sector has an opportunity to learn and copy from best practice initiatives in the mining sector and build on shared expertise.

Achieving this ambition starts with the workforce and increasing their exposure to AgriTech and technology augmentation, with the mining industry offering many examples in this area (Box 16). By upskilling the current and future workforce in robotics and precision agriculture, together with working collaboratively with farm businesses and manufacturers, the wider supply chain can benefit from increased productivity and global competitiveness.

Box 16 Education and training pathways in the mining sector

The mining sector is proactively preparing for changes to the skills composition of its future workforce. These changes flow from the evolving nature of work and workers and increasing technology adoption (such as automation, robotics and artificial intelligence) across the mining value chain (MCA 2020a).

Minerals Industry Education Summit

On 17 May 2018, industry, academia and governments convened the first Minerals Industry Education Summit. The summit examined current and future workforce needs and the education and training landscape and discussed a collective response to changing skills requirements, educational challenges and the recruitment and retention of qualified professionals. Participants discussed how to work with students, the education sector, industry and governments to plan for the future minerals workforce. Further informed by the summit, industry-wide and cross-sector collaboration is continuing as partners work to develop a national strategy that will:

- create postgraduate qualifications providing a pathway for graduates of other engineering disciplines to qualify as mining engineers

- identify skills and capabilities to enable the existing minerals workforce to upskill, cross-skill and reskill through vocational education and training, including micro-credentialling
- map career and employment pathways to show the opportunities in and pathways into the minerals industry
- forecast future employment needs and opportunities across the industry.

Rio Tinto Centre for Mine Automation at the University of Sydney

The centre pioneers world-class research to develop new mining technology. Through its work, it also supports the education of mining engineers and technicians, with over 40 researchers and more than 10 PhD scholarships awarded to support automation research.

Rio Tinto, Western Australian Government and South Metropolitan TAFE

This partnership supports development of new technology and innovation career pathways. Beginning in 2017, the partnership recognises the need for skills to support new roles within the workforce being created by automation and digitisation. These include new roles as controllers to operate and monitor driverless vehicles, pit controllers to monitor and manage vehicle operations on site, and communications and systems engineering specialists to provide detailed fault diagnostics. Rio Tinto committed $2 million to support industry, government and the education sector to collaboratively develop and deliver new nationally recognised qualifications in automation.

Source: MCA 2020a

AgriTech adoption will lead to greater job attraction

The advantage of the AgriTech revolution is that the same technologies will be key in attracting skilled workers to the AgriFood sector. AgriTech adoption will lead to more technical high-paying jobs that are safer and offer greater career development opportunities. The House of Representatives Standing Committee on Agriculture and Industry (2016) noted that the same technologies that are transforming the agricultural sector will be the key to attracting the right people to the sector in the future.

Greater job attraction lies in the changing nature of roles in AgriFood businesses. Robotics, automation and digitisation will allow workers to devote more time to complex tasks rather than to activities requiring low levels of skill (Lockie et al. 2020). In some contexts, technology results in more decision-making being devolved to the shop floor and increased worker participation in the design of production processes. Workers can take on the increased responsibilities that come with more technologically advanced manufacturing, which is a positive for career development. Additionally, the introduction of AgriTech reduces the physical stress of repetitive jobs and helps ensure safe working conditions (Gibson et al. 2019).

The education and training system must provide the emerging skills needed

Providing the skills for farmers to use new technology on farm is important, as is developing the broader rural workforce to work in support and service roles. Upskilling can be provided through accredited university and VET courses, micro-credentialling, other professional development programs and informal training.

The Australian tertiary education system needs to meet the emerging need for technology training in the AgriFood sector and the broader economy. The Australian Industry and Skills Committee, which oversees the national vocational education and training (VET) system, has established cross-sector projects in the areas of automation and digital skills, big data, and

supply chains to address common and emerging skills from the digital change underway across the nation's economy and workforce (AISC 2020).

Universities are also increasingly including technology components as part of their course offerings and are collaborating with the AgriFood sector on research programs through cooperative research centres. In addition to formal education, a range of informal government, private sector and industry training courses exist. The developers and retailers of technology provide advice and training in its use.

5.6.7 Upskilling the current and new workforce still faces obstacles

Although a suite of VET digital training units is available, there is generally low uptake of these units (KPMG & Skills Impact 2019). This is due to a range of interrelated reasons, including:

- registered training organisations (RTOs) choosing not to offer courses due to the costs (including the cost of equipment) and difficulty attracting skilled and experienced trainers
- RTOs offering training in current practices (where demand exists), rather than future practices (where demand does not exist)
- low collective demand for training – resulting from a lack of understanding of the potential benefits of the technology and of the training.

Government leadership is necessary to break the current behavioural impasse that results from employers' lack of willingness to invest in training and technology, and RTOs' lack of willingness to provide expensive training courses in the absence of assured demand.

Unlike VET providers, universities and related research centres can provide training and conduct research in areas that foreshadow the future needs of the AgriFood sector. Although this should help ensure the sector has the skills that it needs in the long term, it will do little to upskill the existing workforce. A review of the education and training offer is required and, rather than supplier-led education and training, demand-led programs that deliver impact are now required.

5.6.8 Government investment and reforms are underway

On 1 September 2020, Minister Littleproud announced that the Australian Government will invest $86 million to establish 8 Drought Research Adoption and Innovation Hubs across regional Australia and will develop a Digital Foundations for Agriculture Strategy. The hubs will be in regional areas that reflect the key agricultural and climatic zones across the country. The regions targeted are southern New South Wales; southern Queensland / northern New South Wales; south-west WA; Victoria; Top End NT/WA; Tropical North Queensland; South Australia; and Tasmania.

Key components of the reform agenda include:

- developing a National Agricultural Innovation Policy Statement, which will include new ambitious, mission-oriented innovation priorities to stimulate investment and action on important cross-sectoral issues
- developing a Digital Foundations for Agriculture Strategy, to be released early in 2021, to set the foundations for digital growth and opportunity across the sector

- working with research and development corporations (RDCs) to deliver digital platforms that support uptake of innovation and commercialisation outcomes
- scaling up agricultural innovation hubs and precincts and working with industry to strengthen extension, adoption and commercialisation.

Further to this announcement, on 1 October 2020 Minister Littleproud announced that the Australian Government, through the 15 agricultural RDCs, is creating a public company, Agricultural Innovation Australia Ltd (AIA). AIA will be managed by an independent, skills-based board and will invest in strategies that address shared challenges and opportunities to deliver transformative outcomes for the agricultural sector. Minister Littleproud also announced that the Australian Government is committing $1.3 million in seed funding for the first AIA investment strategies to fast-track action on the ground.

As part of the Commonwealth Budget 2020–21 announced on 6 October 2020, the Australian Government committed to full write-offs of machinery equipment for all businesses with a turnover of up to $5 billion. The government's instant asset write-off cap was increased from $30,000 to $150,000 at the onset of COVID-19 but had been set to end on 31 December 2020; it will now be continued. The government also announced the introduction of a 'loss carry-back measure' allowing losses made to June 2022 to be offset against profits made in or after the 2018–19 financial year. This means farmers could purchase machinery and immediately deduct the full cost, which could, in turn, generate a tax loss, which could result in the refund of tax paid in the past 2 financial years.

5.6.9 Continued collaboration is critical

The Committee notes the opportunity to build on the significant investment already made by government and industry to further develop the digital capability of the AgriFood workforce. Stakeholder submissions were supportive of this approach. Skills Impact recommended that the Strategy:

> *Adopt the recommendations in the Agricultural workforce digital capability framework report such as establishing digital capability benchmarks across sectors and driving the development of curricula and training pathways for both existing and future workers.*

Submissions suggested adding other institutions, such as Food Innovation Australia Ltd and cooperative research centres, to the existing collaborative model established by the Accelerating Precision to Decision Agriculture project (P2D) and the subsequent Growing a Digital Future in Agriculture project.

Wine Australia encouraged a continuation of the existing collaborative approach the rural research and development corporations have taken, noting:

> *The grape and wine sector is not the only industry vying for people who have expertise in artificial intelligence, machine learning and big data to come up with solutions to some of our sector's problems. These skills are important to the ongoing futureproofing of the grape and wine sector but also provide a transferable base across many industries including defence, space and engineering.*

> *Taking a collaborative rather than competitive stance, aligned to a more agile whole-of-education pathways approach, will have wider impacts. It speaks to a recent Department of Agriculture and Water Resources report which concluded 'The effectiveness and efficiency of Australian agricultural innovation today is undermined by poor cross-industry and cross-sectoral collaboration, limited diversity of skills, difficulty in attracting new entrants and limited systematic approaches to innovation'.*

The Committee considers that collaboration across government, industry, academia and education providers would enhance the impact of current and future investments. Recommendation 15 (Section 6.2.4) outlines a vision for an AgriFood Tertiary Education Council, which will coordinate strategic responses to education and training challenges, and strengthen industry leadership. New workforce skills driven by increased AgriTech adoption should be a key focus of this future council.

5.6.10 Further reforms and support are necessary

The Committee believes that governments have a role to play in creating an enabling environment that ensures the successful delivery of education and training programs that grow the AgriFood workforce's capability to harness new technology. The Committee believes that the Australian Government should consider providing necessary incentives to training providers in order to create high-quality courses in digital agriculture and field robotics that use on-the-job learning, such as through smart farms.

There is also an opportunity for government to assist Australian AgriFood in making necessary capital investments in robotics. These capital investments are critical, but often involve high upfront and ongoing costs due to the equipment's technical sophistication, transport and installation requirements, and maintenance needs. Therefore, government has a role to play in providing leadership and the necessary incentives to overcome barriers to the adoption of such technology, which will require an upskilled workforce.

Additionally, government has a role to play in raising awareness of career pathways and fostering the development of potential employees in the AgriFood sector, to support both the growth of automated operations and the sustainability of the sector. To build a strong collective workforce for the entire AgriFood sector, there is a need to better develop the next generation through technology, educational and training initiatives, and new ways of thinking.

The nature of agricultural employment is being revolutionised by technological innovation and it is critical that education and training pathways keep up with new farming practices to maintain the competitiveness of Australian AgriFood and realise imminent growth opportunities. The Committee believes that recommendations 6, 7 and 8 could be a major part of the Australian Government's workforce strategy around AgriTech and innovation, helping ensure the agricultural workforce gains sufficient ICT, engineering and robotic skills in order to meet the changing nature of technology use and labour demand moving forward.

Recommendation 6

The Committee recommends that the Australian Government extend indefinitely, for field robotics and other high-end AgriTech, the full tax write-offs announced in the Commonwealth Budget 2020–21.

Recommendation 7

The Committee recommends that the Australian Government consider collaborative approaches, including co-funding models with state and territory governments, to build knowledge of AgriTech developments among advisory (extension) services and their staff.

Recommendation 8

The Committee recommends that the Australian Government's Drought Resilience Research and Adoption Program hubs make strong links to AgriFood workforce capability development and extension.

5.7 Conclusion

The Australian AgriFood workforce requires development as shown in each section of this chapter. The AgriFood industry and its supply chain interdependencies are generally poorly understood, yet this industry is extremely important to national economic recovery from the current pandemic and our future. Reform of the education and training system that supports AgriFood is required so it can become a cohesive, demand-led, modern, internationally competitive and relevant service to the AgriFood industry.

New understanding and definition about what the AgriFood industry involves is required, as is the mapping of jobs, careers, and education and training. The skills needs of existing jobs are changing in response to the use of new technology, which is sweeping through all segments of the industry. At this stage the modern AgriFood industry is largely invisible to the community, who are unaware of the increasingly skilled nature of many jobs within the supply chain.

A comprehensive understanding of commercial imperative, end-to-end supply chain reality, value-adding opportunity, technology and innovation in domestic and global markets is essential. The AgriFood workforce requires sophisticated development focusing on critical thinking, complex problem solving, ingenuity, agility and resilience, so that as a nation we are ready for the future. And innovation, AgriTech, application of technology, and investment in equipment and education and training courses need to be firmly based on the practical reality of agriculture and fisheries – the land, sea, water and energy necessary for sustainable and lucrative industrial transformation.

Australian society has a history of being practical and realistic, and working together in times of adversity. Our history also shows we are innovative and collaborate effectively for mutual gain.

This Strategy emphasises the need for partnerships. People from public and private sector organisations across the supply chain need to work together to build a new demand-led path to deliver the outcomes necessary to support this vital economic activity. Companies, industry groups, suppliers, unions, government and academia need to devise new ways of working together so the partnerships deliver meaningful outcomes and the desired impact. 'Business as

usual' in Australia can no longer be relied upon; 'Team Australia' requires new energy and coordination and the courage to make a difference (see Chapter 2). The powerful connection of the relevant parties in respectful, trusting and constructive relationships, as demonstrated in many of the initiatives highlighted in this report, cannot be underestimated.

The pandemic continues to place extraordinary pressure on the AgriFood industry. To make a difference Team Australia needs to find the right partners, agree on the priorities and deliver impact quickly.

6 The long-term workforce

The Committee is convinced that attracting and retaining a skilled AgriFood workforce needs to be based on a new reality – a reality of good experiences, a reality that matches the brand the sector seeks to build as a global quality AgriFood provider. This view has parallels with the approach taken in Tasmania to link the AgriFood sector to the Tasmanian brand strategy.

The Committee heard of leading initiatives that are making inroads. These initiatives demonstrate the importance of industry leadership, targeted approaches, prioritising diversity, providing a breadth of career possibilities and ensuring strong links to education and training (Section 6.2).

It is the Committee's view that further change is required in the design of jobs, an extensive uplift in workplace leadership and human resources management skills (Section 6.3) and industry ownership and development of highly attractive industry entry and career development pathways (Section 6.1).

Alongside the scaling-up of innovative approaches already underway in some parts of the sector, the Committee recommends a new signature initiative to re-engage Australia's young people and their families with the sector. This needs to provide positive experiences of the opportunities for jobs and careers in the sector and demonstrate the alignment between the community's interests in sustainability, care for the environment and quality food, with the opportunities the sector provides.

6.1 Attracting and retaining the future workforce

To address poor perceptions of jobs in the sector, it is necessary to work on improving the attractiveness of jobs and careers and raising awareness among the general community of the opportunities in the sector. This requires a multifaceted response, starting with employers and the jobs and opportunities they provide.

6.1.1 Employer champions

The committee heard of the importance of 'employer champions' in designing more attractive jobs in terms of task variety, working hours and conditions related to their sector context. Such champions are successful in attracting employees and demonstrating industry leadership. They are employers who exemplify:

- professionalism, including fair pay and conditions expected in modern workplaces,
- commitment to a safe workplace and a productive and respectful workplace culture (Section 6.3)
- an engaging workplace, offering a point of difference from other sectors in adventure, experience, skills and job and career opportunities.

These employers also focus on employee retention and not only attraction. High employee turnover increases the effort required to attract a workforce. The submission of social researcher Dr Nicole McDonald noted:

> *Agriculture seems fixated on attraction through marketing itself to new entrants. In much the same way best practice management in production and positive environmental outcomes underpins the ability for industry to obtain and maintain its social licence, best practice management in human resources and positive retention outcomes underpin the ability for industry to seem desirable to new entrants and for the next generation to develop interest in pursuit of a quality career in agriculture. This must move beyond a focus on minimum legal requirements to optimal people management practices required for workers to be engaged, motivated, and satisfied with their jobs. Aspects of transformational leadership are present in some of the best performing businesses.*

Improving the perception of jobs and careers in the industry needs to be coupled with a genuine effort by employers to improve the quality of job roles, either using improved management practices (Section 6.3) or increasing the use of technology to reduce the need for heavy manual labour.

The Committee heard that employer champions should be identified and recognised for the leadership they can provide in the front line of the vision of workforce attraction and retention as well as in mentoring of new entrants and other employers.

Recommendation 9

The Committee recommends that the Australian Government, in partnership with the state and territory governments, establish an 'Employer of Choice' academy and award scheme to raise awareness of, and to demonstrate, leading human resource and workplace management practices in the AgriFood sector.

6.1.2 Understanding and addressing community perceptions of jobs and careers

While specific subsectors can take the lead in improving attractiveness of jobs and careers relevant to their context, the degree of disconnect in the community with the AgriFood sector requires a collective response. Submissions highlighted the need to influence general community perceptions of the AgriFood industry and to promote positive aspects of working in the industry, including:

- the intrinsic importance of the industry in feeding, clothing and housing society
- the lifestyle benefits of rural or regional living
- the increasing role of technology in the sector and the new types of jobs coming on line.

Conversations about food and where it comes from lead to wide-ranging discussion of ethics, brands, innovation, people development, lifestyle and health and are entry points for opportunities to work in the sector. This also highlights the importance of language and terminology.

Skills Impact highlighted the need to modernise the language used in job descriptions and roles to make them resonate with a broader range of people and to remove the possible impression they are low-skilled roles (for example, farmhand).

The need for a shared, positive vision and narrative for the sector has also been highlighted by Bray & Cay's (2018) comprehensive review of agriculture in schools in Australia. They noted:

> *The place of food and fibre in contemporary society needs clarifying via articulation of shared societal values regarding issues critical to agriculture's future, including technology, health, rural and regional development and education.*
>
> *There is a need for a common, contemporary narrative for food and fibre careers, including the growth in new technology-based roles in support of primary production, and a need to share that narrative with students, teachers and careers advisors.*

Any effort to change the broader community's perception of careers in the AgriFood industry will not be easy. It will not be possible to curate how the industry is presented to the public by the media and how events such as droughts and other natural disasters or periods of poor financial return, which are inevitable, are portrayed. However, consultation undertaken by the Committee with the Minerals Council of Australia, Brand Tasmania and EY highlighted the importance of conducting research of community perceptions to inform an evidence-based approach to address them. The Committee considers this to be critical early step if the sector is to change the broader community's perception of careers in AgriFood.

Recommendation 10

The Committee recommends that the Australian Government, in consultation with the AgriFood sector, commission research on community perceptions about work in the AgriFood sector to inform an evidence-based campaign encouraging people to enter the sector. The Australian Defence Force and Minerals Council of Australia campaigns could be models.

6.1.3 Recognition that careers communication does not replace quality 'lived experiences'

The Committee received many submissions concerning the poor quality of AgriFood career communications in schools and elsewhere and the apparent low interest of career advisers and lack of training for career advisers. Quality careers information and careers advice is an important first step. However, it is largely up to the career seeker and their searching to locate and use this information. Given the poor awareness and perception of the AgriFood sector, relying on impersonal resources such as websites to attract people will be less effective than if quality resources are combined with quality experiences for any hesitant potential new entrants.

The Committee heard that a positive lived experience and connection with the AgriFood sector, whether that is in primary or secondary school, in university or though work experience, proved essential for turning a vague interest into a career start.

A person's first experience with the sector is important. The Committee heard of the importance of employers investing in interactive educational experiences that develop relationships with potential long-term entrants. Poor early experiences lead not only to turnover but also to the development of a poor reputation as those with a bad experience share their experience with their peers.

Targeted and tailored experiences for entrants that link to quality 'tasters' and 'education experiences' at all levels are crucial in the sector and an important area for collective effort.

6.1.4 Continue strong engagement in schools

The Shergold review into senior secondary pathways into work, further education and training (2020) noted the importance of exposure to careers in a variety of roles and industries during primary and secondary schooling, when young people are in a career exploration phase. Relevantly, it recommended:

> *Recommendation 11: Education authorities and industry bodies should formalise their working relationships in order to facilitate the engagement of industry in senior secondary schooling in a systematic and comprehensive manner.*
>
> *Recommendation 12: Education authorities need to facilitate and encourage partnerships between schools and employers at the local level in order to help students to make choices and gain experience in the diverse career pathways that different industries offer.*

The Committee supports these recommendations and the continuation of the efforts of governments and industry to provide high-quality teaching materials and resources to encourage teachers to include AgriFood in their classrooms.

The AgriFood sector now features more strongly in primary and secondary school education around Australia. The sector's relatively strong presence in schools is due to the actions of governments, government agencies and industry bodies including:

- the Australian Curriculum, Assessment and Reporting Authority (ACARA), which included a 'Food and Fibre' connection in the Australian Curriculum
- state governments making the teaching of agriculture mandatory or a specific option under their respective state curricula
- investment by state governments in infrastructure, such as school farms or other agriculture-specific schools, agriculture teachers and agriculture-specific programs
- investment by industry bodies and by governments to develop teaching resources linked to the Australian Curriculum
- delivery of programs by committed teachers.

The Committee heard of current initiatives achieving recognition for their quality and impact, and many submissions recommended their expansion or replication (Box 17).

Box 17 Current initiatives in AgriFood careers education in schools

The Educating Kids About Agriculture: Kids to Farms grant program (Australian Government)

This 3-year, $5 million program provides students with a hands-on, practical farm experience and a greater understanding of the role of agriculture and the breadth of career opportunities available in the agricultural sector. The program has funded state farming bodies to sponsor government, Catholic and independent primary school visits to farms and other primary production worksites to learn about agriculture production, sustainability practices and land stewardship. It will conclude on 30 June 2022. As a newish program, its uptake and efficacy have not yet been evaluated.

The program will engage young Australians about the contribution and the future of farming, increasing understanding of where our food and fibre come from. The program provides an opportunity to enhance the food and fibre learning elements of the Australian Curriculum and encourage more young Australians to study and pursue a career in agriculture.

PRIMED (Western Australian Government)

The PRIMED initiative aims to engage school students to expand their knowledge about careers in primary industries and encourage students to consider career-path options in primary production. It is a collaboration between the Department of Primary Industries and Regional Development, Department of Education and Department of Training and Workforce Development to build interest and promote opportunities in primary industries-related education and careers to address the future needs of the sector.

Recognising the important role they play, the project will inform and upskill secondary school teachers in knowledge of the career opportunities that exist in agriculture, fisheries, forestry, fibre and food and support the integration of these in the delivery of curriculum. It will focus on the development of new curriculum modules, professional learning and immersion experiences for both students and teachers, with a strong emphasis on careers promotion and pathways.

The integration of content into the years 7 to 10 curriculum across the Science, HASS and Technologies streams focuses on increasing knowledge and understanding of the importance of the food and fibre supply chains and ultimately addresses the poor perceptions and stereotypes of primary industries in the wider community.

Primezone and Career Harvest (PIEFA)

The Primezone website provides teachers with single-point access to a range of primary industries education resources that have been developed by the Primary Industries Education Foundation Australia (PIEFA), state government agriculture departments and rural research and development corporations. It contains around 500 individual learning resources and had around 300,000 downloads in 2017–18. The Career Harvest website contains a wide variety of resources to assist with choosing a career in agriculture. PIEFA is building further case study and video content to enhance Career Harvest and is planning on providing teachers with online workshops to educate them on how to integrate primary industries careers into their teaching. PIEFA also has a program called Farmer Time that links classrooms with producers of food and fibre along the supply chain, through videoconferencing. This is seen as a potentially powerful tool to engage students in understanding careers in agriculture.

Source: PIEFA 2020; Western Australian Government submission

There is significant flexibility in how states and territories, schools and teachers deliver the Australian Curriculum to students. As a result, the extent to which AgriFood is present in Australian classrooms varies from state to state, school to school or classroom to classroom. To support an even greater presence of the AgriFood sector in Australian schools, submissions called for greater inclusion of agriculture in the curriculum or greater support for teachers to include AgriFood teaching materials in the classroom. For instance, Australian Pork Limited's submission mentioned:

> *Government commit to working with the industries to update the national primary and secondary curriculums to adequately reflect the essential nature of Australian agriculture and build greater awareness amongst school students to assist in the development of a workforce pipeline.*

The submission by the Primary Industries Education Foundation Australia, a government and industry funded body that promotes primary industries educational information, stated:

> *School students need guidance in developing an awareness and interest in agricultural careers. Schools lack a uniform approach to promotion of careers. There is need for more student and teacher based interactive information, a dedicated careers curriculum (resources for careers advisors and teachers that target the variety of primary industries to make teaching this easier for schools), more professional learning for teachers about primary industries careers and information on how to teach this in the classroom. As well ways in which agricultural careers can enter the classroom through interactive online means, such as virtual farm tours.*

While the benefits of including AgriFood in the school curriculum in terms of students' future career intentions are unclear (Bray & Cay 2018), the extent of activity and anecdotal reports suggest that efforts to date have resulted in a positive effect on entry into the AgriFood sector by some students. In line with this Committee's call for greater accountability for outcomes from workforce development (Section 6.2), it will be important as part of this Strategy to evaluate the impact of past efforts and monitor and evaluate new efforts for their impact. Research alongside these programs can also assist to ascertain the most efficient and effective approach in designing programs to achieve these outcomes.

The Committee considers it critical that the sector highlight the AgriFood careers in a variety of roles and industries.

Recommendation 11

The Committee recommends that the Australian Government commission the development of a comprehensive interactive digitised map of the AgriFood workforce to demonstrate the breadth of jobs, careers and education and training opportunities.

The Committee recommends that the Australian Government develop workforce diversity case studies to demonstrate AgriFood workforce opportunities to women and to Aboriginal and Torres Strait Islander people and incorporate these case studies into the interactive digitised map of the AgriFood workforce.

The holistic map proposed in Recommendation 11 would complement existing resources developed by the AgriFood sector, often on a subsector by subsector basis, to explore, choose, build and plan a career in the sector.

6.1.5 Building closer ties with teachers and the career advice sector

Over the past 5 years a suite of independent reviews has called for strengthened career advice for students or other people considering their future career directions. The Joyce review (2019) noted that the large volume of careers information, of variable quality, available through various sources was creating problems for prospective students. In response, the Australian Government has established the National Careers Institute, to provide a single authoritative government source of careers information, with a particular focus on marketing and promoting vocational careers.

There is an opportunity for AgriFood industries to engage with the institute to help build its capability, evidence and resource base. A strengthened data and information base (Chapter 8)

will be important to this engagement. Industry should work with the National Careers Institute to review existing careers resources and design new resources that align with the needs of schools, students and their parents.

More broadly, the Committee acknowledges and supports the recommendations about career guidance made by the recent Shergold review of senior secondary pathways into work.

While the Committee was encouraged to hear that career advice arrangements are being strengthened, it is important that the government and AgriFood sector make headway on other fronts, such as:

- Greater direct employer engagement in schools to raise awareness of real career options at/from years 9 to 12
- Professional development for teachers and career advisers in integrating AgriFood studies as part of a curriculum-based approach.

The Committee heard that career advisory roles in schools are chronically underfunded and are often not specialist positions, with career adviser more often considered an 'extra duties' role given to teachers who may have close to a full teaching load.

6.1.6 Continue quality facilitated work placements

Consultation and submissions highlighted the opportunity for facilitated work placements to broker employment experiences for young people in the AgriFood industry. A range of different models is currently operating, going from fully commercial models, such as graduate employment programs offered by large businesses across the sector and light-touch industry facilitation to more holistic models of support for work placement, associated with programs for disadvantaged young people. As noted by Borland et al. (2016), in the latter context the facilitating body tends to take on a broader range of pastoral care responsibilities including:

- developing job-readiness skills
- assisting in obtaining job-specific skills necessary to obtain employment
- helping place people in jobs
- providing ongoing monitoring and support in the job placement.

Borland (et al) 2016 further noted that the best-practice model for these programs was most likely to be achievable at a local level and in partnership between organisations providing different types of assistance to job seekers and employers. This is because while only employers can provide job placements, they cannot be expected to (and cannot afford to be) responsible for the job readiness of disadvantaged job seekers. Along the same lines, the Productivity Commission (2020) recently noted that greater support services for employees and employers, such as mentoring and pastoral care, could help strengthen traineeship and apprenticeship programs. Where young people have low levels of disadvantage, the facilitating body takes on an information-broker type role or is absent altogether.

The Committee noted current initiatives facilitating work placements in the sector (Box 18).

Box 18 Programs that facilitate work placements

Cotton gap year

Cotton Gap is a vocational program, aimed at encouraging school leavers to move to a regional area, to be employed on a cotton farm. Cotton Australia launched the Cotton Gap program in 2017 and 2018 to expose school leavers to the careers in the Australian cotton industry. The cotton industry has traditionally relied on working holiday makers to support the operational level workforce. The concept of an employment period of up to 12 months with an Australian school leaver was well received by cotton producers and the program participants. Roles offered include operational-level farm roles. Cotton Australia, the cotton industry representative body, provides light-touch facilitation services. Employers commit to arranging accommodation and a range of pastoral care responsibilities for participants and employee participants as per standard business practice.

AACo graduate program

The pastoral company AACo offers a 2-year graduate program that includes 3 streams targeted at different businesses areas: 'Intensive', which focuses on areas such as backgrounding and genetics; 'Extensive', such as pastoral and rangelands; and 'Corporate', which includes HR, finance, legal, customer experience, and marketing. Graduates commence at the Brisbane office for a 2-week induction. The first year consists of firsthand experience in the value chain through placements in stations, farms or feedlots. The second year focuses on more complex roles either on station or at the company's Brisbane office.

Traineeships/apprenticeships

Rural traineeships provide business incentives to employ trainees, who are required to enrol in the appropriate VET qualification. The traineeship lasts for one to 2 years and can be terminated by either party. The qualifications can be at any level from Certificate II to Advanced Diploma, with Certificate III being the predominant qualification used. Traineeship training can be provided in different arrangements from all on the job to delivery in a training institution. Group training organisations can take on the employer role for a contingent of trainees and place them with businesses as a labour hire model.

Harvest Trail Services (HTS)

HTS providers are contracted by the Australian Government and service 16 major horticultural production regions. HTS provides employers advice and help with workforce planning and recruitment, sourcing suitable workers and advertising job vacancies on the Harvest Trail Jobs Board. HTS provides job seekers with advice about their eligibility for harvest work, harvest job opportunities and requirements of roles, employment conditions and transport and accommodation options relating to local harvest jobs. The service is provided free of charge.

BackTrack Youthworks

BackTrack is an independent community-based organisation that offers long-term, whole-of-person support to young people who have fallen through the cracks by giving practical, self-esteem building skills. Most participants end up working in agriculture or related roles, such as metal fabrication (Box 34).

Youth Jobs PaTH

Youth Jobs PaTH is an Australian Government employment program that helps young people gain skills and work experience they need to get and keep a job. Employability skills training helps young people understand what employers expect in the workplace and supports them to get job ready. The training, delivered by registered training organisations, can be tailored to a particular industry and helps ensure young people have vital skills such as presentation, communication and teamwork. PaTH internships enable businesses to trial young people to see if they are the right fit for the business, before they hire. Young people gain valuable work experience and can demonstrate their skills to businesses looking to hire. Youth Bonus Wage Subsidies of up to $10,000 may be available to businesses that hire eligible young

people in ongoing work. Growcom, the Queensland horticulture industry body, supported the broadening the eligibility for Youth Jobs PaTH internships to include recently unemployed young people (Box 27).

Source: AACo 2020; DESE 2020a; DESE 2020b; Cotton Australia and National Farmers' Federation submissions and consultation

In the current economic downturn arising due to the pandemic there appears to be scope to expand facilitated work placement initiatives to broker work experience for young people in the AgriFood industry, to the benefit of both participating employers and employees.

The inquiry heard evidence of the development of high-quality entry-level training that offered new entrants key skills, a good experience of jobs and careers, and education and career pathways.

The Committee wishes to highlight the approach of Thoroughbred Industry Careers in its Explorer Cadetship program (Box 19). This initiative presents a model that is sector specific and nationally relevant, provides a single entry point for a diversity of job and career options and is strongly linked to mentoring from leading employers with high standards of culture and safety. This initiative clearly demonstrates the link between attraction strategies, providing quality experiences, education and training and kickstarting careers.

Box 19 Thoroughbred Industry Careers entry program

The Thoroughbred industry Explorer Cadetship

Developed and funded by the largest employers in the sector, the cadetship is a year-long program that combines accredited training (3-month residential 'boot camp') and 2 work placements (stud and stable) with widely respected employers. The program allows participants to explore the different aspects of the industry before deciding which area is best suited to them. It aims to provide a clear pathway for young people into all the roles offered by the industry, including into tertiary equine studies. Participants are invited to consider and apply for the program via the program managers' personal and direct connections with horse-enthusiast networks such as pony clubs in each state.

Another example of the facilitated placement approach is the Poultry Hub, which provides unaccredited, short-format training aimed at low-skilled positions in the sector (Box 20).

Box 20 Poultry Hub – Egg Farmers of Australia

Poultry Hub Australia

An initiative of the Poultry Cooperative Research Centre, Poultry Hub Australia (PHA) is a not-for-profit organisation located at the University of New England in Armidale, NSW. PHA focuses on challenges identified by the Australian poultry industry and requires a collaborative approach to deliver solutions quickly and effectively. An important aspect of PHA's activities is to build capacity in the industry. Two-way communication between young people and industry is essential to building the industry's capacity in a sustainable way. PHA has a commitment to build capacity through mentoring and coordination of poultry research across Australia, through activities that connect students and young people with industry.

The training program consists of 4 days of hands-on, assessed unaccredited training that seeks to engage people in the Australian poultry industry. The training provides essential learnings such as specific details of the Australian poultry industry (predominately eggs and chicken meat), identifying soft skills and appropriate behaviour at work, biosecurity, health and welfare of poultry, and occupational safety.

The work experience component aims to place participants in businesses that have available employment positions. This enables businesses to directly employ participants if they are deemed satisfactory during their work experience.

6.1.7 Expand attraction strategies to increase the diversity of potential entrants

The Committee heard many calls for increasing diversity in the workforce not only to meet workforce needs but also in recognition of the value and benefit to the sector in innovation and productivity from a more diverse workforce. In particular, the Committee received submissions focusing on the importance of diversity strategies relating to women and the Aboriginal and Torres Strait Islander communities. Diverse groups, such as Aboriginal and Torres Strait Islander people and women, are under-represented in the AgriFood workforce (Elphick-Darling et al. 2016). According to the 2016 ABS census, women made up 32% and Aboriginal and Torres Strait Islander people 1% of the AgriFood workforce (Binks et al. 2018).

6.1.8 The role of women as leaders needs to be recognised and supported

Women's participation would appear to be deteriorating. Barr's analysis of longitudinal census data suggests the farm manager position is slowly becoming male dominated due to the trend to use more paid employees in this position (as opposed to owner-managers). These employed managers are predominately male. Alston et al. (2017) noted that women's decision-maker role was being marginalised as men tended to fill 'farmer-manager' roles, while women were taking on more 'directed worker' roles, despite the increasing amount of work they are doing. Related manufacturing and transport services sectors all have much lower proportions of women compared to the economy as a whole, with women being around 20% of the workforce in skilled positions and 25% to 35% of the workforce in lower-skilled positions (Barr & Kancans 2020).

Research by the Bankwest Curtain Economics Centre and the Workplace Gender Equality Agency showed a strong causal relationship, in private Australian businesses with more than 100 workers, between increasing the share of women in board and executive-level leadership positions and subsequent improvements in company performance across a suite of indicators of profitability and productivity (Cassells & Duncan 2020). However, the research also found that women remain grossly under-represented as key decision-makers. In AgriFood and the related manufacturing and transport services industries, which are strongly male dominated, around 75% of businesses had 25% or fewer women at board level and 70% or fewer women at executive levels.

Women's role in farming businesses and rural communities has been historically under-recognised due to the marginalisation of the important value of women in generating off-farm income, doing volunteer community work and establishing entrepreneurial regional businesses (Binks et al. 2018; Alston 1998). Low representation of women in the AgriFood workforce discourages women from seeking opportunities and reduces the industry's access to unique perspectives and capabilities, hindering its growth potential.

Submissions by the Australian Council of Deans of Agriculture and Crop Consultants Australia reflected on the increasing number of female agriculture graduates in recent years and on the need for greater flexibility of work conditions in the industry. Crop Consultants noted:

> *In the past ten years, the majority of agriculture degree graduates has seen a shift from men to women. While this is a great step in direction for equality there remains the ongoing issue of maternity leave, career progression/continuance and loss of knowledge in the industry.*
>
> *Like all areas of science, the rate of change and technological development in Agriculture is fast. A small career break due to maternity leave, can lead to a large knowledge gap.*
>
> *When looked at from an industry perspective, this will reflect as a large gap in representation of women of childbearing age in the industry over coming years. The experience of these women cannot not simply be replaced by employing another agronomist. There needs to be support in place for these women. This can be in the form of training support when requested, further workforce provisions such as allowances for training while on maternity leave without the loss of their paid parental leave.*

Innovative initiatives in the supply chain represent the types of approaches that can foster increased involvement and recognition of women in the sector (Box 21) and the important role employers themselves play in leading greater inclusion.

Box 21 Career pathway initiatives

Wayfinder: Supply Chain Careers for Women

Established by Deakin University's Centre for Supply Chain and Logistics in partnership with industry, Wayfinder aims to break down the stereotypes of a traditionally male-dominated sector by increasing the visibility of careers in the supply chain and logistics and rethinking talent acquisition, retention and promotion.

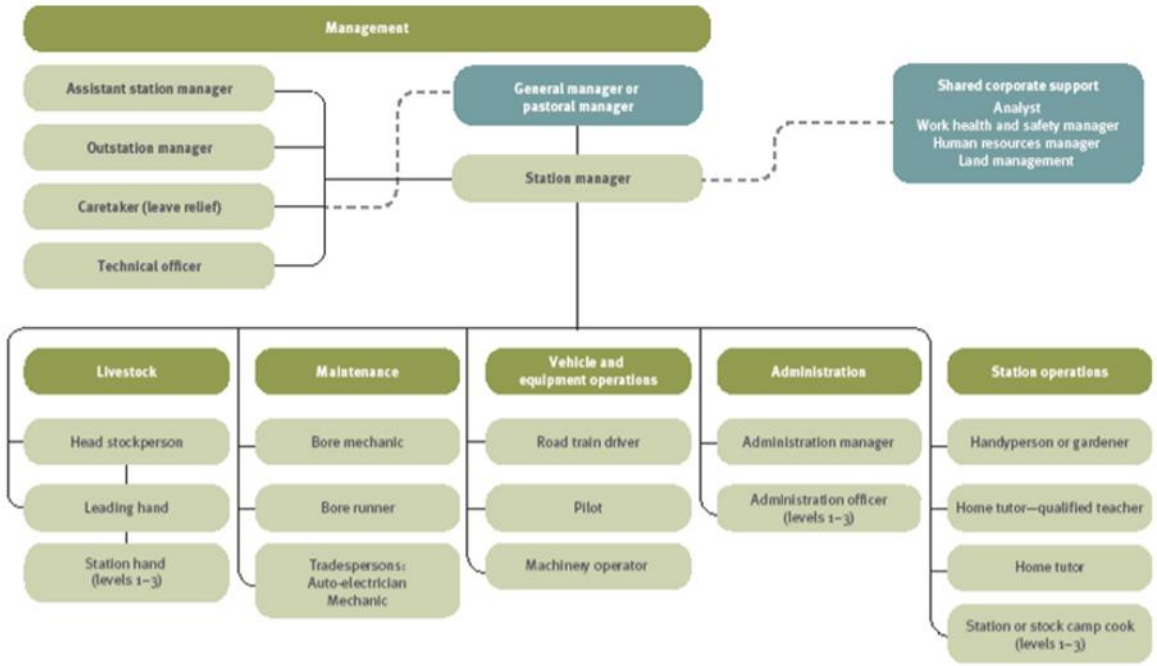
Important research conducted by the Wayfinder (wayfinder.org.au) initiative and the sponsor companies has resulted in the creation of Australia's only comprehensive sectoral map of careers across the supply chain. The Wayfinder Supply Chain Career Map serves as a valuable guide for aspirants, career changers, existing workers and the education sector to identify and build on the exciting career opportunities available in the sector. The Supply Chain Career Map outlines 120 positions in 18 sectors; and each role is mapped according to qualifications, years of experience and an indicative salary range from a basic wage to an executive management salary. The map is currently being digitised and is seen as a game changer for an industry urgently seeking to create a new pipeline of talented and capable workers.

The Wayfinder Supply Chain Career Map illustrates the vast array of career choices available across and between industry sectors. It is designed to give a quick snapshot of the types of careers, qualifications and salaries that can be expected within the supply chain and logistics sector. It also serves as a valuable enabler for career conversations and assists those wishing to pursue a career in the sector to better understand pathway development choices. Further, the supply chain and logistics sector is global, and these career opportunities can be pursued anywhere in the world.

Beef industry on-station quality workforce handbook

Developed by the Queensland Department of Agriculture and Fisheries (2016) in collaboration with the beef industry, the handbook developed career pathway models, agreed position descriptions and salary

packaging models in a bid to attract and retain workers to the sector. It enables the on-station beef production sector to achieve a consistent approach to its workforce management and development. This allows the beef industry to create and market an exciting employment and career pathway story that will attract and retain a skilled and committed workforce.



Source: Wayfinder 2020; QDAF 2016

6.1.9 Aboriginal and Torres Strait Islander participation and leadership need to be fostered

Aboriginal and Torres Strait Islander agriculture has a long history in Australia. Evidence suggests that Aboriginal people practised settled agriculture through harvesting and processing grains and root crops and the managed use of fire in pastures and forests (Gamage 2011; Pascoe 2014; Anderson, Stephens & Siddique 2016). Despite the strength and length of this connection, in 2016 only 1% of people employed in agriculture identified as Aboriginal and Torres Strait Islander. Of these, 26% were employed as managers (Binks et al. 2018).

The Australian Council of Deans of Agriculture reflected on this in its submission:

> *The area of embarrassment that remains is the role of the Indigenous peoples in agriculture. A recent ABARES publication (Snapshot of Australia's Agricultural Workforce) indicated that only 1% (3,278) of the agricultural workforce self-identified as Indigenous. Only 2% of those had a university degree (relative to >30% for the general population) although 29% had a VET qualification. A paper by Pratley (2019) showed that Australian universities as a whole were not attracting Indigenous students and were graduating barely 5 per year nationally.*
>
> *This would seem to be a priority in any Workforce Strategy in Agriculture to engage with the Indigenous communities and provide them with the educational opportunities enjoyed by their non-Indigenous counterparts. It is perhaps an imperative given that Indigenous peoples now control and manage around 40% of the national landscape.*

Submissions included examples of initiatives that were underway to foster opportunities for Aboriginal and Torres Strait Islander participation in the AgriFood workforce, such as the Junior Indigenous Marine and Environmental Cadets Program (Box 22).

Greater emphasis by the sector is required in Aboriginal and Torres Strait Islander engagement, including in business development and workforce entry, retention and development pathways.

Box 22 Junior Indigenous Marine and Environmental (JIME) Cadets Program

JIME started in 2010 on the Tiwi Islands, with the program introduced in Cairns in 2018. The program mentors young Aboriginal and Torres Strait Islander people through school-based traineeships, including work placements with local employers in marine and environmental industries.

JIME's 2-year program aims to provide Aboriginal and Torres Strait Islander high school students with the skills needed to gain a head start in the workforce. It emphasises school completion in parallel with work placement opportunities, with the post-school goal of securing an apprenticeship or traineeship while attaining relevant post-school qualifications. This allows a student to understand and develop practical work-readiness skills that meet employer demand for such skills.

Source: JIME submission

It is the Committee's view that such initiatives as this require adaptation and replication across the sector.

6.1.10 Attracting skilled people from overseas

Overseas workers play an important part in filling semi-professional and professional roles in the AgriFood industry where there are no Australians available to fill these roles. A number of visa categories provide for temporary or permanent migration of people to work in Australia (Table 7). The number of skilled visas granted to people to work in the AgriFood industry each year is relatively low. However, consultation revealed how important skilled migration is in meeting the industry's skilled workforce needs.

Table 7 Temporary and permanent skilled visa arrangements utilised by the AgriFood sector

Name and lead agency	Key parameters	Workforce contribution	Employer obligations
Temporary Skilled Shortage visas Department of Home Affairs	Skilled; possible permanent residency	Around 900 per annum (including ILAs)	Need to fulfil necessary sponsorship obligations
Industry labour agreements (ILA) Department of Home Affairs	Semi-skilled to skilled; possible permanent residency	500–600 per annum[1]	As specified in the labour agreement
Skilled Employer Sponsored Regional (Provisional) visa subclass 494 Department of Home Affairs	Skilled; possible permanent residency	Commenced 16 November 2019; around 550–750 employer-sponsored permanent visas per annum under previous skilled employer-sponsored visa arrangements	Need to fulfil necessary sponsorship obligations

Name and lead agency	Key parameters	Workforce contribution	Employer obligations
Skilled Work Regional (Provisional) visa subclass 491 Department of Home Affairs	Skilled; possible permanent residency	Unknown (commenced 16 November 2019)	Nil beyond minimum wage and condition requirements
Designated Area Migration Agreements (DAMAs) Department of Home Affairs	Semi-skilled to skilled; possible permanent residency	Unknown	As specified in the DAMA

1 The sum of agriculture, fisheries and forestry and manufacturing (meat processing) ILAs.
Source: Department of Home Affairs 2020; Department of Home Affairs 2019

Submissions and consultation with the meat processing sector revealed concerns about the payment of the Skilling Australians Fund (SAF) levy and the application of funds collected by the levy. The Australian Meat Processor Corporation referred to research it has commissioned that:

> *… highlighted that there is scope to improve the operation of the SAF levy in relation to and to support greater skill development in the red meat processing sector. The AMPC Processor Survey found that 89 per cent of respondents reported paying the SAF Levy. Previous consultation with the sector has indicated that many processors do not benefit from the SAF Levy, as they have had not employed a local worker who has participated in a SAF-funded training program. Further, most of the processors reported not employing someone who had benefitted from SAF funded training and that processors were not able to use SAF funding where they delivered in-house training programs. The SAF levy is applied to each processor who hires under the 482 MILA visa stream; however, the funds are not necessarily directed back into the meat processing industry. Thus, the meat processors are funding the training of labour for other industries, not themselves. Secondly, processors often have to self-fund additional training (as the visa holders are not funded), creating a 'double' payment for training (one into the SAF and one against the cost of training itself).*

The Committee considers that requests for a stronger linkage between the AgriFood sector paying the SAF levy and the expenditure of the SAF levy on workforce development appear reasonable.

Recommendation 12

The Committee recommends that the Australian Government, in collaboration with the state and territory governments, ensure that the expenditure of the Skilling Australians Fund levies benefit the whole AgriFood workforce.

6.1.11 Attraction and retention are aided by regional services, infrastructure and amenity

Critical to any discussion of the agricultural workforce and the challenges of ensuring a stable AgriFood sector are the social support structures in place to support those living and working in rural areas. The decline in, and ageing of, the population across many rural and remote areas

and the introduction of policies designed around economic efficiencies rather than social supports has led to a downturn in quality of life factors. Daley et al. (2017, 3) note that:

> *Many people believe Australia's regions are getting a raw deal compared to the big capital cities … Opportunities, economic growth, employment, and population shifts are not distributed evenly across Australia.*

Without supportive infrastructure, the ability of the regions to attract a highly skilled and dedicated workforce is compromised. In the context of this Strategy, the unintended consequences of the neglect of rural services include particularly (a) the inability to attract workforce and (b) the flow-on effect of a lack of professional jobs in well-resourced services.

In various studies conducted in regional areas, the Committee is aware that potential agricultural workers want good access to education and health services. Workers and their families assess whether there are quality schools for their children that are accessible and modern, with a wide range of subjects taught by highly skilled teachers (see for example Alston & Kent 2006). They also require accessible health services that provide skilled medical practitioners delivering quality services that cover the range of needs of families.

Potential workers and agricultural community members are also looking for services that can provide professional jobs. The lack of employment opportunities reduces the likelihood of employment for spouses and therefore of supplementary income generation. It also reduces the likelihood that young people will be attracted to regional communities.

The regions are further held back by the poor status of telecommunications infrastructure and internet access. Not only can poor infrastructure hinder the capacity to reach out to health and other services but also the lack of these services reduces the competitiveness of agricultural businesses, reduces the capacity of small businesses to thrive and reduces the likelihood of work-from-home options. For AgriFood to advance as one of Australia's premier industries there is much to be done to provide supportive rural communities with the service infrastructure required to support and sustain the workforce required.

The Committee heard:

> *If rural and regional Australia do not have the enabling infrastructure to support the workforce now and into the future, we risk increasing our labour availability issues and our industry competitiveness as a whole. (Red Meat Advisory Council)*

> *A key consideration in moving to a regional area is likely to be access to health and education services, particularly if the person is moving their family to the region. (NSW Farmers Association)*

> *Having high quality primary and secondary education facilities is another key way to provide, attract and retain a suitable workforce. (Wimmera Development Association)*

Submissions called for:

> *A whole-of-government approach to develop strategies … that promote rural health, education and telecommunications. (AgForce Queensland)*

> *Improved support for regional communities so that living and working in regional Australia is an attractive option, particularly for younger workers to replace an aging workforce. (Australian Chicken Meat Federation)*
>
> *Liveability must be addressed if the red meat industry and the overall agricultural industry is to build its human capital base in rural and regional Australia. (Red Meat Advisory Council)*
>
> *Continued unrestricted Medicare funding for tele-health services for all rural and regional areas (AgForce Queensland and Grain Producers Australia)*

The Committee notes that in the 2020–21 Budget the Australian Government announced a $1 billion extension of the Local Roads and Community Infrastructure Program. This program supports local councils to deliver priority local road and community infrastructure projects across Australia. The program's first tranche of funding, $500 million, was announced on 22 May 2020.

6.1.12 Connectivity

The significance of internet and mobile phone coverage to the AgriFood sector cannot be understated. The implementation of 5G networks in regional Australia will enable new precision agriculture capabilities on farms. Leveraging real-time connectivity through connected 'Internet of Things' devices can provide Australian farmers with access to real-time data on water and power usage, crop growth, livestock movements, maintenance alerts and market prices (see Section 5.6 on AgriTech).

Looking to the future, roles not traditionally associated with the agricultural sector such as software developer, data engineer and data scientist will be needed to extract the most benefits from navigation technology, process automation and robotics. These roles will be critical to challenging the perception of a career in AgriFood and attracting new entrants to the sector. However, their creation relies upon improved access to telecommunications in regional Australia.

Reliable internet and mobile phone coverage also creates opportunities to secure off-farm work and work-from-home opportunities. Internet and mobile phone coverage allow more people to work remotely, thus facilitating opportunities for farm families to secure off-farm work and employees to work in the AgriFood sector from anywhere in Australia.

However, many regional communities do not have access to reliable high-speed internet and mobile phone coverage. In the 2015 Regional Wellbeing Survey, only 37% of rural and regional Australians felt they had good access to high-speed internet, while 48% felt they had poor access. Only 52% felt they had good mobile phone coverage, while 31% felt their local coverage was poor (Schirmer et al. 2015).

The Committee heard that the lived experiences of many agricultural employer and employee users of internet and mobile phone coverage in regional Australia fell well short of their needs and expectations. Submissions called on the Australian Government to:

> *Fix the internet, ensure fair cost access, connectivity and data bundles using whatever source is available for a farm. (Regional Skills Training Pty Ltd)*

Explore ways to shrink the rural-metro telecommunications divide. (Red Meat Advisory Council)

The Committee notes the 2020–21 Budget announcement by the Australian Government of an additional $4.5 billion investment in NBN Co to bring ultra-fast broadband to families and businesses and funding of $29.2 million to accelerate the rollout of the 5G network.

6.1.13 Conclusion and call for a signature initiative

Attracting and retaining the long-term workforce will depend on the ability of the sector to collectively 'turn the tide' on the low awareness and poor perceptions of the sector for providing quality jobs and careers in the broader Australian community.

To achieve this, the Committee recommends the establishment of a signature initiative.

While the Committee acknowledges the excellent work of many initiatives in making progress in some sectors and for some job roles, the Committee is of the view that a whole-of sector initiative is required to address the low awareness and poor perceptions of the sector for providing quality jobs and careers in the broader Australian community and to increase knowledge and awareness of the sector as a producer of quality AgriFood with high environmental standards, developing more highly traceable and safe food and offering higher value products for consumers. Similar in concept to the role that the Australian Defence Force 'gap year' has played in engaging young people in a new experience in that sector, the proposed Australian Land and Environment Service (ALES) is suggested as the signature initiative for the Australian AgriFood sector.

6.1.14 Australian Land and Environment Service

It is the view of the Committee that a national effort to reconnect young Australians and their families to rural and regional Australia and to quality experiences of AgriFood jobs and careers should be led by a key long-term flagship initiative providing a foundation for changing perceptions of AgriFood careers.

ALES, a voluntary paid national service to support the AgriFood sector and the environment, including carbon-neutral production, can provide a pathway to entry into jobs in the sector from tertiary education, and a follow-through from primary and secondary school awareness programs. The ALES would have the following features:

- voluntary participation for both participants and farmers
- 3 modes of entry:
  - a 12-month gap year program similar to the current ADF gap year program
  - a 2-year auxiliary program
  - a 2-year transition to career program
- matching of participants' interests with farmers' needs
- coordination via regional hubs in each state and territory
- wages to be paid by government, and on-charged to farmers
- a 4-week to 6-week training program for all participants, on a trainee salary
- certificate/accreditation at the end of basic and any specialised training

- help to find jobs at the end of the program.

The Committee recommends that ALES be introduced via a pilot and an evaluation to inform the scope and scale of a broader rollout. If the trial is successful, ALES could be a legacy of the minister and government. The Committee could have an advisory role in the implementation of the pilot and any recommendations arising from the evaluation. Further detail on ALES is at Appendix G.

Recommendation 13

The Committee recommends that the Australian Government commission a pilot of the Australian Land and Environment Service to provide an opportunity for young Australians to engage with and work in agriculture and land management.

6.2 Education and training

Central to the Strategy is the importance of continuous learning and the development of human capability. Developing human capability is crucial because the nature of agricultural work is changing, new technologies are being introduced continually, and new roles and specialisations are emerging in every area of the AgriFood sector. A well-trained, continuously upskilled workforce is a key pathway by which the potential for sustainable growth and productivity in the agricultural sector can be unlocked. The education and training sector is an important partner in this journey.

However, arising from the consultations, 2 key issues need to be addressed to achieve this vision:

- an ambivalent attitude towards education and training in some segments
- the chasm in the relationship between industry and education and training providers.

Many submissions were received in relation to the education and training sector; however, these 2 major issues are brought to focus in the National Farmers' Federation submission:

> *To some extent, this lack of formal education and qualifications is explained by the agricultural sector's preference for practical experience – sometimes described as a 'general disdain for qualifications' – and the fact that in perhaps more than any other industry, farming is an 'inherited' career with the traditional family business structures dominating the sector … To some extent this lack of formal training and education is [however] a result of a VET sector which is not suited to the sector's needs.*

Yet it is through education and training that most of today's workforce, including urban students, will access career pathways in the sector. The requirement for qualifications is now an imperative as a first point of entry.

The education and training systems in Australia are complex and the Committee has heard of numerous issues faced by all stakeholders in navigating these system complexities. Some of these issues have been highlighted by past inquiries (Appendix F) in response to which reforms are already underway.

From submissions and consultations, the Committee heard about innovative approaches, led by employers and their organisations, that were addressing critical gaps in education and training.

These 'trailblazer' initiatives are representative of the future vision for education and training in the AgriFood sector and are reflective of the leadership that will be required to build the future workforce.

While the challenges are multifaceted, the solutions to increased responsiveness are engagement and collaboration between employers, education providers and government. Engagement and collaboration in education design and in strategies for delivery that address known challenges of thin markets and place-based demand are required, along with greater co-investment and collaboration. The AgriFood sector must participate strongly by providing leadership and demand signals in prioritising education and training as key to commercial success.

The committee holds the view that there is no 'one size fits all' when it comes to education and training for the sector, and no single solution to education and training reform. Rather, the Committee highlights key principles for future investment in education and training to meet future agricultural workforce needs:

- Education and training strategies to be industry-led, demand-driven and collaborative in vision with education providers.
- The AgriFood sector to strengthen the linkages between education and training and occupations across their sector.
- The education and training sectors to modernise the span of educational offerings and delivery modes in response to clear industry signals.
- Education and training to be underpinned by sufficient investment, reflective of a progressive and growing sector of the Australian economy.
- Stakeholders to share a commitment to demonstrate impact from investment and accountability for industry-defined outcomes in education and training.

6.2.1 Education and training to be industry-led, demand-driven and collaborative in vision with education providers

Employer leadership is essential for a fit-for-purpose education and training system. This leadership will show that education and training are not peripheral to productivity, that education and training can be attractive and engaging for all participants and that education and training unlocks and adds value to individual businesses and, importantly, the whole sector. Along with this leadership is the need for the AgriFood sector to better articulate the demand for education and training and do so with greater clarity.

Innovative responses are needed from education and training. Innovative responses will recognise worker mobility and also that the demand for education and training does not stop at state borders. Innovative responses will recognise that a long-term workforce requires education and training to be transferable to different work contexts and that education and training efforts need to be recognised by employers across the sector. Innovative responses will recognise that education and training create the entry points and pathways for building careers in the sector.

This Strategy therefore relies on a collaborative approach to education and training, with strong leadership in direction and vision provided by employers.

The Committee found that strong engagement from industry with government and education providers is central to addressing the shortcomings that are affecting the delivery of education and training to meet the industry's workforce needs. Submissions strongly endorsed the need for a greater role for industry throughout the education and training continuum. For instance, in his research for the National Farmers' Federation (NFF), Williams noted:

> *It is critical that industry be involved in every aspect of training for their industry – from input into allocation of funding, to the selection of RTOs and the qualifications or units to be covered, to the development of learning materials and assessments, and facilitating the uptake of training.*

And the Tasmanian Institute of Agriculture and Agricultural College emphasised:

> *Sustainability of agriculture relies on strong and enduring partnerships between the education institutions, motivated learners, and industry. A workforce strategy needs to support strong partnerships and continuous collaboration to ensure that education and training is delivered as 'fit for purpose'. The incentive to then work in the agricultural sector needs to be supported by 'visible' job prospects and clear education to career pathways.*

CaneGrowers emphasised the opportunity for improved strategic alliances between industry, government and training providers at all levels (schools, universities, VET providers and others) and suggested that state-based workforce planning teams led by industry represent a powerful model for industry leadership, such as the Rural Jobs and Skills Alliance (RJSA).

6.2.2 Learning from other sectors

Committee consultation with the mining sector on its approach to leadership in education and training was insightful. This sector clearly associates employee capability and employee education and training with its position as a global leader. Broader workforce development, including a focus from schools to university and to research, in growing high-quality managers and constantly upskilling workers is a major focus for senior managers and is achieved through collaboration with the education and training sector. As a result, the sector is renowned not only for its wealth of resources but also for its intellectual leadership, exporting expertise to the rest of the world including in manufactured equipment and services. This sector clearly values workforce development.

It is the Committee's view that Australian AgriFood should aim to be recognised globally for its focus on quality and for inclusiveness, valuing diversity and working with integrity and in new ways with Aboriginal and Torres Strait Islander communities. This requires a commitment to workforce development and capturing opportunities for strengthening industry leadership in education and training.

There are several challenges to be addressed through industry leadership in both the VET and the university sectors.

6.2.3 Industry leadership and the VET sector

The Committee received many submissions relating to the challenges for the sector in engaging with the VET sector. Skills Impact observed:

> *The current VET system has limited industry involvement and less industry leadership. This is particularly critical for agricultural industries, which also need to*

> *address major issues in relation to access to training, regional training delivery and inequitable funding arrangements.*
>
> *Industry should have far more influence on the VET system, including delegated decision making in relation to defining industry skills standards, closer ties to administration and regulatory bodies that intervene in many VET matters, and influence over provision of services when and where they are needed.*

The Committee notes that the VET sector is subject to significant ongoing reforms in response to recent reviews undertaken on behalf of respective governments (See Appendix F). These reforms could present benefits to the AgriFood industry. Consultation done to inform this Strategy made clear support for the following areas of reform proposed in the draft VET reform roadmap:

- Streamline existing training package arrangements.
- Develop an agreed definition of micro-credentials in the VET sector and an operational framework for how micro-credentials work in the national VET system.
- Implement changes to Australian Skills Quality Authority (ASQA) governance, regulatory approach and practice.
- Consider a new industry-endorsed system for independent, moderated and/or graded assessment.
- Promote apprenticeships and traineeships.
- Explore alternative models for employment-based training.
- Review existing government and industry support for apprenticeships and traineeships.
- Commission leading TAFEs and other registered training organisations (RTOs) to develop and disseminate leading practice teaching resources.
- Improve national coordination of consumer information, to support decisions on VET, pathways and career opportunities.
- Develop strategies to improve the quality and delivery of VET in schools.
- Identify/consider models of integrated VET and higher education courses delivery.
- Understand the cost of training that is responsive, high quality and accessible, including reviewing and updating models on cost and price analysis.
- Consider principles, roles and responsibilities for VET investment by governments, industry and learners.

As part of the Australian Government response to the Joyce review, skills organisations are being piloted in the human services care, digital technology and mining sectors to enhance the role and leadership of industry and to test ways to improve Australia's VET sector (DESE 2020c). Currently these pilot programs do not include the AgriFood sector, and the NFF submission recommends that they be expanded to include it. The Committee notes this is consistent with the COAG Skills Council's Vocational Education and Training Reform Roadmap consultation draft. An AgriFood skills organisation pilot would explore the potential design, approaches and opportunities to deepen industry engagement and improve the long-term outcomes of the VET system (DESE 2020c).

Skills Impact also noted the absence of national learning materials to support efficiencies in workplace learning against units of competency, which are generic and able to be contextualised for each business.

Further, it was noted that industry leadership is required to guide education and training development in emerging and new areas that span sectors and states such as digital agriculture and ethical supply chain auditing.

Recommendation 14

The Committee recommends that the Australian Government establish skills organisation pilots for the agriculture, fisheries and forestry, food and logistics industries. The forward work program for these pilot organisations should include activities such as:

- developing stronger relationships with registered training organisations to improve the delivery of qualifications and enhance outcomes, for example by:
  - better aligning training and assessment with the expectations of employers
  - trialling alternative assessment and delivery models to address issues with rural and regional delivery
- strengthening links between schools and industry
- strengthening links between the VET and higher education sectors
- promoting the use of skill sets within training packages
- considering ways to address issues in recruitment and retention in the sector.

6.2.4 Industry leadership and the university sector

The need for greater leadership from industry in collaboration with education and training service providers does not stop at vocational education. The importance of industry leadership in directing university education and training was demonstrated by the Minerals Council of Australia's Minerals Tertiary Education Council (MTEC). MTEC collectively invests to build capacity in Australia's higher education sector to increase the supply and quality of suitably qualified professionals for the minerals industry (Box 23).

Box 23 Minerals Tertiary Education Council

The Minerals Tertiary Education Council (MTEC) was established in 2000 by the Minerals Council of Australia (MCA). Undergraduate intakes for most minerals higher education disciplines in Australia have experienced notable declines. Lower bulk commodity prices, rationalisation at the company level, the rise of anti-mining activism and media coverage of these issues have created a post-boom sentiment that has contributed to the pronounced drop-off in enrolments over the years since 2012.

MCA research has also shown that many young people know little or nothing about careers in the mining industry, underlining the importance of industry-wide efforts to implement a more effective awareness campaign as part of a future workforce strategy.

MTEC invests $3 million per annum to support 3 major initiatives in partnership with universities:

1. Metallurgical Education Partnership (MEP)

MEP is a formal partnership between MTEC and its partner universities for collaborative teaching of the capstone metallurgical process and plant design course for fourth-year engineering undergraduate students. MEP produces 100% of all 4-year-trained Australian extractive metallurgists.

2. National Exploration Undercover School (NExUS)

NExUS is a prestigious summer school hosted by the University of Adelaide as a collaboration of universities, government and industry partners. It aims to deliver a truly world-class national program of training for 30 enthusiastic and engaged students wanting to acquire specialist minerals geoscience skills.

3. Minerals Industry National Associate Degree

Industry-supported associate degree programs in mining engineering and minerals geoscience continue to be offered by the University of Southern Queensland and Central Queensland University with support from the MEP and NExUS programs to ensure quality curriculum for these para-professional qualifications.

Source: MCA 2020b

This inquiry heard of key gaps in tertiary education that require new strategies to address emerging demands, for instance in forestry, aquaculture, tropical agriculture (northern Australia) and digital agriculture. For instance, the Institute of Foresters of Australia and Australian Forest Growers noted the need for innovative funding models to underpin development of a fit-for-purpose university degree that produces graduates with the knowledge required by employers and a broad practical forestry skill set, as well as short-term strategies to capture the knowledge and skills of retiring foresters.

Recommendation 15

The Committee recommends that the Australian Government provide seed funding to establish an AgriFood Tertiary Education Council, modelled on the Minerals Tertiary Education Council, and invite participation from leading AgriFood employers, universities via the Australian Council of Deans of Agriculture, and the rural research and development corporations.

6.2.5 A renewed model for industry leadership in education and training

The Committee heard of many examples of industry-led, demand-driven and collaborative initiatives with the education and training sector, and such leadership needs to be strengthened. One such example is the New South Wales cotton and grain sector collaboration AgSkilled (Box 24).

Box 24 AgSkilled – NSW Government and the cotton and grain industries

AgSkilled was a partnership between Cotton Australia, the Grains Research and Development Corporation and the NSW Government, which invested $14.7 million over 3 years from July 2017 to July 2020 for vocational training for the cotton and grains industries. It was administered through the NSW Government's Smart and Skilled initiative and guided by a management committee that included representatives of Cotton Australia, the Grains Research and Development Corporation and the NSW Department of Industry.

AgSkilled was administered as a specific stream under the existing part-qualifications structure that delivered fully funded training to priority groups identified by the NSW Government.

Funding was made available to on-farm staff and industry professionals including for:

- nationally recognised full qualifications (Certificate I – Advanced Diploma Agriculture). These were partially subsidised to the same level as they are under the existing Smart and Skilled system

- fee-free part-qualifications (from one unit up to half of a full qualification) for short courses that target identified skills gaps.

To March 2020, AgSkilled had trained over 3,200 individuals, with over 4,400 total enrolments and had enabled the development of over a dozen new industry-specific courses. Almost 800 courses had been run for industry across over 140 locations in regional New South Wales, delivered flexibly to meet the needs of industry. Evaluations of the training have consistently shown that the courses are promoting practice change.

Source: Cotton Australia submission

In September 2020 the NSW Government announced AgSkilled 2.0 and committed a further $15 million over 3 years to build workforce capability in NSW's cotton, grains, horticulture, rice and viticulture. Based on the average cost of AgSkilled 1.0 traineeships, it is anticipated that a further 5,400 learners will be trained in skills identified as critical by the sector.

Interestingly, the AgSkilled initiative has been led by the cotton and grain industries, highlighting how many workforce development needs are shared across the sector. Wine Australia also highlighted the opportunity to leverage the role of the rural research and development corporations (RDCs) to enhance existing programs and foster new ones:

> *Wine Australia plays a significant role in supporting extension and adoption activities, education services and leadership programs across the grape and wine sector. A new national extension and adoption strategy 2020-25 guides these investments. There is an opportunity to leverage on the role of RDCs to enhance existing programs and to consider supporting new targeted programs which will foster education-industry pathways and establish education-industry linkages and lasting partnerships.*

It went on to recommend:

> *… employers, industry representative bodies and rural Research and Development Corporations (RDCs) can play a role in aggregating demand and working with universities and vocational education and training providers to redesign existing courses or establish new courses required by the market (page 13).*

In his research for the NFF, Williams went further, noting it would be useful if the rural RDCs and CRCs across all sectors could broaden their activities in human capacity building to address workforce development needs as well as developing graduates and postgraduates.

The Committee also heard that establishing such initiatives was 'very hard work' and 'not straightforward' for industry, with the effort in establishing projects to meet education and training needs often being duplicated for each training need (due often to different funding sources). In some instances there was an inability to secure funding at all, as there was not enough alignment with the priorities of government or education providers at the time.

It is the Committee's view that the current mechanisms by which the sector can demonstrate leadership in education and training are insufficient to influence education and training provision at the depth, scale and rate required to meet future agricultural workforce needs. In addition, there is not enough incentive for education and training providers to respond to industry needs in a timely and meaningful way. Further, decades of underinvestment by the sector itself and government to leverage education and training outcomes for the sector have undermined performance.

6.2.6 Stronger links between education and training and the pathways for people to enter and develop careers

Education and training play an important role in attracting and retaining people in employment opportunities (see Section 6.1). Education and training are a common entry point to pathways from school to the workplace, into a new job in a new industry, or to upgrade skills to support career progression. Access to education and training for employees is also an important part of human resource management strategies designed to improve employee retention. While the Committee heard of a range of initiatives that strengthen the links between education and training and the pathways to entry and career development, it is clear the links require strengthening.

School programs, as they exist, are mostly not linked to opportunities in senior school agriculture or to VET school programs and university courses. Accredited education and training through VET (including through school curriculum, VET in schools, apprenticeships and traineeships and training delivered by RTOs) and higher education (delivered by universities) is critical to upskilling the AgriFood workforce.

However, there has been a greater decline in participation in formal education in VET training in the AgriFood sector relative to the rest of the economy (Table 8, Table 9 and Table 10). At a time when skills and capability are central to the national growth strategy, this is a worrying trend. In contrast, university course completions in agriculture have increased over the last 5 years (Figure 47 and Figure 48); however, the number of completions remains significantly less in the university sector than in the VET sector.

Table 8 Government-funded VET program enrolments and completions by field of education, 2015–2019, Australia

Enrolments	2015	2016	2017	2018	2019	(2015–2019) Average completion rate %
Engineering and related technologies	260,739	233,828	236,016	204,934	215,272	31
Agriculture, environmental and related studies	50,122	50,426	49,448	40,253	40,473	28
Management and commerce	206,541	205,024	186,059	174,849	172,666	35
Food, hospitality, and personal services	128,886	123,805	129,353	111,887	104,833	26
Mixed field programs	176,695	169,694	177,618	185,106	190,786	15
Completions	**2015**	**2016**	**2017**	**2018**	**2019**	**(2015–2019) Average completion rate %**
Engineering and related technologies	92,100	74,100	65,500	59,200	n/a	31
Agriculture, environmental and related studies	13,800	13,900	13,800	11,000	n/a	28
Management and commerce	82,500	65,600	63,100	58,200	n/a	35
Food, hospitality, and personal services	33,300	32,000	32,500	30,800	n/a	26
Mixed field programs	29,600	28,700	25,500	22,600	n/a	15

n/a Not available.

Note: Completions figures are rounded to closest hundred.
Source: Adapted from National VET Provider Collection, compiled under the Australian Vocational Education and Training Management Information Statistical Standard (AVETMISS)

Table 9 Total VET enrolments by type of training, 2015–2019, Australia

Type of training	2015	2016	2017	2018	2019
AHC – Agriculture, Horticulture and Conservation and Land Management (AGF, AGR, AHC, RTD, RTE, RTF, RUA, RUH)	70,091	70,797	69,289	53,479	53,779
FBP – Food, Beverage and Pharmaceutical (FBP, FDF, SUG)	20,118	19,412	14,865	14,491	15,156
AMP – Australian Meat Processing (AMP, MTM)	13,648	11,722	12,364	8,481	8,628
FWP – Forest and Wood Products (FPI, FWP)	3,879	3,634	2,140	2,248	2,158
SFI – Seafood Industry (SFI)	1,420	1,383	1,378	1,071	1,006
TLI – Transport and Logistics (TDT, TLI)	11,8445	99,020	98,349	81,175	88,572
PPM – Pulp & Paper Manufacturing Industry (FPP, PPM)	44	28	7	0	0
RGR – Racing Industry (RGR)	2,149	1,596	1,400	1,414	1,204
Total	229,795	207,586	199,788	162,362	170,497

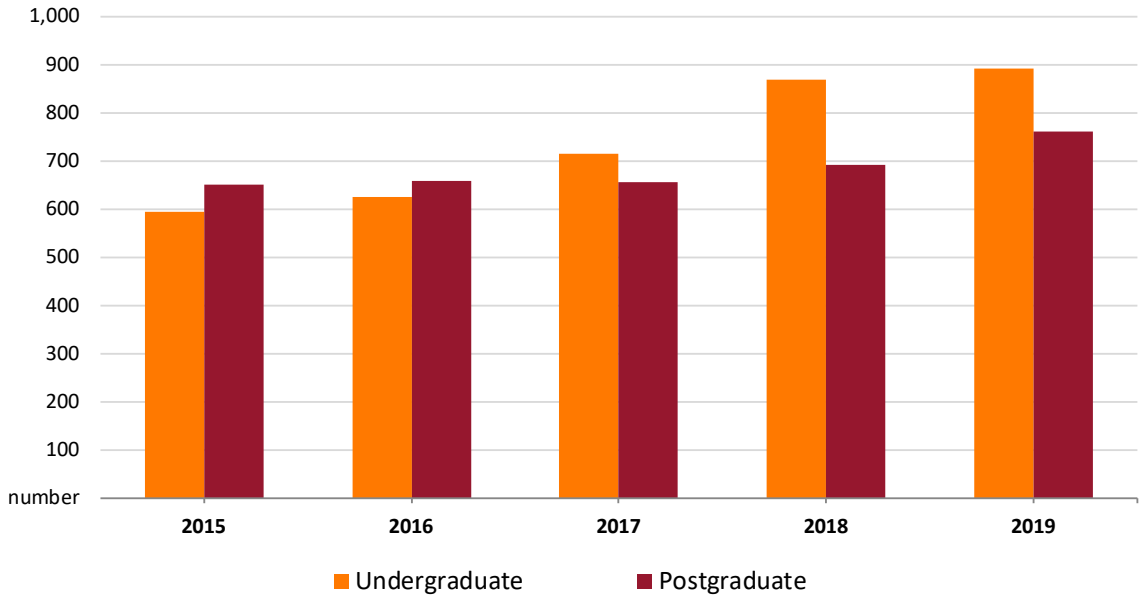
Source: Adapted from National VET Provider Collection, compiled under the Australian Vocational Education and Training Management Information Statistical Standard (AVETMISS)

Table 10 Completions: apprentice and trainee by occupation (ANZSCO group), 2016–2020, Australia

Occupation	2016	2017	2018	2019	2020	2016–2020 (% change)
TRADES (Occupation)	50,685	43,505	40,100	37,950	38,570	–24
Engineering, ICT and science technicians	2,780	1,865	1,490	1,505	1,230	–56
Automotive and engineering trades workers	13,165	11,400	10,015	9,210	9,340	–29
Construction trades workers	9,830	9,735	10,460	11,215	11,875	21
Electrotechnology and telecommunications trades workers	9,885	8,830	7,625	7,405	7,450	–25
Food trades workers	4,445	3,585	3,345	3,130	2,950	–34
Skilled animal and horticultural workers	2,155	1,925	1,975	1,530	1,740	–19
Other technicians and trades workers	8,425	6,160	5,185	3,955	3,990	–53
NON-TRADES (Occupation)	64,505	53,415	51,365	51,045	50,110	–22
Managers	2,280	1,805	1,690	1,280	1,355	–41
Professionals	310	355	360	275	320	3
Community and personal service workers	19,745	17,680	17,245	16,645	16,980	–14
Clerical and administrative workers	15,340	9,615	9,540	10,570	10,130	–34
Sales workers	11,385	11,105	9,745	7,640	6,725	–41
Machinery operators and drivers	7,625	6,620	6,750	8,275	8,190	7
Labourers	7,825	6,235	6,035	6,360	6,405	–18

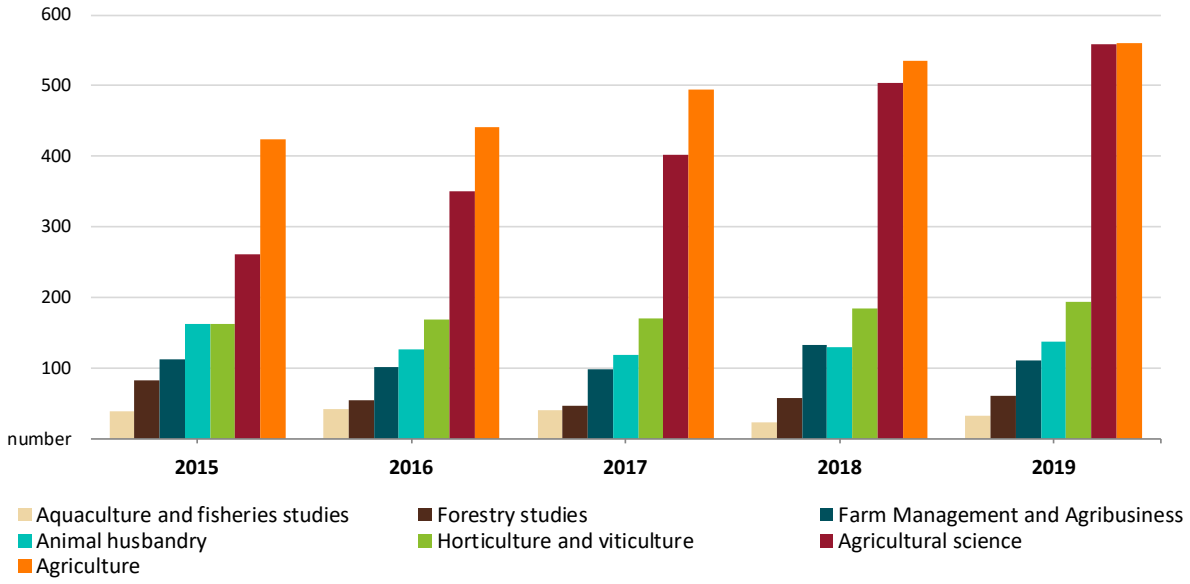
Note: As the vocations approved to be under an apprenticeship or traineeship training contract are not consistent across all jurisdictions, NCVER has adopted a trade/non-trade categorisation for the purpose of the National Apprentices and Trainees Collection, with 'trades' classified as all occupations listed under ANZSCO major group 3 ('Technicians and trades workers') and 'non-trades' classified as all other major occupations groups 1 to 2 and 4 to 8 (ANZSCO, First edition, Revision 2).
Source: National Centre for Vocational Education Research (NCVER), National Apprentice and Trainee collection no. 104, June 2020 estimates; Australian Bureau of Statistics (ABS), Labour force, Australian, detailed quarterly, February 2020 (as at May 2020), Cat. No. 6291.0.55.003

Figure 47 Higher education course completions in agriculture, fisheries and forestry studies, 2015 to 2019, Australia



Note: Includes course completions in agriculture, agricultural science, animal husbandry, farm management and agribusiness, horticulture, viticulture, aquaculture, forestry studies and fishery studies.
Source: Adapted from higher education statistics sourced from Australian Government Department of Education, Skills and Employment (DESE)

Figure 48 Higher education course completions by field of study, 2015 to 2019, Australia



Note: Includes both undergraduate and postgraduate qualifications.
Source: Adapted from higher education statistics sourced from Australian Government Department of Education, Skills and Employment (DESE)

Submissions and previous research have highlighted several barriers that may impede accredited education and training delivering on its potential value as a workforce development tool.

These include:

- the culture within the agriculture sector, which favours on-the-job learning as opposed to formal education or apprenticeships (as summarised by the NFF's submission)
- it not being financially viable for education providers to invest in providing training, especially in specialist topics, due to demand being dispersed over large geographic areas and the cost of rural and remote delivery
- the long lead time between new skills needs being identified by industry and the required training being delivered
- access to quality trainers, especially in specialist topic areas in regional Australia
- experiential short-term programs or 'one-offs' not linked to further education and training being deemed sufficient by schools.

The value of accredited training will increase as the sector increases its expectations of educational attainment and seeks to increase capability in non-traditional areas. However, this will require a commitment to address these barriers (see Section 6.4 for examples of how this could be done).

Submissions covered current initiatives and gaps for each entry path through formal education and training. These are outlined in turn next, followed by the need for greater links between people already employed and education and training offerings.

6.2.7 Schools pathways into industry

VET in schools

Secondary school students in all states and territories can undertake nationally recognised VET courses (also known as VET in schools courses) as part of their school program, usually in the senior years of schooling. In 2016 around 80% of secondary schools offered VET courses in years 11 and 12 (Joyce 2019). Secondary students enrolled in VET include school-based apprentices and trainees. These are students who, as well as undertaking an accredited VET qualification as part of their school studies, have entered a formal contract of part-time paid employment and training with an employer. Typically these students undertake part of their traineeship or apprenticeship while at school and complete it once they have left school. The Committee acknowledges and supports the recommendations about strengthening VET in schools arrangements made by the recent Shergold review of senior secondary pathways into work.

The Joyce review (2019) expressed concern about the quality of VET delivery in schools and uncertainty about its objectives. The more recent Shergold review (2020) into senior secondary pathways into work drew similar findings. According to the Shergold review, improved outcomes from VET in schools depend on effective collaboration between education authorities and industry bodies and, at a local level, between schools and employers. Submissions highlighted some successful VET in schools models (Box 25).

Box 25 South Australian Government VET for School Students Policy

The South Australian Government's VET for School Students policy, released in October 2019, aims to deliver better education and employment outcomes for South Australian students, and gives industry and employers a stronger voice in determining skills, qualifications and workplace needs for employment, providing a pipeline of future workers for their sectors.

The policy introduced Flexible Industry Pathways for school students from Year 10. This initiative will help students become job ready and get a head start in their career while finishing their secondary education through the South Australian Certificate of Education (SACE).

Flexible Industry Pathways are co-designed with employers and endorsed by industry through the South Australian Training and Skills Commission's Industry Skills Councils (ISCs) as the industry's recognised route to employment.

The state government is collaborating with the South Australian Agribusiness ISC to develop Flexible Industry Pathways in agriculture, horticulture, aquaculture, conservation and land management, and meat processing. Subject to demand and advice from industry, more Flexible Industry Pathways may be developed.

Flexible Industry Pathways include VET qualifications at Certificate II to III level, enterprise and employability skills training and any specific industry requirements linked to the pathway. Flexible Industry Pathways also include compulsory SACE subjects and any SACE subjects relevant to the industry sector and employer needs.

From the employers' perspective, Flexible Industry Pathways provide a stronger voice in the design and delivery of training and education for school students and will provide industry with a pipeline of skilled workers in occupations where there are jobs in demand.

Source: South Australian Government submission

The positive examples provided to the Committee reinforce that the success criteria for VET pathways in schools are linked to industry-led/collaborative and bespoke design to suit local needs. Importantly, the Committee finds that schools could be more supportive of engagement with the VET sector and with industry. The recent Independent Tertiary Education Council Australia (ITECA) report details barriers schools place on VET that restrict the legitimacy of the study in the curriculum (ITECA 2020). There were also reported examples of industry overtures to schools being rebuffed by school leaders.

> *School Leadership: Engaged secondary school leadership was viewed by RTOs as a strong contributor to the success of the VET in Schools program. In this context, it was unsurprising that a disengaged school leadership represented a challenge to program delivery.*
>
> *Type of Study: Of interest was the number of comments that indicated school leadership preferred secondary school graduates transitioning to higher education rather than vocational education and training. These comments suggest that this moderates the support for the VET in school program.*

The Committee notes the opportunity for industry to be more strongly engaged in school initiatives.

In-school and post-school traineeships and apprenticeships

The historical lack of support for apprenticeships in the sector is acknowledged by the NFF, which recognises the long-term impact this is now having on the sector.

The NFF noted:

> *This unfortunate historical attitude has been tempered in recent years as [this attitude] has [now] placed agriculture at a significant disadvantage in appealing to young people interested in trade careers.*

Further, Regional Skills Training noted:

> *It is well documented that agriculture does not particularly value this system. The Joyce Report indicated that amounts and coverage of incentives to employers to take on apprentices and trainees were not adequate, and this contributed to declines in apprenticeship and traineeship numbers.*
>
> *Also, it is widely considered that the complexity of arrangements for apprenticeships and traineeships and the large number of different agents involved in administering the system is a significant deterrent.*

Submissions agree that it is essential that the sector engage strongly in developing traineeships or apprenticeships in promoting employment and career opportunities, and thereby send a positive message to prospective employees that employers are willing to invest in their skills and career development. Submissions also indicated that the combination of formal learning and on-the-job training provided by apprenticeships and traineeships led to workplace-ready workers, with positive employment outcomes.

However, smaller family enterprises often have less capacity in terms of personal skills, time and finances to employ a trainee. Where an operator already employs at least one other, the capacity to take on a trainee is greater. Additional support for such enterprises to appoint a trainee or allow job-sharing is important.

The NFF noted that a 'nationally consistent, 'trade-equivalent' job brand for skilled farm workers' would provide school leavers with clear pathways into agricultural careers and would help to address the perception of agriculture as a poor career choice for school leavers. As the NFF noted, historically, apprenticeships have not been attractive to farmers, but the recently approved irrigation trade apprenticeships could be a model for 'trade level' farm apprenticeships. A critical success factor in this apprenticeship, however, was demand from prospective employers.

Other submissions indicated that current traineeship or apprenticeship arrangements were not well suited to the needs of the agriculture industry and expressed uncertainty about the willingness of farm businesses to adopt the model. Innovative group training models, such as that reported by Growcom (Box 26), may help to address barriers to participation by agricultural employers. This approach provides flexibility for employers who may want a part-time trainee all year, or who have highly seasonal requirements for labour and only want the trainee for part of the year, and relieves employers of a significant administrative burden.

Box 26 AgFood Connect Pilot – Youth Jobs PaTH Industry Pilot Project

The AgFood Connect Pilot (a Youth Jobs PaTH Industry Pilot Project) tests a 'shared workforce' model that aims to create full-time traineeships and full-time jobs for 115 young people aged 17 to 24 years from multiple casual or part-time positions. This is achieved by utilising Golden West's and DGT's group training organisation apprentice and trainee employment and hosting and labour hire structures to enable young people to be hosted by 2 or more employers at the same time, or sequentially over a year, to

undertake a full-time traineeship, apprenticeship or job, while using Growcom to engage with agricultural employers to develop employment opportunities for rural and regional youth.

DGT and Golden West, through their group training provider service can be the legal employer and:

- invoice the business
- take on all the risk and the payroll, insurance and WorkCover obligations
- organise training and be a signatory to the training contract
- provide support and mentoring for young people with monthly visits and contacts.

Businesses may also benefit from reduction in wages, on-costs and fees as new employees may be eligible for a range of wage subsidies and incentives that can be used to offset costs.

Growcom is responsible and accountable for engaging with businesses in the target sector, identifying skills requirements and suitable job and work experience opportunities and working with the PaTH project team to secure jobs for young people according to the PaTH pilot requirements across south-west Queensland.

Source: Growcom submission

Recommendation 16

The Committee recommends that the Australian Government establish a task force with state and territory governments, the National Farmers' Federation, the Australian Forest Products Association, and Seafood Industry Australia in order to develop a flagship AgriFood apprenticeship and traineeship scheme with training providers. The scheme should address issues of employer demand and allow flexibility for employers such as the sharing of apprentices and/or trainees among small to medium businesses.

Traineeships and apprenticeships have been well-established pathways into processing and manufacturing roles in the AgriFood supply chain. However, the Food, Beverage and Pharmaceutical Manufacturing Industry Reference Committee (2020) noted a steady decline in apprenticeship and trainee commencements in that sector in the period from 2014 to 2018. It noted many reasons for the decline, including a lack of funding and other support for learners and employers. It considered that disincentives for apprenticeships and traineeships required a broader policy response to make them more attractive to employers and employees.

The Committee notes the 2020–21 Budget announcement by the Australian Government of an additional $1.2 billion for the Boosting Apprenticeships Wage Subsidy to fund an additional 100,000 new apprenticeships.

School to university entry

In consultation meetings and submissions, university stakeholders reflected on their implementation of programs designed to increase the participation of students from a variety of backgrounds and address potential barriers to study.

The University of Melbourne discussed its Diploma of General Studies, which provides a science-based pathway program for post-Victorian Certificate of Education students that satisfies the entry requirements for a range of University of Melbourne bachelor degrees, in science, commerce, design and agriculture as well as courses at other regional or metropolitan universities.

Similarly the University of Tasmania's Associate Degree in Agribusiness was developed to provide an education pathway for those currently working in agriculture who wish to move into leadership and management roles, or as a foundational step for those wishing to enter the industry from other backgrounds.

These opportunities need to be strongly promoted to school students as part of attraction strategies (see Section 6.1).

6.2.8 University pathways into industry

Several submissions noted the potential benefits from the closer working relationship between the VET and university sectors, including increasing the practical skills of university graduates.

The Australian Academy of Science National Committee for Agriculture, Fisheries and Food noted:

> *While university training provides a more theoretical perspective, particularly in fields such as robotics, artificial intelligence and machine learning, farmers and agribusiness practitioners are more interested in the technologies from a skill-based perspective. Enhancement of links between these two types of providers should enable university trained graduates have some hands-on experience with the technologies, and on-farm users to have some understanding at the theoretical level. An opportunity exists for micro-credentialing, which allows people to augment their own knowledge without extended periods at university. Furthermore, farmers and agribusiness practitioners will need not just to be aware of the technologies, but how they can be integrated into their management systems. All these approaches can be part of a holistic lifelong learning approach, where knowledge is upgraded over time.*

These closer working relationships are underway, with the committee noting initiatives by several universities that either operated their own RTOs (for example, University of Queensland; Charles Darwin University) or had allowed RTOs to be co-located on their campuses to deliver VET to students enrolled in bachelor programs (for example, University of Melbourne).

However, the committee noted that, in all cases, regional-level leadership is required to expand and broaden the scope of these arrangements.

Submissions received from universities also noted the shift to greater student engagement with industry as part of a renewed curriculum. The University of Melbourne submission advised that enhancing student engagement with industry was a central goal of the 2014–15 redesign of its Bachelor of Agriculture course. Feedback from both industry and student participants on these engagement activities has been overwhelmingly positive. Similarly, submissions from Charles Sturt University, the University of Tasmania and Adelaide University advised on the strong links they had forged with local industry, and the importance they place on workplace learning and engagement with industry professionals as part of the course offerings.

The University of Adelaide reported the benefits from internships and work placements for the host as:

- access to high-calibre students who contribute new ideas and assist in the workplace development

- the ability to have specific projects achieved in a cost-effective way – there are often no direct costs to hosting interns
- an insight into how future graduates fit within the organisation – and a head start on future graduate recruitment
- the ability to form positive links with the university – hosting interns is one of many ways to engage.

Benefits for students were:

- the opportunity to apply knowledge and skills from studies in a real-world context
- potential to develop their understanding of new industries, and their awareness of career opportunities in these sectors
- working on interesting challenges of relevance to industry
- expanding workplace skills and networks, and positioning for future career success.

Developing postgraduate pathways into the AgriFood sector

It is not generally economically viable for universities to provide specialist AgriFood degrees, such as horticulture or forestry, due to a lack of aggregate demand. However, these courses are necessary to keep up with the demand of businesses for appropriately skilled staff in industry-specific technical or managerial roles. Dairy Australia noted in its submission:

> *There are currently no dairy specific programs offered in Australia at the level of AQF 7 or higher which meet the specialist capability development requirements for dairy farm managers (estimated at 50-80 positions per annum). Further, it is unviable for the Australian market to sustainably develop a complete undergraduate degree program dedicated to dairy, given the market demand and return on investment. However, there is opportunity for innovative models and frameworks to be developed which leverage existing and new education opportunities in the market, to tailor a package of learning experiences or curriculum, that meets the capability development needs of future dairy farm managers.*

Dairy Australia has proposed a package of 4 initiatives to address this skills shortfall:

1) Graduate Diploma of Agribusiness (Dairy) – to be developed and delivered in partnership with the University of Tasmania and businesses that employ dairy farm managers. The curriculum design is structured as a blended model encompassing most of the learning through online platforms with 2 to 3 face-to-face engagements held in various locations across key dairying regions of Australia throughout the course. This design enables the graduate diploma to be nationally accessible.
2) Dairy Learning Plan (DLP) – a curriculum of learning and development activities created using the educational design theory of work integrated learning (WiL) to develop foundational dairy farm manager capability in undergraduate bachelor students (AQF7). Existing learning experiences the industry invests in are woven into the undergraduate curriculum.
3) Enabling Scholarships – financial support aligned to the DLP curriculum to enable student participation in the identified dairy learning experiences.

4) Tuition Scholarships – a small number of financial contributions allocated to support tuition costs for undergraduate students studying at selected partner institutions. Scholarships to support tuition costs for students are an important enabler of the learning experience.

Elements of the package are common with Horticulture Australia's Global Masterclass, launched in 2017, which was also developed in conjunction with the University of Tasmania (Box 27). Horticulture Australia provided funding to develop and deliver the course and to cover some participant costs to address issues associated with lack of commercial viability. The further promulgation of this model by Dairy Australia is an indication of the merit it has.

Box 27 Global Masterclass in Horticultural Business – University of Tasmania

Having the capability and capacity within the horticultural industry is paramount to a sustainable sector. The Global Masterclass in Horticultural Business was launched in 2017 to address the declining number of horticulture graduates. It was developed in partnership with international leaders in horticulture – Hort Innovation, Wageningen Academy (the Netherlands) and Lincoln University (New Zealand) to ensure it best meets industry needs.

The Global Masterclass is a flexible 10-month program of face-to-face and online training for people working in horticulture. The target audience is employers and employees in horticulture who are seeking to enhance their business acumen and understanding of horticultural production. Participants are eligible to be awarded a Diploma in Horticultural Business. The accredited course conforms to the Australian Government's higher education standards framework. There is an opportunity to use credit from this course to articulate into other relevant courses at the University of Tasmania.

Similarly, the Master of Food and Packaging Innovation (University of Melbourne) was developed in collaboration with industry (Box 28).

Box 28 Master of Food and Packaging Innovation – University of Melbourne

Mondelez International with the Victorian Government funded a 'food innovation centre' in 2013. Through the centre, a key focus was to build capability and attract the brightest minds to food manufacturing. The collaboration began with a joint understanding of the critical skill sets needed to advance and accelerate the growth of value-added foods. Consultation with industry identified 2 core skills needed in Australia for value-added foods to be competitive at a global scale – innovation and packaging design.

The University of Melbourne was chosen as the delivery partner through an request for proposal process to deliver a masters program in one year. To move with agility, an industry and academic advisory committee was established to co-create the relevant curriculum to meet industry's needs. Within the masters, an industry placement was put in place, supported initially by the industry companies on the committee.

This was one of the most quickly developed masters at the time and attracted both domestic and international students. The curriculum is taught with a mix of academic and industry personnel, allowing for a balanced program enabling students to build industry knowledge for future job opportunities. For industry partners this program has attracted the brightest minds into their business through internship programs.

Source: Angeline Achariya, pers. comm., September 2020

These developments in approaches to education and training across the vocational and tertiary education sector are evidence of the responsiveness of providers in meeting some of the needs of the AgriFood sector. Submissions indicate, however, that the pace and scope of the development of these offerings need to be expanded. On one hand there is recognition that there is an ecosystem of education and training options that can be accessed and directed to the needs of the AgriFood sector; on the other, greater levels of industry leadership and direction and greater collaboration and co-investment will be required.

The Committee is of the view that such university-led initiatives could be expanded and focused more strongly on the needs of the sector for identified gaps in graduate entry-level positions. Following the model provided by MTEC (Box 23), strong co-investment by industry in focused initiatives that bring exciting experiences and entry points for university students into the sector, such as in areas of growing relevance like AgriTech, should be considered.

6.2.9 Strengthening entry training

Entry pathways into the AgriFood sector are not limited to formal education paths as outlined in the chapter previously. More commonly people have entered with no or limited formal education and then sought access to relevant education and training to address skills gaps or to develop careers. In addition, vocational training is an important component of 'taster' and induction programs for interested people or new starters.

Submissions to the inquiry noted the need for higher quality entry-level skills training and for standardised high-quality induction programs. For instance, the Fruit Growers Tasmania submission noted:

> *Until very recently, there was a clear deficit in the 'entry level' skills of the industry. Improving the skill level is left to individual employers. However, there was a disincentive to do so as individual investment in skills development by employers often led to employees being poached by other employers.*
>
> *What is required is an industry wide lift in entry level skills levels. Some 50-70% of workers in our industry need trade assistant or trade level skills for the work they do, or progress from these roles to team leader and managerial roles. This gap has very recently been addressed through the agreement of TasTAFE to deliver the AgriSkills Entry Program.*

Dairy Australia noted that the current governance and funding model for the VET sector did not easily allow micro-learning to be packaged together and formally recognised with a credential (which could then attract government funding). It proposed a new model of learning that would provide career learning opportunities that can 'fit in' around the hands-on workplace demands farmers and the people they employ face every day.

The Queensland Farmers' Federation recommended a state-based virtual hub for employers to develop a standard agriculture 'work-ready' pre-induction to ensure new employees arrive at the farm gate correctly prepared for an agricultural job. This was also supported by the ForestWorks submission, which noted the regulatory needs for high-volume, high regulatory risk generic training not tied to specific labour market outcomes.

Increasing demand for on-the-job education and training will require more flexible and adaptive education offerings and modes of delivery. This is the focus of the next section.

Recognising employees' education and training achievements as 'career currency'

Several industry bodies and businesses raised the proposal for a construction industry type 'white card' arrangement for new workers looking to enter the AgriFood industry. This would serve 2 purposes: ensuring a foundational level of knowledge and skills at entry; and providing an ability to move between employers with evidence of the training completed (for example, Box 29).

Dairy Australia advised the Committee of its 'dairy passport model', an online tool for people in the industry to identify their learning needs and experiences to help meet these needs. The tool can help keep track of training provided by high schools, extension providers, TAFEs, universities, private colleges, international experiences and other providers and consultants.

The South Australian Agriculture Industry Skills Committee similarly supports development of a 'skills passport', noting the general preference for short training offerings due to time and cost pressures, and the need for diverse skill sets in agribusiness roles.

Consistent with these submissions, the recent Shergold review (2020) of senior secondary pathways into work recommended:

> *In collaboration with industry, and VET and higher education providers, Education Council should codesign a digital Education Passport for lifelong learning – a living document that allows young people to capture progressively their education and training qualifications and workplace experience.*

Box 29 Pathways for People in Dairy

Pathways for People in Dairy is an industry initiative helping to attract, develop and retain people in dairy, paving a pathway that supports job seekers to successfully build their careers with dairy farm employers.

The Dairy Passport has ready-to-use resources to make it easy to bring new staff into the team and create a safe, compliant and supportive workplace.

This online resource hub and record-keeping platform tracks compliance for safety on-farm, records the competency of staff in on-farm activities, and monitors staff development.

New customisable farm policies and procedures, training materials and coaching guides across the fundamentals of farm activities support employers and employees through their first 90 days on farm.

The Dairy Passport Help Desk has freely accessible information on using the platform.

Source: Dairy Australia submission

6.2.10 Modernising and expanding educational offerings and delivery modes

In response to industry leadership and co-investment in the education and training domain, education providers need to be enabled to respond in the form of accredited and unaccredited education and training options ranging from full qualifications to skill sets/clusters to micro-credentials. The increasing demand for this range of offerings is expected to be across all occupations and skill levels.

The range of skill levels and the range of occupations within the sector require an expansion to the range of education and training offerings. For instance, people entering the sector with full qualifications and experience outside the sector will require shorter format and more targeted education offerings than full qualifications, as will those entering the sector for short-term work. This will require a responsive and prepared education and training sector working in partnership with industry, and with mutual commitment to quality standards in education and training (whether they are accredited, unaccredited or on-the-job). The role of employers in providing quality on-the-job learning experiences also needs to be supported.

6.2.11 Addressing diverse requirements for on-the-job education and training

Consultation indicated the education and training requirements of the AgriFood workforce will remain diverse into the future. There was a consensus among submissions that a suite of education offerings, including unaccredited and accredited training, has a role in the skills development required by the agricultural workforce. For example, Cotton Australia observed:

> *While our industry values full qualifications, growers prefer incremental learning through a 'bite-sized', life-long learning approach, where acquiring skills and knowledge will result in practice change in their business. We propose a combination of both accredited and non-accredited training to best meet industry needs.*

As noted by the Australian Qualifications Framework Review (2019), this trend towards lifelong learning, involving accredited and unaccredited training, is common across all sectors of the economy. The importance and place of different modes of learning need to be understood and embraced by all participants.

Submissions noted the important role that on-the-job learning has played in educating and training many farmers and farm workers, particularly with the traditional family business structures that dominate the sector (NFF). While the family farm has been the skills incubator for this part of the sector for many decades, more broadly, as noted by Skills Impact's submission and the OECD (Fialho, Quintini & Vandeweyer 2019), informal learning is the dominant type of learning that workers engage in. Although on-the-job learning will remain a critical component of workforce skilling, submissions by Skills Impact and Dairy Australia / Australian Dairy Farmers noted that it was no longer enough by itself. Skills Impact noted:

> *On farm, skills and knowledge have been traditionally handed on from employer to employee, from employee to employee or in the case of family farms, from parent to*

> *child. This is a valid, significantly large body of learning that is never recorded or recognised and is ignored by policy makers and economists. However, in the current ever-changing work landscape, this method alone is unlikely to provide workers with the higher-order or new capabilities they need for the future.*

This section outlines the main points made in submissions relating to the important and complementary role unaccredited and informal education and training such as agricultural extension plays in continual learning of the sector, as well as examples of flexibility possible in education and training delivery. The issues and challenges in responding to demand for short-format offerings such as micro-credentials are also examined.

Recognising the role of unaccredited education and training, including agricultural extension in developing skills and capability

Historically, the delivery of unaccredited education and training has been widespread in the agriculture, fisheries and forestry sectors. This reflects a long history of unaccredited education and training provided by publicly funded state government advisory and extension services. Over the past 30 years there has been a transition towards increased private sector delivery of these services, due in part to declining public sector investment (Coutts, Koutsouris & Davis 2019; Keogh et al. 2017; Parliament of Australia 2007). As noted by the Australian Qualifications Framework Review discussion paper (2019), unaccredited courses are likely to be increasingly important to learning for upskilling and reskilling both within the workplace and through education and training providers.

Submissions noted how important extension remained as a mechanism to upskill the workforce and support behavioural change. The Grains Research and Development Corporation (GRDC) noted:

> *Extension is critical to assist the Australian grains industry overcome slower rates of productivity growth in the Australian grains sector since the late 1990s, with extension enabling the translation of research outcomes into on-farm adoption. Consequently, the GRDC's Research, Development and Extension Plan 2018-2023 includes a Grower Communication and Extension framework that highlights that the desired outcome of every GRDC RD&E investment is the adoption of new technologies or innovations that maintain or enhance grain grower profitability. Raising awareness through communication and influencing behavioural change through extension are essential to affecting that adoption.*

Williams observed:

> *Non-accredited training will continue to be a key to knowledge transfer and capability development in agriculture. Up until the last few decades state departments of agriculture were the major providers of extension services to agriculture. This used some group-based activities such as producer groups and field days, but the majority or resource was devoted to providing one on one advice to businesses. This evolved into identification of the skills and knowledge needs of the industry, and designing group-based activities to impart this in a more consistent and cost-effective way (a programmed learning approach).*

Unaccredited training offers benefits to both employees and employers. As noted by the Productivity Commission, unaccredited training and on-the-job learning were found to be associated with higher wages – participation in unaccredited training was associated with 11% higher wages, while participation in on-the-job learning was associated with 3.5% higher wages (Fialho, Quintini & Vandeweyer 2019). In Australia, agriculture, fisheries and forestry employers

are more than twice as likely to make use of unaccredited training and report high levels of satisfaction (around 90%) with unaccredited training as a way of meeting their skills needs (NCVER 2019).

Quality accredited training plays an important role in complementing agricultural extension and informal learning by ensuring quality standards and consistency across states and providing learners with recognition of increasing levels of learning.

The need to respond to increasing demand for skill sets / micro credentials / short courses and 'flexible qualifications'

Submissions also highlighted the demand from the industry for the delivery of education and training targeted to 'sets of skills' and short-format delivery modes such as micro-credentials. A micro-credential is a certification of assessed learning that is additional, alternative, complementary to or a component part of a formal qualification (Oliver 2019).

As noted by the recent Australian Qualifications Framework Review (2019), these credentials are in widespread use and are increasingly important to learning for upskilling and reskilling both within the workplace and through education and training providers. Traditionally government funding for VET has been focused on students completing full qualifications. Submissions sought an extension of this funding model to include the provision of government funding for participation in unaccredited training and shorter-form qualifications.

For example, Charles Sturt University stated:

> *Upskilling or even maintaining the skills of our agricultural workforce will require a variety of pathways into technical and higher education, a greater variety of education options including micro-credentials, and funding arrangements to make education and skills development viable for both students and providers.*

A number of submissions noted the related need for VET qualifications to be more flexible in how they are packaged. For example, in his research for the NFF, Williams noted:

> *Listing endorsed Skill Sets in training packages has effectively ruled out any other unit or combination of units from most public funding sources, regardless of meeting industry needs. A more accommodative and flexible approach should see skill sets redefined and opened up to funding.*

The Tocal College / New South Wales Government submission noted the need for greater flexibility in training packages (repackaging rules) and the need for greater emphasis on part-qualifications and skill sets (as defined by industry need).

Other submissions identified the need for greater collaboration among industry sectors to address common skill sets. This could be tackled at regional level between sectors or at national scale across value chains. For example, in its submission, Forest Industries Federation WA (FIFWA) noted:

> *The industry continues to deal with the challenges of accessing suitable training in thin, regionally dispersed markets. For example, in WA there are only two RTOs offering (limited) training to the harvest and haulage sector. There is currently no RTO servicing the timber processing and sawmilling sector. There is also currently no RTO providing training in silviculture tasks, plantation establishment or plantation design.*

Similarly, the Australian Food, Beverage and Pharmaceutical Industry Reference Committee (2020) noted:

> *Food and beverage processing and manufacture has a strong connection to regional Australia through the location of processing plants in regional towns and drives the development of those local economies. As with many other industries in regional towns, food and beverage processors in rural areas struggle to access training and assessment delivery through RTOs, in part due to geographical considerations, funding and workforce issues.*

Regional Skills Training, a specialised agricultural VET provider based in South Australia, advocated that training must be continuous and available as a person or business needs it. It noted a preference to provide full qualifications that can be flexibly constructed, such as the AHC2816 – Certificate III in Rural Operations (Box 30). It favoured a flexible approach to delivery, with open-ended courses (with students potentially enrolled for 3 to 5 years) allowing students to pick and choose when they train, how much training they do in any given year and how long they take to complete the qualification. This enables students to train specifically to suit their workplace, particularly as their workplace evolves.

Box 30 Flexible qualifications example

AHC32816 – Certificate III in Rural Operations

This qualification provides an occupational outcome in agriculture, horticulture and conservation land management and at least one and up to 4 other related industries.

Individuals with this qualification perform tasks in a variety of contexts, which involve some judgement in selecting equipment and services. Depending on the units selected, individuals will be able to seek employment not only in rural industries but also in other industry sectors, such as local government, tourism, hospitality, transport, construction, information technology and metals.

No occupational licensing, legislative or certification requirements apply to this qualification at the time of publication.

There are no entry requirements for this qualification.

To achieve this qualification, competency must be demonstrated in 16 units of competency (2 core units plus 14 elective units).

Elective units must ensure the integrity of the qualification's Australian Qualification Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome. The electives are to be chosen as follows:

- select at least 6 units from Certificate III qualifications in the AHC endorsed Training Package
- up to 8 units aligned to AQF levels 2, 3, or 4 qualifications may be selected from up to 4 currently endorsed training packages or accredited courses.

Source: DESE 2020d

The Committee notes the 2020–21 Budget announcement by the Australian Government of $500 million in 2020–21, contingent on matched contributions from state and territory governments, for a JobTrainer Fund. It is expected that this fund will provide school leavers and job seekers up to 340,700 additional training places that are free or low fee. Funding will be available for accredited qualifications and short courses in areas of identified and genuine skills

needs, based on a list agreed between the National Skills Commission and the state and territory governments.

Barriers to flexible offerings

Regional Skills Training's submission explains that there are barriers for education providers in developing skill sets formats as short courses or micro-credentials:

> *The reason for preferring enrolment in qualification to skill set or micro credentialing for subsidised training is that:*
>
> *It allows any government to manage funding & count numbers more easily i.e., 1x student is enrolled = 1x funded place which is linked to 1x job*
>
> *It allows the student & the RTO to minimise administration tasks in enrolment processes i.e., enrolling once in a course rather than in multiple skill sets & micro-credentials*
>
> *The key in the above simple system is to have flexibility within the qualifications such that the end qualification has the required number of units at the required AQF level, but individual units are selected for the training plan that completely suits the students' needs. This means that while a training plan may be created at the commencement of enrolment with the units selected according to what the student thinks they want to do it is highly likely that the training plan will change several times over the years at the business/students request i.e.*
>
> *We selected farm front end loader, but we have purchased an articulated civil loader*
>
> *We wish to embed a WHS system to the farm*
>
> *We are in the second year of drought & wish to complete training related to managing mental health, risk management …*

The university sector already has a degree of flexibility in designing its qualifications. For example, the University of Adelaide advised of the short courses that it offers and noted that:

> *Courses may be stand-alone or modular, enabling them to be combined for an award qualification. Increasing qualification levels may be obtained by completing different combinations of short courses over time.*

National industry leadership and additional funding would go a long way towards addressing these constraints and to having influence in any reforms to VET, higher education and rural, regional and remote education.

6.2.12 Increasing the flexibility of delivery modes

Alongside multifaceted education offerings, the submissions highlighted the importance of increasing flexibility in delivery modes. Many submissions reflected on the need for a 'blended model' for the delivery of learning, which coupled greater provision of online training with supervised on-the-job learning and assessment. Such arrangements potentially offset limitations on the delivery of training in regional and remote areas, while accommodating the preferences of some students.

In his research for the NFF, Williams noted:

> *Training for the agricultural industries is more expensive than many urban-based industries. It requires access to training facilities and equipment for practical skills training, and training in the workplace. Typically, students are widely dispersed, and significant travel time is involved in attending training. A model of blended learning*

> *should be encouraged where trainees have access to online training materials and work-based assessment tools, combined with practical skills training delivered by a combination of RTO and the employer.*

The Forest Industry Federation of Western Australia noted:

> *Provision of more online learning, virtual reality and augmented reality resources would better accommodate the different learning style of younger generations. The gamification aspect of forest industries education should also be explored, in addition to making simulators accessible to more people. Currently, there is a significant financial barrier involved in making forestry industry simulators available for more training and industry awareness raising.*

From a regulatory perspective, the ASQA reported that its consultation with stakeholders had revealed a desire among some for online delivery and the use of simulated workplace environment for assessments, but also concerns about how substitutable simulated experience was for workplace experience. ASQA's submission advised that it:

> *Encourages providers to offer training in whatever manner is suitable for their particular learner cohort, and supports all forms of innovation in training, including online training and the use of simulated workplace environments, providing such innovation enables learners to develop the skills needed for the workplace. The types of training most suited to innovative models of training are dependent on the training product being delivered and learner cohort at hand.*
>
> *It is ultimately dependent on providers working with industry and employers to determine the feasibility of online training and the use of innovative models for work placement and assessment.*

The Productivity Commission (2020) has recently commented on the opportunities and challenges posed by online delivery, which have been highlighted by the disruption caused by the pandemic. The Productivity Commission noted uncertainty around a range of issues associated with increased online delivery of VET, including the ability to separate accreditation from training. It has sought stakeholder views on these matters to help inform its final position.

Unaccredited training does not have the same statutory assessment requirements that accredited training does, facilitating more flexibility in delivery arrangements.

The Committee notes that a more flexible approach to delivery and assessment, including a clearer delineation of competencies that must be formally learned (such as chemical handling) and those that could be effectively learned on the job (such as fencing) could help address issues raised in submissions about access to VET and appropriately skilled trainers. A move towards funding for the delivery of skill sets or micro-credentials could further assist this in both the VET and university sectors.

National industry leadership in partnership with the states could stimulate greater flexibility in delivery (see Chapter 9, Working together to implement the Strategy).

6.2.13 Greater investment in education and training, reflective of a progressive and growing sector of the Australian economy

The inquiry heard that underinvestment in education and training, coupled with inefficiencies and inflexibility in funding models, was at the centre of many issues for both industry and education and training providers.

6.2.14 Industry and education providers share the concern regarding investment

Submissions expressed concerns about declining levels of funding for vocational education and training. For instance, Tocal College noted:

> *The Mitchell Institute have confirmed that the VET system that is at the heart of industry and workforce training has seen reduced funding in real terms over a long period.*

Similarly, Williams observed:

> *Over the past two decades, TAFE Institutes, operating as autonomous business units and under financial pressure to increase student numbers at minimal cost, has seen farmer training in these areas discontinued. Viable teaching facilities have been dismantled and TAFE Institutes would now claim that there isn't the capability to run these programs in farming areas.*

The ForestWorks submission noted:

> *… low enrolment in VET Training packages does not mean there is low need but is indicative of a VET system that is not meeting the needs of the Forestry industry.*

ForestWorks suggests there is a need for financial and brokerage support for industry and RTOs operating in thin training markets and to assist businesses to access and benefit from the VET system.

The 2019 Joyce review of the VET system largely supported these views, observing:

> *In recent times, as a result of budget pressures, demand-driven programs have become increasingly targeted to priority skills areas, support for first qualifications, those impacted by structural adjustment, and/or people who need assistance to engage in training, including foundation skills.*
>
> *The operations of publicly owned providers, the TAFEs, have become more independent to allow greater flexibility in meeting the needs of students and industry. There are clearer subsidies for training separate from general support for the public institution. Changes to subsidies and governance under demand-driven models have led to budget pressures and adjustment challenges for the TAFEs.*

The funding pressures noted by Joyce particularly affect the delivery of relatively specialised agricultural courses, which are relatively high cost and attract low levels of aggregate demand.

Skills Impact called for a national system of approval for subsidised AgriFood VET from the Australian and state governments. Further, Regional Skills Training identified a need for a review of vocational funding mechanisms common to all states, highlighting the SA model as leading because the RTO can contextualise delivery on a per unit basis while being funded for the full qualification. This is suggested to provide significant cost savings for the government, as the cost of delivery can otherwise vary by up to $10,000 per qualification.

Charles Sturt University noted that in the short term, governments and the agricultural sector can take steps to ensure that agricultural education programs are appropriately funded, by providing support for both students and providers:

> *A key challenge in both education and research is funding, for the institution and the student. A recent analysis by Andrew Norton of ANU, drawing on a Deloitte Access Economics report, shows that agricultural and veterinary science programs are*

> *essentially 'break even' for universities, since they have a high cost of provision not matched by Commonwealth funding … Without increased funding for agriculture education [and research], especially in regional areas, universities may not be able to meet the needs of the agricultural workforce either in terms of the supply of graduates or the provision of new knowledge.*

The university sector also notes persistent issues in maintaining educational infrastructure with low demand for agricultural courses.

> *For Charles Sturt, the main challenges are persistently low demand for agricultural courses coupled with falling government funding. A Deloitte Access Economics report on 'Transparency in Higher Education Expenditure', commissioned by the then Department of Education and released in November 2019, showed that the cost-to-funding ratio for courses in Agriculture, Environmental and Related Studies had fallen from 97% to 87% over 2015-18, making these courses increasingly expensive for universities to provide. The economic shock resulting from the coronavirus pandemic has only exacerbated these problems, and cost pressures may yet lead to the closure of some agriculture courses, further reducing the supply of graduates.*
>
> *Without increased funding for agriculture education and research, especially in regional areas, universities may not be able to meet the needs of the agricultural workforce either in terms of the supply of graduates or the provision of new knowledge.*

Submissions advocated for consistent and generous funding models for VET across all jurisdictions in Australia that account for rural and remote delivery. Further, in their submission, the NFF highlighted the need for 'a review of funding arrangements'.

6.2.15 The need for new funding models for standalone skill set based courses

Access to standalone skill set based courses is an essential part of the AgriFood sector's education and training framework. Historically state government funding for VET has been focused on students completing full qualifications, but the business sector, across the whole economy, has been seeking an extension of these subsidies to cover short-form courses. As noted in the Joyce review, providing government funding for training workers for part-qualifications raises some policy questions for government, as all the benefits from such training would appear to be captured by the person who obtains the qualification or their current employer. Some state governments have committed to trialling funding for short courses or micro-credentialling. In addition, some RDCs have been providing co-funding for these short courses, in collaboration with state governments and/or course participants (see Box 24).

The merits of the preference for skill set based or just-in-time training were debated in submissions. The Australian Council of Deans of Agriculture noted:

> *At the VET level there is often a short course of study just to pick up a skill required by the employer. This has been standard practice on Australian farms for decades – the benefit is to the employer but as there is no qualification involved there is little benefit to the worker. Such a strategy has been to avoid the need to pay the employee more because of the qualifications.*

However, the South Australian Government noted:

> *Allowing for subsidised training in skillsets, rather than just formal certificate or diploma courses, will enable students to pick courses relevant to their employment.*

Along similar lines, FIAL's forthcoming report *Capturing the prize: the A$200 billion opportunity in 2030 for the Australian food and agribusiness sector* noted:

> *The food and agribusiness workforce would benefit substantially from more short term, on-the-job training opportunities. Mid-career workers have a particularly large need to learn new skills to cope with rapid technological change. Businesses and government would both need to invest in training opportunities to further incentivise the skills transformation Australia needs.*

Some submissions supported the need for targeted government investment in unaccredited training. For example, in his research for the NFF, Williams noted:

> *Selected non-accredited training programs have been deemed eligible by government for some special circumstances funding, based on having a clearly documented program. It is important that this be retained, and a process of mapping to the AHC training package would also be useful to optimise recognition for students who complete non-accredited programs.*

6.2.16 Stronger investment in emerging areas for education and training and brokering

Many submissions noted the need for new mechanisms to address low-volume, highly specific training that is emerging or new for different sectors. This represented major gaps such as in digital agriculture and aquaculture.

Skills Impact recommended the adoption of the recommendations in the agricultural workforce digital capability framework, including establishing digital capability benchmarks across sectors and driving the development of curricula and training pathways for both existing and future workers.

Further, submissions noted a range of improvements to education and training that could flow from greater investment. These included:

- establishing a quality system of nationally recognised RTO deliverers to work across Australia and access training subsidies irrespective of state
- 'training broker' positions to act as intermediaries in identifying and negotiating training needs and opportunities and assist in coordination and collaboration across industries and regions
- support to additional workplace-based trainers and assessors to deliver to national standards with the support of RTOs
- support to develop learning material at a local level.

6.2.17 Recognising the value of agricultural education and training facilities and infrastructure

The delivery of accredited agricultural education and training is supported by a suite of private and public sector institutions. The AgriFood industry, in particular the production and processing sectors, has special needs with regards to physical space, access to heavy machinery and other specialised equipment and livestock. It is fortunate to be served by a range of well-equipped facilities that have been funded historically by respective governments and universities.

However, maintaining the investment in these types of facilities is costly. Some submissions expressed concerns about the consequences of historical and more recent closures of some of these facilities. For example, Crop Consultants Australia noted:

> *This year alone the three largest agricultural training centres in Queensland have closed. In the past, these centres have provided staff to rural industry who are skilled in practical aspects of both agricultural production and research. With the closing of these facilities, there is now a lack of vocational training options for regionally located students leading to their relocation to urban areas and eventual loss to industry.*

In an industry-led education and training future it is essential that the worth and role of such infrastructure assets and their maintenance and modernisation are properly valued. Innovative options for education and training through industry partnerships should be explored.

In line with the cultural change in attitudes towards the importance of education and training, the Committee finds that, while additional government investment is crucial, better industry outcomes can be achieved by greater co-investment in education and training outcomes by employers themselves and their industry organisations. This will go far to secure the education-attaining outcomes reflected in submissions. With greater investment by industry will come stronger calls for accountability, transparency and impact, which is the focus of the final section.

6.2.18 Increasing accountability and impact from investment

With industry leadership comes the need for industry to more clearly define the outcomes desired from education and training and collate evidence of impact.

The submission of Tocal College and the New South Wales Department of Primary Industries summarised the sentiment of many submissions about what needs to change:

- Bring industry back to the centre so they own and are at the core of the VET agenda.
- Develop strong data and evidence regarding skill gaps and skill needs to inform sector-specific workforce development strategies and programs.
- Focus on outcomes (completion rates, employment outcomes, industry standing) rather than process and extensive documentation.
- Consider industry reputation, experience and facilities of training providers in their reviews, audits and additions to scope.
- Establish a consistent and generous funding model across all jurisdictions in Australia that accounts for rural and remote delivery.
- Provide greater flexibility in training packages (repackaging rules) and place greater emphasis on part-qualifications and skill sets (as defined by industry need).

The Committee is of the view that such transformation in the accountability for and impact from increased education and training investment can be achieved through state and territory multiparty AgriFood labour advisory committees and Commonwealth and state and territory co-investment (see Recommendation 17).

A strategic response to education and training needs to draw from evidence of existing initiatives that have been able to address some of the key issues and challenges in education and training. In discussions and submissions to the inquiry, initiatives that were addressing some of

the challenges identified in education and training were presented by states and industries. Some of these initiatives and their features are highlighted in the next section.

6.2.19 Conclusion: developing the 2030 agricultural workforce

The initiatives highlighted in this section reflect underlying capacity and inventiveness in the agricultural sector to collaborate, plan and act to transform education efforts in sectors or regions. These efforts need to be supported, scaled and replicated across the country. While there are progressive initiatives, the Committee identifies that there is gross underinvestment in education and training in the sector, there are fragmented and piecemeal responses across the country, and future skill needs are not being sufficiently addressed under current mechanisms.

The Committee is of the view that to develop the AgriFood workforce, strategic approaches to the development and delivery of demand-driven skill and capability programs are needed. These approaches must be developed by state and territory thought leaders in AgriFood, education and training and implementation, supported by co-investment from all stakeholders – including industry, education and training providers and the Australian, state and territory governments. The inquiry finds there is existing capability in the sector to respond and develop innovative approaches and, through greater co-investment by employers and government substantial progress can be made quickly.

Recommendation 17

To increase the responsiveness of the education and training system to industry needs, the Committee recommends that the state and territory governments establish multiparty AgriFood labour advisory committees to provide leadership in the development of demand-driven capability programs across the AgriFood sector. The Committees should comprise AgriFood business leaders and thought leaders in tertiary and vocational training.

The Committee recommends that the Australian Government match any state and territory funds allocated to such AgriFood labour advisory committees to give them enough resources for these programs.

Through this mechanism, it is expected that education and training will be increasingly industry-led, demand-driven and collaborative in vision with education providers; that there will be strongly linked pathways between education and training, industry and occupations across sectors; that education and training will be modernised in the span of educational offerings and delivery modes; that this additional investment and co-investment will meet the needs of the sector; and that there will be demonstrable impact from such investment.

6.3 Improving capability in workforce planning, management, health and safety, and wellbeing

Workplace conditions, such as wage rates, other non-wage benefits, promotion and learning opportunities, management practices and the work environment determine how attractive a job opportunity is and the degree of job satisfaction of employees (Das & Baruah 2013). The inquiry has found there is significant scope for improvement in workforce leadership and management in the AgriFood sector to build AgriFood's reputation for being a good employer and to address the sector's poor work health and safety (WHS) record (Figure 49).

A number of submissions noted that the sector should aim to become an employer of choice. For example, the NFF submission noted:

> *Ultimately, agriculture should aspire to become an 'employer of choice' through better attraction and retention strategies and the development of human capital. Driving widespread adoption of better practices will be of great benefit to employers who rely on securing skilled workers in a highly competitive labour market and in the longer term, for the industry in terms of repositioning it as one of choice for new entrants.*

6.3.1 High-performance work systems are central to Australia's AgriFood vision

Many sectors of the Australian economy will state 'our people are our most important asset'. An important question in progressing a workforce strategy is how the AgriFood sector can turn the acknowledgement of the importance of people into a competitive edge in performance.

This is where human resource management (HRM) practices matter. They have been shown to influence business and health and safety performance in all sectors. Developments in the field of high-performance work systems suggest that coherent HR practices enhance employees' skill, motivation, and opportunity to participate at work (Appelbaum et al. 2000; Kidwell and Fish 2007). Further, positive employment relationships signal to employees that they are valued and respected, creating positive employee attitudes and behaviours and ultimately enhanced productivity and business performance. The influence of the employers' leadership and management practices on employee attitudes, behaviours, and wellbeing is, however, commonly overlooked as a factor in attraction and retention when job attributes (pay, conditions and incentives) rather than employment relationships, work environment and workplace culture are emphasised.

Workplace culture, or the social behaviours and norms accepted in the workplace, is increasingly recognised as a significant contributor to employee attraction, retention, wellbeing, productivity, conduct and overall business performance (Guest 2017). Workplace culture influences the way human resource management is practiced and it is the mechanism by which 'people as an important asset' becomes a reality. For example, does the workplace:

- demonstrate the importance of people?
- emphasise workplace harmony?
- recruit and select people for their contribution to the desired culture as well as their skills?
- train and develop people?
- appraise, manage and reward performance?
- celebrate diversity?
- involve everyone in prioritising safety, health and wellbeing?

Studies in the AgriFood sector as well as submissions to the inquiry have identified leading employers and the current key work practices impacting positively on employee retention and business performance in the AgriFood sector. The University of Melbourne's submission reported on its research on human resource management and employee experiences in the dairy

and horticulture farm sectors. The research affirmed that employment conditions and human resource management practices do influence employees' job satisfaction and career intentions. It also found that employers with a good reputation retained their staff through comprehensive employment strategies, including:

- higher than the average pay rates for the sector and similar roles
- flexible work hours
- limiting weekend hours and very long shifts
- training and development opportunities
- feedback and appreciation for a job well-done
- individual attention to career development and mentoring
- an enjoyable work environment with good facilities
- varied work tasks.

Further, research studies and the submissions received noted that smaller businesses face the greatest challenge in implementing high-performance work practices, in retaining employees and in prioritising wellbeing, health and safety (for example, Kotey 2004; Kotey 2005; Safe Work Australia 2016). Compared to larger businesses, managers in smaller businesses had lower job satisfaction and more of their employees expressed an intention to leave. Due to their size, small businesses may find it difficult to meet employees' expectations for training, development and promotion. Supporting this, several submissions reflected on the benefits that medium to larger businesses have in professionalising HRM and dedicating resources to HRM. For example, FIFWA noted:

> *Forestry has been working under a corporatised model for well over twenty years. FIFWA considers that other sectors in the agricultural industry are now moving towards similar models. This is resulting in improved safety and working conditions, and increased pay rates – which are more attractive to the labour force compared with the more traditional family farm type model.*

It is the Committee's view that to progress this National Agricultural Workforce Strategy, the sector needs to invest significantly in:

- building capability in workforce leadership and management
- undertaking R&D that supports employers to identify and implement more effective workplace practices
- supporting cultural change and practices related to workplace health, safety and wellbeing.

This investment will need to involve additional support for smaller businesses in this area for those whose growth strategy may be limited by their capacity to lead and manage a workforce. Investment in this area needs to be strongly linked to high-quality education and training (Section 6.2) and to the campaigns relating to attraction and retention (Section 6.1), for instance in linking new entrants to 'employers of choice'.

6.3.2 Building capability in workforce leadership and management

A number of submissions provided examples of work already underway to improve workforce management in the AgriFood sector.

Submissions from the meat processing and prawn farming sectors advised that a stronger evidence-based approach was needed to help understand the drivers of high levels of staff turnover and the success factors behind positive attraction and retention efforts in these industries. The Australian Meat Processor Corporation (AMPC) submissions advised that its Retention Project had identified that turnover in the sector varied from 26% to 108% with an average rate of 62%. Similar results were found in a study of dairy farm employee retention (Nettle et al. 2011). These high rates of turnover cause significant disruption to operations, potentially increasing the likelihood of error, while also reducing the return on employers' investment in the large amount of training required per employee, especially for skilled workers. In terms of reduced productivity and profitability the costs of retention to a medium-sized plant in processing were estimated at between $650,000 and $1.3 million per annum, and on farm $20,000 to $50,000 per farm or up to $200 million across the dairy farm sector (Nettle et al. 2011).

The AMPC Retention Project's goal is to gain a clear understanding of the underlying reasons for retention of employees in the meat processing sector, and drive changes in behaviour based on a need to place the right people in the right roles conducting the right work. This research has identified leadership in processing plants, namely failure of supervisors to address in-team coercion, favouritism, perceptions of management aloofness, and a lack of mobility in roles or ability to develop new skills as factors contributing to staff turnover. These leadership insights indicate that improved leadership behaviours would significantly improve retention rates at certain plants, especially with regard to creating a more welcoming environment for new employees by providing rotation and development opportunities.

Industry sectors differ in their maturity in supporting workforce management. Sectors such as cotton and dairy are further advanced in understanding employer workforce management practices and the drivers of workforce attraction and retention. Dairy Australia and Australian Dairy Farmers noted that current dairy industry projects could be scaled up to encompass the whole AgriFood sector:

> *Shifts in industry culture towards becoming 'employers of choice' and leaders on-farm, could be assisted by scaling current investments in qualifications (such as the current fully industry funded Diploma of Human Resources Management or similar) across the agriculture sector. Both farmers and services providers who support the workforce, need to be supported to access this capability development with expanded reach of available programs and courses.*
>
> *Many other RDCs note the challenge in engaging farm capability advisers (HR/WHS) in regional locations to support farm businesses to achieve positive, safe and sustainable workplaces. Having a shared, capable pool available to support agriculture broadly would be of significant value to the sector. These initiatives that expand the pool of capable workforce advisers would also provide a viable business option for small dairy farm business operators to establish HR/WHS processes, practices and behaviours.*

Other submissions suggested that the Farm Business Workforce Skill Set under the Agriculture, Horticulture and Conservation training package or the Manage Workforce Planning competency under the Business Services Training Package could form the basis of workshop-based programs to deliver strategic workforce planning competencies, accredited or unaccredited. However, submissions noted the limitations of 'generic' HRM resources, and the need to adapt material for the sector and workplace context.

There were also calls for greater support for workforce planning for businesses. This requires expertise in work assessment and work organisation alongside relevant AgriFood sector experience.

A focus on building sector-specific capacity to address human resource management and workforce planning issues was also central to the dairy sector strategy to build advisory capability among farm advisers and those trusted by the farming community in understanding their farm system (Box 31).

Box 31 Improving workforce management case studies

The People in Dairy Program

The People in Dairy program, fully funded by Dairy Australia, includes a suite of tools and development programs to assist farmers to be better people managers.

This well-regarded program has successfully reframed thinking around the diverse ways in which people function within the whole-farm system as farmers, managers, farm workers, new entrants or advisers both of individual farm businesses and in the wider industry context.

The People in Dairy program also maintains a website, www.thepeopleindairy.com.au, where tools, templates, guidelines and case studies are maintained. This site has become a valuable resource for the industry, with over 65,000 downloads annually. It includes an Employment Starter Kit (ESKi) that explains in plain language all the things that farmers need to know to successfully employ new staff. This quick guide ensures that farmers are not only compliant with the legal aspects of employment but also able to implement good employment practices to recruit, induct and develop their staff.

Since its launch, more than 2,500 dairy farmers have requested the ESKi guide in addition to accessing the latest information online. Farmers also receive updates relating to employment, workforce planning and farm safety via the *People Matters* e-newsletter. Feedback from farmers has prompted increased interest in further human resource development training opportunities.

Diploma of Human Resource Management (Dairy)

As part of the People in Dairy Program, a custom-designed formal training qualification – the Diploma of Human Resource Management (Dairy) – was established. The objective was for participants to gain skills and a qualification in identifying and managing people issues within a dairy-specific context and to be part of a new advisory network to support their continued learning and development. Advisers or their organisation covered the travel costs and time away from the organisation. The training was provided at a reduced fee by the dairy industry.

This diploma course ran for the first time in 2008 with 23 participants; by 2014, 119 participants from across Australia had completed the course, with 82% (97) of participants being private sector advisers. Advisers completing the diploma reflected a range of advisory experience (from one to 40 years of advisory work), gender (21% female) and age (29 to 65 years) (Nettle et al. 2018).

Source: Dairy Australia submission

Similarly, cotton industry researcher Nicole McDonald observed:

> *As agriculture businesses continue to adapt and innovate in order to meet challenges to production and improve their sustainability, the success of these efforts depend on an adequately skilled workforce. Recent research has identified gaps in technical skills, workplace health and safety skills, people management and leadership skills, and employees' employability and personal management skills. Training structured around these skills gaps is essential to establish consistent best practice performance standards across the industry.*

Although work is underway to modernise the culture of AgriFood workplaces, building capability in this area requires renewed focus and effort, commensurate with the vision for AgriFood growth. The industry needs to focus as much on the retention of staff, as it does on the attraction of new staff. Evidence-based approaches are needed to inform programs designed to address WHS and wellbeing issues.

6.3.3 Investment in R&D that supports employers to identify and implement effective workplace practices

The past 30 years have been a period of great consolidation and innovation for Australia's Agri-food sector (see Chapter 3). During this time many businesses have grown at a rapid pace, from small family operations to world-class producers of AgriFood products. While much energy and focus have gone into products and production, other sections of the business can be lacking. Managers may find themselves in places of information deficit as the unique situation of their good-sized regional business gives them neither history nor counterpart with which to compare themselves. The Committee believes that many rural businesses would benefit from in-depth research on this rural phenomenon in relation to workplace organisation and design. Furthermore, outcomes delivering possible workforce strategies that enhance opportunities and attract employees will be a great benefit to rural Australia.

The Committee noted the opportunity for greater investment across the sector in developing employer capability and investing in research and development to better support employers in evidence-based practices related to work organisation, HRM, culture and leadership. The design of farm systems and the analysis of alternative options for work organisation, the most important HR practices, and systems and leadership behaviours conducive to work safety and performance are all important areas for research in the sector. To date, workplace research in the AgriFood sector has tended to be ad hoc or non-existent, with the cotton, dairy and meat processing sectors leading current efforts. This contrasts with the AgriFood sectors in New Zealand, Ireland, Canada and France, which invest in ongoing R&D related to their AgriFood workforce (for example, Eastwood et al. 2018).

Recommendation 18

The Committee recommends that the Australian Government commission research and analysis to support small and medium enterprises and business leaders in evaluating novel approaches to workforce organisation and job design, leading to recommendations for possible AgriFood workforce strategies that enhance employee attraction and create opportunities for business growth or change.

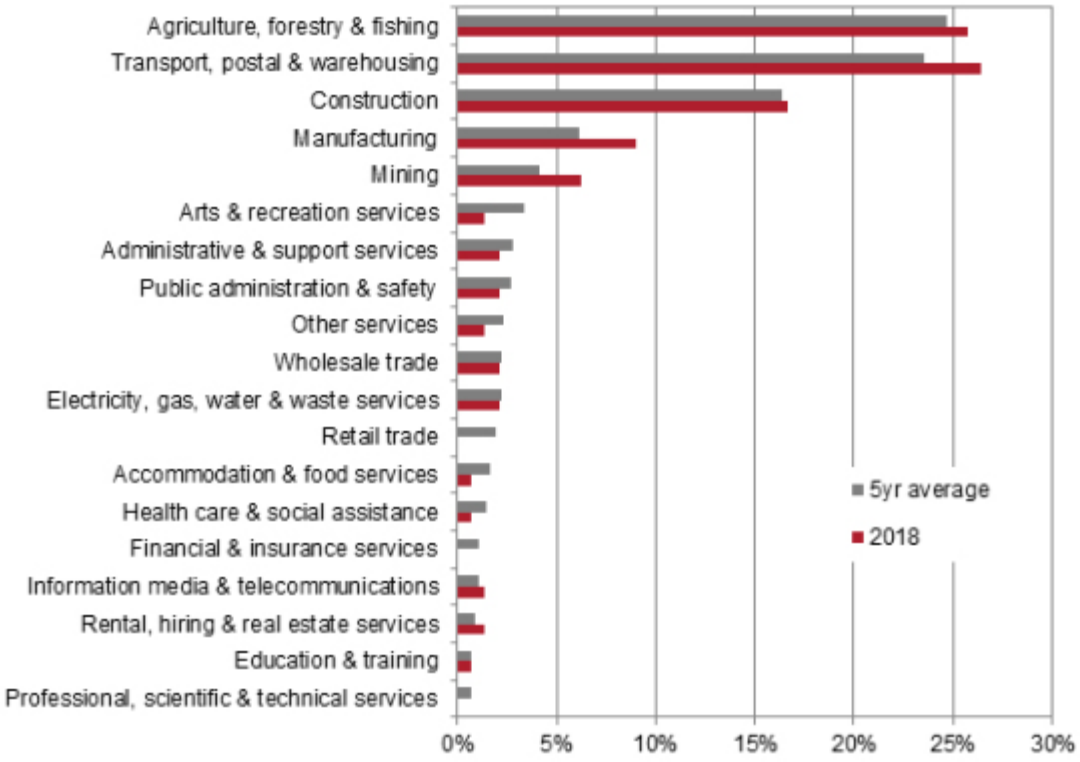
6.3.4 Greater focus on safety, health and wellbeing

Concerns for safety and wellbeing are another factor that affect the reputation of the industry and erode its ability to attract and retain staff, including seasonal staff (see Section 7.2 on protecting seasonal workers). Unfortunately workplaces in the AgriFood industry are among the most dangerous in Australia and have been so for some time, being responsible for around 25% of workplace fatalities between 2014 and 2018 (Figure 49). The transport sector, an important component of the agricultural supply chain, had the second most workplace fatalities between 2014 and 2018. Preliminary data suggest these trends have continued in 2019 and 2020 (Safe Work Australia 2020).

The model Work Health and Safety Act, adopted in all jurisdictions except Victoria and Western Australia, places the primary duty of care on a person conducting a business or undertaking (PCBU), which includes employers, unincorporated bodies or associations, partnerships and joint ventures, principal contractors, head contractors, franchisors and the Crown. PCBUs are required to ensure, so far as is reasonably practicable, the health and safety of their workers and other persons and provide information, training, instruction or supervision necessary to protect people from risks; and provide and maintain safe plant, structures and systems of work (Boland 2018). In consultation undertaken for the review, AgriFood industry stakeholders spoke of an increasing awareness of these obligations by agricultural employers. For example, Grain Producers Australia included the following farmer case study:

> *The main concern taken into consideration when hiring staff are how to ensure there are process in place to support and train the staff to ensure farm safety is given the priority it requires. There are also concerns about how to protect the farming business from the increased litigation potential and the implications of the workplace manslaughter law changes.*
>
> *Skills required of labour – it is crucial people wanting to work on farms have undertaking practical farm safety training. Having workers who are farm ready is crucial. Farms are complicated workplaces and there is a level of complexity involved in training people to ready work on a farm safely for the huge range of varied tasks undertaken.*

Figure 49 Worker fatalities: proportion by industry of employer, 2018 and 5-year average (2014 to 2018)



Source: Safe Work Australia 2020

The need to improve work health and safety in the sector is acknowledged by government and industry. A multifaceted approach is being taken, including research, education and training initiatives, combined with enforcement and regulation, such as the introduction of a mandatory quad bike safety standard under Australian Consumer Law.

In December 2019 the Australian Government provided $1.9 million to Farmsafe Australia to promote on-farm safety. Farmsafe Australia will promote farm safety in the media, and coordinate farm safety messages nationally, including attending community events and updating its farm safety awareness and guidance materials.

Consultation highlighted the need for an evidence-based approach to initiatives aimed at improving work, health and safety outcomes through behavioural and cultural change. AgForce's submission noted:

> *However, it is well identified that a key factor in improving safety is improving the safety 'culture' of a workplace. This is borne out by many surveys of producers, including one undertaken by AgForce of its own membership, which identify strong 'cultural' barriers to improving workplace health and safety such as resistance to change and a belief in individual responsibility and 'common sense'.*

Safe Work Australia (2016) found employers in small businesses tend to display management safety empowerment and management safety justice less frequently than employers in medium and large businesses, indicating that small businesses may need further assistance in performing their WHS obligations with regard to consulting with workers. An example of the collaborative

efforts in transforming the culture of a highly fragmented sector is the work over the last 5 to 10 years of Australia's freight logistics and transport industry. A partnership of the transport companies, parliamentary representatives, the unions and the retailers is pushing further in this area through the Healthy Heads initiative (Box 32).

Box 32 Healthy Heads in Trucks & Sheds program

In 2020 the freight, logistics and transport sector has evolved its best-practice workplace safety culture through the development of the Healthy Heads in Trucks & Sheds program.

Chaired by Paul Graham, Chief Supply Chain Officer at Woolworths, and an 'industry for industry' partnership of the many major logistics operators and customers, this program focuses on worker mental health and physical wellbeing as an everyday consideration for protection and operational safety.

This significant cultural change process involves peak representative industry councils (for example, Australian Logistics Council and Australian Trucking Association), corporates and companies, end-to-end along the supply chain, implementing new human resource and best-practice management processes. The program involves education and training, development of standards and wellness initiatives to address mental and physical wellbeing to create mentally healthy thriving workplace cultures and communities across the sector nationally.

These changes were needed to dramatically help improve the safety and wellbeing of people along the supply chain so workers and their families were less likely to have a significant mental health issue that ultimately saw them exit the industry.

Healthy Heads in Trucks & Sheds is working with the food and fibre sector through organisations such as the Livestock, Bulk and Rural Carriers Association to drive awareness and support for mental health so that logistics operators and workers within agriculture are included within the development of a single national mental health strategy for the broader national logistics industry. Common risk factors are isolation and social disconnection, financial pressure, long hours and fatigue.

Ongoing Australian Government support for the importance of initiatives such as Healthy Heads in Trucks & Sheds is critical in bringing together the agriculture and logistics sectors, where mental health and physical wellbeing have been a shared challenge.

Alignment of the agricultural supply chain on mental health and physical wellbeing will be critical in ensuring a long-term viable agricultural sector, noting the priority importance that the major customers are now placing on the issue of individual worker wellness in their own organisations and the networks they rely on.

Source: Healthy Heads 2020

The Committee notes the increasing importance of supporting good mental health and wellbeing for all people in the sector and the need to place greater priority on these efforts.

6.3.5 Scaling effort for the future

The Committee recommends that the government support industry-led initiatives aimed at improving capability in workforce management, alongside efforts to attract and retain a workforce (Section 6.1) and improve education and training offers led by industry (Section 6.2). This should support local or regionally based initiatives as well as cross-sector efforts so that employers can easily access contextualised credentials in HR/WHS and/or a pool of workforce consultants to increase the workforce management skills of the industry and increase workforce diversity.

6.4 Empowering locally led approaches

Much is being done around the country to attract, retain and develop the diverse workforce the AgriFood sector needs now and into the future.

Being mindful of this work, the Committee asked stakeholders what initiatives have worked to raise the status of the AgriFood sector, increase the supply of workers and/or increase the skills and knowledge of the AgriFood workforce, and what factors have contributed to the success of these initiatives. Stakeholders brought many initiatives to the Committee.

This section highlights best practice examples of approaches to deliver better outcomes for the AgriFood workforce and considers why these approaches work. A recommendation to leverage these approaches is provided.

The National Agricultural Workforce Strategy relies on leveraging best practice and empowering collaborative, locally led innovative approaches.

6.4.1 Innovative approaches

The Committee heard of innovative approaches to deliver better outcomes for the AgriFood workforce across the country. Some of these approaches were being expanded, and others could be replicated in other subsectors or regions. The Committee also heard of new approaches under development – or being piloted on a smaller scale prior to broader rollout.

Typically, these innovative approaches sought to:

- attract (and retain) new employees to careers in AgriFood
- develop the skills of AgriFood employers and employees
- create employer-driven tertiary and vocational programs.

6.4.2 Attracting and retaining new employees to a career in AgriFood

Approaches to attracting new employees to a career in AgriFood take many forms – from targeted information dissemination to school leavers, university graduates and other job seekers, to facilitated work placements and other pathways to enter the AgriFood sector (see Box 33). These approaches seek to:

- challenge widely held community perceptions and/or the poor image of the AgriFood sector
- showcase jobs and careers in AgriFood – as a first step in creating a new image
- broker employment experiences for young people in the industry
- make available general information on the location, timing and labour requirements for AgriFood roles and the extent of the occupations and career opportunities available in the industry
- provide targeted industry entry pathways (training, experience, mentoring and ongoing positions/education).

Box 33 Attraction and retention of new employees in AgriFood

Dairy Australia's Cows Create Careers – Farm Module

Cows Create Careers is a Dairy Australia program designed to promote dairy industry careers and industry education to students in years 7 to 11 by:

- introducing students to the education opportunities for both vocational and university pathways
- involving dairy farmers and industry advocates who have vision and dairy industry knowledge to encourage and support students with the project
- supporting students in making their career decisions by providing and creating linkages to the education and employment sectors
- rewarding successful students and schools.

In 2018, 14,525 students from 259 schools and 535 dairy farmers / industry advocates were involved in the initiative. Survey results found that:

- 90% of students have a greater knowledge of where to find information about careers in the dairy industry
- 490 students said they would like a career in the dairy industry when they left school
- 1,762 students expressed interest in dairy as an option.

Since 2004, over 100,000 students have been involved in Cows Create Careers – Farm Module project.

Cotton Gap program

The Cotton Gap program is coordinated and facilitated by Cotton Australia and has been designed to attract new industry entrants to a gap year on-farm.

The program's specific requirements of the role and the student include an operational-level job on a farm, usually involving tractor driving, irrigating and general farmhand duties; no assumed knowledge; and a driver's licence for travel to and from work. Students are encouraged to take up 12 months of continuous employment; however, the program's exact tenure and job description are left for negotiation between the grower and the student.

Employers are required to follow a range of specifications to ensure the safety and integrity of the school leaver and to facilitate a positive experience. These include:

- providing and arranging accommodation either on-farm or off-site
- encouraging community connection
- facilitating attendance at industry-arranged training
- providing job training, mentoring and a safe, compliant workplace
- meeting the requirements of the Fair Work Act.

The program has shared success stories from past Cotton Gap students and attracted a range of students. It has resulted in young people being equipped with practical knowledge to use in their future endeavours in agriculture, or young people who are advocates for the cotton industry in other industries. Employers who have engaged in the program have also recognised the value of young staff members who are willing to learn.

Hay Inc. Rural Education Program

Locals in Hay, New South Wales (approximately 720 km west of Sydney) 'built' a school to teach young people how to be jackaroos and jillaroos.

Locals recognised the need to address the reduced number of young people staying in and entering their agriculture-dependent community. The Hay Inc. Rural Education Program was built to provide young people – both country and city – opportunities to gain hands-on experience and a pathway to a career in the agricultural sector.

The program is a 3-week course run over a 5-month period generally aligning with farming seasons. Practical skills are taught by working or retired experienced farming and business operators. Financial support was provided by Australian Wool Innovation.

Of the 52 students who have graduated from the program, all are employed in the agricultural sector or are studying at university. Additionally the program has delivered benefits to Hay through enhanced tourism. On the back of this success, an adaptable model of the program is being developed by Engage Ag.

Thoroughbred Industry Careers (TIC)

The Australian thoroughbred industry encompasses both breeding and racing enterprises, making it one of the largest and most recognised agricultural employers across the country. Suffering from the lack of local, trained and available staff, in an industry increasingly reliant on foreign and transient workers with high visa and training costs, 7 major thoroughbred businesses established and funded TIC in October 2018 to provide entry pathways and to standardise qualifications and expertise in the industry.

In the first two years of its existence TIC has trained and mentored 70 young Australians through its 2 innovative programs – the Explorer Cadetship, and the Accelerator Program.

The Explorer Cadetship is a 12-month 'Gap Year' program. It provides a strong foundation of knowledge through its 12-week 'boot camp' training at TAFE NSW (Richmond campus), with students residing at Western Sydney University. The program includes industry tutorials and practical hands-on training, followed by 2 paid work placements at a leading racing stable and stud farm, allowing cadets to see the whole picture and determine what is best for them.

The Accelerator Program is a 12-week intensive track-riding program, teaming up young horse-enthusiasts from across Australia with some of the best jockeys as mentors, allowing students to learn from the best and develop the necessary skills to succeed.

Both programs are national and residential, with TIC providing tuition assistance to its students.

Predominately situated in rural and regional areas of Australia, the economic value of the thoroughbred industry to these areas is a key driver in fostering a replenishing workforce.

TIC's vision for the future is squarely set on engaging, guiding and skilling our untapped Australian youth into jobs.

Our Place Robinvale

This initiative is an innovative agricultural workforce development pilot for the Mallee/Robinvale/Euston region (including Buloke, Gannawarra, Mildura and Swan Hill shires). It is providing a localised, grassroots approach to resolve ongoing identified regional skills and workforce issues in agribusiness and related industries. Addressing these challenges and opportunities through the VET system is both an economic and a social imperative, particularly in light of forecast economic growth across the region.

The key strength of this initiative is that it is grassroots and supported by 8 primary producers and food processors representing $2 billion of investment in the region. These producers and processors have committed to employing 165 full-time entry-level positions. The 2- to 3-year action plan includes the following key elements:

- Establishment of the Robinvale/Euston Agribusiness Workforce Network (REAWN)
- Development of a localised career advice, training and employment portal
- Establishment of a Skills and Job Centre at the Robinvale College Community Hub with outreach capacity to neighbouring communities
- Creation of the Robinvale/Euston Regional Specialist Skills Training Fund, which supports training for specific skills and specialist areas that are not being met by the current training market

- Facilitation of stronger industry–school partnerships to increase work experience and structured workplace learning opportunities
- Support for creating a more attractive location necessary to recruit and retain employees, specifically through overcoming barriers such as housing, worker accommodation and childcare.

The Colman Education Foundation (Our Place) will oversee and manage this initiative, given its 10-year funding commitment to the Robinvale community through its work at the Robinvale College. This aims to provide important continuity and integration with other related activities and may improve the likelihood of the pilot becoming sustainable in the long term.

Modernising career opportunities in the seafood sector – Seafood Industry Australia (SIA)

A thriving, skilled and effective fishing sector requires a commitment to training, and the availability of career paths. The use of technology, and identifying the worker, can feed into better promotion of career paths and job vacancies.

The new SIA platform will provide an app to encourage, and empower, online solutions for engagement, learning and inductions, by bringing together information, applications and safety.

In the Australian seafood industry there is a lack of connection between new workers and a long-term career path. The seafood industry lacks a mandatory, easily accessible entry-level certification.

A mandatory 'blue card' that would be delivered through the app would create a culture of care and professionalism on entry into the sector. The building industry's 'white card' has had widespread success.

This use of the app could bring a standardised approach to training to RTOs by ensuring that other training packages deliver online training that delivers operational roles that are relevant, are not generic, and are combined with adequate support.

Industry programs, and content, will be coordinated via a hub to provide extension of programs across the seafood sector – and thus provide long-term 'on-the-boat' and 'beyond-the-boat' career path opportunities.

BackTrack – agricultural skills training for at-risk rural young people

BackTrack is an independent community-based organisation established in 2006 by Bernie Shakeshaft, CEO. BackTrack works with young people who have run out of options and helps them get back on track by 'keeping them alive, keeping them out of jail, and helping them chase their hopes and dreams'. It enables young people who have lost their way to reconnect with education and training, become work ready and secure meaningful employment in the region, where agriculture is a big employer. Most importantly, BackTrack helps young people to develop strong, happy and healthy foundations that result in positive life pathways and full participation in their communities. Around 75% of participants are Indigenous.

Backtrack offers long-term, whole-of-person support to young people who have fallen through the cracks by giving practical, self-esteem building skills – for example, fencing, dog training, welding, using chainsaws, getting a driver's licence, and other skills that can be transferred to a workplace. Most participants end up working in ag or ag-related roles, such as metal fabrication. The program includes schooling and a residential program. To date, around 1,000 young people have been through BackTrack, with around 87% of participants either getting a job or getting back into full-time education.

The program operates a primary and secondary school outreach program, by referral and expression of interest. When participants complete the core program, the BackTrack youth employment enterprise offers subcontracting and labour hire services to councils, farmers, organisations and businesses in the New England region of New South Wales. BackTrack has begun mentoring other communities in setting up similar programs to suit local needs.

BackTrack takes on young people for whom the education and justice systems have not worked, invests in them, and ultimately supplies qualified and experienced workers to the local area. By focusing on the

young person and committing to the individual's practical, emotional, educational and developmental needs, BackTrack improves lives, trains workers and diverts young people at risk from the criminal justice and welfare systems in 87% of cases.

Source: BackTrack n.d.; consultation with Dairy Australia, Cotton Australia, Seafood Industry Australia, Thoroughbred Industry Careers

6.4.3 Developing the skills of AgriFood employers and employees

Approaches to developing the skills of the AgriFood workforce also took many forms – from research, developing tools and resources and hosting workshops to the design and delivery of professional development opportunities (see Box 34). These approaches sought to:

- understand the reasons behind high employee turnover
- identify practices closely related to employee retention, including safety and diversity
- assist farmers to be better people managers
- assist employees to develop their skills
- provide employment advice and support
- recognise and empower women's roles in farming businesses and rural communities
- foster Aboriginal and Torres Strait Islander participation and leadership.

Box 34 Developing the skills of AgriFood employers and employees

CBH Group pilot program: agribusiness career pathways for women and harvest casuals

CBH is the grain bulk handler and supply chain operator for most of the Western Australian grains industry. CBH employs around 1,100 permanent employees and an average of 1,250 casual employees over the busy grain harvest period (October to February) as well as various contractors to perform work at its sites throughout the year.

CBH Group, like many other organisations, has found it challenging to attract qualified female tradespeople in regional WA. CBH is taking a long-term view of this challenge and is seeking to attract female apprentices to train and develop into qualified trade roles to maintain equipment and infrastructure at its operational sites.

The pilot program involve a recruitment campaign and then covering the costs of apprentices over the course of their training. The implementation and success of this pilot program are dependent on suitable resources.

Junior Indigenous Marine and Environmental (JIME) Cadets Program

The JIME Cadets Program aims to encourage and facilitate greater Indigenous employment in regional Australia in both the marine and environmental industries. The program provides clear pathways for young Indigenous people to train and receive formal qualifications in these industries. Additionally the program aims to provide an opportunity for Indigenous youth to share their culture and country with others.

The program has been particularly successful in Cairns with a partnership between Woree State High School, TAFE Queensland, local Indigenous community members and local industry partners. JIME's key role across this engagement is to maximise Indigenous students' likelihood of successfully completing a trade-based apprenticeship by funding their work experience and mentoring them throughout the process.

JIME's model is a 2-year program for Year 11 and 12 students that emphasises school completion in parallel with work placement opportunities, with the post-school goal of securing an apprenticeship or traineeship while attaining relevant post-school qualifications. This model allows students to understand and develop practical work-readiness skills that meet employer demand for such skills. In the most recent year, all JIME graduates were offered full-time positions with their work experience employers.

The JIME Cadets Program has ambitions to expand into a national program. A national expansion could involve the program partnering with governments to provide greater funding and to leverage government links to secondary schools and tertiary institutions.

Since its inception in 2009, 300 Indigenous students have successfully completed the program. Currently, there are 49 students in the program.

Centrefarm Aboriginal Horticulture Limited: Work Experience Pilot Project (WEPP)

WEPP is a pilot for future Aboriginal Land Economic Development Agency (ALEDA) projects that will be rolled out across the Northern Territory. The project is based on a unique training and commercial facility that aims to establish a pathway for Alekarenge community members to gain employment on the nearby Desert Springs Farm and ALEDA's proposed horticultural developments on the Warrabri and Ilyarne Aboriginal Land Trusts. The project's aim is to generate employment outcomes while addressing food security, welfare-to-work transition and poor health and socio-economic trends.

The WEPP focuses on 3 cohorts: primary school students, senior school students, and job seekers and adult community members. The project includes a 130 hectare lease area designed to provide on-the-job training in:

- horticultural plot development
- fencing, irrigation and weeding
- plant propagation and establishment
- marketing and transport.

Rural Research, Leadership, WHS, Internet Barriers and Employment Issues

This is a joint project proposal by 8 farm businesses that aims to address barriers to agriculture being considered an exciting and worthwhile career. The project proponents include farm businesses from Victoria, Queensland, South Australia and Tasmania, with the coordinating body being Regional Skills Training Pty Ltd (RST). The project will be a training, research and information-gathering exercise with 3 key areas of focus:

- Internet issues and available technology
- Work health and safety (WHS) awareness
- Women and leadership.

Improving understanding of WHS compliance responsibilities for farm businesses will help to alleviate the fear of consequences related to workplace incidents. The risk of fines, investigations and litigation is a major deterrent for businesses to employing workers. The project will provide one year of use of Safe Ag Systems with full training as a tool to implement a robust health and safety system relevant to the industry. Providing training in this area will significantly contribute to changing this fear and empower businesses to hire confidently knowing their health and safety responsibilities.

The project will include data collection in conjunction with a pilot group of 200 businesses. The data collected will include information on internet speed, performance and software use. The project will also seek data on what new technologies are available and the relevant skill needs and training. If units of competence do not exist to properly enable skills training for the relevant needs, then RST will work with industry and Skills Impact to develop the necessary units of competence.

SeSAFE

The SeSAFE project commenced in 2018, funded by the Fisheries Research and Development Corporation and the Australian fishing and aquaculture industry. The goal of this initiative is to raise awareness and improve safety performance in the fishing and aquaculture industry Australia wide. It has produced an online safety learning and management system consisting of numerous brief modules designed to deliver essential WHS training to fishers and aquaculture workers prior to working on the water.

This learning management system (LMS) provides companies and boat owners a simple way to induct individuals in relevant workplace health and safety in a simple online format, including general workplace safety requirements under WHS legislation and specific requirements under Australian Maritime Safety Authority legislation. Their comprehension of training material is evaluated by means of simple questions, and they can answer questions multiple times or repeat a module until they attain a desired level of performance.

Importantly the online LMS offers a solution to many of the traditional barriers to safety training for fishers and aquaculture workers, including perceptions about cost, access and timing.

Source: QDAF 2016; CBH Group; JIME; Centrefarm Aboriginal Horticulture Limited; Regional Skills Training; SeSAFE 2018

6.4.4 Creating employer-driven tertiary and vocational programs

Approaches to modernising and better utilising the vocational training and tertiary sectors to support skills development took many forms – from forging connections between the sector and education providers and providing feedback to improve education offerings, to developing and delivering training (see Box 35). These approaches sought to:

- develop a suite of education offerings, including both unaccredited and accredited training
- increase the practical skills of tertiary graduates
- develop blended models for the delivery of learning – coupling online training with supervised on-the-job learning and assessment
- revise and strengthen VET in schools arrangements
- strengthen the role for industry through-out the education and training continuum – transforming the education and training sector, making it demand-driven, relevant and responsive to changing need
- ensure better outcomes for students.

Box 35 Creating employer-driven tertiary and vocational programs

AgSkilled – NSW Government and the cotton and grain industries

AgSkilled was a partnership between Cotton Australia, the Grains Research and Development Corporation and the NSW Government, which invested $14.7 million over 3 years from July 2017 and to July 2020 for vocational training for the cotton and grains industries. It was administered through the NSW Government's Smart and Skilled initiative. It was guided by a management committee that included representatives of Cotton Australia, the Grains Research and Development Corporation and the NSW Department of Industry.

AgSkilled was administered as a specific stream under the existing part-qualifications structure which delivered fully funded training to priority groups identified by the NSW Government.

Funding was made available to on-farm staff and industry professionals, including for:

- nationally recognised full qualifications (Certificate I – Advanced Diploma Agriculture). These are partially subsidised to the same level as they are under the existing Smart and Skilled system
- fee-free part-qualifications (from one unit up to half of a full qualification) for short courses that target identified skills gaps.

To March 2020, AgSkilled had trained over 3,200 individuals, with over 4,400 total enrolments, and had enabled the development of over a dozen new industry-specific courses. Almost 800 courses had been run for industry across over 140 locations in regional New South Wales, delivered flexibly to meet the needs of industry. Evaluations of the training have consistently shown that the courses are promoting practice change.

Arbre Forest Industries Training and Careers Hub

Arbre is a not-for-profit organisation established and funded by Tasmanian forest industry leaders to promote the forest industry and related jobs. The hub is overseen and managed by a governing board represented by Forico, Sustainable Timber Tasmania, Timberlands Pacific, Norske Skog, NSFP Smartfibre Pty Ltd, Casagrande Lumber Pty Ltd and Technical Forest Services.

The purpose of the hub is to:

- facilitate the promotion of forest industry training and careers with particular focus on harvesting, transport and silviculture
- provide information on those careers
- provide a training facility with in-field capability
- act as a referral agency to industry-endorsed training providers
- act as a conduit for people seeking a career in the forest industry to prospective employers.

Arbre administers a Cadet Forester program to overcome the shortfall of professional foresters currently needed to work in Tasmania's forest industry. Trainees can commence on an Australian School Based Apprenticeship for Year 11 and 12 students, or an adult traineeship for all other applicants. Trainees are directly employed by individual organisations or by a group training organisation for shared work placements.

Global Masterclass in Horticultural Business – University of Tasmania

Due to the small size of the market, it is financially risky for universities to develop and run courses that provide specialist training in some food and fibre subject areas, such as dairy farm manager or horticulture manager, which require degree-level skill sets.

To address this situation in the horticulture industry, the University of Tasmania launched the Masterclass in Horticultural Business in 2017 in partnership with Horticulture Innovation Australia Limited. The course was developed in partnership with Wageningen Academy (the Netherlands) and Lincoln University (New Zealand) to ensure it reflected international best practice.

The Global Masterclass is a flexible 10-month program of face-to-face and online training for people working in horticulture. The target audience is employers and employees in horticulture who are seeking to enhance their business acumen and understanding of horticultural production. Participants are eligible to be awarded a Diploma in Horticultural Business. The accredited course conforms to the Australian Government's higher education standards framework. There is an opportunity to use credit from this course to articulate into other relevant courses at the University of Tasmania.

Through Hort Innovation, the horticulture sector offers some full or half scholarships towards the Australian Government-supported tuition fee, which is normally approximately $2,300 per term for 4 terms. Scholarship recipients or their employers cover the remaining travel and accommodation costs to attend face-to-face sessions.

Agriculture education – Western Sydney University

Western Sydney University collaborates with industry, business and government to ensure that its education and training programs meet the needs of regional employers and are supported by work-integrated learning, internships and international placements. Specific initiatives focused on the AgriFood sector include:

Centre of Excellence in Agricultural Education

- The Centre offers AgSTEM learning programs with a K–12 student focus, including intensive immersion studies, regular industry visits, virtual learning, curriculum, careers and leadership programs.
- The programs focus on developing agile learners with the academic, research, entrepreneurial and practical skills necessary for ensuring the future food security, wellbeing and stewardship of our nation's people, environment and resources into the future.
- Programs run by the centre are linked to the NSW curriculum and in most cases will be transdisciplinary partnered learning programs.

Targeted AgriFood course offerings are:

- Bachelor of Sustainable Agriculture and Food Security
- Bachelor of Science major in Nutrition and Food Science
- Master of Science with specialisations in Public Health Nutrition, Food Science, Greenhouse Horticulture or Agriculture
- Graduate Certificate of Protected Cropping and Graduate Diploma in Protected Cropping.

SuniTAFE and the Mallee Regional Innovation Centre – SMART Farm

SMART Farm is a purpose-built and grown training and research facility in Mildura that will utilise the latest innovations of digital farming, such as data integration, as well as robotics to transform horticulture training. It demonstrates new-discovery technologies, provides industry and students with the skills and knowledge for current and future digital farming jobs, and enhances the productivity of high-value horticulture across the Mallee.

SMART Farm repurposes SuniTAFE's Cardoss Farm – 55 hectares of prime agricultural land. It also includes land at Swan Hill and a Transporter Educational Unit. Existing land is allocated to commodities grown in the Sunraysia area, and for experimental purposes with new and emerging crops. New technologies will be included in each allocated plot.

Source: Consultation with Tasmanian Forests and Forest Products Network, UTAS, SuniTAFE, Cotton Australia, Western Sydney University

6.4.5 Critical success factors underpinning initiatives

Submissions and other reports have reflected on the critical success factors that have emerged from, or that have informed the design of, innovative approaches. These include:

- local leadership and identification of problem-solving capabilities and solutions to complex real-world problems
- the presence of dedicated and passionate local leadership
- early engagement with the farming community to understand the needs of the sector
- engagement with students at critical junctures, such as when they are doing career planning or making critical career decisions

- early engagement with the vocational and tertiary sector to co-design approaches
- working with existing farmer, industry or regional groups to leverage existing approaches and enhance impact
- recognising that different employees, employers and industries were at different stages in their workforce journey
- offering programs in regional communities and at times that allow employees and employers to participate
- strong commitment from the farming community, industry bodies, rural research and development corporations (RDCs), other research organisations and local governments
- enabling support from state and territory governments and the Australian Government
- broad mobilisation of local services and service providers to improve delivery approaches
- a commitment to clear communication and production of messages that were understandable and repeatable.

6.4.6 Looking to the future

The Committee firmly believes that leveraging best practice and empowering collaborative, locally led innovative approaches are critical. Locals have a superior capacity to identify local and/or industry AgriFood workforce issues and associated solutions to attract, retain and upskill the workforce. However, they do not necessarily have the funds or information to make the best investments.

As noted by Wine Australia's submission:

> *Wine Australia supports a collaborative strategic approach. However, recommended actions should take into account a combination of joint approaches as well as opportunities for specific industries that acknowledge: differences in starting points; diversity across areas of immediate need; medium-long term goals of industry sectors; and the wide variety of scope across agricultural value chains.*

The Committee believes that decisions about what assistance is needed should be made as close to the ground as possible in line with local priorities. Higher level governments should look to harnessing locally led innovative approaches.

Recommendation 19

The Committee recommends that the Australian Government establish a large-scale, multi-year fund to support innovative, collaborative projects to attract, retain and upskill the AgriFood workforce.

The Committee recommends that the fund proposed in Recommendation 19 be delivered by a competitive grants program to provide an opportunity for all potential applicants to compete for access to funds. The Australian Government could explore partnering with the state and territory governments to expand the fund. A selection advisory panel, comprising representatives from the farming community, industry bodies, rural RDCs, other research organisations, the education sector and all levels of governments could be appointed to provide advice to the decision-maker on the merits of each application.

The expected outcome of the fund would be to attract, develop and retain the AgriFood workforce.

The specific objectives of the fund could include, for example:

- Increase knowledge of the many and varied jobs, careers and course pathways in AgriFood both on-farm and in intrinsic services in rural and remote communities.
- Attract new employees and create diversity in the AgriFood workforce.
- Attract and retain AgriFood employees through the development of the human resource management skills of employers.
- Develop complex problem-solving capabilities, critical thinking skills and the innovation of AgriFood employers and employees.
- Develop the robotic and digital literacy skills of the AgriFood employers and employees to support technology adoption.
- Develop the supply chain compliance and traceability skills of AgriFood employers and employees.
- Modernise vocational and tertiary education and training, creating a flexible series of articulated pathways and credentials to better support skill and capability development across the AgriFood sector – making education and training demonstrably relevant and demand-driven.
- Develop new awareness about end-to-end supply chain interdependency and integration, recognising that only 10% of jobs in the bush are on-farm.
- Create heightened and enduring understanding between rural and urban communities and between farmers, employers and new workers entering the AgriFood sector to ensure retention.

Eligibility and assessment criteria would best be informed by the critical success factors (as outlined in Section 6.4.5) and could include, for example:

- Organisational capability
- Governance and accountability – including to leverage non-government co-investment and deliver measurable contributions to fund objectives
- Project design – including the ability to build on or complement existing approaches and transition to a self-sustaining funding model at the completion of the project.

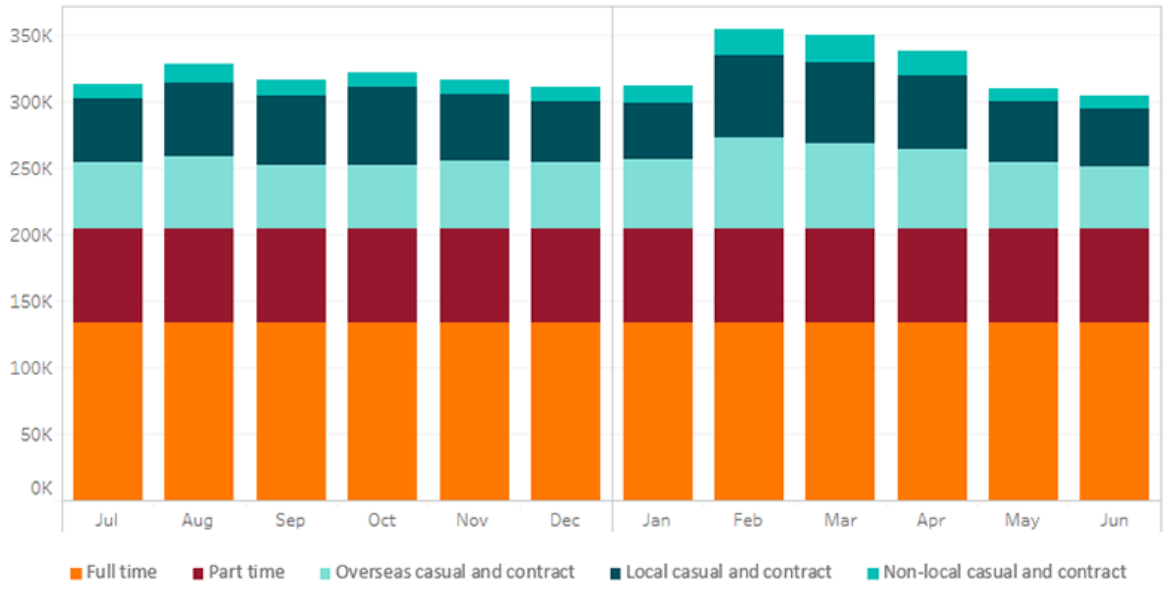
The Committee's recommendation that a large-scale, multi-year fund to support innovative, collaborative activities to attract, develop and retain the AgriFood workforce be established cuts across many of the strategic issues outlined in the Strategy – supply chains, value-adding, attraction, retention, upskilling, digital technology and innovation, and education and training. The Committee considers that this recommendation, alongside the recommendation to establish an Agriculture Workforce Data Unit (Recommendation 32), is critical to achieving measurable improvements in AgriFood workforce outcomes.

7 The seasonal and transient workforce

The workforce needs of the AgriFood sector fluctuate throughout the course of the year due to the seasonal nature of production and harvest. Seasonal peaks in production also have consequences for the workforce requirements of the related downstream logistics and processing sectors. Growth in horticulture production, in particular, has driven demand for seasonal workers to harvest, prune and package produce.

ABARES analysis of the types of employment on Australian fruit, nut, grape, vegetable, broadacre and dairy farms for 2018–19 is shown in Figure 50. Full-time and part-time employment levels were relatively consistent through the course of the year at around 200,000 people, with casual and contract employment varying between 110,000 and 150,000 during the year. Around 50% of this casual or contract workforce came from overseas.

Figure 50 Number of people working in the on-farm production sector, by type of employment, 2018–19



Source: ABARES 2020b

This chapter makes recommendations to strengthen visa arrangements and temporary migration programs to better attract and retain this important workforce and ensure it is responsive to industry needs.

7.1 Securing the seasonal and transient workforce

7.1.1 Attracting a domestic seasonal workforce is challenging

As is the case in other OECD countries, attracting domestic workers to seasonal less skilled and lower paid roles is challenging. Factors such as increasing urbanisation, competition from the growing service sector, and relatively high social security settings, combined with the fact that these jobs are perceived as uncertain, manually demanding and poorly paid, make these roles an

unattractive proposition to the majority of Australians. Reflecting on the experience in the United States, the United States Department of Agriculture (Zahniser et al. 2018) noted:

> *Many United States farmers, ranchers, and growers – especially the ones whose operations have a large share of their expenses devoted to labour – rely on foreign-born workers. According to recent data from the U.S. Department of Labour's National Agricultural Workers Survey (NAWS), nearly 75 percent of the hired farmworkers in crop production surveyed in fiscal years (FYs) 2013–14 were born outside the United States, and just under 50 percent of hired crop workers lacked the U.S. immigration status needed to work legally in this country (USDOL, ETA, 2017).*

Unfortunately, detailed research on the supply and demand functions of the seasonal AgriFood workforce in Australia is not available. Reflecting on experiences in Australia, the Australian Chicken Meat Federation's submission noted:

> *Sadly, and despite the extraordinary growth of the sector over the past half century, few Australians are interested in working in the poultry industry, and farming and hands-on processing plant roles are notoriously difficult to fill with Australians. This is partly due to the perception that intensive livestock work is somehow unpleasant, with this perception considered to be increasing in the community as the cultural divide between those in agriculture and those living in cities continues to expand.*

This remains the case despite concerted efforts to encourage local workers into these roles, including Australian Government programs to incentivise social security recipients into the sector. As AUSVEG's submission explained:

> *The Seasonal Worker Incentive Trial (SWIT) is … an example of the lack of appetite for domestic workers to pursue a career in horticulture. The SWIT on paper was a positive program but it fell drastically short in terms of take up from domestic workers, with only 789 applications over two years, well short of the 7,500 expected. This is clear evidence that domestic workers are unlikely to pursue lower skilled occupations in the sector but may be more attracted to semi- and higher-skilled opportunities.*

Before the pandemic, some employers were already experiencing recruitment challenges in filling a range of occupations in horticulture, intensive livestock and meat processing (Dufty, Martin & Zhao 2019; DAWE 2020; AMPC 2018; APL 2017). Pandemic impacts on the AgriFood sector and Australian Government, state and territory government responses are outlined in Section 5.1.

7.1.2 Adjustments to the income support system could be of assistance

Submissions and consultation revealed concerns among some industry groups and employers about the effect of the levels of income support on the incentive for people to seek work in some sectors of the AgriFood sector. The Australian Government introduced a temporary pandemic supplement ($550 per fortnight until 24 September 2020 and then $250 per fortnight until 31 December 2020) to a range of income support payments as part of its package of measures to address the economic consequences of the pandemic. Industry groups and employers advised that they had observed a reduction in the number of applications for lower paying roles since the introduction of the supplement. The Committee notes the importance of this package of

measures in supporting the Australian community during the unprecedented economic challenges arising from the pandemic.

As the temporary measures designed to cushion the economic consequences of the pandemic are wound back, incentives structures will return to their pre-pandemic settings. Modelling by Kalb (2000) and Kalb and Buddelmeyer (2007) found that income from welfare is valued less than income from employment, which leads people to work for only slightly more than income support.

Social security policy settings are designed to ensure that work incentives for job seekers are maintained by ensuring recipients are always better off earning additional income than relying solely on income support.

The Committee noted concerns that the Seasonal Work Preclusion Period (SWPP), which applies to claimants of most working-age income support payments, added unnecessary complexity to income support arrangements and discouraged people on support payments from trying work in seasonal work roles. The Department of Social Services and the Department of Education, Skills and Employment provided the Committee with advice on the application of various tapering and threshold arrangements to the amount of income support provided to an example JobSeeker recipient. This advice demonstrates the complexity of existing arrangements and the uncertainty they could create for recipients contemplating undertaking a seasonal role.

Income support arrangements are designed to strike a balance that provides support to those on low incomes without generating large disincentives to participate in the labour market. The Committee considers that the complexity and uncertainty introduced by the current SWPP arrangement does not strike an appropriate balance and unnecessarily discourages people from seasonal work in the AgriFood sector. The Committee favours a more streamlined approach in which people receiving income support could immediately transition back on to income support following the completion of their seasonal work in the AgriFood sector. Such an approach would:

- be persuasively simple: those on JobSeeker are justifiably afraid of the bureaucratic complications of getting off JobSeeker and then back on, so the simple, automatic character of the system, as outlined in Recommendation 20, would be appealing. A strong publicity campaign would be necessary to create familiarity and counter the pervading wariness and suspicion of existing bureaucratic red tape
- remove the possibility of any double-dipping by ensuring that no-one can get JobSeeker and agricultural wages at the same time. JobSeeker would not be tapered; instead it would be completely withdrawn during the temporary employment period and automatically reinstated at the end
- be easy to monitor, as farmers' disbursements, for wages, superannuation and workers' compensation, would all be done electronically. There would be an auditable trail.

The Committee notes that the parliamentary Joint Standing Committee on Migration's interim inquiry report on the Working Holiday Maker program, released in September 2020, took a similar but stronger approach, recommending that for the next 12 months the Australian Government enable workers to stay on JobSeeker payments while undertaking low-paid agricultural and horticultural work.

Recommendation 20

The Committee recommends that, in order to make it easier for a person on JobSeeker to accept seasonal agricultural work, a system be devised whereby willing AgriFood employers would advise Services Australia that that person will be working for them for a designated period.

During that designated period:

- all the person's JobSeeker payments would cease completely. They would restart automatically at the end of the designated period.
- Family Tax Benefit calculations and rent assistance payments would not be affected by any seasonal work payments.

7.1.3 Overseas workers make an important contribution

Australia is not alone in experiencing a decline in resident labour engaging in agricultural work, particularly seasonal work (Taylor & Charlton 2018; Howe et al. 2018). In response to the challenge of securing access to a workforce to underpin the supply of food for their people, governments around the world have adjusted their immigration policy settings to provide for overseas workers to fill these roles. Consistent with this, and as shown in Figure 50, overseas workers make an important contribution to the Australian AgriFood sector's seasonal workforce. An overview of the most widely used visas and programs is in Table 11. Prior to the pandemic, working holiday makers were the most employed visa holders, with participants in the Seasonal Worker Programme of growing importance to the seasonal workforce in recent years.

Table 11 Temporary migration programs

Name and lead agency	Key parameters	Workforce contribution (2018–19)	Employer obligations
Seasonal Worker Programme Department of Education, Skills and Employment	Unskilled and less skilled; up to 9 months per annum; in agriculture, horticulture and accommodation industries; can be renewed multiple times; selected Pacific Island countries	Approx. 12,200	Need to go through a process to become an approved employer; provide worker induction; provide a minimum amount of work; welfare and wellbeing; accommodation
Working Holiday Maker ('backpacker') visa program Department of Home Affairs	A range of skill levels; up to 12 months with one agricultural employer; can apply for a second-year and a third-year visa after completing a period of specified work in certain occupations in regional locations; a wide range of partner countries	Approx. 30,000 to 35,000	Wages and conditions
Other visas with work rights (for example, student visa subclass 500 and some classes of bridging visas)	Various; student visa holders are restricted to working 40 hours in a fortnight	Unknown, but reported to be important in some regions	Wages and conditions

Name and lead agency	Key parameters	Workforce contribution (2018–19)	Employer obligations
Department of Home Affairs			

7.1.4 Temporary migration programs

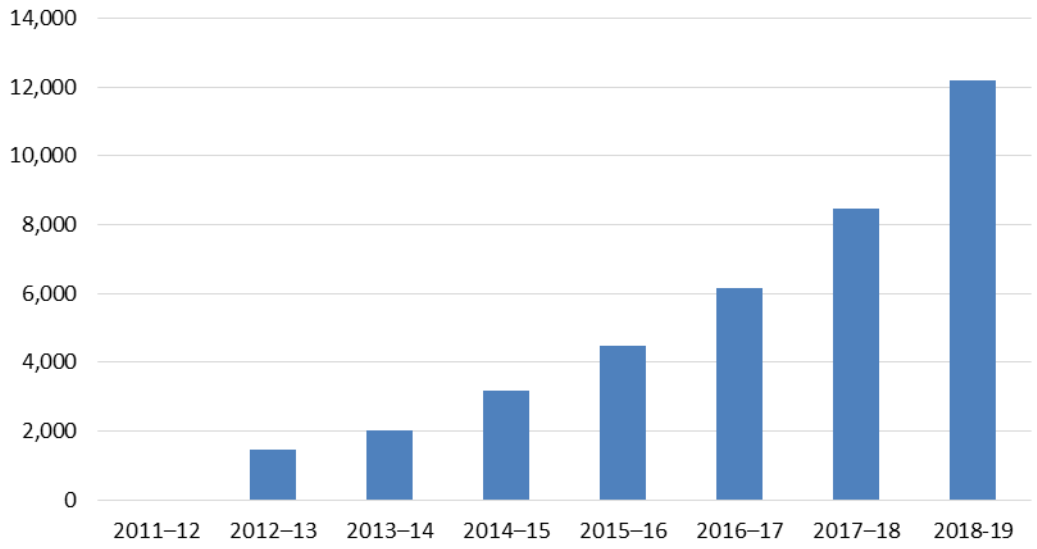
There are 3 primary sources of legal temporary migrant workers: the Seasonal Worker Programme; the Pacific Labour Scheme; and the Working Holiday Maker visa program.

These migrant workers are important contributors to AgriFood industries; however, Australian policy, legal and enforcement settings are currently mismatched, leading to market distortions and precarious work for migrants (Howe et al. 2020). Howe et al. report that discrepancies between the regulatory burdens and costs of employing some types of migrant workers over other types have led to segmentation within the temporary migrant workforce. Temporary migrant visas with entitlements to work are overseen by different Australian Government departments, making inconsistencies in administration, regulation and enforcement inevitable. As a result, a small cohort of workers experience better treatment due to stronger compliance and enforcement activities by the relevant department. Other types of visas are less regulated, creating an incentive for non-compliance by employers that is distorting the market and creating what Howe et al. (2019) describe as 'a race to the bottom'.

7.1.5 Seasonal Worker Programme

The Seasonal Worker Programme provides citizens from 9 Pacific countries and Timor Leste access to work in Australia's agriculture and accommodation sectors in regional locations. The Seasonal Worker Programme is administered by the Department of Employment, Skills and Training (DESE). The program parallels similar temporary agricultural migration programs in New Zealand, Canada and the United States. The Seasonal Worker Programme was introduced as a pilot in 2008 and in full in 2012. Although it is not strictly limited to seasonal agricultural occupations, the program has grown to make a significant contribution to the horticulture sector, with around 97% of the 12,202 seasonal workers employed under the scheme in 2018–19 (Figure 51) employed in seasonal horticultural roles.

Figure 51 Seasonal Worker Programme – number of participating workers, 2011–12 to 2018–19



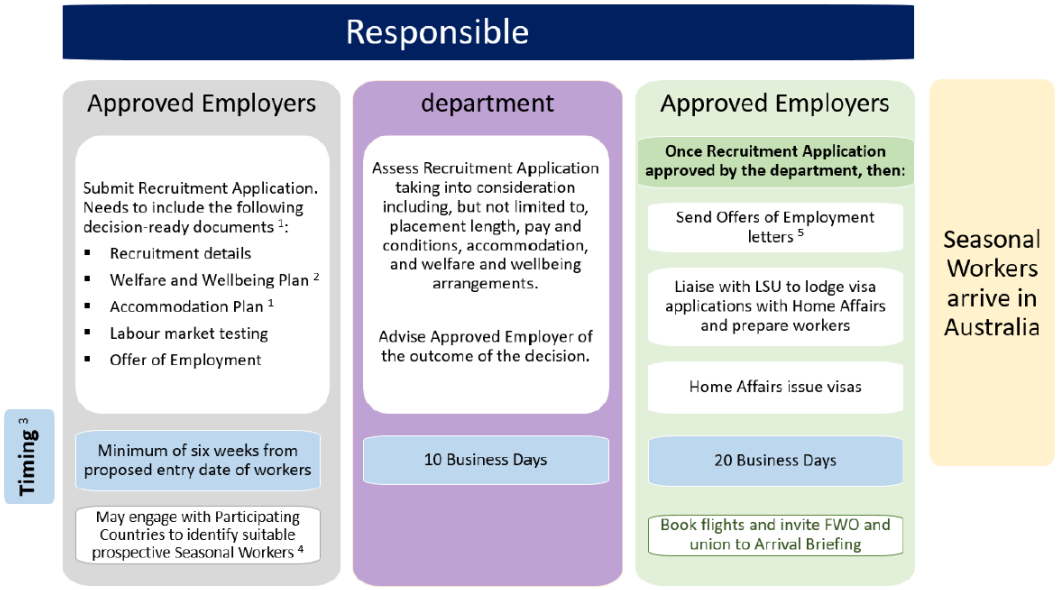
Source: Dufty, Martin and Zhao 2019

The Seasonal Worker Programme is a whole-of-government program led by DESE. Employers seeking to participate in the Seasonal Worker Programme must first be approved by DESE. According to DESE (2020), the process to become an approved employer usually takes between 3 and 4 months to complete, although in some cases it may take longer due to the need to consult with a number of other agencies when performing relevant checks. Approved employers enter into a contractual agreement with DESE and must hold a 'Temporary Activities Sponsorship' from the Department of Home Affairs. In addition to a 47-page contractual agreement, a 65-page guidelines document, which is also part of the agreement, is intended to help approved employers meet their obligations and responsibilities. These documents detail obligations and responsibilities in relation to:

- recruitment and selection of eligible workers
- details required in the offer of employment, including a commitment to provide a minimum average of 30 hours' work per week over the duration of the employment period
- employment conditions, which must be in accordance with Australian workplace laws and demonstrate that participating workers will gain a reasonable net financial benefit
- expenses and deductions, including the requirement for approved employers to pay up-front for the full costs of the return international airfare for participating workers
- the welfare and wellbeing of seasonal workers
- the standard of accommodation supplied by employers for seasonal workers
- the conduct of arrival briefings for seasonal workers, which must include invitations for participation from relevant unions and the Fair Work Ombudsman
- assisting seasonal workers with banking, taxation and superannuation
- briefings for seasonal workers prior to departure to the sending country.

Figure 52 provides a schematic overview of the process, areas of responsibility and indicative timelines for the recruitment of seasonal workers by approved employers.

Figure 52 Process to employ seasonal workers



1. A 'decision-ready' form is one where all of the documents and any attachments required have been submitted and are complete and correct. Timing is based on whether a decision-ready form is received by the department.
2. Lodge if not previously approved or changes made.
3. Timing is indicative only of the average time required at each stage.
4. You must not give prospective Seasonal Workers an Offer of Employment until Your Recruitment Application is approved by the department.
5. You can only employ up to and including the number of Seasonal Workers the department has approved.

Source: DESE 2020e

To manage risks associated with the program, DESE implements an assurance framework, which includes:

- activities to monitor program delivery, such as recruitment application assessment reports, monitoring visits, complaints management, and the Seasonal Worker Programme information line
- activities to monitor seasonal workers' welfare and wellbeing and employers' compliance with the deed and guidelines, including targeted assurance activities
- activities to test and monitor the effectiveness of risk controls
- approved employer training, seasonal worker briefings, sharing of best practice and lessons learned, and appropriate remedial action to assist in the successful participation of approved employers in the Seasonal Worker Programme and overall compliance with the deed and guidelines.

Furthermore, in the 2020–21 Budget the Australian Government announced $9 million over 3 years to ensure the welfare of Pacific workers participating in the Seasonal Worker Programme by increasing assurance measures and boosting community connections, including increasing the number of Harvest Trail offices to 16, across the various horticultural regions experiencing labour difficulties.

This visa program can be improved

One of the most common criticisms the committee heard from stakeholders about the Seasonal Worker Programme is the increased regulation and cost associated with it, compared to using backpacker or local labour. The National Farmers' Federation (NFF) submission addresses the regulatory and financial burden many stakeholders report:

> *… a farmer who wishes to participate must negotiate a complex bureaucratic approval process, arrange and make upfront payment for the workers' transport and airfare, ensure suitable accommodation, and guarantee the worker at least 30 hours work per week, and comply with government's reporting requirements, and require bureaucratic approval before making any changes to their dealing with the SWPWs. The 'approved employer' is also responsible for the workers' 'pastoral' care, which can mean anything from ensuring the workers have access to sport and leisure activity and religious services, to caring for workers – for example, checking whether they have adequate clothing or (unbeknownst to the grower) are pregnant or suffering from chronic illnesses. According to ABARES, the actual non-wage cost to farms per worker is about $1,634, with a much greater 'upfront cost' of an estimated $3,000. This is significantly more than the $134 a backpacker (or Australian) worker would cost. The upfront investment which these requirements represent can make it difficult for farmers with short term labour needs to generate a sufficient return on investment.*

Successive governments have streamlined the administrative arrangements for the program, and the number of seasonal workers participating in the program continued to grow strongly in the years prior to the pandemic. In addition, as noted by the ACTU (2015), the regulation of the Seasonal Worker Programme has ensured that some of the problems with exploitation that have been experienced under the Working Holiday Maker visa arrangements have been avoided.

Another concern raised by stakeholders about the Seasonal Worker Programme has been the difficulty that smaller farm enterprises have with accessing the scheme, due to their inability to provide the minimum of 30 hours' work a week required by the program. Labour hire firms have also been reluctant to take on the risk of hiring workers without having sufficient demand from a single farm business for the workers. In recognition of these barriers, a pilot commenced on 1 May 2019 that streamlines arrangements for approved employers to move seasonal workers between farm placements. The pilot is underway in the Goulburn/Murray, Riverina and Sunraysia regions and has been extended to the Wimmera/Mallee region with effect from 1 January 2020 (Box 36).

The Committee heard from the Approved Employers of Australia that this model of portability of workers between smaller farm businesses would be a major improvement if it could be rolled out across the whole program.

Box 36 Seasonal Worker Programme Regional Pilot

The Seasonal Worker Programme Regional Pilot is designed to help smaller farmers meet workforce shortages in the pilot regions.

Seasonal Worker Programme employers under the pilot will have greater flexibility to move seasonal workers between farm placements during their visa period, without prior approval by the Department of Education, Skills and Employment. This flexibility will allow Seasonal Worker Programme employers to

meet the workforce needs of smaller farmers with short harvest seasons and those with unpredictable picking periods.

On 19 November 2019, the Australian Government announced that the regional pilot would be extended until 30 June 2022.

Source: DESE 2020f

The Approved Employers of Australia also informed the Committee that the duplicative paperwork required by the multiple Australian Government departments responsible for the program was a barrier for small businesses. A one-stop shop (and regional support officers) and more collaborative working relationships between program administrators and approved employers was suggested as another way to make the program more accessible. Another suggestion was to simplify paperwork for horticulture employers who hold either a Fair Farms or a Sedex accreditation, given their verified compliance with Australian workplace law.

As with all things, there is room for improvement in how the Seasonal Worker Programme is administered. That said, it sets the standard in terms of temporary migration arrangements for agricultural workers. It has been purposefully designed to ensure fair work compliance among participating employers and provides for the return of participating workers year on year, delivering productivity benefits to the sector. The recent establishment by DESE of the Seasonal Worker Programme Advisory Group (Box 37) provides a mechanism for continued improvement of the program's administrative settings.

Box 37 Seasonal Worker Programme Advisory Group

The Seasonal Worker Programme Advisory Group brings together approved employers, industry bodies, unions and community organisations. A senior official from the Department of Education, Skills and Employment and the head of the Approved Employers Australia (AEA) co-chair lead this quadripartite advisory group. Through participation in the group, stakeholders are able to share their experiences and contribute to improving the Seasonal Worker Programme.

The advisory group aims to find a balance between the concerns of all stakeholders and facilitates extensive consultation to strengthen the Seasonal Worker Programme through implementing new ideas and improving compliance and monitoring activities.

In 2018 a group of approved employers participating in the Seasonal Worker Programme formed the AEA industry group to provide united representation of its members on a range of issues. AEA has both an advisory and a communication role to facilitate strong representation on the Seasonal Worker Programme Advisory Group.

Members of the AEA comprise small, medium and large Australian agricultural enterprises including growers, labour hire companies and contractors. AEA reports that its members currently hire approximately 5,000 seasonal workers in Australia. Its focus areas of interest include flexible access to labour to meet requirements in a timely manner, operational transparency, integrity and accountability.

Source: AEA n.d.

Stakeholders generally supported a more coordinated model to administer and manage these important visa pathways for the sector, particularly considering the issues exposed by the current pandemic. As AUSVEG submitted:

> *COVID-19 has certainly highlighted the need for a more centralised temporary migration model and for programs to be administered by a central point or central department. This has a been a cause of concern and frustration from the industry for some time, particularly when trying to address a concern for the horticulture sector.*

Recommendation 21

The Committee recommends that the Australian Government, in close collaboration with the Seasonal Worker Programme Advisory Group, continue to refine the Seasonal Worker Programme and the Pacific Labour Scheme to:

- mobilise overseas workers more effectively across the country
- improve accessibility to the program for smaller business and for businesses with short, intense harvests
- improve portability of overseas workers among farms, commodities and regions in the program
- expand the length of stay for the Seasonal Worker Programme to 12 months
- look for synergies and tripartite approaches to bring the Seasonal Worker Programme and the Pacific Labour Scheme closer together and reduce administrative burden where possible.

7.1.6 The Pacific Labour Scheme

The Pacific Labour Scheme, which began in 2018, is complementary to the Seasonal Worker Programme. Workers under this scheme can stay for longer periods of time (12 months to 3 years) in Australia and can fill a wider range of non-seasonal roles in the agriculture industry, including semi-skilled roles. It has similar administrative requirements and costs to the Seasonal Worker Programme. While the Seasonal Worker Programme is administered by DESE, this program is administered by the Pacific Labour Facility, funded under contract by the Department of Foreign Affairs and Trade. The relatively recent start date of this program means it has not been commented on as much by stakeholders, except to note that it is another program with another administrative body in an already busy space.

This visa program can be improved

Making the application process, costs and administration requirements to access this type of worker consistent with those for other types of workers and commensurate with the benefits of employing these workers, as outlined in Recommendation 21, will lift regulatory consistency and decrease market segmentation.

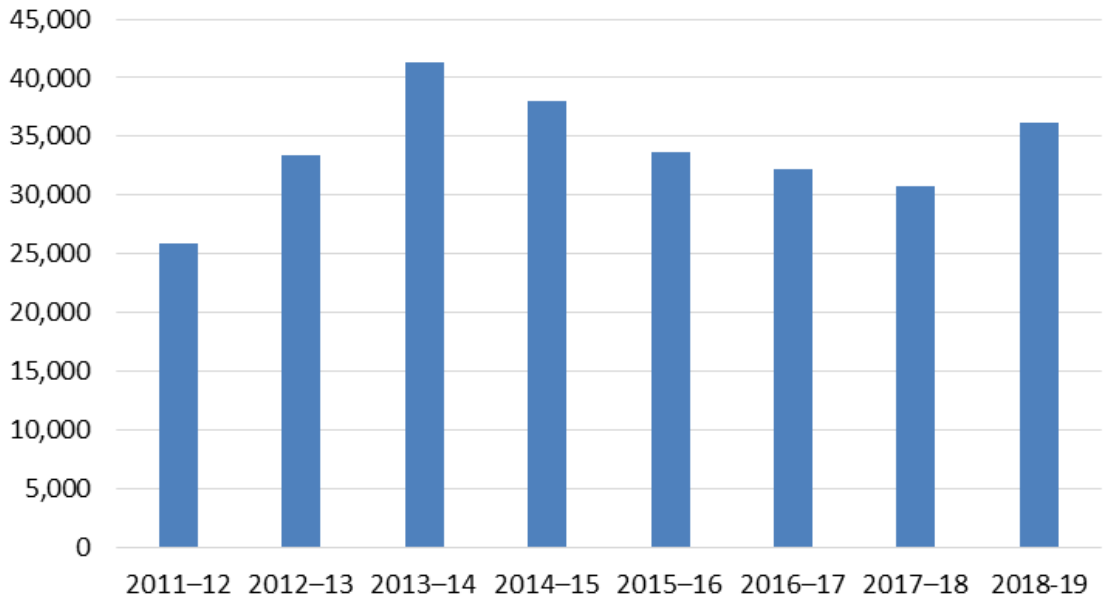
7.1.7 Working Holiday Maker visas

Working holiday visas (visa subclasses 417 and 462) were first introduced in 1975. These visas support cultural exchange between young people from participating countries and Australia. The visas also provide work rights for visa holders. If visa holders wish to gain a second-year or third-year visa, they can do so by working for a specified period in a specified regional industry. This incentive arrangement led to 36,125 backpackers qualifying for a second-year visa based

on their work in agriculture, forestry or fisheries in 2018–19, an increase from approximately 25,000 in 2011–12 (Figure 53).

The Working Holiday Maker visas have made an important contribution to the seasonal agricultural workforce. This has been assisted by the progressive expansion of the number of participating countries, increases to the caps on the number of visas allocated under subclass 462, and increases in the length of time a visa holder can work for one agricultural employer. The flexibility and low administrative burden for employers in accessing working holiday makers has made backpackers an attractive option for businesses seeking seasonal or lower-skilled staff. The high turnover of backpackers and the consequent need to constantly train new ones add substantially to the cost.

Figure 53 Working holiday makers granted second-year visa for work in agriculture, 2011–12 to 2018–19



Source: Dufty, Martin & Zhao 2019

This visa program can be improved

The Committee is aware that employers of working holiday makers (visa subclasses 417 and 462) must register with the Australian Taxation Office to withhold tax for working holiday makers they employ at 15% for the first $37,000 earned.

In order to address the segmentation existing among the different types of overseas seasonal workforce visa categories, the Committee recommends that there be a 'fit and proper person' registration process for employers seeking to access temporary AgriFood workers under the Working Holiday Maker program to create transparency and improve oversight and enforcement. This registration process is not intended to be too onerous, resource-intensive or time-consuming. Instead, a registration process is just that – registering for access to the Working Holiday Maker program, but not as complex as an approval process like that of the Seasonal Worker Programme. However, the registration process should assist enforcement agencies like the Fair Work Ombudsman and the Australian Taxation Office to identify where working holiday makers are employed on farms and to increase opportunities for oversight and

enforcement of their pay and working conditions. Although the front-end registration should be fairly simple so as not to put out growers, the back-end enforcement should be strong. Employers who are found not to be complying should lose their registration. This could mirror the blacklisting provisions in the New Zealand Temporary Labour Migration Scheme that allow the government to remove employers' right to access temporary migrants.

Recommendation 22

The Committee recommends that the Australian Government establish a 'fit and proper person' registration process for employers seeking to employ working holiday makers (visa subclasses 417 and 462). This registration should include:

- a database of registered employers who wish to access working holiday makers
- verification that the employer has not been prosecuted for breaches of relevant laws administered by the Fair Work Ombudsman or the Department of Home Affairs and is not subject to any current compliance action
- an agreement by the employer to list job vacancies on the Harvest Trail Services website
- the opportunity for an employer to be deregistered (and thus unable to access working holiday makers for the next 5 years) should they be prosecuted for breaches of relevant laws administered by the Fair Work Ombudsman or the Department of Home Affairs.

The Australian Government supported the recommendation made in the *Robust new foundations* report in 2014 that a change to 457 visa conditions be introduced to place an obligation on the visa holder to provide the Department of Home Affairs with their Australian tax file number (Azarias et al. 2014). The Committee considers that the same obligation should be introduced to 417 and 462 visa conditions, placing an obligation on the visa applicant to provide the Department of Home Affairs with their Australian tax file number. This would enable easier matching of data between the Department of Home Affairs and the Australian Taxation Office and enable income information to be cross-checked and underpayment identified.

Recommendation 23

The Committee recommends that the Australian Government require all 417 and 462 visa holders, prior to arrival in Australia, to apply for an Australian tax file number. Information should be provided to 417 and 462 visa holders in their own language, on their rights and entitlements as migrant workers in Australian workplaces and how to take action if they are not being treated ethically and lawfully.

A key design aspect of the Seasonal Worker Programme in Australia is the mandatory worker induction, where workers receive information directly from those who can help them enforce their rights: unions, community organisations and the Fair Work Ombudsman. This in-person induction enables workers to develop contacts within the receiving country, which is an important protective factor in helping them enforce their workplace rights.

The Committee considers in-person induction be a mandatory requirement of the Working Holiday Maker program. Such an induction would outline Working Holiday Maker visa holders' rights and entitlements as migrant workers in Australian workplaces and how to take action if they are not being treated ethically and lawfully. This induction could occur via regional Harvest

Trail Services. The Australian Government funded the expansion of these services in 2019–20, and there are now 16 Harvest Trail Services covering horticulture regions experiencing labour supply difficulties across the country.

The Committee recommends that an obligation be placed on employers to ensure that all the working holiday makers they employ attend this in-person induction. This would replicate the best practice process currently operating in the Seasonal Worker Programme, where approved employers are required to invite the union, the Fair Work Ombudsman and other relevant community organisations to attend on-arrival briefings.

Having these in-person inductions at a central off-farm location (one already familiar to most employers) in each growing region would ensure greater consistency and efficiency, as the employees (or prospective employees) of multiple labour hire operators and growers could attend these sessions together (as they currently do), and it would be relatively easy to verify compliance with this requirement. Harvest Trail Services offices may be well placed to host these inductions. The benefit would of course be that working holiday makers not only have access to information in their own language about their workplace rights but also are introduced to the agencies and organisations in Australia that can ensure they have the means to enforce those rights, before they begin employment in the industry.

It is important that this not be just another information session undertaken as part of a broader induction conducted by Harvest Trail Services provider staff (which would be the risk), but that it be mandatory that the Fair Work Ombudsman and the relevant union are invited to attend and address workers, as occurs in the Seasonal Worker Programme. Such an approach would help to level the playing field and eliminate segmentation between visa classes in the industry.

Recommendation 24

The Committee recommends that the Australian Government require that:

- working holiday makers attend an in-person induction prior to being employed in the AgriFood sector. Such inductions should be identical to the tripartite model used in the Seasonal Worker Programme. These inductions should be conducted at the regional Harvest Trail Services offices.
- registered employers ensure Working Holiday Maker visa holders attend these in-person inductions.

7.1.8 Calls for an ag visa

The Committee received submissions from many industry groups – including the NFF, the Queensland Farmers' Federation, AUSVEG and the South Australian Wine Industry Association – agreeing that migrant labour programs are essential. However, stakeholders also identified aspects of existing programs that could be improved to better meet industry workforce needs.

Many stakeholders, including the NFF, Growcom, Cotton Australia, the United Workers Union and AgForce, expressed a preference for a new 'ag visa' that is specifically designed to meet industry needs. In its submission the NFF said:

> *The NFF has long called for a 'dedicated ag visa'. A visa which will replace the ad hoc programs – with their 'bolt-on' farm workforce components – with a comprehensive*

solution which is purpose built and responsive to the needs of industry. It would grant farmers access to existing intentional labour pools and minimises the administrative and financial burden they must bear. It would allow travellers who want to work on farms to come to Australia and go to the work as and when they're needed and would feature strong safeguard to ensure ag visa workers are not exposed to mistreatment and exploitation.

The key components are:

Flexibility and Portability. Workers should not be tied to a particular employer but would be to 'follow the work' as needed.

A Coordinating Body. An industrial sponsor to coordinate the program, monitor workers, and maintaining contact with government and employers.

Fair Workplaces. Workers could only be hired by farms with demonstrated fair employment practices, who can be relied upon to care for their workers.

Appropriate Length. The visa would have both a short term/unskilled and a long term/semi-skilled stream, with a multiple entry component.

The Right Numbers. Rather than based on 'labour market testing', visa numbers would be localised and based on reliable data and consultation.

Balanced Checks. In addition to oversight by coordinating body, there would be other mechanisms to ensure entrants comply with visa restrictions.

The Committee's view is that no single visa will be able to meet the diversity of workforce needs across the different sectors. Most of the arguments put forward to justify an agriculture-specific visa can be addressed through improvements and adjustments to existing visa programs so as to address the segmentation issues identified in Section 7.1. Significant effort has already been made to design and tailor these programs, and building on this work will deliver quicker and better results than starting afresh. This is especially true considering the current uncertainty around when international travel will resume due to the pandemic. A holistic approach should be taken to streamline and make consistent the settings of current temporary migrant visas, whether under the Seasonal Worker Programme, the Pacific Labour Scheme or the Working Holiday Maker program. By reducing the segmentation between different types of migrant workers, and the incentive effect of current inconsistencies in regulatory burden and costs, greater flexibility and redundancy in the flow of workers will occur.

7.1.9 Undocumented workers

According to Howe et al. (2019), undocumented workers are widely used in horticulture. These workers form a large cohort, and are susceptible to exploitation, including underpayment, 'although it is impossible to determine the extent and nature of their involvement'. Howe et al. also note that the prevalence of undocumented workers in horticulture varies significantly by region.

Howe et al. (2019) define 3 types of undocumented workers:

Visa overstayers – people who originally held a valid visa, which has since expired

Visa holders without a right to work – typically people on tourist visas that do not contain a right to work in Australia

Visa holders in breach of a visa condition allowing a limited right to work – usually international students in breach of the restriction preventing them from working for more than 40 hours a fortnight during semester.

Estimates provided to Howe et al. (2019) by industry members suggested that undocumented workers composed up to 90% of the workforce in some major horticulture production regions, for example the Sunraysia region of north-west Victoria. In early 2019 the Victorian Farmers Federation surveyed horticulture farmers in the region and found that undocumented workers represented 28% of the total workforce or around 5,000 workers (VFF 2019).

The Committee heard evidence that supported those findings. The Committee also heard that undocumented workers are at highest risk of exploitation, due to the fact that they are unlikely to report mistreatment for fear of losing their visa and ability to stay in Australia.

Howe et al. (2019) also report on the importance of public health considerations for undocumented workers. This is of greater importance during the current pandemic. The Howe report notes that community groups and churches often provide undocumented workers with food, clothing, advice and other assistance. The report also provides the following stakeholder perspective:

> *'Often they don't access health services very often. So usually when they come in, we see them when they're acutely unwell, because generally they're frightened to come to the hospital … because they don't tend to get any pre-natal care, and then by the time they come in, there could be things wrong with the baby, or diabetes, things like that. Often, they're still out working [fruit picking] at eight and a half months pregnant.' Hospital social worker (Griffith).*

The United Workers Union recommended that the government:

> *Take immediate action to resolve the immigration status of undocumented farm workers by making the necessary adjustments to the eligibility requirements of the subclass 408 visa to enable undocumented workers who have been undertaking work in the horticulture industry to apply for this visa and, if granted, continue their crucial work in the industry.*

It is the Committee's view that the current pandemic provides a unique chance to design a one-off regularisation program for social health reasons. It is a potentially dangerous situation for the Australian public to have 60,000 to 100,000 overseas workers avoiding contact with clinics and hospitals. As the report *Covid-19 and undocumented workers in the Australian horticulture industry* (Howe & Singh 2020) points out:

> *Without addressing the fear of detention that undocumented workers have because of their uncertain immigration status, it will be almost impossible for the government to mitigate the public health risks arising from undocumented workers during the Covid-19 outbreak.*

In light of the pandemic, the Strategy strongly recommends that the government regularise undocumented AgriFood workers.

Recommendation 25

The Committee recommends that the Australian Government allow a one-off regularisation of undocumented AgriFood workers.

7.1.10 Information about seasonal job opportunities needs to be strengthened

General information on the location, timing and labour requirements for seasonal agricultural roles is made available through the Australian Government's National Harvest Trail guide, which is available to download from the Harvest Trail Services website or in hard copy from the Harvest Trail Information Service. The website also hosts an interactive Harvest Trail map that enables registered employers to advertise current positions, which can be searched by job seekers. People interested in joining Harvest Trail Services can use this information to plan their routes to travel from one seasonal harvest opportunity to the next, to provide continuity of work.

The pandemic has disrupted the current ways temporary workers are sourced and placed, requiring a different approach. People will only search for temporary agricultural jobs if they are prompted to do so and are alerted to the opportunities and benefits for them. People who have no experience in the agricultural sector or in the regions will need to have confidence they will not be worse off from taking up temporary work. People also need to know about accommodation options, local facilities and what to expect in pay and conditions, health and safety, training and induction procedures. Further, people are unlikely to take up a temporary job opportunity of 2 weeks, particularly if they have to cover the costs of travel; however, if they could see the opportunity for 3 to 6 months' work through a series of 'joined-up' temporary jobs, they may be more likely to take up such an opportunity. This is only possible through a coordinated response to temporary agricultural jobs.

The Committee has been exposed to examples of such coordinated approaches to temporary work in the New Zealand and Canadian agricultural sectors. Central to these efforts has been the development of an app that is populated with jobs and locally relevant information for job seekers. An app would also make it easier for people around the country to know where the work is, respond to job opportunities directly from farmers, and know what support infrastructure is available to them when they go to work in a particular region or locality.

In response to the pandemic, Hort Innovation, a horticulture research, development and marketing body, commenced a project with EY to understand the seasonal workforce requirements in the horticulture sector. The project surveyed producers and industry groups to establish estimates for the number of people required to pick an established volume of various horticultural products. These estimates have not previously been available. Coupled with estimates of forecast crop production by region, they allow for more precise estimates of seasonal workforce requirements for the horticulture sector.

There is an opportunity to build on the work already done by Hort Innovation and EY to refine seasonal workforce estimates, including by ground-truthing these estimates with information from farmers, agricultural businesses and unions on the temporary jobs available on a rolling monthly basis, with their location and closest town, as well as the estimated length of time for the job. This information will need to be regularly updated (for example, available through an

app). Collectively this information will produce a 'heat map' of temporary job flows across Australia on a monthly basis, which can be used to support the management of peak job demands. The insights from the further development of this capability could help guide further work to help the sector to:

- retain its current workforce and promote a collaborative resource system to support worker movements
- acquire new international workers and ensure mobility despite unpredictable border closures
- attract more Australians to move into the industry and better support regional infrastructure development to connect rural communities to cities
- effectively use the model to understand productivity opportunities for growers to lift their overall productivity gains.

The Harvest Trail Services website, which is managed by DESE, could provide the building blocks for this app. The app should also provide links to relevant information about pay and conditions and community support services.

Such an app would go some way to addressing the information asymmetry between the seasonal workforce, growers and labour hire contractors. The *Towards a durable future* report (Howe et al. 2019) found that the lack of a comprehensive portal for horticulture job vacancies put working holiday makers at a distinct disadvantage as they were reliant on intermediaries (often unscrupulous labour hire contractors) and unregulated sources like Facebook and Gumtree to access job vacancies, often relying on misleading and false information to travel to remote locations in desperation to find horticulture work.

Recommendation 26

The Committee recommends that the Australian Government develop an app to promote seasonal job opportunities, building on the Department of Education, Skills and Employment's work on a digital employment service model for job seekers.

The Committee considers there could also be scope for extending this recommendation to support the coordination of job seekers across the whole AgriFood sector, including allied agricultural supply chain and freight logistics jobs more broadly.

The Committee recommends that the app include regionally relevant information on accommodation, services and work rights, and that this information be available in multiple languages.

7.1.11 The need for quality housing

The Committee heard that housing for the seasonal workforce in regions is often substandard and expensive. The Wimmera Development Association in its submission noted:

> *As housing in rural towns and on-farm often has no opportunity for capital growth it discourages investment by private investors. This lack of quality housing stock leads to low-quality housing which has little insulation and is expensive to heat and cool.*

> *The rental market is often expensive relative to other parts of Australia ... combined with very large heating and cooling costs which counters many of the benefits of the rural living experience.*

The construction of adequate housing to meet the needs of the local community is a matter for the private sector and local government. The Committee heard of positive initiatives by the Bundaberg Regional Council and Renmark Paringa Council to stimulate private sector construction of housing for seasonal workers in those regions (Box 38).

Box 38 Private sector investment case studies

Bundaberg Regional Council

The town of Bundaberg, Queensland (approximately 360 km north of Brisbane) illustrates the importance of local leadership and networks in enabling a region to transition and develop.

The region relies on working holiday makers to fill less skilled seasonal roles in the horticulture industry. However, the engagement of these workers through labour hire contractors saw unscrupulous behaviour that tarnished the reputation of the region and threatened the region's ability to attract seasonal workers. The council took a leadership role. Firm assurances were issued that the full force of the law, as well as regulatory enforcement, would be applied. However, it was incentivising the development of accommodation that brought about change.

The 'Bundaberg Open for Development' initiative provided a range of incentives designed to stimulate development activity. In mid-2016 the council offered discounts off infrastructure charges for development across a number of categories, including a 50% discount for development that provides housing for itinerant farm workers and backpackers.

The discounts led to the construction of accommodation for 441 beds, increasing the availability of accommodation for temporary farm workers in the region.

Renmark Paringa Council

The South Australian citrus industry, based in the Riverland region, contributes 30% of the national citrus crop. Following the planting of significant new citrus crops in the Renmark Paringa Council area of the Riverland, the region was faced with the future prospect of significant accommodation shortages for seasonal workers. The Renmark Paringa Council took action by revoking the community land status of a parcel of land in the centre of the Paringa township, with a view to encouraging development to stimulate the Riverland economy.

The land was sold at auction to a local Renmark entrepreneur, who had a plan to build affordable resort-style accommodation using local Riverland contractors where possible. They undertook their own research on ways to better service the itinerant worker market and on any potential funding opportunities.

Supported by the Australian Government and state governments, the Paringa Resort was opened in April 2016 to accommodate workers for the 2016 citrus season. The resort consists of 236 beds, 28 cabins, a swimming pool, barbecue areas, a gym and a recreation lounge. In addition, the resort is serviced by 35 12-seater minibuses for transporting workers to the work site.

Paringa Resort created 8 full-time jobs during the construction phase and is now operationally serviced by 4 full-time staff. It has received positive reviews from workers choosing to have their Australian working holiday in the Riverland region, and some of the largest citrus companies in Australia have taken the opportunity to utilise the new accommodation via a seasonal lease arrangement. The influx of seasonal workers to the small Riverland town of Paringa has also provided a boost to the local economy.

Source: Consultation with Bundaberg Regional Council and Renmark Paringa Council

7.2 Protecting the entitlements of the seasonal and transient workforce

While the pandemic has exposed the risk of over-reliance on an overseas seasonal workforce (Chapter 1, Introduction), and the goal should certainly be to have diverse sources of labour, overseas workers are likely to remain part of the AgriFood workforce for the foreseeable future. These workers play an essential role in keeping AgriFood businesses operating.

The exploitation of overseas seasonal workers is a serious issue. These workers are entitled to the same basic rights and protections as Australian citizens and permanent residents under applicable Australian workplace laws, and receive the same protections as Australians in terms of investigating claims of underpayment and exploitation.

7.2.1 Reports of unethical and unlawful practices are not uncommon

While many AgriFood employers are doing the right thing, there is evidence of businesses using unethical and unlawful workforce practices, or using unscrupulous labour hire contractors who engage in these practices. For example:

- the Fair Work Ombudsman's Harvest Trail Inquiry (2018) found that 55% of employers investigated over 4 years failed to comply with Australian workplace law. The Fair Work Ombudsman recovered over $1 million in unpaid wages for over 2,500 workers, and discovered offences ranging from underpayment to failure to keep records
- a 2016 survey by Berg and Farbenblum (2017) of 4,322 temporary visa holders found that, among fruit and vegetable pickers, packers and farm workers, almost one in 7 participants (15%) earned $5 per hour or less and almost a third (31%) earned $10 per hour or less.

Clearly any exploitation of individuals is unacceptable. Aside from the impact on individual workers, this behaviour also creates an uneven playing field in the sector, as producers that are doing the right thing are unable to compete on price with those that are underpaying workers. Stakeholders in horticulture described the situation to the Committee as a 'race to the bottom'.

As the NFF notes in its submission:

> *The mistreatment of foreign workers … is a basic issue of human rights and dignity and must be addressed by the farming sector for that reason alone. But the problem also has commercial ramifications. Farmers who want to play and pay fair – the vast majority of the sector – are at a commercial disadvantage to those who exploit their workforce.*

7.2.2 Supply chains have become longer and deeper

Through globalisation and the corporatisation of the food industry, agribusiness and retail supply chains have become more complex and the networks of suppliers and the way business is undertaken have decreased workforce visibility. This can be seen in the horticulture sector, where hundreds of different products are grown across many different regions and many different seasonal windows, year round. These supply chains feed domestic and export markets, retailers, providers and food manufacturers. Multiple layers of producers and intermediaries are

involved in the aggregation and delivery of produce to satisfy supermarkets and wholesalers representing a broad range of business customers. This means the final retailer, provider, food processor or restaurant may not have a clear line of sight to where, or how, it was produced.

This complexity in the supply chain and the involvement of many different parties create an opportunity for unethical and unlawful treatment of workers to occur.

7.2.3 Governments have taken action to address the risks of exploitation

To address reports of unethical behaviour in supply chains, the Australian Government has:

- established the Phoenix Taskforce in 2014, comprising 38 Australian Government and state and territory government agencies focused on combating the creation of illegal phoenix companies
- established the Migrant Workers' Taskforce in 2016 to identify further proposals for improvements in law, compliance and enforcement, and other practical measures to quickly identify and rectify any cases of migrant worker exploitation. The task force made 22 recommendations to government in its 2019 report, all of which were accepted in principle
- introduced the *Fair Work Amendment (Protecting Vulnerable Workers) Act 2017* to increase the maximum penalties for employers who deliberately flout the minimum wage and other entitlements under the Fair Work Act 2009 and to strengthen the Fair Work Ombudsman's investigative powers
- introduced the *Modern Slavery Act 2018*, which requires any business with an annual consolidated revenue over $100 million to report on the risk of modern slavery occurring in its operations and supply chains. Each entity required to comply with the reporting requirement must prepare an annual Modern Slavery Statement that sets out its actions to assess and address modern slavery risks in its global operations and supply chains. The government will make these statements publicly available through an online central register
- following the Harvest Trail Inquiry, supported the Fair Work Ombudsman's consultations with industry representatives through a Horticulture Industry Reference Group to work at improving compliance rates in the sector.

Some state and territory governments have introduced labour hire regulations in response to reports of unethical treatment of workers:

- Queensland's *Labour Hire Licensing Act 2017* commenced in 2018, establishing mandatory licensing for all labour hire providers operating in the state. The scheme is enforced by a Labour Hire Licensing Compliance Unit.
- South Australia introduced the *Labour Hire Licensing Act 2017* and has since passed further legislation to narrow the legislation's scope to high-risk industries, including horticultural processing, meat processing and seafood processing.
- Following the Victorian Inquiry into the Labour Hire Industry and Insecure Work, the Victorian Government introduced the *Labour Hire Licensing Act 2018* and created a Labour Hire Authority to implement its licensing scheme for providers of labour hire across all industry sectors.

- The Australian Capital Territory passed the *Labour Hire Licensing Act 2020*, which is expected to commence on 1 January 2021 and will apply to all labour hire providers across all industry sectors.

Government action and media attention focusing on unethical behaviour necessary to address the problem. However, this attention contributes to a poor community perception of the broader sector, making it an unattractive place to work until these issues are resolved.

7.2.4 Labour hire regulation can be strengthened

Labour hire companies provide a useful service enabling mobility of workers, efficiently filling vacancies and streamlining administrative processes for growers, as well as providing support and services to overseas workers. The agricultural sector is dominated by small to medium enterprises, many of which finding it administratively easier to outsource the recruitment of their seasonal labour requirements to labour hire companies. As has been noted extensively in recent inquiries by the Migrant Workers' Taskforce and Professor Anthony Forsyth (Chair of the Victorian Inquiry into the Labour Hire Industry and Insecure Work), the practices of some operators in the labour hire sector fall short of minimum employment or business standards. Similar concerns were raised with this Committee. For example, the United Workers Union submission noted:

> *Contractors in horticulture exercise a very high degree of control over workers' lives. In the worst cases, a subcontractor will force workers to live with them, charging them exorbitant rent, monitoring their movements and conversations, and engaging in other controlling behaviours.*

The large number of overseas workers in the horticulture sector (up to 50% of the workforce) makes them particularly vulnerable to unethical and unlawful practices, as they may not be aware of their rights or able (or willing) to access avenues to report these practices for a number of reasons, including language proficiency, visa status, work experience and cultural norms. As professors Farbenblum and Berg (2017) note:

> *Unscrupulous employers correctly assume that the overwhelming majority of migrant workers will accept wage theft in silence … Results from surveys we conducted in 2016 and 2019 consistently show that one of the most significant barriers to migrant workers complaining or seeking assistance … is concern about jeopardising their current or future visa.*

One of the recommendations of the Migrant Workers' Taskforce was to establish a National Labour Hire Registration Scheme focused on labour hire operators and hosts in 4 high-risk industry sectors across Australia – horticulture, meat processing, cleaning, and security. The Australian Government has committed to establishing such a scheme in response to the task force's recommendation 14. Consultation on the scheme design is underway, including with state and territory governments.

The Committee consistently heard that effective labour hire regulation improves ethical treatment of workers and improves the reputation of the agricultural industry – and, in particular, the horticulture industry.

In its submission the Australian Chicken Meat Federation reported increasingly positive experiences of using labour hire:

> *Labour hire agencies provide an invaluable source of labour for roles that traditionally Australians are not interested in. Increased scrutiny from government, industry and customers has reduced the risks of exploitation of staff in the chicken industry through the use of labour hire agencies. Customer requirements add to the incentives to ethically source staff. Companies take extra precautions to identify ways of maintaining skilled staff while minimising exploitation.*

Labour hire regulation should build on successful models

The Queensland, South Australian and Victorian governments have established labour hire licensing schemes in their states. These schemes require providers of labour hire services to be licensed, and users of labour hire to only obtain labour from licensed providers. Although these schemes are relatively recent, evidence heard by the Committee suggested the Victorian and Queensland schemes (Box 39) were already delivering positive results in those states.

Box 39 Queensland Labour Hire Licensing Act 2017

The *Queensland Labour Hire Licensing Act 2017* establishes a mandatory labour hire licensing scheme that requires labour hire providers to be licensed to operate in Queensland, and people who engage labour hire providers to only use licensed providers. It also helps users of labour hire and workers find a licensed labour hire provider through its online register.

To obtain a licence, applicants are required to demonstrate:

- that the relevant people are fit and proper to provide labour hire services
- that the business is financially viable
- a history of compliance, and ability to comply, with relevant laws.

The Labour Hire Licensing Compliance Unit (LHLCU) is responsible for regulating and ensuring compliance with the licensing scheme. The LHLCU enforces strong penalties for breaches of the Act. Labour hire providers who do not comply with the Act are liable for a range of penalties including fines, suspension or cancellation of a licence and imprisonment.

LHLCU inspects labour hire providers by reviewing all licence applications and using appropriate risk-based compliance approaches. They also carry out formal investigations and audits in response to significant allegations or issues. Investigations/audits may lead to licence cancellations or suspensions, legal proceedings or, for less serious cases, education or imposed licence conditions. Outcomes of successful prosecutions for offences may be published to draw attention to the consequences of non-compliance and the need for fairness in workplaces. The LHLCU also works with other state government and Australian Government departments to share information and conduct joint compliance activities as permitted by law.

In its first year since the Act commenced, the LHLCU assessed and granted over 3,000 licences and conducted over 350 audits and investigations of complaints regarding labour hire arrangements. Ten applicants were refused, 9 were given conditional licences, and 99 applications were withdrawn for failing to provide compliance information. Two labour hire providers had their licences cancelled and 68 had been suspended. Compliance activities had been conducted across all industries, but the initial focus had been on horticulture and meat and poultry processing labour hire arrangements, in response to evidence of exploitation in these sectors.

Source: Labour Hire Licensing Queensland 2020

The Committee heard there is broad support from stakeholders to build on the Queensland model for a national approach. The Queensland scheme is generally regarded as the most robust, with a compliance unit that oversees the scheme and has broad powers to search licensees' premises and workplaces and conduct audits. The penalties that can be applied for breaches of the scheme are also significant, ranging from civil to criminal penalties.

Berries Australia advised the Committee that robust national labour hire licensing based on the current Queensland Labour Hire Licensing Scheme would improve the berries sector. Similarly, the United Workers Union supports the introduction of a national labour hire licensing scheme that:

> *… replicates and scales up the best-practice elements of the Victorian and Queensland state schemes, including a mechanism for interested parties to object to or seek review of the granting of a licence.*

It is the Committee's view that, at a minimum, a national approach should have a legal requirement for all labour hire providers to be licensed and for all growers to only engage licensed providers; a well-resourced compliance unit; and avenues for review. Any such approach should also take into consideration the efforts made by the states in this area and, rather than undoing them, should build upon the successes and best-practice elements of the existing state schemes.

The pandemic makes it even more urgent that action be taken to establish nationally consistent labour hire regulation.

Recommendation 27

The Committee recommends that all state and territory governments enact mirror legislation to regulate labour hire providers operating in their jurisdictions. This legislation could mirror the *Labour Hire Licensing Act 2017* (Qld). If this does not occur within 12 months, the Australian Government should establish national legislation for mandatory regulation of labour hire companies.

7.2.5 Creating a virtuous circle

To ensure ethical and lawful workforce practices are observed in highly disaggregated horticulture and other agricultural supply chains, there needs to be a virtuous circle ensuring that all players in the supply chain possess, or can readily access, the information and knowledge to comply with workplace laws, and that they are incentivised to treat workers well. The Committee heard that activities are occurring to address exploitation and unethical practices in the sector, but to be successful, action needs to occur in every company in every agricultural and horticultural supply chain.

As the Retail Supply Chain Alliance notes:

> *… there is no silver-bullet solution and any successful solution will require the pursuit of a package of inter-related reforms.*

7.2.6 Clear communication about the application of workplace law is needed

The Committee considers that most AgriFood businesses are not engaging in illegal or exploitative activity in relation to their workers and few would be doing this deliberately.

As noted by the Fair Work Ombudsman in its Harvest Trail Inquiry report, a large percentage of infringements of workplace law are technical breaches or incidental. Many concerns relate to the piece rates in the Horticulture Award and a lack of clarity about how they are applied. A piece rate is where an employee gets paid by the piece. This means the employee gets a pay rate for the amount picked, packed, pruned or made. When piece rates are paid, they apply instead of the hourly or weekly pay rate.

The role of government

In response, the Fair Work Ombudsman has developed and promoted a range of industry-specific resources and self-help tools for employers and employees, all available in one online hub called the Horticulture Showcase.

The Horticulture Showcase is available in 36 languages other than English and was co-designed with the sector. Its key features include:

- industry-specific information, resources and tools that have been shaped by the Fair Work Ombudsman's work and research into the sector
- a series of videos to assist growers and workers to use Fair Work Ombudsman resources to understand their rights and meet their obligations
- an anonymous self-assessment tool that growers can use to understand their current level of compliance and get tailored feedback and help
- an interactive piecework agreement template that uses smart form technology to save growers time by enabling them to quickly and easily create personalised piecework agreements.

The Fair Work Ombudsman has also designed and delivered numerous communications campaigns targeting the horticulture sector that have achieved significant reach into the community. These campaigns encourage compliance with workplace laws through information, education and support.

The role of industry

In 2017, Growcom (the Queensland horticulture industry peak body), with financial support from the Fair Work Ombudsman, developed the Fair Farms program as an industry-led response to the level of non-compliance with workplace laws in the industry (Box 40). Fair Farms is open to all horticulture businesses in Australia. This includes farming and packing enterprises, as well as other organisations in the supply chain such as wholesalers, ripening houses and food brokers.

Box 40 Fair Farms initiative

Before Fair Farms, the market leader in Australia for demonstrating ethical supply (as accepted by retailers) was expensive, complicated, based overseas and more relevant to international supply-chain

management. Training was a minor component, and it was focused on global suppliers and referenced global labour standards.

The Fair Farms initiative has a strong focus on training and offers a coordinated system of customised training to support growers. It starts with a comprehensive self-assessment, where the grower is open and honest about their awareness of legal and industry expected standards. The self-assessment is benchmarked to Australian workplace law requirements (particularly the *Fair Work Act 2009*). The results of the self-assessment form the basis of the training package that Growcom's skilled Fair Farms trainers use. Training is solutions based and delivered on a one-on-one basis in a manner that suits the busy grower (usually online, by telephone or by a virtual coaching session).

The initial funding for the Fair Farms initiative was sourced from key government bodies and industry partners. Its implementation plan spans more than 6 years (January 2017 to 30 June 2023) and comprises 5 phases with transparent milestone reporting. The program is currently funded until June 2022 and is intended to transition to a self-sustaining funding model thereafter.

As of May 2020, Fair Farms certification has been recognised by all 3 major retailers – Woolworths, Aldi and Coles. Australian growers can now opt for the one program and adopt the one standard to meet the ethical sourcing requirements of all 3 retailers. This makes compliance easier, cheaper and more effective.

Growcom has seen a steady and healthy increase in Fair Farms registrations. As of August 2020, 120 businesses have completed the self-assessment and a total of 7,554 workers are employed by Fair Farms registered businesses across the nation.

Source: Consultation with Growcom

Stakeholders are generally supportive of this program:

> *Industry-led initiatives such as Fair Farms are welcome developments in improving compliance with labour standards, as they create opportunities for lead firms in the supply chain to take responsibility for labour standards on farms by requiring independent audits of growers who supply to them. (Howe et al. 2019)*

> *These initiatives must be highlighted to help the horticulture industry improve its image and, in turn, become a more attractive career. (AUSVEG submission)*

While the number of growers signing up to Fair Farms is increasing, Growcom advised the Committee that the program would have added value if it were attached to consumer-facing branding identifying Fair Farm produce.

The Committee supports industry continuing to develop initiatives that inform, educate, and self-regulate food and fibre employers. Although many producers use labour hire companies and contract arrangements to engage their workers, they still retain significant obligations and responsibility under workplace and immigration laws. Industry should be engaged to provide insights into design approaches for addressing these.

7.2.7 Sharing of information is needed to tackle phoenixing

The Phoenix Taskforce is taking a whole-of-government approach to identify illegal phoenix activity – when a new company is created to continue the business of a company that has been deliberately liquidated to avoid paying its debts. Since the task force started in 2014 it has collected more than $500 million in revenue as a result of audits of illegal operators.

However, the Committee heard that there are still instances of phoenixing occurring in the horticulture industry. Stakeholders told the Committee that a temporary or student visa holder can become a director of a labour hire company, phoenix the company and then disappear back to their country of residence, leaving the workers without their entitlements.

Where a company is liquidated and is unable to pay its debts, including the entitlements of workers, eligible workers can access the Australian Government's Fair Entitlements Guarantee scheme to receive their entitlements. However, workers who are temporary visa holders are unable to access the scheme and would miss out on any unpaid entitlements.

The ANAO report on the task force (Australian National Audit Office 2019) found that:

> *… most Taskforce entities' legislation prevents them from sharing information with all Taskforce member entities or the ATO from 'on-disclosing' the shared information to other members. These provisions limit the intelligence and operational activities of the Taskforce.*

Better coordination of information between the Department of Home Affairs, which is responsible for granting visas, and the Australian Securities and Investments Commission, which is responsible for approving the registration of the entity, would provide a deterrent for individuals who create these labour hire companies with the intention of committing tax crimes.

Recommendation 28

The Committee recommends that the Australian Government regulate that any director of a labour hire company be a permanent resident of Australia.

Recommendation 29

The Committee recommends that the Australian Government include labour hire companies under single-touch payroll provisions.

Recommendation 30

The Committee recommends that the Australian Government develop a memorandum of understanding between the Australian Securities and Investments Commission and the Department of Home Affairs to allow for better coordination and to act as a deterrent for individuals and companies who operate unlawfully in AgriFood workforce matters.

The Committee consistently heard that changes to the Horticulture Award 2010 had resulted in employers changing work schedules to manage overtime payments, which in turn had the effect of reducing the hours of available work for employees.

A grower survey commissioned by Growcom to capture the impact of the award changes found that the average casual worker had lost 10 hours of work per week – which impacted negatively on the ability of the horticulture industry to attract seasonal workers.

Under industrial relations legislation, the Fair Work Commission is responsible for setting wages and conditions in modern awards. It may consider changes to awards on its own motion or following an application by parties with standing, such as the relevant employer association or union. The Committee is not inclined to make a recommendation in relation to the Horticulture Award, although relevant employer associations or unions may consider making an application

to the Fair Work Commission to amend the award if they consider there is an unintended negative impact from recent changes.

7.2.8 Role of supermarkets

The 3 major supermarkets in Australia (Woolworths, Coles and Aldi) account for the majority of grocery retail trade including horticultural, meat, dairy and seafood – most non-durable AgriFood products. Their consolidation of market power has developed since the 1990s, when supermarkets worldwide changed their strategies and transformed supply systems from supplier-led to demand-led supply chains (with supermarkets representing and their customers leading demand, with or without advertising having an impact). Over the last few decades, the power of the supermarkets has been subject to a number of public sector inquiries in Australia. With this oligopolistic market power, the major supermarkets are known to apply conditions to ensure that their suppliers and producers are conducting their businesses ethically. Currently the supermarkets use third-party auditing programs, including Sedex and Fair Farms, to verify compliance with their codes of conduct and to meet their reporting requirements under the *Modern Slavery Act 2019*. They also have close relationships with many suppliers and share values and ethical expectations.

The Committee heard from unions and industry bodies that the robustness of these auditing programs could be improved by moving to an independent, supermarket-funded approach, rather than the current model of grower-initiated and grower-funded audits, which can be a barrier for growers and potentially reduce the objectivity of the audit.

Stakeholders also told the Committee that, as a matter of course, auditing should occur at all levels of the supply chain, not only at the level of top-tier suppliers that have a direct relationship with the supermarkets. There are multiple levels of growers supplying produce to the larger grower/packers, and any compliance efforts need to reach these to be effective.

The United Workers Union submission stated that to increase the effectiveness of these auditing programs, supermarkets should:

> *… move beyond third-party monitoring regimes, take direct responsibility for compliance and formally include workers and their unions in proactively verifying compliance with minimum standards in their supply chains.*

The Committee was encouraged to hear that the supermarket sector is working with the Retail Supply Chain Alliance to develop a tripartite approach. As Howe et al. (2019) state:

> *… international evidence indicates that multi-stakeholder forms of regulation are most effective at improving labour standards and minimising supply chain risks when they genuinely involve engagement with workers, unions and community organisations.*

The Committee is also encouraged to see that Woolworths, Aldi and Coles now recognise the Fair Farms program to meet their ethical sourcing requirements, and sees this as a step in the right direction.

Recommendation 31

The Committee recommends that the Australian Government encourage all supermarkets to commission and fund random independent audits at all levels of the supply chains such as for the Sedex and Fair Farms programs.

8 Workforce data and information

8.1 Introduction

The workforce in the AgriFood sector has changed significantly in recent decades. As detailed in Chapter 3 Historical trends shaping the AgriFood workforce, what were once simpler employment structures where many people directly owned or worked for a specific farm or business are now much more complex. Today's AgriFood workforce includes people with a diverse range of specialisations and roles, from managers of farms or fishing and forestry businesses to contractors who may travel thousands of kilometres providing services such as sowing, weed and pest control, and harvesting – let alone service providers such as agronomists, agribusiness consultants and veterinarians, and suppliers of agricultural goods and services.

Farm consolidation and corporatisation have resulted in larger, more complex businesses, leading to more complex tiers of labour within farms themselves, including a range of managerial, oversight and/or specialist positions – for example, leading farmhands, supervisors and orchard managers. Innovation and technology adoption are increasing demand for more skilled workers and changing the nature and skill level of occupations in the AgriFood sector.

The types of data on the AgriFood workforce and the methods used to collect and classify them have not kept pace with these changes. This means it is not possible to accurately answer the question 'how many people work in agriculture?' – let alone to understand and anticipate demand for different types of jobs, or for skills training needed to do those jobs successfully.

Comprehensive data on the (i) current AgriFood workforce and (ii) emerging and changing labour needs are crucial to understanding the sector's workforce needs now and into the future. With this information the AgriFood sector can develop plans to attract, retain and upskill the workforce it needs.

This chapter outlines key challenges and gaps in currently available data on Australia's AgriFood workforce, as expressed to the Committee, and their implications. Recommendations to achieve a collaborative, systematic approach to AgriFood workforce data collection, classification and analysis are provided.

8.2 The importance of workforce data

Fit-for-purpose workforce data are not a 'nice to have'; they are essential for policy, programs and strategy to successfully meet the labour needs of the AgriFood sector over time. Lack of comprehensive, coherent, accurate and timely data can be a constraint on the sector's ability to advocate for the investments needed in their workforce, which in turn is a key component of productivity and growth.

Workforce data are critical to many aspects of industry training, operation and planning to meet future needs:

- Skills and training providers need to understand both numbers of jobs and skills required to ensure the right training is available.

- Information on how labour requirements are changing in different communities enables better planning to support those workers, for example through ensuring sufficient availability of housing and services such as education and health.
- At a national scale, understanding change in workforces enables forward planning to meet emerging labour demands, both in terms of number of jobs required and in terms of the types of skills required.

8.3 Current workforce data are insufficient

Currently data on the AgriFood workforce are collected by a number of organisations, with the major sources of data provided by:

- the Australian Bureau of Statistics (ABS)
- the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
- rural research and development corporations (RDCs).

Submissions indicate that levels of funding available for monitoring AgriFood workforce levels and labour demands have often declined over time. Those tasked with collecting data have often been forced to reduce the scale and scope of their data collection.

Most data collections are typically 'standalone' – they cannot be readily integrated with each other to form a more comprehensive picture. Some only produce limited insight into one aspect of the workforce (for example, data on a single agricultural subsector). Many are not collected consistently over time, reducing the ability to understand trends in the workforce.

Appendix H provides a technical review of the major sources of data on the AgriFood workforce, specifying the limitations and insufficiencies of these datasets.

8.3.1 Data do not provide a comprehensive picture of current labour use

From submissions and other evidence provided to the Committee, it was clear that government-collected data do not provide a comprehensive picture of Australia's AgriFood workforce or future labour requirements. Comprehensiveness in this context refers to sufficient coverage of AgriFood subsectors and the different types of workers involved in each subsector.

The Committee heard:

- ABS figures do not comprehensively capture agricultural contractors, professional service providers and transport workers in the AgriFood workforce. Depending on the specific type of service being provided, these workers may be classified into any of a number of industries not specific to agriculture, such as professional services or transport and freight services.
- The ABS Census of Population and Housing (CPH) and Labour Force Survey (LFS) data only includes migrant workers (visa holders) who are resident or expect to be residing in Australia for 12 or more months. For periods of less than 12 months, the worker will be out of scope of the census and survey.
- In general, ABS and other national surveys have low sampling rates in rural and regional Australia, except in cases where the sample is stratified to ensure data can be reported for rural and regional Australia. For example, the Household, Income and Labour Dynamics in

Australia (HILDA) survey cannot report findings for rural and regional areas beyond reporting for areas outside major cities in general. With the AgriFood workforce disproportionately located in rural and regional areas, this means it is systematically under-represented in these datasets.

The Western Australian Department of Primary Industries and Regional Development submission observed:

> *The Australian Bureau of Statistics available data often not fully recognise or account for:*
>
> *Those employed in transport and logistics as part of the agricultural supply chain.*
>
> *Technicians employed in the maintenance and repair of on-farm equipment.*
>
> *The number of domestic students who support the sector during peak summer harvest periods, but again who are not counted in 'official' workforce numbers.*

With respect to the exclusion of some temporary migrant workers from the scope of the ABS LFS, the National Farmers' Federation submission noted:

> *This omits a substantial component of the agricultural workforce. Indeed, studies indicate that up to 80% of workers on vegetable, fruit and nut farms are visa holders, with a significant number also found on grain, dairy and cotton farms.*

Overseas workers make an important contribution to the AgriFood workforce – particularly the seasonal workforce. Because they are not targeted in some data collections, it is difficult to determine how many seasonal workers from overseas are employed in the sector and what the main source of that overseas labour is.

Further compounding the lack of data on overseas workers is the number of 'undocumented' workers employed in the AgriFood sector. Estimates of the number of migrants without the necessary work rights ranges from 60,000 to 100,000 workers nationwide (Howe & Singh 2020) (see Section 7.1.9).

8.4 Incomplete data have implications for public policy and access to services

Workforce data are used by the Australian and state and territory governments, industry bodies, research organisations and the farming community to support policy and planning for the AgriFood sector in Australia. Incomplete data have adverse implications for the sector.

The data insufficiencies identified affect the ability of the AgriFood sector to adequately predict and meet workforce demand, and demand for specific skill sets. It also means there can be challenges in providing sufficient services to support the AgriFood workforce, due to the invisibility of some parts of the workforce in published statistics.

The real size of the AgriFood workforce is unclear and almost certainly larger than currently available figures suggest. In addition, there are uncertainties around the nature of the workforce – age, gender, working hours, inflows and outflows. These uncertainties have implications for

investment decisions by all levels of government – including education and infrastructure investments in rural and regional Australia.

8.5 Other sectors and countries are more advanced in prioritising workforce data

The Committee was impressed with evidence provided to it on Australia's strong health workforce planning capability (Box 41). This capability was developed to improve coordination between governments, the higher education and training sector and various employers to help secure a sustainable health workforce.

The coordinated approach arose due to concerns about:

- significant workforce shortages, particularly of nurses
- poor distribution of the medical workforce resulting in less accessible services for Australians living in rural, remote and outer metropolitan regions
- bottlenecks, inefficiencies and insufficient capacity in the training system
- continued reliance on poorly coordinated skilled migration to meet essential workforce requirements.

Box 41 Workforce Data Analysis Section

The Workforce Data Analysis Section (WDAS) in the Department of Health is responsible for 5 streams of work: data management, analytics and reporting, workforce planning and modelling, data governance, and maintaining the integrated data tool Health Demand and Supply Utilisation Patterns Planning (HeaDS UPP).

The WDAS prepares and publishes a series of high-level health workforce planning reports, and manages the relationship between key stakeholders and data custodians. The workforce planning and modelling stream is responsible for undertaking and publishing Australia's Future Health Workforce demand and supply studies. This work includes developing and updating workforce demand and supply methodologies; designing and constructing data models, including models of training pipelines, demand and scenarios; and acquiring all the relevant datasets.

WDAS's workforce planning capabilities are significantly enhanced through its custodianship of the National Health Workforce Data Set (NHWDS). There are 16 nationally regulated health professions under the National Registration and Accreditation Scheme (NRAS). Everyone in these professions must be registered with the relevant national board and meet the board's registration standards in order to practise in Australia. The Australian Health Practitioner Regulation Agency, in conjunction with the national boards, is responsible for the national registration process for the 16 health professions under the NRAS. The data from this annual registration process, together with data from a workforce survey that is voluntarily completed at the time of registration renewal, forms the NHWDS.

HeaDS UPP brings together primary care workforce data from several datasets such as the Medicare Benefits Schedule, Australian General Practice Training Program, Royal Flying Doctor Service Program, National Health Workforce Data Set, and National Health Services Directory. This makes it easier to measure and analyse the health service needs of a community and the workforce required to meet those needs, and identify the gaps in the current health workforce.

Source: Consultation with Department of Health

The Committee was also impressed with the Canadian and New Zealand governments' approaches to agricultural workforce data collection and analysis (Box 42). These models are centred on a tripartite approach (industry, government and educators) to effectively examine workforce issues and build meaningful solutions to ensure their AgriFood sectors have skilled workforces.

Box 42 International approaches

The Canadian Agricultural Human Resource Council (CAHRC)

CAHRC is a national non-profit organisation. This model has been in place for over 10 years, and has transitioned away from government funding to industry and project funding. CAHRC works with over 20 government departments across federal, provincial and territorial levels, and with 51 contributing partners and 100 supporting partners, to meet the needs of over 170 industry associations and organisations that are members. Through its 5 work programs (see Section 4.2.5), CAHRC provides Canada's agricultural sector national, provincial and commodity-specific reports, fact sheets and data dashboards via its website – including data-driven projections into 2029.

The New Zealand Primary Industry Capability Alliance (PICA)

PICA is a not-for-profit incorporated society established in 2014 to provide a collaborative and coordinated approach to building capability in New Zealand's food and fibre sectors. These sectors face a critical need to attract, train and retain a talented, diverse and qualified workforce. Members include industry organisations, education providers and government agencies who work together to leverage their pooled resources, knowledge and influence in order to target, attract and grow a talented workforce, quickly and effectively.

Sharing knowledge and research is an important part of PICA's role. It holds annual research forums and has established a new Research and Monitoring Working Group to provide ongoing input into the design, implementation and execution of the research program. The group includes representatives with experience and knowledge to support capability-building initiatives, and assists PICA with collating, undertaking, interpreting and sharing research, data and insights that support PICA and its members' activities.

PICA's online research resource, launched in November 2018, contains over 90 papers and is a valuable source of studies, research papers, reports and data. The resource includes research commissioned by and on behalf of PICA members, as well as research from other sectors and countries. The resource is searchable by keywords, country, and type of research.

Source: CAHRC 2020; PICA 2020

8.6 A strategic approach to workforce data collection and analysis is essential

The weight of evidence provided to the Committee is that currently AgriFood workforce data deficiencies are the root cause of slow responses of government, industry and education providers to the sector's workforce needs and of uncertainty in developing strategic responses to address workforce challenges. This situation requires the AgriFood sector to have a strategic, systematic and unified approach to workforce data collection and analysis. Indeed, the entire Strategy hinges on this capacity.

Building a systematic approach to workforce data collection will enable the Australian, state and territory governments, industry bodies, research organisations and the farming community to

analyse and understand their current workforces, trends at the national, state and territory, industry and local levels, such as towards more highly skilled jobs, and also at an individual employee level, such as the effect of education or retention programs. It will create signals and guide prioritisation efforts and investment to attract, retain and upskill the AgriFood workforce.

There is also a need to disseminate the analysis of these datasets more regularly to support policy and planning by the Australian Government, and state and territory governments, industry bodies, research organisations and the farming community.

The National Farmers' Federation in its submission recommended:

> *An annual 'market update', published yearly, which reviews the ag labour market, identifies skills shortages, maps skills to roles (by commodity and region), and forecasts five years into the future.*

The Queensland Farmers' Federation submission noted:

> *Improve Agricultural workforce data and research to inform regional industry-wide workforce planning and development activities to ensure the industry has a reliable workforce now and in the future.*

Successful data collection requires:

- ongoing active collaboration between those using AgriFood workforce data and those collecting it – currently, limited opportunities for communication between these organisations (with the exception of ABARES) contributes to data gaps identified in this chapter. This is because workforce issues facing the AgriFood sector are often fast-changing, while the ability to alter what data are collected tends to occur much more slowly
- better coordinated collection of data using consistent methods, enabling data to be linked to provide a more comprehensive picture of the AgriFood workforce and labour needs
- better linkage of data across the supply chain. Currently, most data collection for the AgriFood sector focuses on activities happening on the farm (or in the fishery or in the forest/plantations)
- increased investment and resourcing of data collection to ensure it is sufficiently (i) timely and (ii) comprehensive in terms of covering all parts of the workforce, including temporary workers
- a strategic approach to managing respondent burden and avoiding duplication. Increased data collection via surveys and other methods that require farmers, fishers, foresters, employees and those involved in the supply chain to provide information places additional costs on these individuals and may be seen as increased 'red tape'
- more efficient use of current investment by groups such as RDCs and farming organisations, and better linkage of this investment with methods of organisations such as ABARES that are trusted to produce robust, reliable data.

Attempting to modify existing data collections to achieve the needs of the AgriFood workforce alone is unlikely to be successful. For example, expanding classifications to ensure the CPH better reflects agricultural occupations and skills will help – but it will not address the lack of

inclusion of workers on temporary visas, or the need for more regular data collection. Additionally, changing existing data collection processes undertaken by the ABS often takes many years, and there is an urgent need for better data and information.

Recommendation 32

The Committee recommends that the Australian Government commission an analysis of the number of long-term AgriFood jobs in each region of Australia, and the future growth expected in these jobs.

The Committee considers this analysis will support the work of the Agriculture Workforce Data Analysis Unit.

Furthermore, the Committee believes that a specific, dedicated data development group that brings together those already collecting data and, where needed, collects additional data as well as improving consistency and coordination of current data collections, is needed. This group needs to be trusted by those within and outside the AgriFood sector, and adequately resourced, and structured to enable collaboration between the wide range of organisations currently collecting data.

A dedicated Agriculture Workforce Data Analysis Unit would provide core capability for workforce planning and action in the sector. Such a unit would also provide:

- a platform for greater understanding of workforce issues among stakeholders and in identifying areas for collaboration or joint action to address workforce issues
- a platform for evaluating initiatives undertaken through this Strategy, such as in education, regional initiatives and migration.

Recommendation 33

The Committee recommends that the Australian Government establish a dedicated Agriculture Workforce Data Analysis Unit in the Department of Agriculture, Water and the Environment to:

- develop a data architecture for government and the AgriFood sector
- acquire, build and make available high-quality datasets
- design and construct data models
- develop and update workforce demand and supply methodologies
- undertake data analytics
- utilise agile approaches to regularly publish market updates as well as short (seasonal), medium-term and long-term forecasts by commodity and region
- manage relationships between key stakeholders and data custodians
- operate as a clearing house for stakeholders.

The Committee recommends that the unit be supported by quadripartite advisory groups (representing government, industry, community and unions) to provide advice on the acquisition and analysis of data to ensure value for users.

8.7 Maintaining an AgriFood workforce research agenda

The investment currently being made by the 15 rural RDCs into understanding workforce supply and demand is significant. However, a lack of consistency in the methods and types of data collected across RDCs and farming representative bodies, and in the coordination of that data, means this information is not as useful as it could be. Particularly where there are farms producing a range of products that cross RDCs, farmers may receive multiple surveys from different organisations, and the full potential value of the data in providing a view of the workforce across different agricultural subsectors and regions is not currently being realised.

Beyond data on workforce demand and supply, research to support the AgriFood sector to understand the future of work, the skills needed and the implications of trends is an area of cross-RDC interest. Also, of interest is an understanding of employer attitudes, experiences and needs with regards to attraction, transition, retention and training of employees. Access to this data can enable RDCs and industry representative bodies to engage with education providers in a meaningful way about their training offerings in order to ensure the skills needs of the sector can be met.

However, the level of investment being made by the RDCs is not consistent. A number of RDCs recognise 'people' – their workforce – as a critical investment lever to improve the profitability, productivity and competitiveness of their industry. For example, Forest and Wood Products Australia invested in a series of reports examining employment, skills needs and other aspects of the forestry industry in Australia. The Cotton RDC, Dairy Australia (Box 43) and others conduct surveys of farmers that include collection of data on labour use and demand on farms.

Box 43 The Power of People on Australian Dairy Farms 2014 and 2017

Dairy Australia commissioned research among dairy farmers to:

- develop a profile of people on farm, as well as a profile of the farm owner
- better understand farmer attitudes, experiences, perceptions, behaviours and needs with regard to attraction, transition and retention of employees; developing skills and capabilities; and on-farm safety.

The research involved a 20-minute computer-assisted telephone interview with 401 dairy farmers in 2014 – providing a baseline for the sector. The research was repeated again in 2017 with 417 dairy farmers.

The research has enabled the dairy industry to develop a profile of the dairy workforce, by region, including the size and composition of the workforce – both domestic and overseas.

These data have guided Dairy Australia's investment in the 'Capable People' strategic priority and enabled Dairy Australia to evaluate investment outcomes.

Source: Dairy Australia 2019

In addition to the dedicated Agriculture Workforce Data Analysis Unit, there is considerable scope to increase the value of current investment by RDCs and industry representative bodies through establishing mechanisms for coordinated and consistent data collection that better use existing investment to produce data that are timely, consistent and able to provide broader insight into the agricultural workforce. Importantly, these data should be shared with AgriFood stakeholders – including the Agriculture Workforce Data Analysis Unit.

On 1 September 2020 the Australian Government announced its National Agricultural Innovation Agenda, which will provide national leadership and drive improvements across the agricultural innovation system. A key part of this reform agenda is the establishment of ambitious new mission-oriented investment priorities to address significant cross-sectoral challenges facing the Australian AgriFood sector. Targeted long-term missions for Australia's agricultural innovation system will help align and coordinate efforts to address shared national challenges and help Australia take advantage of strategic opportunities.

Recommendation 34

The Committee recommends that the Australian Government, as part of the National Agricultural Innovation Agenda, support coordination of research, development and extension (RD&E) efforts to understand the changing nature of the AgriFood work, careers, recruitment, retention and training needs, and implications of technology development on AgriFood workforce demand and supply.

8.8 Methods used to classify AgriFood workers are inadequate

Most data collected on the AgriFood workforce classify workers into occupation and industry categories using agreed definitions of occupations (ANZSCO classification) and industries (ANZSIC classification) (ABS 2006a, 2006b).

The Australian and New Zealand Standard Classification of Occupations (ANZSCO) provides a basis for the standardised collection, analysis and dissemination of occupation data for Australia and New Zealand. The first edition was released in September 2006, replacing the Australian Standard Classification of Occupations. In 2013, changes were made to better reflect contemporary requirements in the Australian and New Zealand labour markets at that time. In 2019 the ABS and StatsNZ undertook a refresh of skill level statements in ANZSCO. This refresh focused on updating the skill levels assigned to occupations. Creation or deletion of occupations or moving occupations to a different part of the classification was out of scope of the 2019 refresh.

Similarly, the Australian and New Zealand Standard Industrial Classification (ANZSIC) provides a basis for standardised definition of industries. Industries are classified in a hierarchy tree that has:

- divisions (Agriculture, Forestry and Fishing is one division)
- subdivisions (the Agriculture, Forestry and Fishing division contains 5 subdivisions: Agriculture; Aquaculture; Forestry and Logging; Fishing, Hunting and Trapping; and Agriculture, Forestry and Fishing Support Services)
- groups (the Agriculture subdivision is divided into multiple groups: Nursery and Floriculture Production; Mushroom and Vegetable Growing; Fruit and Tree Nut Growing; Sheep, Beef Cattle and Grain Farming; Other Crop Growing; Dairy Cattle Farming; Poultry Farming; Deer Farming; and Other Livestock Farming)
- classes (the Other Crop Growing group is divided into Sugar Cane Growing; Cotton Growing; and Other Crop Growing not elsewhere classified).

Box 44 summarises the challenges identified that limit the usefulness of the ANZSCO and ANZSIC classifications when using them to examine the AgriFood workforce.

Box 44 Limitations of current industry and occupation classification standards for the AgriFood workforce

ANZSCO is designed to classify all paid workers into a range of occupations that are organised into progressively larger groups on the basis of their similarities in terms of both skill level and skill specialisation.

ANZSIC is designed to classify all businesses based on their predominant activity. The groupings of businesses into industries is undertaken on the basis of similarity of their production functions (a term used to describe the transformation of inputs through the application of labour and capital to product outputs).

Classification of 'primary industry' workers in farming, fishing and forestry

Those working directly on farms are classified into a range of industry types, based on the predominant activity of the business running the farm, that separate different types of livestock and crop growing, as well as identifying those working in fishing and forestry. While reasonably detailed, this classification still has limitations – for example, forestry workers are not identified by whether they work in native forests or plantations (which have often separate activities), and only part of the typical diversity of farm operations is captured in classifications of farm types.

Classification of contractors and other providers of goods and services

The 'agricultural and fishing support services' category identifies those working in cotton ginning (although with cotton ginning often stopping before the Census data collection, job numbers will often be underestimated) and shearing. Beyond this it does not differentiate between other types of support services, despite the rapidly growing number of workers who provide a diverse range of support services to agricultural industries. While those providing some services are included in this category (particularly sowing, harvesting, fertilising, baling, dipping/drafting, wool classing, and some weed/pest control), others are not. In particular, those who provide professional services such as agronomy, veterinary and consulting services are classified into generalised industries that do not distinguish whether the services provided are for agriculture or other industries.

Classification of transport workers

Transport providers – critical to agriculture – are classified into freight transport categories that do not differentiate between types of freight. This means it is not possible to identify what proportion of transport employment results from demand originating at different points of the AgriFood supply chain.

Classification of manufacturing workers

ANZSIC has a fairly comprehensive set of categories for those working in different types of agricultural, fishing and forestry manufacturing processes.

Occupational classifications in ANZSCO in general have not kept pace with changing skill levels required, or emerging and new occupations within the AgriFood workforce.

Source: Prof. Jacki Schirmer, pers. comm., August 2020

From submissions and other evidence provided to the Committee, it was clear that the current structure of ANZSCO:

- attaches low skill levels to many on-farm occupations, which does not reflect the changing skill levels of these jobs owing to technology and innovation adoption, farm consolidation,

corporatisation, more sophisticated land and animal management techniques being employed, and regulation increases

- does not appropriately recognise the rise of a middle tier of on-farm occupations with decision-making authority and higher skill sets than the labour category indicates
- does not reflect the granularity in AgriFood occupations and consequently AgriFood workforce data (Box 45)
- complicates industry efforts to address recruitment difficulties through migration avenues.

Box 45 Examples of limitations of ANZSCO for classifying types of AgriFood workers

Model Code of Practice for the Welfare of Pigs

The Model Code of Practice for the Welfare of Pigs, an enforceable piece of welfare law enacted by each state, requires all stockpersons working with pigs to be competent to maintain the health and welfare of the animals in their care or be under the direct supervision of a competent stockperson. A Certificate III in Agriculture (Pork Production) qualifies a person as being suitably qualified.

The relevant occupation in ANZSCO, livestock farm worker (841599) with skill level 5, is insufficient to cover the range of livestock farm workers in the pork industry, which at a minimum comprises senior stockpersons, stockpersons and workers.

Horticulture Industry Labour Agreement

The Horticulture Industry Labour Agreement stemmed from consultations with horticulture associations and growers. These stakeholders conveyed the difficulty of recruiting skilled and non-skilled labour, particularly for those in more regional areas.

Existing migration visas were not seen as helpful, not only because skill lists consider demand at a national level but also because they are reliant on ANZSCO. Of the 31 occupations specified in the Horticulture Industry Labour Agreement, 19 do not currently have a specific ANZSCO code.

Source: Consultation with Australian Pork Limited and AUSVEG

8.8.1 ANZSCO has adverse implications for access to services

ANZSCO is used by governments to determine eligibility for some programs. Importantly for the AgriFood sector, this includes access to skilled migration visas and vocational education and training subsidies for mid-skill-level roles and/or priority skills.

An updated ANZSCO that better recognises the breadth and depth of AgriFood occupations would benefit businesses by enabling the workforce to be better captured in data collections and better represented in government programs that utilise ANZSCO to determine eligibility for skilled migration visas. Possible changes could include ensuring that occupations with significant on-the-job training are recognised as having higher skill sets; better capturing the large numbers of people working in agricultural contracting and their wide range of specialised skill sets; and better capturing data on the different types of service, supply and transport-related labour requirements of the AgriFood sector.

In addition to changes to ANZSCO, a review of ANZSIC is also necessary to better reflect linkages across the agricultural supply chain. There is a need to bring data together from different ANZSIC divisions that provide direct and indirect services to AgriFood industries.

Recommendation 35

The Committee recommends that the:

- ANZSCO classifications be reviewed and expanded by the Australian Bureau of Statistics, with collaboration across government agencies, to better reflect current AgriFood occupations.
- ANZSIC classifications be reviewed and expanded by the Australian Bureau of Statistics, with collaboration across government agencies, to better reflect industry linkages across the supply chain.

The Committee recommends that in the shorter term, development of interim expanded standards that can be used by those collecting and classifying agricultural workforce data is needed. In the longer term, these should be incorporated into revisions of ANZSCO and ANZSIC.

9 Working together to implement the Strategy

The Committee heard, and this Strategy has outlined, the considerable work underway (and under development) to attract, retain and develop a diverse, skilled AgriFood workforce for the 21st century. This work spans all levels of government, across portfolios within governments, and across the rural research and development corporations (RDCs), other research organisations, industry representative bodies and employers.

The recommendations outlined in the Strategy build on this work, and are designed to:

- improve the collection, analysis and dissemination of data on the AgriFood workforce
- attract new employees and create diversity in the AgriFood workforce
- improve capability in workforce planning and management, safety and wellbeing
- develop the skills of employers and employees – including in digital literacy
- encourage adoption of AgriTech
- attract and ethically treat the seasonal and transient workforce.

Critical to the successful implementation of the Strategy recommendations is cooperation and leadership. The Australian, state and territory governments across multiple departments should empower rural RDCs, other research organisations, industry organisations and employers to implement approaches that work in their jurisdictions – for their industries, employers and employees.

The Australian Government can, and should, play a key coordination role. The Australian Government can support these locally led approaches and encourage efforts to achieve greater cooperation among jurisdictions and AgriFood sectors – so that information and lessons learned can be shared and so that the sector builds on or complements existing approaches.

This chapter outlines recommendations to improve cooperation and leadership.

9.1 State and territory governments

As evidenced by the case studies throughout this Strategy, state and territory governments have been the drivers of many successful AgriFood workforce attraction, retention and development initiatives. For example:

- the Queensland Government's Rural Jobs and Skills Alliance (RJSA), which ensures there is a cross-sectoral, collaborative approach to address the workforce needs of Queensland's agribusinesses
- the New South Wales Government's AgSkilled Program, which provides fee-free part-qualifications to upskill the cotton, grains, horticulture, viticulture and rice sectors

- the Victorian Government's agriculture-related free TAFE courses, which have been prioritised because they lead to in-demand jobs in cropping, dairy, horticulture and livestock industries
- the Tasmanian Government's Agricultural Education Framework – Grow, Make, Protect – which identifies key links between schools, primary producers, industry and community to support student learning in agricultural education
- the South Australian Government's Flexible Industry Pathways for school students – including agriculture, horticulture and animal care – which will provide vocational education and training qualifications at Certificate I to III level for students in years 11 and 12
- the Western Australian Government's WA College of Agriculture, offering agriculture-focused education and training programs for young people in years 10, 11 and 12 across 5 regional campuses
- the Northern Territory Government's trial arrangements for controlled Seasonal Worker Programme recruitments following the effects of the pandemic, including stringent conditions to ensure health and safety.

State and territory governments' education portfolios have constitutional authority over education and their agriculture portfolios deliver industry policy and research, development and extension (RD&E) programs. Cooperation between agriculture and education portfolios has underpinned successful initiatives in many jurisdictions.

9.2 Australian, state and territory governments

Cooperation between the state and territory governments and the Australian Government is important to facilitate the pursuit of shared interests and cross-jurisdictional policy objectives around the AgriFood workforce. This includes exchanging information on the status of the AgriFood workforce and current and emerging workforce and education initiatives being progressed by governments.

The Agriculture Senior Officials' Committee (AGSOC) comprises the department heads and CEOs of the Australian, state, territory and New Zealand government agencies responsible for primary industry policy issues. AGSOC provides for cross-jurisdictional cooperative and coordinated approaches to matters of national interest and supports the Agriculture Ministers' Forum (AGMIN) in achieving its objectives. AGSOC has a number of subcommittees and task groups that report to it for defined work. The AGSOC Labour Working Group was formed in 2018 and is chaired by the Department of Agriculture, Water and the Environment (Box 46).

Box 46 AGSOC Labour Working Group

The AGSOC Labour Working Group aims to provide a point of coordination for agriculture departments on labour issues including attracting people to jobs in agriculture, agricultural vocational education and training and initiatives to reduce exploitation of seasonal workers.

The roles and responsibilities of the working group are to:

- provide a mechanism for cross-jurisdictional consultation on agricultural and workforce matters
- support cross-jurisdictional coordination on pandemic-related agricultural workforce matters

- support the development of, and inform the response to, the National Agricultural Workforce Strategy
- report to AGSOC on the impact on jurisdictions of recommendations in the Migrant Workers' Taskforce report
- provide advice on agricultural labour supply and demand issues in states and territories
- consider and advise on skill requirements for the agricultural workforce in the short, medium and long terms.

A key strength of the working group is that it leverages government–industry networks efficiently, as state and territory members of the group receive intelligence and advice directly from their industry stakeholders.

Importantly, the working group has been instrumental in collating and providing 'on-the-ground' information and intelligence to support AGSOC and AGMIN in the development and implementation of measures to support the agricultural workforce during the current pandemic.

The Committee is pleased that the AGSOC Labour Working Group's terms of reference have already been updated to include support for the development of, and response to, this Strategy. Members of the working group were instrumental in supporting the Committee during public consultation on the discussion paper. The Committee considers that the working group will again be instrumental in driving collaborative implementation of the Strategy and providing on-the-ground information and intelligence in the development and implementation to responses to AgriFood labour supply and demand issues as they arise.

In Recommendation 1, the Committee recommended that AGMIN, at their next meeting, endorse the main message of this Strategy, namely that Australian AgriFood is a complex and sophisticated system that will thrive in the 21st century only if all its component parts give top priority to continuous capability development of their entire workforce, including owners, managers and workers. This Strategy should inform strategic discussions on the AgriFood workforce between Australian, state and territory ministers at AGMIN and Australian, state and territory senior officials at AGSOC.

Recommendation 36

The Committee recommends that the Agriculture Ministers' Forum (AGMIN) and Agriculture Senior Officials' Committee (AGSOC) commit to ongoing strategic discussions on the AgriFood workforce at their 6-monthly meetings.

9.3 The Australian Government

The Australian Government is responsible for a suite of policies and programs that contribute to the development of the AgriFood workforce. Relevant agencies and areas of responsibilities include:

- Department of Education, Skills and Employment – responsible for education and employment policy and program settings, including the Seasonal Worker Programme and Harvest Trail Services. Note that the National Indigenous Australians Agency is responsible for administering the Community Development Program (remote employment program)
- Attorney-General's Department – responsible for workplace health and safety, workplace relations policy development, advocacy and implementation

- Department of Foreign Affairs and Trade – manages the Pacific Labour Scheme
- Department of Home Affairs – responsible for visa policy and program settings and arrangements for the settlement of migrants
- Department of Social Services – responsible for social security payments, such as JobSeeker
- Department of Agriculture, Water and the Environment – responsible for agricultural policy and liaison and coordination across government on agricultural workforce issues
- Rural RDCs – the 15 rural RDCs (also in the agriculture portfolio) have a role in commissioning RD&E on a broad spectrum of issues affecting agricultural industries, including workforce.

There is presently no formal mechanism for Australian Government agencies to engage on AgriFood workforce issues generally – issues that cut across education, skills, employment, workplace health and safety, workplace relations and visa policy and program settings. The Committee heard there was a need to improve the efficiency and effectiveness of policy and program responses and their strategic connection with AgriFood workforce needs.

The Committee considers that collaborative implementation of the Strategy, as well as the development and implementation of responses to AgriFood labour supply and demand issues as they arise, will be best supported at the Commonwealth level through the establishment of an AgriFood workforce interdepartmental committee (IDC).

Recommendation 37

The Committee recommends that the Australian Government establish an AgriFood Workforce Interdepartmental Committee (IDC) chaired by the Department of Agriculture, Water and the Environment to drive collaborative implementation of the Strategy recommendations and develop and implement responses to AgriFood labour supply and demand issues as they arise.

The Committee recommends that the AgriFood Workforce IDC be heavily informed by the work of the Agricultural Workforce Data Unit within the Department of Agriculture, Water and the Environment.

Comprehensive coherent, accurate and timely AgriFood workforce data is a foundational requirement for more effective strategic collaboration among Australian Government agencies – as well as among Australian, state and territory governments.

The Committee suggests that the AgriFood Workforce IDC consider how best to achieve meaningful cooperation with industry bodies, rural RDCs, other research organisations and unions on implementation of the Strategy recommendations and labour supply and demand issues more generally, as needed. For example, the Committee recommended that the Agriculture Workforce Data Analysis Unit (Recommendation 33) be supported by an advisory group/s to provide advice on the acquisition and analysis of data to ensure value for users. The Seasonal Worker Programme Advisory Group could provide advice on approaches to bring the Seasonal Worker Programme and the Pacific Labour Scheme closer together and reduce administrative burden (Recommendation 20). The IDC may also consider utilising this Committee, whose terms of reference include the provision of advice to government.

9.4 Australian Government-funded bodies

Australian Government support for research and development in the AgriFood sector is managed by a suite of statutory and not-for-profit industry bodies, including:

- the 15 rural RDCs
- the Food and Agribusiness Growth Centre, Food Innovation Australia Ltd
- the Modern Manufacturing Strategy and the Advanced Manufacturing Growth Centre
- cooperative research centres (including the CRC for Developing Northern Australia, CRC for High Performance Soils, CRC for Honey Bee Products, Fight Food Waste CRC, Food Agility CRC, Future Food Systems CRC and iMOVE).

Greater strategic cooperation is required across these bodies to provide the strong institutional leadership necessary to drive change, underpinned by the critical mass of investment necessary to make it happen. This will maximise the public benefit from the taxpayer funds these institutions receive. These institutions require a renewed focus on developing expertise in all facets of the AgriFood workforce – including human resource management, business management and extension skills.

The Committee is strongly supportive of recent actions and proposals to increase collaboration among these institutions. These include:

- the creation of Agricultural Innovation Australia (AIA), formed by the 15 rural RDCs coming together to drive cross-industry research, to leverage private sector investment and to target transformational innovation. AIA will be managed by an independent, skills-based board, and invest in strategies that address shared challenges and opportunities to deliver transformative outcomes for the AgriFood sector
- the formation of a Coalition of AgriFood CRCs.

Recommendation 34 – that coordinated RD&E relating to the AgriFood workforce be supported through the National Agricultural Innovation Agenda – will also increase collaboration among research and development organisations.

9.5 Leadership by the Department of Agriculture, Water and the Environment

The Department of Agriculture, Water and the Environment has a deep understanding of the AgriFood sector and the workforce issues it faces – and productive working relationships with AgriFood stakeholders. While the department does not have policy responsibility for education, skills, employment, workplace health and safety, workplace relations and visa policy and program settings, it can bring valuable information and insights to strategic discussions.

The Department of Agriculture, Water and the Environment:

- draws on the ABARES annual farm surveys and standalone studies to provide insight into labour force dynamics in the AgriFood sector
- engages formally and informally with, and draws on surveys and reports commissioned or produced by, industry representative bodies and the rural RDCs

- engages with colleagues in the state and territory agriculture departments to exchange information on agricultural labour supply and demand issues in jurisdictions, including through the AGSOC Labour Working Group
- engages with colleagues across Australian Government departments on policies and programs to support the agricultural workforce, including through participation in the Migrant Workers Interagency Group, Pacific Labour Mobility IDC, Regional Pilot Advisory Committee, Seasonal Worker Programme Advisory Committee and Working Holiday Maker Cross Agency Committee.

The Committee considers that the Department of Agriculture, Water and the Environment can and should play a stronger leadership role to ensure cooperation across government by the agencies implementing initiatives, in order to remove duplication and implement targeted responses that will help the AgriFood workforce. The establishment of an Agricultural Workforce Data Analysis Unit (Recommendation 33) within the department will provide it with the data needed to inform policies, programs and investment decisions – at the national, state and territory and local levels.

Appendix A: National Agricultural Labour Advisory Committee Terms of Reference

Purpose

The purpose of the National Agricultural Labour Advisory Committee (the Committee) is to help progress the National Agricultural Workforce Strategy (the Strategy) and to advise the government on farm labour and agricultural sector workforce challenges. The Strategy provides the opportunity to comprehensively assess the workforce needs of the agriculture industry.

Scope

The Committee will:

- prepare the Strategy, including considering and examining:
  - the current and expected future agriculture industry workforce and skill needs.
  - the current and expected demand and supply of labour for the agricultural supply chain to meet future agriculture industry workforce and skill needs.
  - the effectiveness of current education and training arrangements, including programs designed to promote agricultural careers to students, at meeting the agriculture industry's workforce and skills needs.
  - best practice examples and case studies of agricultural workforce development and potential innovative approaches aiming to deliver better outcomes.
  - the outcomes from any other relevant reviews, consultation to date and inputs made by industry groups.
- as requested by government, provide specialist advice on farm labour and agricultural sector workforce challenges.

Note: 'agriculture industry' includes the agriculture, fisheries and forestry industries and their closely allied service and supply chain industry sectors.

Background

The Australian agriculture industry is changing, including through:

- the adoption of technologically advanced equipment and techniques
- the emergence of internationally competitive industry and business structures
- production changing to favour regions or products that are competitively advantaged
- a trend towards supplying premium food and fibre products.

At the same time as these changes are occurring, research suggests there is a lack of understanding about career prospects in the industry. There are also concerns about the ability

of current education and training initiatives to upskill the industry workforce in response to the changes listed.

The situation is dynamic. Responsibility for developing the agricultural workforce is shared between a suite of Commonwealth and state and territory government agencies, industry representative and private sector stakeholders. Workforce development initiatives undertaken by these groups confront opposing forces from environmental, economic and social factors, such as drought or poor commodity prices.

The Strategy will recommend potential actions to address the agriculture industry's future workforce needs. These actions will target school education, vocational education and training and higher education to attract, retain and upskill the domestic workforce and identify where access to a migrant workforce will be necessary to meet the industry's workforce needs.

Membership

The Committee will be chaired by an independent chair and up to 12 other members with relevant skills and experience in agriculture, fisheries or forestry industries, related agricultural supply chain industries, education and training and/or the future of work.

Other external experts and participants may be invited by the chair to discuss particular agenda items.

Consultation

National consultation will be undertaken to inform the development of the Strategy. The Committee will decide on the details of the consultation required to develop the Strategy.

Operation

Unless otherwise arranged, the Committee will meet at least 3 times to support the development of the Strategy, which is expected to take 9 months to complete. There will be flexibility in whether meetings are conducted in person or by other means such as teleconferencing.

The Committee will develop a work-plan to address the Terms of Reference. This could include commissioning expert advice or other assistance, if required.

Reporting

The Committee will report the outcomes and advice from the meetings to the Minister for Agriculture, Drought and Emergency Management. Once completed, the Strategy will be submitted to the Minister for Agriculture, Drought and Emergency Management and then published.

Secretariat

The Department of Agriculture, Water and the Environment will provide secretariat and administrative support for the Committee.

Funding

The activities of the Committee and the secretariat will be funded by the Department of Agriculture, Water and the Environment.

Term

The Committee is expected to operate for up to 2 years.

Appendix B: Committee membership and acknowledgements

Committee membership

Chair – Mr John Azarias

Areas of expertise: Public policy

John Azarias is a former senior partner for one of the Big Four consulting firms.

He has been commissioned to provide advice on foreign affairs (his Report into Australia–EU Relations, 2002); Defence (Defence Management Review (2006) – panel member); and immigration (Temporary Skilled Migration (457) Program (2014) – chair of panel). He was also commissioned by the states and territories to provide advice on state–federal relations (his 2018 report providing a blueprint for the Board of State and Territory Treasurers).

He is the co-founder of the Lysicrates Foundation, which supports new Australian playwriting.

Deputy Chair – Professor Ruth Nettle – Leader, Rural Innovation Research Group, University of Melbourne

Areas of expertise: Research, rural innovation and workforce development

Professor Ruth Nettle leads the Rural Innovation Research Group in the Faculty of Veterinary and Agricultural Science at the University of Melbourne.

Ruth has worked in a range of roles within the agricultural sector, including agricultural extension. She completed a PhD in 2001 on the changing social organisation of farming systems to an employed workforce, and her research focus is on resilience and application of technologies in farming systems, human resources management, rural workforce development and agricultural extension policy and design.

Her research into farm employment relations, the attraction and retention of employees, the design of farm systems to suit people and industry workforce planning and action has been used in capacity-building efforts by agricultural industries in Australia, New Zealand and Ireland.

Ruth is a member of the International Association of Work in Agriculture, of which a key focus is the future of work in agriculture globally.

Deputy Chair – Mr John Williams

Areas of expertise: Rural sector, business ownership/management and government relations

Former Senator John Williams was elected to the Senate for New South Wales in 2007 and re-elected in 2013 and 2016. Over a decade in the Senate, he chaired various Senate committees, including the Environment and Communications Legislative Committee and the Regulations and Ordinances Committee. He was also appointed as the Nationals Whip for 8 years.

Before entering Federal Parliament, John had a diverse range of occupations in the rural sector, including as a business owner, truck driver, shearer and farmer.

Mr Will Barton – Chief Executive Officer, Gundagai Meat Processors

Areas of expertise: Agribusiness and food supply chain

Will Barton is the CEO of Gundagai Meat Processors – a third-generation family business and one of Australia's most innovative, progressive and trusted lamb processors.

Will has a wide range of agribusiness experience across a variety of food and fibre sectors throughout the Asia-Pacific. His career began by studying for an Associate Degree in Food Science and working in the family business.

He then pursed a career in property valuations specialising in agribusiness assets. In 2009 he completed a Bachelor of Applied Science (Valuation) with Honours First Class at RMIT University. In 2012, Will and 3 of his colleagues established an agribusiness group within CBRE (the world's largest commercial real estate services firm).

In early 2014, Will returned to Gundagai Meat Processors, where he is focused on delivering the company's vision for a sustainable and thriving food supply chain.

Industry Professor Hermione Parsons – Director, Centre for Supply Chain and Logistics, Deakin University

Areas of expertise: Research, international and national supply chains

Dr Hermione Parsons is an industry professor and founding director of Deakin University's Centre for Supply Chain and Logistics.

Hermione has extensive executive management experience in public and private sector organisations with responsibility for port landside logistics, multimodal transport infrastructure, competition, regulation, supply chain re-engineering in the fresh produce industry, and industry–government relations. Her areas of research expertise include end-to-end supply chain strategy, managing supply chain complexity, and problem-solving port freight logistics in metropolitan, regional and international markets (Australia and South-East Asia).

Hermione is Chairperson of the Wayfinder: Supply Chain Careers for Women Initiative; non-executive director of Food Innovation Australia Ltd; member of the VicTrack Board's Freight Advisory Committee; Chairperson of the Supply Chain Advisory Network; and member of the National Freight Data Hub Steering Committee. Recently Hermione was a member of the Australian Government National Food Waste Strategy Steering Committee and the Australian National Food Traceability Program, and she is often called on to join a broad range of national and state government freight logistics and supply chain related committees and councils.

Hermione holds a PhD in Supply Chain from Monash University, a Master of Urban Planning from the University of Melbourne; a Bachelor of Arts (Hons) in Systems Geography from Monash University and a Graduate Diploma of Education from the University of Melbourne, and is a Graduate of the Australian Institute of Company Directors.

Hermione was recognised as one of the 100 Most Influential Women in Supply Chain in the Global Women Supply Chain Leaders Awards 2020 by B2G.

Mr Geoff Richards – Managing Director, Richgro

Areas of expertise: Vocational education and training, agriculture

Geoff Richards has an established background in vocational education and training in the agricultural sector. He is the former Chair of AgriFood Skills Australia (the former Vocational Education and Training Skills Council for the agriculture industry), the Food, Fibre and Timber Industries Training Council (WA) and the Nursery and Garden Industry Training Committee.

Geoff is the Managing Director of Richgro, a family-operated garden products supply company servicing the garden industry since 1916, with a focus on environmental sustainability.

Ms Julie Aldous – Industry Education Liaison, NELLEN and NE Tracks LLEN, Victoria

Areas of expertise: Secondary education, vocational education and training, agriculture, rural sector

Julie Aldous has over 40 years' experience in education and a lifetime in agriculture and small rural communities. Julie implemented an award-winning school–industry course, creating important partnerships between Certificate II students and mentors in local industries.

She is employed by Victoria's North East Local Learning and Employment Network to implement the workforce development project model in Agribusiness/Horticulture and Health Care / Social Assistance in schools across the region. This provides exciting, applied learning industry environments while scaffolding career pathways for students.

Julie's work has been widely recognised and she was the recipient of the Victorian Rural Women's Award in 2014.

Dr Angeline Achariya – Executive Director, Innovation and Growth, Simplot Australia

Areas of expertise: industry, food and agribusiness, commercialising innovation, Asia and international business

Dr Angeline Achariya has more than 20 years of commercialising international innovation and leadership experience. She has held executive leadership positions at MasterFoods Japan, Mondelez International, Yum! Brands and Fonterra. She has led teams across innovation, strategy development, market expansion, R&D, quality, regulatory, and packaging functions. Her leadership has led to more than 1,000 innovations being brought to market globally.

Angeline most recently set up a world-first food innovation hub in Australia and over its 6-year journey enabled more than 7,000 food and beverage organisations to collaborate and co-create, leading to significant impact in supporting the Australian food and AgriFood sectors to be in a strong position to leverage growth through commercialising innovations.

Angeline has served on a number of government, academic and industry advisory boards. She was involved in the launch of the 2016 Victorian Food and Fibre Strategy. As a member of the Regional Development Australia Melbourne East Committee, she was closely involved in the development of the Melbourne East Regional Plan 2020 to increase the region's economic output.

Mr Robert Hinrichsen – Co-owner, Kalfresh

Areas of expertise: Industry, innovation and soil science

Robert Hinrichsen is a third-generation farmer and the founding director of Kalfresh Vegetables since 1992. Robert and his father formed Kalfresh as a cooperative of local fruit and vegetable growers, growing, packing and marketing produce under a single brand. This uniting of smaller family farms afforded the Kalfresh business an economy of scale allowing them to invest in technology in the paddock and in the packing shed, which enabled improved productivity, better products and expansion into domestic and overseas markets. Kalfresh has quickly grown to become one of Australia's major supplier of carrots and green beans.

In 2016, Robert was named AUSVEG Grower of the Year, in recognition of the innovations made in the paddock to improve environmental sustainability and soil health.

Robert is a member of the Horticulture Innovation Australia Ltd farm productivity reference group.

Mr Clayton Nelson – Senior Executive, Austral Fisheries

Areas of expertise: Seafood industry

Clayton Nelson has extensive experience in the seafood industry. His career has spanned 40 years, from deckhand to skipper, and in 1997 he became a partner and Executive Director of ASX-listed Deep Sea Fisheries Ltd, and Director of Operations for Tiger Fisheries. During that period, he served on a number of Australian Government fisheries research and management committees.

In 2008, Clayton launched Jamaclan Marine Services to provide consultancy services to the Australian fishing industry. In 2011, he established a small boutique fishing company to fish for Rottnest Island scallops out of Fremantle, WA. Clayton was a director of the Western Australian Fishing Industry Council from 2011 to 2017 and served as chairman in 2017.

Clayton plays a significant role at Austral Fisheries, establishing its newest fishing operation in the Timor Reef Fishery.

Associate Professor Jacki Schirmer – Associate Professor, University of Canberra

Areas of expertise: Research, rural and regional communities, human wellbeing, forestry and natural resource management

Jacki Schirmer is an Associate Professor at the University of Canberra, where she leads the Regional Wellbeing Survey, an annual survey examining the views of 13,000 rural and regional Australians about the liveability and resilience of their community, and their own wellbeing and resilience.

Her personal research interests focus on examining the social impacts of changing access to natural resources (water, forests, fisheries and agricultural land); community acceptance of natural resource management; and supporting resilience, adaptive capacity and wellbeing in regional communities.

Jacki is committed to ensuring that the Australian forestry industry provides a benefit to rural communities and workers and reduces any adverse social impacts. She was a director of the Forest Stewardship Council of Australia from 2013 to 2018.

Acknowledgements

The Committee thanks the businesses, education and training providers, peak industry bodies from agricultural services and production industries, union representatives and Commonwealth and state and territory officials who contributed to the recommendations of the Strategy.
We benefited from having access to a number of subject-matter experts and people who shared their expertise and experience across the agricultural sector, including:

- Emeritus Professor Jim Pratley AM FASA – Charles Sturt University
- Neil Barr – independent researcher
- Professor Margaret Alston – University of Newcastle
- Professor Timothy Reeves – University of Melbourne
- Professor Salah Sukkarieh – University of Sydney
- Professor Joanna Howe – University of Adelaide.

The Agricultural Policy Division of the Department of Agriculture, Water and the Environment provided secretariat and research support for the Committee.

Appendix C: Consultation list

Businesses

African Mahogany Australia

AgCommunicators

Agerris

Agility Logistics

Agrology

ANZ

Arbre Forest Industries – Training and Careers Hub

Arrowfield Group

Austral Fisheries

Australian Paper

BackTrack Youth Works

Badalya

Baiada

Barton Deakin Government Relations

Best Employment

Bindaree Food Group

Blue River Group

Brand Tasmania

Buckley Farms

Burlington Berries

CBH Group

Central-Agri Group

Coles

Commonwealth Bank

COMPAC

Consolidated Pastoral Company

Coonamble Vet Surgery

Craig Mostyn Group

Crocodylus Park

Data Farming

Deloitte Access Economics

Di Monty Training Solutions

Elders

Ernst & Young

FABAL Operations

FAPIC

Farmers2Founders

Ferguson Australia Group

Fletcher International Exports

Food and Agribusiness Network

Forico

FreshAgenda

FreshLogic

Geoffrey Thompson Orchards

George the Farmer

Geraldton Fisherman's Co-operative

Glencore Agriculture

GrainCorp

Grove Juice

Gundagai Meat Processors

Harvest Road Group

Hewitt Cattle Australia Pty Ltd

HQPlantations

Humpty Doo Barramundi

Huon Aquaculture Group Limited

HVP Plantations

Hyne Timber

Ioionba Pastoral

Junior Indigenous Marine and Environmental Cadets Program

Kalfresh

Lenswood Apple Coop

Machinery Partnerships

MADEC

MAF Oceania

Mansfield Winemakers

Merced Farming

Meteora Agronomic Consulting

Minderoo Foundation

National Australia Bank

Natural Evolution Foods

Norske Skog

North Queensland Trawlers

Northern Co-operative Meat Company

Nutrien Ag Solutions

Oceanwatch

Onefortyone Forestry

Pinata Farms

Plantation Management Partners

Quality Innovation Training and Employment

Reliance Forest Fibre

Richgro

Rimfire Resources

RMCG Consulting

Robert Bosch

Simplot Australia

Skills Impact

Sumich

Sydney Fresh Seafood Group

TARN Food Consulting

Tasmanian Agricultural Company

TASSAL

Tenacious Venture

Teys

The Connect Group

The Infrastructure Collaborative

The Lucas Group Pty Ltd

The Wickerman Group

Think Digital

Thoroughbred Industry Careers

Westpac Agribusiness

Woolworths

XPotential

Australian Government

Attorney-General's Department

Australian Border Force

Australian Skills Quality Authority

Australian Taxation Office

CSIRO

Department of Agriculture, Water and the Environment

Department of Defence

Department of Education, Skills and Employment

Department of Foreign Affairs and Trade

Department of Health

Department of Home Affairs

Department of Industry, Science, Energy and Resources

Department of Infrastructure, Transport, Regional Development and Communications

Department of Social Services

Fair Work Ombudsman

National Careers Institute

Seasonal Worker Programme Advisory Committee

CRCs

CRC for Developing Northern Australia

CRC for Future Food Systems

CRC for High Performance Soils

CRC for Honey Bee Products

Fight Food Waste CRC

Food Agility CRC

International

Dairy New Zealand

Massey University New Zealand

New Zealand Apples and Pears

New Zealand Ministry of Primary Industries

New Zealand Primary Sector Council

Produce Marketing Association Australia-New Zealand

Canadian Agricultural Human Resource Council

Local governments

Bundaberg Regional Council

Gwydir Shire Council

Hay Inc

Northern Mallee Community Partnership

Mallee Regional Innovation Centre

Mildura Regional Development

Mildura Regional Innovation Centre

North East Local Employment and Learning Network

Northern Mallee Local Learning and Employment Network

Regional Development Australia Northern Inland

Regional Development Australia Riverina

Regional Development Victoria – Advancing Country Towns project

Western City and Aerotropolis Authority

Wimmera Development Association

RDCs

AgriFutures Australia

Australian Eggs

Australian Meat Processor Corporation

Australian Wool Innovation

Cotton Research and Development Corporation

Council of Rural Research and Development Corporations

Dairy Australia

Fisheries Research and Development Corporation

Grains Research and Development Corporation

Hort Innovation

Rural Health and Safety Alliance

Sugar Research Australia

Wine Australia

Representative bodies

AgForce

Apple and Pear Australia

Australian Livestock Exporters' Council

Australian Cane Farmers Association

Australian Chicken Meat Federation

Australian Council of Prawn Fisheries

Australian Dairy Farmers

Australian Dairy Products Federation

Australian Forest Contractors Association

Australian Forest Products Association

Australian Fresh Produce Alliance

Australian Grape and Wine

Australian Honey Bee Industry Council

Australian Livestock and Property Agents Association

Australian Livestock and Rural Transport Association

Australian Meat Industry Council

Australian Native Foods and Botanicals

Australian Prawn Farmers Association

Australian Southern Bluefin Tuna Industry Association

Australian Sugar Milling Council

Australian Veterinary Association

AUSVEG

Berries Australia

Birchip Cropping Group

Business Council of Co-operatives and Mutuals

Bowen Gumlu Growers Association

Canegrowers

Career Industry Council of Australia

Cattle Council Australia

Commercial Egg Producers Association of Western Australia

Cotton Australia

Crocodile Farmers Association of the NT

Crops Consultants Australia

South Australian Dairyfarmers Association

DairyTas

Dried Fruits Australia

Egg Farmers of Australia

Food Innovation Australia Ltd

ForestWorks

Fruit Growers Tasmania

Future Farmers Network

Grain Producers Australia

GrainGrowers

Growcom

Horticulture Coalition of SA

Irrigation Australia

Kimberly and Pilbara Cattlemen's Association

Livestock Contractors Association

Livestock SA

Minerals Council of Australia

National Farmers' Federation

National Meat Industry Training Advisory Council

NSW Farmers

NT Cattleman's Association

NT Farmers Association

NT Livestock Exporters Association

NT Road Transport Association

Nursery and Garden Industry

Pastoralists and Graziers Association of WA

Primary Employers Tasmania

Primary Industries Education Foundation Australia

Primary Producers South Australia

Queensland Farmers' Federation

Queensland Seafood Industry Association

Rice Growers Association of Australia

Shearing Contractors Association of Australia

Sheep Producers Australia

South Australian Wine Industry Association

Tasmanian Agricultural Productivity Group

Tasmanian Farmers and Graziers Association

Tasmanian Seafood Industry Council

Tasmanian Forests and Forests Product Network

Timber Queensland

Vegetables WA

Victorian Farmers Federation

WAFarmers

WA Fishing Industry Council

WA Shearing Industry Association

Western Rock Lobster Council

Wildcatch Fisheries

Wine Grape Council of SA

Wine WA

Wool Producers Australia

Research

Australian Population Research Institute

Dr Joanna Howe

Dr Neil Barr

Dr Nicole McDonald

Professor Margaret Alston

Regional Australia Institute

State and territory governments

Agriculture Victoria

Labour Hire Licensing Queensland

NSW Department of Education

NSW Department of Primary Industries

NT Department of Primary Industries and Resources

Primary Industries and Regions SA

Primary Industry Skills Council SA

Queensland Agriculture Workforce Network

Queensland Department of Agriculture and Fisheries

Regional Skills Training South Australia

Rural Jobs and Skills Alliance QLD

SA Agribusiness Industry Skills Council

SA Department for Innovation and Skills

SA Department for Education

SA Department of the Premier and Cabinet

Tasmanian Department of Education

Tasmanian Department of Primary Industries, Parks, Water and the Environment

Tasmanian Department of State Growth

Victorian Department of Education and Training

Victorian Department of Jobs, Precincts and Regions

Victorian Labour Hire Authority

Victorian Labour Hire Commission

Victorian Skills Commission

WA Department of Primary Industries and Regional Development

WA Department of Training and Workforce Development

WA Food, Fibre and Timber Industries Training Council

Tertiary and vocational

Australian Council of Deans of Agriculture

Australian National University

Charles Darwin University

Charles Sturt University

Curtin University

Deakin University

Hawkesbury Ag Ed Committee (to the Centre of Excellence in Agricultural Education, Richmond Agricultural College)

La Trobe University

South Regional TAFE

SuniTAFE

TAFE NSW

TasTAFE

University of Canberra

University of Melbourne

University of New England

University of Queensland

University of Southern Queensland

University of Tasmania

University of Technology Sydney

UNSW Sydney

Western Sydney University

Unions

Australasian Meat Industry Employees Union

Australian Workers' Union

Shop, Distributive and Allied Employees Association

Transport Workers' Union

United Workers Union

Appendix D: Submission list

Table D1 Submissions to the National Agricultural Labour Advisory Committee

No.	Submission[2]
1	Confidential[(a)]
2	Confidential[(a)]
3	Tous Garden PL
4	Australian Council of Deans of Agriculture
5	Craig Mostyn Group
6	Confidential[(a)]
7	Confidential[(a)]
8	Austral Fisheries
9	Confidential[(a)]
10	MINTRAC
11	Australian Academy of Science
12	Confidential[(a)]
13	Australian Fertiliser Services Association Ltd
14	Tuna Australia
15	The Australian Population Research Institute
16	Gwydir Shire
17	Agri Careers Advice and Consultancy Pty Ltd[(a)]
18	Charles Sturt University
19	Jan Lambert[(a)]
20	RDA Central and Western Queensland
21	Regional Development Victoria
22	George the Farmer
23	Bundaberg Regional Council
24	Egg Farmers Australia
25	Michael Schofield[(a)]
26	Thoroughbred Industry Careers
27	Crops Consultants Australia
28	Seafood and Maritime Training[(a)]
29	Plantation Management Partners
30	Wool Producers Australia
31	Confidential[(a)]

[2] (a) denotes that the author does not consent to publication

No.	Submission[2]
32	Bundaberg Fruit and Vegetable Growers Cooperative Ltd
33	Food, Fibre and Timber Industries Training Council
34	Australian Skills Quality Authority
35	Think Digital Studios
36	Development Policy Centre, Australian National University
37	Confidential[(a)]
38	Food and Fibre Gippsland[(a)]
39	Australian Meat Industry Council
40	Wildlife Management International Pty Ltd
41	Primary Industries Education Foundation Australia
42	Tasmanian Forests and Forest Products Network
43	SA Government – Department for Education Further Education and Pathways – VET for Schools
44	NT Farmers
45	Macquarie Group
46	BBM Youth Support
47	Tasmanian Farmers and Graziers Association
48	Centre for Supply Chain Logistics
49	NSW Apiarists' Association
50	Beverley Middleton
51	Seafood Industry Australia[(a)]
52	Dairy Jobs
53	NSW Department of Primary Industries
54	Junior Indigenous Marine & Environmental Cadets Program
55	Australian Honey Bee Industry Council
56	Farmers2Founders
57	Australian Grape and Wine
58	CBH Group
59	Wine Australia
60	Institute of Foresters of Australia & Australian Forest Growers
61	South Australian Wine Industry Association
62	Julie Aldous
63	Brand Tasmania
64	Red Meat Advisory Council
65	Mallee Regional Innovation Centre
66	Grain Producers Australia
67	Cotton Australia
68	Department for Innovation and Skills – SA Government / SA AgriBusiness
69	Inspire AG
70	Rural Economies Centre of Excellence University of Southern Queensland

No.	Submission[2]
71	Skills Impact
72	Dairy Australia and Australian Dairy Farmers
73	ForestWorks
74	United Workers Union
75	CropLife Australia
76	OneFortyOne
77	CaneGrowers
78	Wimmera Development Association
79	Australian Council of Prawn Fisheries
80	Australian Chicken Meat Federation
81	Tocal College, NSW Department Primary Industries
82	University of Southern Queensland[(a)]
83	Uniting Church in Australia, Synod of Victoria and Tasmania
84	Confidential[(a)]
85	Australian Workers' Union[(a)]
86	Coalition of AgriFood CRCs
87	Queensland Farmers' Federation
88	Australian Fresh Produce Alliance
89	Tocal College (NSW DPI) and CJ & RJ Hooke (Family Dairy Enterprise)
90	Citrus Australia
91	Business Council of Co-operatives and Mutuals
92	Growcom
93	Di-Monty Training Solutions
94	Charles Darwin University
95	Forest Industries Federation WA
96	University of Technology Sydney
97	Confidential[(a)]
98	Tasmanian Government
99	Fruit Growers Tasmania
100	AUSVEG
101	Australian Forest Products Association
102	Australian Prawn Farmers Association
103	University of Melbourne
104	University of Adelaide
105	Australian Meat Processor Corporation
106	University of Tasmania – Tasmanian Institute of Agriculture and the University College
107	Grains Research and Development Corporation
108	GrainGrowers
109	National Farmers' Federation
110	ProTen Pty Ltd
111	Government of NT – Department of Primary Industry and Resources

No.	Submission[2]
112	Government of WA – Department of Primary Industries and Regional Development
113	Government of SA – PIRSA (Primary Industries and Regions)
114	AgForce Queensland
115	NSW Farmers
116	Australian Pork Limited
117	Confidential

Appendix E: AgriFood workforce initiatives

The Committee heard of innovative approaches to deliver better outcomes for the AgriFood workforce across the country. Some of these approaches were being expanded, and others replicated in other industries or regions. The committee also heard of new approaches under development – or being piloted on a smaller scale prior to broader rollout. Existing and proposed initiatives are in Table E1 List of initiatives

Table E1 List of initiatives

Sustainability

Initiative	Description
Blue Lake Milling – Bordertown South Australia	Commissioning has started on an anaerobic digester plant that takes the processing waste (oat husk) from the oat milling plant that produces hulled oats for rolling into breakfast/ muesli oats. Production of the methane gas from the waste powers the generator that then provides the electricity to power the whole oat mill. • It is based on the Richgro Anaerobic Digester plant in Jandakot WA that has been operating over 5 years and taking 150 tonne per day of food waste – producing over 2 MW power and 120 tonne per day of liquid organic fertiliser, which powers the whole Richgro plant.

Changing consumer expectations and private sector standards

Initiative	Description
Austral Fisheries – traceability	This blockchain tool allows Austral to share the story and journey of its products through engaging a digital experience in restaurants, seafood stores, online and on its products. OpenSC creates an unprecedented opportunity for producers at the beginning of the value chain to connect all the way through to end consumers. Moreover, the data OpenSC captures puts Austral at the cutting edge of scientific fisheries management and supply chain operations.
Coles – Nurture Fund (CNF)	Coles is helping Australian food producers with drought and disaster relief and offering support for innovative projects through the $50 million CNF. Launched in April 2015, the CNF helps small and medium-sized businesses to develop new market-leading products, technologies, systems and processes. The aim of the Nurture Fund is to drive product differentiation, extend growing seasons, improve productivity and reduce reliance on imports.
Woolworths – Organic Growth Fund	Woolworths is helping Australian fruit and vegetable producers to either start a journey to organic farming or grow existing organic production through the $30 million Organic Growth Fund. Launched in October 2018, the fund offers interest-free loans (in partnership with Heritage Bank) and grants, on top of contracted purchase volumes to support investment in organic farming projects. So far the fund has awarded loans and grants to multiple businesses over 3 funding rounds.

Supply chains

Initiative	Description
CBH – increasing gender diversity in technical and trades roles	CBH has found it challenging to attract qualified female tradespeople, particularly in regional locations through the wheatbelt. However, taking a long-term view, CBH is seeking to attract 4 to 6 female apprentices to train and develop into qualified trade roles, with a pilot program to initially run in its Albany, Geraldton, and Kwinana port zones.
Wayfinder: Supply Chain Careers for Women	Wayfinder is an industry partnership program so far involving 16 companies, together creating a new pipeline of women from all education backgrounds and experiences to enter an industry that currently has an ageing and largely male workforce. The focus is on building talent, capability and diversity to strengthen Australia's supply chain future.
Victorian Transport Association (VTA) – Driver Delivery Program	The VTA's Driver Delivery Program is a 9-day program that provides training to new drivers of heavy vehicles. The program is supported by the Victorian Government and is run in conjunction with Armstrong's Driver Education. The program is fully subsidised and this allows it to be offered at no cost to participants and employers. The program is designed specifically for highly motivated first-time drivers / drivers who are new entrants to the transport industry, and no previous heavy vehicle driving experience is required.

Value-adding

Initiative	Description
DEXA technology – better decisions and profits for businesses in the red meat supply chain	DEXA (Dual Energy X-Ray Absorptiometry) is an objective measurement tool that measures meat, fat and bone in a carcase (carcase composition). This information can help the entire red meat value chain make more informed business decisions to improve on-farm and processing efficiency and deliver a product that is preferred by consumers.
Eureka blueberries	Eureka blueberries are produced by Mountain Blue Farms. They are larger than traditional blueberries and result from the breeding of 2 existing varieties. Mountain Blue Farms has strong links with World Vision and in 2019, 5 cents from every punnet purchased was donated to World Vision to support farmers in Africa and Asia to adopt regenerative farming practices.
FAPIC Global – BITE Food	The BITE Food Innovation Lab is a proposed business initiative from FAPIC that bridges the gap between science and the market. BITE would be a collaborator across universities, research organisations and supplier networks, providing access to labs on a commercial basis to leverage their researchers in combination with food technologists and IP experts.
Monash Food Innovation Centre (MFIC)	Established in 2013, MFIC partners with the fast-moving consumer goods industry to address future challenges and unearth opportunities through leading design innovation, education and research in AgriFood
Mountain Milk – Alpine Dairy Pathways Program	Mountain Milk is a farmer owned dairy cooperative located in north east Victoria. It has developed a strong brand based around its commitment to triple-bottom-line social, environmental and regional development outcomes. With a view to creating a pathway for the next generation of farmers and generating pride in the industry, Mountain Milk developed the Alpine Dairy Pathways Program. This program allows secondary school students to meet farmers and other industry professionals and gain insight into the careers in the industry.
Northern Territory Government – scoping of a Top End food processing facility	As part of driving a northern agridevelopment sector, this is a proposal to build a new processing plant for service local beef, fish and horticultural produce in the Top End. The proposed facility could include both canning and dehydrated ration production. It would boost food security in the region and provide significant employment opportunities for new and already established AgriFood workers. The first step in the process is gathering the resources and capability to conduct a scoping study.

AgriTech

Initiative	Description
CRC AgriFoods Skills Gap Year	Proposal for a national program targeting school leavers that aims to bring critical digital skills into the AgriFood sector and inspire the next generation of AgriFood workers. The program would link industry with STEM-literate 17 to 19 year olds. It would provide a gap year intern with the opportunity to be mentored by industry leaders and gain hands on experience with the host business.
Farmers2Founders (F2F)	A program that builds producers' capabilities for entrepreneurship, innovation, and adoption of new and existing technologies. The program recognises that producers are the centre of these processes and offers pathways specifically designed to meet producers' needs in terms of skills training and time availability. Pathways include new venture programs for producers working on off-farm ideas or businesses, and early-adopter programs for producers who want to engage with AgriTech solutions earlier and more strategically but do not want to build their own startup.
Regional Skills Training – internet issues and available technology	A project that would work with pilot group rural businesses across Australia to explore internet reliability issues and software solutions and identify the skills required to competently use new technology. The project would concentrate on comparing the most useful apps and software programs that farmers could use. It plans to collate data over 2 years while working with a pilot group of 200 businesses.
Rural Jobs and Skills Alliance (RJSA) – building digital skills of the Queensland agriculture industry	A program to improve the digital understanding and capability in the agribusiness sector and drive the adoption of business-relevant technology. The program has arisen through discussions of a Queensland Agriculture Digital Skills Working Group convened in July 2020 to discuss how to increase the digital literacy of the sector and to develop a proposal that could be tested. The group comprises diverse government individuals, technology providers, industry groups and training providers that have an interest in digital agriculture and have been dealing with digital skills issues at different levels.
SuniTAFE and the Mallee Regional Innovation Centre – SMART Farm	A purpose-built and grown, training and research facility in Mildura that will utilise the latest innovations of digital farming, such as data integration, to transform horticulture training. The SMART Farm will demonstrate new discovery technologies, provide industry and students with the skills and knowledge for current and future digital farming jobs, and enhance the productivity of high-value horticulture across the Mallee.
University of Tasmania (UTAS) – Testlab	A targeted place-based community learning program focused on building the digital literacy of agricultural workers and reconnecting them with education and training. UTAS gathered that success is far more likely if learning experiences are codesigned with local communities and industry. Focusing on place and embedding local context, including future employment and skills development opportunities added relevance for participants.

Attraction and retention

Initiative	Description
Brand Tasmania – provenance storytelling and youth enterprise pilot	Brand Tasmania would work with producers and creators to craft and tell their digital stories to attract and develop the agricultural workforce by instilling a sense of pride in the sector. The youth enterprise portion of the pilot would create case studies and modules for the Tasmanian context of the Australian Curriculum in years 9 to 12.
Business Council of Cooperatives and Mutuals – Employee Retention Program Incentive scheme	A program that retains trained workers through seasonal peaks and troughs and through COVID-19. A labour hire cooperative supporting school leaver agricultural career pathways trialled by a cluster of agricultural cooperatives in the Northern Rivers region of NSW.
Business Council of Co-operatives and Mutuals – school to work pathway project and regional labour pool	Offering opportunities to school leavers to develop new skills across different agricultural industries would help retain a pool of local workers who can step into roles in various agricultural industries across seasonal demands while delivering efficiencies to participating employers. This is an innovative business model that has been used in other industries and jurisdictions but is underutilised in the Australian agricultural sector.

Initiative	Description
Coalition of AgriFood CRCs – AgriFood Skills Gap Year Program	The program connects AgriFood businesses that need workers and want to innovate, with school leavers looking for meaningful career options in the midst of an economic downturn, educating and inspiring a future AgriFood workforce, and injecting much needed digital skills into our AgriFood sector.
Grain Producers Australia	Grain Producers Australia has proposed development of a resource pack to support careers teachers and school advisers and/or job seekers with accurate and up-to-date information about the short-term and long-term job opportunities within the grains and broader agricultural sectors.
Grain Producers Australia – Have a break year in Australia	Grain Producers Australia has proposed creating incentives for local students and currently unemployed Australians to get out and explore Australian agriculture. A project could involve creating a map of grain industry activity timing and work opportunities across Australia with links to farm safety and machinery training to increase skill levels for potential workers.
Picture You in Agriculture	Picture You in Agriculture is a not-for-profit organisation working in partnership with like-minded organisations to identify, prepare and support emerging leaders (young Australians). The organisation delivers programs to showcase the diversity of careers and career pathway opportunities in the agricultural sector.
Rural Jobs and Skills Alliance Queensland – Agriculture to Schools Engagement Program	The program aims to build school–industry partnerships in Queensland to attract, inspire and provide informed career opportunities for young people to join the agriculture industries and help meet their future workforce needs. The program will provide real industry experiences that align with school curriculum and learning priorities; promote the industry and its career options to students, educators and careers advisers; help future generations to better understand their options for pathways to careers in agriculture; provide experiential learning to career seekers to explore their potential to work in agricultural industries; and provide individuals and groups with training and experiences to assist them to start a career in agriculture.
Seafood Industry Australia – SeaWork.com.au	This website would act as a conduit to all sectors of the seafood industry, with a direct connection to training, career paths and opportunities. The platform would provide an informative and accessible entry point for new workers into the industry. It would incorporate an online jobs portal, careers adviser via 24/7 live chat, Seasafe BlueCard, seasonal fishing calendar, further training or accreditation connector, powerful database creation, powerful marketing and promotional opportunities, and long-term sustainability and revenue sources. The methodology and source code can be made available for adoption by all sectors across the broader agricultural industry.
The Colman Education Foundation – (OurPlace) Connect U initiative	The initiative would provide a localised approach to resolve ongoing identified regional skills and workforce issues in agribusiness and related industries in the Robinvale/Euston region. It would develop a customised online career development platform that would provide a coordinated framework between schools, vocational training providers, higher education, industry and government employment agencies.

Education and training

Initiative	Description
Agriskills Entry Program	A subsidised program aimed at providing a pathway into employment and potential transition into either a Certificate II traineeship or Certificate III apprenticeship as part of the Tasmanian Government's COVID-19 recovery plan.
Arbre Forest Industries Training and Careers Hub	Arbre is a not-for-profit organisation established and funded by Tasmanian forest industry leaders to promote the forest industry and related jobs. The purpose of the hub is to facilitate the promotion of the forest industry training and careers with particular focus on harvesting, transport and silviculture; to provide information on those careers; to provide a training facility with in-field capability; to act as a referral agency to industry-endorsed training providers and to act as a conduit for people seeking a career in the forest industry to prospective employers.

Initiative	Description
Australian Fresh Produce Alliance – school to work pathway project and regional labour pool	A program that would provide a pathway for school leavers into regional agricultural jobs, done in conjunction with participating agricultural cooperatives.
Australian Fresh Produce Alliance – Graduate for Fresh Produce Management	A 2-year trial program that would provide subsidies for up to 200 graduate roles in fresh produce businesses.
Australian Fresh Produce Alliance – Horticulture Careers for Young Australians	A 2-year trial program with up to 500 roles available that would subsidise trainee supervisors in horticulture business, including the completion of a Certificate III or IV in Production Horticulture.
CBH Group – leadership pipeline	A program to attract, retain and develop future leaders into the agriculture industry.
Coalition of AgriFood CRCs – innovation intern graduate program	A one-year pilot program that would employ graduate innovation brokers to link together the work of the CRC, RDCs and industry partners.
Dairy industry accredited industry short courses	Short courses that are co-developed and/or co-delivered by registered training organisations (RTOs) and Dairy Australia through the regional development programs that target industry priority areas.
Dairy Learn	Dairy Learn was introduced by Dairy Australia in 2018, replacing the previous National Centre for Dairy Education. Its goal is to maximise the opportunity for all dairy learners in Australia to participate in high-quality learning experiences, which will allow our people to develop the skills, knowledge and experience they need to support personal growth, career success and industry profitability. It provides extension/education providers direct access to the materials and technical support they require via a dedicated portal. This ensures they have the best opportunity to provide high-quality services to the dairy sector.
Deakin University Centre for Supply Chain and Logistics (CSCL)	CSCL is a research centre focusing on freight logistics and value-added supply chains. It relocated to Deakin from Victoria University in 2017. Research at CSCL takes place through its research laboratories, a model developed at the Massachusetts Institute of Technology's (MIT) Centre for Transportation and Logistics. The model has been evolved by CSCL to leverage engagement with all stakeholders – a triple helix with university, industry and government working together to address the difficult issues that no single agency or institution can address alone.
Grain Producers Australia – joint industry/machinery business professional equipment training course	Based on Western Australia's Working Oz model, the proposed pilot program would expand the commercial equipment training into a one-year course that would provide scope for theory alongside hands-on training in the operation of heavy farm machinery and other critical equipment. The pilot would leverage collaboration with machinery companies and would investigate a 'franchising' of the program across other states.
NT Farmers – Ag Inspiration	A successful pilot program launched in October 2019 that supported 15 high school students through a career pathway initiative.
Queensland micro-credentialling pilot	A 3-year micro-credentialling pilot to provide focused training, including the design and delivery of unaccredited, industry-led skill sets for new or transitioning employees who need to improve specific skills.
Tasmanian Institute of Agriculture (TIA)	TIA began in 1997 as a joint venture between the University of Tasmania (UTAS) and the Tasmanian Government, bringing together the human and physical resources of the Tasmanian Government with the scientific research and teaching capacity of UTAS. With the recent signing of the new joint venture with UTAS, the state government is investing $28 million over 5 years into the TIA for the delivery of research, development and extension (RD&E).UTAS also invests in TIA directly and leverages research funding through RDC arrangements and other partners. UTAS has also developed online, flexible learning options for employers through short courses and diplomas such as the industry-supported Masterclass in Horticultural Business. More sector-specific courses are planned for rollout in 2021–22.

Initiative	Description
Rural Jobs and Skills Alliance (RJSA)	The RJSA was established in October 2015 to ensure there is a cross-sectoral, collaborative approach to addressing the workforce needs of Queensland's agribusinesses. This includes advice on attracting, training and retaining appropriately skilled agricultural workers – both now and in the future. Through the success of RJSA, a degree of capacity in workforce planning that benefits the whole agricultural sector has been developed. RJSA is a source of advice for Queensland and Australian Government employment and training agencies on labour market and training matters.
Thoroughbred Industry Careers – Explorer Cadetship program	A component of the Thoroughbred Industry Careers education and training package that provides a pathway to people to enter the industry through a 12-month horsemanship program that includes a 3-month residential 'boot camp' and 2 work placements (stud and stable).
Victorian Local Learning and Employment Network (LLEN)	The goal of each LLEN is to support all secondary school students within its geographical boundaries by developing partnerships that result in an increase in the number and range of school–employer engagement activities in local government areas. The objective of these activities is to increase the number of young people attaining work or post-secondary qualifications that ensure a successful transition into adult life. The LLEN network is composed of 31 incorporated associations that work collaboratively with their local secondary schools, tertiary education and registered training providers, business and industry, and community agencies.
Western Australia Skills Ready	A number of full-time TAFE courses and skill set short courses are being offered for free or discounted in identified areas of need including agriculture, as part of a WA Government COVID-19 response.
What's It Really Like' (WIRL)	A 'hands on' learning model that introduces Year 9/10 students to agricultural careers through the development of industry skills via Certificate II. Students enjoy this subject out from behind the desk in a year of mainstream school, making early contact with local employers, gaining valuable transferrable, work-related skills and the experience to make informed senior subject selections and vocational choices. Partnerships between local producers, the school and the RTO enable WIRL to be virtually cost neutral as it uses existing structures within Australia's education system.

Skills

Initiative	Description
Australian Forest Contractors Association (AFCA) and NSW Government – ForestFit	A training program that combines accredited and industry-endorsed training designed specifically for NSW forest contractors, which includes modules on safety leadership and people practices and leadership.
Australian Meat Processor Corporation – development of a research-based employee retention framework for the meat processing industry	A research program designed to understand the reasons behind the high turnover rates in the meat processing industry to provide evidence to support improved retention practices across the industry in the future.
Australian Meat Processor Corporation – Making the Meat Industry a Safer Place for Workers	An evidence-based project aimed at developing recommendations, activities and resources to further reduce the incidence and severity of injury claims in the meat industry.
Diploma of HR (Dairy)	As part of the People in Dairy Program, a custom-designed formal training qualification – the Diploma of Human Resource Management (Dairy) was established. The objective was for participants to gain skills and a qualification in identifying and managing people issues within a dairy-specific context and to be part of a new advisory network to support their continued learning and development.

Initiative	Description
Healthy Heads in Trucks & Sheds	Chaired by Paul Graham, Chief Supply Chain Officer at Woolworths, and an 'industry for industry' partnership of the many major logistics operators and customers, this program focuses on worker mental health and physical wellbeing as an everyday consideration for protection and operational safety. This significant cultural change process involves peak representative industry councils (for example, Australian Logistics Council and Australian Trucking Association) corporates and companies, end-to-end along the supply chain, implementing new human resources and best practice management processes. The program involves education and training, development of standards, and wellness initiatives to address mental and physical wellbeing in an effort to create mentally healthy thriving workplace cultures and communities across the sector nationally.
Junior Indigenous Marine and Environmental Cadets Program (JIME)	A program based in Cairns and the Tiwi islands that mentors young Aboriginal and Torres Strait Islander people through school-based traineeships, including work placements with local employers in marine and environmental industries.
NT Farmers Indigenous Agriculture Development Project	Will support Land Councils and all levels of government to encourage and assist Indigenous landowner groups to enter into the agriculture, forestry and fisheries industries.
Queensland Agricultural Workforce Network – Workplace Essentials Program	A workshop program that provides information and resources to farm business owners and managers to help them improve their workplace relations and workplace health and safety procedures and practices.
Regional Skills Training – Women and Leadership	A participatory research program designed to understand the barriers women considered limit them from an increased role in leadership at farm, community and industry level and what support could be provided to improve the participation of women in these roles.
Regional Skills Training – Work Health and Safety (WHS)	Provides WHS training, specifically AHCWHS301 Contribute to Work Health and Safety Processes, as an accredited unit of competence to ensure all participants fully understand the responsibility and liability appropriate to their business and workers.
Rural Health and Safety Alliance	A partnership of RDCs that invests in RD&E solutions to improve primary production's health and safety record.
Dairy Australia – People in Dairy Program	Includes a suite of tools and development programs to assist farmers to be better people managers. This well-regarded program, fully funded by Dairy Australia, has successfully reframed thinking around the diverse ways in which people function within the whole-farm system as farmers, managers, farm workers, new entrants, or advisers both to individual farm businesses and in the wider industry context.
Women in Horticulture Network	Provides opportunities for horticultural businesswomen to connect and access social and professional development opportunities, including business management training.

Seasonal workforce

Initiative	Description
Bundaberg Regional Council – Bundaberg Open for Development	This initiative provided a range of incentives designed to stimulate development activity. In mid-2016 the council offered discounted infrastructure charges for development across a number of categories including a 50% discount for development that provides housing for itinerant farm workers and backpackers. The discounts led to the construction of accommodation for 441 beds, assisting the availability of accommodation for temporary farm workers in the region.
Renmark Paringa Council – accommodation for seasonal workers	Supported by the Australian Government and the South Australian Government, the Paringa Resort was opened in April 2016 to accommodate workers for the 2016 citrus season. The resort consists of 236 beds, 28 cabins, a swimming pool, barbecue areas, gym and a recreation lounge. In addition, the resort is serviced by 35 12-seater minibuses for transport of workers to the work site. The resort created 8 full time jobs during the construction phase and is now operationally serviced by 4 full-time staff. It has received positive reviews from workers choosing to have their Australian working holiday in the Riverland region, and has created the opportunity for some of the largest citrus companies in Australia to utilise Paringa Resort via a seasonal lease arrangement.
Fair Farms initiative	The Fair Farms initiative has a strong focus on training and offers a coordinated system of customised training to support growers. It starts with a comprehensive self-assessment where the grower is open and honest about their awareness of legal and industry expected standards. The self-assessment is benchmarked to Australian workplace law requirements (particularly the *Fair Work Act 2009*). The results of the self-assessment form the basis of the training package that Growcom's skilled Fair Farms trainers use. Training is solutions-based and delivered on a one-on-one basis in a manner that suits the busy grower (usually online, by telephone or by virtual coaching session).

Data

Initiative	Description
Power of People on Australian Dairy Farms 2014, 2017	Dairy Australia commissioned research among dairy farmers to: • develop a profile of people on farm, as well as a profile of the farm owner • better understand farmer attitudes, experiences, perceptions, behaviours and needs with regard to attraction, transition and retention of employees; developing skills and capabilities; and on-farm safety.

Appendix F: Other reviews, inquiries and strategies

Table F1 Recent reviews, inquiries and strategies

Title	Focus	Recommendation/s
Smart farming House of Representatives Standing Committee on Agriculture and Industry inquiry into agricultural innovation *May 2016*	The agricultural sector must be able to make the most of the innovation boom in order to support productivity growth and to maintain its competitiveness. At the core of the agricultural innovation boom are individual farm businesses that make decisions to adopt new technologies. If the government wishes to support innovation and growth, it must support these businesses in technology adoption. It became clear that these complex new technologies will bring their own challenges to farm businesses seeking to adopt them. Some of these barriers to successful adoption stem from the demands on internet, cloud and other physical infrastructure. In other cases, some regulations may unfairly impede the use of new technologies. Another set of barriers to adoption arise from the demand for more people with more advanced skills to shepherd technologies through the innovation system and into the hands of the end user. There needs to be more collaboration between the organisations in the R&D process. There also needs to be a surge in skilled researchers and workers supporting the sector.	Selected recommendations: • The committee recommended that the Australian Government ensure that rural women's groups are included in future government-led policy-building activities and inquiries. • The committee recommended that the Australian Government target funding for the development of innovative education strategies for agriculture, within the current science, technology, engineering and mathematics funding program. • The committee recommended that the Australian Government provide assistance and support to farmers' groups to pursue farming benchmarking and support the development of national data sets.
Hidden in Plain Sight Australian Senate's Joint Standing Committee on Foreign Affairs, Defence and Trade inquiry report *December 2017*	The inquiry focused mostly on assessing the effectiveness of the United Kingdom's Modern Slavery Act 2015 (UK Act) and whether similar or improved measures could be introduced in Australia. Modern slavery is a crime present across a range of industries in Australia and in the global supply chains of businesses and organisations operating here. The committee was concerned by allegations of exploitation and slavery-like practices here in Australia, particularly for migrant workers and backpackers in regional areas.	Selected recommendations: • The committee recommended the establishment of an Australian Modern Slavery Act, including an Independent Anti-Slavery Commissioner to lead and coordinate Australia's response to combatting modern slavery. • The committee recommended that migrant workers be better protected through changes to Australia's visa framework, particularly by eliminating or replacing 'tied' visa conditions and by introducing a national labour hire licensing scheme.
Independent review into Rural, Regional and Remote Education Prof. John Halsey *January 2018*	The achievements of rural, regional and remote (RRR) students have in the main lagged behind urban students for decades. The national statistics show there is a persistent relationship between location	All 11 recommendations of the Review were accepted by the Australian Government. The key initiatives to address the outcomes of the Review included:

Title	Focus	Recommendation/s
	and educational outcomes when data for the various measures is aggregated. Four priorities were identified to improve RRR education and opportunities: • Establish a national focus for RRR education, training and research to enhance access, outcomes and opportunities. • Focus on 4 key resources for successful learning and building young peoples' futures – leadership, teaching, curriculum and assessment. • Address the patchiness of Information and Communications Technology in RRR locations. • A focus on the transition into and out of school.	• Expand accessibility of sub-bachelor programs by providing $28.2 million to expand the availability of places to allow greater access to higher education for RRR students. • Expand accessibility for bachelor students at regional study hubs (RSHs) by providing $14.0 million to fully support an additional 500 Commonwealth places for RRR students studying at regional study RSHs. • Establish and maintain up to 8 RSHs across regional Australia by providing $16.7 million over 4 years.
Regions at the ready: investing in Australia's future House of Representatives Select Committee on Regional Development and Decentralisation inquiry report *June 2018*	The aim of the inquiry was to examine ways to build the capacity of rural and regional Australia, and to unlock its latent potential. Collaborative investment – by the 3 tiers of government, private sector and community groups – and improving the amenity of rural and regional towns was identified as critical to attract and retain people in regional areas. Investment in rural and regional communities is fourfold: • Investment that maintains the infrastructure of towns and cities and provides a basic level of universal services. • Catalytic investment that drives development and growth and leads to further investment. For example, the presence of an airport, hospital, university or government department. • Investment in capacity building of our rural communities. particularly education and training, and leadership development • Investment in human capital; the employment of people to design and deliver services in rural communities.	The committee made 13 recommendations, which were noted or agreed to (including in-principle agreement) by government. The committee set out a strategy for developing and sustaining regional Australia. The strategy, underpinned by the regional development principles, consisted of 6 elements: • Build the enabling infrastructure for regional development. • Identify national regional development priorities. • Establish a Regional City Deals program. • Strengthen the Regional Development Australia network. • Establish a public sector decentralisation policy. • Strengthen the role of regional universities.

Title	Focus	Recommendation/s
Harvest Trail Inquiry report Fair Work Ombudsman *November 2018*	The Fair Work Ombudsman (FWO) commenced an Inquiry into workplace arrangements on the Harvest Trail in August 2013, in response to employee and community concerns about non-compliance with Australian workplace laws. The Inquiry made key findings relating to workplace arrangements along the Harvest Trail: • Widespread non-compliance among the employers investigated. • Misuse of piece rates. • Significant reliance by growers on overseas workers. • A negative impact where labour hire arrangements were illegally used. • Consumers can play a role in addressing exploitation.	FWO formulated an action plan to address the key findings of the report: • The FWO will establish a Harvest Trail Working Group. • Enhance compliance through information, education, and support. • Enhance the regulatory framework. • Build a culture of compliance on the Harvest Trail. • Report to government and stakeholders.
Strengthening Skills: Expert Review of Australia's Vocational Education and Training System Steven Joyce *March 2019*	This review conducted a health check of the Australian VET sector to determine how ready it is to step up to the challenge of training more Australians, now and in the future. Many participants in the review were concerned whether the current VET systems and processes can deliver the sort of flexible work-based learning models that would help Australians obtain the necessary skills for the future of work. Slow qualification development, complex and confusing funding models, and ongoing quality issues with some providers were cited as issues that needed addressing. Careers education, VET in schools and access for disadvantaged learners were also cited as needing attention to ensure VET continues to deliver for Australians. These concerns are backed up by empirical evidence. Employer surveys show confidence in the sector declining, and numbers of qualification-seeking students decreasing.	The review argued that there needs to be a significant upgrade to the architecture of the VET sector so it can successfully deliver the skills needed for Australia's future. The Review made 71 separate recommendations around 6 key points: • Strengthening quality assurance. • Speeding up qualification development. • Simpler funding and skills matching. • Better careers information. • Clearer secondary school pathways. • Greater access for disadvantaged Australians. The Australian Government's Delivering Skills for Today and Tomorrow package responded to the review, with further reforms subsequently being progressed by the Australian, state and territory governments.

Title	Focus	Recommendation/s
Agricultural Innovation: A national approach to grow Australia's future Ernst and Young *March 2019*	The vision for the Australian agricultural innovation system is to establish a system that is cohesive, coherent, fit for the future and globally recognised.	The report's 5 recommendations were designed to address 5 key findings: • Future opportunities, threats and trends within the agricultural sector will occur in a larger, more complex and faster manner than ever before, requiring leadership and cohesion across the ecosystem to set strategic priorities and drive a more coordinated and cross-domain approach. • Improving the mix of investment in innovation and growing the total funding pool including private sector investment would achieve better and more diverse outcomes. • An innovation culture that is more dynamic, encourages entrepreneurship and a more open approach to risk taking, would better position our future agricultural innovation system within the global innovation landscape. • Strengthening the role of regions would improve innovation uptake. • The foundations of the system need to be improved to meet the needs of the future and to provide a next generation innovation platform.

Title	Focus	Recommendation/s
Report of the Migrant Workers' Taskforce Attorney-General's Department Commonwealth of Australia 2019 *March 2019*	The task force focused mostly on the employment experience of temporary migrants who have work rights under international student and working holiday maker (backpacker) visas. The task force concluded that the problem of wage underpayment was widespread and had become more entrenched over time. The task force considered 4 key elements of compliance: • Ensuring market participants are well aware of their entitlements and responsibilities and of how and where to get assistance. • The role of regulators in taking action to promote compliance. • The important issue of ensuring that employees obtain redress for underpayment where this has occurred. • Questions as to whether existing laws, functions and powers of regulators are appropriate to enforce effective compliance when necessary.	The task force made 22 recommendation, all of which were accepted in-principle by government. The task force noted that the agricultural sector, which benefited greatly from the presence of working holiday makers, needed to play a greater role in supporting compliance efforts than they had done in the past. The task force's key recommendation was for the government to establish a National Labour Hire Registration Scheme, focused on labour hire operators and hosts in 4 high risk industry sectors across Australia – horticulture, meat processing, cleaning and security.

Title	Focus	Recommendation/s
The effectiveness of the current temporary skilled visa system in targeting genuine skills shortages Senate Legal and Constitutional Affairs Committee inquiry report *April 2019*	The committee noted a range of stakeholder perspectives on the introduction of the TSS visa and other recent reforms. The committee suggested government continue to monitor the scheme, including giving greater emphasis to the permanent, independent stream as the mainstay of the skilled migration program. The committee expressed concern about evidence that various occupations included in the skilled migration occupation lists do not suffer from a shortage of appropriately skilled Australian citizens and permanent residents. It recommended that the process for determining skilled occupation lists be strengthened. The committee supported the principle of labour market testing (LMT) as a means of ensuring that temporary skilled visas are only being utilised when there is genuine evidence of a skills shortage that cannot be met by local workers. The committee noted that stakeholders raised concerns relating to the Skilling Australia Fund (SAF) levy, particularly its payment structure and impact on businesses' other training activities. It suggested the impacts of the levy be evaluated. It also recommended the government increase funding for the VET sector. The committee observed that enforcement of visa arrangements and protection from exploitation of workers on temporary skilled visas remains a significant area of concern. The committee considered that the recommendations in the Report of the Migrant Workers' Taskforce provided a considered course of action.	The committee made 21 recommendations. Selected recommendations include: • That the Australian Government work with the Australian Bureau of Statistics and the National Centre for Vocational Education and Research to investigate and establish a research instrument to enable analysis of employer investment in the development and training of their workforces. • That the Department of Home Affairs review and update its policies regarding health assessments of temporary visa holders, to ensure that visa applications will not be rejected on health grounds in cases where there is no possibility of health and social services costs accruing to the Commonwealth or state and territory governments. • That the Australian Government publish, in future updates to the skilled migration occupation lists, its reasons for including new occupations, moving occupations between the different lists, or removing occupations altogether that were included in previous iterations of the lists. • That the Australian Bureau of Statistics prioritise its review of the ANZSCO framework. • That the Australian Government consider the establishment of a new independent tripartite authority to provide advice and recommendations on skilled migration issues. • That the Australian Government ensure that unions have standing to complain to the Fair Work Ombudsman or the Department of Home Affairs about concerns relating to the exploitation of temporary visa workers, even if that worker is not a union member.

Title	Focus	Recommendation/s
National Regional, Rural and Remote (RRR) Education Strategy Regional Education Expert Advisory Group *June 2019*	The group's vision was for a tertiary education system that supports equal opportunity and access for individuals from RRR areas. This vision is underpinned by several core objectives and targets, specifically focused on halving the current disparity between RRR and metropolitan students in relation to tertiary education attainment and participation by 2030. The government response to the strategy (June 2020) included a package of measures worth over $400 million over 4 years, to increase opportunities for regional and remote students to attend university, and to lift investment in regional university campuses.	Selected recommendations: • Improve access to tertiary study options and financial support for students in RRR areas. • Improve the quality and range of student support services for RRR students to address the challenges of transition and higher rates of attrition. • Build aspiration, improve career advice and strengthen RRR schools to better prepare RRR students for success. • Improve participation and outcomes for RRR students from equity groups, such as low SES students, Indigenous students, students with disabilities and remote students. • Strengthen the role of tertiary education providers in regional development.

Title	Focus	Recommendation/s
2030 roadmap: Australian agriculture's plan for a $100 billion industry National Farmers' Federation *October 2019*	The NFF's roadmap aimed to ensure that by 2030: • Agriculture is recognised as a rewarding and aspirational career choice for people of all skill levels and backgrounds. • We attract and develop people to match the needs of our sector and we adapt to the shifting needs of the future. This includes people who are leaders, critical thinkers, technical experts, those who work with their hands and more. • Our reputation for workplace excellence attracts phenomenal human talent from Australia and around the globe. • Regional Australia continues to offer an enviable lifestyle with access to essential and cultural services. • There is a clear career pathway to attract workers and develop their skills, with tailored streams for new entrants through to seasoned professionals. • We have robust and sustainable mechanisms to access labour from Australia and around the world. • A career in Australian agriculture is an accessible aspiration for all. • We live in strong regional communities that are home to: world class education and health facilities; culture and entertainment; and a diverse economy. • Australian farms have embraced a culture of safety, dramatically reducing workplace injuries and eliminating on-farm fatalities. A coordinated effort has and will improve the physical and mental health of industry participants.	The roadmap provides 5 pillars, along with selected sub points: • Customers and the Value Chain: • Agriculture is recognised as a rewarding and aspirational career choice for people of all skill levels and backgrounds. • We attract and develop people to match the needs of our sector • Growing Sustainably: • Australian agriculture is trending towards carbon neutrality by 2030. • A 20% increase in water use efficiency for irrigated agriculture by 2030. • Unlocking Innovation: • Every Australian farm has access to infrastructure and skills to connect to the Internet of things. • People and Communities • Double the number of tertiary and vocational agriculture graduates. • Increase the available work force by 25%. • Achieve gender parity in the agricultural workforce and double the number of women in management roles. • Close the gap between the psychological wellbeing of farmers and the broader community. • Capital and Risk Management • 90% of family farms have documented business plans, including succession plans. • 90% of Australia's farmers employing multiple financial tools to manage risk. • Year on year increase in equity investment in Australian farm businesses.

Title	Focus	Recommendation/s
The Future of Australia's Agricultural Workforce CSIRO Data61 (Wu et al) *December 2019*	This report provides a horizon scan of interconnected social, economic, geopolitical, technological and environmental trends driving workforce change and labour use across the agricultural sector and related services sectors. Two areas were identified as critical in determining possible future scenarios, the level of regional development and the extent of technology advancement and uptake across the agricultural sector. Using the key uncertainties identified from the trends analysis, this report describes 4 plausible futures for the Australian agricultural workforce and highlights the key factors driving changes in the demand and supply of agricultural labour over the next decade. With these insights, Australian agricultural stakeholders and communities will be able to better understand, anticipate and respond to future changes impacting the agricultural workforce.	The report highlights several action areas over the next decade for Australian and State governments, agricultural stakeholders and communities, including: • Placing a greater emphasis on equipping students with relevant skills, as well as promoting agricultural knowledge. • Adapting education curricula and catering to the emerging skills requirements driven by technologies and innovative farming techniques. • Developing an agricultural research workforce with sufficient technological knowledge and skills to understand, adapt and efficiently apply big data approaches in agriculture. • Introducing the need for labour providers to be accredited and consistent monitoring of third parties that help secure seasonal labour for farms. • Updating the methods and classifications used to collect data on the agricultural workforce and collecting this data consistently and frequently. • Making regional cities and towns more attractive places to live and locate businesses via investment in key infrastructure (including digital infrastructure to address connectivity issues), as well as improving access to education and health services.

Title	Focus	Recommendation/s
Changing job and skill implications in Australia's Food and Agribusiness sector Food Innovation Australia Ltd *May 2020*	Australia's food and agribusiness sector is facing exciting new opportunities to reach consumers and lead a global race for innovation. The 16 most promising growth ideas are worth A$97 billion today and could rise 40% to A$136 billion by 2025. Opportunity 1: Soil health and land management. Opportunity 2: Animal feed and health. Opportunity 3: Food safety. Opportunity 4: Sustainable inputs. Opportunity 5: Sustainable aquaculture. Opportunity 6: Urban agriculture. Opportunity 7: Energy smart food. Opportunity 8: Food waste reduction and extraction. Opportunity 9: Reducing packaging waste. Opportunity 10: Advanced breeding and fertilisation. Opportunity 11: Precision agriculture and big data. Opportunity 12: Supply chain transformation (B2B). Opportunity 13: Direct to consumer models (B2C). Opportunity 14: Targeted eating. Opportunity 15: Health and wellness. Opportunity 16: Global consuming class.	Challenges and opportunities: • The employment opportunity – More growth will lead to stronger job creation – Australia's food and agribusiness industry could become a magnet for new employment. By 2025, the number of jobs associated with these 16 opportunities could increase by one-third to reach 595,000 jobs. • The occupation scenario – Fewer managers, slightly more machine operators – seizing the 16 opportunities would leave the occupational mix in the food and agribusiness workforce largely intact. • The skills challenge – Is Australia's food and agribusiness workforce ready for transformation? The occupational mix may not change much, but the nature of future jobs will require a radical shift in skills. • The decision-maker challenge – There's a risk that Australia misses a sizeable opportunity to create more value and thousands of new jobs in its food and agribusiness sector. Policymakers and businesses need to chart a path into the future now.

Title	Focus	Recommendation/s
Get Australia growing: ideas for economic recovery National Farmers' Federation *June 2020*	Australia's farm sector has a goal to reach $100 billion in farm gate output by 2030. COVID-19 has created headwinds for our industry, however with improved seasonal conditions and a low Australian dollar playing in our favour, we're well positioned to grow. This report outlines the farm sector's plan for an accelerated recovery by identifying several ideas, including: • Cutting red tape on farm businesses. • Helping us to create jobs on farm. • Simplifying and streamlining industrial relations. • Establish programs to attract displaced workers into farm work. • Reform vocational and tertiary education models to suit the needs of agriculture. • Reduce the complexity of the migration system by establishing a dedicated agricultural visa. • Champion regionalisation, significant investment in 20 new Regional Deals. • Better alignment of Australian government initiatives with state and territory initiatives. • Create a strong future for AgriFood and fibre manufacturing. • Modernise the rural innovation system.	• Report notes the following needs from government: • Farmers and farm workers need an industrial relations system that is both fair and easy to implement. • Governments must urgently consider options to connect displaced Australian workers with opportunities in the farm sector. • Evidence-based reforms to the vocational education and training sector are sorely needed to ensure agriculture is supported by an industry-led framework that recognises agriculture's skills requirements. • Establish a dedicated agricultural visa designed around the specific needs of our sector. • Manufacturing of critical farm inputs and processing of AgriFood and fibre products must be central to the government's plans to stimulate Australian manufacturing in the aftermath of COVID-19.

Appendix G: The Australian Land and Environment Service

Blueprint for a pilot

A proposed voluntary, paid service, to be called the Australian Land and Environment Service (ALES), to help solve, in the immediate term, converging problems of agricultural workforce shortages, reduced employment opportunities for young people and poor perceptions of agricultural jobs and careers.

With this initiative, rural and regional Australia will be offering hope to young people across the country during the pandemic-induced slowdown, while assisting agriculture and the environment, including carbon-neutral production, in the future.

The pandemic has created a new reality for Australia. Because of the uncertainty of the economy, both domestically and internationally, the private sector, naturally cautious, is offering far fewer jobs. This creates a vicious circle, where fewer jobs means less effective demand for companies' goods and services, which in turn means even fewer jobs. A major challenge for policymakers results. What citizens principally expect of their governments is jobs for themselves and their families; but policymakers' traditional levers for job creation are much less effective in a pandemic.

The situation is extremely concerning for young Australians seeking their first job (post-university or post-school). If history offers any comparison, in the late 80s and early 90s, when generation X was entering the workforce (in an arguably less severe global context), Australia's population faced a devastating combination of economic and social issues. Jobless generation X went on to have one of the highest youth suicide rates in the industrialised world. For a country with a relatively small population, this is a loss that cannot easily be borne.

The pandemic has also highlighted some existing vulnerabilities in the Australian economy and society, particularly in agriculture. Over the last 15 years or so, seasonal harvesting work has, to a large extent, been carried out by transient workers from outside Australia. But now international borders are closed, and a crisis in agriculture has resulted. Normalisation is not likely to happen for some time.

Currently, however, the agricultural sector is not well positioned to attract many young Australians into jobs or careers. It has been an entire generation since Australian young people considered a season or two in rural and regional Australia as a real and worthwhile option. The perception of agriculture as a poor choice for a job or career has accompanied a growing disconnect between the opportunities in rural and regional Australia and those in urban and metropolitan areas. The agricultural sector itself reports numerous examples of early interest in agricultural work opportunities, but low uptake and high drop-out. This means that an offer of,

for instance, an Australian 'gap year'[3] with an agricultural employer may strike a chord with some young people looking for that opportunity; it will not, however, be enough on its own to turn perceptions of the sector around or provide the beacon of hope for our young people. These outcomes can only be achieved through a 'Team Australia' approach and strong community and employer engagement.

There is a powerful, once-in-a generation solution to set a new course for the AgriFood sector to re-engage with the Australian community and, most importantly, its young people. This solution puts the future AgriFood workforce, the young person's outcomes and the rural and regional community at the core of a future workforce strategy.

It is the creation of **a voluntary paid national service to support agriculture and the environment, to be called the Australian Land and Environment Service (ALES)**.

Features of ALES

Drawing on over 100 years' experience with analogous programs, ALES would have the following features:

- Voluntary participation for both participants and farmers
- Support for agriculture and the environment
- Three modes of entry:
  - a 12-month gap year program like the current Australian Defence Force (ADF) gap year program
  - a 2-year auxiliary program
  - a 2-year transition to career program
- All the above on adult wages modelled on the ADF gap year package
- Matching of participants' interests with farmers' needs
- The opportunity to work across one or multiple farm businesses over the program
- Coordination via community-centred hubs in each state and territory
- Proper wages to be paid by government, with on-charge to farmers
- A 4-week to 6-week training program for all participants, on a trainee salary
- Certificate/accreditation at the end of basic and any specialised training
- Opportunities for concurrent online training in sustainability issues
- Help to find a job (or jobs) or further training at the end of the program.

[3] For example, the cotton gap year (Cotton Australia) is now in its third year of operation, with between 6 and 10 successful completions each year. (Refer to box 18 and box 33 in the report)

ALES would be managed by an advisory group comprising representatives from Australian Government agencies, industry, Indigenous organisations, state and territory governments and others who have experience running immersive agricultural training programs. Oversight and evaluation would be through the Department of Agriculture, Water and the Environment (National Agricultural Labour Advisory Committee).

Precedents

The many analogous programs over the decades have included:

- in Britain, the 1917 Women's Land Army and the 1939 Land Girls
- in the United States, the 1935 Works Progress Administration, which employed 8.5 million people in the Depression and built airports, housing, streets and bridges; and the Depression-era National Youth Administration
- in Australia:
  - the 1942 Women's Land Army
  - the ADF's gap year program to increase the number and standard of applicants by providing education, higher wages, training in leadership, ethics and personal development, and a sense of purpose
  - the Australian Youth Ambassadors for Development program (2002 to 2014)
  - Teach for Australia
  - the Green Army (2015 to 2018).

Benefits of ALES

The benefits of ALES are expected to be numerous.

For the nation as a whole, ALES is intended to:

- help shrink the country–city divide by bringing city youth (and their visiting families) to the country
- result in sustainably increased food production
- help ensure food security in uncertain times in our region
- provide better environmental management, including carbon-neutral production.

For the government, ALES is intended to:

- generate higher taxes from increased revenues in agriculture (extra taxes that would go far towards paying for ALES)
- be broadly neutral in that government would already be making JobSeeker, JobKeeper or Youth Allowance payments to most potential ALES participants
- boost political capital among farmers, families of young people, and many voters.

For farmers, ALES is intended to:

- ensure harvesting and shearing and logging are done properly and on time
- introduce a new stream of Australians to the career opportunities offered by the sector

- be conveniently delivered through local community hubs
- provide the reassurance of government screening and training of workers
- make available the ICT knowledge and fresh thinking of a cohort of young people from a range of backgrounds.

For rural and regional communities, ALES is intended to:

- invigorate community life
- increase social and economic connections with urban/metropolitan populations
- increase economic/business activity.

For business, ALES is intended to:

- train potential future employees in discipline and hard work, whatever sector they end up working in
- teach useful skills to make young people employment ready
- help with searches for future employees.

For the participants themselves, ALES is intended to:

- deliver a regular income, training, certification, and help with job searches
- give them structure, and a beacon of hope for their lives
- provide a sense of purpose and pride in doing something for the country as well as themselves
- provide an opportunity to participate in training on contemporary sustainability issues, such as sustainable intensification, conservation agriculture, soil carbon sequestration and precision agriculture.

Pilot

It is advisable for ALES to be introduced *via a pilot*.

The pilot program would:

- need an experienced leadership team to manage it
- be delivered through community-centred hubs (one in each state)
- identify farmers' needs
- work with state, territory and local governments to find suitable training sites – including vocational education and training (VET) sites
- develop a curriculum
- select instructors
- conduct an Australia-wide application process via a website
- select about 100 finalists per state and allocate them into 10-person teams
- organise payment.

An evaluation would be conducted at the end of the season. Its findings would help estimate the cost of ALES if rolled out in full. The cost of the pilot would be $6 million over the whole country. However, this is likely to be much less when the discontinuation of government payments such as Youth Allowance or JobSeeker to ALES participants is factored in.

Recommendation

The new reality created by the pandemic compels new solutions. On its own, ALES cannot be the complete answer to the converging issues of workforce shortages, young people's employment and the perception of agricultural opportunities. However, by drawing on successful past approaches, and building a cohesive 'Team Australia' response, ALES will make a difference, perhaps a very substantial one. It should be tried.

Overview of the problem

The COVID-19 pandemic

COVID-19 is a highly contagious viral disease with no known cure. Australia has mostly done an excellent job in suppressing the spread of COVID-19. However, to achieve this outcome the country has made many difficult social and economic decisions. Large employment sectors including aviation, tourism, education, hospitality, entertainment, sport, fitness and retail have been particularly hard-hit.

Close to 600,000 jobs were lost almost immediately in March 2020, when lockdowns to control the pandemic were ordered across the country. However, an estimated 1.13 million employees are in a precarious employment position.[4] While COVID-19 remains a threat in the community, more permanent job losses are likely.

The consequences of this situation will not be evenly shared. Young Australians are likely to bear the biggest economic losses both now and into the future.

A study conducted by McCrindle Research[5] found that 51% of Australians aged 18 to 25 (generation Z) were very or extremely uncertain about their future right now, compared to just 27% of the baby boomer generation. This group were also the most likely (33%) to report feeling unprepared to cope with the situation.

It would be fair to say this is a 'perfect storm' for young Australians, who now face the combined effects of high unemployment, climate change and the COVID-19 pandemic.

[4] R Cassells & A Duncan (2020), *Bankwest Curtin Economics Centre research brief COVID-19 #3*. bcec.edu.au (accessed 8 July 2020)

[5] McCrindle Research (2020), *How Australians are responding to COVID-19*. mccrindle.com (accessed 7 July 2020)

Social and economic realities for agriculture

Australia is one of the most urbanised countries in the world, with approximately 86% of the population living in or near a city.[6] This situation has existed since the 1960s, when over 80% of the population was urban.[7] As a result, regional and rural Australia has become a *foreign country* to many urban Australians.

More troublingly, over the past 30 years the share of Australia's gross domestic product (GDP) from agriculture has declined steadily from a high of 4.21% in 1990 to 2.46% in 2018.[8] The world average GDP from agriculture, based on 162 countries, is estimated to be over 10%.[9] Even so, in 2018–19 agricultural products worth $60 billion-plus accounted for 10.8% of Australian exports, indicating the importance, and potential, of the agricultural sector to Australia's overall economy.[10]

While many factors have influenced the trajectory of Australian agriculture, the declining percentage of Australians living in regional, rural and remote areas has made smaller-scale farming increasingly unviable. As a result, farms have steadily increased in size as a handful of owners buy up smaller holdings. At the same time, all farms, and especially small-scale farms, are forced to rely on a precarious supply of international workers, including backpackers, to keep their businesses afloat.[11] High wages and the economic opportunities that come with successful growth are almost unknown in regional Australia. These trends are also incompatible with the ever-increasing complexities associated with the requirement for greater sustainability in our AgriFood systems.

When a steady flow of overseas visitors and immigrants willing to be temporary agricultural workers was available, the problems facing the agricultural community gained little national attention. However, with the closing of Australia's borders in response to the COVID-19 pandemic, this temporary labour force has all but disappeared, leaving Australia's food security and our multibillion-dollar agricultural export industry at serious risk.

Agriculture's image problem: lessons from the Australian Defence Force

The obvious solution for the agricultural industry would be to move unemployed workers from the city to the land. However, the likelihood of this happening 'organically' is remote. It is

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[6] The World Bank – Data (2018), *Urban population (% of total population) – Australia*. data.worldbank.org (accessed 8 July 2020)

[7] Ibid.

[8] The World Bank cited by TheGlobalEconomy.com (2020), *Australia: GDP share of agriculture*. theglobaleconomy.com (accessed 17 July 2020)

[9] Ibid.

[10] Rural Bank (2019), *Australian agricultural trade 2018/19*. ruralbank.com.au (accessed 17 July 2020)

[11] 'Farmers want the recovery to go bush', *The Canberra Times*, 15 July 2020

unrealistic to expect people with no heritage (for example, family or landholdings) on the land to feel comfortable seeking rural employment.

More troublingly, rural Australia has developed an image problem among some Australian workers. Media exposés of troubling employment practices have created a negative impression of life working in rural Australia. Stagnant regional employment opportunities and the lowest award wages in the country have only added to this unattractive picture.

The ADF once faced a similar image problem. Post-Vietnam, and particularly after mandatory conscription, joining the military had no appeal whatsoever. Worse still, the military had a well-founded reputation for discriminatory employment practices that discouraged diversity, keeping the organisation largely a monoculture.

Service itself was harsh, poorly paid and unforgiving, with many an injured serviceperson regretful of their decision to join. Yet, 4 decades on, the ADF is now a diverse, professional and highly attractive employment proposition for young Australians, as well as the third most trusted institution in Australia.[12]

This outcome was achieved as successive ADF leaders emphasised the importance of their people to the wellbeing of the organisation. Wages for military service steadily increased and the standard of applicant also increased. The ongoing investment in education, leadership, ethics and personal development resulted in a manifestly improved workforce. As the organisation matured, members felt increasingly proud of their service and safe within it. While the ADF is not perfect, it is a significantly more resilient institution today than at any time in its history.

With the ADF experience as a guide, it is possible a home-grown agricultural workforce could flourish and eventually change the trajectory of the agricultural industry. However, rural Australia does not have the luxury of a 40-year time frame; the problems facing the industry need to be addressed now. This is a big problem, and a big problem demands a bold idea. A national program of agriculture and land national service is such an idea.

A bold idea

In July 1942, the Australian Women's Land Army (AWLA) was founded to address severe labour shortages in regional areas during World War II.[13] It included full-time paid members who served for 12 months, and auxiliary paid members who served for periods of 4 weeks or more during harvests. Many thousands of women volunteered for the scheme during its duration, making a significant difference to Australia's agricultural survival. While the AWLA was not described as national service – national service usually referred to military service – the scheme was national service for agriculture.

[12] I Ting, M O'Neill, A Palmer & R Liu (2019), 'Party's over: in a nation of cynics, we're flocking to the fringe', ABC News. abc.net.au (accessed 30 Jul 2020)

[13] Australian War Memorial (2017), 'Australian Women's Land Army'. awm.gov.au (accessed 8 July 2020)

Other nations have long had national service programs to promote a spirit of community and belonging. The United States AmeriCorps program is one of the largest national service programs in the US, engaging up to 50,000 volunteers each year. A longitudinal study of AmeriCorps service[14] found that people who joined the program had a greater sense of civic engagement as a consequence of their service and many sought employment in public service throughout their lives.

The US Government backed Peace Corps[15] program is similar to AmeriCorps but on a global scale. The purpose of the program is to promote world peace through community engagement and assistance to countries requesting support. Participants in the Peace Corps program are given training, accommodation and a stipend to live in the country they volunteer to support. Around the world there are many service-orientated volunteer programs for people interested in making a difference in the world – some even charge the volunteers to join.

The idea of a national service program for agriculture and the environment in Australia is probably well overdue. What Australia needs is a program that takes the best of the Peace Corps / AmeriCorps model and combines this with the employment conditions of the AWLA. In other words, we need a paid national service program, with a strong focus on being a part of a tightly knit, well-trained team, aimed at invigorating rural communities and their economies.

Would Australians be motivated to join?

Australia has long been regarded as a country that was 'built upon the sheep's back'. Despite more and more Australians living in metropolitan areas, Australians still recognise the important role agriculture plays in what it means to be Australian.

A recent survey commissioned as part of Community Trust in Rural Industries Program found that 90% of survey respondents agreed that farmers, fishers and foresters play an important role in Australian society, while 86% agreed that rural industries are important to our way of life in Australia (Moffatt 2020).

The ALES program would provide support for improved environmental practices in food and fibre production, and provide opportunities for young Australians to be involved in both agriculture and environmental stewardship and to see firsthand the environmental benefits that can be gained through sustainable agriculture practices – for example, increased carbon sequestration through soil management and reducing fertiliser run-off from properties in the Great Barrier Reef catchment area.

[14] J-A Jastrzab et al. (2004), *Serving country and community: a longitudinal study of service in AmeriCorps – early findings*. Corporation for National and Community Service: Office of Research and Policy Development. Abt Associates: Cambridge, Mass.

[15] See peacecorps.gov.

The ALES program would attract new entrants into the food and fibre industry by providing opportunities to young Australians who are concerned about environmental issues to be involved in food and fibre production, to understand it better and to see the environmental benefits that are possible through improved land management practices in agriculture.

Experiencing life in rural and regional Australia firsthand through a paid national service program would give urban-based young Australians a more realistic appreciation of living in the country and how they might make this lifestyle work. On the flip side, urban-based young Australians could bring a wealth of skills and knowledge to regional areas, creating a win-win for farmers and their local communities.

Operationalising the ALES program

The features of the ALES:

- A voluntary national service program
- Three different employment streams
- Remuneration and benefits based on the ADF employment model
- Aimed at all Australians, with a special focus on school leavers
- Operating via a collaboration with farmers and regional hubs
- Empowerment through specialist training and education
- Not a short-term fix but a long-term solution

The idea in a nutshell

The ALES is a program of (voluntary) paid national service to support agriculture and the environment. The program will have 3 modes of entry: a 12-month 'gap year' program (similar to the current ADF gap year program); a 2-year transition to career program; and a 2-year auxiliary program, where members complete 14 weeks of service over 2 years, mainly during harvests.

Applicants register interest for the program through the ALES website, where they complete an online test protocol emphasising motivation. Once selected, participants commence their service on a trainee salary, transitioning to full-time adult wages when they begin work. All new recruits will complete a 4-week to 6-week program of training, focusing on common farm skills (work health and safety, chemical use, animal handling and welfare, irrigation operations, and safe machinery operation – for example, quad bikes and tractors), personal development and physical conditioning.

Via a network of community-centred hubs, participants in the program choose employment and training that fits their interests and the needs of farmers they will support.

Where a career path requires specialist skills, such as shearing, use of heavy machinery or animal husbandry, applicants will be channelled into special programs that qualify them in those areas. All participants will have the opportunity to receive specialist training in sustainability – a topic of significant interest to generation Z, which has only been magnified by the COVID-19 pandemic.

Attracting candidates for the program

To attract motivated applicants, the program will need to offer a good remuneration package. The ALES program should aim to resemble the employment package offered by the ADF, where members are issued a uniform, receive an allowance for room and board, are provided health insurance and are reasonably paid. The pay scheme could be subsidised through savings from welfare payments (the Youth Allowance, JobSeeker, JobKeeper and JobTrainer schemes). Other benefits such as Higher Education Contribution Scheme rebates and government-backed low-cost loans for developing an agricultural business could be offered.

Instructors for the program will need to be carefully selected and have a range of skills, such as experience working on the land and/or in military service. Veterans under the care of the Department of Veterans' Affairs could be a group that may find this work enjoyable. ADF personnel often have instructing experience throughout their careers, and this will be of particular importance for the ALES program.

People from across Australia's population will be encouraged to join the ALES program. Everyone, regardless of cultural background, age, socio-economic status and disability status, will be considered. However, young people, and especially school leavers and university leavers unable to find work, will be particularly encouraged. As much as possible ALES is to be a diverse, inclusive employment program to give anyone who wants to do something for their country a go.

Participants in the ALES program remain employees of the program throughout their service. They will continue to have a designated supervisor who has ongoing responsibility for their development and management throughout their employment in the program. While day to day farmers will have technical responsibility for ALES participants, if a problem should arise, the farmer can contact the ALES supervisor for support and guidance.

Given the considerable knowledge transfer between farmers and ALES program participants, it is not unrealistic to expect the government to subsidise ALES participants' wages to some extent.[16] However, a financial contribution from farmers will be expected. Farmers will only be able to participate in the ALES program every 2 years, creating an incentive to keep fully trained ALES graduates working at award wages for at least a year or so after they complete the

[16] The Commonwealth Budget 2020–21 introduced the JobMaker Hiring Credit. From 7 October 2020, eligible employers are able to claim $200 a week for each additional eligible employee they hire aged 16 to 29; and $100 a week for each additional eligible employee aged 30 to 35.

New jobs created until 6 October 2021 will attract the JobMaker Hiring Credit for up to 12 months from the date the new position is created.

To be eligible, the employee must have received the JobSeeker Payment, Youth Allowance (Other) or Parenting Payment for at least one of the previous 3 months at the time of hiring. The JobMaker Hiring Credit will be claimed quarterly in arrears by the employer from the Australian Taxation Office from 1 February 2021. Employers will need to report quarterly that they meet the eligibility criteria. The JobMaker Hiring Credit is designed to support new employment. Employers do not need to satisfy a fall in turnover test.

program. Maintaining a good wage ensures there is no undercutting of the existing agricultural labour force. It is intended, indeed essential, that farmers, participants and the government approach the ALES program with noble intent.

Once participants have successfully completed the ALES training program, they will be assigned a work group of 4 or more people who share a desire to work in a particular part of Australia, although not necessarily the same agricultural industry. All work groups will comprise an older team member who will receive additional training in leadership to help support and manage their group; they will also receive a slightly higher wage. Members can choose the type of group they would prefer, such as single-gender or multi-gender groups.

Where farmers can offer a block of work – for example, 8 weeks during lambing and marking – work on other properties will be organised for the participant to continue. This is not only an important recognition of seasonal labour requirements but also an opportunity for participants to encounter a range of experiences.

Focus on ongoing learning and professional development

Throughout the ALES program, participants will have the opportunity to complete online or face-to-face (at a local further education institution) learning while also working on the job. Courses could include business management, entrepreneurship, sustainable agriculture, agricultural innovation, and environmental science and technology, such as Certificate II and Certificate III in Agriculture, Horticulture, Irrigation, Fisheries and Forestry. Options for more targeted courses in contemporary sustainability topics such as sustainable agricultural intensification, conservation agriculture, soil carbon sequestration and precision agriculture could also be developed.

With each completed component, they will receive appropriate certification and small incentive pay bonuses. Certification will be credited as prior learning for other academic courses.

At the completion of each period of work both ALES participants and farmers will have a chance to rate each other, in a similar way to the Airbnb model. This information will be used to provide feedback to farmers and participants about what they could do to improve. The feedback will also form part of the final graduation assessment for participants and the ALES program itself. At the completion of the ALES program, members receive a certificate in recognition of their service.

Participants will be encouraged to remain in touch with their program teammates ('alumni') and to return to the program as an instructor or team leader later on. It is expected that all ALES members will develop lifelong friendships that will provide a network of connections throughout their lives. This may be one of the most important lasting benefits of the program for Australia at a time when people are feeling increasingly isolated and lonely.

A career on the land

For those who choose to move into the second-year transition to a career program, the second year, paid at a higher rate, would allow them to specialise in an area of agriculture (for example, dairy, fisheries, forestry, grains, horticulture, livestock or viticulture), environment (for example, Indigenous land management and natural resource management) and the interface between the 2 – sustainable development – particularly in areas where they can value-add.

Encouraging farmers to develop mentoring relationships with aspiring new farmers, or food and beverage manufacturers, in their particular industry will be a priority. It is hoped some of these relationships may also lead to permanent full-time employment for motivated ALES participants.

Making ALES a reality

Given the fairly dire employment situation facing Australia in the coming months or years, finding people interested in working on the land may not be as hard as it was in the past. However, for this to be more than just a band aid solution, these employees need to feel valued and experience the transition to the land in a positive way. The agricultural sector itself reports numerous examples of early interest in agricultural work opportunities but low uptake and high drop-out. This means that although an offer of, for instance, an Australian 'gap-year'[17] with an agricultural employer may strike a chord with some young people looking for that opportunity, it will not be enough on its own to turn perceptions of the sector around or provide the beacon of hope for our young people.

The idea of a national service program is not a short-term fix for an immediate problem; it is a long-term solution for a problem ignored for decades.

There is already evidence that industry-driven employment programs are attracting workers to particular regions, and this is obviously a good thing. However, for a sustainable long-term solution, a more coordinated approach that addresses the needs of employees and farmers is needed.

The more difficult hurdle for this program may be gaining the enthusiasm and confidence of the agricultural community. The idea of employing a large number of inexperienced, relatively low-skilled but tech-savvy city youth is unlikely to appear a winning solution to Australian farmers. Similarly, ensuring farmers have realistic expectations and the right facilities to support such a program is also an issue. Consequently, an essential part of ALES will be consultations with farmers, farming/landholder groups, industry representative bodies and the National Farmers' Federation (NFF) to investigate their specific needs. Farming groups, Rotary and Lions Clubs are key community organisations that could be important hosts in helping ALES recruits establish in the regions, given their experience in integrating exchange students and well-respected networks.

While some farmers might only need seasonal workers, others will want workers with advanced skills that take considerable time to develop (for example, shearing and animal husbandry). The ALES program must be flexible enough to address these different needs. It is not impossible to imagine that a young person from the city might want to become a shearer, but achieving this ambition will require a collective effort and dedication from farmers, educators and the individuals themselves.

[17] For example, the cotton gap year (Cotton Australia) is now in its third year of operation, with between 6 and 10 successful completions each year. (Refer to box 18 and box 33 in the report)

The arrival of each group of well-selected, well-trained and well-led Australian workers could be a shot in the arm for Australian famers, in particular for those in very remote areas of the country. Bridging the gap between the city and the land will not be easy but it is something this country cannot afford to put into the 'too hard' basket. Relying on backpackers and temporary visa holders was never a sustainable employment model for agriculture, but for many farmers it was the only option they had.

Other partnerships

Aside from farmers, regional communities will need to be engaged to support the influx of new workers into their areas. Housing will be a priority and support with accommodation will need to be investigated. It is also expected that the families of ALES participants will make regular trips to visit their relatives in regional and rural Australia, bringing much-needed revenue to these areas.

Partnerships with regionally based VET and tertiary institutions will also have to be developed. The influx of new students is likely to invigorate these institutions but also strain their resources, and this will need to be addressed as the ALES program rolls out. As noted earlier, the new JobTrainer scheme could form an essential part of the ALES program.

Engagement with local Indigenous communities will be another important element of this program. Not only will applicants from these areas be actively encouraged to join ALES but also local Indigenous elders with special skills in land management, native plants and bush food could provide an important focus for sustainable farming and land management in the ALES program.

Partnerships with other government departments such as Defence and Veterans' Affairs should be encouraged, to share expertise and develop employment pathways for former ADF personnel and veterans and for ALES participants. The benefit to the ADF of a large recruitment pool of physically fit young Australians should not be underestimated.

The National Disability Insurance Scheme, the Department of Social Services, Headspace and other organisations could also be linked into the ALES program to enable people with special needs to get involved and succeed with the program.

A proposed timeline for ALES

Gain bipartisan political support

ALES is a very big idea. Without the support of all sides of government it may not last beyond a single election cycle. This program will cost a significant amount to set up and run and will always be an obvious target for budget cost-cutting. Given the potentially huge long-term benefits to Australia, both in increasing numbers of Australian workers shifting to rural and regional Australia and bridging the gap between the city and the land, ending the program prematurely would be a devastating loss. Ensuring everyone is on board from the beginning is essential, as ALES must be overseen by government and have bipartisan support.

Identify a leadership team

Like all new things, the ALES program has to start somewhere. The first step for success is identifying a dedicated team to run it. The ALES pilot should be overseen by an advisory group comprising representatives from Australian Government agencies; stakeholders from industry

and Indigenous groups; others with logistics, education, human resources and agricultural backgrounds; and those with experience running immersive agricultural training programs. In particular, it will be important to choose a leader with appropriate experience of leading a large-scale national organisation involving mostly young people.

Identify the priorities and conduct a risk analysis

With so many moving parts, ALES will be difficult to coordinate. The most important first step will be to understand the complexity of the program. Every element will need to be anticipated and managed, including:

- building a comprehensive business case for ALES
- conducting a risk assessment and addressing areas of risk
- securing long-term funding and managing the budget
- consulting and building partnerships with farmers
- engaging the support of the NFF
- negotiating partnerships in regional communities and identifying areas for regional hubs
- identifying an appropriate training curriculum
- developing appropriate infrastructure
- working with educational and training institutions
- engaging with Indigenous communities
- developing a selection system
- developing a website
- selecting program staff
- finding regional accommodation
- meeting the special needs of different cultural groups
- addressing participant special needs
- developing a marketing program
- keeping the Australian public informed
- meeting the expectations of government, particularly those of the Department of Agriculture, Water and the Environment
- instituting a feedback system and evaluation of the program.

Scale a national pilot program as proof of concept

Before launching into the main program, a pilot program (the 12-month gap year entry only) will be conducted to test the ALES concept. The pilot will not only assess the feasibility of running the program but also give an idea of the level of interest in ALES in different regions. Participants in the pilot will need to reflect the expected diversity of the proposed ALES program, including at least some people with a disability or special need.

Pilot program participants will need to be selected to be emotionally robust and able to tolerate confusion and/or systems failure. Each participant will be taught how to record 'lessons learned' throughout the program. They will also need to be positive representatives of ALES and understand they are the vanguard of the program. To some extent all eyes will be on them.

Feedback and evaluation

Every step of the ALES program will need to be evaluated and reported. A designated evaluation team will work closely with farmers, instructors, communities and the ALES participants themselves to ensure every piece of information is captured. Once the evaluation is complete, changes to the proposed program can be made prior to going live with the full rollout.

Rollout

On the basis of results of the ALES pilot program it is hoped the ALES program could roll out in 2022. ALES will conduct multiple training programs throughout the year. It is expected that as the program progresses many thousands of people will belong to ALES in some capacity. As many of these participants will be recent Year 12 graduates, ALES may potentially become one of the largest employers of school leavers in Australia.

Indicative pilot program budget

Table G1 Indicative ALES pilot budget

Activity	Description	Cost
Identify ALES Advisory Team (ALESAT) (3 full-time staff)	Membership to include the team leader and deputy, and members representing farmers; the NFF; the Department of Agriculture, Water and the Environment and the Department of Education, Skills and Employment; Indigenous groups; unions; and a national disability organisation. Role is to manage the ALES pilot, including identifying the training development team, regional hubs and evaluation team.	$40,000
Market the program to farmers	Marketing campaign targeted at farmers.	$20,000
Select a location for ALES orientation training	Option 1: Negotiate the use of, e.g., an under-utilised Defence training base (e.g. Point Cook) or TAFE facilities. Option 2: Select a hub location in a regional area with appropriate facilities for a 5-week residential training course.	To be advised
Develop the ALES training curriculum	ALESAT training development team to develop the 4–6-week ALES training program – emphasis on common farm skills (WHS, chemical use and safe machinery operation, e.g. quad bikes and tractors), personal development and physical conditioning.	$150,000
Select and train ALES instructors / team leaders	Conduct an Australia-wide selection program to identify highly motivated instructors (5) and team leaders (10) able to commit to a 12-month pilot program.	$500,000 (includes salaries)
Develop an ALES website for the pilot and applicant selection proforma	The website will highlight the ALES concept, outline the purpose of the pilot and allow interested applicants to apply. Applicants complete an online selection proforma.	$200,000
Conduct training and identify work teams	100 applicants from around Australia complete the ALES training program and are allocated into 10-person work teams.	$100,000
Regional hubs	ALES work teams arrive in regional hub communities and are allocated to farms. Where smaller teams are required, groups of 2 or more can be allocated.	$3,500,000 (mostly salaries)

Activity	Description	Cost
Pilot evaluation	The ALES pilot evaluation team evaluates the program and manages issues as they develop. At the conclusion of the pilot, the evaluation team will interview a cross-section of participants and farmers, as well as evaluating all the written feedback from everyone involved. A report of their findings is to be delivered 2 months after the conclusion of the pilot.	$300,000 (mostly salaries)
Indicative total cost (GST excl) ***(Excludes training accommodation)***		**$6,070,000**

Conclusion

COVID-19 is likely to keep Australia's borders closed to tourists and foreign workers for a long time. While the virus might eventually be suppressed or even eradicated in Australia, it is very unlikely this will happen any time soon internationally. This situation has exposed a deep vulnerability in Australia's agricultural sector, where the viability of many farms was almost entirely dependent on an overseas casual workforce. Ironically, due to high unemployment in cities, COVID-19 may have created the circumstances that might help address what has been a long-term problem for regional and rural Australia.

Aside from the issues facing the agricultural sector, Australians are not just facing one potential existential crisis; they are facing many: climate change, a global recession, the highest unemployment in living memory, and COVID-19. This 'perfect storm' will have a disproportionately negative effect on the young, a situation we must do everything we can to prevent.

The idea of community-based voluntary national service has long been a model in other parts of the world. Mostly the focus is unpaid (or low-paid) work within a range of community sectors. However, the problems facing Australia's youth, and those facing the rural community, will not be addressed via a program that does not remunerate people appropriately. Consequently we need a program that looks more like the ADF than the Peace Corps.

As an entirely self-contained organisation, the Australian Land and Environment Service will provide the foundational support to help Australians find a new career path on the land. While not everyone who signs up for this program will make this choice, many who have the experience of working with the ALES program will seriously consider it. Others who have enjoyed the experience of ALES might even consider joining the ADF or Defence Force Reserves. At the conclusion of the program, all participants will have developed greater independence and important life skills.

The cost of setting up a program like ALES is justified because the program is not just a short-term fix for COVID-19; it is also a long-term fix for Australia's ageing and declining agricultural and environmental sectors. As confidence in the ALES program grows, it is hoped it will become a lasting, highly valued national service program for the benefit of all Australians.

Indeed, if the ALES program is successful, similar programs in other employment sectors such as community and social services, conservation and aged care could be considered. Internationally, Australia's progress in re-engaging young people in the land and environment sector will be the envy of the world.

Appendix H: Workforce data gap analysis

Australian Bureau of Statistics (ABS)

The ABS have multiple data collections that provide some data on the AgriFood workforce. The primary sources are the Census of Population and Housing, Agricultural Census/Survey, Labour Force Survey, Economic Activity Survey, and Weekly Payroll Jobs and Wages in Australia release.

The **ABS Census of Population and Housing** (CPH) is the most comprehensive set of data available on the AgriFood workforce. It is conducted every 5 years, in August (most recently in 2016), and includes every household in Australia. The 2016 Census form asked (i) whether the person had a job in the last week, (ii) whether this was working for an employer or in their own business, (iii) their occupation in that job, (iv) the types of tasks normally performed, (v) the employer's business name and workplace address, (vi) the industry or type of business the person worked for, (vii) the main goods or services provided by that workplace, and (viii) the hours worked across all jobs in the last week. Other than hours worked, a person can only report their occupation and industry for their main job – no data are recorded about any second job. The Census also asks for data on types of formal educational qualifications held, age, gender and income (ABS 2016). The data supplied are coded into occupation and industry categories using agreed definitions of occupations (ANZSCO classification) and industries (ANZSIC classification) (ABS 2006a, ABS 2006b).

The 4 key limitations of using the ABS CPH for agricultural workforce data are:

- Timing (August): Any AgriFood worker not employed in the week of August prior to the Census is not counted. With a highly seasonal workforce, this means that workers who do not typically work during August, or are employed in other jobs during this month, are not counted as part of the agricultural workforce.
- Timeliness (5-yearly): The Census acts as a comprehensive historical record of employment. With data collected every 5 years, and information on employment by industry and occupation typically released 18 to 24 months after the Census is conducted, these data do not provide timely information on how the AgriFood workforce is changing or on changes in workforce demand.
- Focus on primary jobs: Those who work in agriculture as a secondary job are not counted. The Census asks a person to list their main job only, even if they have more than one. This results in undercounting of women employed in agriculture in particular, with some female farm managers having a primary job outside agriculture while also being part of a farm management team.
- Classification limitations: As the AgriFood workforce has changed, occupational and industrial classifications have not kept pace with these changes. See the subsequent section for detailed discussion of this.

Despite these limitations, the ABS CPH remains the most comprehensive and consistent dataset available on the AgriFood workforce in Australia and how it is changing over time – and the only

one that can provide a picture of the workforce through the supply chain (albeit with significant limitations). It is also the only dataset that contains information on most parts of the AgriFood sector while also being able to be analysed at relatively small spatial scales that enable understanding of changing labour demand in different agricultural regions, and to examine quality of work, income, qualifications, and hours of work). It is an important historical record but does not have the timeliness or comprehensiveness required to meet the information needs of a rapidly changing AgriFood sector.

The **ABS Agricultural Census** (conducted 5 yearly, in the same year as the CPH) and **Agricultural Survey** (an annual survey conducted in the years between censuses) collect data from farmer businesses to provide benchmark information on agricultural industries.

- The Agricultural Census is sent to all farmers with an estimated value of agricultural operations of $40,000 or more in the last 12 months, and produces data to relatively small scales (Statistical Area Level 2 or SA2, which are usually similar to or smaller than a local government area).
- The survey is sent to a selected sample of farmers and produces insights for natural resource management regions, but not for smaller regions such as local government areas.

The purpose of the Agricultural Census and the Agricultural Survey is not to produce workforce data. Data collection is focused on the volume and value of agricultural production and use of inputs such as water. A very limited set of data are produced as part of the 'Farm Management and Demographics' data series (ABS 2020b); however, these record only information on the characteristics of those who provide information to the ABS for the survey, rather than all workers on a farm.

The **ABS Labour Force Survey** (LFS) collects data monthly as part of the ABS Monthly Population Survey. Around 26,000 households (excluding Defence households) are sampled, representing around '0.32% of the civilian population of Australia age 15 years and over' (ABS 2020d). Workers are classified by major industry and occupation, and every 3 months data are released that provide time series information on change in the workforce for those in different industries and occupations in the 'Labour Force Australia Detailed Quarterly' data series (ABS 2020c).

While these data do not have the timing and timeliness challenges of ABS CPH data, they have the same limitations of a focus on primary jobs and classification limitations noted in the discussion of the ABS CPH. Additionally, as they are based on a sample rather than a census, there can be limitations in their accuracy for identifying trends in smaller industry subdivisions such as forestry and logging.

The ABS also produces data on employment in the AgriFood sector via its **Economic Activity Survey** (EAS), which is a survey of businesses operating in the private sector (public sector jobs are estimated using the annual Survey of Employment and Earnings). The EAS is used to produce the annual Australian Industry data series (ABS 2020a). This series estimates total employment by industry division and subdivision each year. For the manufacturing division, data are produced to more detailed level, for a wide range of types of manufacturing (to the industry 'class' level). The data produced relevant to the workforce are (i) employment as of end of June, and (ii) total wages and salaries. This provides a useful annual time series. However, the employment estimates produced differ – in some cases substantially – from those produced in

the CPH or LFS. This is because of an important difference in how employment is conceptualised and recorded in ABS business surveys (such as the EAS) compared to household surveys (CPH and LFS):

The concept of employment used in the LFS (and other ABS household surveys) differs to the concept used in ABS business surveys, where estimates are based on the number of jobs involving paid employment. For example, a person holding multiple jobs with different employers would be counted in ABS household surveys as employed once, but in ABS business surveys would be counted once for each job that they hold. (ABS 2018)

This means that a person who holds jobs with 2 employers in different parts of the agricultural industry would be counted twice in the EAS – once for each employer – while in the CPH and LFS they would only be counted once, for whichever they reported was their main job.

The EAS has the same classification limitations noted for all ABS data sources discussed. Additionally, as these industry-specific collections are based on a survey and not a census, estimates for smaller agricultural industries sometimes have high relative standard errors, meaning they are not reliable for general use.

Finally, the ABS is producing **Weekly Payroll Jobs and Wages in Australia**, a new fortnightly release throughout 2020 in response to the current pandemic. The release presents experimental estimates of weekly payroll jobs and wages, sourced mainly from single-touch payroll data, for the purpose of assessing the economic impact of the pandemic on employees and the labour market (ABS 2020e). The release outlines the percentage change in payroll jobs and weekly wages for agriculture, forestry and fishing in comparison with other industries.

This release has a different conceptual basis to the CPH and LFS in that the scope focuses on jobs rather than households and industries. As a result, this release better captures the full workforce in the AgriFood sector, such as the impact of workers who are not resident in Australia. As it is a fortnightly release covering the previous fortnight, these data are timely and provides a broad understanding of changes in the agricultural labour market.

Australian Bureau of Agricultural and Resource Economics (ABARES)

ABARES conducts annual surveys of some agricultural industries through the ABARES Farm Data and Analysis Program, specifically:

- Australian Agricultural and Grazing Industries Survey (AAGIS), surveying around 1,600 farms
- Murray–Darling Basin irrigation survey, surveying around 400 farms
- Australian Dairy Industry Survey, surveying around 300 farms.

Additionally, ABARES conducts a survey of sawmills in the forest industry, although this survey is not conducted annually (typically every 2 to 3 years). ABARES generally also conducts economic surveys of select Commonwealth-managed fisheries each year. The fisheries that are currently surveyed (generally on a 2-year rotating basis) are the Northern Prawn Fishery, the Eastern Tuna and Billfish Fishery, and the Commonwealth Trawl Sector and the Gillnet Hook and Trap Sector of the Southern and Eastern Scalefish and Shark Fishery. From 2006 to 2018,

ABARES also conducted a national survey of vegetable industry farms (300 farms). This survey was discontinued in 2019 when industry funding contributions ceased. Coverage in the Murray–Darling Irrigation Survey was also reduced in 2019 due to reduced government funding.

ABARES uses the ANZSIC classifications to classify industries within agriculture and uses a repeatable and robust methodology to sample farms and collect and analyse data. This enables understanding of annual change in key types of farming.

Limited workforce data has historically been produced from these surveys. This includes data on the total labour used on farm (number of weeks of labour total), hours worked on farm by those who manage it, and whether farm managers also have off-farm work. There is scope to expand the survey questions and reporting to provide more detailed insight into labour demand and supply issues experienced by farmers; however, this would require specific resourcing, as it would involve an expansion of scope of the surveys beyond the data currently collected.

ABARES has expanded its annual farm survey collection to include a more regular labour supplementary survey from 2016. This supplementary survey seeks to identify the amount and type of labour used on farms, as well as recruitment experiences and expectations that farmers have in the future.

Additionally, in 2020 ABARES undertook a one-off reduced collection of labour data by telephone for vegetable farms, and expanded horticultural industry coverage to include national coverage of fruit, grape and nut farms (1,130 farms in total).

ABARES has also conducted standalone studies that have provided insight into workforce dynamics in agricultural subsectors. These include reports examining productivity benefits offered by workers on the Seasonal Worker Programme compared to working holiday makers.

ABARES does not currently conduct regular surveys of parts of the supply chain after the farm gate, with the exception of the semi-regular sawmill survey for the forestry industry.

Rural research and development corporations and state farming bodies

The 15 rural research and development corporations (RDCs) invest in research and development (R&D) and innovation to improve the profitability, productivity, competitiveness and long-term sustainability of Australia's agricultural industries. Industry representative and state farming bodies represent the interests of farmers at the industry and/or state and territory level. These representative bodies engage with a broad range of economic, social, environmental and regional issues of strategic importance to the productivity, sustainability and growth of their industry and/or industries in their respective state or territory.

To supplement ABS and ABARES workforce data, RDCs and representative bodies have invested in surveys to understand their workforce, in particular its size and composition (including overseas workers); recruitment methods; retention (and use of incentives); and training utilisation. However, consistent with the data classification shortcomings summarised, few agricultural industries can provide accurate data to substantiate their workforce needs claims. This lack of accurate data makes it difficult for representative bodies to clearly articulate workforce demand.

In response to the pandemic, industry bodies have moved quickly to try to address workforce data gaps. The National Farmers' Federation's 2020 Farm Workforce Survey will focus specifically on determining where the demand for workers is highest and how those workers are typically sourced. Hort Innovation engaged EY to undertake a piece of research exploring the labour demand and supply challenges arising from the pandemic disruptions. State and territory governments are also working with the AgriFood sector to determine workforce needs over the next 6 to 18 months.

Other government collections and large-scale surveys

Of the many other surveys conducted across Australia on a regular basis, very few produce robust data on the AgriFood workforce.

The Department of Social Services funds the **Household, Income and Labour Dynamics in Australia Survey** – commonly known as **HILDA**. The survey collects information from 17,000 Australians about economic and personal wellbeing, labour market dynamics and family life. However, as the survey is Australia-wide, there are too few sampled from the AgriFood sector to be able to provide insight into how AgriFood labour demand or supply is changing, and there are no questions specific to the sector.

The Education, Skills and Employment portfolio brings together labour market data from a range of official sources. This includes the Labour Market Information Portal, which provides:

- employment data, industry and occupation trends at national, state and territory and regional levels
- reports and publications on employment projections produced by the National Skills Commission.

However, again, data here are limited by the data produced by organisations such as the ABS – the limitations noted earlier with regard to ABS data apply.

The **Survey of Employers' Recruitment Experiences** is conducted annually across metropolitan, regional and remote areas of Australia. The survey, undertaken by the **National Skills Commission**, collects information from 10,000 employers about how employers recruit and what they are looking for in applicants, identifying practical ways job seekers can better connect with employment opportunities. This includes a limited sample of AgriFood businesses.

Some universities and other organisations do conduct surveys that include parts of the AgriFood sector. Currently none of these produce data that can provide insight into changing labour demand and supply, skills need or other aspects of the AgriFood workforce in a consistent way across multiple regions of Australia. For example, the annual Regional Wellbeing Survey, conducted by the University of Canberra, typically includes a sample of around 2,500 to 4,000 farmers. It collects data on farmer wellbeing and how farmers are coping with challenges on the farm and changing management of the farm.

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