

FDI Feature Interview

7 May 2019

Dr Edward Barret-Lennard: The Need to Increase and Improve Agricultural Research

Geoffrey Craggs

Research Analyst, Northern Australia and Regional Development Programme

Key Points

- Western societies are investing less in agriculture and food production, mainly because of a current abundance of food.
- In response to the need to feed a growing global population in the face of environmental factors like climate change, newer and better methods of agriculture and food production are needed.
- Developing and improving agricultural systems to enhance food production will require research teams, comprised of scientists, researchers and technicians, working more closely together.
- The small successes in agricultural research must be recognised and celebrated, as they will lead to more successful outcomes.

Introduction

Increasing agricultural productivity is central to our ability to be able to feed a growing global population in the future. To meet an ever-increasing demand for food it will be necessary to invest in agricultural science to improve understandings of soils and other factors associated with food production. The need exists for ongoing scientific research and development to produce more food and agricultural products. Those outcomes must be derived using existing resources while, at the same time, reducing negative environmental impacts. Well-trained and highly-skilled scientific and technical staff are needed to achieve the research outcomes in the future.

FDI recently interviewed Dr Edward Barrett-Lennard, a leading WA scientist and researcher, about the growing need for more scientists and technicians to work in agricultural research.

Interview

FDI - What is the state of agricultural research in Australia? Is it adequate and, if not, why not?

Dr Barret-Lennard – Human society tends to move forward mostly looking in the rear-view mirror. We don't often have a clear sense of where we're going, and we tend to make decisions based on the assumption that things in the future will be similar to things in the past. This is generally a sound strategy, right up to the point when it's not.

It's worth positioning modern agriculture in an historical context. We are presently in a situation of enormous food abundance, a product of the Green Revolution. In Western countries, food availability has largely ceased to be an issue to all but the most marginalised members of society. If one goes to a fast food outlet today, one can buy an adequate breakfast for between four and five Australian dollars - this food has become so cheap, that it's nearly contemptible. Contrast this with the fact that as little as a couple of hundred years ago, even Western countries could be in a state of acute famine. For example, during the Irish Potato Famine, which occurred between 1845 and 1850, a million people died and another million immigrated from an original population of eight million people.

As a consequence of food abundance, the investment of Western societies in agriculture has declined. Fair enough. However, it is now urgent that this is reversed as there is a world food crisis coming, due to continued population growth and climate change; many of the things that we have taken for granted about the resilience of our ecosystems and the ever-abundance of food, in excess of our requirements, will have to be questioned.

The evidence for climate change is undeniable: sea-levels are rising, global temperatures are increasing, and here in Western Australia, the iso-heights that delineate rainfall levels, are moving towards the coast and southwards. We are by no means at the end of this process; we're just at the start. As a consequence, there will be huge developing constraints to agriculture in this State.

Through a university link, I work in delta regions in Asia. The Mekong in Vietnam is the world's second-largest mega-delta. In this area, there is about a 2-meter elevation difference between sea level and the Cambodian border, a distance of about 200 kilometres. Current trends suggest that one of these metres of elevation difference will disappear by the year 2100 due to a combination of sea-level rise and land subsidence. In 2016, much of the Mekong Delta experienced an exceptional dry season and sea water intruded halfway up the delta killing rice crops. Repeats of these events will have profound consequences for the future of agriculture in Vietnam.

FDI - What needs to be done to improve research outcomes?

Dr Barret-Lennard – We are heading into a period of environmental degradation on a scale that we have never seen before. In the face of these declining fortunes, our agriculture systems need to be optimised. It is vital that we press against the boundaries of what is possible. We must get into the habit of understanding where the limits are, in order to optimise our systems up to these limits.

We should avoid despair by focussing on achievable outcomes. Solutions will be multi-disciplinary. For example, to tackle rising sea levels in deltas, we'll need better salt tolerant crops, more resilient farming systems coupled with better hydrology and engineering. To achieve these outcomes, we are going to need the right sorts of research and development teams. If we celebrate even small successes, then perhaps others will be encouraged to join the effort. Success will breed further success.

So, will we get the right people, skilled and trained, thinking about the issues and solutions? We need to attract the best and brightest of young people back into agricultural research on the basis that this is an area in which they can be proud to make a vital contribution.

FDI - Who is responsible and how do we get the message across to them?

Dr Barret-Lennard – We're all responsible. I am personally responsible to talk with my grandchildren about the problem of climate change and about the fact that their lives will be different; that the security and comfort they enjoy now will change, and that we as a society need to change. If every grandfather says that to every grandchild, then we will achieve the foundation of an attitudinal change.

The author CS Forrester wrote a book called *The Ship*, which describes the battle to save Malta in the Second World War. A British light cruiser is involved in an action to protect a supply convoy. The author posits the idea that on the ship there is a round of naval ordnance, which is about to be fired at the enemy. Shells are being fired all the time, but when that particular shell is fired it makes a little more impact on the enemy force, one of the enemy's ships turns away, the course of the battle changes, and eventually the siege of Malta is lifted. Arguments like the present one occurring about climate change are a bit like this. We don't know which argument or when it is said that is going to make the critical difference. We just need to keep arguing.

FDI – How will civil society be affected by climate change?

Dr Barret-Lennard – I can't think of any other factor that will have more impact on us and our institutions than climate change.

The plight of refugees is a topical point in the political discourse in Australia at present. I believe that we have not yet even begun to see what a major world refugee problem looks like.

Many of my friends are concerned about the way in which our response to a relatively small number of refugees (so far) has framed our politics; we have not been the people that we aspire to be.

With climate change and the changes that are going to come as a consequence, there will be quite devastating impacts on countries that are more fragile than ours; as a result, we can expect that the scale of the refugee problem will increase many-fold. How will we respond to this? It will change the way in which our civil society operates. Our challenge is to make it a change for the better.

About the Interviewee:

Dr Ed Barrett-Lennard works in the Western Australian Department of Primary Industries and Rural Development, at Murdoch University and at The University of Western Australia. His research work focusses on various aspects of saline agriculture at the intersection between the disciplines of soil science, plant physiology and agronomy.

He has had particular interests in the use and domestication of different species of Saltbush in the control of salinity in Western Australia. A current theme of his international research work is the sustainability of agriculture in the world's mega-deltas, given continuing climate change.

Any opinions or views expressed in this paper are those of the individual interviewee, unless stated to be those of Future Directions International.

Published by Future Directions International Pty Ltd.
Suite 5, 202 Hampden Road, Nedlands, WA 6009, Australia.
Tel: +61 8 6389 0211
Web: www.futuredirections.org.au