

Agriculture

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Virus Diseases of Chrysanthemums

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Over 16 virus and virus-like diseases have been reported to infect chrysanthemums. Fortunately not all of these occur in Australia. Four of these are considered to be economically important in Australia.

Chrysanthemum virus B (CVB)

CVB causes mild leaf mottling or vein clearing in some chrysanthemum cultivars. In certain cases there is a loss of flower quality, and some cultivars, when infected with CVB, develop brown streaks on the florets of the flower. Many chrysanthemum cultivars may be entirely infected with CVB without expressing symptoms. This virus is widespread wherever chrysanthemums are grown and it is transferred from plant to plant by aphids.

Tomato aspermy virus (TAV)

This virus causes serious losses in chrysanthemum crops and the symptoms include severe "flower-break" or "colour-break" in flowers, distortion of flowers and dwarfing of the chrysanthemum plant. Symptoms may not be expressed in the first year of infection and most cultivars show no leaf symptoms or loss of plant vigour. TAV is also transferred from plant to plant by aphids.

Tomato spotted wilt virus (TSWV)

A number of strains of TSWV have been identified and symptoms in chrysanthemum depend on the cultivar. Leaf symptoms range from ring and line patterns, faint mottling, areas of browning between leaf veins to yellowing of the veins. TSWV is spread from plant to plant by thrips.

Chrysanthemum stunt viroid (CSV)

This disease is highly infectious and can cause serious losses in chrysanthemum crops. Infected plants are reduced in size and they tend to flower earlier. Often the flowers are small, distorted and flower colour is bleached. Susceptible cultivars often have numerous conspicuous white leaf spots, termed "measles". CSV is transferred by sap from infected plants coming into contact with healthy plants. For this reason, cultural

practices such as the use of contaminated tools, knives and even the movement of staff from areas where plants are infected to healthy stock, are the main avenues for transmission of CSV in the chrysanthemum crop.



Figure 1. Flower distortion in chrysanthemum caused by infection with tomato aspermy virus.

Control

No spray or chemical treatment will eliminate a virus from an infected plant. Disease control can only be achieved by use of virus-tested planting stock in conjunction with strict hygienic practices. The movement of insects, such as thrips and aphids, should be controlled. Propagating tools, knives, etc. must be sterilised after use. Staff should be taught about the effects of virus diseases and their mode of transmission.

Washing of hands with hot soapy water before handling chrysanthemum plants helps safeguard against virus diseases that are transmitted by contact



Figure 2. Severe stunting of chrysanthemum plant caused by infection with chrysanthemum stunt viroid. Healthy plant on the right.

Carnation necrotic fleck virus (CNFV)

CNFV is transmitted from plant to plant by aphids.

For effective pest and disease control, correct diagnosis is essential. A commercial diagnostic service is available at the Institute for Horticultural Development. For further information, contact the Diagnostic Service. ph: (03) 9210-9222 or fax (03) 9800 3521.

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