

# NSW Cut Flower Industry

## Managing Fusarium in Cut Flowers (*Fusarium Spp.*)

### Description

Fusarium is a genus of fungi that includes several species such as *Fusarium oxysporum* and *Fusarium solani*. These pathogens are known for causing a range of plant diseases, including vascular wilts, root rots, stem rots, and damping-off. *Fusarium* species can be plant pathogens, or non-pathogenic saprophytes or endophytes, surviving for several years in soil or plant debris. *F. oxysporum* strains that cause wilt diseases are generally specific to a host species or plant family. It is difficult to distinguish pathogenic from non-pathogenic strains without isolating the fungus in culture and inoculating healthy plants to confirm pathogenicity.

*Fusarium* species can be dispersed many ways including the movement of contaminated seed, corms and bulbs; water and wind-blown dust or spores; and in infected cuttings and transplants.



**Figure 1.** Fusarium wilt on carnation (right pot) causes plants to yellow and wilt, and eventually die

### Damage

Fusarium wilt symptoms are typically yellowing and wilting of lower leaves, stunted growth, and brown streaks in vascular tissues that extends up stems. Root rot appears as brown, decayed roots, affecting water and nutrient uptake. Severe infections can cause complete wilting and death of plants, resulting in significant yield loss. These wilt and root rot symptoms can look similar to other plant diseases, so laboratory confirmation is advisable.

**Figure 2 (right).** Fusarium wilt of carnation showing the dark vascular lower stem tissue

### → Quick Facts

- **HOST PLANTS:**  
Various cut flowers including gerbera, chrysanthemum, lisianthus and carnations
- **WHERE TO CHECK:**  
Roots, stems, and vascular tissues for wilting and discoloration
- **WHEN TO MONITOR:**  
Regularly, especially during the growing season
- **HOW OFTEN TO MONITOR:**  
Weekly or as needed based on symptoms
- **ACTIONS:**  
Inspect plants, practice good hygiene, and manage environmental conditions



## Disease Management

### Cultural

- **Good Hygiene:** Maintain cleanliness by disinfecting all equipment and growing media.
- **Production Practices:** Use healthy seedlings and certified disease-free seeds. Disinfect cutting tools regularly. If possible, use a soil-less growing media or sterilised or pasteurised soil.
- **Environmental Control:** Grow in soilless media or pasteurised soil and remove infected plants immediately. Liming acid soils reduces disease severity. Using well composted organic soil amendments or beneficial microbes may suppress disease.
- **Nutrition:** Fusarium wilt is favoured by high levels of ammonium nitrogen (such as in urea fertiliser) and low plant uptake of potassium and calcium. Therefore, using a nitrate form of nitrogen fertiliser and addition of a balanced formulation of micronutrients will help to suppress this disease.

### Chemical

There are currently no registered fungicides for the control of Fusarium diseases of cut flowers in Australia.

Irrigation can be a source for the introduction of Fusarium. Use chemical disinfectants, UV irradiation, or slow sand filtration to disinfect irrigation water.



Image: andreaobzerova

### Take Aways

- **Early Detection Saves Plants:** Spotting Fusarium early is critical; infections are incurable and require immediate plant destruction.
- **Keep things sterile:** Regularly sanitise tools, pots, and nursery spaces to prevent the spread of Fusarium.
- **Start with Clean Stock:** Always use certified disease-free seeds and seedlings to avoid introducing Fusarium.
- **Water Safety Matters:** Treat irrigation water to prevent Fusarium contamination, especially in recirculating systems.
- **Biosecurity Vigilance:** Exotic Fusarium species pose a serious threat – ensure you are testing for the type of Fusarium disease.

## References / More Information

- <https://www.horticulture.com.au/globalassets/hort-innovation/resource-assets/ny11001--fusarium.pdf>
- <https://www.aciar.gov.au/sites/default/files/legacy/node/8613/MN129%20part6.pdf>

This fact sheet has been developed by RMCG and reviewed by Dr Len Tesoriero as part of a Storm and Flood Industry Recovery project to reduce chemical use in the NSW cut flower industry.



Image: hedgetog94

This Storm and Flood Industry Recovery project is jointly funded by the Australian and NSW governments under Disaster Recovery Funding Arrangements



Australian Government



RMCG