Western flower thrips (WFT)

Thrips causing damage to horticultural crops is not new. But the introduction and establishment of western flower thrips (scientific name = *Frankliniella occidentalis*) occurred in Australia about 8 years ago. Western flower thrips are similar in appearance and biology to the onion and tomato thrips which are common in Australia. However, due to its efficiency at spreading tomato spotted wilt virus and the feeding damage caused by western flower thrips, millions of dollars of crop damage has been reported overseas and in Australia. Australian researchers have developed management strategies and are conducting research into this pest.

Feeding damage

Western flower thrips live and feed on flowers or new plant growth such as buds and young leaves. They feed by piercing the plant cell with their mouthcone and suck out the contents. The empty cells then collapse and die. The resulting distortion, wilt or scarring is not always apparent immediately after feeding, but becomes obvious when the affected leaves, flowers or fruits grow and distort. Large numbers of thrips feeding can cause total crop loss or can reduce the value of the products if the "look" of the product is important such as cut flowers.

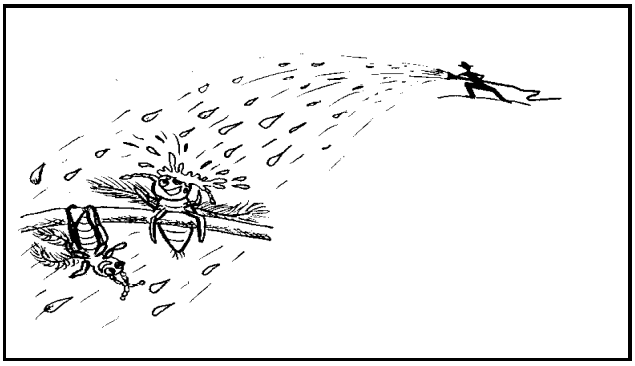
Tomato spotted wilt virus

In addition to the damage caused by feeding, western flower thrips is the most efficient vector of *Tospoviruses* which include tomato spotted wilt virus and impatiens necrotic spot virus. Tomato spotted wilt virus is present within Australia but Impatiens necrotic spot has not yet been found to occur.

Tomato spotted wilt virus infects a range of over 900 plant species and is spread by five species of thrips in Australia including western flower thrips. Tomato spotted wilt virus produces different symptoms on different plants but the most common symptoms are a loss of vigour and productivity, chlorosis and stunt. Suspect plants should be tested in a diagnostic laboratory.

There is no treatment available to rid a plant of the virus once it is infected. It is therefore important to prevent the virus spreading. If tomato spotted wilt virus is present in a crop you can prevent it from further spread by:

- destroying tomato spotted wilt virus infected plants
- controlling thrips, especially western flower thrips
- removing weeds that may harbour tomato spotted wilt virus and/or thrips
- propagating from healthy stock plants (preferably virus-tested), or from seed (tomato spotted wilt virus has not been shown to be transmitted through seed)
- inspecting incoming plants thoroughly for virus symptoms
- protecting seedling beds from thrips by using insect-proof netting



Western flower thrips may quickly develop resistance to pesticide sprays

Control of western flower thrips

Insect pests can sometimes be controlled solely by the application of chemicals but this is not the case with western flower thrips as it rapidly develops resistance to insecticides. Therefore, there are a number of general strategies that you should follow to control western flower thrips in greenhouse and outdoor crops.

1. **Adopt the recommended chemical spray program**.
   Spray applications are only effective when the thrips are actively feeding (larvae or adults). It is necessary to apply a series of the same spray at various intervals depending on temperature. It is then advisable to change chemical groups for the next series of sprays to reduce the chances of the thrips developing resistance to pesticides. Always use a recommended spray program and only when western flower thrips have been accurately identified.

2. **Monitor for thrips**
   Use yellow sticky traps (one per 200m^2 or at least one trap per glasshouse) suspended 10 cm above the plant canopy. By counting thrips numbers you can determine if the populations are increasing or decreasing and then whether or not to apply an insecticide. Routine trapping is important as western flower thrips are inconspicuous and the damage they cause may not be immediately visible.

3. **Control weeds within and surrounding crops**
   Weeds can provide an environment for thrips to feed on and reproduce in, especially when no crops are being grown.

4. **Remove and dispose of the remains of an infested crop**
   If western flower thrips is present, remove crop and weed debris from the greenhouse or field between crops as thrips can live and breed on this material until the new crop is planted. This is achieved by removing and burning, or ploughing in a harvested or abandoned crop. If this debris is not destroyed, all the thrips including the eggs and pupae in the plants will survive, and transfer into the next crop.

Produced by:
National Strategy for the Management of Western Flower Thrips and Tomato Spotted Wilt Virus

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