Experience with Western Flower thrips in Tasmanian Glasshouses

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I am going to tell you about my experience assisting several Tasmanian growers deal with western flower thrips (WFT). I will stress the importance of hygiene both for avoiding the pest in the first place and for dealing with it when it arrives. After discussing WFT I will describe the widespread glasshouse white fly and the new pest, Bemesia white fly. I think similar lessons apply to them.

WESTERN FLOWER THRIPS

Western flower thrips looks similar to other thrips. It is larger than onion thrip and paler. Its colour changes seasonally but it is often two tone. With a small amount of practice you can probably identify the female WFT on sticky traps. In some environments there are other thrips that can be confused with it. Every glasshouse has its own range of thrips deriving from the plants inside and outside.

The most reliable means of identification is the presence of bristles on certain parts of the body. You need ×20 or more magnification to see them confidently. They are black and contrast well with the pale body.

Western flower thrips are worse than other thrips because they:

- Can rapidly develop resistance to many insecticides;
- Are the most efficient vector of tomato spotted wilt virus (TSWV) and
- Live on a wide range of plants.

Western flower thrip feeds by lacerating the surface cells with chisel-like mouth-parts and sucking up the cell contents. Whilst doing so it will transmit the TSWV if it became infected when a juvenile. Adult thrips can give the virus but do not acquire it. Systemic insecticides are effective against aphids but not necessarily thrips. Systemic insecticides do travel around the plant in the main sap flow. This can compensate for poor initial spray coverage if the pest feeds directly on the deep sap flow and consumes a large volume of sap as aphids do. Thrips suck plant tissues but not at a depth and in enough volume to fully encounter systemic insecticides.

Western flower thrip is associated with many plants and weeds. It prefers to live in flowers but does lay eggs and feed elsewhere, such as on leaves and buds. A huge benefit in WFT control can be gained by:

- Removing weeds;
- Removing unnecessary blooms.

In my experience you will never get ahead of the WFT population while you leave breeding sites like reject blooms, spent blooms, and weeds near your plants. You will find yourself spraying every second day and still having dozens of thrips on your sticky traps instead of one or two.

When buying in plants consider receiving them without blooms if possible. If the supplier removes blooms before they come to you then you have removed 90% of WFT risk on those plants. That is one big step ahead.

Like other thrips, WFT is tiny and slender. It can and likes to hide away among petals. High pressure sprays and high volumes will help to find them but this is not possible with all plants. If you want your sticky traps to show no WFT from week to week you need to consider first-class spray equipment (high pressure and volume where possible) after establishing good hygiene — removing weeds and spent blooms.

Like other thrips, WFT lays its eggs into plant tissue. The female has twin saw-like blades for cutting slots in petals, leaves, and fruit into which eggs are placed. Here the egg is safe from predators and insecticides.

Another stage in the thrips life cycle that is sheltered from insecticides is the pupal stage. It occurs between the juveniles which can walk but don't fly and the adult which can walk and fly. Young juveniles can probably be carried on the wind. Juveniles and adults feed. Juveniles usually leave the plant to change into the adult stage via the nonfeeding pupa. These pupae are sheltered in the potting mix and leaf and bloom debris.

When you spray some of the WFT population will be at egg stage and some at pupal stage. These will survive. You need to repeat the spray when these have progressed to the next stage which is the feeding juvenile or adult.

To conclude on WFT:

- Once you get it, it is very difficult to eradicate.
- We have had success in a couple of cases where one thrip was detected on a sticky trap and immediate action was taken by destroying and spraying stock. Such action can be very expensive at the time but it is better than being encumbered with this pest.
- The physical layout of a nursery can facilitate eradication.
- If sticky traps are present and frequently monitored, and new stock is segregated from main production areas while it is assessed, there is a chance of nipping imported WFT in the bud.
- Once a few get established in your main production area you have to move on to long-term control though we are still attempting complete eradication at one site where hygiene and spray standards are very high.
- WFT likes white clover. It likes other weeds. If you are growing in-ground in poly tunnels you will have major problems controlling thrips while there are weeds present in your beds. They and all unnecessary blooms need to be destroyed frequently. Effort spent here will save you from the unpleasant task of donning a spray suit every second day. If you have white clover under growing benches then get rid of it. It is a reservoir for WFT.
- If you are using insecticides do it properly. A gentle mist may be necessary on expensive sensitive blooms but is very easy on the thrips. Unless you excite them with a synthetic pyrethroid spray they will stay secure in their hideaways where mist won't reach them. The best of chemicals will not beat poor hygiene and poor application.

ANOTHER NEW PEST — BEMESIA WHITE FLY

Bemesia white fly is also known as poinsettia white fly, silver leaf white fly, and tobacco white fly. In the southern states it is more likely to be a glasshouse pest. Like

WFT it infests a wide range of plants, transmits viruses, and can resist many insecticides after repeated exposure to them.

Glasshouse whitefly looks very like Bemesia white fly. Glasshouse white fly is widespread in Tasmanian glasshouses and in the field on the mainland, while the other white fly is absent in Tasmania but widespread in warmer mainland areas.

Control of breeding sites and restricting access to glasshouse is important in white fly control. There are very few insecticides registered for whitefly control so they need to be given the best chance by preliminary hygiene measures.

Fog in Propagation: My Personal Experiences

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Use of fogging in propagation was "state of the art" 10 years ago when we first installed our system. The system we installed, called Microcool™, was manufactured in the U.S.A. It was purchased via a Melbourne company. This paper presents some of the strengths and weaknesses I have observed in this fogging system over time. My propagation experience prior to the installation was zero, so I am limited in my ability to compare fogging to misting.

Our set up involves six separately insulated, thermostatically heated benches. The fog is very fine, about 5-micron droplets, and is activated by a relative humidity (RH) control box. A wet/dry bulb acts as the sensor. The whole glasshouse is covered with a retractable shadecloth cover which we use in the hotter months. Normally RH is set at 80%.

Generally, I am happy with the system. It does allow for use of very soft tip cutting material, even in summer. The cutting medium doesn't stay excessively wet and we operate virtually organically, without use of fungicides. Little maintenance of the system has been required and it operates fairly automatically. Because of the fine nature of the fog, staff can work inside the house without having to turn the unit off.

The main problem that we had initially was hardware, specifically getting parts from the U.S. and noncompatibility of electricity supply. Although the local (Melbourne-based) agent was very supportive in their post sales service, I would recommend buying Australian made equipment if possible. Of an ongoing nature, drying out of the propagation medium from the base is a problem, we have to be very vigilant to prevent drying out of propagation media from the base. To overcome this some daily overhead watering is required. Uneven fog distribution means that cutting placement is something of an art, i.e., very soft cuttings go in the foggiest places! Regular checking of the wet bulb wick and filling up the wet bulb with rainwater is needed. Greater ventilation would also assist the operation of our house.