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Come to Grips with Thrips

“Good riddance”

– William Shakespeare, *Troilus and Cressida*

Is there any greenhouse pest more annoying - and damaging - than western flower thrips? Well, maybe, but it certainly ranks high on my list among the more insidious and difficult. The damage to flowers and foliage can be severe, they seem resistant to almost everything, populations are high at the worst times, they know which are the most expensive and sensitive crops, and as a bonus can transmit tospoviruses (tomato spotted wilt and impatiens necrotic spot among others). Virus-infected plants may not initially show symptoms, but usually they become unmarketable, at least if they don't die first.

For a while it seemed thrips and tospo problems had receded, but they're part of the discussion again. Following are some thoughts and suggestions for tackling this now and in the future.

- Learn in your own range what crops and varieties WFT like and don't like. Over 250 kinds of plants are known hosts, but many aren't and some varieties are favored over others. For example, Graeme Murphy, formerly with the Ontario Ministry of Agriculture and Food,

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Gerbera leaf with scarring due to thrips feeding at leaf expansion

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reported ‘Vyron’ and ‘Chesapeake’ chrysanthemums made particularly attractive ‘trap plants.’ WFT seem to love alstroemeria pollen but foliage much less. I rarely find them in zonal geraniums but in high populations some will go to flowers. One source notes WFT also would rather feed on mite eggs (their one useful quality, though we have also seen them feed on powdery mildew spores) than leaves, so mite infestations might be another place to check for thrips. Note especially how preference changes during bloom and over the course of the production season. Use this to inform where to focus monitoring and control efforts or determine what new cuttings as well as established plants might be grown together, isolated, or rotated in/out. If using banker plants such as ‘Purple Flash’ pepper for Orius (see Waite et al. in references) these could be placed around or distributed among preferred WFT hosts.

- What crops does WFT reproduce on? Assess by tapping foliage before bloom over a white surface to look for the small nymphs. Do the same with flowers when they are present. This helps determine where predatory mites should be released or concentrated (they feed on youngest nymphs), where certain insecticides targeting just immature stages (Pedestal, azadirachtin, Kontos) can be helpful, or where products that work on all



Blowing lightly into flowers draws out western flower thrips



Detect western flower thrips early with sticky cards

stages will be more appropriate. Such careful observations also help reveal the contribution different crops make towards building a thrips infestation. For example, we have found WFT breed very well on foliage of at least some marigolds, but have only seen adult thrips on poinsettia (so far).

- Manage aggressively before bloom. This means some kind of monitoring program - even just yellow sticky cards if nothing else - and a prompt response when levels are low early in production. Thrips reproduction spikes around flowering, in part because of the availability of high-quality food (pollen). Control is also more difficult during bloom - plants are larger, more places for thrips to hide, insecticide coverage usually less, potential flower sensitivity, concern for pollinators.... However, the presence of pollen can be a good thing for thrips predators that also use the resource.

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- Timing is everything. Biocontrols need to be used early of course but if control seems to be slipping, WFT populations trending upwards and bloom coming on it may be time for an insecticide. Products we've tested that work well or very well against WFT include Pylon, Overture, Mainspring, and Mesurol. Pedestal, azadirachtin and Kontos can be important partners targeting immature thrips. Conserve, highly effective at one time, may still be for susceptible populations. Avid (or generic), Orthene TTO/Acephate, BotaniGard, and the neonicotinoids can suppress WFT infestations but will probably be better in a supporting role than as stand-alone products. Note Orthene/Acephate is only labeled for a few greenhouse crops and has a 24-hr REI - in NY State it is now a state-restricted product.

Growers pleased with biocontrols also dedicate considerable time and thought to cultural and non-chemical management strategies, as well as a better understanding of how WFT operates in their business. Insecticides and biological controls for thrips are not inexpensive, but losses from thrips damage and virus infections can be worse. Some careful observations can improve the efficiency of your program.



Gloxinia flower with injury from western flower thrips



Western flower thrips feeding on Alstroemeria pollen

References

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Pericallis with white scarring from western flower thrips on petals.