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Thrips Tips

Western flower thrips continues to be a major spring greenhouse pest. Successful management includes much more than just insecticides.



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Western flower thrips (WFT) tops the 'least wanted' list among greenhouse growers of spring bedding plants, flowering pot crops, cut flowers, and indoor and high tunnel food crops. Although other thrips are sometimes pests in greenhouses, such as chilli thrips, greenhouse thrips, 'poinsettia thrips,' and several others, WFT is the most common and the hardest to control. Damaging by itself, WFT can also carry viruses that infect many plants and make them unsalable. Most notorious as a pest of flowers, it will also feed on growing points and older foliage of some plants. WFT is also a pest outdoors in some areas. Tomato leaves and fruit are often affected, but this year some northeast US potato growers were surprised to see heavy leaf damage in some fields.

Systemic insecticides are not very effective against WFT and it is difficult or impossible to get control once flowering is underway.

There's more bad news. As many have learned, WFT populations are capable of developing resistance

to many insecticides. The Arthropod Resistance Database at Michigan State notes cases of resistance to 23 insecticides. Greenhouse growers will recognize spinosad (active ingredient in Conserve & Entrust), abamectin (Avid & generics), various pyrethroids (Mavrik,



Scarring on mum petals due to western flower thrips feeding.

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Western flower thrips will even attack poinsettias but don't seem to be able to reproduce well on the plant. This image show typical scarring from feeding on unexpanded leaves.

Astro, Talstar, others), acephate (Orthene TTO/generics), methiocarb (Mesuro), and chlorpyrifos (DuraGuard) on the list. This doesn't mean the products won't work for any particular grower - but the insect's capacity for resistance is evident. The obvious lesson: don't rely entirely on insecticides and especially not on any single product or mode of action.

Following are my suggestions for dealing with this threat.

Are they already in the house? Set up some yellow or blue sticky cards just above the crop canopy to trap them. Choose areas with cutting-grown crops, older plants, or known favorite hosts. Thrips travel

on air currents so spots near window vents, 20' or so in front of intake fans, or where passageways meet larger spaces (and air movement slows) are also good. Blow lightly into flowers and watch for thrips running out or tap flowers and foliage over a white surface to detect them. Look for obvious signs of scarring or distortion on leaves and petals. Check cards at least weekly.

Watch for virus symptoms. WFT can carry the tospoviruses impatiens necrotic spot and tomato spotted wilt. Either can be devastating. Look for unusual symptoms like unexplained dead areas on bases of leaves, ring spots, black spots in unusual places, mottling, and stunting. There

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are many good images of symptoms on the internet but often what growers see is not very dramatic and may be isolated to several plants or a single cultivar. We sometimes see symptoms on plants in greenhouses with no thrips present - infections can be transmitted vegetatively. Get a diagnosis and if confirmed a more comprehensive discussion of control with your Extension specialist may be called for.

Non-chemical controls help but use early. Clean out between crops, remove and bag flowers with thrips inside during early bloom where possible, incorporate biological controls, isolate 'clean' plants from older infested ones, use

screening if invasions from outdoors are causing annual headaches. While screening adds considerably to cost and maintenance it may make sense in some situations.

Front-load the management program. WFT can do fine on foliage of some plants, but once pollen is available and weather is warm WFT populations 'explode.' One report indicated a nearly 5-fold increase in the population when pollen was present. Deal with the problem early when plants are small, canopies less dense, and there are few or no flowers. Confirm the controls are working with sticky cards and plant monitoring, noted above.



Western flower thrips can damage greenhouse and outdoor tomatoes. Gold flecking on fruit is one type of injury.

Exploit their weakness. WFT's preferences can be used against them. WFT finds foliage of most marigold varieties attractive, but zonal geranium foliage little or not at all. Ag Canada (<http://www.greenhousecanada.com/content/view/952/38/>) research suggests flowering mums ('Vyron,' 'Miramar,' and 'Chesapeake' noted among those with flowers and foliage preferred by WFT) or flowering gerbera work as 'trap crops' for migrating thrips when placed among non-blooming mums. These preferred plants - and there are others - can be the focus for biocontrol releases, insecticide applications, and/or sanitation like flower removal. Most growers can cite other particular insect 'magnets' from personal experience.

Rotate or incorporate insecticides with different modes of action (MOA). MOA codes on labels now make it easier. Most products are for both adult and immature (larval) thrips. Be sure to test any new product before large-scale use and read labels for information on sensitive crops. Pylon, Overture, Hachi-Hachi (for greenhouse only) and Mesurool have been among the more effective, but Conserve may be still working for some.



Western flower thrips trapped on a sticky card. Females are larger and darker than males.

Avid, DuraGuard, Orthene/Acephate, and several other foliar products can also be used. Don't forget Kontos and the insect growth regulators Pedestal and azadirachtin (Azatin XL or O, AzaGuard, Aza-Direct, Molt-X, etc.) for larvae. Insect-killing fungal products BotaniGard, Preferal, NoFly, and possibly Met52 EC will

benefit from moderate temperatures (70-90F) and high humidity (80%+) for an extended period (10 hours or longer). This may present concerns for Botrytis and other diseases, but they may still fit in well early in production during periods when these conditions occur naturally.



Lisianthus with symptoms of tospovirus transmitted by Western flower thrips.