

Managing Thrips on Garden Mums

Western flower thrips are one insect pest that can wreak havoc on even the best-managed garden mum crop.

Updated: September 22, 2023



Figure 1: Thrips are difficult to manage when garden mums are grown in outdoor production areas. Photos: Thomas Ford, Penn State

These small pests are usually less than 1/8 of an inch long, yellowish, with fringed wings (adults). Each female western flower thrips can lay between 150 and 300 eggs in her lifetime. The female western flower thrips uses her ovipositor to insert eggs into leaf tissues, buds, or flower petals. After hatching, the immature thrips or larvae will feed on plant fluids before molting twice and dropping to the soil or media as immobile non-feeding propupa and pupa before emerging as adults.

Western flower thrips have a high reproductive capacity, can complete their life cycle in as little as 11 days, and are known to rapidly develop resistance to chemical pesticides. These characteristics make western flower thrips a most formidable pest both in the greenhouse and in outdoor production areas.

Western flower thrips can transmit tospoviruses like impatiens necrotic spot virus (INSV) to susceptible crops. Chrysanthemums are a host for INSV, and some mum cultivars are known to be very highly susceptible to INSV infection. In order to reduce the incidence of INSV infection in garden mums, growers should eliminate or remove weeds from under greenhouse benches and/or from around the perimeter of outdoor production areas. Thrips populations must be maintained at very low levels to reduce the threat of INSV transmission.

Pesticide resistance is commonly observed in western flower thrips, so most greenhouse operators have become experts at using biocontrol agents in the greenhouse. When a crop like garden mums is being grown outdoors, biocontrol agents may be more difficult to deploy and retain in the production area. Common biocontrol agents utilized by greenhouse growers for managing western flower thrips include: *Amblyseius swirskii* (Predatory mite), *Neoseiulus cucumeris* (Predatory mite), *Orius* spp. (Minute Pirate Bug), *Stratiolaelaps scimitus* (Soil dwelling predatory mite) and *Steinernema feltiae* (Beneficial nematode).

Unfortunately, most growers do not monitor their outdoor garden mum crop with the same diligence or degree of scrutiny as they would with a greenhouse-produced crop. In the greenhouse, growers scout regularly and utilize yellow sticky cards to monitor for the presence of pest populations. In outdoor production areas, most growers do not scout regularly and react only after plant injury has been detected.

Growers that do not wish to utilize biocontrol agents in their garden mum crop may have no recourse but to utilize insecticides. Insecticides labeled for thrips management on garden mums in outdoor production areas include:

- abamectin (Avid 0.15EC)
- acetamiprid (TriStar 8.5 SL)
- azadirachtin (Aza0-Direct, AzaGuard, AzaSol, Azatin-O)
- *Beauveria bassiana* Strain GHA (BotaniGard 22 WP, Mycotrol WPO)
- *Beauveria bassiana* Strain ANT-03 (BioCeres WP)
- *Burkholderia* Strain A396 (Venerate CG)
- *Chromobacterium subtsugae* Strain PRAA4-1 (Grandevo CG)
- cyantraniliprole (Mainspring GNL)
- dinotefuran (Safari 20 SG)
- flonicamid (Aria)
- flonicamid + cyclaniliprole (Pradia)
- flupyradifurone (Altus)
- insecticidal soap (M-Pede)
- *Isaria fumosorosea* Apopka strain 97 (Ancora)
- *Metarhizium brunneum* Strain F52 (LALGUARD M52 OD)
- *Steinernema feltiae* (Nemasys, Scanmask, Nemashield)
- spinosad (Conserve SC)
- tolfenpyrad (Hachi-Hachi SC)

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