Greenhouse Pest Message August 4, 2023
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Garden mums – it's been a tough year for growing outdoor garden mums, beginning with the cool June nights and then heavy rainfalls. Continue to monitor your nutrient levels, to be sure you are supplying sufficient nutrition, especially if you are applying liquid feed. Monitor root health to make sure the plants can uptake those nutrients. Signs of poor root heath are discolored roots with few white root tips, or even absence of root growth.

Feed me Seymour: A Modern Guide to Garden Mum Nutrition
https://www.growertalks.com/Article/?articleid=24220

Incoming poinsettias – managing fungus gnat larvae is critical for the first month of production to insure white, healthy roots. Beneficial nematodes are widely used for fungus gnat larvae.

Figure 1 & 2: Fungus gnat larvae are feeding on this poinsettia leaf (on left) and damage to young root tips on incoming rooted poinsettia plug (on right). Photos by L. Pundt

I have received a few questions regarding the effect of temperatures on beneficial nematodes during the summer months. Hot temperatures can be more of a problem than cold temperatures when using beneficial nematodes. *Steinernema feltiae* (Nemasys, Entonem, NemaShield) cannot tolerate 95F for longer than four hours in the spray tank or in the growing mix.

Steinernema carpocapsae (Millenium) can survive temperatures up to 113F, but only for one hour. Millenium is used for shore fly larvae.

In general, *S. carpocapsae* is the most heat tolerant species followed by *Heterorhabditis bacteriophora,* and then *S. feltiae.* Without high temperature exposure, *S. feltiae* caused higher infection of fungus gnat larvae than *S. carpocapsae* did, so growers may want to rely on *S. feltiae* unless soil temperatures surpass 4 h at 95 F or if they reach 104F for any duration, in

which case *H. bacteriophora* or *S. carpocapsae* may be more effective.

From: Effects of High Temperature Exposure on the Survival and Infectivity of Commercially Available Entomopathogenic Nematodes by Anna Giesmann. MS Thesis, Cornell University. https://ecommons.cornell.edu/handle/1813/70112

In warmer weather, some growers may use an ice pack to keep the water temperatures cooler. The longer the beneficial nematodes are kept before spraying and the warmer the tank water, the more quickly their energy reserves are used up. Weaker nematodes are less robust during and after application and are less able to search for and infect a susceptible host.

When the beneficial nematodes have been stored in a refrigerator, allow them to warm up to room temperature before mixing with warmer water to avoid heat shock. Remove them from the refrigerator and allow about 30 minutes for them to warm up. Pre-wet growing media before application, so it's easier for the nematodes to move through the growing media.

Hoses that have been laying in sunlight could contain very hot water, so run water through the hose until cooler water flows thru the hoses.

For more: Best Practices for Biocontrols, Part 4. Beneficial Nematodes. By John Sanderson, Suzanne Wainwright-Evans and Ronald Valentin https://www.growertalks.com/Article/?articleid=25217

If you are using fungicide drenches against Pythium on poinsettia, check nematode compatibility with fungicides:

BASF Nemasys Beneficial Nematodes Chemical Compatibility Guide
https://betterplants.basf.us/content/dam/cxm/agriculture/better-plants/united-states/english/products/nemasys-beneficial-nematodes/nemasys-chemical-compatibility-guide.pdf

Poinsettia Leaf Distortion
Environmental stress, and overhead fertilization with phosphorus fertilizers, may lead to distorted poinsettia leaves.

Often, thrips feeding is blamed for distorted leaves. However, with thrips feeding you will see white scarring.

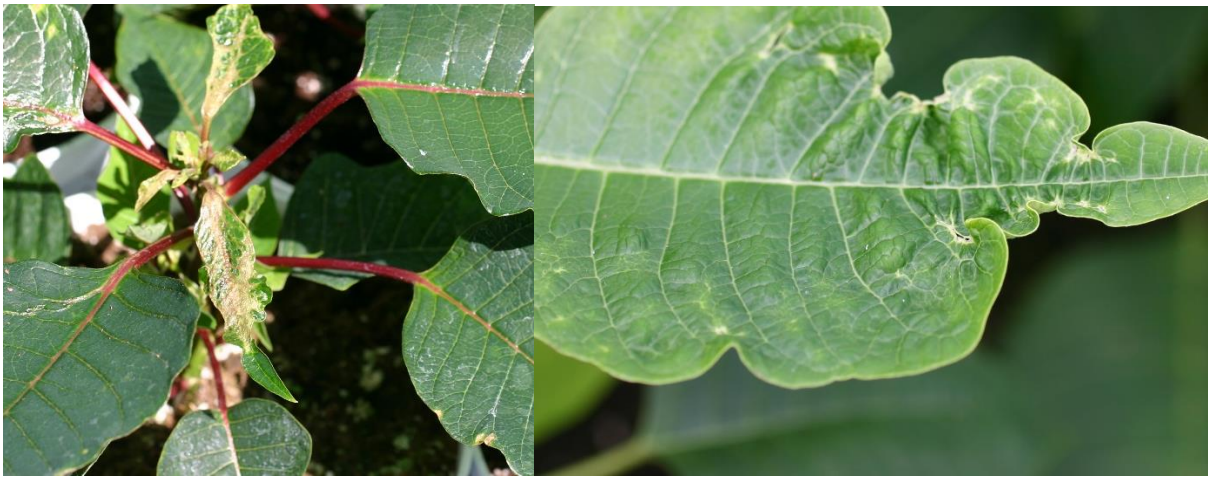

Figure 3 & 4: Overhead fertilizer containing phosphorous during propagation can cause leathery, wrinkled, and distorted leaves (on left) and leaf distortion with white scarring from thrips feeding (on right). Photos by L. Pundt

Poinsettia Leaf and Stem Abnormalities. E- Gro Alert https://www.e-gro.org/pdf/2021-10-36.pdf

Tomato/Tobacco Hornworms are now active and have been reported in greenhouse and high tunnel tomatoes in southern New England.

These large caterpillars can cause a lot of damage to just a few plants, defoliating plants and feeding upon tomato fruits. I have even seen damage to ornamental peppers.

As you are walking thru the greenhouse, you may notice their large droppings on the greenhouse floor. Look for their damage, droppings or the larvae that can be up to 4 inches long when fully grown. The larvae can feed for up to 3 to 4 weeks. Adults are large moths that may be seen at dusk feeding on flowers near greenhouses.

Tobacco hornworms have a red “horn” at their tail end and tomato hornworms have a blue or black “horn”.

Bacillus thuringiensis subspecies *kurstaki* is effective, provided you can obtain good coverage.

Handpicking is also an option as they may only be feeding on one or two plants.

Figure 5 & 6: Tobacco hornworm eating tomato fruit (on left) and hornworm droppings (on right). Photos by L. Pundt

If you see the white cocoons of a Braconid parasitic wasp, just move the caterpillars off the plants so they don't do more damage. This is a common natural enemy of the hornworms. The tiny wasp lays its eggs inside the body of the caterpillar. After feeding within the caterpillar, they emerge through the skin and spin their white cocoons. Adult wasps will emerge from these white cocoons to attack other hornworms.

Figure 7: White cocoons of a braconid wasp parasite on hornworms. Photo by L. Pundt

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