Greenhouse Pest Message, April 14, 2023
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Everyone is very busy. I am only seeing or hearing about occasional **aphids, thrips, spider mites** and **shore flies.**

Iron Efficient Plants: **Continue Monitoring pH levels to Avoid Iron Manganese Toxicity**

Keep monitoring the pH of iron efficient plants, especially zonal and seed geraniums. Other plants within this group include some marigolds, New Guinea impatiens, pentas, and lisanthus. These iron efficient plants have strategies to increase the iron solubility and uptake by exuding acid to drop the pH around the root zone which increases root enzyme activity.

As you know, zonal geraniums do best with a pH between 5.8 to 6.4. If the pH is below 5.8, this results in iron and other micronutrients such as manganese to become very soluble. Symptoms of iron manganese toxicity include brown speckling of the leaves, leaf chlorosis, upward cupping of the leaves and stunted growth.

Figure 1 & 2: Bronzing of the lower leaves due to iron/manganese toxicity. Photos by L. Pundt

The use of basic, nitrate-based fertilizers such as 13-2-13 or 15-0-15 helps stabilize the pH to the proper levels. If the pH is below the recommended range, you may also need to apply a flowable liquid lime product.

Low pH induces iron and manganese toxicity in geraniums
https://www.canr.msu.edu/news/low_ph_induces_iron_and_manganese_toxicity_in_geraniums
Geraniums: Diagnosing Nutrient Disorders: https://www.e-gro.org/pdf/2017_601.pdf

Monitoring pH and EC of Growing Medium: https://www.e-gro.org/pdf/2017_637.pdf

Metarhizium is Back in the Marketplace

Metarhizium brunneum (formerly known as *M. anisopliae*) Strain F-52 is now available and sold as LALGUARD M52 (formerly known as Met 52). For more: https://m.plantproducts.com/us/viewproduct.php?pid=500470

When the insect pathogenic fungus, *Metahizium* is sprayed unto the foliage, the insects that come into contact with the fungus will become infected. Spores attach to the surface of the insect, germinate, and grow. Under moderate temperatures, is usually takes from 3 to 7 days for insect or mite death to occur. Labeled pests include whiteflies, thrips, mites, and weevils on ornamental plants. It can also be drenched against thrips pupae and weevil larvae. LALGUARD 52 is compatible with IPM programs using beneficial insects.

There will be a free webinar on May 10th at 1:00 PM: *Thrips parvispinus: Identification, Scouting, and Potential Controls*

Join the Horticultural Research Institute (HRI), in collaboration with AmericanHort, the Canadian Nursery & Landscape Association, and the American Floral Endowment, to learn more about *Thrips parvispinus*.

In this webinar three experts in the field will cover identification, scouting, and potential controls. A question-and-answer period follow at the end of the webinar.

To register:
https://us02web.zoom.us/webinar/register/WN_6wgLLCE1TouRgwPQ9yQomg#/registration

Save the Date: June 29, 2023

For an all-day in person educational program focusing on diseases and disorders at the CAES in New Haven, CT. *Details coming soon.*

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