Greenhouse Pest Message, September 24, 2021
Leanne Pundt, Extension Educator, UConn Extension

Tropical Plant Pests

With the recent and continued interest in various indoor house plants and tropicals, I thought I would focus a bit more for the next few weeks on some of their more challenging pests. (Poinsettias are looking good so far without too many whiteflies).

Mealybugs
One of the most common question I receive is how to control mealybugs, especially when tropical or house plants are carried over during the winter months from one season to the next.

Unfortunately, there is no silver bullet that works against mealybugs. One of the first steps I suggest is to rely on the following cultural controls:

- Inspect incoming plants for any signs of mealybugs
- Avoid overfeeding with high nitrogen fertilizers
- Use a forceful jet of water with high pressure twice a week to dislodge the mealybugs
- Clean and power wash benches (even wire benches) and greenhouses between seasons
- Do not re-use pots without their thorough cleaning, as the mealybugs like to hide in the lips of the pots and their egg sacs on the pots can re-infest the next crop
- Control weeds such as oxalis that can harbor the mealybugs
- Clean up debris
- Throw out pet plants
- **THROW OUT HEAVILY INFESTED PLANTS!!!!!!!**

Dr. Casey Scalar (Executive Director of the American Public Gardens Association), completed a study when he was at Longwood Gardens and found that adult female mealybugs can live without a host plant for an average of **10 to 19 days**, and crawlers (newly hatched mealybugs) can continue emerging for up to **45 days later**. Females can lay their eggs under pots, on benches and in debris.

Their life cycle can take up to **60 days** from egg to adult (depending upon the mealybug species and greenhouse temperatures) so try to keep the greenhouses plant free for at least this amount of time, if feasible. If not, a two-week plant free window will help, as the eggs hatch into crawlers in about two weeks. The small crawlers can disperse through the greenhouse on air

currents, by workers handling infested plants, by watering, and by ants moving the crawlers between plants.

Mealybugs tend to be hard to kill with insecticides because an insecticide solution has difficulty penetrating the waxy, water repelling layer that covers their body. Crawlers have a thinner waxy layer so are more susceptible to insecticide treatments. With overlapping mealybug generations, 2 to 3 foliar sprays are needed (read and follow all label restrictions regarding timing and number of applications you can apply). Because they tend to hide on the underside of leaves or along the stems, thorough coverage is necessary. Adding a spreader sticker such as Capsil, helps, too.

There are various species of mealybugs that you can face including citrus mealybug, madeira mealybug, longtailed mealybugs and others. Consult the Mealybug web page by Dr. Lance Osborne, University of Florida, for good photographs and descriptions to aid in ID: https://mrec.ifas.ufl.edu/lso/mealybugs.htm

Figure 1 & 2: Mealybugs hiding deep within the plant and long tailed mealybug on the underside of a leaf. Photos by L. Pundt

Research by Herrick et al. 2018, reported less than 50% mortality when using systemic insecticides against **citrus mealybugs**, whether products were applied preventively or curatively. They concluded that greenhouse producers would have to resort to contact insecticides against citrus mealybugs. With overlapping mealybug generations, 2 to 3 foliar sprays are needed (read and follow all label restrictions).

Dr. JC Chong summarized research from the IR 4 program on how well the different products worked against the citrus and madeira mealybugs in an GrowerTalks article in 2018. Against the citrus mealybug, some of the products that showed over 90% effectiveness 4 weeks after treatment

included: Tristar (4A), Safari (drench)(4A), Flagship (4A), Rycar (9B), Talus (16), and Aria (29). There were fewer studies against the madeira mealybug but Talus (16), Kontos (23) (spray), and horticultural oil did well. https://growertalks.com/Article/?articleid=23424

The IR 4 project published a more recent research summary for scales and mealybugs in 2020. Mealybug species studied included the citrus, madeira, Mexican, phormium, and root mealybugs. (Where are the longtailed mealybugs, you ask?) Me, too.

Pradia (9 & 28) and Ventigra (9D) provided excellent control of Madeira mealybug. Aria (29) provided good to excellent control of citrus and Mexican mealybugs as a foliar spray. Flagship (4A) as a foliar spray worked well against citrus, Mexican and phormium mealybugs. Safari (4A) worked well as a foliar or drench applications Mexican and phormium mealybugs. Talus (16) worked well against Madeira and Mexican mealybugs. Tristar (4A) worked well against citrus, Mexican and phormium mealybugs, and on Madeira mealybug when mixed with Capsil.
For more: https://www.ir4project.org/ehc/researchsummary/efficacy/scale-and-mealybug-efficacy-2020/

I often suggest SuffOil -X, especially for smaller growers. SuffOil-X has been tested on a broad range of plants. (However, growers tell me not to use SuffOil X on succulents.) Its formulation allows for less oil to be applied and faster drying time. The small droplets allow for a more uniform coverage and thinner coating of the leaf surface. Follow oil spray guidelines or application tips to reduce or eliminate the risks of phytotoxicity. For more: https://www.bioworksinc.com/suffoilx/

Because Suffoil X works by contact, thorough coverage is needed. If you are using a backpack sprayer, one that is battery operated will help with your spray applications. All oil products should be applied under conditions that promote rapid drying time.

Mealybugs are also challenging to manage with biological control agents. Dr. Sarah Jandricic from Vineland Research Innovation Center has been conducting grower research on the mealybug destroyer or *Cryptolaemus*. This beetle is predaceous both larvae and adults feeding upon mealybug eggs, young crawlers, and honeydew. A single larva can eat 250 small mealybugs over its lifetime. It needs to lay its eggs in egg masses, so does not work against the longtailed mealybugs. It is best used from April to October as they do better in warmer conditions (above 64° F). There is also a parasitic wasp, *Anagyrus pseudococci*, for use against the citrus mealybug.

https://onfloriculture.wordpress.com/2015/07/31/floriculture-ipm-for-mealybug/

Consult and follow pesticide labels for registered uses. To avoid potential phytotoxicity problems, spot test before widespread use. No discrimination is intended for any products not listed

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