Greenhouse Pest Message, November 16, 2023
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Poinsettias are shipping and retailers are anticipating the upcoming holiday season.

However, retail garden centers often carry some plant material over from year to year, making pest management more challenging.

One of the more frequent questions I receive from retail garden centers and conservatory greenhouses, 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 is to rely on **cultural controls:**

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

Dr. Casey Scalar (Director of the Arboretum at Penn State), 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 fallow period 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 they are more susceptible to foliar sprays. Because mealybugs tend to hide on the underside of leaves or along the stems, thorough coverage is needed.

There are different species of mealybugs including the citrus mealybug, Madeira mealybug, longtailed mealybugs that you may occur.

Consult the **Mealybug web page** by Dr. Lance Osborne, from the University of Florida, for good photographs and descriptions to aid in identification: https://mrec.ifas.ufl.edu/lso/Mealybugs.htm

Figure 1: Citrus mealybug, John A. Davidson, Univ. MD. College Pk, Bugwood.org (on left) and longtailed mealybug Photo by L. Pundt (on right)

Research by Herrick et al. 2018, reported less than 50% mortality when using systemic insecticides against citrus mealybugs, whether these products were applied preventively or curatively. The researchers 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. J C Chong formerly from Clemson University and now SePro summarized research from the IR 4 project on how well the different insecticides worked against the citrus and Madeira mealybugs in a 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://www.growertalks.com/Article/?articleid=23424

The IR 4 project published a more recent research summary for scales and mealybugs in 2023. Mealybug species studied included the citrus, madeira, Mexican, phormium, and root mealybugs.
https://www.ir4project.org/ehc/researchsummary/efficacy/mealybug-efficacy-2023/

Some herb growers have used insecticidal soap to help dissolve the waxy coating and then follow up a day or so later with a SuffOil X application.

Although there are several oil products available (Ultra-Pure Oil, Triact 70 and other 25 B products), SuffOil-X tends to be safer to use. It is an 80% pre-emulsified, highly refined, horticultural mineral oil.
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.

SuffOil-X has been tested on a broad range of plants. See **label** for more information. (However, growers tell me not to use SuffOil X on succulents.)

Tips for Use

- Ensure thorough coverage (a battery-operated backpack sprayer works well)
- Apply during conditions that promote fast drying times
- Avoid applying during humid conditions
- Avoid applying to plants that are drought stressed
- Do not tank mix or apply in rotation with sulfur

Mealybugs are also challenging to manage with biological control agents. Dr. Sarah Jandricic from Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has been conducting grower research on the mealybug destroyer or *Cryptolaemus.* This beetle is predaceous as both larvae and adult stages feeding upon mealybug eggs, young crawlers, and honeydew. A single larva can eat 250 small mealybugs over its lifetime. *Cryptolaemus* needs to lay its eggs in mealybug egg masses, so does not work against longtailed mealybugs, who give birth to live young. The mealybug destroyer is also best used from **April to October** as they do better in warmer conditions (above 64° F). For more:
https://onfloriculture.com/tag/biocontrol-for-mealybug/

For More: UConn Greenhouse IPM Fact sheet: Managing Mealybugs in the Greenhouse https://ipm.cahnr.uconn.edu/wp-content/uploads/sites/3216/2023/10/2023mealybugsfinal.pdf

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