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Greenhouse TPM/IPM Report

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From: Stanton Gill, Extension Specialist – IPM for Greenhouse and Nurseries, Central Maryland Research and Education Center, University of Maryland Extension
Karen Rane, Plant Pathologist, Director of the Plant Diagnostic Clinic, University of Maryland Extension
Andrew Ristvey, Extension Specialist, Wye Research and Education Center, University of Maryland Extension
Suzanne Klick, Technician, CMREC, University of Maryland Extension

Aphids and Mites In Greenhouses in February

By: Stanton Gill

Everyone is gearing up in the greenhouse for anticipated strong sales this spring. With full greenhouses, we are seeing the activity of two pests increasing dramatically. One of these very active insects is aphids. Green peach aphid, melon aphid, and potato aphid are three species most commonly brought to our attention. Aphids are currently active on veronica, salvia, and sedum plants. Monitor these crops closely. Melon aphid tends to build up in the center of plants whereas the green peach aphid cluster and feed on tip growth in the early population dynamics.

A green peach aphid and cast skins

Melon aphids and cast skins

Potato aphid

Twospotted spider mite adult and eggs

Mites are also active in greenhouses this month. The temperature for most crops grown at 70 °F and the lower humidity of the plant canopy is perfect for mites. During the winter months, this environment is perfect for twospotted spider mite build-up. Check the undersides of foliage for spider mite activity, especially on susceptible plant species such as veronica.

The other mite I have received at CMREC is the citrus red mite, *Panonychus citri.* Many operations are bringing up citrus trees from the south to sell through garden centers. Citrus mite is tropical and does not survive outdoors here, but it will come up in plants shipped form the south. This mite flourishes in the spring on citrus crops. On leaves, citrus red mite feeding results in a pale stippling, visible primarily on the upper surface of the leaf. In severe infestations, the stippling enlarges to dry necrotic areas (commonly called mesophyll collapse). Eventually, leaves may drop and twigs dieback. Plants infested with citrus mites have an etched, silvery appearance or become spotted with yellow, necrotic regions.

Citrus mite stipping damage (left) and citrus mite adult (above)

Control: SuffOil-X can be applied at 1% rate to the lower surface of the foliage. The most important natural enemy is the predaceous mite *(Euseius tularensis).* These beneficial mites can establish their populations before citrus red mites are numerous because they have alternate food sources (pollen, nectar, and honeydew). They mainly attack immature stages of the citrus red mite. The female of both species is about the same size as the female citrus red mite but is pear-shaped, shiny, and translucent. Predator eggs are clear, oval, and about twice the size of citrus red mite eggs. Check with biological control houses for sources for these predators.

Use of Sulfur in Greenhouses

By: Stanton Gill

Many greenhouse operations are now growing field hemp plants. For powdery mildew control, many are burning sulfur and allowing the fumes to deal with powdery mildew on hemp plants. One of the professional IPM Scouts put forth a question this week that I thought was quite appropriate: Is burning sulfur for disease control legal in the U.S.? We do not have clear regulations on this process of vaporizing sulfur? The scout points out that many growers are saying they are supplementing fertility of the plants, but let's get real here, it is a backhanded control of a disease.

Here are the IPM Scouts comments: “If they say they are feeding the plants, that’s ok and then no REI? But if for pest control, that is illegal because of no labeled vaporizing products. But, if they spray sulfur for pest control it is a 24 REI and legal. Is this still correct?”

They also point out for sulfur applications directly on plants, the IPM Scout found this product does have greenhouse on the label and mites listed. Tobacco is an approved crop. It does have a 24 REI. The Sulfur 90W label is available at https://gcrec.ifas.ufl.edu/static/docs/pdf/strawberry-pathology/Fung-label/2009/sulfur/sulfur-90W.pdf.

When it comes to compatibility with beneficials, its seems the inforomation is kind of all over the place on whether it hurts them or not. We are told that with vaporizing, it’s the weekly hours accumulation. As long as you stay under 24 hours of vaporizing that most beneficials will be “ok” but if you look at pesticide side effects tables they tell a different story. Koppert has added in “smoke” application. When you look up the predatory mites, smoking sulfur looks to be very toxic. Same with *Aphidius* species. But its ok with adult *Aphidoletes*, which is often thought to be killed easily by sulfur.

A Canadian greenhouse consultant commented that sulfur burning is common in 60 -70 % of the operations in Canada. The rule they follow is no more than 12 hrs per week, with a max of 4 hours at a time (so 3 burns of 4 hours max per week). They haven’t done scientific comparisons of compartments with/without, but they would say given the number of operations and the range of crops on which this is used in Canada (potted/cut gerbera, kalanchoe, mums, etc), that rule has worked out pretty well.