



Greenhouse TPM/IPM Weekly Report
University of Maryland Cooperative Extension
Central Maryland Research and Education Center

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5th Annual Chesapeake Green Horticulture Symposium
February 6 & 7, 2008
Maritime Institute, Linthicum, MD
Contact MNLA at 410-823-8684 for registration information

Leafy Gall in Verbena – Karen Rane

We received a verbena plant in the UMD Plant Diagnostic Lab this week showing abnormal clusters of small shoots and leaves near the crown of the plant. These symptoms are typical of the disease called bacterial fasciation, or leafy gall, caused by the plant pathogenic bacterium *Rhodococcus fascians*. While this disease has been around for many decades, until recently it was found primarily on geraniums. Recently, the disease has been reported on a number of herbaceous perennials. Symptoms are often compared to those of crown gall, caused by another bacterial pathogen, *Agrobacterium tumefaciens*. Unlike the crown gall pathogen, which induces galls of undifferentiated callus tissue, *R. fascians* causes proliferation of green tissue that is recognizable as small stems or leaves. Much needs to be learned about how this pathogen is spread, and how it causes these unusual symptoms. It appears that the bacterium may remain in plants for several weeks or months before symptoms develop, making control difficult. At present, sanitation (removal of symptomatic plants and those plants immediately adjacent to those with leafy gall) is the only management recommendation available. Since similar symptoms may be caused by mites and other arthropod pests, it is a good idea to have plants with leafy gall symptoms checked out by a diagnostic laboratory. Please feel free to contact me at 301-405-1611 (rane@umd.edu) if you think you may have this disease – we'd like to know how prevalent it is in perennials in our area. Melodie Putnam, plant pathologist at Oregon State University, has been working with *Rhodococcus* for several years, and more information on the disease can be found at her website http://www.science.orst.edu/bpp/Plant_Clinic/rhodococcus.htm



Gilling

We received a sample of *Alocasia* ‘Hilo Beauty’ (variegated taro) from a conservatory last week that had strange ruffled growths on the undersides of the leaves. This type of distortion is known as gilling. It’s caused by an excessive amount of air moving across the leaf surface in a wave motion in an on and off pattern- often from nearby fans kicking on and off. We have also seen this type of distortion on poinsettias.



Scale

We sent this photo of a scale found on variegated ivy to John Davidson last week for identification. Here are his comments...

“It looks like a growing hemispherical scale that has not yet rounded up, but the derm is "bumpy" and not smooth. It looks like a ridge pattern with an “H” may be forming. This would make it black scale or Miranda scale, which are in the same genus as hemispherical scale. You probably wouldn’t be able to tell which one you had without a larger population with some older, more characteristic individuals.

Control: systemic neonicotinoid drench or Distance spray when in the crawler stage



Banking and Investing on Aphid Control in Greenhouses

First – just the facts

We are starting to receive plant samples with aphid populations. On greenhouse crops in general, the two most common species by far are the green peach aphid, *Myzus persicae*, and the melon aphid (also known as the cotton aphid), *Aphis gossypii*. Aphids feed by inserting their stylet mouthparts through plant tissue directly into the phloem and sucking on plant sap. Their feeding can cause plant stunting and leaf deformities. Large numbers of aphids can remove enough nutrients from a plant that its vigor is affected. The population may be small in January but will rapidly build as we move into mid-winter.

My, they can multiply

Under greenhouse conditions, aphids reproduce *parthenogenically*, that is, all insects present are females, and each female gives birth to more females without the need to mate. In the greenhouse, aphids are viviparous, wherein females do not lay eggs, but give birth to living nymphs. In fact, in some species, an unborn aphid already contains a complement of developing nymphs, a phenomenon known as *paedogenesis*.

Aphids can vary in their preference for host plants. We are finding aphids on Easter lily, pansy, and ranunculus at this time of year. These photos show the aphids and their cast skins clustered on the tip growth and at the base of the Easter lily stems.



Note: By January 27, 2008 Easter lily shoots should be 15 inches long. It is recommended that the first Fascination application be made at this stage.

How about using banker plants as a way to biologically control aphids? Everyone is looking for ways to be sustainable and banker plants fit this mold.

The idea behind banker plants is to grow a plant that you can infest with insect species that only feeds on the host (banker plant). These host specific insects will not move over to greenhouse ornamental crops. Once you have a good population of an insect species specific to the banker plant you can introduce your favorite parasite or parasitoid. Let the parasite or parasitoid lay eggs in or on the insects feeding on the banker plants. Using this method you are building up the population of beneficials and ending up with healthy, fresh parasites or parasitoids that emerge from the dead bodies (mummies) of the aphids and will then search throughout a greenhouse looking for aphids in your greenhouse growing area.

How we used banker plants

We started barley seed purchased from a local farm supply store in 288 trays and then transplanted the seeding into six inch pots (three per pot). Banker plants (barley plugs with bird cherry oat aphids) were purchased from IPM Labs. Banker plant plugs cost \$15 for a tray of 16. IPM Labs recommends that you apply 500 or less *Aphidius colemani* for every four banker plants. The wasps cost \$24 for a container of 500. We ordered 1,500 *Aphidius* and released one container of 500 in each of the three treated bays.



Can you do this? Here are the steps for aphid control if you want to try

1. Determine your crops with the highest aphid pressure.
2. Purchase barley seed from your local farm supply store.
3. Start barley seedlings in 288 (or a similar size) plug trays.
4. Transplant three barley plugs into six inch pots.
5. Purchase banker plants from a beneficial supplier.
6. Plant one banker plant in the center of each pot.
7. Wait for bird cherry oat aphid populations to build.
8. Place four of the pots in each 10,000 square foot area.
9. Apply 500 or less *Aphidius* for every four banker plants.
10. Monitor your crops for both live and parasitized aphids.

Greenhouse Seminars in February

We are holding two educational programs for greenhouse growers on February 19th at the Southern Maryland Agricultural Development Commission in Hughesville and on February 21st at the Harford County Cooperative Extension office. Call our office at 301-596-9413 or go to <http://www.ipmnet.umd.edu/crses97.htm> for registration information.

**Cut Flower Short Course
February 26- 29, 2008
Brookside Gardens, Wheaton, MD**

For more information contact:
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