



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

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**October 10, 2008**

**2008 Chesapeake Green Energy Conference**  
**November 11, 2008**  
**Howard County Fairgrounds**

**For registration information go to:**  
**[www.mnlaonline.org](http://www.mnlaonline.org) or call 410-823-8684**

**Giant Whitefly**

We submitted an interesting whitefly sample to Greg Evans at USDA last week. It was found on bananas at a local garden center. The adults looked similar to the bandedwinged whitefly, but were about three times larger. Greg was able to indentify it as giant whitefly, *Aleurodicus dugesii* Cockerell.

This whitefly produces large amounts of wax. Females lay their eggs on the undersides of leaves in concentric rings, depositing wax as they go. The crawlers tend to remain within this egg spiral. The 3rd and 4th instars will also secrete long filaments of wax.



**Egg Spirals on Banana**

Giant whitefly was first introduced into the US in 1991 in Texas and now has distribution in AZ, CA, FL, HI, and LA. *Aleurodicus dugesii* is also reported as a pest on hibiscus, bird of paradise, coconut, orchid tree, citrus, and avocado. This is a tropical species native to Mexico that is not likely to overwinter outdoors here in Maryland.

### **Fungus Gnat Control on Poinsettias**

As we move into mid October, those of you who chose to grow poinsettia this fall are keeping the temperature lower than normal to conserve on your heating costs. Cool, wet soils make ideal conditions for *Pythium* root rot. Keep in mind that fungus gnats play a role in spreading *Pythium*. Fungus gnat larvae feed on tender young roots, providing an entryway for pathogens. Plants with succulent stems such as poinsettias, geraniums, sedum, and coleus are especially prone to injury and suffer serious losses.



**Injury on Unrooted Cuttings**

To monitor for larvae, place potato wedges on the soil surface and check after 48 hours. First look at the growing media under the potato, and then on the potato wedge itself. The larvae will be clear to white colored and have a black head capsule.

### **Cultural Control**

If you keep the plants on the dry side, fungus gnat populations will have a harder time surviving.

### **Biological Control**

*Bacillus thuringiensis* var. *israelensis*, sold under the trade name of Gnatrol, is most effective against the young first instar larvae. The bacteria must be ingested by the larva, after which a toxic protein crystal is released into the insect's gut. The larvae stop feeding and die. Two or three applications at high rates may be needed to provide effective control.



**Fungus Gnat Larva**

Beneficial nematodes are effective in controlling fungus gnat larvae.

*Steinernema feltiae* (ScanMask, NemaShield, Nemasys or Entonem) can also be applied as a drench treatment against fungus gnat larvae. After entering the host insect through various openings, the nematodes multiply and release a bacterium whose toxin kills the target insect. Fungus gnat larvae are killed in one to two days. The nematodes will then exit the dead body and search for new hosts to infect.

### **Insect Growth Regulators**

Insect growth regulators (IGR's) are most effective against the young developing larvae and will have no direct activity against adults. Commercially available IGR's that can be used on poinsettia include Azatin XL, Aza-Direct, Ornazin, and Distance. Distance is labeled for fungus gnat and shore fly larvae, but warns that there may be malformation of newly expanded leaves on certain varieties of poinsettia including 'Freedom Bright', 'Freedom Bright Red', 'Winter Rose', and 'Jingle Bells'. The label also states do not apply after bract formation.

## Chemical Control

DuraGuard ME (chlorpyrifos) is a microencapsulated product that may be applied as a soil drench or foliar spray for controlling larvae and adults.

## Cuban Laurel Thrips, *Gynaikothrips ficorum*

Cuban laurel thrips were found on *Ficus bejamina* this week. These thrips have a large, black body with white wings. Look for curled tip growth and sunken reddish spots on the foliage. Immature thrips cause a pocket gall to form and then develop in the protected environment of the distorted leaves. Heavily infested foliage will turn leathery and eventually drop.

**Controls include:** Acephate (Orthene), Dinotefuran (Safari), novaluron (Pedestal), and spinosad (Conserve).



**Pocket Galls on Foliage**



**Thrips Feeding Inside Gall**

## Thinking Ahead to Thrips Control

Looking to 2009, let's figure out how you can deal with thrips populations next spring. The standard method of thrips control has been applying Spinosad (Conserve), but it is time to think differently. The release of the predacious mites combined with using banker pepper plants with minute pirate bugs has worked for several growers in 2008. It might be worth a try in your greenhouse in 2009.

BioBest has been working with several growers that were spraying insecticides for thrips on a weekly basis and wanted to look at alternative methods for dealing with thrips that did not involve such regular spraying. I spent some time with Dominique-Andre Demers of BioBest at the International Plug Conference in Orlando, and we discussed what growers are finding works for thrips control other than spraying Conserve.

They had growers apply the predaceous mite *Amblyseius cucumeris* at a rate of one level teaspoon (about 100 mites) per flat and obtained excellent control without additional spraying. The mites arrive in a plastic bottle along with barley grain and grain mites. The *A. cucumeris* tend to accumulate near the top of the bottle, so shake before applying to ensure even distribution of predacious mites and grain mites. Place the teaspoon of grain in a pile in the middle of the flat so the predaceous mites will have a feeding site. They will breed and fan out across your crops.

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Greenhouse growers using this method report very good control of thrips in their spring bedding plants. If you are going to try this, pick a crop that is susceptible to thrips like impatiens, marigolds, verbena, peppers, or tomatoes.

Another technique that BioBest likes to use for thrips control is to release the predaceous minute pirate bug, *Orius insidiosus*, on dwarf pepper plants like 'Black Pearl'. One pepper plant covers around 1,000 ft<sup>2</sup> of growing area. Plant them in 6" pots in November or early December. The plants need to be growing for about 2 months before you start your spring bedding plants. With high energy costs this may be later than normal in 2009, so once you establish a start date for your spring crop then determine the when to get the pepper plants started.



**'Black Pearl' Pepper**

Release 60 - 80 minute pirate bugs per pepper plant. They will lay eggs in the same area where thrips lay eggs, usually in or near flowers. Pepper plants are magnets for thrips, and serve as banker plants and indicator plants for early detection. As long as the pepper plants are in flower and producing pollen, the minute pirate bugs will reproduce on the banker plants. The adults will fan out across the greenhouse and kill 1<sup>st</sup> and 2<sup>nd</sup> instar thrips larvae and adult thrips. The good news is that only one release of minute pirate bugs onto the banker plants is necessary. To give you an idea of cost, 500 minute pirate bugs would be around \$50 - \$60.

### **Rotate Chemicals with Different Modes of Action**

Rotate chemicals every two to three weeks up to three successive applications of insecticides or miticides with the same mode of action. For more information on the rotation of chemicals, visit the Insecticide Resistance Action Committee website at [www.irac-online.org](http://www.irac-online.org).

### **Spider Mites Active on Poinsettia**

John Speaker reported finding spider mites on poinsettias at two locations this past week. The first symptoms you will see are yellowing and small amount of stippling on the upper leaf surface. You will need a hand lens to see the mites and eggs on the undersides of the foliage.

**Control:** Judo, Pylon, Avid or Sanmite are all good choices for control of spider mites.



### **Botrytis on Pansies**

We are starting to see *Botrytis* show up on pansies this week. Remove dead blooms, increase air circulation and consider a fungicide application, if necessary.

**Controls include:** Decree, Daconil, Cleary's 3336, and Chipco 26019



### **New Master Gardener Handbooks**

All material has been completely revised and updated. The new handbook includes 400 color photos and new chapters on ecology, weeds, invasive species, alternatives to turf, landscape design, water quality and conservation.

The cost is \$69 and includes shipping and handling. Mail your order form and check made payable to the University of Maryland to Robin Hessey at the Home and Garden Information Center at 12005 Homewood Road Ellicott City, MD 21042.

Order forms can be found on the HGIC website at: <http://mastergardener.umd.edu/Handbook.cfm>. For more information contact Robin Hessey at 410-531-1754.

