Peony Plants and Botrytis

One of the major diseases that cut flower growers deal with is *Botrytis* of peony. Now is the time of year to take action. Peony shoots are just pushing through the soil. Hopefully last fall you cleaned up the peony growing beds and removed all of the old debris where the fungus overwinters.

The *Botrytis* fungus grows in the spring over new shoots of peonies and covers them with a dense velvety gray mold. It is worse when we have a wet periods in spring. Very young shoots may be blighted early on and turn black if you don’t take action. *Botrytis* may also grow on developing flower parts causing bud blast and flower blight. Infected buds may swell but then die without ever opening. Flower infections can move down into the stem causing a brown and tan target-like discoloration. Infected petals which drop onto leaves can cause in leaf spots.

During the growing season, very small, shiny black, somewhat sausage-shaped fungal structures called sclerotia may be found just under the epidermis at the base of infected shoots.

If you missed the fall sanitation you can try to clean up as much of the leaf litter and old stems as possible this spring, but you need to work fast. You can apply a fungicide such as Dithane 75DG to the soil surface as the shoots elongate. Dithane 75 WG is applied at 1 -2 lb/acre rate. You will need to repeat this application if we have wet weather this spring at 14 day intervals as a foliar spray. You can also use Serenade as a soil drench followed by foliar applications.

*Botrytis* blight infects the foliage, buds and flowers of peonies

Photos: Michelle Grabowski, University of Minnesota Extension - Horticulture, Bugwood.org
When Using Kontos

Several greenhouse growers in Maryland are trying to reduce the use of neonicotinoids in their greenhouses and are substituting the use of spirotetramat (Kontos). Mixed planter, mixed species baskets and color bowls are big sellers for greenhouse operations. Often these planters, baskets, and bowls can be a mix of three or four different plant species. Sometimes, they use dracaena spikes, verbena, impatiens, geraniums, calibrachoa, and petunias. To protect these mixed plantings from aphids, mites and thrips they often make an application of a neonicotinoid such as imidacloprid or dinotefuran. The greenhouses trying to reduce the use of neonicotinoids have switched to spirotetramat. Unfortunately, some have not read the label thoroughly and are seeing problems.

The label on spirotetramat (Kontos) cautions not to use this product on geraniums (*Pelargonium* spp.), orchids, hoya, Dracaena, Cordyline, Schefflera, neanthebella palm, and ferns. It also notes “Do not make more than one application per season to Hydrangea, Impatiens spp., crotons (*Codium* spp.), Fuchsia hybrids, Petunia, Peperomia, stock, or cyclamens (*Cyclamen* spp.).” Be sure to read the label completely before applying spirotetramat to mixed plantings in greenhouses.

Thrips Increasing in Numbers

For the last couple of weeks we have seen relatively low number of thrips in most greenhouses in Maryland. As the greenhouses have become more crowded with plants in bloom we are starting to see growing number of thrips show up. We have received reports of increasing populations of thrips feeding on verbena and double impatiens in several greenhouses.

If your populations of thrips are still low you have several options for control. Azadirachtin (Aza-Direct, Azatin XL, Ecozin Plus, Ornazin, Neemix) works fairly well when thrips populations are still low and will help keep them suppressed. The insect growth regulator Pedestal (Novaluron) works well on immature stages of thrips and works best when populations are relatively low. Pylon (Chlorfenapyr) at 10 - 20 oz/100 gallons of water has performed well for thrips control. At this rate it can be a little pricey, but this material is translaminar and fairly effective on thrips. Aria (Flonicamid) is labeled for control of thrips used at 2.1 – 2.9 oz. in 100 gallons of water.

Work in 2006 published by Michael Parrella from a 2006 IR4 trial reported use of Aria at a 2x rate at a 14-day interval. Some suppression occurred, but it was not very effective and differences compared to the control were not significant. Grandevo (*Chromobacterium subsugae* strain PRAA4-1T and spent fermentation media) is a
European pepper moth larvae (as shown on left) feed on foliage and bore into plants at the base of stems such as the geranium (on right).

European Pepper Moth, *Duponchelia fovealis*
We have been monitoring greenhouses on the Eastern Shore, central Maryland and southern Maryland for the European pepper moth. A couple of weeks ago we picked up adult activity on the Eastern Shore and at two locations in central Maryland. All of these greenhouses were able to get the number of adult moths down to almost zero over the last few weeks. The one greenhouse treated the plants in the greenhouse with a combination of entomopathogenic nematodes, *Steinernema feltiae* and *Steinernema carpocapsae*, applied as soil drenches. One greenhouse operation uncovered an overwintering greenhouse with herbaceous perennial plants in it. The overwintering structure was a simple one-layer white plastic covered greenhouse. When they uncovered the plants they found larvae feeding on lower foliage and adult moths flying among the plant material. The European pepper moth managed to overwinter in the unheated overwintering hut. Temperatures reached -5 °F for two days in a row in February and the EPM still managed to overwinter. Larvae have been found in greenhouses at the bottom of the pots which might be where these EPM overwintered.

Keep an eye out for any larvae feeding on the undersides of foliage. As the weeks go by, if you see whole plants collapsing and there is girdling damage to the stems get me a sample as soon as you can. You can contact me at sgill@umd.edu.

New product that came onto the market recently. The label rate for greenhouse use suggests using 1–3 pounds of Grandevo® in 100 gallons of water sprayed until just before point of runoff. John Murphy, Murphy Johns Greenhouse, tried Grandevo this season for aphid control and reports it has worked fairly well so far. Dan Gilrein at Cornell University Extension has conducted two trials using Grandevo for western flower thrips and he found it was not effective for western flower thrips control.

Many growers have consistently used Conserve (Spinosad) to control thrips, but I would suggest trying another material such as the Azadirachtin or Pedestal and hold the Conserve and Pylon in reserve for when thrips populations have really built up later in the season to avoid the development of resistance to this material.
Keep Tuning Your System
By: Andrew Ristvey, UME

The second cycle in most greenhouses is well underway. By now the new crops should be looking green and healthy. Keep them that way by making sure your fertilizer injector is mixing the correct concentrations into your irrigation system. Injectors are typically reliable, but any tool having moving parts can be prone to wear and malfunction. The easiest method for making sure your injector is functioning is to check the electrical conductivity (EC) of your mixed fertilizer water. Most soluble fertilizer bags will have a table that relates the target nitrogen concentration and injector ratio with the EC of the desired fertilizer concentration. The far right column on this sample label shows the target EC. If your fertigation water does not come close to the suggested EC, then you need to calibrate your injector so you are giving your plants the correct concentration of fertilizer. Simply adjust the injector ratio to increase or decrease the EC of the fertigation.

Take note that your EC meter may read in dS/m (deciSiemens per meter) or mS/cm (milliSiemens per centimeter), or like you see in this example label, mmhos/cm (millimhos per centimeter). The examples given above mean the same thing. That is, 1 milliSiemen is equal to 1 millimho, so long as the unit of length in the denominator is the same. If not, then conversions may be needed. However, this is probably not a concern since these interchangeable units are relatively standard on our EC meters. For instance, dS/m (deciSiemens per meter) is the same as mS/cm (milliSiemens per centimeter), which is also the same as mmhos/cm (millimhos per centimeter). There are two in particular to pay attention, and that is the conversion of mS/cm to μS/cm, where you would multiply by 1000 (1 mS/cm = 1000 μS/cm). Some EC meters may have a higher resolution and measure in μS/cm, yet there range is smaller.

Make sure you also sample your substrates, occasionally sacrificing a few plants for measuring the pH and EC with a Saturated Media Extract. If you prefer not to sacrifice plants, then a pour-through or a container-tip a half hour after irrigation or fertigation to get a small amount of container water will do. Look for EC levels between 1 and 2. Any less and you may be under-fertilizing, and around 3 you may need to leach. For questions regarding this or any other nutrient management issue, feel free to contact Andrew Ristvey at aristvey@umd.edu.
June 19, 2014 – A Chance for the Horticulture Industry to Learn and Have Fun
Tidal Creek Growers in Davidsonville will open their doors for The Maryland Greenhouse Growers’ Association and the University of Maryland Extension. This event will be both educational and good general fun. There will be competitive games organized by Ginny Rosenkranz, entertaining live music, and great food.. Bring your family along to enjoy the late afternoon to evening event.

Tidal Creek Growers is a plant production greenhouse operation that is known for its production of high quality greenhouse plants. The site for the field day will feature over 5 acres of greenhouse growing area. The owner is Jake Van Wingerden and the head grower is Mike Leubecker who will lead the tours of the facilities.

Here is what professional horticulturists will see during the tour of the facility:
How to produce high quality poinsettias, pansies, mums, and hydrangeas.
How to get the most out of a flood irrigation and boom irrigation system.
Use of a shaping and trimming mechanical device for herb trees and other specialty crops.

The University of Maryland Extension will have educational displays on water and nutrient management with Andrew Ristvey; Insect and Disease diagnosis and control options with Karen Rane, David Clement and Stanton Gill; How to calibrate fertilizer injectors with Chuck Schuster.

The featured topic will be: What do Garden Centers Want from Greenhouse Growers?

Featured Speaker: Carrie Engel, Valley View Garden Center and Nursery, is one of the top speakers from the garden center industry in Maryland. Carrie Engel works for one of the most successful garden center operations in the Baltimore area – Valley View Garden Center and Nursery. Carrie is the greenhouse manager and buyer for annuals, vegetable plants, tropical plant material and holiday plants for Valley View Farms. She has managed the plant department since 1985. Carrie appears on WBAL TV two times a week talking about gardening and answering viewers’ questions about plants.

Registration details will be coming soon.

Upcoming Programs
Go to http://extension.umd.edu/ipm/conferences

MGGA Field Day
June 19, 2014 (afternoon through early evening)
Location: Tidal Creek Growers, Davidsonville, MD

Greenhouse Biocontrol Conference
August 6, 2014
Location: Maritime Institute, Linthicum, MD

Stormwater Management Program
August 20 and 21, 2014
TWO Locations:
August 20 - Montgomery County Extension Office, Derwood, MD
August 21 - Robinson Nature Center, Columbia, MD
Details will be posted when available

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