



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

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Botrytis

The people that kept watering to the minimum, growing on the almost wilting side, saw the fewest problems with Botrytis over the last couple of weeks. If it is any consolation this was one of the worst years for Botrytis that we have seen in a long time.



Here are things you can do to reduce botrytis:

- 1.) Keep plants spaced for good circulation
- 2.) Moving plants outdoors helps reduce the amount of botrytis
- 3.) Keep plants on the dry side
- 4.) Keep HAF on and air circulating
- 5.) Clean up infested foliage and get rid of old flowers and damaged foliage

Slugs and Snails

Slugs and snails are having a heyday and tearing into foliage both on plants moved outside the greenhouse and in the greenhouse. The damage is becoming very significant.

First off, use the same cultural practices you use for Botrytis control to help reduce slug and snail damage. Chemical control: Applications of Mesurol or Carbaryl (Sevin) to the foliage should help control the slug and snail damage. Slug baits such as Sluggo containing iron phosphate on a bait material can be placed in the greenhouse to reduce the number of slugs and snails. Slug baits containing metaldehyde or mesurol will also provide control.

Robin Rosetta, Oregon State University made the following comments on slug and snail control:

A couple of things I've heard that might be helpful to the growers out there. You might want to check local registrations but boric acid and spinosad both have activity on gastropods. Boric acid definitely has slugs on the label but spinosad, in the Garden's Alive formulation of iron phosphate, will have a dual action. Repellent and anti-feedant activity is also a way to reduce pressure. Garlic, copper, cinnamic acid (cinnacure), limonene (Orange Guard), and neem extracts have all shown some activity and might be useful for suppression.

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Shorefly and Fungus Gnats

The populations of shoreflies and fungus gnats will be exploding after the extended cloud cover and rainy periods. Fungus gnats are best controlled in the larval stage by applying drenches or heavy sprays.

Biorational products applied as soil drenches include azadirachtin (Azatin), *Bacillus thuringiensis* H-14 (Gnatrol), cyromazine (Citation), fenoxycarb (Precision), kinoprene (Enstar II) and diflubenzuron (Adept). Biological controls are insect-attacking nematodes (mostly *Steinernema feltiae*) and predatory mites in the genus *Hypoaspis*. The insect growth

regulators Citation, Precision and Adept) are registered for larval control of shore fly, but results may be inconsistent. This is probably because shore flies live in very wet areas and do not feed on plant roots. Insecticidal soap will give knockdown of adult shoreflies.



Cultural and physical controls will help, but in wet seasons like the spring of 2009 this is nearly impossible. Avoid potting mixes that promote the growth of algae and keep plants on the dry side. Clean algae from benches, walls and floors. Avoid letting areas stay permanently wet in the greenhouse. Some growers have applied hydrated lime under the benches to discourage growth of algae. If you are growing on the floor you are out of luck with this practice.

Root Aphids

We had two nursery reports of root aphids building up on perennial crops this spring. One population was on sedum plants and the other was on goldenrod plants. We sent the root aphid found on a ranunculus 4 weeks ago to Gary Miller, USDA APHIS, for ID and the aphids were identified as *Thecabius affinis*.

Control: Fortunately root aphids are relatively easy to control. Soil drenches of imidacloprid (marathon) or a synthetic pyrethroid should give pretty good control.



Coleus and Downy Mildew

Check plants for downy mildew. If the coleus have brown areas on the leaves, leaves dropping off, and stunted seedling then you need to check for downy mildew. Some growers think that this disease is found only in vegetatively produced coleus. This is not what we saw last year. Both seed and vegetatively propagated types are susceptible. It appears that not all coleus cultivars may be affected by downy mildew. The amount of blighting and leaf drop that results may vary among the cultivars. Coleus cultivars also may differ in how many sporangia are produced on coleus leaves. This is an important characteristic because the sporangia are responsible for spread of the downy mildew. Wind currents or splashing water dislodge sporangia and make them available to infect nearby healthy plants.

The brown or blighted areas on diseased foliage have an irregular shape and can cause the leaf to twist and drop. The fungus reproduces with spores called sporangia and can often be seen on the

underside of the coleus leaves. In some instances, these sporangia may be few in number and very difficult to see without the help of a microscope. In the right weather conditions like we have had for the past couple of weeks, the sporangia are produced in high numbers and form a fine carpet of grayish fuzz on the underside of the leaf that is obvious to the naked eye. It is best to look for these sporangia when the greenhouse environment is humid and damp.

Control Options: Heritage (azoxystrobin), Stature (dimethomorph), and Subdue MAXX (mefenoxam), Pentathlon LF (mancozeb), Subdue MAXX EC, and Insignia (pyraclostrobin).



Monitor coleus crops closely for downy mildew



Downy mildew on coleus

Upcoming Programs

As they become available, brochures are posted on-line at <http://ipmnet.umd.edu/crses97.htm>

Procrastinator's Pesticide Applicators' Recertification Program - June 5, 2009

Location: Montgomery College, Germantown, Maryland

Contact: Chuck Schuster, 301-590-2807

Energy Tour for the Commercial Green Industry - June 23, 2009

Location: Sites in Howard and Frederick Counties

Contact: Suzanne Klick, 301-596-9413

Cut Flower Farm Tour - July 27, 2009

Location: Farmhouse Flowers and Plants (Brookeville) and Plantmasters (Laytonsville) in Montgomery County

Contact: Suzanne Klick, 301-596-9413