



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

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Save Money on Your Energy Usage

The University of Maryland Cooperative Extension, Maryland Nursery and Landscape Association, Maryland Arborist Association, and Maryland Greenhouse Growers Association are all working together to develop a one-day session on saving on energy costs through the use of solar and wind power, alternative energy sources, bio-diesel fuels, co-op buying and other methods that you can use at your operation.

Mark your calendars now- this conference will be on November 11, 2008.

California Red Scale

Larry Ott of Chapel Valley Landscape sent in an olive sample that his customer is growing in a container and will bring into a greenhouse over the winter. A round scale was found on the stems and on the upper surface of the foliage. We sent a picture to John Davidson who identified it as California red scale. This armored scale is a big problem in California on olives where they are using *Aphidius mealani* (parasitic wasp) for biological control. This scale is pretty resistant to organophosphates and carbmates. Horticultural oil works on suppressing populations.



Rudbeckia Leafspots

We have received several comments on our August 15, 2008 report regarding how landscapers are noticing an unusually large amount of leaf spotting on *Rudbeckia fulgida* 'Goldsturm' this season, while plantings of the straight species *R. fulgida* are fine. One grower noted that they get leafspots on *R. fulgida* 'Goldsturm' but their *R. fulgida* and *R. fulgida* var. *speciosa* 'Viette's Little Suzy' look great. Another grower said that the leafspot problem on their *R. fulgida* 'Goldsturm' seems to be getting worse each year, and that they're trying to steer customers away from it.

Powdery Mildew Weather

Bright sunny days followed by cool nights create ideal conditions for powdery mildew. Last week we put out a report on powdery mildew on zinnias. Powdery mildew is very common on *Zinnia elegans* selections, which are the commonly grown zinnias in greenhouses, landscapes and cut flower operations. Will Healy from Ball Company sent an e-mail asking why we were not recommending the use of *Zinnia marylandica* varieties (Profusion, Zahara) which are more resistant to powdery mildew and other foliar diseases.

Zinnia marylandica types were developed by Thomas Boyles as part of his dissertation research at UMD-College Park. They are an interspecific hybrid between *Z. elegans* and a more disease resistant species *Z. angustifolia*. Profusion is a Sakata series from the original breeding of Thomas Boyles, while Zahara is a Pan American series that was introduced this past year.

The flower of the Profusion zinnia looks much like a rudbeckia, especially the orange selections. The Profusion series thrives on heat and prefers things on the dry side. They are listed as being a super-tough bloomer that asks for little in the way of care, but delivers much in the way of flowers. From the pictures available on the web, Zahara looks very similar to Profusion. Both lines are resistant to powdery mildew and leaf spot diseases. If powdery mildew is a big problem for your landscape customers, next season it may be worth looking into Zahara and Profusion zinnias. Profusion is carried by several seed suppliers. Ball Seed carries Zahara zinnias.

Fungus Gnats

Some growers are still seeing damage from fungus gnats on their poinsettia cuttings this week. The warm, moist environment in propagation areas creates favorable conditions. Look for uneven rooting and white larvae with a black head capsules tunneling into the stems.

Monitoring: Check your substrate using a potato wedge placed on the soil surface. Examine the potato wedge within 2 – 3 days and look for fungus gnat larvae.

Control: A soil drench of Gnatrol (usually requires 3 applications at 7 –10 day intervals) is one option. We have had good success using the entomopathogenic nematode, *Steinernema feltiae*. Most growers are using the IGR Distance as a soil drench and obtaining good control of fungus gnat larvae.



Aphids on Mums

While visiting with a greenhouse grower, aphids on mums came up in the conversation. One observation was that aphids seem to build up rapidly late in the season. Actually, research has shown that plant growth stages influence aphid populations. Both melon aphid and green peach aphids has been shown to develop almost twice as fast when chrysanthemums come into flower as compared to when they were in the vegetative state. This is why early detection is so important at this time of year because populations can explode. Mums are coming into bloom

now and your attention will be pulled toward marketing the plants but keep up the monitoring for aphids so you don't have a exploding population problem.

Control: A good choice is a stylet blocking material such as Aria or Endeavor which will have a minimum impact on beneficial insects.

Scouting Reports

We are finding tortricid leafrolling caterpillars on 'Salem' rosemary and 'Narrow-leaf French' thyme plants being grown here at the research center.

We are finding leafminers on basil and cabbage at Maryland garden centers this week. Aphids are also being seen on cabbage. Twospotted spider mites are showing up on tomato crops.



Leafroller on rosemary



Mite damage on tomato



Aphids on cabbage

Flea Beetles

John Speaker is reporting flea beetles on cabbage and kale this week.

Imported Cabbageworm

Cabbage and Kale plants are in production now. Early instar feeding of imported cabbageworm is occurring this week. Look at the plants in the middle of the day in the center of the foliage for these caterpillars.

Cut Flowers

Stilt Bugs

Stilt bugs have been observed on the blooms of snapdragons throughout the season in the ASCFG trial plots here at CMREC and were seen at another local cut flower operation this week.

Stilt bugs are Hemipterans (true bugs) in the family Berytidae. This is a family of both predaceous and plant-feeding insects. Some can be serious agricultural pests on crops like tomatoes, while others can feed on aphids and caterpillars.

The stilt bugs that we are finding have an enlarged segment at end of their antennae. Other true bugs that may damage snapdragons include tarnished plant bugs, harlequin bugs, and the twice-stabbed stink bug.



Stilt bugs on snapdragon

Tarnished Plant Bugs

We saw tarnished plant bug damage on helichrysum and gomphrena at a cut flower operation last week. They have sucking mouthparts that they insert into leaves causing puckering of expanding leaves. Tarnished plant bugs can also be found on a wide range of plants including shade trees, fruit trees and herbaceous perennials.

Control: acephate (Orthene) if necessary.



Feeding injury on Helichrysum



Tarnished Plant Bug on Cleome

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