Green Industry News

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CALENDAR OF EVENTS

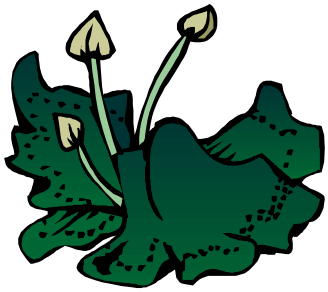
Central Maryland Research and Education Center Field Day - Focus on Aquatics
July 25, 2000

Association of Specialty Cut Flower Growers Mid-Atlantic Regional Meeting
August 7, 2000

Maryland Cooperative Extension Cut Flower Tour
August 8, 2000

MGGA Conference on Nutrient Management
October 24, 2000

Details begin on page 6



New Advances in Mosquito Control

Stanton Gill

The wet spring and warm weather of summer has combined to give us a healthy population of mosquitoes this year. If you have customers with ornamental ponds, one of the best things you can do is have them apply *Bacillus thuringiensis* Serotype 14 (the old name was 'israelensis') or Bti. This is available as mosquito dunks which are floated in the pond. The material slowly dissolves in the water and kills the larvae of the mosquito that live in the pond.

Another option is the use of tiger fish, also called mosquito fish. These small fish aggressively feed on mosquito larvae. They are available from aquatic nurseries in Maryland. Researchers at USDA are conducting research for a better way to control mosquitoes. They are trying to develop attractant traps

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that would draw adult mosquitoes to an insecticide-baited trap. Researchers have isolated a bacterium that is found in humans' feet that is highly attractive to adult mosquitoes. They found that socks worn by humans were highly attractive. Nursery and landscape managers should working on hot summer days may be creating the perfect trap sites. You might want to be careful where you place those dirty socks. Seriously, hopefully this knowledge will help in the development of a baited attractant to zap off the mosquitoes of summer.

Stanton Gill is a regional specialist for commercial horticulture at the Central Maryland Research and Education Center, Ellicott City, Maryland.

Bleeding Cherries

Bob Stewart

In the world of humans, bleeding is a serious and troubling thing. If something causes us to bleed we immediately take action because we understand that the loss of excessive amounts of blood can cause us great harm. Therefore, it's really not too surprising to see a somewhat similar reaction when a person believes one of their beloved trees is in immediate danger because it's bleeding. Of course we, meaning those of us smart in the way of plants, know that the loss of sap from a tree is not the same as the loss of blood from an animal. Nevertheless, the bleeding of a tree is still not normal, and while we can assure the client that the bleeding itself will not necessarily harm the tree, there is still the cause of the bleeding to find.

One of the trees that frequently displays bleeding symptoms and invokes fear in the tree owner is the flowering cherry. The horticultural myth with bleeding cherries is that it is always an indication of an infestation of borers. If someone notices gum or some other exudate coming out of the trunk of a cherry tree the immediate diagnosis is peachtree borer. This is not entirely incorrect since there is such a thing as a peachtree borer, and cherry trees are the primary host plant, and one of the symptoms of infestation is gobs of gum leaking from the tree. However, peachtree borer is not the only thing that will result in

See page 6 for information on summer cut flower programs.

a cherry tree experiencing bleeding gummy sap. If the gum is emerging from rather high up on the trunk, rather than from near the root crown (the favorite spot for peachtree borer infestations), the bleeding is not likely to be caused by peachtree borer.

Before moving on to other causes of gummy cherry trees, let's review the symptoms most associated with a peachtree borer infestation of flowering cherry. Look at the point where the gum is exuding from the tree. Look for wood debris (frass) mixed in and around the exuding gum. The gum is coming from a hole in the bark of the tree. The hole was formed when the peachtree borer larva dug its way out to the surface. It is highly unusual for damage caused by the exiting of a peachtree borer larva to be more than one foot up from the ground. So, peachtree borer injury occurs low on the trunk, and there is frass associated with the exuding gum. What if the gum is leaking out higher up on the trunk and there is no sign of any frass?

Remember, the gum and bleeding is a result of a break in the bark of the tree and, there are a lot of different things that can break through the bark. Junior practicing with dad's new hatchet can make a nice break in the bark of the family's flowering cherry tree and this injury will result in gum exuding from the tree.

The exuding of gum from plants in the genus *Prunus*, including the cherries, is so common it has been given the name gummosis. The name gummosis does not define a cause, only a response. We have seen how peachtree borer injury and simple mechanical

injury can result in gummosis. There are also several infectious diseases that can result in gummosis.

There are three groups of organisms that can cause cankers on cherries and result in a gummosis response. One is a bacteria in the genus *Pseudomonas* which causes a disease known as bacterial canker. Another is a fungus in the genus *Leucostoma* (Cytospora) that causes Leucostoma canker of *Prunus.* The third is usually called fungal gummosis and is caused by the fungus *Botryosphaeria dothidea*. It is not important in a practical sense to identify the specific organisms involved but, it is important from a diagnostic point of view to differentiate between insect infestation, mechanical injury, and infectious disease.

In all three of the diseases listed above, the key diagnostic feature is the canker. A canker is a necrotic (dead), often sunken lesion on a stem, branch, or twig of a plant. In the case of gum bleeding from the trunk of a cherry tree, a canker can be identified by the death of tissue immediately beneath and surrounding the point of gummosis. If you carefully scrape away the gum and probe the bark beneath, you will find the bark loose and the tissue beneath discolored. In fact, the bark at the point of gummosis may slough off easily indicating dead tissue.

In most cases where a canker and its causal disease is concerned the infected tree is, or has been, under some type of environmental stress. This can be a weak root system due to poor soil conditions or drought stress. Cherry trees stress easily compared to many other landscape trees and this opens the door to an invasion of one of the cankers causing diseases and the resulting gum bleeding.

The next time you are called out to examine a bleeding cherry don't be swayed by the horticultural myth that's it's always a sign of borer infestation. Look more closely and be savvy enough to separate out bug from disease from Junior with his little hatchet.

Bob Stewart is an Area Extension Educator in commercial horticulture for Anne Arundel and Prince George's counties.

In the Shade: Slugs and Snails

Ginny Rosenkranz

Wet weather and shade are the perfect growing conditions for hosta, ferns and astilbe, and it is also the best conditions for snails and slugs! Both snails and slugs have rasping mouthparts that tear the foliage of plants making them very unattractive and very susceptible to diseases.

Usually, both the snails and slugs eat their fill at night and hide under leaves in cool, damp places during the day. That is one of the reasons it is so difficult to find them and blame them for the damage. Going out after dark with a flashlight will reveal much! Many slimey snails and slugs meet their doom in a shallow bowl of stale beer or with poison pellets but, there are other alternatives. Toads (which do not give warts!) feast on both snails and slugs and their eggs during the evening and during the coolest part of the day. Luckily, toads like to have shade and moisture like the ferns, hosta and astilbe (but they do not need the stale beer). Fireflies and their larva also feast on slug and snails. So, on warm summer evenings, watch the fireflies and thank them for keeping your garden free of slugs and snails.

Ginny Rosenkranz is an Extension Educator with Maryland Cooperative Extension for Wicomico, Worcester and Somerset counties.

Conference information is always available at

http://www.agnr.umd.edu/users/ipmnet

Follow the 'Conferences' Link

Fungicide Trial for Control of Powdery Mildew on Flowering Dogwood

Bob Mulrooney

Dogwood powdery mildew caused by the fungus, *Microsphaera*, has been increasing during the past five years. This trial was conducted to test the efficacy of five fungicides for control of this important disease of landscape flowering dogwood, *Cornus florida*.

This test was conducted at the University of Delaware Botanic Garden in Newark, DE on trees that were 7-10 ft., grown from seed and locally purchased. The trees were sprayed approximately every two weeks beginning on May 15 when powdery mildew was first observed. The application dates were May 15 and 29, June 16, July 7 and 23, August 5 and 25 for a total of seven sprays. The fungicides were applied with a CO_2 back-pack sprayer equipped with a single hollow cone nozzle to run-off. The experimental design was a randomized complete block with five replications.

Data show that all treatments provided very good control of powdery mildew that would be acceptable in a landscape setting. Observations made in September indicate that powdery mildew is responsible for much of the premature red coloration of infected flowering dogwood trees in the landscape. Bayleton did not provide as much residual control as the other treatments five weeks after the last treatment, but was not aesthetically detrimental. No phytotoxicity was noted for any treatment at the rates tested.

For more information and photos on powdery mildew on dogwood ....

http://bluehen.ags.udel.edu/deces/pp/pp-28.htm
http://www.ag.ohio-state.edu/~ohioline/b614/f33-36.html
http://ext.msstate.edu/anr/entpath/disease/dogmld.html
http://www.aces.edu/department/ipm/pmdogwood.htm

Treatment Rate/100 gal	PM Rating[1] 6/29	#Term. Infected 7/7	PM Rating[2] 10/2
Lynx (2.22 oz)	1.2a[4]	0.0a	1.1a
Cleary's 3336 12 oz + spreader	3.2c	2.8a	1.4a
Banner MAXX 8fl oz	1.4a	0.4a	1.1a
Eagle 6 oz	1.6ab	0.0a	1.1a
Bayleton 25%WP 4 oz	2.4bc	10.4a	2.2b
Control (No spray)	8.0d	185.8b	4.8c

Aesthetic Rating[3] (10/2)

Lynx	1.6a
Cleary's 3336	1.6a
Banner MAXX	1.3a
Eagle	1.1a
Bayleton	1.6a
Control	4.7b

[1] Powdery mildew rating based on 1=0%, 2=0-3%, 3=3-6%, 4=6-12%, 5=12-25%, 6=25-50%, 8=75-87%, 9=87-94%, 10=94-97%, 11=97-100%, 12=1005 of leaves colonized by the powdery mildew fungus.
[2] Powdery mildew rating 1-5, 1=no mildew, 5=100% of foliage infected.
[3] Aesthetic rating, overall appearance of plants, 1=excellent, 5=poor and defoliated.
[4] Means within a column followed by the same letter are not significantly different.

Check label before using and make sure product is labeled for intended use.

Bob Mulrooney is an Extension Pathologist with the Plant and Soil Science Department at the University of Delaware.

Shot-Hole Borer Active in Maryland Trees

Stanton Gill

In 1990, I wrote an article on a relatively new insect found in Maryland nurseries. For four years I only received an occasional sample of plants from nurseries with this insect but this season I have received in 5 different plant samples with damage in the month of May. The pest is an ambrosia beetle called *Xylosandrus germanus.* Most plant borers attack plants that are in stressed conditions this is not necessarily the case with this beetle. Ambrosia beetles often carry fungal spores on their bodies or in a body cavity called a mycangium. The female excavates a tunnel into the pith of stems for 1 -3 cm. Here, a small cavity is made where the eggs are laid. The larvae feed on ambrosial fungi growing on the walls of the tunnel and also apparently on the host tissue as they enlarge the gallery.

In Maryland during 1995, we found this beetle attacking apparently healthy sugar maple and hybrid roses. Back in 1990, we found the beetle attacking healthy *Styrax* and *Magnolia*. In the 1990 nursery situation, we found that the ambrosia beetle had carried a *Fusarium* disease into the bark galleries. The *Fusarium* fungus caused a cankering of the tissue and rapid decline of the trees. In southern Pennsylvania counties, the beetle has been collected from honeylocust trees and English hollies.

There are two generations per year for this beetle with the first generation occurring in May. The second generation is July and August. When the beetle bores into the plant there is a 1 mm round hole formed and often wood frass is pushed out through the opening. An application of Dursban 4E or Astro applied before the beetles bore into the trunk gives the most effective control we have for right now. If you find a small ambrosia beetle boring into your tree, take 3 or 4 samples and submit them to a local Extension office or my office at CMREC, 11975 Homewood Rd., Ellicott City, Maryland 21042.

Stanton Gill is a regional specialist for commercial horticulture at the Central Maryland Research and Education Center, Ellicott City, Maryland

Soluble Fertilizer Application

Thomas M. Blessington, David L. Clement, Rondalyn M. Reeser, and Sarah E. Tater

Introduction

- Injectors are used in irrigation systems that mix concentrated soluble fertilizer into irrigation water (fertigation systems)

Advantages

- Provides crops with constant fertilizer at low concentrations which minimizes damage to roots
- Works well applying highly concentrated fertilizer rates that need to be diluted before application to the crop
- Highly concentrated fertilizer can be stored in small tanks connected to the water line to be diluted

Physical Set-up

- Portable injectors
  - Can be transported to serve different greenhouses
- Or permanent injector installed on a by-pass of the main water line
  - Can be automated with timing devices
  - Saves time
  - Application of solution is more uniform
  - Leaching percent is more uniform

Factors Affecting Injector Selection

- Rate of flow: the injector must be able to apply enough solution in the time available
- Fertilizer proportion (the dilution rate): the rate at which the injector injects the highly concentrated fertilizer into the water
- Multiple head injection ability: some injectors have several heads that allow them to draw from more than one fertilizer concentrate mix at the same time
  - Especially useful when all fertilizer components are not compatible at high

concentrations (i.e. when either calcium or magnesium needs to be applied with sulfate or phosphate)

- Ability to inject acid: the injector head must be acid resistant to allow the grower to inject sulfuric, nitric, or phosphoric acid into the irrigation water to lower the pH

Calibrating the Injector:

- Never allow the injector to operate without regularly checking the fertilizer proportion
- Proportion can change slowly with time
  - If it does change minimally with time adjust the proportion to compensate for the change or adjust the concentration of the fertilizer in the holding tank
  - If the change is great the injector needs maintenance

Method To Check the Injector

- Most of the nutrients in fertilizers come from salts
- Each fertilizer has its own concentration of salts and therefore its own electrical conductivity (EC)
- Most companies who produce fertilizers print a table relating fertilizer concentration to EC on the bag or in related literature
- Collect 1 quart of the solution from the injector output location and take an EC reading with a solubridge meter (value A)
- Take an EC reading of untreated water-unfertilized water value (B)
- Subtract the untreated water reading (B) from the fertilizer water reading (A)
  Equation: A - B = EC concentration
- If the EC reading does not match the correct EC of the fertilizer then either the injector is not proportioning correctly or the fertilizer was not mix correctly

Thomas M. Blessington and David L. Clement are regional specialists and Rondalyn M. Reeser, and Sarah Tatar are technicians with the Central Maryland Research and Education Center in Ellicott City, Maryland.

Calendar of Events

Evening Program Focusing on Aquatic Ponds at the Central Maryland Research and Education Center on July 25, 2000 - 5:30 p.m. to 8:30 p.m.

Location: 11975 Homewood Road, Ellicott City, MD
Contact: Suzanne Klick, 301-596-9413 or sk85@umail.umd.edu

Topics: Controlling algae in ponds; Biofilters, UV filters and balancing an ornamental pond; Controlling submerged vegetation in ponds; Interesting new plants for use in ornamental ponds; Controlling aquatic insects that damage ornamental pond plants

See registration form on page 7.

Association of Specialty Cut Flower Growers Mid-Atlantic Regional Meeting on August 7, 2000

Location: Jeffersonton Community Center and Wollam Gardens, Jeffersonton, Virginia
Contact: Bob Wollam, 540-937-3222
Cost: $40 for ASCFG members ($60 non-members)

Topics: Fall Direct Seeding; Thrips and Mite Control and How to control voles; Lisianthus: New varieties and crop requirements; Overplanting schemes: Getting the most out of good space;Bouquet Making and Farm Tour and Hands on Demos

Maryland Cooperative Extension Cut Flower Tours on August 8, 2000

Location: Tour will begin at CMREC in Ellicott City and travel to north and central Maryland. At the research center, there will be brief stations on coneflower production, the Nutrient Management Law and insect advances for cut flower growers.

Cost: $40 person for ASCFG and MGGA members; $45 per person if not a member (Includes bus

transportation, lunch and any written materials)

Contact: Suzanne Klick at 301-596-9413

MDA Pesticide Container Recycling Dates for July (9:00 to 3:00 each day)

July 10: Nicholson Transfer Facility, Earl Nicholson RD
July 14: Mid Shore Regional Solid Waste Facility on Barker's Landing RD
July 21: Wicomico County Landfill on Brick Kiln RD
July 18: Scarboro Landfill, 3241 Scarboro RD
July 28: USDA Research Center, Bldg. 302, Visitor Center on Powder Mill RD
July 5: St. Andrew's Landfill, Rt. 4
July 25: Frederick County Landfill, 9031 Reich's Ford RD
July 24: Southern States Oakland Coop., 1862 Maryland Highway
July 12: Martin's Elevtor, 13219 Maugansville RD

For more information: 410-841-5710

July 25th CMREC 'Focus on Ponds' Registration Form

Cost: $5 per person
Make checks payable to University of Maryland
Send to 11975 Homewood Road, Ellicott City, MD, 21042.

Name(s):_____

_____

Company: _____

Address: _____

City: _____

State: _____ Zip code: _____

Phone: _____

Check Amount: _____

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