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Cucurbit Downy Mildew

The unusually cool, moist weather conditions have been favorable for the development of Downy Mildew of cucurbits, caused by *Pseudoperonospora cubensis*. This is a devastating fungal disease of cucurbits including cucumber, squash, pumpkin, and watermelon.

On all hosts, upper leaf symptoms begin as chlorotic flecks or spots on the surface of the leaves. Gray-brown to purplish-black downy sporulation occurs on the corresponding spots on the underside of the leaves.

Downy mildew can progress extremely rapidly within a field, causing the leaves to turn brown, necrotic, and curl upwards.

Older leaves are typically infected first. As the disease progresses they become burned looking, shrivel and die.

Although fruit and blooms are occasionally infected, the leaf loss results in reduced yields.

Misshapen fruit and damaged fruit from sunburn occur as the leaves die and the fruit lose their protective shade. It is important to begin control measures as soon as Downy Mildew is confirmed in your field.

Homeowners may use Bonide Mancozeb Flowable w/Zinc in rotation with a vegetable fungicide containing chlorothalonil. The use of resistant cultivars helps delay infection. Commercial growers may use Reason 500 SC (fair), or Cabrio 20EC, or Flint 50 WG, or Pristine 38 WG, or Ranman 400 SC (good), Curzate 60 DF, or Previcur Flex 6 F, or Omega 500 F, or Aliette 80 WDG, or Forum 4.18 F, or Revus 2.08 S, or Presido 4 F, or Dithane DF (fair), or Tanos 50 WP (fair), or Ridomil Gold Bravo SC, or Gavel 75 DF, or Orondis Opti 3.37 SC (good, or Orandis Ultra 2.33 SC (good).



Photo: Sherrie Smith

Dealing with Blue-Green Algae in Ponds

We've been receiving calls and messages from folks concerned about this blue-green algae scare that has been publicized lately. A deadly variety of algae has caused a large amount of dog deaths in the Southern US, causing concern among canine owners.

The dogs go for a swim and within a few hours are dead.



According to what I've read, a dog died last Wednesday in Texas after wading in a shallow pool near a river; three dogs died in Wilmington, NC, after a trip to a pond last Thursday; and another died after swimming in a lake in Georgia on Saturday. The death toll is over 200 at this point.

The killer is blue-green algae, or cyanobacteria, that can be found in fresh or salt water and contain toxins that can be fatal to dogs within minutes, hours, or days of exposure.

I spoke to George Selden, Extension Fisheries Specialist about these concerns. George told me that the levels of blue-green algae are relative to the toxins they release; the lower the level of algae, the lower the toxins. He also reiterated that we typically only hear about the dogs killed from this, we don't hear the news stories about the thousands of dogs that aren't affected.

The take home message is: if you have nutrient laden ponds, there could be cause for concern. The blue-green algae is worse during this time of year. George also offered

a word of caution about applying an algacide to eradicate the blue-green algae as that will allow all of the toxins to be released at one time.

Typically it is thick and gooey and can float up to the surface and form a kind of scum with a greenish color with bluish tints, although the algae may lurk in the bottom of the lake attached to sediment or other plants and not be noticeable.



Blue-green algae are commonly confused with green algae -- both can create dense material on the water's surface that can interfere with activities like swimming and fishing, and may have a similar smell, the Environmental Protection Agency says. But, unlike green algae, blue-green algae can be fatal.

The algae produce two different toxins: one that causes neurological problems, and one that leads to liver failure. Signs that a dog has ingested blue-green algae include twitching, weakness, seizures, vomiting, and diarrhea. Although it is more common to see symptoms within minutes or hours, it might be days before the toxins take effect.

George mentioned a few preventative tips: keep dogs out of ponds, especially stock ponds where livestock can defecate in the water, plant buffer strips, try to keep livestock out of the pond, water them from the side of the pond instead of allowing them to go in deeper, if you can offer livestock and dogs another source of water, they will most likely prefer it,

especially this time of year. He stressed the importance of trying to eliminate the chances for a heavily nutrient laden pond which will decrease the presence of blue-green algae.

I understand it is virtually impossible to keep our Livestock Guardian dogs such as Great Pyrenees from taking a dip in the stock pond to cool off. I also realize, as a cattle farmer myself, that it's impossible to water a herd of cattle with city or well water in many cases. However, it might prove beneficial to attempt to prevent access of all animals and people to ponds which exhibit the potential for this deadly algae since there is no antidote.

If you still have questions, contact your local county Extension office or if you are curious and want to search the internet for research based information, type in your request in the search bar with the word(s) "site:edu" behind it. This will reveal research/information from land grant universities (Extension) in Arkansas and other states.

Photo Credits: Oklahoma State University and Clemson

Crape Myrtle Bark Scale

A relatively new insect is appearing on crape myrtles (*Lagerstroemia*) across the Southeast, including Arkansas. Although the exact taxonomy is still not known, the insect is most commonly referred to as crape myrtle bark scale (CMBS).

Since the initial sighting in 2004, the insect has been spreading at an alarming rate across the Southeast. The insect was first noted in McKinney, Texas (self-designated as America's "crape myrtle city"), in 2005 and had spread throughout most of the Dallas-Fort Worth area by 2010. The scale was reported in Ardmore, Okla., and Shreveport, La., in 2012 and Houma, La. (60 miles southwest of New Orleans) in 2013. In October 2013, the insect was confirmed in Germantown, Tenn. (Memphis area), and in Little Rock, Ark., in January 2014.

Heightened concern about this new pest is based on the speed at which it is spreading and the common use of crape myrtles in landscapes across a large part of the U.S. To date there has been no research to evaluate whether there is a range in susceptibility to this insect across the hundreds of crape myrtle cultivars; however, anecdotal observations from McKinney, Texas, suggest the scale may be worse on hybrids (*fauriei* x *indica*).

Insect Description

Crape myrtle bark scale is easy to identify since, in the U.S., it is the first and only known bark scale to occur on crape myrtles. The adult females appear as white or gray felt-like encrustations on small twigs to large trunks, often appearing near pruning wounds or in branch crotches on older wood. On the most current flush of growth and under heavy infestation, distribution may be more uniform. Up close, CMBS is white to gray in color and approximately two mm in length. Careful examination may reveal dozens of pink eggs or crawlers under some of the larger white



scale covers. Most gardeners will be alerted to CMBS by black sooty mold which appears

on the bark. The presence of sooty mold may confuse the diagnosis since that is also commonly associated with a significant aphid problem. This felt scale is not classified as either an armored or soft scale.

Life Cycle

As female nymphs mature, they secrete white threads that become felted or matted into a thick, whitish to grayish scale covering over the entire body. Adult females under this covering are wingless and sessile (attached and incapable of moving). It is thought that for this species of scale, eggs are laid under the covering (probably late April to mid-May in Arkansas) and the female then dies. When the eggs hatch into first instar nymphs, these nymphs have legs and antenna and are mobile, thus the term *crawlers*. These crawlers emerge from under the “mother scale” and disperse over a short period (about one to two days). We suspect that this emergence occurs beginning mid-May to early June in Arkansas; however, crawlers were observed on a warm day in January 2014. After the first molt, nymphs lose their legs and antenna and become sessile. During the last instar, males are quiescent (pupal type stage) and develop external wings. Upon emergence, males find a sessile female and mate, completing the life cycle. At present in the Southern U.S., the number of generations completed in a year for this species is unknown, but it is suspected that CMBS may complete at least two generations in Arkansas. It is possible that adult females and eggs overwinter, but crawlers and later stage nymphs have been observed overwintering in Arkansas under loose bark and in cracks and crevices.

Control

Based on our limited experience with this pest, it does not appear that CMBS will be easy to control, though soil-applied neonicotinoids do provide significant suppression. Our current best suggestions for control of this insect include:

- For heavily infested plants, wash the trunk and reachable limbs with a soft brush and mild solution of dishwashing soap. This will remove many of the female scales and egg masses and make insecticide control more effective. Also, washing will remove much of the black mold that builds up on the bark on infested trees.
- Horticultural oil has not yet been shown to be effective against this insect; however, a winter application of dormant oil to the bark and crotches of the plants where scales shelter may be beneficial. Be sure to use sufficient volume to allow for penetration behind loose bark and into cracks and crevices. Winter is an especially good time to treat for scales because a higher (winter) application rate can be used without damaging the plant. Thorough coverage of the tree is especially important when treating with oil.
- Application of systemic insecticides as a drench applied to the root zone has shown the most promise in tests to date. Imidacloprid (Merit® or Bayer Advanced™ Garden Tree and Shrub Insect Control), thiomethoxam (Meridian®) and dinotefuran (Greenlight Tree and Shrub Insect Control with Safari) have shown best control when applied between May and July. When drenching the soil with a systemic insecticide, allow several weeks for the product to be distributed throughout the plant. Additionally, acetamiprid and clothianidin, also neonicotinoids, have demonstrated good control.

Clematis

Clematis are one of our showiest and reliable blooming perennial vines. They grow best in full sun with well-drained, evenly moist soil with a pH of 6.6-7.0.

Usually the only disease problem we see on clematis is Clematis Wilt caused by *Calophoma clematidina*, formerly *Phoma clematidina*, formerly *Ascochyta clematidina*.

This is a fungal pathogen that causes both leaf spots and stem lesions. When a stem is girdled by the fungus, the flow of nutrients is shut off, and wilting occurs.

When the affected stem is sliced open, it appears black inside. Clematis Wilt seldom kills the plant. Affected plants almost always immediately begin to produce new growth from the crown. All wilted stems should be cut back to healthy tissue.



Photo: Sherrie Smith

Homeowners may use Fertilome Broad Spectrum Lawn and Garden Fungicide, (chlorothalonil), or Hi-Yield Vegetable, Flower, Fruit, and Ornamental Fungicide,(chlorothalonil) or Ortho Garden Disease Control, (chlorothalonil), or Ortho Disease B Gon Garden Fungicide, (chlorothalonil), or Garden Tech Daconil Fungicide,(chlorothalonil), or Bonide Fung-onil Multipurpose Fungicide, (chlorothalonil), or Spectracide Immunox Plus, (myclobutanil & permethrin), or Bayer Advanced Garden-Disease Control for Roses, Flowers, Shrubs, (tebuconazole), or Bayer Advanced Garden-All-in-One Fungicide/Insecticide/Fertilizer, (tebuconazole & imidacloprid), or Bonide Infuse Systemic for Turf and Ornamentals, (thiophanate-methyl), or Ortho Rose and Flower Insect and Disease Control, (triticonazole & acetamiprid), or BioAdvanced Science Based Solutions All-In-One Rose & Flower Spray Concentrate, or BioAdvanced Science Based Solutions All-In-One Rose and Flower Spray Concentrate, (tebuconazole & tau-fluvalinate).

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