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SPDN
Southern Plant Diagnostic Network
Issue 22-July 28, 2010

Arkansas Plant Health Clinic Newsletter

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Elm

by Micah Doubledee

Black spot disease is an important foliar disease on North America elms (Ulmus spp.). This disease is also called elm leaf scab, elm leaf spot, or anthracnose. The causal agent of this disease is the fungus *Stegophora (syn. Gnomonia) ulmea.* Most elm species are susceptible to this disease, but *Ulmus americana* is the most susceptible. This disease is considered a minor disease on mature trees but can cause significant defoliation and twig dieback in nursery production on susceptible cultivars. Symptoms start out as small, whitish, or yellowish flecks or blotches on the upper surface of the leaf that later enlarge with black specks developing inside. These black specks can merge to form a single, irregular shaped stomata that is 0.5 to 3.0 mm in diameter. In general, individual stomata remain separate surrounded by a yellow white band of dead tissue, but sometimes these stomata can grow so close together to appear to cover the entire discolored area. When this happens, the symptoms can look like Rhytisma tar spot. Besides infecting the leaves, this fungus can infect and girdle petioles and shoots. Successive seasons of twig blighting can cause the formation of witches' broom. Disease infection often begins early in the growing season and can be very damaging during wet summers. Management of this disease includes removing infected leaf debris and dead shoots. Avoid overhead irrigation and close spacing of cuttings and young trees. Chemical control of this disease is generally not warranted for large trees. For small nursery trees, preventive fungicide applications of chemicals such as mancozeb, Bordeaux, or chemicals with the active ingredient chlorothalonil may be made starting at budbreak in the spring and continuing at regular intervals until leaves are fully developed.

Elm Black Spot-*Stegophora (*syn*. Gnomonia) ulmea*

Photo by Micah Doubledee, University of Arkansas Cooperative Extension

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Elm Black Spot stromata-*Stegophora* (syn. *Gnomonia) ulmea*

Photo by Paul Bachi, University of Kentucky Research & Education Center, Bugwood.org.jpg

Blackberry

Cercospora Leaf Spot

Cercospora leaf spot of blackberry and raspberry, caused by *Cercospora rubi*, occurs mostly in the southern United States. Brown circular to angular spots develop on the upper surfaces of newly developing leaves. Lesions may coalesce to blight large portions of the leaf. Heavily infected leaves may be shed prematurely, leading to reduced plant vigor. Applications of lime sulfur during the dormant season, and fungicides used to control other leaf pathogens during the growing season give good control. Nova, Rovral, Captan, Pristine, Switch, Tilt, and Elevate are labeled for control of leaf diseases in brambles.

Blackberry Cercospora Leaf Spot-*Cercospora rubi*

Photos by Rebecca Barocco, University of Arkansas Cooperative Extension

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Septoria Leaf Spot of Blackberry

Septoria leaf spot is a common and destructive disease in blackberry growing regions of the southeastern United States and the Pacific Northwest. It is usually a late season leaf disease, causing premature defoliation in late summer and fall, reducing plant vigor, and increasing susceptibility to winter injury. The fungus, *Septoria rubi*, causes frogeye type lesions on the leaves. The lesions are roughly circular, tan to white, with a purple margin. Small black fruiting bodies may be seen in the center of the lesions. These leaf spots are larger than anthracnose spots and are generally seen later in the season than either anthracnose or Cercospora. In the South, a delayed dormant spray of lime sulfur followed by three sprays of Captan gives good control. Disease incidence is greatly reduced by following good cultural practices. Proper plant spacing, thinning to provide recommended cane density, and maintaining narrow rows, are all helpful in controlling leaf spot diseases. The sooner old fruiting canes are removed after harvest, the better.

Blackberry Septoria Leaf Spot- *Septoria rubi*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Double Blossom or Rosette of Blackberry

Rosette or double blossom, caused by *Cercosporella rubi* is a serious fungal disease of many cultivars of blackberries. Double blossom causes reduced yields, poor quality fruit, and cane death. Buds on primocanes become infected in early summer, but there are no symptoms until next spring. At that time a proliferation (witches-broom) of shoots occurs at the infected bud site. These shoots are usually smaller than normal and have pale

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green foliage that later turns bronze. Unopened flower buds are elongated, coarser, and often redder than uninfected buds. Sepals enlarge and sometimes differentiate into leaves. The petals of unfolding flowers are usually pinkish, wrinkled, and twisted, giving the appearance of a double bloom. Berries do not develop from infected flowers. Sanitation can control double blossom in areas where it is not severe. Infected rosettes and blossom clusters should be removed before they open, to prevent dispersal of the spores. Old floricanes should be removed and destroyed immediately after harvest. The removal of all wild blackberries and dewberries around the planting is also recommended. In areas where disease pressure is more severe both primocanes and floricanes may be cut to the ground immediately after harvest. The primocanes are then allowed to re-grow from buds at the base. Chemical control starts at first bloom. Abound is the only fungicide currently labeled for Double blossom.

Blackberry Double Blossom-

Cercosporella rubi

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Zoysia

This seems to be a tough year for Zoysia grass. The clinic has been receiving samples of Zoysia weekly with Rhizoctonia diseases, Rhizoctonia species are responsible for both Large Patch and Brown Patch in warm season grasses. Irregular circular patches may be several feet or more in diameter. In severe cases entire lawns may be blighted. Sometimes a smoke colored or orange halo may be observed early in the morning at the margins of the patch. Water soaked black to reddish brown lesions usually can be found on stolons and basal leaf sheaths. Affected shoots may be pulled easily from their points of attachment. In Zoysia, the patches occur a little later in the spring than in bermudagrass, two to eight weeks after green up, or in the autumn. Roots are discolored but not rotted. Patches can enlarge to more than 25 feet in diameter. Orange rings or patches up to 6 feet in diameter may appear. Sometimes symptoms slowly disappear during the growing season as surviving tillers start filling in the killed spots. Night irrigation and excessive amounts of nitrogen increase both severity and incidence of patch diseases. Complete fertilizers with time release nitrogen should be used instead of quick release nitrogen. A soil test is useful to see where fertility levels are. Good drainage is essential for a healthy lawn. The turf should be de-thatched if thatch accumulates to more than 0.5” thick. De-thatching should be done while grass is actively growing. Fungicides may be applied once in the spring between March 15 and April 15, and again in the fall between September 20 and October 10. Heritage,

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Prostar, Eagle, Instrata, and Bayleton are labeled for Large Patch. Spectracide Immunox, Fertilome F-Stop Granules, and Green Light Fung-Away Systemic fungicide are available for homeowners.

Zoysia Large Patch-*Rhizoctonia solani*

Photo by Melvin Daniel, University of Arkansas Cooperative Extension

"This work is supported by the Crop Protection and Pest Management Program [grant no. 2017-70006-27279/project accession no. 1013890] from the USDA National Institute of Food and Agriculture."

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.