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Issue 12-May 17, 2016

Arkansas Plant Health Clinic Newsletter

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Pear

Cedar-Apple Rust, *(Gymnosporangium juniperi-virginianae) and* Cedar–Quince Rust, (*Gymnosporangium clavipes)* are two of the most common rusts we see at the Plant Health Clinic. Both rusts have a similar life cycle. In the spring, the Cedar-Quince Rust fungus produces perennial, spindle-shaped galls on cedars or junipers. These galls produce masses of gelatinous orange-brown teliospores. Cedar-Apple Rust galls are large gelatinous balls. In both types of rust, teliospores produce basidiospores which are carried to members of the rose family, such as apple, crabapple, hawthorn, pear, and quince. Both fungi stop producing the basidiospores about 30 days after the apples stop blooming. Galls on both cedar and the alternate host can cause stems to die if they are completely encircled. Cedar-Quince Rust is more likely to attack the fruit and stems than the leaves of the alternate hosts, whereas Cedar-Apple Rust commonly attacks leaves, often leading to defoliation. Aeciospores develop in the fruit, leaf, and stem lesions and are blown to cedars where the cycle begins again. Each year the perennial rust galls of Cedar-Quince Rust become larger and more noticeable, with older galls becoming dark brown to black in color. Fruit from the alternate host infected with Cedar-Quince Rust are covered with protruding off-white aecia of the fungus. Infected fruit eventually dry out and drop from the plant. Control begins with good sanitation. Prune out any galls found on alternate hosts, junipers, and cedars. During the winter, prune out all Cedar-Quince Rust galls remaining on branches and twigs of apples, crabapples, hawthorns, pears, and quinces. Preventive fungicide applications are necessary in locations where Cedar-Apple and Cedar-Quince Rusts are problems. Fungicide timing is similar for all the cedar rusts. Make the first application to valuable orchard and landscape plants when the orange telial galls on junipers become noticeable, (usually at flower bloom on apples and hawthorns) and make additional applications at regular intervals to protect newly developing growth. Applications of a triazole fungicide such as propiconazole (Banner Maxx), myclobutanil (Immunox), or triadimefon (Bayleton, Strike, Green Light Fung-Away, or Monterey Fungi-Fighter) at three-week intervals beginning shortly after bloom is effective in suppressing rust.

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Juniper Cedar-Quince Rust-
Gymnosporangium clavipes

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Pear Cedar-Quince Rust-
Gymnosporangium clavipes

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Cedar Cedar-Apple rust-
Gymnosporangium juniperi-virginianae

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Cedar-apple rust-*Gymnosporangium juniperi-virginianae*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Watermelon

Bacterial Fruit Blotch, caused by *Acidovorax citrulli* (formerly *Acidovorax avenae* subsp. *citrulli*), can attack all members of the cucurbit family, including cantaloupe, citron, honeydew, musk melons, pumpkin, squash, and watermelon. However, we see this disease most often on watermelon. Symptoms on cotyledons are irregularly shaped, water-soaked lesions that become red brown with age. Infection can cause seedlings to collapse and die. Leaf lesions begin as small, water-soaked, irregular spots that enlarge and turn brown to black with angular edges. The fruit develop irregularly-shaped water-soaked lesions that are dull gray green to dark green and rapidly enlarge to cover most of the fruit. Older lesions may become brown to red brown and necrotic with white-colored bacteria oozing from the lesion. These areas may turn black as secondary decay organisms colonize the fruit. Watermelon cultivars with dark green striped rinds tend to have smaller lesions on the lighter green stripe. This is a seedborne pathogen. Only seeds that have been tested and found to be free of the Fruit Blotch bacterium should be planted. Transplants with suspicious symptoms should be destroyed. Practices in the greenhouse should include hand washing before and after handling plants; decontamination of plant containers and tools; and avoidance of overhead irrigation. Greenhouses with contamination should be disinfected with a 10% bleach solution and remain empty of plants for a minimum of two to three weeks. All plant debris in the field should be plowed under. Wild cucurbits and volunteer watermelons should be destroyed. Working in the field while foliage is wet must be avoided. Fungicide applications of copper have reduced the incidence of Bacterial Fruit Blotch symptoms when applications were started prior to fruit set. At least two to three copper applications with thorough coverage of the foliage are essential for good disease control. Applications should begin at first flower or earlier and continue until all fruit are mature. Fungicides applied after fruit are infected are

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ineffective. Include symptomatic leaves when submitting a sample to the Plant Health Clinic.

Watermelon Bacterial Blotch-
Acidovorax citrulli

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Watermelon Bacterial Blotch-
Acidovorax citrulli

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Watermelon Bacterial Blotch-
Acidovorax citrulli

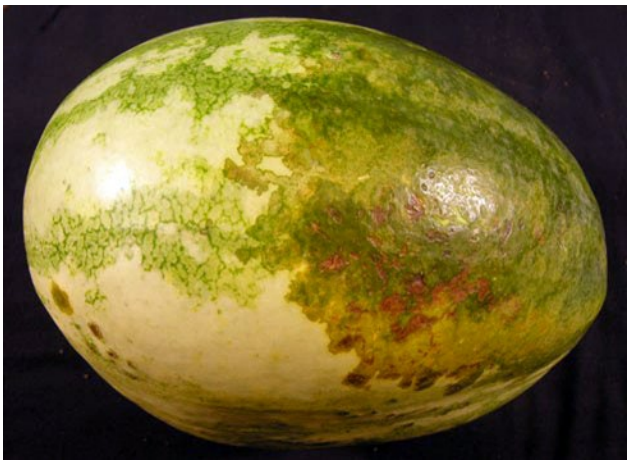

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Blueberry

Bacterial Blight of blueberry, caused by *Pseudomonas syringae* pv. *syringae,* begins very early in the spring in the form of water-soaked lesions on one-year old stems. The lesions rapidly develop into reddish-brown to black irregularly shaped cankers. The cankers extend from a few millimeters (~1/8") long to the length of the cane. Cankers almost always surround the stem. When a stem is completely girdled, buds and growth above the canker are killed. If the canker develops after the buds leaf out, the leaves turn orange to tan. Only one-year old stems are affected. Freeze injury predisposes the plant to infection. The bacterium may be moved from plant to plant by wind, rain, insects, infested nursery stock, pruning tools, or mechanical harvesters. Once on the plant, *P. syringae* survives and multiplies in buds and on the bark as an epiphyte. It is

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also thought to survive on weeds and grasses epiphytically. All diseased wood should be pruned out and destroyed before fall rains. Late summer applications of nitrogen should be avoided as they make the plant more susceptible. Two early fall applications of a fixed copper fungicide may reduce the number of infected stems the following spring. In plantings with high disease pressure, four spring applications of fixed copper beginning at budbreak and then every two weeks are recommended. The lower rate should be used with the spring applications to avoid injury to tender new growth. Serenade Max, a product containing a non-pathogenic bacterium that out-competes *P. syringae* may be used where copper resistant *P. syringae* has been found. Resistant cultivars should be planted when possible. 'Atlantic', 'Bluejay', 'Blueray', 'Burlington', 'Coville', 'Chandler', 'Darrow', 'Draper', 'N51G' ('Eberhardt'), 'Jersey', and 'Patriot' are susceptible. 'Bluecrop', 'Elliot', 'Liberty', 'Rancocas', and 'Weymouth' seem more resistant, with 'Duke'; being intermediate. The rabbiteye cultivars 'Ochlockonee', 'Powderblue' and 'Tifblue' are susceptible. The Plant Health Clinic can test for this bacterial canker if you suspect it in your plantings.

Blueberry Bacterial Blight-
Pseudomonas syringae* pv. *syringae

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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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.

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