



Arkansas Plant Health Clinic Newsletter

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Pear

by Jade Newsome

Ornamental Pear is a member of the Rosaceae family and is susceptible to infection by members of the genus *Gymnosporangium*. These rust fungi may cause severe foliar and fruit damage to apple, hawthorn, pear, and quince, among others. Several different species of *Gymnosporangium* are known to cause disease on the Cupressaceae (Cypress) and Rosaceae plant families. Both hosts are necessary for the rust fungi to complete its life cycle [1]. *Gymnosporangium* spp. overwinter in galls on Cupressaceae hosts. Wet spring conditions result in the formation of large, orange telial horns containing teliospores. These teliospores will germinate to form basidiospores which are then carried by wind to infect susceptible plants in the Rosaceae family. Within the Rosaceae family, this pathogen commonly infects apple, cotoneaster, crabapple, hawthorn, mountain ash, pear, and quince. Symptoms on pear due to *Gymnosporangium globosum* (Hawthorn Rust) include yellow to orange leaf spots with a reddish border on the upper side of leaves. These spots eventually turn brown and necrotic and will often develop a slightly raised, black

spot in the center of the leaf spot. On the underside of leaves, pustules will form, and after a period of a few months, these pustules will begin to produce aeciospore-containing structures called aecia. These rust-colored aeciospores complete the life cycle of *Gymnosporangium* spp. when carried to susceptible cedar where they can germinate and form galls that will eventually start the cycle over again. The *Gymnosporangium* spp. typically prefer wet conditions with temperatures in a range of 8-24°C (46-75°F) although release of aeciospores does require a dry period [2]. Cultural practices can be implemented to reduce incidence of this disease, including the removal of nearby cedar plants to eliminate the alternate host of the pathogen [2]. When available, resistant cultivars of pear or apple should be used [1, 2]. Pruning of infected branches may be implemented but is often ineffective. Use of a preventative fungicide is often necessary to prevent infection of Rosaceae hosts. Applications should be scheduled throughout the period of new growth on apple or pear, according to label instructions [1]. Once telial horns on cedar are desiccated, fungicide applications on pear or apple may be discontinued. However, this requires the monitoring of any nearby cedars which may increase risk of disease. Bactericides registered for use on pear and apple to control this disease include Dithane, copper, and others [3]. Consult your local extension agent for the most appropriate chemical recommendations.



Pear Rust-*Gymnosporangium* spp.



Photo by Jade Newsome, University of Arkansas of Arkansas Plant Pathology graduate student

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Dogwood

Spot Anthracnose, caused by *Elsinoe corni*, attacks dogwood blooms and leaves in the spring, particularly during prolonged wet weather. This is an aggravating fungal leaf spot disease of the bracts and leaves of ornamental dogwoods but does no serious harm to affected trees. Spot Anthracnose must not be confused with Dogwood Anthracnose, caused by *Discula destructiva*, as Spot Anthracnose does not kill branches or trees. White cultivars appear more susceptible than pink ones to Spot Anthracnose. Symptoms are uniform, tiny, circular lesions with purple borders and almost white centers. The center of the lesions falls out later in the season, giving a shot hole effect. In wet seasons, the lesions often are so numerous that leaves or bracts may become puckered and distorted. Severe infection may prevent buds from opening. Spot Anthracnose may be controlled with good sanitation and fungicide sprays. Spraying should begin when buds begin to open. Spraying should be repeated when the bracts have fallen, four weeks after the bracts have fallen, and again in late summer after the flower buds for next season have formed. An ornamental fungicide containing chlorothalonil or mancozeb is effective.

Dogwood Spot Anthracnose- *Elsinoe corni*



Photo by Sherri Sanders, University of Arkansas Cooperative Extension

Dogwood Spot Anthracnose- *Elsinoe corni*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



Aster

Aster Yellows, caused by Phytoplasmas, is a disease that has been found to affect over 300 species of plants in 38 families. Phytoplasmas are specialized bacteria that are obligate parasites of plant phloem tissue and some insects. Susceptible species include aster, carrots, celery, coxcomb, coneflower, cosmos, gladiolas, marigold, onions, petunia, potatoes, tomatoes, and zinnia, among others. Many common weeds are also susceptible, including plantains and dandelions. A common sign of Aster Yellows is the production of leaf-like structures in the place of normal flower parts. Diseased plants may also suffer yellowing, vein clearing, stunting, sterility, loss of flower pigments, and the proliferation of side branches (witches'-broom). Aster Yellows is vectored by the Aster leafhopper, *Macrostelus quadrilineatus*. Leafhoppers are sap feeders. They feed by inserting their stylet (straw-like) mouth part into a plant cell and extracting the contents. If the plant is infected with Aster Yellows, the leafhopper acquires the phytoplasma as it feeds. After an incubation period inside the insect, the phytoplasma moves into the salivary glands. The next time the insect feeds on a plant, the phytoplasma is injected into the new host. Visual symptoms on the infected plant show 8-18 days after infection, depending on temperatures. There is no cure for Aster Yellows. Infected plants should be removed. Many insecticides are labeled for control of leafhoppers, including products containing bifenthrin, or carbaryl, or cyfluthrin, or permethrins.

Coneflower Aster Yellows- Phytoplasmas



Photo by Isaiah Smith

Coneflower Aster Yellows- Phytoplasmas



Photo by Matt Lane, University of Arkansas Cooperative Extension



Coneflower Aster Yellows- Phytoplasmas



**Photo by Sherrie Smith, University of Arkansas
Cooperative Extension**

Pear References

- [1] [University of Minnesota Extension Information on Cedar-Apple Rust](#)
- [2] [New York State Integrated Pest Management Document on Cedar Apple Rust](#)
- [3] [University of California Integrated Pest Management Guidelines: Bactericide Efficacy on Pear](#)

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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