



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.

### **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 pear, apple, quince, and hawthorn, among others. Several different species of *Gymnosporangium* are known to cause disease of the Cypressaceae (Cypress) and Rosaceae plant families. Both hosts are necessary for the rust fungi to complete its life cycle [1]. *Gymnosporangium* spp. overwinters in galls on Cypressaceae hosts. Wet spring conditions results 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, pear, cotoneaster, crabapple, quince, hawthorn, and mountain ash. 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 (Fig. 1). On the underside of leaves pustules will form (Fig. 2), and after a period of a few months these pustules will begin to produce aeciospore-containing structures called aecia. These rust-colored aeciospores (visible in Fig. 3 and Fig. 4) 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 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 presence and monitoring of nearby cedars, which may increase risk of disease. Fungicides registered for use on pear and apple to control this disease include captan, copper, and sulfur, among others [3]. Consult your local extension agent for the most appropriate chemical recommendations.

### **Pear Rust-*Gymnosporangium* spp.**



Figure 1. Lesions on upper side of leaf. Jade Newsome  
University of Arkansas of Arkansas Plant Pathology graduate student

### **Pear Rust-*Gymnosporangium* spp.**



Figure 2. Lesions on underside of leaf. Jade Newsome  
University of Arkansas of Arkansas Plant Pathology graduate student



## Pear Rust-Gymnosporangium spp.



Figure 3. Pustules and rust-colored aeciospores on pear bud. Jade Newsome University of Arkansas of Arkansas Plant Pathology graduate student

## Pear Rust-Gymnosporangium spp.



Figure 4. Pustules and aeciospores on underside of leaf. Jade Newsome University of Arkansas of Arkansas Plant Pathology graduate student

1. <http://www.extension.umn.edu/garden/yard-garden/trees-shrubs/cedar-apple-rust-and-Gymnosporangium-rusts/>

2. <http://nysipm.cornell.edu/factsheets/treefruit/diseases/car/car.asp>

3. <http://www.ipm.ucdavis.edu/PMG/r603902111.html>

## 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. 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 become 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 and be repeated when the bracts have fallen, four weeks after 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*



Sherri Sanders University of Arkansas Cooperative Extension

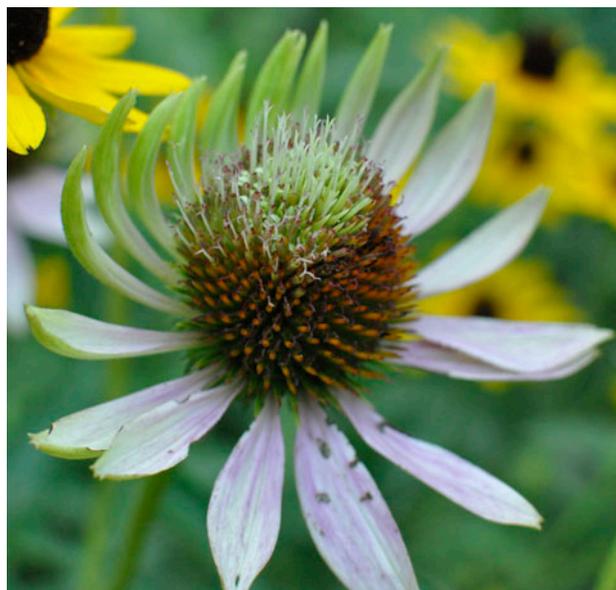


## Dogwood Spot Anthracnose- *Elsinoe corni*



Sherrie Smith University of Arkansas Cooperative Extension

## Coneflower Aster Yellows- Phytoplasmas



Photo, courtesy of Isaiah Smith

## Coneflower Aster Yellows- Phytoplasmas



Matt Lane 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, coxcomb, marigold, zinnia, petunia, cosmos, coxcomb, coneflower, gladiolas, carrots, potatoes, onions, tomatoes, and celery 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 quasrilineatus*. 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



Sherrie Smith University of Arkansas Cooperative Extension

and I are trying to amass populations of as many species of Root knot nematode (*Meloidogyne* sp.) as possible for species identification using molecular techniques. At present no root knot species in Arkansas have been identified using molecular technology. We are interested in receiving populations from home gardens, shrubs, flowers, trees and grasses. For samples we need about a pint of soil and feeder roots in a sealed plastic bag that is plainly identified by plant host, location (City County, physical address, collector and date of collection). Please send samples to us at the follow address:

**Dr. Robert Robbins**  
Cralley-Warren Research Center  
2601 N. Young Ave  
Fayetteville, AR 72701  
Phone 479-575-2555  
Fax 479-575-3348  
Email: rrobbin@uark.edu

### Request for help from Dr. Robbins:

Root knot nematode populations are needed for our Arkansas species study. I am a nematologist in the department of Plant Pathology in Fayetteville. My student