



Arkansas Plant Health Clinic Newsletter

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Pea

One of the most important diseases of garden pea (*Pisum sativum* L.) is Ascochyta Blight. Three different species have been identified as causal agents: *Ascochyta pisi*, *Didymella pinodella* (synonym *Phoma pinodella*), and *Didymella pinodes* (synonym *Mycosphaerella pinodes*). Yield losses may be significant when environmental conditions are conducive for disease development. Disease development is favored by temperatures between 20 to 21°C (68-70°F) and high relative humidity. Disease normally will not develop at temperatures below 4°C (39°F) and above 35°C (95°F) or when periods of leaf wetness are less than 6 hours. All growth stages of the pea are susceptible, and all above ground parts may be affected.

Early symptoms are first observed under the plant canopy on lower leaves, stems, and tendrils, where conditions are more humid. Purplish-black to brown flecks enlarge and coalesce, resulting in the lower leaves becoming completely blighted and falling off. Lesions may appear on stems, leaves, tendrils, and pods. Pod lesions may become sunken. Black spore-producing structures may be observed in these lesions using a hand lens. Advanced stem infections may lead to girdling

near the soil line, which is known as foot rot. These lesions may extend underground and eventually cause lodging. The fungi can overwinter in seeds, infected crop residue, and in the soil. Seed infection can negatively affect stand and vigor. Most years Ascochyta Blight is not a problem since the seed industry started growing seed crops in more arid parts of the country. Pathogen-free seed remains the best course of defense. Never-the-less in years with unseasonal rainfall, contaminated seed may still be found, and seed contamination remains a periodic problem. Crop rotation of four years is recommended, even though it may have minimal impact in reducing *D. pinodes* or *D. pinodella*. Burial of infested crop residue with cultivation is also recommended to reduce inoculum. Research has shown that fungicides such as ones containing chlorothalonil may be helpful when applied early.

Pea Ascochyta Blight-*Ascochyta pisi*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



Coneflower

Bacterial Blight

Echinacea (Coneflower) is a very hardy, reliable perennial for the sunny border. They bloom mid-summer until fall and are much prized for attracting butterflies and songbirds. Coneflower also has a long history as a medicinal plant. Historically, coneflower has been used to reduce the effects of common cold and flu and for the symptoms of painful diseases such as sore throat or pharyngitis, severe cough and cold, and to reduce fever. It has also been used to boost the immune system and fight infections. People should, however, not use any product without their doctor's advice. Much breeding has been done with this versatile native wildflower, resulting in an array of new colors other than the typical purple. Double forms are also available. While typically having few problems, under certain environmental conditions coneflowers may develop Bacterial Blight and Leaf Spot caused by *Pseudomonas cichorii*. Dark brown to black spots form on leaves, stems, and flower petals. On leaves, they are often angular in shape because they are limited by large leaf veins. Weather conditions conducive for disease development are prolonged, cool, wet periods. Bactericides containing copper are effective when good cultural methods are also practiced. The planting area should be kept free of weeds and debris. Overhead watering should be avoided whenever possible. If impossible to avoid sprinkler irrigation, water early in the day so the foliage has a chance to dry. Don't prune or

otherwise work with your coneflower while foliage is wet.

Coneflower Bacterial Blight- *Pseudomonas cichorii*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension



Coneflower Bacterial Blight-

Pseudomonas cichorii



Photo by Sherrie Smith, University of Arkansas
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Coneflower Bacterial Blight-

Pseudomonas cichorii

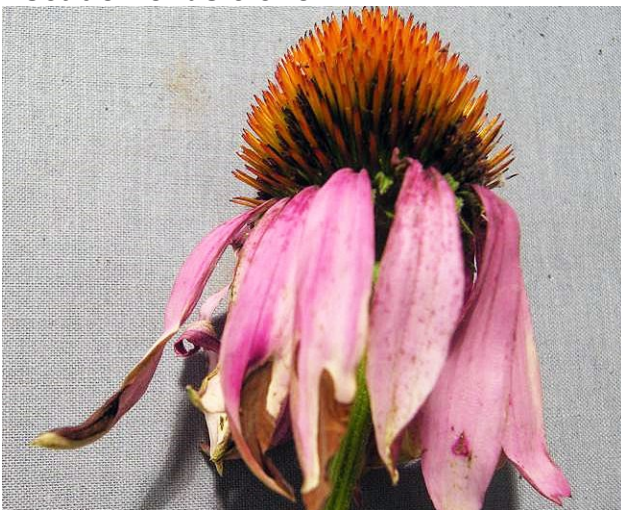


Photo by Sherrie Smith, University of Arkansas
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Coneflower Aster Yellows

Aster Yellows is the common name of a disease caused by Phytoplasmas. Phytoplasmas are specialized bacteria that are obligate parasites of plant phloem tissue and of some insects. Over 300 species of plants in 38 families are susceptible, including aster, carrot, celery, coneflower, cosmos, coxcomb, gladiolas, marigold, onion, petunia, potato, tomato, and zinnia. Many common weeds are also susceptible, including dandelions and plantains. A common sign of Aster Yellows is the production of leaf-like structures in 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 will acquire Phytoplasmas 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 (Phyllody)-*Phytoplasmas*



Photo by Isaiah Smith

Cosmos Aster Yellows- *Phytoplasmas*



Photo by Isaiah Smith

Coneflower Aster Yellows (Phyllody)-*Phytoplasmas*



Photo by Sherrie Smith, University of Arkansas
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"Unusual" Lady Beetle

by Ricky Corder

Coleomegilla maculata (Coleoptera: Coccinellidae), sometimes called the pink spotted lady beetle, is a common lady beetle that is native to the US but differs from the stereotypical lady beetle shape and color. The pink spotted lady beetle is more elongate than other lady beetles and usually has a pink color



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(almost neon pink at times) with black spots. Adults are about 1/4" (6.4 mm) long. The pink spotted lady beetle can be found on almost any crop or garden plant and feeds on aphids, scale insects, insect and mite eggs, immature insects, and even pollen. Because pollen is an important source of food for the lady beetle, early blooming flowers planted near the garden can attract them before aphids have a chance to build high populations. Refuges (areas that are allowed to grow wild and aren't treated with insecticides) for natural enemies can also give lady beetles a place to live and feed until garden pests arrive. Adults overwinter in leaf litter or other protected areas and become active in early to mid-spring. Females can lay from 200 to 1000 eggs which are an orange-yellow color and deposited in small groups. Immature stages are "alligator" shaped and very mobile. Lady beetles pupate on the surface of plants attached by the posterior end with an adhesive. The pupal stage can last from 3 to 12 days depending upon temperature.

Lady Beetle, pupa-*Coccinellidae*



Photo by Whitney Cranshaw, Colorado State University, Bugwood.org

Pink Spotted Lady Beetle, adult feeding on Colorado potato beetle eggs-*Coleomegilla maculata*



Photo by Whitney Cranshaw, Colorado State University, Bugwood.org

Lady Beetle, larva feeding on aphid-*Coccinellidae*



Photo by Lenny Wells, Colorado State University, Bugwood.org

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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