



Arkansas Plant Health Clinic Newsletter

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Rose

Rose Downy Mildew

Downy Mildew, caused by *Peronospora sparsa*, can cause spectacular leaf drop in susceptible cultivars when conditions are favorable for disease. Downy Mildew is a different disease than powdery mildew. Downy Mildew is favored by wet, cool conditions in the spring and fall. Symptoms may occur on leaves, stems, peduncles, calyxes, and petals. Purplish red to dark brown angular spots develops on leaves. Large areas may be blighted, resembling a chemical burn. Leaflets may turn yellow with green islands of normal tissue. Blackish-purple lesions may appear on stems. Infected twigs may die. Good sanitation is important in reducing the amount of overwintering inoculum. Infected leaves, stems, and flowers should be removed from the planting and destroyed. Mancozeb and Aliette are effective against Downy Mildew. Commercial growers should rotate Mancozeb with Heritage or Compass. Note that although Knockout roses are extremely resistant to Black Spot, they can have problems with Downy Mildew.

Rose Downy Mildew-*Peronospora sparsa*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension



Rose Downy Mildew-*Peronospora sparsa*



Photo by Sherrie Smith, University of Arkansas
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Black Spot

Black Spot of roses is the most persistent and frustrating disease associated with growing roses. Susceptibility to Black Spot, caused by *Diplocarpon rosae*, was first introduced into the genome of modern roses by crossing *Rosa foetida* and *Rosa foetida* 'Persiana' roses with European roses. Prior to that time, the true yellow was unknown in European and American roses. Unfortunately, the gene for yellow coloring in *Rosa foetida* and the variety *Rosa foetida* 'Persiana' roses was strongly linked to susceptibility to Black Spot. That susceptibility has, unfortunately, been passed on to many of

our favorite modern roses. Symptoms are circular to irregularly shaped black spots with feathery edges. Small black pimples, (acervuli), may be seen on the lesions. The leaf tissue surrounding the spots turns yellow, eventually causing infected leaves to fall from the plant prematurely. Badly affected plants will have virtually no leaves. Roses will replace the fallen leaves, but repeated defoliation weakens the plant, as well as being unsightly. There are some excellent cultivars with resistance to Black Spot. Unfortunately, many with good resistance to the disease lack the wonderful fragrance commonly associated with roses. For those unable to locate cultivars with both disease resistance and good scent, Black Spot can be managed with a good spray program coupled with cultural controls. Overhead irrigation should be avoided if possible. If overhead irrigation is used, it should be done in the morning so foliage can dry quickly. Fallen leaves should be raked up and removed from the planting. Susceptible roses should be sprayed with a rose fungicide as soon as they leaf out in the spring, and then every 7-10 days, especially after a rain. For those, who dislike spraying, a systemic such as Bayer Advanced Disease Control for Roses, Flower, & Shrubs is available. **Now is the time to start spraying!**



Rose Black Spot-*Diplocarpon rosae*



Photo by Sherrie Smith, University of Arkansas
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Jerusalem Artichoke

The Jerusalem Artichoke, *Helianthus tuberosus*, is a native sunflower grown for its eatable tubers. Plants get 3-10 feet high and have a profusion of yellow sunflower type blooms in August and September. The tubers are a high source of potassium and iron. Jerusalem artichokes are eaten raw in salads or as a steamed vegetable. They are also used in alcohol production, fructose production and livestock feed. They are easily grown as they are tolerant of a wide range of soil conditions. A slightly alkaline pH, however, favors production. They are very healthy plants as a rule, having few pests and diseases. In fact, Jerusalem artichoke can become a nuisance plant since a patch is difficult to completely eradicate once established.

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White Mold

The most serious disease of Jerusalem artichoke is White Mold, causal agent *Sclerotinia sclerotiorum*, which causes early wilt, stalk rot and degradation of the tubers. Symptoms are wilting and white cottony mold/mycelium on the surface of the stem at the soil line and on the surrounding soil. If this problem occurs, rotation with a non-host crop such as a small grain crop should be considered. Soil solarization and deep plowing can also be helpful. Deep plowing with a mold board type plow helps bury the fungi. Do not till the area as that will only disperse the pathogen over a wider area. There are no fungicides labeled for Jerusalem artichoke. When using solarization; remove plant debris; rake and water the soil surface; then place clear plastic over the area for 4-6 weeks.

Storage Rots

Storage rots are another problem with Jerusalem artichoke. Tubers that have been wounded are susceptible to Bacterial Rot caused by *Erwinia* spp. The tuber will become mushy and have a distinctly rotten smell. Only tubers that are unblemished should be put into storage. They should be stored at 33-34 °F with a relative humidity of 85-95%. Jerusalem artichoke can also be left in the ground over the winter. We occasionally see tubers with *Phytophthora* or *Pythium* Rot when they are in heavy, wet soils. Such tubers have the same symptoms as from Bacterial Rot, which is often a secondary invader.



Jerusalem Artichoke Bacterial Rot-*Erwinia* spp.



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Jerusalem Artichoke Bacterial Rot-*Erwinia* spp.



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Blue Spruce

Cytospora Canker on Colorado and Norway spruce trees is associated with drought stress and injury. The cankers may be discolored, sunken or swollen. They often exude sap which is a bluish-white when dry. The fungus that causes Cytospora Canker is frequently found living harmlessly on the bark of spruce trees. It infects wounds from pruning cuts and mechanical damage to branches, but trees do not usually begin to show symptoms until they are ten to fifteen years old. The progression of Cytospora Canker can be slowed by supplying additional water during dry weather and pruning infected branches. Pruning should be done when the tree is dormant. Disinfect pruners or limb loppers with 70% rubbing alcohol, or a 10% bleach solution, (nine cups water to one cup bleach), between cuts to reduce the chance of spreading the disease. There are no chemical controls for Cytospora Canker. Trees can live for many years with Cytospora.

Blue Spruce Cytospora Canker-*Cytospora kunzei*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



Blue Spruce Cytospora Canker- *Cytospora kunzei*



Photo by Michelle Buchanan, University of Arkansas Cooperative Extension

Blue Spruce Cytospora Canker- *Cytospora kunzei*



Photo by Michelle Buchanan, University of Arkansas Cooperative Extension

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.

"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."