



Arkansas Plant Health Clinic Newsletter

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Potato

Potatoes are susceptible to many viral diseases. For this reason, formal seed production systems were developed to minimize losses due to viruses. Viruses seldom kill potato plants but can reduce plant health and yield. The viruses most damaging to potato are transmitted via infected tubers from generation to generation. Viruses can also be transmitted by insects, nematodes, beetles, leafhoppers, whiteflies, and sap transmission. It is not uncommon to have more than one virus present in the same plant. The potato sample pictured below tested positive for both Potato Virus S (PVS) and Potato Virus Y (PVY). PVS and PVY are found worldwide. PVS is a *Carlavirus*. It is transmitted by seed cuttings, mechanical injury to foliage during cultivation, and leaf-leaf contact. Studies have shown that PVS can also be transmitted by aphids. Symptoms include slight deepening of veins, rugosity of leaves, stunting, and mottling, bronzing, and necrotic spots. Some plants with the virus will not have any visual symptoms. Potato Virus Y (PVY) is one of the most important viruses affecting potato production. It is a potyvirus, and is spread by aphids, leaf-leaf contact, and tuber to tuber contact. The severity of symptoms depends on

the virus strain, the cultivar, and whether another virus is also present. Symptoms include necrosis, mottling, yellowing, leaf dropping, and death. Plants may be stunted with severely mottled and crinkled leaves. Ringed necrotic areas often develop on the tubers. Control consists of using seed potatoes certified to have low infection rates. Seed cutting equipment should be sanitized between lots. Mechanical damage to plants should be minimized during cultivation and spraying. Insecticides do not kill the aphids fast enough to avoid transmission of the virus. Mineral oil sprays may be applied to new foliage weekly to help control aphid transmission. All symptomatic plants should be removed from the field and destroyed. There are cultivars with some resistance available.

Potato infected with Potato Virus S (PVS) and Potato Virus Y (PVY)-*Carlavirus* and *Potyvirus*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension

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Potato infected with Potato Virus S (PVS) and Potato Virus Y (PVY)-*Carlavirus* and *Potyvirus*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Grape

Grape Phylloxera, *Daktulosphaira vitifoliae*, is an insect native to the eastern United States. However, it has spread to other regions of the United States wherever grapes are grown, and to Europe where the insect has caused severe yield losses in the past. Grape Phylloxera are

very small, yellow brown, oval or pear-shaped, and aphid like. They can be differentiated from true aphids as they lack the pipe-like structures on the top of the abdomen as do aphids. Grape Phylloxera overwinter as eggs under the bark of canes, or as nymphs on the roots. Feeding by the insect elicits gall formation, and the female becomes encased within a small round, wart-like gall on the underside of the grape leaf. She lays hundreds of eggs which hatch and crawl to nearby shoot tips where they feed and initiate gall formation. Foliar feeding and galls do little harm to the plant. The real problem is damage to roots by the crawlers that migrate to them and begin feeding. On susceptible European varieties, root galls cause stunting, defoliation, reduced yield, and/or death. As a consequence, most European grapes are now grafted onto tolerant American root stock. Commercial growers may use Admire Pro, or Assail 30 SG, or Danitol 2.4Ec, or Movento. There are no chemicals labeled for homeowner use.

Grape Phylloxera-*Daktulosphaira vitifoliae*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Grape Phylloxera-*Daktulosphaira vitifoliae*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Sedum

Autumn Joy sedum is a great plant for the sunny perennial garden. It is drought tolerant, rabbit resistant, attracts butterflies, and gives extended late season bloom. The bloom heads are very large, dusty rose-colored and can be used in dried or fresh flower arrangements. However, Autumn Joy is prone to Powdery Mildew (caused by *Erysiphe* spp.), particularly when grown in too much shade. Powdery Mildew does not need free moisture on the leaf to infect. Environmental conditions ideal for the disease are greater than 95% relative humidity, and temperatures of between 68°-86°F. Symptoms are brown scab-like spots with a small amount of powdery growth. Fungicides must be applied preventively. Homeowners

may use products containing triadimefon (Green Light Fung-Away Fungicide) or myclobutanil (Spectracide Immunox) for Powdery Mildew control on sedum. Commercial growers may use Bayleton, or Eagle 20EW, or Strike.

Sedum Powdery Mildew-*Erysiphe* spp.



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Orchid

The most common disease of orchids is Bacterial Brown Spot, caused by *Pseudomonas cattleyae*. Symptoms begin as small, soft, water-soaked blisters. In some genera of orchid such as *Phalaenopsis*, the spots may be surrounded by a yellow or pale



green halo. The spots enlarge, coalesce, and eventually become brown to black, dried up and sunken. Bacterial oozes from the lesions during humid, warm weather. Phalaenopsis are very susceptible, with death often occurring if the crown becomes diseased. On Cattleya, the bacterium enters through wounds, usually on older leaves. The symptoms are sunken black spots. It is rarely fatal on Cattleya. Prevention is the best treatment. Reduce humidity and temperature. Avoid overhead watering, and space plants for good air circulation. Infected tissue should be immediately removed. Disinfect tools in a 10% bleach solution between cuts. Spray bactericides such as Physan or copper. Note that copper should not be used on Dendrobiums or blooming plants.

Orchid Bacterial Brown Spot- *Pseudomonas cattleyae*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Orchid Bacterial Brown Spot- *Pseudomonas cattleyae*



Photo by Sherrie Smith, 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.

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