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SPDN
Southern Plant Diagnostic Network

Sherrie Smith

Issue 26-September 29, 2012

Arkansas Plant Health Clinic Newsletter

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Pumpkin

Bacterial Spot

Bacterial Spot of pumpkin, caused by the bacterium *Xanthomonas campestris* pv. *cucurbitae,* can be a serious disease of pumpkins, cucumbers, gourds, and squash. Yield losses more than 50% have been recorded in severely infested fields. Leaf symptoms appear as small, dark, angular lesions, with the centers of the lesions becoming translucent with age. However, the most damaging symptoms appear on the fruit. Fruit lesions begin as small, slightly sunken, circular spots, 1/16 to 1/18 inch in diameter. As the lesions enlarge the cuticle and epidermis crack. Larger lesions may have a scabby appearance with tan, raised blisters. Saprophytic fungi often colonize the older lesions, giving them a pinkish-white or green color depending on the species of saprophyte involved. The unsightliness of the lesions diminishes the marketability of the fruit as well as leading to significant rot in the field and in storage. The pathogen is seedborne and can also survive in crop residue. Bacterial Spot is more of a problem during high temperatures coupled with rainy weather or overhead irrigation. Inoculum is splashed onto young fruit before it develops its protective waxy cuticle. Good sanitation and crop rotation with non-cucurbit crops help limit inoculum in the field. Only clean seed should be used. Therefore, it is advisable to not save seed from a previous crop. Copper fungicides may be applied during early formation and fruit expansion to protect developing fruit. Once bacterial lesions are observed on mature fruit there is nothing to be done except to practice ruthless culling of diseased fruit.

Pumpkin Bacterial Spot-
Xanthomonas campestris* pv. *cucurbitae

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Downy Mildew

Downy Mildew, caused by *Pseudoperonospora cubensis*, is one of the most important foliar diseases of cucurbits. Major losses can occur to cucumber, melon, squash, pumpkin, and watermelon when adequate control measures are not employed at first sign of the disease. Symptoms of Downy Mildew appear first as small, slightly chlorotic to bright yellow areas on the upper leaf surface. The lesions appear first on lower crown leaves, and progress to the newer leaves as they expand. Dead areas may form on the leaf tissues as the chlorotic areas expand. Under favorable conditions, sporulation occurs on the lower surfaces giving a gray to purple appearance to the leaf surface. Infected tissue dies after one cycle of sporulation. In a few days the entire leaf may die. Maximum control of Downy Mildew is achieved only by the combination of fungicide applications, the use of resistant cultivars, and good sanitary practices. Quadris, Cabrio, Bravo, Maneb, and Pristine are all labeled for control of Downy Mildew. Rotate fungicides with different modes of action.

Pumpkin Downy Mildew-
Pseudoperonospora cubensis

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Squash

Angular Leaf Spot and fruit spot of curcurbits is caused by the bacterium *Pseudomonas syringae* pv. *lachrymans*. All members of the cucurbit family are susceptible, although cucumbers are particularly susceptible. Newly emerging plants may have round or irregular water-soaked spots on the cotyledons. During periods of high humidity, bacterial droplets form on the undersides of the leaves. The lesions are confined on older leaves by leaf veins, giving them an angular appearance. Eventually, the spots dry, turn brown and fall

out, giving a shot hole or tattered appearance to the leaves. Stems, petioles, and fruit may also be affected. Water-soaked areas on the stems and petioles later dry and form a whitish crust of dried bacteria. Minute water soaked lesions appear on the young fruit. These spots later dry and crack, revealing chalky tissue underneath. Unlike bacterial spot caused by *Xanthomonas*, these lesions remain mostly superficial. However diseased plants grow poorly because of reduced photosynthesis by the damaged leaves. This results in yield losses as well as direct losses due to the unmarketability of the damaged fruit. Infection is usually initiated from contaminated seed, but the bacterium can also infect through hydathodes, stomata, and wounds during wet weather or overhead irrigation. There is some resistance to Angular Leaf Spot of cucurbits. Choose resistant cultivars whenever possible. Use only clean seed and don't save seed from a previous crop. Practice a minimum of a two year crop rotation. Infested crop resisdues should not be left standing after harvest, but promptly turned under. Avoid using fields with cold, wet soils and poor air flow. Avoid the use of overhead irrigation. Do not work in the filed when the foliage is wet as workers can spread the bacterium on tools, clothing, and equipment. Copper fungicides may be applied every 7 days for 3-4 weeks when fruits are about 4 inches in diameter.

Squash Angular Leaf Spot-
Pseudomonas syringae* pv. *lachrymans

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Squash Angular Leaf Spot-
Pseudomonas syringae* pv. *lachrymans

Photo by Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org

Poinsettia

Poinsettias are our most popular holiday plant, with over 65 million sold each year in the United States. Poinsettia Scab, caused by the fungus *Sphaceloma poinsettiae* can be a destructive disease in poinsettia production systems. Scab can infect both stems and leaves. Small round spots form on the leaf blade, most often on the mid-vein or lateral veins where they may coalesce. The spots develop whitish to brown centers, have a dark red to purple border, and often show a yellowish halo. A prominent feature of the spots is that they buckle out from the upper leaf surface. Sporulation causes the lesions to change from white to a velvety brown. Stem lesions are whitish in color, becoming brown with sporulation, and sometimes surrounded by red pigmentation. The fungus produces a growth regulating hormone that causes an affected shoot to super elongate. Infected plants may tower six inches or more above the rest of the crop. Disease is favored by high humidity and wet growing conditions. Diseased plants should be removed from the greenhouse and destroyed. Heritage, mancozeb, chlorothalonil, or chlorothalonil-thiophanate mixes have been found effective when applied protectively.

Poinsettia Scab stem lesion-
Sphaceloma poinsettiae

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Poinsettia Scab stem lesion- *Sphaceloma poinsettiae*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Poinsettia Scab-*Sphaceloma poinsettiae*

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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