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University of Arkansas System
Sherrie Smith

SPDN
Southern Plant Diagnostic Network
Issue 27-October 6, 2011

Arkansas Plant Health Clinic Newsletter

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Pecan

Phytophthora Shuck and Kernel Rot is a relatively new disease of pecan. Symptoms often occur high in the canopy while nuts closer to the ground are unaffected. The mechanism for infection at the top of the tree is still unknown. The causal agent is *Phytophthora cactorum.* Symptoms are a moist, spongy, dark brown to black rot that usually starts at the stem end of the pecan fruit with a distinct margin between infected tissue and still healthy green tissue. The rot progresses rapidly to encompass the entire shuck within 4 to 6 days. Two to three weeks later, the affected shucks dry and cling tightly to the shell. During cool, wet weather, a whitish-gray film of mycelia appears on the surface of the shucks. Infected nuts stop growing and are usually smaller than healthy nuts. The seed coat of the kernel turns dark brown, and the nut meat rots. No fungicides are registered for control. However, research has shown that Super Tin applied for other pecan diseases has some efficacy against Phytophthora Shuck and Kernel Rot.

Pecan Phytophthora Shuck and Kernel Rot-*Phytophthora cactorum*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Potato

Powdery Scab of potato, caused by *Spongospora subterranea* f. sp. *subterranea*, is found in most of the potato growing regions of the world. The pathogen proliferates under soil conditions found at planting time in the spring when soil temperatures are less than 68°F. Poorly drained soils are ideal for the swimming zoospores. The most favorable infection conditions are soil temperatures of 55 to 65°F with soil moisture over 15 percent. The pathogen is tolerant of a pH range from 4.7 to 7.6. High soil moisture early in the season, which is common in Arkansas, encourages the development of the disease. Potatoes are susceptible one week before tuber set when more than 50 percent of the stolons have tips swollen to at least 3/16 inch in diameter.

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Symptoms are limited to the underground parts of the plant: roots, stolons, young shoots, and tubers. Infections on roots and stolons begin as small necrotic spots. These lesions develop into milky white to tan galls which turn brown and rupture, releasing the sandy masses of resting spores. The resting spores germinate, releasing zoospores. Severe infections can cause wilting and death of the plant, although that is uncommon. On the potato tuber, initial infections are manifest as purplish brown lesions which may be sunken. The lesions become tan, pimple or wart-like swellings that eventually enlarge, breaking the periderm, and exposing powdery, sandy-looking, tan to brown masses of spores. Other symptoms may include a russet-like scurfing and lesions that remain sunken instead of the typical raised pimples or warts. The biggest problem with Powdery Scab is that it causes infected potatoes to dry out and shrivel in storage. Control of Powdery Scab is not easy. Clean disease-free seed should be used. Never use tubers for propagation that have scab. Don't plant in contaminated, poorly drained fields. Practice a 3-to-10-year crop rotation out of infested fields, as the resting spores can survive in the soil for longer than six years. Do not use tomato as a crop in rotation with potato. Control solanaceous weeds such as nightshade. Avoid using manure that came from animals that consumed contaminated tubers, as the spores survive through the animal's intestinal tract. Choose resistant cultivars. In general, russet varieties are more resistant than yellow, red, or white varieties.

Potato Powdery Scab-*Spongospora subterranea* f. sp. *subterranea*

Photos by Sherrie Smith, University of Arkansas Cooperative Extension

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Cucumber

Cucumber Anthracnose, caused by *Colletotrichum orbiculare*, is a common foliar disease of cucumbers, watermelon, and melons. It is less commonly found on squash and pumpkin. Leaf symptoms are lesions that first appear near veins. The lesions are roughly circular, light brown to reddish, and can grow to more than 1 cm in diameter. Centers of the lesions may crack or drop out. Fruit lesions are sunken, circular, water-soaked spots which develop as fruit reaches maturity and then expanding to cover large areas. The lesions on petioles and stems are shallow, elongated tan areas. Under moist conditions, anthracnose lesions turn black and become covered with pink spore masses. Control can be achieved using crop rotation, deep plowing of crop debris after harvest, the use of resistant cultivars, and the use of fungicides. Products containing chlorothalonil, or pyraclostrobin, or azoxystrobin, or Mancozeb, or boscalid + pyraclostrobin are effective.

Cucumber Anthracnose spores-
Colletotrichum orbiculare

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Cucumber Anthracnose-
Colletotrichum orbiculare

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Blister Mites

Blister Mites are microscopic eriophyid mites that invade the leaf mesophyll, causing a discolored blister on the outside of the leaf. Blisters on the top surface of the leaves may be green, yellow, orange, or red. On the lower leaf surface, the blisters turn white, yellow, or brown. The mites are very tiny, white, or yellowish to orangish, and spindle shaped with rings around their bodies. Unlike spider mites, they have only two pairs of legs directly behind the mouthparts. Susceptible plants are maple, mountain ash, fuchsia, walnut, pear, and

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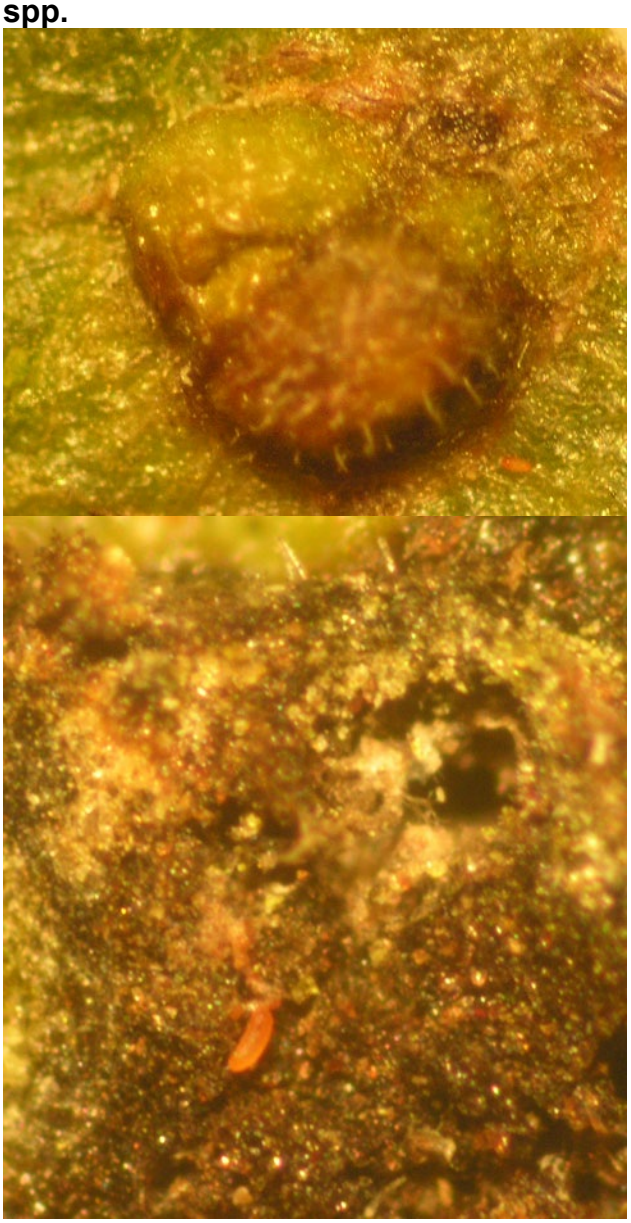
grape, among others. Eriophyid mites overwinter under outer bud scales. During the summer months they emerge and feed on the leaf surfaces. Although heavy infestations can cause leaf blistering, leaf distortion, silvering, bronzing, and premature leaf fall, the damage is usually more cosmetic than it is fatal. Infected leaves and twigs should be removed to get rid of adult mites. Prune in early spring when plants are dormant, and the mites are overwintering. Chemical controls can be applied just after bud break in the spring. Sevin, fine horticultural oils and insecticidal soaps are effective. If Sevin is used, apply in the evening when honeybees are not as active. Chemicals will not kill mites already in galls or blisters.

Blister Mite damage-*Eriophyidae* spp.

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Leaf Blister and Mite-*Eriophyidae* spp.



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Leaf Blister Mite ventral view- *Eriophyidae* spp.

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Leaf Blister Mite lateral view- *Eriophyidae* spp.

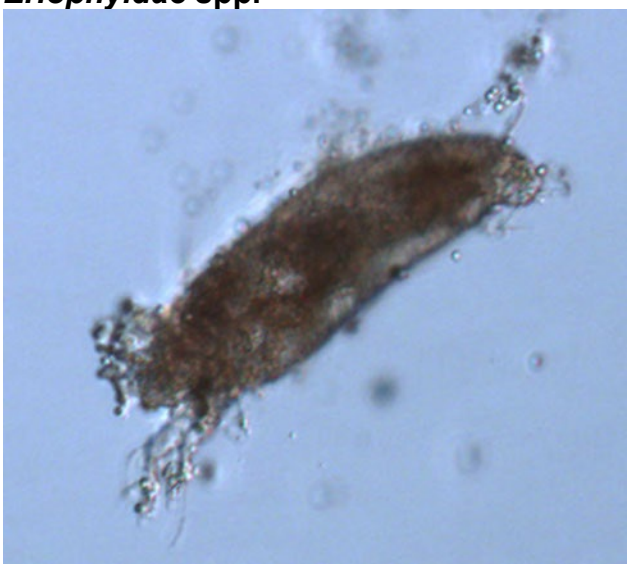

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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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