UNIVERSITY OF ARKANSAS DIVISION OF AGRICULTURE
Cooperative Extension Service

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SPDN Southern Plant Diagnostic Network

Department of Plant Pathology

PLANT HEALTH CLINIC NEWS

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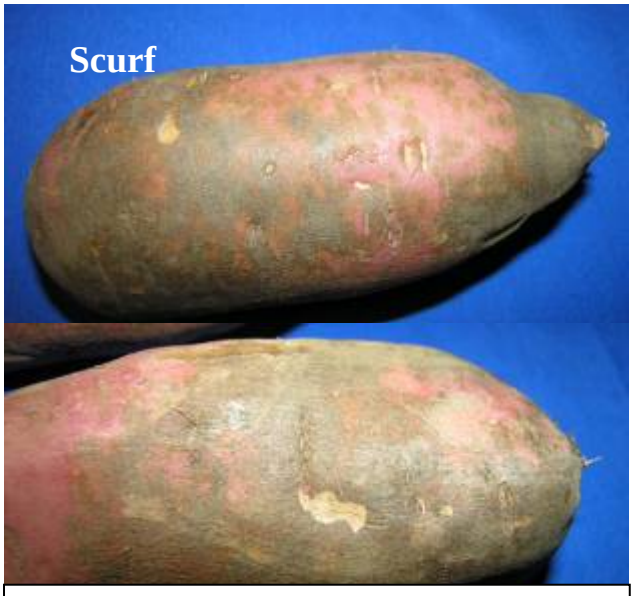
This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

Sweet Potato

Scurf is primarily a disease that produces undesirable cosmetic damage. This disease is caused by *Monilochaetes infuscans* and was once known as soilstain. It is a common disease in the United States. Symptoms are dark brown to black spots that develop on the potatoes during the growing season. Copper-skinned sweet potatoes usually have brown lesions, and red-skinned cultivars have almost black lesions. The spots grow and may eventually cover most of the surface of the potato.

The infection is a surface one that can be easily scraped off and does not affect the flesh of the potato. Losses result, however, from buyers avoiding the discolored tubers. Most infections result from using infected potatoes as propagating material. The pathogen also survives in the soil for 1–2 years. Severity is greater in fine-textured soils and in soils that have been manured. Two simple measures will give good control of scurf. Practice a 3–4 year crop rotation with other crops. Do not use symptomatic potatoes for propagation.



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Pumpkin

Most cucurbit crops are susceptible to powdery mildew. Severe infections can cause early plant senescence and reduction in yields. The first symptom is the white, powdery growth of fungal mycelium that occurs on top and bottom of the leaf and on stems and petioles. Older leaves show signs of infection first. The underlying tissue can turn chlorotic and later necrotic. Entire leaves can become completely covered with white growth, turn brown, and die. Stunting of the plant, smaller fruits, and reduced yields are often the result of severe powdery mildew infections. The two powdery mildew pathogens that most commonly infect cucurbits are *Sphaerotheca fuliginea* and *Erysiphe cichoracearum*. Powdery mildews are obligate pathogens. They overwinter on volunteer or weed hosts. Conidia can be wind blown for great distances. Control measures are planting resistant cultivars and the application of protective fungicides. Bravo Ultrex, Bravo Weatherstik, Maneb, and Pristine are labeled for powdery mildew.

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Pumpkin with virus

All members of the cucurbit family are susceptible to viruses. Zucchini yellow mosaic virus (ZYMV) is transmitted by aphids and is related to watermelon mosaic virus (WMV). The leaf symptoms are similar to papaya ringspot-W (PRSV-W) which was formerly known as watermelon mosaic virus-1. Symptoms are stunting, yellow mosaic or mottling pattern, leaf malformation and blisters, and necrotic lesions. Fruits with ZYMV can be deformed with knobby protuberances.

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Fruits with PRSV-W have ring patterns. There is no real resistance to ZYMV, although there are some cultivars with some resistance to WMV and PRSV-W. Aphid control should be practiced early in the season. Good weed control is helpful as weeds provide a reservoir for the disease.

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Hydrangea

Hydrangeas are versatile shrubs that come in sizes and colors suitable for any landscape. They range in size from dwarfs that reach only 2.5 feet to tree types reaching 10 feet or more. They are usually hardy and trouble free, but can get leaf spots when environmental conditions are favorable for disease. Septoria leaf blotch of hydrangea causes brown blotches and spots on leaves with a dark border. It looks a good deal like cercospora leaf spot and is often found with it on the same leaf. These diseases are unsightly but not usually serious on hydrangea. Good sanitation helps control leaf spot diseases on hydrangea. All plant debris should be cleaned up in the fall. Overhead irrigation should be avoided. If that is not possible, water early in the morning so foliage dries quickly. An ornamental fungicide such as a rose spray or Daconil may be used to protect new leaves.

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Pecan

Mineral deficiencies of nut trees can be caused by factors such as sandy soils, pH, inadequate soil moisture, poor drainage and aeration, unfavorable temperatures, and root diseases. Soil analysis, leaf tissue analysis, and visual observations are the methods used to diagnose mineral deficiencies. Magnesium deficiency in pecan typically occurs on soils with low pH. Symptoms appear from midsummer to late summer after considerable shoot growth, although they can appear in the spring with cold weather. Symptoms are a distinct chlorotic area along the margins of basal leaves that eventually presents a Christmas tree pattern along the midrib. The cure is foliar sprays for spring deficiency and soil applications for summer deficiency applied the following winter. Amounts of nutrients needed cannot be known without soil and tissue analysis. Most nutritional problems may be avoided by starting an orchard plan with a soil analysis before planting your trees.

Pecan scab

By the same token, serious disease problems can also be avoided by choosing scab resistant cultivars. Scab caused by *Cladosporium caryigenum* is the most common and serious disease of pecans. Symptoms on leaves begin as small olive-green to black spots with a

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velvety or rough appearance. Lesions may coalesce and become large, irregularly shaped dark areas. Petioles and veins infected will have dark elongated dark lesions. Shuck infection before hardening causes the most damage. Lesions on shucks are identical to the leaf lesions. Severe fruit infection stops development of the nuts and prevents normal maturity and ripening. Losses also occur as nut size is negatively impacted. Fungicides are effective against scab if applied in a timely and consistent manner. Abound, Enable 2F, Propimax EC, Topsin M, Pristine, Elast, and Headline are labeled for pecan scab. The best control is gained by planting resistant cultivars.

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Pecan serpentine leafminer

Leafminers are the larvae of flies, moths, sawflies, or beetles. They feed between the two surfaces of a single leaf making distinctive tunneling patterns. They are not considered a serious pest of pecans.

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Variety	Dichogamy*	Size	Kernel Quality	Scab Resistance	Productivity
Cape Fear	I	Large	Good	Resistant	Very good
Curtis	II	Small	Good	Very resistant	Very good
Elliott	II	Small	Good	Very resistant	Very good
Gloria Grande	II	Large	Excellent	Resistant	Very good
Stuart	II	Large	Excellent	Resistant	Very good
Summer	II	Large	Excellent	Resistant	Very good

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Soil Sampling for Soybean Cyst Nematode

by Ronnie Bateman

The soybean cyst nematode (SCN), *Heterodera glycines,* is still alive and well in Arkansas and is one of the most destructive pests affecting soybeans. With soybean acreage up this year, and with other things like Asian soybean rust making headlines, it will be easy to overlook pathogens like SCN that rob yields in a less conspicuous way. Soybean fields with areas that are performing poorly (stunted or yellow plants), fields where SCN has been observed previously, and fields that are currently in soybean that will also be planted to soybean next year are prime candidates for sampling this year. Late summer (now), or immediately after harvest is the optimum time to sample.

Deciding how to sample can be confusing. Here are some general guidelines:

If there are no obvious "problem" spots within the field, then sample the whole field as a unit. Collect a minimum of 20 soil cores that represent the field as well as possible. If fields are large, ca. 50 acres or more, divide the field into two or more parts and sample each separately. If, on the other hand, there are obvious areas that are suspect in the field, sample these areas and the surrounding, apparently normal soybeans – once again using 15–20 individual cores for each area. In this case, one of the most useful tools besides the standard sampling tube is a hand-held GPS unit. Mark the areas that were sampled when the sample was taken. Cores should be pulled to a depth of 6–8 inches, and sampling should be done randomly throughout the area to be sampled in a pattern that will ensure that soil from both sides, both ends, and the middle is included. The soil should be mixed well, placed in a plastic bag, sealed to prevent drying out, and tagged for proper site identification. Although not mandatory, including several root systems with SCN attached (Fig. 1) would aid tremendously in our assays, particularly if the grower wants a race analysis as well as a general assay. A nematode sample submission form (www.uaex.edu, Form #AGRI – 483) should be filled out and submitted with each sample. The sample can either be taken to the local county Extension office for submission to the Arkansas Nematode Diagnostic Laboratory, or it can be sent directly to the laboratory at Arkansas Nematode Diagnostic Laboratory, 262 Highway 174 N., Hope, AR 71801.

There is a $10 fee for the general assay and an additional $15 for race determination.

Cyst nematodes on roots. Greg Tylka, Iowa State University