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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.

Stinkbug

Several species of stinkbugs feed on tomato fruit as well as on many other vegetables, fruits, nuts, and field crops. Stinkbug species in Arkansas include the Green stinkbug, *Acrosternum hilare* (Say), the Southern green stinkbug, *Nezara viridula* (L.), the Brown stinkbug, *Euschistus servus* (Say) and the Rice stinkbug, *Oebalus pugnax*. Adult stinkbugs are shield-shaped insects with piercing sucking mouthparts. They get their common name "Stinkbug," from the strong odor they emit when disturbed. Stink bugs pierce fruits and nuts and inject enzymes from their salivary glands to liquefy and pre-digest the plant material. Damage to corn is dark sunken spots on individual kernels. Damage on green tomato fruit appears as dark pinpricks surrounded by a light discolored area. On ripe fruit the area around the feeding site usually turns yellow. If the skin of the fruit is peeled back, white spots may be observed on the flesh of the tomato. Damage on nuts such as pecans appears as black spots on the nutmeat. Okra pods may be distorted by stinkbug feeding. Females overwinter as adults and lay egg masses in the spring on host plants. There can be several generations a season. For stinkbug control, homeowners may use Ortho Max Flower, Fruit, Citrus, and Vegetable Insect Control, or Bayer Advanced Insect Control, or Spectracide Insect Control, or permethrins, or Pyrethrin EC.

Okra stinkbug damage-family

Pentatomidae



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Corn stinkbug damage-family

Pentatomidae



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Tomato stinkbug damage-family

Pentatomidae



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Tomato stinkbug damage-family *Pentatomidae*



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Pecan stinkbug damage-family *Pentatomidae*



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Potato

One of the most frequent diseases of potato we see is **Common scab** of potato, caused by a bacterium, *Streptomyces scabies*. Scab is found in most potato production areas of the world. Other common names for this disease are "Russett scab", "Erumpent scab", and "Pitted scab". Young tubers are infected through lenticels and stomata. Lesions are circular to irregular in shape and often coalesce into large areas on the surface of the tuber. As the tuber matures, the lesions become rough, cracked, and tan to dark brown. Superficial lesions are called Russet scab, slightly raised (Erumpent scab), and sunken (Pitted scab). The type of lesion is dependent on potato cultivar, aggressiveness of the streptomyces strain, and the environment. Control of Common scab is difficult. The most critical control measure is planting only scab free seed tubers. A crop rotation of 3 to 4 years is helpful. High soil moisture should be maintained for 4 to 6 weeks after swelling of stolon tips. Soil pH is important in scab control. Potatoes are commonly grown in soils with a pH of 5.0 to 5.2 for control of common scab. Avoid alkaline organic fertilizers such as ashes, poultry/fresh farmyard manure. However, tubers grown in acidic soil may develop scab-like lesions. This may be due to Acid scab, a similar disease to Common scab caused by another species of *Streptomyces*, *S. acidiscabies*. Acid scab can develop in soils with a pH as low as 4.0. Acid scab and common scab are hard to tell apart as lesions caused by *S. acidiscabies*, are similar, if not identical, to those caused by *S. scabies*. There is some resistance to Common scab available. Some of the common varieties that are most resistant to scab are Cheiftan, Norland, Viking, Gold Rush, and Russet Burbank. Remember that resistant does not mean immune! Two common types that are susceptible to scab are Red Pontiac and Yukon Gold.

Powdery scab of potato, is another common disease of potato, and is caused by a completely different pathogen, *Spongospora subterranean* f. sp. *Subterranean*. Powdery scab is also 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.



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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. 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 Common scab-*Streptomyces scabies*



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**Potato Powdery scab lesion-
Spongospora subterranean f. sp.**



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