



University of California Cooperative Extension – Kern County

# NEWS RELEASE

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## Potato Scab of Potatoes

Potato scab is a common tuber disease that occurs in all the potato growing regions of California. Although scab does not affect total yields, economic losses occur from the blemished tubers being unmarketable. Potato scab is more of a concern for table stock varieties since a since appearance is important for this market. Superficial scab lesions do not really affect the processing potatoes because they are usually peeled, however, deep pit scab can increase peeling losses and detract from the appearance of the processed product. The occurrence and severity of potato scab varies by season and from field to field. Cropping history, soil moisture, organic matter residue, and soil texture can affect the occurrence and severity of potato scab. Potato scab lesions can be easily confused with powdery scab, which is a disease caused by an entirely different pathogen, the fungus *Spongospora subterranean*.

The appearance of scab lesion can vary from a russet lesion (superficial corky tissue), erumpent (a raised corky area), and pitted lesions (a shallow-to-deep hole). All of these different symptoms are all caused by the same pathogen, *Streptomyces scabies*. The type of lesion that develops on the tuber surface is probably determined by host resistance, aggressiveness of the pathogen strain, time of infection, and environmental conditions.

Besides classifying potato scab by the lesions type, there is “common scab” and “acid scab”. Common scab is controlled or greatly suppressed at soil pH levels of 5.2 or lower. Common scab is widespread and is caused by *S. scabies*. Acid scab seems to have a more limited distribution. Acid scab occurs in soils below pH 5.2, as well as at higher levels. The causal agent, *S. acidiscabies*, is closely related to the common scab pathogen and can grow in soils as low as pH 4.0. While common scab can be easily controlled by lowering the soil pH to below 5.2, acid scab is only controlled by crop rotations. Lesions caused by acid scab and common scab are identical in appearance.

*Streptomyces scabies* is a common soil inhabitant of most soils. It can buildup its population in the soil with successive host crops such as potatoes, carrots, radish, spinach, and turnips. *Streptomyces scabies* can also survive in the soil as a saprophyte, hence it will always be present to some degree in all soils.

Potato tubers become infected early in the tuber initiation phase, while the tubers are just forming. The pathogen enters the tubers through lenticels or wounds on the tuber surface. The lesions become more noticeable as the lesions cracks and expand with the tuber. Although the damage is usually not noticed until near harvest, the infection actually occurred early on.

There are several options that can be done to limit the damage the damage due to potato scab. Some varieties have some tolerance to potato scab than others. The resistance levels are usually listed in the variety descriptions. If possible try to use resistant varieties in fields where scab is a problem.

Avoid planting seed potatoes that are infested with potato scab. Also use seed treatments on all seed. Seed treatments do not eliminate the pathogen but will provide some disease suppression.

Careful crop rotations will help to lower the level of the pathogen in the soil. Rotations away from potatoes and alternate hosts such as radish, beets, and carrots will prevent the build up of *Streptomyces scabies* in the soil. Use small grains, corn, or alfalfa in rotations to lower the population of the pathogen.

Maintain soil pH levels between 5.0 and 5.2 by using acid-producing fertilizers such as ammonium sulfate. Try to avoid lowering the pH below this level because nutrients can become unavailable in too low of pH soils. Also, avoid or limit the use of such alkaline-producing amendments as lime and manure.

Keep the soil moisture just below field capacity during the 2 to 6 weeks following tuberization. Do not allow the soil to become dry at this time. Other bacterial will out complete *Streptomyces scabies* on the tuber surface if the soil is kept just below field capacity. This does an excellent job of controlling potato scab. But this only needs to be done during the early tuber initiation phase. Keep in mind that over watering can cause another set of problems for potatoes. Carefully monitor soil moisture field condition during this growth phase to make sure other problems are not being caused.

Although potato scab is a major problem when it occurs in a potato field, but by taking the proper steps it can be managed to a great degree.

