



Extension FactSheet

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Scab of Potato Tubers

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Scab is a disease of potato tubers that results in lowered tuber quality due to scab-like surface lesions. There are no above-ground symptoms. Two forms of scab occur. Common scab occurs in all production areas and is most severe in soils with a pH above 5.5. Another less common form, called acid scab, is important in acidic soils (below pH 5.5).

Symptoms

Scab symptoms are quite variable. Usually, roughly circular, raised, tan to brown, corky lesions of varying size develop randomly across tuber surfaces. Sometimes scab develops as a rather superficial layer of corky tissues covering large areas of the tuber surface. This is called russet scab. Pitted scab can also occur where lesions develop up to 1/2 inch deep. These deep lesions are dark brown to black, and the tissues underneath are often straw-colored and somewhat translucent. More than one of these lesion types may be present on a single tuber. Although scab symptoms are usually noticed late in the growing season or at harvest, tubers are susceptible to infection as soon as they are formed. Small brown, water-soaked, circular lesions are visible on tubers within a few weeks after infection. Mature tubers with a well-developed skin are no longer susceptible, but existing lesions will continue to expand as tubers enlarge. Thus disease severity increases throughout the growing season. Scab is most severe when tubers develop under warm, dry soil conditions. Coarse-textured soils that dry out quickly are therefore more conducive to scab than are fine-textured soils.

A few other conditions can be confused with scab. White, enlarged lenticles, which frequently occur on potato tubers harvested from wet soil, can be mistaken for scab. Usually this condition will disappear when tubers are dried. Patchy russetting, checking, or cracking of tuber surfaces caused by the fungus *Rhizoctonia* also

may be confused with russet scab. A totally different but uncommon disease called powdery scab, caused by the fungus *Spongospora subterranea*, causes very similar scab-like symptoms. Laboratory examination may be necessary to identify these diseases.

Causal Organisms

Scab is caused by a group of filamentous bacteria called actinomycetes that occur commonly in soil. In soils with a pH above 5.5, *Streptomyces scabies* is usually responsible for common scab, and is capable of causing all the types of scab lesions described above. It is commonly introduced into fields on seed potatoes, and will survive indefinitely on decaying plant debris once the soil is contaminated. Because the organism can survive passage through the digestive tract of animals and be distributed

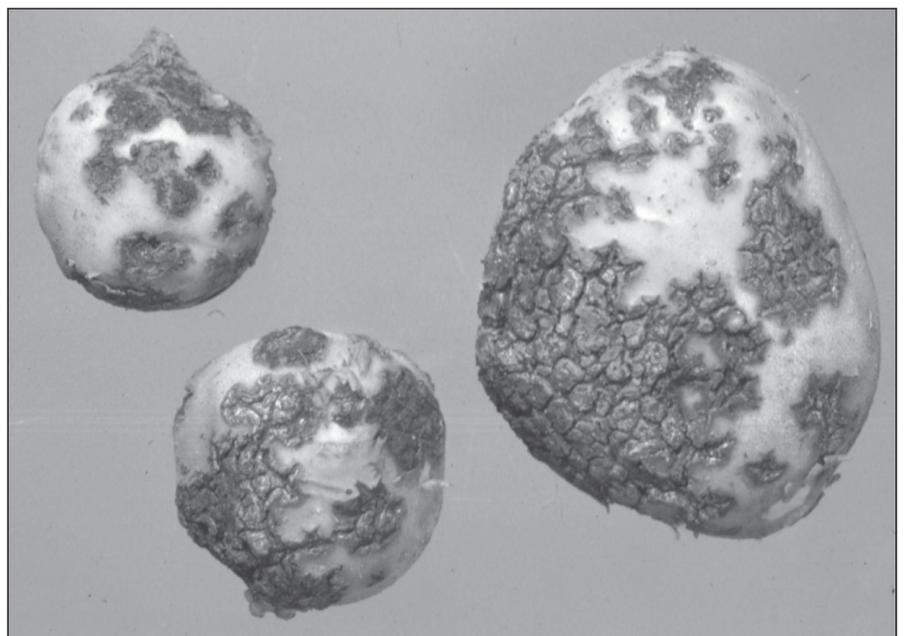


Figure 1. Raised, tan to brown, corky lesions of potato scab.

with manure, it survives well in old feed lots or in fields where manure has been applied. It is easily disseminated in infested soil adhering to farm implements or transported by wind and water. *S. scabies* also infects other root crops such as beet, turnip, rutabaga, radish, carrot, and parsnip. Acid scab, which develops in soils with a pH from 5.5 to as low as 4.5, is usually caused by the acid-tolerant species *S. acidiscabies*. This organism has a host range similar to that of *S. scabies* but is usually carried on infected tubers since it does not survive well in soil. Continuous cropping to potatoes, especially scab-susceptible cultivars, will often increase the populations of scab organisms with resultant increases in disease severity.

Management

1. Select planting sites not heavily contaminated with the scab organisms.
2. Maintain soil at or slightly below pH 5.5. Consider the potential for scab before liming any soils used for potato production.
3. Avoid application of animal manure to land used to grow potatoes as this may contain the scab organisms and the high organic matter in manure may stimulate their growth leading to severe disease.
4. Grow potatoes on a site only every third or fourth year, avoiding beets, carrots, radishes, and turnips in the crop rotation plan. Alfalfa, small grains, and soybeans are good rotational choices.
5. Plant scab-free, certified seed tubers.
6. Select less-susceptible varieties if available and adapted to local conditions. Varieties possessing some scab tolerance include: Atlantic, Conestoga, Islander, Kennebec, LaRouge, Monona, Norchip, Norland, Onaway, Ontario, Sebago, Superior, Viking, as well as most russet-skinned varieties. Varieties especially sensitive to scab include: Denali, Elba, Hampton, Irish Cobbler, Jemseg, Kanona, Katahdin, Red Pontiac, Shepody, and Yukon Gold.
7. Treat cut seed with registered fungicides prior to planting. For current recommendations, see the Ohio Vegetable Production Guide (OSU Extension Bulletin 672).
8. If irrigation is available, do not allow soil to become dry when tubers are first forming.

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