

Potato Scab

Streptomyces scabiei

Hosts: Potato (*Solanum tuberosum*), beet (*Beta vulgaris*), turnip (*Brassica rapa*), carrot (*Daucus carota*), and parsnip (*Pastinaca sativa*).

Disease common name: Potato scab; other names: common scab and common scab of potato.

Pathogen: *Streptomyces scabiei*; syn.: *Streptomyces scabies*.

Disease Cycle

Inoculum: Inoculum may be present in soil and on propagative material.

Transmission: The pathogen is spread by moving soil and planting infected and infested potato seed pieces.

Infection: Bacteria enter young tubers through wounds or natural openings (lenticels). They multiply and form colonies, and the tubers respond by producing corky layers. Tissues in the layers continue to grow until scabs appear. Spores are released from the scabs, adding to the inoculum in soil.

Symptoms and signs: Early symptoms are browning of hypertrophied tissues on tuber surfaces. Spots are circular and become rough with irregular margins. They may be raised or warty (Fig. 1), level with the surface, or sunken (Fig. 2), or relatively shallow (Fig. 3). Thus, superficial russetting to deep pitting may occur, depending in part on the potato cultivar, time of infection, and environmental factors. Scab lesions are almost always limited to tubers.

Survival: The bacterium survives in soil, plant debris, and lesions of infected potato tubers. It appears to be a resident in soil and may multiply on organic matter in soil.

Disease Management

Use of certified, scab-free seed potatoes is very important. Soil management includes increasing organic matter content, raising soil water-holding capacity, increasing competitive soil microbial communities by use of cover crops, and acidifying the soil. A soil pH of basic to neutral favors disease development. Chemical, cultural, and biological control methods continue to be explored. There are some reports of relatively low levels of resistance in some variety trials.

References

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Figure 1. Scab lesions on yellow-skinned potato, erumpent and corky in appearance. (Courtesy APS)



Figure 2. Sunken and superficial scab lesions on white-skinned potato. (Courtesy S. Thomson)



Figure 3. Shallow lesions on red-skinned potato. (Courtesy S. Thomson)