

Potato common scab (293)

Common Name

Common scab of potato

Scientific Name

Streptomyces scabiei; previously, *Streptomyces scabies*.

Distribution

Asia, Africa (restricted), North, South and Central America, the Caribbean, Europe, Oceania. It is recorded from Australia, Fiji, and Papua New Guinea.



Photo 1. Common scab on potato, *Streptomyces scabiei*.

Hosts

Members of several plant families are hosts: beetroot (Chenopodiaceae), carrot and parsnip (Apiaceae), peanut (Fabaceae), potato (Solanaceae), radish (Brassicaceae). Apart from potato, the bacterium is rare on other hosts, and of little economic importance.

Symptoms & Life Cycle

A soil-borne bacterium causes the damage. Only the tubers show symptoms; they develop brown, roughly circular (5-10 mm diameter), corky, slightly to deeply pitted spots, sometimes joining together, and covering the entire surface (Photo 1).

The tubers become infected through the lenticels (the natural openings where gases are exchanged) when the tubers are growing rapidly, that is about 6-8 weeks after they begin to form. Usually, infection is more severe in dry soils with a pH over 5.2. Soil moisture is also important: low moisture increases the disease.

Spread occurs on tubers used for planting, and in soil. Survival occurs in stored tubers, but also in soil where the bacteria can survive for many years living on decaying organic matter.

Impact

The disease does not affect yield greatly, although there may be some loss of flesh if peeling has to be deeper than normal. However, the appearance of diseased tubers affects market value, particularly for those potatoes grown for the fresh market, rather than those grown for processing.

Detection & inspection

Look for the corky, sometimes deeply pitted areas on the potato tubers, roughly circular, up to 10 mm diameter.

Management

CULTURAL CONTROL

Cultural control practices are important for this disease. Note, that although lowering the pH provides good control of common scab, low pH is not favourable for most vegetable crops, and may affect the availability of some soil nutrients, especially minor (trace) elements.

Before planting:

- Do not plant diseased 'seed'. Carefully check each seed potato when cutting them for planting, and discard any with common scab symptoms. This is especially important if the land has not been used for potato previously. Once infected, common scab cannot be eradicated from the soil.
- Remove any volunteer potato plants, i.e., those have grown from tubers left (accidentally) unharvested.

During growth:

- Ensure that crops have sufficient water; i.e., keep the soil moist, especially 2-6 weeks from the time that tubers start to form. This is the time when tubers are susceptible to infection.
- If nitrogen fertilizer is required, use ammonium sulphate as this will lower the pH of the soil.
- Do not apply large amounts of organic matter, particularly animal manure, as this can cause an increase in scab infection. Do not add wood ash to the soil.
- Do not spread common scab on machinery or shoes: clean them before going from contaminated to disease-free fields. Always visit disease-free fields before those with the disease.

After harvest:

- Use a crop rotation of 3-4 years between consecutive crops of potato. Note, however, that common scab can survive on organic matter even without crops of potato. It is also possible that the bacterium infects other plants (see above). Therefore, rotate with brassicas (cabbage or mustard), maize, soybean, lucerne (used as livestock fodder) and small grains (wheat, barley and oats).
- Collect and destroy all infected potato tubers and bury them deeply.
- Do not allow livestock to feed on diseased potatoes and then enterland where potatoes are to be planted. Spores may spread through the manure.

VARIETAL RESISTANCE

Potato varieties differ in tolerance to common scab, although none are resistant. Early types, such as Red Pontiac, Kennebec and Sequoia, are more susceptible than medium to late types. Ask retailers for information on the varieties in your country, if common scab is a problem.

CHEMICAL CONTROL

Treat seeds cut for planting with captan or mancozeb; test to see if it gives any control.

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticide to use should always be sought from local agricultural authorities.

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Information from *Diseases of vegetable crops in Australia* (2010), Editors, Denis Persley, et al. CSIRO Publishing; and Common scab (undated) Common scab. Potato Extension North Dakota State University. (<https://www.ag.ndsu.edu/potatoextension/common-scab/>); and from Wharton O (2015) Potato diseases: Common scab of potato (E2990). MSU Extension. Michigan state University. (https://www.canr.msu.edu/resources/potato_diseases_common_scab_of_potato_e2990). Photo 1 RW Samson, Purdue University, Bugwood.org.

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