



3. Tuber with severe raised common scab. (Photo S&C)

has little or no effect on the incidence of scab on the progeny. This is also true for potatoes grown in warmer areas than the Netherlands, where *Streptomyces* spp. appear to create less damage. The common scab pathogen penetrates mainly through lenticels and small wounds. Lenticels are formed during tuber initiation. Only during and a few days after formation are they prone to infection. After that, they become resistant to infection. Tubers grow in length by forming and expanding new tuber segments at the top end (internodes). On these segments new lenticels are formed, which are also prone to infection for only a few days. Although this process of forming new tuber segments continues for at least 4 weeks, increase of common scab is considerably less

5. Typical net and star-shaped patterns caused by common scab. (Photo S&C)



4. Tuber with star-shaped, raised lesions of common scab (detail). (Photo S&C)

because the later formed segments of the tuber grow much less in length than the first ones. Whether or not tubers become infected depends largely on the moisture content of the soil at the beginning of lenticel development. Dry conditions greatly encourage infection of young lenticels. Under wet conditions little if any infection occurs. Irrigation during tuber initiation has proved to be an effective measure to control common scab. High soil pH values increase the risk of infection with common scab, especially in sandy soils, unless the pH value is increased to extremely high values (approx. 8 to 9).

Prevention/control

If possible, use less-susceptible varieties and be careful when using pH-increasing fertilisers. Keep the ridges moist for a few weeks from the beginning of tuber initiation. This, however, encourages the development of powdery scab.

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NETTED SCAB

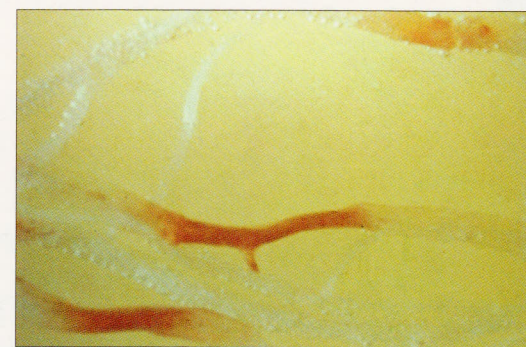
General

Netted scab is caused by *Streptomyces reticuliscabiei* and occurs in all soil types. Attack levels are highest under very humid soil conditions. In the past, netted scab was wrongly considered to be the same as russet scab. Netted scab occurs mainly in fields where varieties sensitive to the disease are regularly grown. Under conditions favouring infection, severe infection may take place when, even with crop rotations of 1:3 or 1:4 (1 potato crop in 3 to 4 growing seasons), susceptible potato varieties are grown. Netted scab can also be severe on susceptible varieties grown on ploughed up grassland. Severe attack leads to serious reductions in both tuber yield and tuber quality.

Symptoms

Netted scab affects all subterranean parts of potato plants, whereas common scab affects tubers only. Infection may take place from the moment

1. Brown lesions of netted scab on tubers and roots (variety Bintje). (Photo CWE)



2. Close-up of affected roots (variety Bintje). (Photo CWE)

newly planted tubers start to sprout and form roots; so even before emergence and tuber initiation. Brown lesions develop on stem bases and stolons.

Root symptoms.

Netted scab is characterised by root rot (Photo 1), accompanied by a brown discolouration of the roots (Photo 2). The finer lateral roots and hair roots often have rotted away completely. Such severely affected root systems reduce plant vigour. This ultimately results in a smaller number of smaller tubers per plant.

Tuber symptoms.

Tuber infection starts with brown lesions. These lesions may be local, but may also cover almost the entire tuber surface. When the tuber grows, the brown lesions develop into the striking net-like structure, which is characteristic for netted scab (Photos 3 and 4). A distinction must be made between the superficial common scab and netted scab. Superficial common scab does not form the net-like structure, but causes round to star-shaped, clearly-defined lesions, which in turn are not seen with netted scab. With netted scab, the infestation of the tuber remains superficial, but is often associated with growth cracks (Photo 5). As roots and tubers only partially develop synchronously and as external conditions determine the risk of infection to a large extent, severe attack of the root system does not necessarily imply severe tuber attack or vice versa.