Common Scab of Potato

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Common scab is an important soil borne disease of potato tubers found throughout the world. Surface lesions blemish tubers and reduce their commercial grade and market price. Scabbed tubers tend to shrink excessively during storage and are often invaded by secondary soft rotting organisms. Scab is most common on potatoes grown in slightly acid to alkaline (pH 5.5 to 7.5) soils that have been in continuous potato production for several years. Scab rarely occurs in soils with a pH below 5.3 or above 8.0.

Figure 1. Typical tuber symptoms of common scab.

Figure 2. Enlargement of characteristic common scab lesions.
Symptoms

Common scab is recognized by tuber symptoms which can vary from a slight skin corking to severely roughened areas (pits) which may, in some cases, penetrate deeply into the tuber flesh. The slightly raised coryck areas (Figures 1 and 2) differ in size and shape and may cover varying proportions of affected tubers. Lesion color may be grayish-white to dark tan, but in general is slightly darker than healthy tissue. In general, smooth thin-skinned varieties are more severely affected than varieties with a normally russetted appearance. Scab should not be confused with a physiological problem known as enlarged lenticels frequently associated with tubers grown in excessively wet soil.

Cause of Common Scab

The pathogen responsible for common scab is a fungus-like organism known as Streptomyces scabies which may persist in soil under favorable conditions for indefinite periods of time. The pathogen is readily disseminated on infected seed stock and in wind, water, and equipment-borne infested soil. Scab rapidly becomes a severe economic factor on potatoes grown continuously in slightly acid to alkaline soils.

Control

Adequate control can usually be achieved by using tolerant varieties. Although no variety in commercial production is immune to common scab, several varieties are available with a relatively high tolerance to this disease. The variety "Superior," planted extensively in Indiana, is considered to have a high tolerance to scab and is successfully grown in areas where the cultivation of more susceptible varieties is limited by scab. Other varieties with scab tolerance include Haig, Norchip, Norland, York, and Onaway.

Tolerant varieties may develop significant amounts of scab when grown in slightly acid to alkaline soils with a history of common scab. Therefore, the importance of soil pH and past cropping history to scab development cannot be overemphasized. Soil pH should be tested before planting potatoes and adjusted to pH 5.2 or slightly below using sulfur. Since the scab pathogen has a limited host range, a rotation that omits potatoes, beets, and radishes will help in the long term control of common scab.

The common scab pathogen is commonly introduced to scab-free soils on infected seed pieces. Inspect seed tubers carefully before cutting. Discard all material showing symptoms of scab. Treat seed pieces with a protective fungicide prior to planting. Seed may be treated with either Polyram (7% dust) or mancozeb (dust formulations of Dithane M-45 or Manzate 200) at the rate of 1 pound dust formulation for each 100 pounds of cut seed (2 ounces per peck of cut seed). Dust formulations containing relatively small amounts of active ingredient are not to be confused with wettable powder formulations containing much higher proportions of active ingredients. Seed piece treatment might not provide adequate protection in heavily infested soil. Follow manufacturers' label directions when selecting and applying fungicides.

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