Blackleg and Soft Rot Disease of Potato

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Blackleg and soft rot are bacterial diseases that, in some years, cause heavy losses in Kentucky potato patches. They may cause missing hills when it destroys the seed piece or the sprouts before they emerge from the ground. The bacteria can also cause serious rotting of tubers in the hill and in storage.

Symptoms
One symptom of blackleg is failure of sprouts to emerge from the soil following planting. Sprouts that do emerge may show curled upper leaves, compact foliage and fading from green to yellow green. The plants later assume a distinct yellow color. The plant gradually dies as the base of the stem is rotted away by the bacteria. When pulled, affected plants will show slimy rotted, dark or inky black, mushy stems. These black stems give the disease its name. Soft rot occurs as a slimy rot of the tuber without the dark color.

Spread
Blackleg is caused by the bacterium *Erwinia atroseptica* and soft rot is caused by *E. carotovora* bacteria. These can live in the soil, in decaying plant debris and in the seed tubers. Bacteria either enter the seed potatoes and lower stems through wounds and injuries, or move directly from contaminated seed pieces to lower stems. Abundant moisture at the surface of the wounded tissue is needed for infection and continued high humidity after infection favors spread of the disease in the plant. Several kinds of insects may be involved by carrying the bacteria from decayed tubers to new seed pieces or shoots. The decay of seed pieces in the soil by fungi and other organisms may also provide conditions for blackleg disease to develop. Tubers harvested from plants which were infected during the growing season may develop a soft rot in storage.

Control
1. Use certified, disease-free seed potatoes. Although seed certification does not include blackleg, absence of other diseases aids blackleg control.
2. Store potato seed properly. Potato seed should be stored at 40° F during the winter but should be warmed at 60-70° F for 1 to 2 weeks before planting.
3. Cut seed should be planted immediately into warm, moist soil. If planting is delayed, cut seed should be kept at 60-70° F for a week to allow wound cork to form on the seed. If further storage is needed, temperature should be decreased to 45-50° F, but seed should be warmed before planting. All seed, whether cut or whole, should be warmed before planting.
4. Treat seed prior to planting with recommended chemical fungicides to control other kinds of seed piece decay. These chemicals do not control blackleg disease, but may control other decays that can lead to blackleg. Contact your county Extension office for current potato seed piece treatment recommendations.
5. Avoid bruising, wounding and undue exposure to the sun when potatoes are harvested. Potatoes that are washed should be dried before packing for storage. Wash in chlorinated water to reduce the amount of decay organisms on the tubers.
6. Do not plant potatoes in the same location year after year.
7. Plant on sites that are well-drained and avoid cultivation practices that encourage standing water in the rows.
8. Maintain adequate levels of calcium in the soil because tubers produced in low levels of calcium are more susceptible to soft rot in the field and during storage.