

Potato Blackleg

Angela Madeiras, UMass Extension Plant Diagnostic Lab

Technically, the term “blackleg” applies only when the infection arises from infected seed potatoes. When it is not the result of infected seed, it is called aerial stem rot; however, the term blackleg is commonly used in diagnosis of both situations. This disease is caused by bacteria in the genera *Pectobacterium* and *Dickeya* (both formerly *Erwinia*). They also cause soft rot of tubers.



Symptoms

In the field, blackleg begins as water-soaked lesions at the base of the stem. The lesions eventually coalesce and turn dark as the infection progresses up the stem. The stem pith decays and darkens, and vascular tissue in and above the lesion may be discolored. In wet weather, the decay tends to be slimy; in dry weather, stems may be desiccated. Leaves on affected stems may be wilted, chlorotic, or brown, and plants may collapse. Secondary infections may begin higher up on stems. Tubers may also rot. *Dickeya* tends to be most virulent at higher temperatures than *Pectobacterium*.

Disease Cycle

The bacteria can inhabit lenticels and wounds, causing disease when conditions are right. Infected seed potatoes may come from infected fields or may become infected during processing. Blackleg can occur at any time during the growing season, but it is favored cool, wet

conditions at planting followed by warmer weather. In moist soil at temperatures greater than 20°C, seed pieces begin to decay. Stand loss may result if this happens before shoot emergence. In established plantings, the infection can move up the stems through the vascular tissues. New tubers can become infected while in the soil or become infected during harvest.

In aerial stem rot, the bacteria may be present in the field on crop debris and enter plants through wounds or leaf scars. Bacteria may be spread by insects or splashing water. The decay usually does not travel downward into the tubers. Disease development is favored by warm, wet weather.



Management

Pectobacterium and *Dickeya* do not survive more than 6 months in soil; however, they may survive in crop debris or infected tubers allowed to overwinter and sprout the following spring. Remove volunteer potatoes from the field. Plant clean seed: ask distributors for lots with Certified Seed Potato Health Certificates. When possible, use seed that does not have to be cut. Sanitize any machinery used to cut tubers. Plant well suberized seed pieces in well-drained soil at

temperatures of at least 10°C. Do not irrigate before plants emerge. Avoid overhead irrigation if possible. Practices that reduce canopy density and leaf wetness duration can decrease incidence of aerial stem rot. Rotate away from potatoes for at least one season.

Harvest when vines are completely dead, as mature tubers are less susceptible to bruising. Harvest during dry weather. Avoid injury at harvest. Remove as much soil as possible from tubers but do not wash them prior to storage. To promote wound healing, store tubers at 10-13°C and 95% humidity for up to two weeks. The temperature should then be decreased to less than 10°C. Ensure good ventilation and regulate humidity carefully to prevent condensation, but avoid dehydration of tubers.