THE OHIO STATE UNIVERSITY EXTENSION

Extension FactSheet

HYG-3104-95

Plant Pathology, 2021 Coffey Road, Columbus, OH 43210-1087

Potato Pink Rot, Pythium Leak and Seed-Piece Decay

Randall C. Rowe, Sally A. Miller, Richard M. Riedel
Department of Plant Pathology
The Ohio State University

Pink rot and Pythium leak, sometimes collectively called water rot, occur sporadically wherever potatoes are grown. These diseases are a problem of mature tubers at harvest and in storage. They are most serious when warm, wet soil conditions persist during tuber formation and at harvest. When newly-planted seed pieces are exposed to these conditions, Pythium seed-piece decay also can be severe. Major problems with these diseases are usually associated with excessive rainfall or irrigation either early or late in the season, especially on poorly-drained soils.

Symptoms

Pythium seed-piece decay often results in delayed emergence and poor stands. Infected seed pieces become a soft, watery mass in the soil. Symptoms of pink rot in mature plants include brown or blackened roots or stolons, and in severe cases, leaf chlorosis, stunting, wilting, and even plant death. Tubers develop pink rot mostly through diseased stolons, but occasionally infections occur at buds or lenticels. Decay spreads through infected tubers with the advancing margin of the rot usually sharply defined by a dark line, which may be visible through the skin. Eyes of infected tubers are often dark brown. Decaying tubers remain intact, but are spongy and odorless. If squeezed, a clear liquid will exude. When infected tubers are cut open, the internal tissues turn salmon pink after a 15–20 minute exposure to air, then later become brownish-black. Pythium leak usually develops through harvest wounds in tuber surfaces and begins as a discolored, watersoaked area. As with pink rot, the advancing margin of infection is usually bounded by a dark line. Infected tissues are extremely watery, and appear brown or gray. Severely rotted tubers are of a uniform texture resembling a soft, watery paste.

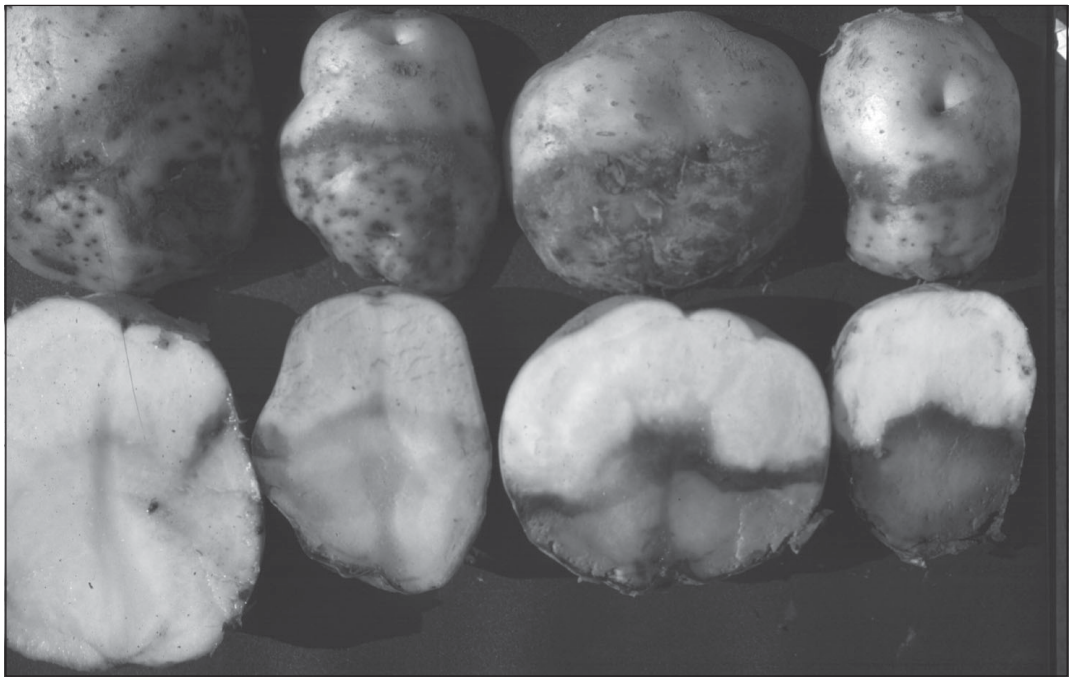

Figure 1. Potato tubers with pink rot showing the advancing rot sharply defined by a dark line visible on the outer surface (above). When cut, infected tissues first appear slightly discolored (left), then turn salmon pink in about 15 minutes (center) and brown to black in half an hour (right).

Causal Organisms

Pink rot is caused by several species of the soilborne fungus *Phytophthora* (NOT the species that causes late blight) while Pythium leak and seed-piece decay are caused by several species of the closely related soilborne fungus *Pythium*. These fungi are widely distributed in both water and soil, and their behavior is similar. They survive in soil within decaying plant material, or as resistant spores free in the soil. In warm, moist soil, these fungi produce swimming spores that move in water films. Roots can be infected by *Phytophthora* at almost any stage of plant growth, but symptoms are more severe on younger roots. Both groups of fungi infect tubers through wounds, but *Phytophthora* generally infects tubers before harvest, often through stolons. Infection by *Pythium* usually occurs through harvest wounds, especially at temperatures above 70°F. Seed pieces can be infected by *Pythium* as soon as they are planted.

Management

1. Select areas with well-drained soils for planting potatoes.
2. Use a crop rotation away from potatoes for at least 4 years if pink rot or leak have been severe. This may reduce the amount of fungus surviving in the soil.
3. Delay planting for at least 2 weeks after plowing down green vegetation as this may temporarily stimulate populations of *Pythium* fungi.
4. Avoid planting in soils colder than 45°F or warmer than 70°F.
5. Avoid harvesting infested fields when soils are especially wet or soil temperatures are below 50°F or above 65°F. Stop irrigation well in advance of harvest.
6. Avoid bruising tubers during harvest by adjusting equipment properly, keeping digger chains fully loaded and minimizing drops to 6 inches or less. Do not leave harvested tubers lying on warm, moist soils for any length of time as infection with *Pythium* may occur quickly.
7. Leave low spots in fields unharvested if they have been waterlogged and much rot is present.
8. Keep tubers cool and as dry as possible during harvest, loading, transit and storage.
9. Grade out infected tubers as much as possible before placing harvested tubers in storage.
10. Store lots of harvested tubers containing many infected tubers separately from healthy lots. Good airflow through the pile should be provided to dry out leaky tubers. Lots with significant amounts of disease should be marketed as soon as possible as they will not store well.

6/95—360