

Late Blight of Potato (LB)

Description

Most known for being the cause of the 1840's Irish Potato Famine, LB is one of the most thoroughly studied plant diseases. The disease is caused by the fungus *Phytophthora infestans*, which essentially translates to "plant destroyer." While the fungus itself is typically not observed, as it is microscopic, the symptoms are very prevalent and easy to identify.

Symptoms

P. infestans causes water heavy lesions on younger leaves of the plant. These lesions are typically dark brown or even black with a bright green halo surrounding them (Figure 1). The lesions, if untreated, can grow into large necrotic patches. Tubers, when infected, have large sunken regions in the skin with a dark brown coloration (Figure 2). If the skin is peeled away, the infected area has a reddish-brown colored granular tissue up to ½ inch (~13mm) deep into the tuber. This area is typically dry compared to the rest of the tuber. *P. infestans* can infect tomatoes and tobacco as well.

Life Cycle

In order to overwinter, *P. infestans* must have a suitable host to parasitize. Typically, overwintering occurs in tubers and year-round tomato greenhouses. Spores are transmitted through the air from infected materials and can germinate within hours of finding the right conditions. The lesions on the leaves can release more spores within four days of being initially infected. *P. infestans* prefers temperatures around 60-80°F (15-27°C) high humidity. Tubers are always susceptible to infection.



Figure 1: Late Blight Symptoms on a Potato Leaf (credit: Jeff Miller, Miller Research LLC)



Figure 2: Late Blight Symptoms on a Tuber (credit: UNECE)

Management

The key to managing *P. infestans* is to always start with disease-free seed potatoes. Some varieties even have resistances to strains of *P. infestans*. Proper sanitation is very important to reduce the chance of spreading the disease. Manage irrigation so that the leaves have time to dry during the day. Preventative chemicals are available with the active ingredients chlorothalonil and mancozeb. As an organic option, copper may be used as a fungicide. Thorough and repeated applications are recommended. Infected materials should be destroyed by desiccation or burning.

Spread and Impact Potential

LB can completely defoliate a field of potatoes within 3 weeks of the first symptoms arising. As Montana has a large seed potato industry, this disease poses a massive threat to our state economy. Thus, all incoming potato plants and seed potatoes, as well as tomato plants are regulated by the state of Montana.



*Figure 3: Potato Field Destroyed by Late Blight
(credit: J.G. Hansen, Aarhus University)*

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If Late Blight is suspected, contact the MSU Extension at 406-994-5572 or the MDA Quarantine specialist.