

## LATE BLIGHT OF POTATOES

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This disease, which has caused severe losses, and even famine, in cooler, wetter parts of the world, has never been a serious problem in central Washington. But in the last few years an occasional tuber with symptoms resembling late blight has been found in potatoes grown in our arid regions. The problem was diagnosed as late blight, and this has caused concern. The purpose of this report is to describe the disease and the factors that favor its development and to emphasize that an outbreak of late blight in central Washington is unlikely.

Late blight can cause losses in two ways. Blighting of the foliage results in reduction in yield and quality of potatoes. Infection of the tubers may result in their decay in the field or in storage. Fortunately the disease does not spread in storage.

Symptoms of late blight are different from those of early blight which is a more common disease of potatoes in central Washington. Late blighted foliage has large brown or black areas of dead tissue. When the disease is widespread the symptoms are similar to frost damage. In regions where conditions favor late blight, the disease can destroy entire fields in a short time.

Tuber infection can occur when foliage is severely blighted. Tubers near the soil surface can be infected by spores washed from diseased foliage. Tuber infection could be more of a problem in sandy soils than in heavier soils.

Late blight first appears on tubers as small purplish or brownish discolorations of the skin. There is a distinct line of demarcation between diseased and healthy tissue. These areas enlarge, the flesh under the spots becomes brown, and a shallow dry rot occurs. The affected tissue rarely penetrates deeper than a fraction of an inch. However, other fungi and bacteria may invade the diseased tissue and subsequently cause complete breakdown of the tuber.

Cool, wet weather is essential for late blight to occur. The fungus that causes late blight is one of the water molds that thrive under moist conditions. Spores of the fungus germinate only in a film of water at temperatures between 40 and 70 F. Humidity must be high, 90% or more. For late blight to get started the temperature must be below 70 F for at least ten hours and the humidity be above 90%. These are not the usual weather conditions in central Washington during the growing season.

The late blight fungus cannot survive the winter in the soil. In areas where the disease is serious it usually survives in infected tubers. It is possible that the few instances of late blight in central Washington started with infected seed tubers obtained from some area where the disease frequently occurs.

The question of sprinkler irrigation providing the conditions favoring the disease has been raised but this is not likely because there is little chance that the foliage would remain wet long enough for infection to take place. If sprinkler irrigation results in foliar late blight sufficient to result in tuber infection, the disease would certainly be noticed on the foliage.

There is some question about the initial diagnosis of the problem since the late blight fungus is not readily isolated from disease plants nor is it easily identified in pure culture.

All of the facts seem to indicate that late blight may have occurred in trace amounts but from where it came is anyone's guess. However, it is very unlikely that late blight will be a major concern to central Washington potato growers because our growing conditions are not those that favor late blight.