

Late Blight in Alaska

(Fact Sheet For The Home Gardener)

PMC-00338

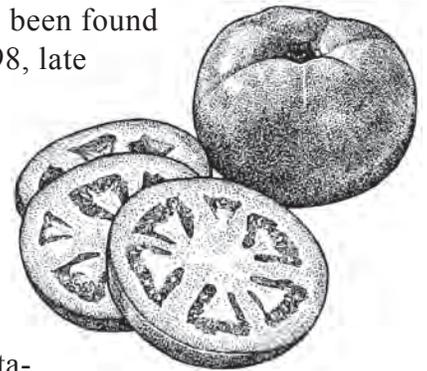
Introduction

Late blight is a disease of potatoes and tomatoes that is found most places in the world where these crops are grown. Late blight is a very destructive disease that can kill plants in the field and cause tubers to rot in storage. It is a disease that can spread very rapidly once it is established in an area. Although there have been some unofficial historic reports of late blight in Alaska, its presence was not formally documented anywhere in the state until 1995.

Late blight was seen in the Matanuska Valley in 1995, 1998 and 2005. The risk of late blight is similar each summer, but many years have had no outbreaks. In September 1995, late blight was found in one field of potatoes. This discovery was made late in the season while potatoes were being harvested. In 1998 and 2005 seasons, late blight appeared in mid-August, and cool wet weather allowed the disease to develop quickly. By September, late blight was seen throughout the Matanuska Valley. In 2005, late blight was seen in some gardens in Anchorage. Late blight was not found in Interior Alaska or on the Kenai Peninsula.



Late blight has also been found on tomatoes. In 1998, late blight was seen on greenhouse tomatoes in the Matanuska Valley. In 2005, late blight was seen on greenhouse and outdoor tomatoes in the Matanuska Valley and Anchorage.



Causal Agent and Host Range

Late blight is caused by the fungus-like organism *Phytophthora infestans* (Mont.) deBary. Late blight is the disease that caused the Irish potato famine in the mid-1800s and has been a destructive disease of world-wide concern ever since that time. It can attack potato and tomato plants, as well as other plants in the nightshade family, including nightshade, eggplant and petunia.

Symptoms

Typical foliar and tuber symptoms are illustrated in color photographs on page three of this publication. Brown to black foliar lesions develop on stems and/or leaves that are not restricted by leaf veins. Late blight spores form on the underside of leaves and give the lesion a gray-white color. Tuber symptoms are generally restricted to the outer layers of tissue. Infected tuber tissue is firm with a granular appearance and reddish-brown to black in color.

Conditions That Favor Disease Development

Development of late blight is favored at temperatures between 50 to 80°F and relative humidity levels above 95 percent. Foggy or rainy days plus temperatures within the optimal range are times when the disease will develop most rapidly.

Source of Alaska Late Blight

Late Blight is not indigenous to Alaska and the 1995, 2005 and 2007 outbreaks probably resulted from accidental importation of infected material into the state. Although it is unknown how and when it was imported, the most likely vehicles include: 1) tablestock potatoes brought into the state to be eaten, 2) contaminated potato seed tubers from other states, 3) infested tomato transplants and/or 4) tomato fruit.

Recommendations To Home Gardeners

1. Potato Seed

Do not plant eating potatoes purchased at the grocery store. Planting Alaska grown certified seed minimizes the possibility of introducing late blight into the state.

2. Cull Potatoes and Other Plant Debris

In the spring, destroy any cull potatoes (seed or eating). Destruction can be burying deep

enough to prevent growth, freezing plant tissue until solid or burning. During the growing season, destroy any plant material suspected of carrying late blight, including volunteer potato plants in the garden. In the fall, remove and destroy potato and tomato plant debris suspected of carrying late blight, including all tubers from the garden.

3. Tomato Transplants

Purchase tomato transplants that were grown from seed in Alaska. Tomato transplants grown in Alaska have little chance of being infected with late blight as seedlings because the disease is probably not transmitted on tomato seed. Tomato transplants grown in late blight infested areas outside Alaska may carry the disease into the state.

4. Irrigation Practices

If possible use a system of irrigation (such as drip) that will keep the foliage dry. Late blight cannot develop if leaves are dry and humidity is low. If ample garden space is available, space potato plants further apart to increase air circulation around plants. This will help to minimize periods of leaf wetness and reduce chances of late blight infection.



Late blight disease on tomatoes.

Photo by Robert Wick, University of Massachusetts, Bugwood.org



Late blight lesion on tomato leaf.

Division of Plant Industry Archive, Florida Department of Agriculture and Consumer Services, Bugwood.org



Late blight lesion on potato leaf.

Photo by Howard F. Schwartz, Colorado State University, Bugwood.org



Late blight lesions on potato leaves.

Photo by Mary Ann Hansen, Virginia Polytechnic Institute and State University, Bugwood.org



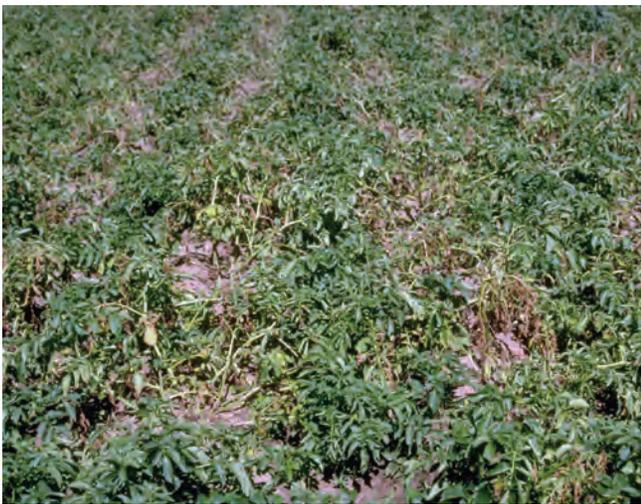
Late blight disease on potato vines.

Photo by Howard F. Schwartz, Colorado State University, Bugwood.org



Late blight disease on potato vine.

Photo by Howard F. Schwartz, Colorado State University, Bugwood.org



Potato field infected with late blight disease.

Photo by Howard F. Schwartz, Colorado State University, Bugwood.org



Cross section of potatoe infected with late blight.

Photo by Scott Bauer, USDA Agricultural Research Service, Bugwood.org

5. Fungicides

There are many different fungicides available that effectively control late blight disease, including some that are acceptable for organic producers. However, these fungicides must be applied prior to disease development to be effective. Contact your local Cooperative Extension Service office or connect with one of the websites listed below for specific information regarding fungicides and schedules of application.

6. If You Suspect You Have Late Blight

Contact your nearest CES district office **as soon as possible** for further information on identification. They may request that you provide a fresh sample of diseased leaf or stem tissue for examination. Late blight is a community disease where an infected plant in one garden can result in crop losses in other local gardens. **Early identification is crucial in containing the disease.**

For More Detailed Information

Oregon State University

<http://plant-disease.ippc.orst.edu/disease.cfm?RecordID=890>

Michigan State University

www.lateblight.org/lateblight.html

University of Idaho: Late Blight Home Page

www.uidaho.edu/ag/plantdisease/lbhome.htm

University of Maine

www.mainepotatopestguide.com/funguscontrol.asp

Washington State University (select

vegetables, potato, late blight) <http://pep.wsu.edu/hortsense/>

For more information, contact your local Cooperative Extension Service office or Jeff Smeenk, Horticulture Specialist, at 907-746-9470 or jeff.smeenk@alaska.edu. This publication was originally written by Don Carling, Professor of Horticulture, Agriculture and Forestry Experiment Station, Palmer, University of Alaska Fairbanks; Gregg Terry, Land Resources Program Assistant, Palmer, University of Alaska Fairbanks; and Bill Campbell, Potato Disease Control Specialist, Alaska Plant Materials Center, Alaska Division of Agriculture, Palmer. Revised in 2006 by Roseann Leiner, Extension Horticulture Specialist, and in 2009 by Jeff Smeenk.

Visit the Cooperative Extension Service website at
www.uaf.edu/ces or call 1-877-520-5211