

# Late Blight Disease of Potato and Tomato 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 was also 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. Foliar lesions can develop on stems and leaves, are not restricted by leaf veins, and are brown to black in color. 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.



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## Source of Alaska Late Blight

Late blight is not indigenous to Alaska and was unknown in the state prior to 1995. These facts indicate that late blight was probably accidentally imported into Alaska in the 1995, 1998 and 2005 outbreaks. Although it is unknown how and when it was imported, the most likely vehicles include: 1) edible potatoes, 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. Plant only Alaska grown certified seed potatoes. Following this recommendation will minimize introducing any new types of late blight into Alaska. If possible, plant certified seed produced in your local area.

### 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.

### 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 Cooperative Extension Service district office for further information on identification. They may request that you provide a fresh sample of diseased leaf or stem tissue for examination.

## Websites With More Detailed Information

- **Oregon State University**  
<http://plant-disease.ippc.orst.edu/disease.cfm?RecordID=890>
- **Michigan State University**  
<http://www.lateblight.org/lateblight.html>
- **University of Idaho—Late Blight Home Page**  
<http://www.uidaho.edu/ag/plantdisease/lbhome.htm>
- **University of Maine**  
<http://www.mainepotatopestguide.com/funguscontrol.asp>
- **Washington State University**  
<http://pep.wsu.edu/hortsense/>  
(select vegetables, potato, late blight)

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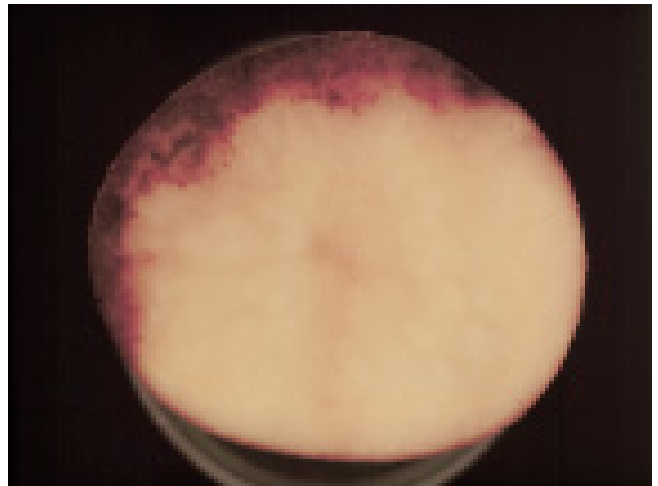
Late blight lesion on potato leaf with the dead, brown area bordered by a pale green halo. Photo by Dr. Don Carling



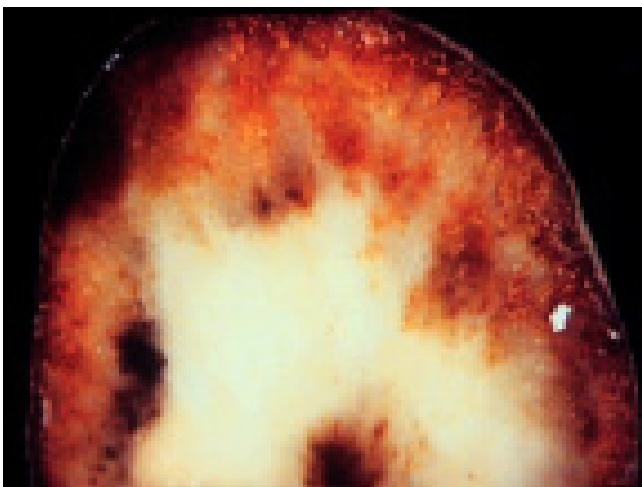
Late blight lesions on potato vines. Photo by Dr. Don Carling



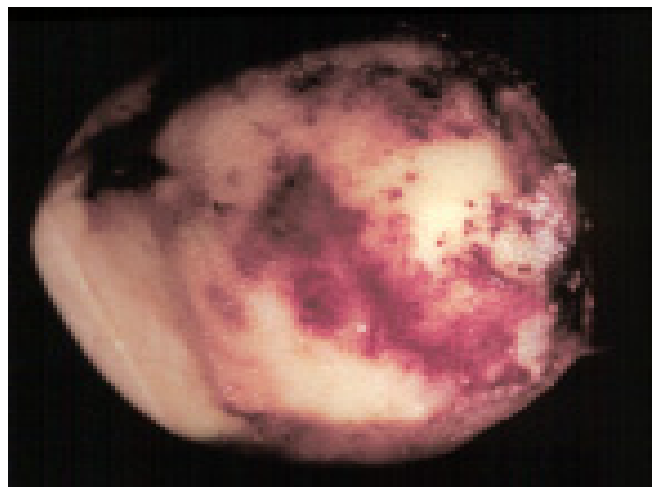
Later stage of late blight disease on potato vines. Photo by Dr. Don Carling



Relatively early stage of late blight showing an arc of infected tissues on one side of the tuber. Photo by Melinda Bateman, University of Idaho



More advanced late blight wherein the entire tuber is ringed with the disease. Photo by Melinda Bateman, University of Idaho



White-skinned variety showing what blight-infected tissues look like when some of the tuber is pared away. Photo by Phillip Nolte, University of Idaho

Visit the Cooperative Extension Service website at  
[www.uaf.edu/ces](http://www.uaf.edu/ces)

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