

Vegetable Diseases

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Late Blight of Tomato and Potato

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Late blight of tomato and potato has an infamous history: it is the documented cause of the Irish potato famines of the mid-1800s. In 2009, the diseases moved from the pages of history books to tomato plants in your backyard.

Unusual circumstances permitted this plant disease to spread to more than 30 Indiana counties in 2009. The last time late blight occurred in Indiana was 1998, when a minor outbreak infected potatoes. Although late blight is not likely to become permanently established in Indiana, this disease can be serious when present.

This bulletin examines late blight of tomato and potato and provides management options.

Disease Cycle and Symptoms

The fungal-like organism that causes late blight, *Phytophthora infestans*, affects both tomatoes and potatoes. Fortunately for Indiana growers, this organism has not overwintered in Indiana due to our relatively cold winters. However, *Phytophthora infestans* spores can be blown into Indiana from other states, introduced on plant material (such as potato seed pieces), or on tomato transplants (as likely occurred in 2009).

Late blight of tomato or potato thrives under cool, wet conditions, such as occurred in the summer of 2009. The fungus produces spores that easily blow from plant to plant. Upon germinating, the spores may produce swimming structures that are ideal for spreading the disease under wet conditions.

Under moist conditions, the green to brown lesions on leaves may be ringed with the white fungus that causes late blight (Figure 1). Fruit also may be affected. Fruit quality may be affected after foliage dies, or the fungus may directly penetrate the fruit (Figure 2). The disease can spread and kill plants rapidly; so much so that it is common for affected tomatoes or potatoes to appear as if they had experienced a frost although none has occurred (Figure 3).



Photo by Dan Egel

Figure 1. The late blight lesion on this tomato plant leaf has white coloration at the edge, which is the fungus that causes the disease.



Photo by Dan Egel



Photo by Ray Martyn

Figure 2. A tomato fruit with brown discoloration caused by late blight.

While the fungus that causes late blight does not produce any toxins, avoid eating tomatoes with lesions. Fruit infected with late blight are easily contaminated with microorganisms that can cause illness.

Management

Many tomato growers are now wondering whether late blight will be a yearly occurrence in Indiana. Perhaps the most likely way the fungus could survive in Indiana is on overwintering potatoes or saved potato seed pieces. To avoid the overwintering of late blight:

- Do not use potato seed pieces from the 2009 season when planting the 2010 crop. It is very unlikely tomato seed saved from 2009 will harbor the late blight organisms; however, there might be other disease issues.
- Leave potato tubers on the soil surface where they are more likely to be frozen. You also can crush old potatoes. Composting 2009 potato tubers is not recommended.
- Destroy potato volunteers next year as they come up.
- In greenhouses, avoid practices that could help the late blight fungus overwinter. Tomatoes or potatoes produced off-season in greenhouses could potentially harbor the late blight fungus if green material is kept living until spring.
- Inspect transplants carefully in the spring for symptoms of disease. Purchase only healthy, vigorous plants.

Figure 3. Late blight of tomato may spread rapidly, killing leaves, fruit, stems, and entire plants.

Fungicides may slow the progress of late blight. Retail products that contain the active ingredient chlorothalonil may help to reduce the spread of the disease if applied on a regular basis. Trade names include Bonide®, Daconil®, Exotherm Termil®, and PathGuard®. Organic growers may find that copper products slow the spread of the disease.

Finally, be safe. Always read the label of any pesticide you apply and follow all the directions.

Find Out More

If you see suspicious tomato or potato symptoms, contact your Purdue Extension county educator or Purdue Plant and Pest Diagnostic Laboratory. You can track plant disease alerts at the virtual Plant and Pest Diagnostic Laboratory.

Find your county educator by going online or calling toll free:

www.extension.purdue.edu
(follow the County Offices link)
(888) EXT-INFO

Purdue Plant and Pest Diagnostic Lab:

www.ppdl.purdue.edu

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