

## Northeast Tomatoes Lost, and Potatoes May Follow

The title above is a headline from the New York Times on July 28, 2009, describing how the tomato crop in the Northeast had been devastated by disease. In 2009, many gardeners and commercial farmers in the Northeast saw their entire crop of lovingly cared for tomatoes overcome with disease and rot on the vine, while the plants withered up and died. This disease, known as late blight, is caused by a fungus-like organism and is the same disease responsible for the Irish Potato Famine.

Late blight is devastating on both tomato and potato plants and once it has taken hold of the plant there is very little that can be done to halt its progress. In 2009, late blight is thought to have started in tomato transplants and then spread from diseased tomato plants to tomato and potato plants in surrounding gardens and commercial fields. This disease can infect and kill plants within 10 days and the pathogen spores can be carried in the air.

The disease outbreaks that occurred in the Northeast in 2009 were mainly due to new strains of the late blight pathogen called US22 and US23 which are equally pathogenic on tomatoes and potatoes unlike the previous dominant strain US8. There was also an outbreak of late blight on potatoes in SE Idaho in 2009. It was identified as being caused by US22, suggesting that it also came from infected tomato plants. In August 2011, late blight was confirmed on tomato plants from a home garden in Preston, ID. This outbreak was only a few miles from a late blight outbreak in a commercial potato growers field. In August 2014, there was a large late blight outbreak in SE Idaho. Worryingly, all isolates collected were US23 suggesting tomatoes may have been the origin for this most recent outbreak.

## What can you do to prevent late blight?

The good news for tomato growers is that the pathogen that causes late blight on tomatoes, potatoes and other related plants, requires living plant tissue to survive over winter in Idaho. So as long as you plant disease-free tomato plants in the spring, you shouldn't have to worry about getting the disease on your plants.

The bad news is that potato tubers are living tissue, so any late blight-infested potato tubers that survived the winter in compost piles, root cellars or buried in the soil that did not freeze, could harbor the pathogen and give it a head start again in the next season.

The first line of defense against plant diseases is to grow tomato and potato varieties that have some resistance to the disease. Researchers at the University of Idaho and other public universities are developing potato and tomato varieties that have resistance to late blight and other diseases. Unfortunately, while some are better than others, no potato or tomato varieties are totally resistant to late blight. Some notable tomato varieties with good resistance to late blight include Mountain Magic, Plum Regal, Matt's Wild Cherry and Sun Gold Cherry. For a more complete list download the following article: "[http://vegetablemendonline.ppath.cornell.edu/NewsArticles/Tomato\\_Performance\\_Late%20Blight\\_Mar2010.pdf](http://vegetablemendonline.ppath.cornell.edu/NewsArticles/Tomato_Performance_Late%20Blight_Mar2010.pdf)".

Potato varieties described as having some resistance to late blight include Defender, Jacqueline Lee, Kennebec, Elba and Rosa.

## 10 Tips to Prevent Late Blight

### Buy healthy tomato plants

Inspect plants carefully before purchasing to make sure they don't have symptoms of late blight. If you spot any infected plants while shopping, alert store management and your local University of Idaho Cooperative Extension office, and buy your plants elsewhere.

### Kill Volunteer Potatoes

Dig up and trash any potato plants in your garden or compost pile that emerged from tubers that survived from last year's crop.

### Grow your own tomato transplants

Late blight isn't spread on tomato seed so plants grown from seed will be late blight free. Start seed indoors about 6 to 8 weeks before your last frost date.

### Use certified seed potatoes.

Don't plant leftover potatoes from last year's garden or potatoes that you bought in the grocery store.

### Keep plants dry

Late blight and other pathogens thrive in cool, wet weather. These pathogens require moisture to infect plants and grow best when it's cool and cloudy. Free moisture on the plant's leaves from watering or rain will allow the pathogen to infect the plant tissue.

### Be vigilant

Inspect your plants at least once a week - more often if the weather is cool and wet. Immediately remove and bag foliage you suspect might be infected. While late blight symptoms are distinctive, it's possible to confuse it with other diseases. Your local Cooperative Extension office can help you with identification.

### Be preemptive

Once you see a few lesions on a plant it is likely that the whole plant is infected as it takes 3 to 5 days from initial infection until late blight lesions become visible. Consider removing the whole plant as it is almost impossible to control late blight by just removing infected tissue. The longer you wait, the more spores the infected plants will send on the wind to infect the rest of your garden, surrounding gardens and farmers fields.

### Keep an eye on other Solanaceous plants.

Plants related to tomato such as petunias and peppers can also become infected by some strains of late blight.

### Sound the alert

If you find late blight in your garden, inform your local Cooperative Extension office and gardening neighbors, so they can warn others and be on the lookout for additional outbreaks.

### Dispose of diseased plants properly

To reduce disease spread, remove diseased plants as soon as possible and place them in a garbage bag. Seal the bags tightly and leave them in the sun for a couple of days to kill the plants before placing them in the trash.

## What do late blight symptoms look like?

Preliminary symptoms on leaves of tomato or potato are small, dark, circular to irregularly shaped lesions, which appear 3 to 5 days after infection.



In cool, moist weather, lesions expand rapidly into brown or black spots often surrounded by a pale green to yellow border. Lesions are not limited by veins, and they coalesce as new infections occur, killing entire leaves in days.



On stems, lesions are often initiated at the point of attachment of leaves to the stem, and leaves become detached shortly after infection.



In the early morning or during cool damp weather, a white, velvety growth may be seen on infected leaves and stems. This fungal growth consists of millions of microscopic fungal spores. These spores are dislodged from the plant surface and dispersed on the wind with the slightest of breezes.

On tomatoes late blight can also occur on the ripe and unripe fruit,



causing brown necrotic water-soaked lesions. The lesions can expand rapidly to completely rot the fruit. In green and ripe red fruit, the fruit will turn brown and white, velvety growth may be seen on the fruit surface.

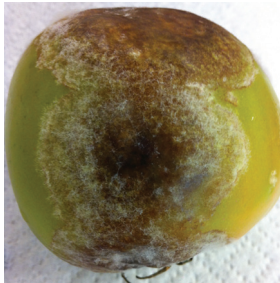


Photo courtesy of and copyright Dr. Meg McGrath, Cornell University (<http://www.hort.cornell.edu/lateblight>).

### Further information

The University of Idaho Extension system is located across the state of Idaho and is split into three districts. To find your county extension office visit the website "[www.extension.uidaho.edu/find.asp](http://www.extension.uidaho.edu/find.asp)".

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# Tomato and Potato LATE BLIGHT ALERT



Photo courtesy of Dr. Thomas Zitter, Cornell University.

Have you seen tomato plants in your garden or at your local garden center with symptoms like these? Read on for more information on what you need to know about this disease and how it affects all tomato and potato growers in Idaho.

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