



11 July 2009

Dear Agents,

As many of you probably know, late blight on tomato and potato is in the news. Late blight caused the Irish Potato Famine back in the 1840's. The destructive potential of this disease, only realized when environmental conditions are optimal, is well documented. It is expected that you will be receiving a number of inquiries from concerned growers about late blight due to the increased news coverage. Therefore, we wanted to tell you what we do know about the current situation and give you some pointers on diagnosis and more detailed information about preventative fungicide sprays and what to do if you do suspect late blight on tomato or potato.

The current late blight situation in the Mid-Atlantic:

Late blight is caused by a fungus-like organism, *Phytophthora infestans*, which can overwinter in infected potato tubers, but, is most commonly spread by prevailing winds and weather systems. This disease is favored by cool (less than 85 degrees F) and rainy or moist conditions. These conditions have persisted over the Commonwealth through most of May and June, thus causing increased disease levels in our region that have not been observed in 15 years. However, late blight is not a complete stranger to Virginia, the disease commonly occurs in the mountainous regions of the state, particularly in the fall.

Late blight was persistent in Florida for most of the winter months on tomatoes. The disease spread to areas of South Carolina by April and into North Carolina in May. The disease was first observed on potatoes in Virginia on the Eastern Shore around June 1 and diagnosed at the Virginia Tech Eastern Shore Agriculture and Experiment Station. Conditions on the Eastern Shore in June were favorable for late blight development. Late blight was found infecting both tomato and potato plants during this period. So far this during this growing season we have not received any late blight-diseased samples in the Plant Disease Clinic, however. Around the latter part of June, late blight was found in Delaware, New Jersey, Pennsylvania and in New York. The disease has since spread north through Maine and into Canada.

Accelerating the spread of late blight in some areas were late blight-diseased tomato transplants that were distributed to large retail stores in a region from Ohio to Maine. Currently, we have not received any first-hand reports of distribution of infected plant material to Virginia retail outlets. Because of the distribution of infected plant material in areas north of Virginia and very conducive weather conditions (cool and wet) for late blight in some areas of the Northeast, an epidemic of late blight has developed that is a concern to growers and Extension specialists.

To date, late blight has caused little damage in Virginia. In Virginia we have not seen the disease levels that have been reported in states to our north. Additionally, relatively warmer temperatures and drier conditions that do not favor development of late blight have occurred and are expected for the near future. However, the best approach for Virginians is to remain vigilant in scouting their potato or tomato plants for this disease, but do not overreact.

Invent the Future

Symptoms of late blight (see images below):

On tomato: Water-soaked spots that enlarge rapidly into pale green to brown lesions on the leaf. Lesions have a greasy appearance on the upperside of the leaves. During periods of high moisture, these areas may be covered with gray to white fungal growth. Infections may occur on the stem of heavily infected plants. On infected tomato fruit the spots are oily-looking, dark and typically rapidly enlarge. Severely infected plants may have an unpleasant odor.

On potato: Foliar lesions on infected potato leaves are similar to those seen on tomatoes. Dark green, water-soaked lesions develop on leaf tips and spread inward, rapidly. Whitish fungal growth may appear on lower leaf surface when conditions are favorable. Infections may occur on the stems of plants. Infected tubers will appear black and should not be used for seed pieces for future potato crops.

Suspect samples: If you suspect late blight, double-bag samples and mail to the Plant Disease Clinic, unless you can definitively identify the pathogen yourself (microscope necessary). Mail samples early in the week or hold in a refrigerator until you are able to mail early in the week to avoid sample deterioration in the post office over the weekend.

Figure 1. Late blight symptoms on potato.



Figure 2. Late blight symptoms on potato leaves.



Figure 3. Late blight symptoms on tomato leaf.



Late Blight Management:

Commercial Growers: Use certified seed pieces to ensure that you are not transmitting late blight. Avoid excessive overhead irrigation or practices that make the foliage wet, particularly in the mornings or at night. Prior to disease appearance, growers should utilize a protectant fungicide (i.e. chlorothalonil or mancozeb). Once the disease is present within your fields, systemic fungicides should be used for disease suppression. Systemic fungicides recommended for late blight control include: Curzate, Forum, Gavel, Headline, Omega, Previcur Flex, Quadris, Ranman, Revus Top and Tanos. As always, follow pesticide labels for rates and usage. Consult the *Virginia Commercial Vegetable Production Guide* for more information.

Homeowners and Gardeners: Use certified potato seed pieces to ensure that you are not transmitting late blight. Avoid excessive overhead irrigation or practices that make the foliage wet, particularly in the mornings or at night. Preventative fungicides must be used prior to late blight symptom development, so growers may want to apply a protectant fungicide, particularly if weather conditions in their area have been conducive for development of late blight (cooler temperatures and abundant moisture). Most hardware, feed and seed stores, or home improvement stores carry fungicides that contain the active ingredient chlorothalonil. This is the best option for home gardeners. Applications should be made prior to disease onset following labeled directions. It is essential to achieve sufficient coverage for this fungicide to be effective. Follow label instructions for appropriate rates and schedule.

Other common tomato problems that we are currently seeing:

Septoria leaf spot (<http://pubs.ext.vt.edu/450/450-711/450-711.html>): small dark brown spots with tan centers, sometimes bordered with yellow, begins on lower leaves and moves upward (growers may describe this as “wilt” or “blight”)

Bacterial wilt or other vascular wilts: the entire plant wilts. Cut away green tissue on the stem down to the woody vascular tissue: if the woody tissue is not white, but browning, then the problem is most likely a vascular wilt disease.

Tomato spotted wilt virus: brown spots first appear on upper leaves of plant. The plant may droop and wilt.

Bacterial spot and speck are also prevalent on the Eastern Shore of Virginia currently.

Early blight has also been problematic in certain fields

If you see discrete spots on leaves or fruit, it is most likely another tomato problem—not late blight. Septoria leaf spot is currently the most common disease we are seeing. Contact Steve Rideout at srideout@vt.edu if you would like pictures of these other tomato diseases.

Regards,

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