Late Blight Threatens Northeast Vegetables

With this year's outbreak of late blight, hobby gardeners are encouraged to be proactive to prevent spreading the disease.

07/08/2009

Courtesy USDA/Scott Bauer

Potatoes infected with late blight are shrunken on the outside, corky and rotted inside.The disease that caused the 1840s Irish Potato Famine now threatens Pennsylvania's home-gardening explosion, and a plant-disease expert in Penn State's College of Agricultural Sciences says hobbyists must work with commercial growers to protect the state's tomato and potato crops.

The disease Phytophthora infestans is commonly known as "late blight," and it's potentially fatal to all tomato and potato plants grown in home gardens and in commercial fields.

Commercial growers know that spraying fungicides can help manage and prevent its spread. But homeowners unaware of this contagious disease may not take timely corrective actions, and their home patches can propagate the disease for miles, according to Beth Gugino, vegetable pathologist in Penn State's Department of Plant Pathology.

"Tough economic times have many families taking up vegetable gardening, and tomato is often the most important crop in gardens," Gugino said. "Late blight is a common disease in Pennsylvania and the Northeast since it likes the cool temperatures and frequent rains of our summers. If it gets entrenched in a backyard vegetable patch, it can create a serious problem for neighbors and for commercial growers because the disease spores are easily carried in wind currents to infect susceptible plants in even the most remote areas in our region."

This year's battle with late blight is further complicated by other factors: a moist spring has brought the disease at the earliest it's been reported over such a broad region of the country. And a tragic mistake has large retail stores from Ohio to Maine unwittingly selling blight-infected plants.

"Last season in Pennsylvania, there was only one report of late blight on tomato and two on potatoes, and those developed later in the season," Gugino said. "And never before has such an extensive distribution of infected plants occurred.

The exceptionally contagious spores can spread from plant to tomato plant on garden center shelves, and late blight has been confirmed on tomato plants in home and garden centers in several counties in the state -- and the number is increasing daily.

"State Agriculture Department inspectors currently are visiting 'big box' garden centers across Pennsylvania and other affected states, working with the original supplier to remove and destroy any infected plants on store shelves."

By the start of July, late blight on tomato and/or potato plants from home gardens and in commercial fields has been confirmed in Bedford, Blair, Centre, Washington and Lancaster counties, and more reports are expected. Outbreaks also have been confirmed in states as far south as South Carolina, and north to Montreal and Quebec. Petunias also can be infected by late blight and show similar symptoms.

"Given this scenario, we must assume that many infected tomato plants have been planted across the entire region, if they originated from so called 'big-box' stores," Gugino said. "In Pennsylvania, several cases of infected plants in home gardens have been traced back to these stores."

While it's a problem for home hobbyists, she explained, the bigger threat is to commercial growers. Under the right conditions, blight spores thriving in backyard gardens can infect entire fields of tomatoes and potatoes several miles away. So, what starts as a minor disappointment for amateur gardeners can turn into a huge expense for commercial growers in the region.

"Growers have access to several very effective fungicides, so if they monitor their fields regularly and maintain a fungicide

program, we hope they will be able to harvest a crop," Gugino said. "But identifying and reducing the sources of inoculums is key. We are collecting isolates of the pathogen from each confirmed sample that comes to us, so that they can be genotyped. This will help identify where the inoculum is coming from."

The lesions that develop on tomato leaves, stems and fruit are very obvious to the naked eye. The edge of the water-soaked lesion, on either the top or bottom of the leaf surface, will be covered with white fungal growth that contains the spores. On the stems, late blight lesions appear brown to almost black. The same lesions also will develop on the fruit, either directly on the infected plant, or after a few days sitting on your kitchen counter.

"Lesions are not a danger to humans, so most of the fruit can be used if the affected area is removed," she said. "The good news is that the late blight pathogen is not seedborne in tomato, so tomato plants started from seed locally are most likely to be free of the disease, at least for now."

Gugino urges gardeners to inspect their tomato plants daily, and to take quick, decisive action when they see symptoms.

"Any plants with symptoms should be removed, placed in a sealed plastic bag and left in the sun for several hours to kill the spores before disposing of them in the garbage," she said. "Don't put the infected plants in a compost pile as the spores will continue to spread. Your neighbors, not to mention nearby commercial growers, will appreciate your taking this action immediately."

Homeowners can buy a few products that are effective if used before the disease appears and reapplied every few days if wet weather persists. The common name of cholorothalonil, a protectant fungicide, should appear on the label. Be sure to read and follow all directions and safety precautions on the label, handle the fungicides carefully and store them in their original, labeled containers out of the reach of children and pets.

"If you suspect late blight, please contact your local county Penn State Cooperative Extension office. They can help confirm the diagnosis and help you submit a sample to the plant disease diagnostic clinic."

Additional information and updates on the late blight outbreak in the Northeast are available online at http://www.ppath.cas.psu.edu/ and http://blogs.cornell.edu/hort/.