

Illinois pumpkin fields face cunning opponent

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Pumpkin seedling death is caused by *Phytophthora* blight, the most devastating pumpkin disease in Illinois. Credit: Mohammad Babadoost, University of Illinois

Wet conditions have Illinois pumpkin growers on the alert for signs of *Phytophthora* blight in their fields. This disease nearly destroyed the pumpkin industry in 1999, causing up to 100 percent crop losses in parts of the state. While it's not a new disease to this industry, it is the most devastating and it's already showing up in Illinois.

Mohammad Babadoost, University of Illinois Extension specialist in fruit and vegetable pathology, said, "An outbreak of *Phytophthora* blight in Illinois could devastate most of the country's supply of processed pumpkins and other cucurbit crops in Illinois."

Illinois-grown processing pumpkins account for nearly 95 percent of the

pumpkins grown in the United States for use in pies, breads, and other foods. Illinois has approximately 25,000 acres of processing and jack-o-lantern pumpkins with a gross value exceeding \$160 million per year. Not only is it the biggest vegetable industry in the state, it's also a great source of agrotourism drawing huge crowds to choose jack-o-lantern pumpkins from fields each fall.

This disease caused by *Phytophthora capsici* affects all cucurbits and peppers. Cucurbits include pumpkins, watermelon, honeydew, squash, zucchini, cucumbers and other vine vegetables. This disease affects both commercial and home gardeners, he said.

"Despite our attempts to prevent *Phytophthora* blight from spreading, it is doing exactly that," Babadoost said. "It's a nasty pathogen. I've seen it destroy entire fields. Once the fruit is infected, it's not suitable to process, eat, or carve."

This disease can infect the foliage or fruit at any stage of development. In fields, infections typically appear first in low areas where the soil remains wet for longer periods of time. Fruit rot generally starts on the area of the fruit that is in contact with the soil.

Babadoost and fellow researchers have devised an integrated pest management (IPM) approach to minimizing the devastation of this disease. In fact, in the past 10 years, they've been able to reduce crop loss from an average of 30 percent loss per year to less than 10 percent loss per year.

"To prevent this disease, we recommend crop rotation of three years or longer with non-host crops, followed by seed treatment and routine scouting, especially of low areas in fields," Babadoost said.

"Management of this disease requires serious, intensive work by growers, processing companies and Extension personnel. In general, no

single method provides adequate control."

If *Phytophthora* blight is observed and localized, Babadoost recommends disking the area of infected plants to prevent the entire loss of a field. Fungicides can also be applied by commercial growers if there is no standing water in the fields. If growers choose to irrigate from a pond, it's important to make sure the pond does not contain run-off from an infested field as the pathogen may be present in the run-off for the whole season.



This pumpkin exhibits fruit rot caused by *Phytophthora* blight, the most devastating pumpkin disease in Illinois. Credit: Mohammad Babadoost, University of Illinois

"This disease is greatly affected by moisture," he said. "The best way to prevent it is to keep the site as dry as possible. Home gardeners should water plants in the morning so the plants can dry throughout the day."

Pumpkins are important to Illinois, making disease prevention and monitoring crucial, Babadoost said. He remains in close contact with growers and industry representatives in order to keep diseases like this one under control.

"When the pumpkin industry experiences loss, it affects our state's economy and the people of Illinois," Babadoost said. "But more important, this is a unique crop that has value beyond dollars and cents. It's an educational and recreational crop. Any field that draws thousands of visitors every day to view it, such as popular Illinois pumpkin patches in the fall, carries significance beyond its market price."

More information: This information on Phytophthora blight, "Fruit rots of pumpkin: A serious threat to the pumpkin industry," was published in Plant Disease.

Provided by University of Illinois at Urbana-Champaign

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