

Outbreak of Phytophthora Foliar Blight and Fruit Rot in Processing Pumpkin Fields in

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Approximately 65% of the total commercial processing pumpkins (*Cucurbita moschata* Poir.) in the United States are produced in central Illinois. In 1999, *Phytophthora capsici* caused severe foliar blight and fruit rot in processing pumpkin fields in Illinois. Infection was widely observed in July when fruit weights were approximately 5 Kg and continued until harvest in late August. Infection of the fruit generally started on the side contacting the soil. However, when an infected leaf came in contact with a fruit, fruit rot started at the site of contact. Many fruits that looked normal, fell apart when they were turned for examination. Infected fruit were generally covered with white, cottony growth consisting of mycelium, sporangiophores, and sporangia. Leaf infection began as small chlorotic lesions, which enlarged and became necrotic. Leaf petioles also were infected and developed lesions that girdled petioles, causing the collapse and death of leaves. Vines also were infected and developed girdling lesions. The girdling lesions, which caused collapse and death of the vines, were observed on all parts of the vines. Affected vines collapsed and died. Roots and crowns of the plants with foliar blight and fruit rot exhibited little brownish discoloration or no symptoms. In most fields, the disease started in low-lying areas, but spread rapidly throughout the field. The disease occurred in both irrigated and nonirrigated fields.

In August, approximately one week before harvest, one nonirrigated and eight irrigated fields, a total of 267 hectares, were surveyed to assess the incidence of disease. The incidence of disease was determined by examining vines, leaves, and fruit in 10 plots (36 m² each) per field by walking a path on the longest diagonal of each field. In each plot, 10 plants were inspected,

with one vine, 10 leaves on the vine, and one fruit of each plant (total of 10 vines, 100 leaves, and 10 fruits in each plot) were examined for infection. The incidence of vine blight, leaf blight, and fruit rot in the nonirrigated field was 30, 50, and 49%, respectively. The incidence of vine blight, leaf blight, and fruit rot in irrigated fields ranged from 4 to 48% (ave. 21%), 17 to 68% (ave. 40 %), and 4 to 71% (ave. 32%), respectively. The incidence of vine blight, leaf blight, and fruit rot were highly correlated. Due to severe fruit rot, two of the irrigated fields were not harvested. In Illinois, processing pumpkins are planted in May and harvested in August. Recorded precipitation in the pumpkin growing area in Illinois in 1999, was 9 days (211 mm), 7 days (113 mm), 7 days (147 mm), and 7 days (91 mm) in May, June, July, and August, respectively. It is believed that the frequent and high rainfall during the growing season in the area resulted in the outbreak of *Phytophthora* foliar and fruit rot in processing pumpkins in Illinois in 1999.

References: (1) Erwin, D.C., and Ribeiro, O.K. 1996. *Phytophthora Diseases Worldwide*. The American Phytopathological Society, St. Paul, MN. (2) McGrath, M.T. *Biological and Cultural Tests*. 1998:175.