

Early Blight on Tomatoes and Potatoes

Tom Kucharek, Professor and Extension Plant Pathologist 1979, Revised November 2000

Florida Cooperative Extension Service/ Institute of Food and Agricultural Sciences/ University of Florida/ Christine Waddill, Dean

Cause and Symptoms

Early blight is a fungal disease that causes yield loss each year on all varieties of tomatoes and potatoes. Eggplant and pepper are also susceptible but early blight has not been a significant problem on these crop species in Florida. Early blight is caused by the fungus, *Alternaria solani*. This fungus is capable of overwintering on tomato and potato volunteers or non-decomposed debris from previously diseased tomato or potato plants. Black nightshade is also reported to be susceptible. Spores of the fungus are formed on debris, or current crop species, when temperatures of 60-90°F (75-85°F is optimum) occur provided wet weather is present. Spores, dislodged by wind or rain, land on susceptible host tissue and germinate when the tissue is wet and penetrate leaf, stem, petiole, or fruit tissue. Potato tubers are also susceptible. Within 7 to 14 days, depending on numerous weather variables and host vigor, symptoms will appear and a new generation of spores is formed on this diseased tissue. With each new generation, the epidemic spreads and becomes increasingly difficult to control.

Leaf symptoms begin as pinpoint-size brown to black spots, usually on the older leaves. These lesions expand in size up to one-half inch across, remaining brown, with or without yellowing surrounding the spot (Figures 1

and 2). Concentric rings are usually seen within the enlarged spots. Similar spots may occur on stems (Figure 3) and if the plant is in the seedling stage, the spot will girdle the stem, often killing the plant. Symptoms in tomato fruit are usually found associated with the stem end and shoulder and may expand in size. Fruit symptoms include a sunken, greenish-brown-black spot with concentric rings (Figure 4).

Control

Control of early blight is best achieved by using several techniques together. Cultural controls will allow the fungicide to do a better job as cultural controls reduce the amount of initial inoculum (spores). 1) Use crop rotation where possible. 2) Use disease-free tomato transplants or disease-free seed pieces for potatoes. 3) Destroy volunteer tomato and potato plants in and around the field. 4) Adjacent fields planted to potatoes or tomatoes the previous season should have been plowed down immediately after harvest. 5) Maintain host vigor via adequate fertilization. Less vigorous plants are more susceptible to early blight than vigorous plants. 6) Begin a fungicide spray program at first sign of disease or before, based on your experience in your particular area. Maintain spray applications on a 5 to 14 day interval throughout the growing season. Use the shorter intervals if rainfall is frequent or where history of early blight has been severe or when tem-

peratures from 75-85°F prevail. Also, if your spray program started after disease buildup occurred, shorter intervals would be appropriate. Use fungicides recommended by your county Extension agent. These materials change from time to time and are not being mentioned in this publication.



Figure 1. Early blight lesions on potato leaves.



Figure 2. Early blight lesions on potato leaves.

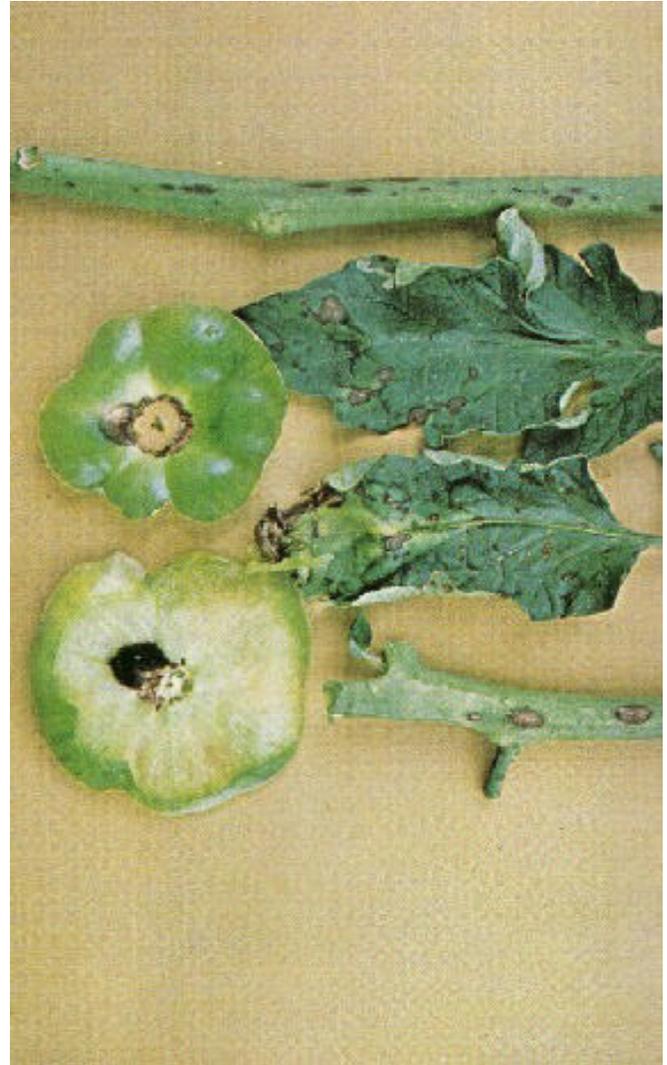


Figure 3. Early blight lesions on tomato leaves, stems and fruit.



Figure 4. Early Blight lesions on tomato fruit.