

BEAN BACTERIAL BROWN SPOT

Bacterial brown spot, caused by *Pseudomonas syringae* pv. *syringae*, is an important disease of beans in Illinois, Wisconsin, and some other bean growing areas in the world. The pathogen infects leaves, pods, and stems.

Symptoms

Infected leaves develop spots that are circular, brown, and necrotic surrounded by a bright yellow zone (Figure 1). Spots occasionally fall out, giving the leaves a shot-hole appearance (Figure 2). Infected pods develop lesions that are circular and initially water-soaked, and then become brown and necrotic (Figure 3). Infected pods may be twisted or



Figure 1. Symptoms of bacterial brown spot on a bean leaf, caused by *Pseudomonas syringae* pv. *syringae*. (Courtesy APS, H. W. Saettler).



Figure 2. Bacterial brown spot on bean leaves, caused by *Pseudomonas syringae* pv. *syringae*. (Courtesy APS, H. F. Schwartz).

bent. When the pathogen develops systemically, stem lesions develop.

Disease Cycle

P. syringae pv. *syringae* can multiply and survive on a number of crops (i.e., lima bean, pea) and nonhost crops (i.e., hairy vetch weed), and serve as sources of primary inoculum for infection of beans. The pathogen is transmitted during rainstorms and by contact

For further information contact **Mohammad Babadoost**, Extension Specialist in Fruit and Vegetable Pathology, Department of Crop Sciences, University of Illinois, at Urbana-Champaign. (Phone: 217-333-1523; email: babadoos@illinois.edu).

University of Illinois provides equal opportunities in programs and employment

between wet leaves. Sprinkler irrigation is also an effective means for spread of the pathogen.

The pathogen spreads from overwintered bean stem and pod pieces to the current bean crop by rain and overhead irrigation. The bacteria may also be spread by equipment used in contaminated fields, and by people or animals walking through the field. *P. syringae* pv. *syringae* may also be seedborne.



Figure 3. Bacterial brown spot on bean pods and leaves, caused by Pseudomonas syringae pv. syringae. (Courtesy APS, H. F. Schwartz).

Disease Management

- Control volunteer beans, weeds, and other plants that may serve as reservoirs for *P. syringae* pv. *syringae*.
- Plant certified pathogen-free seeds.
- Plant resistant/tolerant cultivars if available.
- Plow soil immediate after harvest to incorporate plant debris to breakdown plant tissues.
- Copper compounds can be used to prevent spread of the bacteria. Under persistent wet weather, however, bacterial populations can increase very quickly making control difficult even with frequent applications of copper fungicides.