



Brown spot of beans

Elizabeth Minchinton, Knoxfield

Caused by

Pseudomonas syringae pv. *syringae*

Introduction

Brown spot is a bacterial disease, which if severe, can cause crop and economic losses. Pod infections can make beans unsuitable for the fresh market.

Symptoms

Greasy-brown spots of various sizes develop on leaves and become angular in areas near the veins. Spots may have reddish-brown margins and be surrounded by a narrow band of yellow-green tissue. The centres of the spots dry, turn brown and may drop out as they enlarge. The leaves finally wither.

Symptoms on pods include dark-brown sunken spots, and severely infected pods become twisted or bent and may die especially when immature.



Figure 1. Brown spot on bean pods and leaves.

Biology

Disease Development

The bacteria enter plants through wound or natural openings and multiply rapidly under favourable conditions.

Survival

The bacteria can survive on infected plant debris, bean seeds, weeds and volunteer beans which then serve as a reservoir for infection of bean crops.

Dispersal

The bacterium is spread from plant to plant by rain splash, especially during storms or by overhead irrigation, and by the movement of workers, machinery, and animals through a crop.

Environmental conditions

The disease is favoured by cool, moist weather, and especially by hail storms which cause enormous damage to foliage and provide points of entry for the bacterium.

Host range

This bacterium has a wide host range on many cultivated and wild plants. However, the bacterium that causes brown spot on bean will only infect french and mung beans, not other hosts - ie it is specific to french and mung beans.

Control

- Use disease-free seed.
- Plant tolerant or resistant cultivars.
- Isolate healthy crops from diseased crops.
- Pull out diseased plants if practical.
- Do not enter the crop when it is wet.
- Remove and destroy plant debris immediately after harvest or deep plough to reduce the level of bacteria in the soil.
- Spray with a registered bactericide when weather conditions favour disease development to prevent infection.

edited by Kathy Pullman

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