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EC79-1863 Dry Edible Bean Diseases

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Dry Edible Bean Diseases

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Symptoms

1. Common Bacterial Blight (*Xanthomonas campestris* pv. *phaseoli*). Leaf symptoms appear initially as water-soaked spots which become irregular areas of brown, dead tissue surrounded by a narrow lemon-yellow border. Common blight lesions are generally much larger than either halo blight or brown spot lesions. Lesions on pods are water-soaked or reddish, roughly circular spots, often with a bacterial exudate.

2. Halo Blight (*Pseudomonas syringae* pv. *phaseolicola*). Infected leaves initially have water-soaked spots which darken and are surrounded by a zone of yellow-green tissue. Systemic chlorosis without spots may occur on new leaves. Symptoms on pods are almost indistinguishable from those caused by common blight.

3. Brown Spot (*Pseudomonas syringae* pv. *syringae*). Symptoms of brown spot are similar to those of other bacterial blights except water-soaking is generally absent from leaf lesions. Lesions can fall out and give the leaf a shot-hole effect. Infected pods may be bent at the point of lesion development.

4. Wilt. The cause of wilt cannot always be attributed to infection by a pathogenic agent. Low soil moisture, hot drying winds, root pruning during cultivation, and frost can cause wilting. Pathogenic agents include *Pythium* spp. and the bacterium *Curtobacterium* (*Corynebacterium*) *flaccumfaciens* subsp. *flaccumfaciens*. Infection by *Pythium* causes a semisoft, colorless to dark-brown rot often at a lower node then spreading up and down the stem. Infected half-grown plants may survive for a time but later wilt and often die. Complete defoliation of young plants also may occur leaving only brown stems. Leaf symptoms of bacterial wilt are similar to those of common blight, although wilt-infected plants are generally more stunted, show little water-soaking, and wilt easily. Stems may crack lengthwise, and dark green water-soaked lesions are produced on pods. Bacterial wilt has not been observed in bean fields for a number of years.

5. Fusarium Root Rot (*Fusarium solani* f.sp. *phaseoli*). The first symptoms of Fusarium root rot usually appear 2-3 weeks after planting as reddish streaks on the taproot and stem below the soil line. Later, the red streaks become brown and necrotic. Infected plants often produce adventitious roots and generally recover with adequate irrigation.

6. Rhizoctonia Root Rot (*Rhizoctonia solani*). Symptoms include reddish-brown sunken cankers on the root and hypocotyl. On seedlings the disease causes damping-off, but

on older plants the cankers have a well-defined border and become rough, dry, and pithy with age. Invasion of the pith causes a brick-red discoloration of these tissues. Rhizoctonia is often more severe if beans follow sugar beets with crown rot disease.

7. White Mold (*Sclerotinia sclerotiorum*). Initial symptoms are small, soft, watery spots on stems, pods, and leaves often associated with a moldy blossom. The lesions enlarge to become a rotted watery mass often covered by a white moldy growth. Wilted plants result from infected stems which become dry, shredded, and bleached. Black sclerotia which form in and on infected tissue fall to the soil and the next year germinate to produce small mushroom-like structures (apothecia). White mold is promoted by dense vine growth and heavy irrigation during pod fill.

8. Bronzing. The cause of bronzing on dry beans in the Plains states is unknown. Ozone created by lightning or urban pollution may be one cause. Symptoms are either brown pigmented or bleached lesions of the upper leaf surface and resemble sunscald. Since bronzing appears only on the upper leaf surface it may be distinguished from rust or blight which occur on either surface. Leaves and young pods may yellow and drop off in severe cases.

9. Rust (*Uromyces appendiculatus*). Bean rust becomes visible 5-6 days after infection as small white raised spots on leaves. After about 10 days, dark reddish brown pustules form in these spots. Large pustules may be surrounded by a distinct yellow band. If touched, the reddish-brown spores rub off onto your fingers.

If rust is developing rapidly from early bloom to 4 weeks before harvest, application of a foliar fungicide is justified. Early rust detection is critical to effective control by foliar fungicides.

Control

1. 3-year crop rotation.
2. Use certified seed.
3. Plant available resistant varieties.
4. Treat seed with streptomycin-fungicide combination.
5. Avoid reuse of irrigation run-off.
6. Avoid entering the field when foliage is wet.
7. Apply fungicides such as benomyl at full bloom for control of white mold or maneb at first sign of rust.



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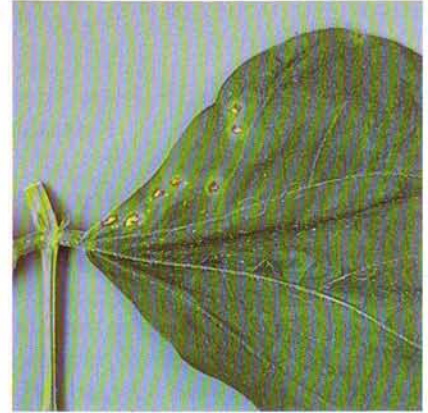
Dry Edible Bean Diseases



1. Common Bacterial Blight



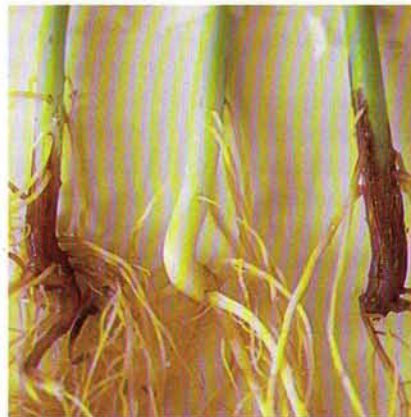
2. Halo Blight (Courtesy C.L. Campbell)



3. Brown Spot



4. Wilt (Courtesy D.J. Hagedorn)



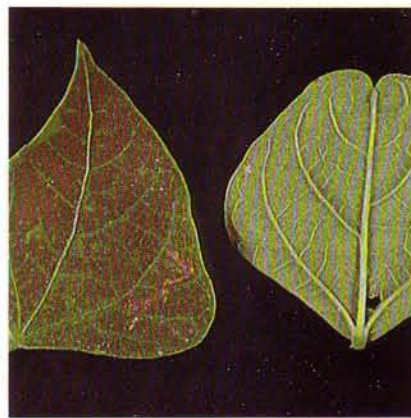
5. Fusarium Root Rot



6. Rhizoctonia Root Rot (Courtesy D.J. Hagedorn)



7. White Mold (insert: Apothecium)



8. Bronzing



9. Rust