

# Tropical Diseases



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5

# Tropical Diseases

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**PHOTOGRAPHS:** Courtesy of G.E. Galvez (CIAT—APS Bean Compendium), S.K. Mohan and H.F. Schwartz [09/2011]

**COMMON HOSTS:** Legumes such as *Phaseolus vulgaris* are susceptible to various diseases that are widespread in tropical to semi-tropical production regions around the world.

**FIGURE 1** • Entyloma Leaf Smut, *Entyloma* spp. Leaf lesions appear water-soaked and then gray-brown on the upper surface and gray-blue on the lower surface. Lesions contain mycelium and teliospores, and may coalesce and become delimited by leaf veinlets.

**FIGURE 2** • Machismo, Phytoplasma organisms transmitted by leafhoppers such as *Scaphytopius fuliginosus*. Symptoms of this disease group may include witches' broom, virescence (flower petals turn light to dark green), phyllody (unopened, distorted floral structures), elongation of stems, and distorted pods with few seeds; and seeds may germinate in healthy appearing pods prior to harvest.

**FIGURE 3** • Southern Blight, *Sclerotium rolfsii*. Infection appears as a slight yellowing on lower leaves, water soaking and darkening of hypocotyls above the soil line, and destruction of the cortex; followed by wilting, leaf drop and death. Small (1-2 mm diam), spherical, brown sclerotia form on coarse mycelium at the plant base. The pathogen has a very wide host range.

**FIGURE 4** • Web Blight, *Rhizoctonia solani* (*Thanatephorus cucumeris*). Small necrotic lesions (2-10 mm in diam) with brown centers and olive green margins form on leaves. Lesions become water-soaked, enlarge and coalesce rapidly to take on a scalded appearance and become covered by whitish to brown mycelium with small sclerotia.

**FIGURE 5** • Yeast Spot, *Nematospora* & *Eremothecium* spp. Symptoms appear after insects such as stink bugs (*Megalotomus* spp.) and lygus bugs (*Lygus* spp.) transmit the yeast organism to pods and developing seeds. Spores germinate and infect the seeds, producing irregular, slightly sunken rose, tan or brown lesions about 1 mm in diam.

## **FACTORS FAVORING:**

- Presence of previously infested crop debris
- Lack of crop rotation
- Poor sanitation of previous legume debris
- Contaminated seed
- Susceptible varieties
- Moderate to high moisture conditions
- Infection at V2–R2 results in plant death, and/or reduced pod set, poor seed fill, and yield loss

## **ADDITIONAL DIAGNOSTICS AVAILABLE AT:**

<http://legume.ipmpipe.org>

<http://wiki.bugwood.org/PIPE:Legume>

<http://www.apsnet.org/> —Compendium of Bean Diseases, 2nd Ed.