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# EC02-1882 Soybean Disease Profiles

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# Soybean Disease Profiles

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1. Bacterial Blight

2. Phytophthora Root and Stem Rot

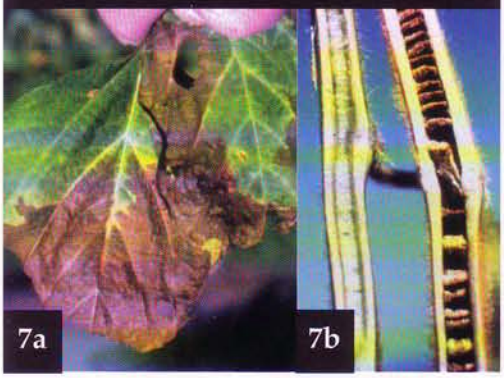

3. Soybean Cyst Nematode

4. Bacterial Pustule

5. Rhizoctonia Lesion

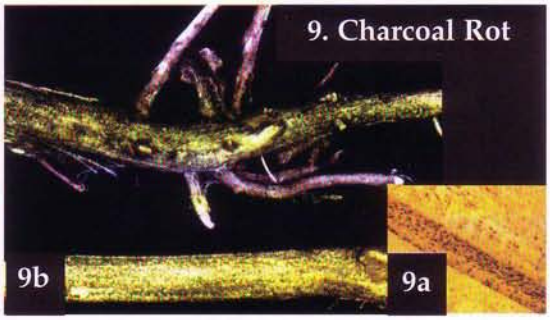
6. Seedling Blight

7. Brown Stem Rot

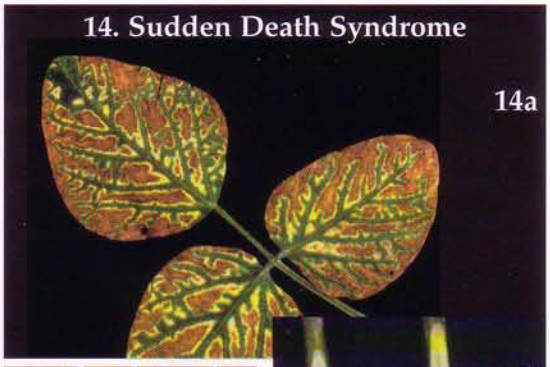



8. Sclerotinia Stem Rot


9. Charcoal Rot



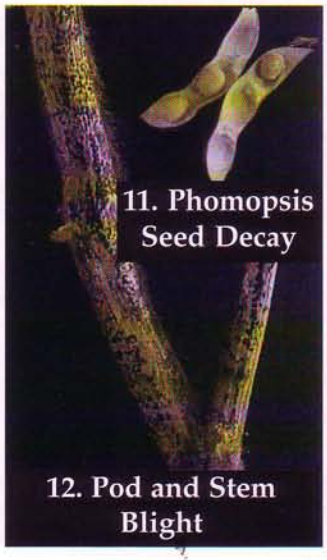

14. Sudden Death Syndrome



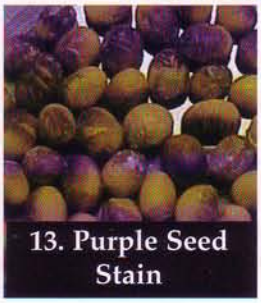

10. Bean Pod Mottle Virus


11. Phomopsis Seed Decay

12. Pod and Stem Blight



13. Purple Seed Stain



| Disease | Symptoms |
|---|---|
| 1. Bacterial Blight<br>*Pseudomonas savastanoi* pv. *glycinea* | Small angular water soaked spots on leaves later turning brown; spots surrounded by yellow borders *(Fig. 1)*; centers of old lesions fall out giving shot-hole appearance. |
| 2. Phytophthora Root Rot<br>*Phytophthora sojae* | Seed decays before or after seedling emergence *(Fig. 2a)*; seedlings wilt and die, with brown lower stem and often with discolored stem pith *(Fig. 2b)*; plants become yellowed, wilt and show a dark discoloration of the lower stem *(Fig. 2c)*; roots of older plants are rotted. |
| 3. Soybean Cyst Nematode (SCN)<br>*Heterodera glycines* | Heavily colonized plants may be stunted and chlorotic; root system reduced with poor nodulation; pale yellow to brown cysts visible on roots (pin-head size) generally smaller than Rhizobia nodules *(Fig. 3)*. |
| 4. Bacterial Pustule<br>*Xanthomonas axonopodis* pv. *glycines* | Small, pale green to brown spots with raised centers *(Fig. 4)*; raised pustule is typically on lower leaf surface; spots or irregular brown areas may occur without water soaking. |
| 5. Rhizoctonia Root and Cortical Rot<br>*Rhizoctonia solani* | Decay of lateral roots and localized brown to red-brown lesions on the hypocotyls and lower stem *(Fig. 5)*; discoloration limited to cortical layer; infected stems remain dry. |
| 6. Seedling Blights can be caused by<br>*Pythium* spp., *Fusarium* spp.,<br>*Rhizoctonia solani,* and *Phytophthora sojae* | Seed decays before or after emergence; seedlings wilt and die *(Fig. 6)*; roots and lower portion of stems rotted; rot generally confined to outer root surface. |
| 7. Brown Stem Rot<br>*Phialophora gregata* | Leaves brown and attached to petiole *(Fig. 7a)*; interveinal brown to yellow discoloration in leaves; center of stems brown extending up from roots *(Fig. 7b)*. |
| 8. Sclerotinia Stem Rot<br>*Sclerotinia sclerotiorum* | During pod development, leaves wilt and turn gray-green before turning brown and drying; white fungal growth on stems and pods *(Fig. 8a)*; diseased stems are bleached; sclerotia on and inside stem and pods *(Fig. 8b)*. |
| 9. Charcoal Rot<br>*Macrophomina phaseolina* | Leaves of infected plants yellow, wilt and stay attached; red-brown discoloration of taproot vascular tissue extending up the stem; small black bodies (sclerotia) under the stem epidermis *(Fig. 9a)* giving it a gray-black color *(Fig. 9b)*. |
| 10. Bean Pod Mottle<br>*Bean pod mottle virus* (BPMV) and/or<br>Soybean Mosaic<br>*Soybean mosaic virus* (SMV) | Green to yellow mottling of younger leaves *(Fig. 10a)*; leaf mottling may disappear as leaves mature; stunted plants; misshapen pods with mottling; green stem at harvest; seed coat discoloration same color as hilum *(Fig. 10b)*; small seed. Symptoms the same for BPMV (common in Nebraska) and SMV (rare in Nebraska). |
| 11. Phomopsis Seed Decay<br>*Phomopsis longicolla* | Infected seed shriveled, elongated, and cracked; seed appears white and chalky *(Fig. 11)*; poor germination if planted. |
| 12. Pod and Stem Blight<br>*Diaporthe phaseolorum* var *sojae* | Symptoms on plants nearing maturity are numerous, small black dots on lower stems, petioles, and pods *(Fig. 12)*; speck-sized fruiting structures usually arranged linearly. |
| 13. Purple Seed Stain<br>*Cercospoora kikuchii* | Pale to dark purple discoloration of seed coat *(Fig. 13)*; reduced seedling emergence. |
| 14. Sudden Death Syndrome<br>*Fusarium solani* f. sp. *glycines* | Interveinal necrosis; spots coalesce to form brown streaks between the leaf veins with yellow margins *(Fig. 14a)*; leaf drop with petiole (leaf stem) remaining; deteriorated tap-roots and lateral roots; root cortex is light-gray to brown and may extend up stem *(Fig. 14b)*. |

**Photo Credits:** Soybean cyst nematode, courtesy of G. Tylka, Iowa State University; Sudden death syndrome, courtesy of X.B. Yang, Iowa State University; all other photos courtesy of faculty in the NU Institute of Agriculture and Natural Resources.

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