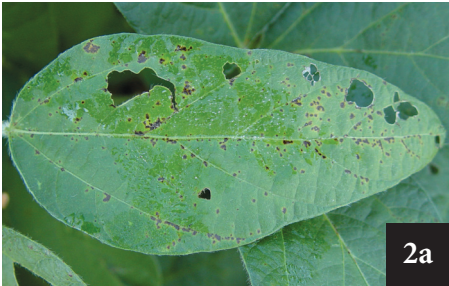


Soybean Disease Profiles I

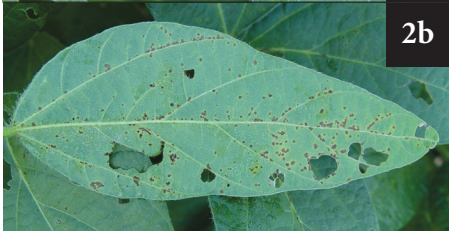
Foliar Diseases

UNL Extension Plant Pathology Team

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2a

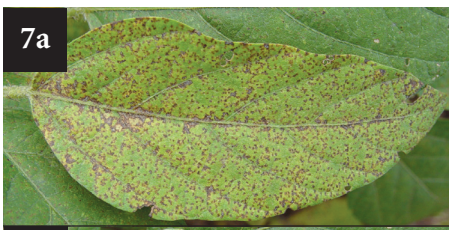


2b

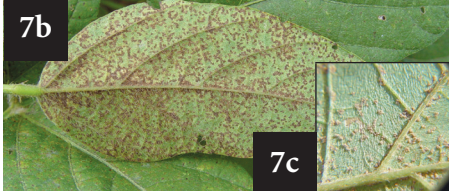
2. Bacterial Pustule



6. Frog-eye Leaf Spot



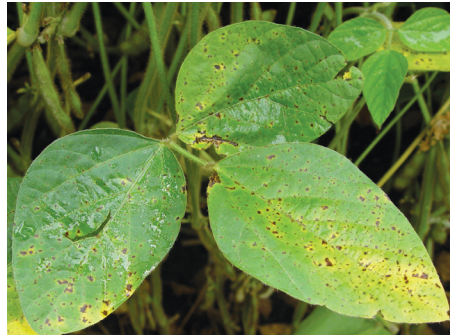
7a



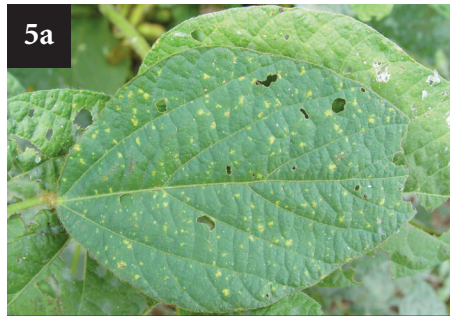
7b

7c

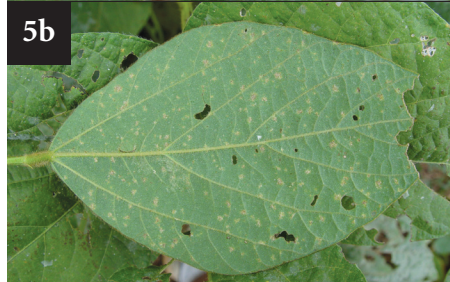
7. Soybean Rust



3. Brown Spot



5a

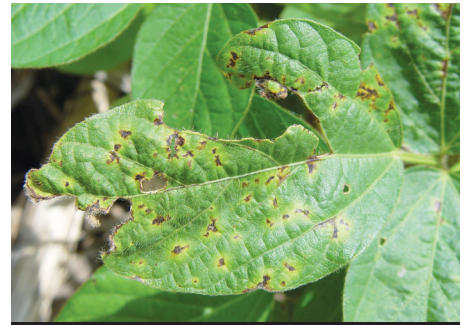


5b

5. Downy Mildew



8. Powdery Mildew



1. Bacterial Blight



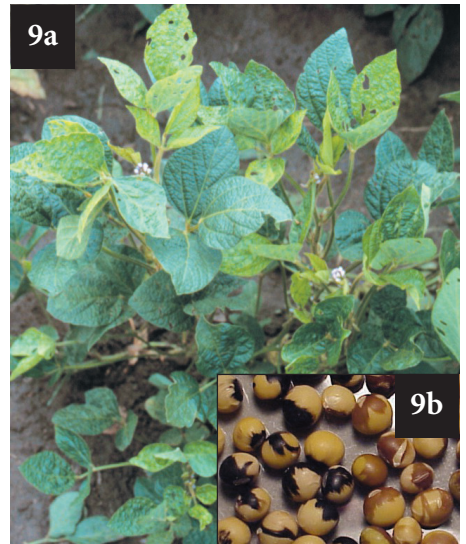
4a

4b



4c

4. Purple Seed Stain



9a

9b

9. Bean Pod Mottle Virus

Disease	Description
1. Bacterial Blight <i>Pseudomonas syringae</i> pv. <i>glycinea</i> *Management: C, N, R	Associated with leaf damage in canopy. Small angular water-soaked spots on leaves, later turning brown; spots surrounded by yellow borders; centers of old lesions fall out, giving shot-hole appearance.
2. Bacterial Pustule <i>Xanthomonas axonopodis</i> pv. <i>glycines</i> Management: C, N, R	Commonly distributed along leaf veins in upper canopy. Small, pale green spots with raised centers; raised pustule is typically on lower leaf surface (<i>Figure 2b</i>); may be spots or irregular brown areas without water soaking.
3. Brown Spot <i>Septoria glycines</i> Management: C, F, R	Starts in lower canopy and spreads upward. Irregularly shaped, light-brown spots primarily on leaves but can be on stems, petioles, and pods; premature defoliation in lower canopy with severe infection.
4. Cercospora Leaf Blight and Purple Seed Stain <i>Cercospora kikuchii</i> Management: C, F, N, R	Foliar symptoms after seed set in the upper canopy. <i>Leaf symptoms</i> : light purple to bronze, with small spots to irregularly shaped patches; typically on upper leaf surface; leaves may become leathery and dark purple (<i>Figure 4b</i>); infections can spread to petioles; upper canopy defoliation; petioles remain attached to stem. <i>Seed symptoms</i> : pale to dark purple discoloration of seed coat; seed infection not always related to foliar disease level (<i>Figure 4c</i>).
5. Downy Mildew <i>Peronospora manshurica</i> Management: C, N, R	Common after seed set in upper canopy. Lesions occur on upper leaf surface; irregularly shaped, pale green to light yellow spots; underside of leaf may have fuzzy, gray fungal growth under lesions when high humidity or moisture conditions are present (<i>Figure 5b</i>).
6. Frogeye Leaf Spot <i>Cercospora sojina</i> Management: C, F, R	Common in the upper canopy after flowering. Small, dark spots on the leaves that enlarge to approximately ¼ inch diameter; lesion centers become gray to brown with a reddish purple margin; individual leaf spots can coalesce to create irregular patterns of leaf blighting.
7. Soybean Rust <i>Phakopsora pachyrhizi</i> Management: C, F, R	Dependent on disease development in southern U.S. to spread northward. Lower leaves typically affected first; small, gray lesions that turn tan or reddish-brown; one to many small pustules will be present in mature lesions (<i>Figure 7b</i>) (visible with 10 X hand lens (<i>Figure 7c</i>)).
8. Powdery Mildew <i>Microsphaera diffusa</i> Management: F, R	Common in mid to late reproductive stages usually in lower canopy first. White, powdery fungal growth on leaves and stems; yellowing and premature defoliation; common with extended overcast conditions.
9. Bean Pod Mottle <i>Bean pod mottle virus</i> (BPMV) and / or Soybean Mosaic <i>Soybean mosaic virus</i> (SMV) Management: C, N, R	Green to yellow mottling of younger leaves; leaf mottling may disappear as leaves mature; stunted plants; misshapen pods with mottling; green stem at harvest; seed coat discoloration same color as hilum (<i>Figure 9b</i>); small seed. Symptoms are the same for BPMV (common in Nebraska) and SMV (rare in Nebraska).

Photo Credits: Powdery mildew photo courtesy of D. Mueller, Iowa State University; all other photos courtesy of faculty in the UNL Institute of Agriculture and Natural Resources.

*Management strategies which can be effective: C — cultural practices, such as the use of crop rotation or tillage; F — seed treatment or foliar fungicides; N — management may not be necessary, practical, or possible; R — varieties vary in their resistance/susceptibility and resistance will reduce disease severity.