

Soybean Disease Guide

Common Diseases & Management Strategies



About the Plant Clinic

The University of Illinois Plant Clinic is an Extension program housed in the Department of Crop Sciences and serves as the federally designated plant diagnostic laboratory for Illinois. We provide unbiased diagnoses, integrated pest management recommendations, and educational outreach about plant health management to support horticulture, agriculture, and specialty crop production, and help protect the environment.

Soybeans in Illinois and the Midwest

- Over 10 million acres of soybeans are planted in Illinois each year (past 5 years).
- Illinois is the top producer of soybeans in the nation, with 639–688 million bushels harvested annually (2021–2025).
- Illinois, Iowa, Minnesota, and Indiana account for ~50% of U.S. soybean production, averaging 4.3–4.5 billion bushels per year (past 5 years).

Common Soybean Diseases in Illinois



Soybean Cyst Nematode (SCN)

Heterodera glycines

The most yield-limiting pathogen of soybeans in the U.S. Causes stunting, yellowing, and poor yield. Eggs can persist in the soil for years. Host resistance is critical, but many SCN populations can overcome resistance.

White Mold

Sclerotinia sclerotiorum

Common fungal disease that infects soybean and many other plants. The pathogen can persist in the soil for years. Yield is reduced due to poor pod fill and seed infection.



Sudden Death Syndrome (SDS)

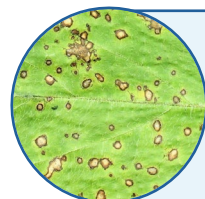
Fusarium virguliforme

Common fungal disease which causes interveinal yellowing and browning of leaf tissue in mid-summer (R3–R6 growth stage). These symptoms mimic a number of other diseases. Yield loss can exceed 50%.

Red Crown Rot (RCR)

Calonectria ilicicola

An emerging fungal disease in the Midwest which can infect both soybeans and peanuts. The symptoms are similar to SDS.



Frog-eye Leaf Spot

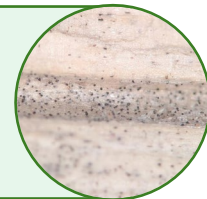
Cercospora sojina

A foliar fungal disease causing leaf spots, defoliation, and yield loss during warm, humid conditions. Fungicide resistance is increasing.

Charcoal Rot

Macrophomina phaseolina

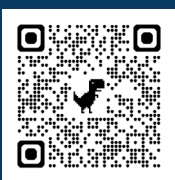
A fungal disease that can infect corn, soybean, and other hosts. Different pathogen strains are host preferential so rotation is still helpful. Infection occurs early; symptoms develop during dry, hot weather.



Phytophthora root, crown, and stem rot

Phytophthora spp. including *P. sojae*

Various species of *Phytophthora* cause damping off and root, crown, and stem rots. Infection can result in losses of up to 100% in saturated fields. Cool, wet soil conditions favor disease development.



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Soybean Diseases of Minor Importance

These diseases are either uncommon in Illinois, or rarely cause yield loss. In years where environmental conditions favor the development of the disease, or if infection begins early in the season, losses can be more severe.

- Seedling diseases (*Pythium*, *Rhizoctonia*, *Fusarium* spp.)
- Anthracnose (*Colletotrichum* spp.)
- Bacterial blight and Bacterial pustule (*Pseudomonas syringae* pv. *glycinea* and *Xanthomonas axonopodis* pv. *glycines*)
- Brown spot (*Septoria glycines*)
- Brown stem rot (*Cadophora gregata*)
- Downy mildew (*Peronospora manshurica*)
- Stem cankers and pod & stem blight (*Phomopsis/Diaporthe* spp.)
- Soybean rust (*Phakopsora pachyrhizi*)
- Soybean Vein Necrosis Virus (SVNV)

General Disease Management Recommendations

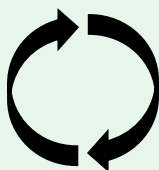


Host Resistance

The most important management strategy, although pathogens eventually evolve to overcome host resistance. The development of new varieties incorporating diverse genetic lines is critical for continued success of host resistance. Rotate sources of resistance in the field to slow pathogen evolution.

Fungicide Applications

Seed treatments are used against seedling diseases and SCN. Foliar applications are made during the growing season to protect against leaf and stem diseases. Application timing is critical for control. Pathogen populations can develop resistance. Rotate fungicide modes of action to slow this development.



Crop Rotation

Rotating crops helps break pathogen disease cycles by removing the host for one or more seasons. This reduces disease pressure in the following years. It is most effective against pathogens that are specific to one host.

Biological and Cultural Controls

- There is increasing interest in using cover crops to suppress pathogens, especially soil-borne pathogens.
- Tillage is effective at reducing pathogen populations by incorporating infected plant residue into the soil where it begins to degrade. However, traditional tillage can be detrimental to soil structure and encourage erosion so it is less frequently used than before.
- Managing soil drainage and fertility is critical for controlling soil-borne pathogens, especially those favored by wet or compacted conditions and soils with low % organic matter.
- Planting date and row spacing can influence disease severity. Cooler conditions earlier in the year favor the development of some diseases, while dense canopy coverage favors the spread of foliar pathogens.



Monitoring

Successful management relies on accurate, timely identification of pathogens present in the field. Regular in-season scouting and diagnoses is critical for controlling diseases and protecting yields.