CERCOSPORA LEAF BLIGHT

Soybean Diseases









Overview

Cercospora leaf blight of soybean is caused by the fungus *Cercospora kukuchii*, a close relative of the frogeye leaf spot pathogen, *Cercospora sojina*. Cercospora leaf blight has long been a problem in the South and is becoming more common in the North Central region. Research at Louisiana State University suggests that another Cercospora relative, *Cercospora flagellaris* may also be involved in the leaf blighting phase of the disease.

Cycle

Cercospora kukuchii overwinters in infected seeds and on plant residue. The fungus forms spores on the surface of the residue during periods of warm (75-80°F), humid, weather. The spores are wind-blown or rain-splashed to new soybean tissue where infection occurs.

The disease cycle can also begin from infected seeds. The fungus grows through the seed coat to the cotyledons and into the stem. In cases of mild seed infection, the coat may be shed before infection of the seedling can occur. In other cases, the young plant may be killed at an early age, or the fungus may become established in the plant, but produce no symptoms until later in the season.

Scouting

Scout for Cercospora leaf blight starting at the beginning of the reproductive growth stages. Look for a purplish-bronze discoloration on the upper surface of leaves, particularly in the upper canopy where leaves are exposed to sunlight. As the plants mature, the leaves begin to look leathery. In susceptible cultivars, the entire leaf surface may have this appearance. If you look closely at individual leaves, you can see reddish-purple spots that vary in size from pinpoint spots to larger, irregularly shaped patches. Severely affected upper leaves are often shed while lower leaves remain attached.

Cercospora leaf blight is most commonly mistaken for sunburn

At maturity, check the seed for purple discoloration. If the fungus infects the seed, symptoms can range from no symptoms, to a purple discoloration that can cover part or all of the seed. The seed phase of the disease is commonly called purple seed stain.

Be aware that there is little correlation between symptom development on the leaves and on the seed.

Management

A combination of cultural controls and host resistance can provide good control of Cercospora leaf blight:

- Use crop rotation to minimize pathogen build-up.
- Tillage operations that place residue in close contact with the soil will promote the rapid decomposition of infected residue and destruction of the pathogen. In no-till or reduced-till systems, longer crop rotations and shredding soybean straw with a combine-mounted shredder are effective.
- Plant disease-free seeds.
- Soybean varieties vary in their response to Cercospora, but high levels of resistance

are not currently available. Later-maturing cultivars typically are more resistant than early-maturing ones. Resistance to the leaf blight and seed infection stages is thought to be under different genetic control.

Control with fungicides

Seed treatments can be used on seed lots with higher percentages of infected seed. In northern growing regions, yield loss to Cercospora is minimal, although a high percentage of discolored seeds may result in significant dockage at the point of sale. In the South, foliar fungicides may be applied during early pod development stages (R2 – R4) in fields with a history of the disease, or when weather conditions are especially conducive. Spray trials suggest that fungicides only give fair control. However, products containing flutriafol, tetraconazole, and difenoconazole have performed better.

Distribution

Fungicide Efficacy for Control of Soybean Foliar Diseases, *Crop Protection Network*, CPN 1019, (Updated annually)

Purple Seed Stain and Cercospora Blight, University of Nebraska

Resources

Purple Seed Stain and Cercospora Blight
University of Nebraska
https://cropwatch.unl.edu/plantdisease/soybean/purple-seed-stain

Scouting for Common Soybean Seed Diseases
Crop Protection Network CPN 1001, 2015
https://cropprotectionnetwork.org/publications/scouting-for-soybean-seed-diseases

Scouting for Common Soybean Stem Diseases
Crop Protection Network
https://cropprotectionnetwork.org/publications/scouting-for-soybean-stem-diseases

Soybean Diseases
Iowa State University
https://store.extension.iastate.edu/Product/Soybean-Diseases

SOYBEAN RESEARCH & INFORMATION NETWORK

This website is funded by the soybean checkoff

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