

THE VALUE OF CREATING A HARVEST PLAN FOR DISEASE-AFFECTED SOYBEAN FIELDS

Late-season soybean diseases can cause harvest timing issues and require management of infected crop residue to help reduce the potential for disease the following season. Yield losses (Figure 2) from late-season diseases can vary depending on the onset of symptoms, number of plants infected, severity of disease, and environmental conditions from mid-season to harvest. Soybean diseases are mostly spread by soil, wind, splashing from rain, and infected plant residue.

Do I need to scout fields for late-season soybean diseases when planning for harvest?

Scouting can help determine what diseases are present and how widespread they are. Start scouting by mid-season and continue until maturity. Once a disease has been discovered, management can begin to minimize the potential impact on yield. With certain diseases, a properly timed fungicide application can help to control the disease. Understanding if a disease may lead to standability issues resulting in yield and quality loss can help with the harvest decision to harvest the affected field early.

Can fall tillage help reduce the impact of disease in the future?

Including fall tillage practices can be very effective in reducing the risk of many soybean foliar and stem diseases by incorporating infected plant residue to help increase degradation. Diseases that are controlled well by fall tillage include: cercospora leaf spot, purple seed stain, frogeye leaf spot, bacterial blight, brown stem rot, and phomopsis pod and stem blight.

Fall tillage can reduce disease outbreaks from sudden death syndrome (SDS) and *Phytophthora* by helping to dry seedbeds and increase soil temperatures for the following spring.

For more information about the identification and management of soybean diseases, refer to the Agronomy Spotlight, Identifying Common Soybean Diseases During Vegetative Growth.



Figure 1. Soybean harvest



Figure 2. Soybean seed loss from lodging and pod shatter

Which soybean diseases are not controlled by tillage?

Soybean root rot diseases like *Rhizoctonia* and soybean cyst nematode are not controlled well by fall tillage. For *Rhizoctonia*, the use of seed treatments can help manage the disease. In the case of soybean cyst nematode, tillage helps move the cyst and can increase the risk of spreading soybean cyst nematode.

Tillage for white mold (*Sclerotinia* stem rot) has had varying effectiveness. The use of strip-till, no-till or any system that leaves the infected residue on the surface is preferred. When the residue is left on the surface during a corn or wheat rotation, the overwintering sclerotia germinate during the corn or wheat cycle, reducing the risk for the next crop of soybeans. Reduction of pathogen populations and selection of soybean products with good resistance ratings for *Sclerotinia* are also key management strategies for reducing the impact of this disease.

What other management practices can help minimize future soybean disease infections?

Crop rotation with a grass crop such as corn and wheat. Infected crop residue, especially infected leaves, typically decomposes during the next growing season even when left unincorporated. In a soybean and corn rotation, infected soybean leaves are often completely disintegrated when corn is grown, but infected soybean stem residue can persist for the next two growing seasons.

For diseases that overwinter on plant residue, it may be wise to avoid harvesting severely diseased areas. This can help prevent the spread of inoculum throughout the field and contamination of the combine, lowering the possibility of the disease spreading to unaffected fields. If there is only one field affected, harvesting this field last can also reduce the spread of inoculum.

Source

Fall Tillage Considerations for Soybean Disease Management. Iowa State University Extension and Outreach. <http://crops.extension.iastate.edu/cropnews/2008/10/fall-tillage-considerations-soybean-disease-management>.

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