



Agronomic Spotlight

Biology and Management of Septoria Brown Spot in Soybean

- Septoria brown spot (*Septoria glycines*) is favored by environments that promote wet leaves during extended periods of warm temperatures.
- Characteristic symptoms of septoria are dark brown spots progressing to irregular brown areas on upper and lower leaf surfaces.
- Continuous and minimum tillage fields may lead to more septoria infections due to increased residue.

Description and Biology

Septoria brown spot (SBS) overwinters and sporulates in soybean residue. The disease is spread by wind and by splashing rain that moves spores from the soil surface and residue to plant tissue. Septoria brown spot symptoms can appear on the cotyledons and unifoliate leaves but are generally mild during early growth stages.¹ Hot, dry weather oftentimes stops the disease cycle.¹ However, SBS is favored by warm temperatures between 60° F to 85° F, and leaves that remain wet for long periods.¹ The disease cycle continues on infected plants during ideal conditions. Spores developed on cotyledons and unifoliate leaves are the inoculum for later infections of trifoliate leaves, stems, pods, and surrounding plants.

Small, irregular, dark-brown spots occur primarily on leaves. Symptoms occur first on lower leaves during warm, wet conditions and then progress to the upper leaves. The tissue around lesions may be yellow. Late in the growing season, leaves become rusty brown or yellow and drop prematurely.

Bacterial blight (*Pseudomonas sp.*) symptoms can be compared to brown spot. However, bacterial blight symptoms appear on the upper new leaves while SBS infects older leaves in the lower canopy.² Lesions of bacterial blight are brownish, angular and surrounded by a yellow ring or halo. As they mature, the lesions turn dark, and drop out of the leaf giving a tattered appearance to the leaf (Figure 1).³ Bacterial blight also does not have the spore producing specks that distinguish brown spot.

Damage and Incidence

It is rare for SBS to cause significant yield loss. The disease can be found throughout the Midwest states, and incidence can be high. The severity of disease at the R6 growth stage indicates the effect on yield. Premature defoliation that exceeds 25 to 50 percent of the leaves of a plant can affect soybean productivity or result in smaller seed size.² A five to eight percent yield loss was reported as possible in severely diseased fields where there is much defoliation.⁴

Management Practices

Fungicides from the strobilurin family may protect against disease development if applied prior to symptoms.⁵ An application of foliar

fungicide is generally recommended at the R3 to R4 growth stage to provide an economic return if only one application is made.⁶ One application may protect plants for two to three weeks.⁶

Cultural practices to reduce the incidence of disease include selecting a soybean product with some tolerance to the disease. Genetic resistance has not been found in soybean. Tillage and rotation to non-legume crops can also reduce the incidence of SBS.



Figure 1. Bacterial blight (left) and septoria brown spot (right) are similar in appearance. Bacterial blight typically infects the upper leaves and septoria brown spot the lower leaves. Distinguishing the two diseases is important as bacterial blight is unaffected by fungicide applications.

Sources:

¹ Dorrance, A.E. and Mills, D.R. Brown spot of soybeans. The Ohio State University. AC-18-10.

² Pedersen, P. 2006. Brown spot—septoria leaf blight. Iowa State University. <http://extension.agron.iastate.edu>.

³ Wise, K. 2015. Indiana soybeans: Septoria brown spot vs bacterial blight. AGFAX.

⁴ Septoria brown spot. University of Minnesota. <http://www.extension.umn.edu>.

⁵ Giesler, L.J. and T.C. Gustafson. 2008. Foliar fungicide use in soybean. NebGuide. University of Nebraska, Lincoln. G1862.

⁶ Yang, X.B. 2008. More on fungicide application questions. Iowa State University. Web sources verified 7/28/15

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development, & Agronomy by Monsanto.

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