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The following information is condensed from a Purdue fact sheet (Diseases of Soybeans, BP-58-W) on soybean sudden death syndrome (SDS). SDS is showing up in Putnam County fields and the first signs are small, bright, pale green to yellow spotted leaves and then leaf drop. It occurs in wet areas, end rows and/or compacted areas that may enlarge after two-three weeks. Generally, the soybeans upper leaves between the veins will turn yellow and then turn brown and die.

To positively identify SDS, split the soybeans lower stem and taproot and look for a slightly tan to light brown discoloration in infected plants. The pith (central portion of stem) will remain white or slightly cream-colored. SDS infected plants often have light blue patches on the soil line near the taproot's surface which are blue SDS spore masses. SDS is caused by the soilborne fungus Fusarium solani and survives the winter in the crop residue or lives freely in the soil.

The fungus also can survive in cysts of the soybean cyst nematode (SCN) and can withstand wide soil temperature fluctuations (including freezing) and resists desiccation (drying out). As soil temperatures rise in the spring, spores near soybean roots are stimulated to germinate and then infect soybean roots. The fungus may infect roots as early as one week after crop emergence but aboveground symptoms of SDS rarely appear until mid-July, when soybean plants start to flower. Heavy rains during reproductive stages (R3-R6) often are critical for SDS

development. Over a period of years, flowing water and cultivation practices may move the spores over large areas, increasing the infected area.

SDS management options are limited. Although soybean varieties less sensitive to SDS have been developed, there are no highly-resistant varieties. While most seed companies have removed highly-susceptible varieties from their inventories, no highly-resistant varieties are available. Fungicides applied in furrow during planting or as seed treatments have only limited effects, and fungicides applied to foliage have no effect on SDS. Management practices may reduce the risk of SDS damage but they will not prevent the disease.

Early planting predisposes soybean to infection due to cool wet soils. Rapid spring soybean growth and dry soils limit the risk of SDS infection and if the SDS fungus is not present, the soybeans will not develop SDS. So growers should plant fields with no history of SDS first and then plant fields where SDS has been a problem later.

Compacted soils impede water percolation and restrict root growth. A heavy rain when soybeans havereached the reproductive stage will saturate compacted areas, which promotes SDS development. Correcting soil compaction and water permeability problems may reduce the risk for SDS. Tile drainage or planting cover crops may improve permeability. In some soils, no-tillage can be beneficial and increase soil water permeability. In other soils, tillage may be necessary for maintaining sufficient vertical water movement. Growers should focus on how to create the best soil drainage to reduce SDS infection.

There does not appear to be a rotation that significantly reduces SDS. Corn does not reduce the incidence and severity of SDS; and severe outbreaks of the disease have occurred even after several years of continuous corn. However, crop rotation does reduce other soybean pathogens. It appears that shifting to a two-year rotation of corn and soybeans (compared to longer rotations) has favored the buildup of SDS populations and other soil-borne soybean pathogens.

Purdue studies have found that when corn is grown in the field, soil-borne soybean pathogen populations may decline but not enough to substantially reduce the problem. Although a two-year C-S rotation may hold soybean cyst nematode (SCN) populations below threshold levels when the SDS population is low, such a rotation appears to be too short to reduce populations of SDS during the year corn is grown.

The combined action of SDS and SCN will damage soybean varieties susceptible to both pathogens. Production practices that maintain SCN at low levels may reduce the risk for SDS and if SCN is present, a management strategy for both pests should be implemented. Including cover crops in the crop rotation, especially cereal rye or oil seed radish may improve soil health, soil diversity and improve soil drainage to lower SCN populations.

Yield reductions due to SDS are dependent on when infections begins and usually the most productive part of the field is affected. Early infections will result in pod abortion, reduced seed number and size. Infections after flowering will not have a significant impact on yield. See http://ohioline.osu.edu/ac-fact/pdf/0044.pdf for more information.