What is Sudden Death Syndrome?

Sudden Death Syndrome (SDS) of soybean is a soil-born pathogen caused by the fungus *Fusarium virguliforme*. The fungus overwinters in crop residue or soils and can infect soybean plants as soon as one week after crop emergence. SDS is now considered one of the top four soybean yield robbing diseases and has been reported throughout most soybean growing areas of the United States. Yield losses can range from negligible to severe, depending on disease onset and severity. Yield losses are caused by increased flower and pod abortion, which reduces the number of seed produced. Potential yield can also be reduced by a decrease in seed size caused by the disease. Sudden death syndrome is favored by high yield environments and is most severe when seeds are planted in cool, wet soils and moist conditions exist during the vegetative growth stages. This disease often occurs in fields where soybean cyst nematode (SCN) is present.

Identifying SDS

The first noticeable symptoms of SDS are yellow, chlorotic blotches that form between the veins of soybean leaflets. These blotches expand between the veins into large, irregular chlorotic patches that later die and turn brown (Figure 1). Eventually, entire leaflets will die and shrivel. In severe cases, leaflets will drop and leave the petiole attached.

Foliar symptoms of SDS look similar to brown stem rot. To differentiate between the diseases, look at the roots and stems. When split, the lower stem and taproot of a plant infected with SDS will show a slightly tan to light brown discoloration of the vascular tissue but the pith will remain white or cream-colored. If the pith is brown, the plant is probably showing symptoms of brown stem rot. In plants with severe foliar symptoms, small, light blue patches may form on taproots and stems below the soil line. The blue discoloration on the roots is distinctive of SDS and is caused by spore masses of the fungus.

Compacted areas such as around field entrances or where machinery has been driven previously may also exhibit more severe SDS symptoms. In addition, moderate to high populations of SCN can be associated with SDS and may increase the severity of SDS.

Management

A multifaceted approach is needed to manage SDS. This disease cannot be controlled once plants have become infected. Foliar fungicides and fungicide seed treatments have no effect on SDS. The foundation of an SDS management program is the use of SDS-tolerant soybean products. Products with tolerance to SDS should be planted in fields with a history of the disease. These fields should also be planted later in the spring. Planting when soils are cool and wet can make plants more vulnerable to infection by *F. virguliforme*. Cultural practices that improve drainage in low spots, reduce SCN populations, or remove soil compaction layers may also lessen SDS severity.

Sources:


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