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TECH Tips



Soybean Disease Issues - Sudden Death Syndrome

Soybean with the disease known as Sudden Death Syndrome are appearing in some areas of the region. Sudden death syndrome (SDS) is now among the top four yield robbing diseases in soybeans in the United States. It has been relatively uncommon in our territory, but it can be found, and was found in a field near Willow Lake.

Sudden Death Syndrome (SDS) is caused by the soil borne fungus *Fusarium solani* f. sp. *glycines*. Sudden Death Syndrome is favored in high-yield environments. The disease is more prevalent during cool, wet growing seasons and is favored by early planting in cool soils. The disease appears only after flowering and progresses rapidly.

Symptoms include:

- 1) Soybean roots will appear rotted and plants will be easily pulled from the soil.
- 2) The areas between the leaf veins will turn bright yellow, then eventually brown. The dead, brown tissue between veins may fall out, leaving large ragged holes in leaves.
- 3) The leaf blades will fall off of the petioles (petioles are the thin "stems" that connect the leaf blades to the main stem), but the petioles remain attached to the stem.
- 4) When split lengthwise with a knife, the internal tissue of the main or tap root will be gray to reddish brown, not healthy white. The pith of the soybean stem, however, will likely not be discolored. Splitting a stem and examining the pith is critical to differentiate this disease from Brown Stem Rot. Brown Stem rot shows the same leaf symptom, but the pith of the stem will be distinctly brown in color and often broken up into brick-like pieces, giving an effect called "laddering" in the pith.

Diagnosing SDS: The photo at left is a classic leaf symptom of Sudden Death Syndrome or Brown Stem Rot. Splitting the stem will differentiate the diseases. Note the gray-brown cortex of the stem in the photo at right, which is diagnostic of SDS. Brown stem rot will show chocolate brown pith in the stem.



Nothing can be done now to save affected soybeans. Management includes:

- 1) Planting soybean varieties with moderate-to-high levels of resistance to SDS.
- 2) Avoiding early planting in fields know to be severely affected by SDS. A two-year rotation out of soybean production and maintaining good crop nutrition has been shown to reduce the severity of SDS.
- 3) Adding an extra seed treatment. Fungicides such as ILeVO® seed treatment, and an older seed treatment chemistry called thiabendazole (Mertect and generics) have activity against SDS. New fusarium-focused seed treatment chemistries are being released as well.

Sudden Death Syndrome Disease Progression. Healthy plants soon begin to slow development. As the disease develops in the plant, it produces a toxin. The toxin produced moves upward to the upper leaves and leaf symptoms appear. Plants then begin to rapidly drop leaf foliage, leaving the petioles on the plant. This is a key diagnostic feature. As the disease progresses, all leaf tissue will die off and eventually this leads to full plant death. This progression can happen very quickly - in a matter of a week or so, thus the name Sudden Death Syndrome. Root branches will be rotted off and plants can be easily pulled from the soil, with only the main taproot present.

