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Soybean Sudden Death Syndrome – Disease Cycle

With soybean planting from a month to three months away, a disease like Soybean Sudden Death Syndrome (SDS) may not be on your radar. After all, it shows up later in the growing season making it of little concern very soon even for early planted beans, right?

While there's some truth to that, the mechanisms in place that result in greater levels of SDS actually get kicked off early in the season. Like any fungal disease, it needs a host – the soybean, a pathogen – SDS, and the right environment. A fungi surviving in crop residue *and* soil, it is ever present (pathogen: check) and ready to infect soybean roots (host: check) at planting, maybe within a few days of seed germination.

The environment portion of the equation is a bit trickier. Every disease has a 'range' of conditions they persist in. Sudden Death Syndrome prefers wet soils. It also prefers temperatures during early vegetative growth in the cooler range (60-65 degrees F). While this is often a factor of greater concern with earlier planted soybeans, it's also not uncommon for later planted fields to exhibit greater symptomology than earlier planted fields. Conditions in the early vegetative stage are key and can help guide later scouting efforts as well.

Other factors can contribute to the disease as well. Frequent or heavy midseason rains favor early expression of disease symptoms and irrigation provides the ideal environment for SDS development. On the other end of the spectrum, hot and/or dry conditions during the early to mid-part of the growing season can actually delay or even stop SDS symptom development (unfortunately, they often contribute to yield declines in other areas...). Soybean Cyst Nematode (SCN) levels can increase SDS severity, but SDS can occur independently of SCN and vice versa. Low soil fertility, poor drainage, and even compaction may contribute as well.

Once infected, toxins move through the plant's water conducting tissue to leaves where we start to notice the disease. This typically doesn't occur until after flowering, but if a variety is highly susceptible or soil conditions are extreme, symptoms can occur even early in the season.

As with most diseases, management includes a fair bit of playing the weather game – and that can be difficult. Next week: the impact of some of our production practices on SDS issues.