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SDS management for 2003 season

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Abstract
In extension winter meetings, one of the major discussion topics on soybean diseases was sudden death syndrome (SDS) management because this disease was widespread during the past growing season. Many producers are concerned about the risk of this disease in the 2003 growing season and have asked about effective management practices.

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Early planting and disease risk

Last winter was mild and temperatures were warm earlier in the spring than usual; thus, many producers planted early. Early planting, however, was one reason that SDS was prevalent. Infections by the SDS pathogen are favored by cool soil temperatures and high soil moisture. Early planted soybean will probably be exposed to a longer period in cool soil that later planted soybean. A study by Iowa State University shows that the lower the soil temperatures, the higher the incidence of infection by the SDS pathogen. In spring, wet soil also is associated with lower soil temperatures; thus, management of soil moisture levels can reduce disease risk.

An increased risk for SDS with early planting does not mean you have to delay planting. For example, if you have eight soybean fields and one had SDS previously, design a planting schedule in which the SDS-infested field is planted last. A few days difference should reduce SDS risk greatly. In central to southern Iowa, I rarely detected or was informed of fields that were planted after May 15 experiencing severe SDS. Almost all fields I visited for SDS problems were planted in the first week of May or in late April.

Tillage effects

Tillage has been shown to reduce SDS disease risk in two ways. First, tilled land has higher soil temperatures and lower moisture compared with no-till land. Second, because the SDS fungus infects and grows in soybean roots, the fungus spreads vertically in soil only in the root zone, especially in no-till fields. Because SDS risk is high when pathogen populations are high, tillage operations in long-term no-till fields help change pathogen distribution in the soil profile, and therefore reduce disease risk.

Effects of rotation

The SDS fungus can survive for a very long time in the absence of soybean. Minimal information is available on the effectiveness of crop rotation in reducing SDS risk. Observations suggest that SDS risk remains high after several years of corn.

Resistant varieties

Advances have been made in the development of SDS resistance, and many resistant varieties are available in commercial production. However, resistance genes that produce symptom-free response have not been found. Available resistant varieties have some disease symptoms. Despite many years of research, no gene producing immune (disease-free) response has been found.

Spread of SDS

With the widespread occurrence of SDS recently, it is not surprising to find the pathogen in soybean fields in eastern and central Iowa. For most production fields, the issue is how widespread the pathogen is rather than whether the fungus is present or absent. Producers should take management steps to avoid enlargement of diseased patches. The SDS pathogen has the same means of dispersal as soybean cyst nematodes (for example, passive movement in soil, tillage, and running water) and reduced tillage helps minimize the spread of the SDS pathogen.

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