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Update SDS Management After 2010 Outbreaks

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Abstract

The 2010 outbreak of sudden death syndrome (SDS) showed that many SDS management recommendations need more thought. I received several reports suggesting that the way SDS occurred were inconsistent with text books. At Iowa State's Integrated Crop Management Conference, people shared their unique observations and asked some excellent questions. Below is summary of what we learned from 2010.

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Update SDS Management After 2010 Outbreaks

By XB Yang, Department of Plant Pathology

The 2010 outbreak of sudden death syndrome (SDS) showed that many SDS management recommendations need more thought. I received several reports suggesting that the way SDS occurred were inconsistent with text books. At Iowa State's Integrated Crop Management Conference, people shared their unique observations and asked some excellent questions. Below is summary of what we learned from 2010.

Herbicides and SDS

Growers have questions about glyphosate application and SDS. Some believe that use of glyphosate is the reason of SDS outbreaks, an issue that has raised more than a decade ago when RR soybean was first on the market. We addressed the issue at that time. Our data show that plots with glyphosate had the same levels of SDS in plots with Pursuit, a popular herbicide before RR soybean. Use of two times the label rates of glyphosate or Pursuit had more SDS than normal rate for each herbicide. Currently, some growers use higher dose of glyphosate for weed control in fear of weed resistance. This should be taken into consideration for SDS management. Keep in mind that in the 2010 season, high SDS levels were found in fields with Roundup Ready (RR) soybean and non-Roundup Ready soybean.

Lactofen (Cobra®) has been suggested to reduce SDS. We conducted studies in 1997-1999 that were published in leading plant pathology journals. These studies showed that SDS was reduced by lactofen in the greenhouse. However, lactofen was not effective in three years of field trials. A revisit of this issue in 2008 with multi-location trials in eastern Iowa produced the same results.

Seed treatments

Use of seed treatments to control SDS has been tried without success since the disease was a problem in Arkansas. No seed treatments currently on the market are effective; however, there are new chemicals in the pipeline being tested by various companies. One needs to see good field results before committing to production use.

Drainage

Drainage has been listed at the top of SDS management recommendations by some institutes after this year's outbreak. Tiling a field requires major investment and such investment may not pay off in terms of SDS management. Effectiveness of this measure varies with years and this measurement is effective in years with normal weather conditions. Observations from a flood year show that many well tiled fields had severe SDS and the disease was often more severe in-line with drainage pipes.

Multiple diseases concern

When writing this article, I try to keep in mind that SDS may not be a major problem next year although this disease has been widespread three years in a row. Types of disease outbreaks are determined by the types of extreme

weather events and changing climate has made weather events often unpredictable. Besides SDS, [white mold is on top of the disease list](#) in recent years.

Other important diseases include virus, foliar diseases such as brown spot, and Phytophthora. This past summer, brown spot was very severe in Iowa and surrounding states and the level of Phytophthora occurrence in mid-summer was the highest in recent years although its damage was incomparable with SDS. Major damage of Phytophthora was seedling blight led to replanting. Use of seed treatments with chemical for control of this disease is effective management of this risk. Consider seed treatment for this disease if you plan to use a variety without a good Phytophthora package.

SCN and SDS

Soybean cyst nematode (SCN) can enhance the severity of SDS as proven by numerous scientific studies. SDS can also be problematic without SCN causing visible symptoms, as was the case in 2009 and 2010. Weather the last two seasons suppressed the damage of SCN, as moisture was not limiting during 2009 and 2010. However in both years, SDS was prevalent with low level of SCN. This suggests that SCN management may help reduce SDS in years which have a normal weather conditions, not a year like 2010 or 2009.

Variety selection

SDS has been prevalent in recent years and this year's epidemic shows that the pathogen is present in many soybean fields. It is true that a susceptible variety yields a few bushels higher when it is disease free. However, a one-year strike by this disease can cut one's profit so much that will take several years to make up. Producers should use a resistant variety as a major option for SDS management with expectation that resistance will not be as reliable as resistance to Phytophthora. Breeding resistance to SDS by breeders in private and public sectors has made progress over the years, but there is a long way to go because of the nature of SDS.

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