

## Managing SDS



Courtesy of Dean Malvick, University of Minnesota

- 1 Choose high yielding varieties**  
*(Variety selection is the number one management tool.)*
- 2 Select varieties with solid agronomics**  
*(In many areas resistance to both SDS and SCN is needed.)*
- 3 Plant early, but in warm, dry soil**  
*(Cool, damp conditions promote SDS growth.)*
- 4 Manage soil compaction**  
*(Compaction leads to higher levels of SDS.)*
- 5 Use high quality seed**  
*(Quality seed has more vigor and germinates and emerges more quickly.)*

# Plant resis

**W**hen it comes to managing sudden death syndrome (SDS), pathologists throughout the North Central region all agree on one recommendation: Plant SDS-resistant varieties.

"Variety selection is the number one management tool," says Shawn Conley, soybean Extension specialist at the University of Wisconsin. Unfortunately, he adds, options are somewhat limited for northern growers.

### Tougher for northerners

"There are varieties that have different levels of SDS resistance in Minnesota," says Dean Malvick, University of Minnesota Extension pathologist. "Plant breeders are working on it, but because SDS is a newer problem here, I don't think the levels of resistance in our maturity groups is as high as that found in SDS-resistant varieties in southern Illinois."

Jason Bond, plant pathologist at Southern Illinois University, agrees. "Availability of resistant varieties is the biggest difference down here vs. central Illinois, Iowa and further north," he says. "I don't think there's anything unique about our germplasm other than it has been extensively screened for resistance to SDS."

Bond believes seed companies are doing a much better job of providing varieties that have good SDS resistance.

Conley encourages farmers in the southern third of Wisconsin to check the VIPS Web site (Varietal Information Program for Soybeans – [www.vipsoybeans.org](http://www.vipsoybeans.org)) for SDS-resistant varieties that are performing well in northern Illinois.

### Plant in warm, dry soil

"We know moisture enables the SDS pathogen to penetrate the soybean plant via the root system," says Palle Pedersen, soybean Extension agronomist at Iowa State University. "And we know optimal temperatures for root infection are on the cooler side.

"We see SDS more frequently when we plant early in cool, wet soils, and less SDS when we plant later. But we don't know exactly why yet," Pedersen adds. "The problem is we lose too much yield from late planting in the Midwest; we need to plant early to capture as much as we can of our limited growing season."

# tant varieties

## Early vs. late planting

"It's easier to manage your planting date in southern Illinois and southern Indiana than it is in Wisconsin and northern Iowa," according to Conley. "If you want to increase yield here, we have to plant early, before May 10. After May 10, we lose  $\frac{4}{10}$  of a bushel per acre per day. That adds up pretty fast."

Pedersen says research shows growers can still plant early, "As long as you plant a tolerant variety. Don't plant a susceptible variety in a field with a history of SDS." Bond's advice: "If you have a field with a history of SDS, try to plant it later than other fields."

## SDS in high-yield environments

They all agree that SDS isn't worse in high-yield conditions. Rather, the factors that drive high yields also just happen to increase the potential for the SDS pathogen to survive.

"In high-yield conditions, there's high fertility, good water availability, early planting – all factors that are conducive to the development of the SDS pathogen," Conley explains.

"It's the same with white mold," Conley continues. "I think that's where the misconception comes from that SDS and white mold are related. The two have nothing to do with one another, except both occur in high-yield environments."

## No-till environments

Scientists are still studying whether no-till leads to more or less SDS. "Research from Purdue University shows that in the early stages of the transition to no-till, you could see increased SDS," Conley says. "But after you've been in a no-till system for a couple of years, the amount of SDS decreases."

In Iowa, Pedersen says he often sees more SDS in no-till conditions because it's dry on the surface while the seedbed is wet. "We know it takes wet conditions for SDS to occur," he adds. "We also see SDS if there's compaction. We frequently find it on headlands and in wheel tracks."

## Manage soil compaction

Compaction studies at Southern Illinois University prove that higher compaction leads to higher levels of SDS. "The tap root is constricted, there's more stress on the plant, and there's more moisture for longer periods," says Bond.

"In terms of tillage, if you have compaction issues, ripping or chisel plowing can reduce symptoms of SDS and overall disease severity by 30 to 40 percent," Bond adds. "That's true for the clay soils in southern Illinois, but deep ripping didn't give the same level of protection in central and northern Illinois, where you have 6 to 8 feet of topsoil."

## Use high quality seed

Researchers also are studying seed quality and vigor. "You get more SDS when you plant lower quality seed," Pedersen says. "We're also looking at how fast the seed germinates and emerges and how that can impact the disease."

As for seed treatments, Bond says, "Companies are ramping up efforts. Some have experimentals that show activity on the fungus in the greenhouse, but they have limited information from field trials. So far, all fungicides available as a seed treatment have no impact on late season SDS. Right now, nothing replaces the benefits of using a resistant variety."



Courtesy of United Soybean Board

▲ **Warm dry soil** results in healthier emergence and seedling vigor.