

# Resist and De-Cyst

*Research helps defend against yield loss with new SCN-resistant cultivars.*

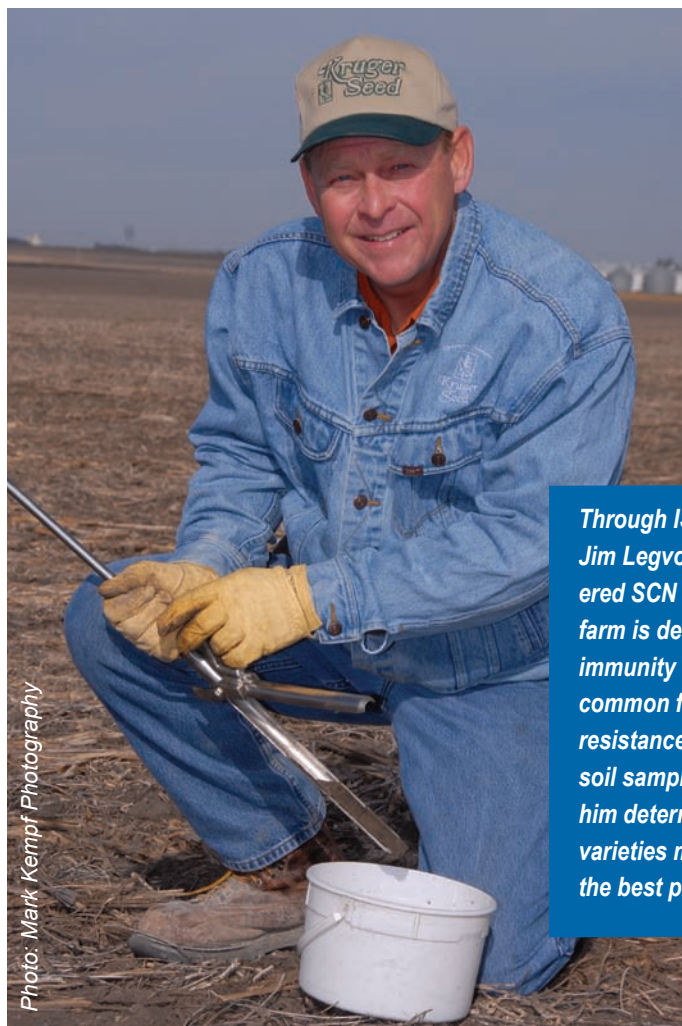


Photo: Mark Kempf Photography

*Through ISU research, Jim Legvold discovered SCN on his farm is developing immunity to the most common form of SCN resistance. Regular soil sampling helps him determine which varieties might offer the best protection.*

percent SCN reproduction or less is considered resistant, he adds. “(However,) even 10 percent per year is still a significant amount of SCN reproduction.”

Not all news is gloomy along the battle lines against SCN, however. The resistance offered from PI88788 genetics remains good compared to what non-resistant varieties offer, emphasizes Tylka. “In our experimental plots, the PI88788 varieties are still getting a 15-bu./acre higher average yield than the non-resistant varieties,” he reports.

Besides PI88788, Iowa soybean growers currently have access to two other SCN-resistant genetic sources that can offer yield advantages compared to non-resistant varieties when planting into SCN-infested fields, adds

Tylka. One is called Peking resistance and the other is Hartwig resistance, which includes CystX<sup>®</sup> varieties.

However, the need for even more SCN-resistant sources from which growers can choose increases each year, says Tylka. Results from an ISU field trial last fall on Jim Legvold’s farm, near Vincent in Webster County, illustrates that need.

“Three out of the four top-yielding varieties in the trial were from Peking sources, which had average yields between 52-55 bu./acre,” says Legvold, a United Soybean Board (USB) director. “Most of the PI88788 varieties had yields that averaged below 50 bu./acre. So, I’m losing 5 bu./acre or more by planting the varieties I’ve normally used to control SCN.”

Just as they routinely soil test, soybean growers should also test fields to identify the nematode races in each field and which varieties might offer the best protection, advises Legvold.

Many farmers often don’t realize they have a problem with SCN because it’s a below-ground pest and its damage is difficult to identify, says Brian Kemp, an Iowa Soybean Association (ISA) director from Sibley. “Unless you have very high levels of it in your fields or have identified problem areas through nematode testing, you won’t know it’s there,” says Kemp. “I’ve done fertility soil samples and tested for SCN in the past. Now I can spot suspicious areas in my fields, which I then have tested at harvest time.”

SCN acts like an invisible thief that robs yields from soybean fields in most of Iowa and much of the Midwest, says Silvia Cianzio, an ISU soybean breeder. “Growers will have to plant the right SCN resistant varieties or accept significant yield loss,” she says. “However, in 2008, ISU is releasing a new, high-yielding cultivar that is resistant to both SCN and Phytophthora stem and root rot.”

**C**urrent resistance to soybean cyst nematode (SCN) isn’t futile, but it is fading, according to Greg Tylka, Iowa State University (ISU) Extension plant pathologist. That’s why discovering new sources of SCN resistance remains vital to stopping future yield losses from this pest.

“No SCN resistance is 100 percent,” says Tylka. “Over time, a plant’s resistance to SCN breaks down, and that’s what is happening now in many areas across the Midwest; the nematodes are overcoming resistance from soybean varieties bred with PI88788 genetics.”

Midwestern growers should regard a weakening in this resistance to be incredibly bad news, considering how few SCN-resistant germplasm sources are currently available to them, says Tylka. In Iowa, for example, among the 743 SCN-resistant soybean varieties sold in the state last season, only 3 percent derived their resistance to SCN from genetics other than a PI88788 gene source.

Almost half of Iowa’s experimental plots now have an SCN population with greater than 10 percent reproduction capability on PI88788, says Tylka. Any variety with 10