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## Sentinel plots at end of the 2006 season

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## Sentinel plots at end of the 2006 season

### **Abstract**

We are completing our second crop season since Asian soybean rust (ASR) was found in the United States. We can breathe a sigh of relief and give thanks that ASR did not make its way to Iowa. Indeed, this potentially devastating disease has not plagued the entire north-central United States. Had conditions been favorable for this disease, we were ready to give producers fair warning.

### **Keywords**

Plant Pathology

### **Disciplines**

Agricultural Science | Agriculture | Plant Pathology

since the introduction of the soybean aphid. Further, infection by both viruses can cause synergism, meaning that damage caused by both viruses in the same plant is more than additive. Therefore, it is imperative that interpretation of data to identify field tolerance to virus disease requires correct identification of viruses prevalent at the field site where the test is conducted. The technology developed for this study required that the assay could quickly and accurately differentiate between both viruses.

The good news is that three accessions showed tolerance to bean pod mottle and soybean mosaic viruses, four were tolerant to bean pod mottle, and eight were tolerant to soybean mosaic. This proof of concept

study suggests that in the future field tolerance can be utilized to reduce the damage caused by these virus diseases. The method will allow the seed industry to easily mechanize evaluation of accessions to provide tolerant varieties to producers. Further, it allows for a useful estimate of virus incidence in the field. Details will be published shortly in the journal *Crop Science*.

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*John H. Hill is a professor of plant pathology with research responsibilities in virology. Craig Grau is a professor of plant pathology at the University of Wisconsin with research responsibilities in soybean diseases.*



## Plant Diseases

### Sentinel plots at end of the season

by Ralph von Qualen and X. B. Yang, Department of Plant Pathology

**W**e are completing our second crop season since Asian soybean rust (ASR) was found in the United States. We can breathe a sigh of relief and give thanks that ASR did not make its way to Iowa. Indeed, this potentially devastating disease has not plagued the entire north-central United States. Had conditions been favorable for this disease, we were ready to give producers fair warning.

The United States Department of Agriculture (USDA) and the North Central Soybean Research Project (NCSRP) funded the establishment of sentinel plots in Iowa and across the midwestern and southeastern United States. Perhaps you have logged on to [www.sbrusa.net](http://www.sbrusa.net) to watch the national map that shows the results of scouted sentinel plots and locations where soybean rust has been found. This year's warm, dry weather was not conducive to disease development. Nevertheless, rust was found on soybeans in 25 different counties in seven states: Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas by September 8.

Rust did not come close to Iowa, but we remained vigilant because this is a new disease and we could not be certain of its progress.



**Sentinel plot at Castana. Two maturity groups were planted at different times. The difference in plant height is due to different planting dates. Castana was extremely dry during June and July. The plants survived the drought but did not grow tall. (Ralph von Qualen)**

We are sincerely grateful to those who assisted in putting out Iowa's 21 sentinel plots. They are:

Cooperator	Location
ISU Curtiss Research and Demonstration Farm	Ames
ISU Western Research and Demonstration Farm	Castana
ISU McNay Research and Demonstration Farm	Chariton
ISU Armstrong Research and Demonstration Farm	Crawfordsville
ISU Muscatine Island Research and Demonstration Farm	Fruitland
ISU Neely-Kinyon Research and Demonstration Farm	Greenfield
Croplan Genetics	Harlan
Croplan Genetics/West Central Cooperative	Jefferson
ISU Northern Research and Demonstration Farm	Kanawha
Kevin Greiner	Keota
ISU Armstrong Research and Demonstration Farm	Lewis
UAP Midwest	Mediapolis
ISU Northeast Research and Demonstration Farm	Nashua
Croplan Genetics	New Hampton
Allee ISU Research and Demonstration Farm	Newell
Arnie Shirley and Cornerstone Seeds	Sidney
Croplan Genetics	Sioux Center
Croplan Genetics	Slater
Croplan Genetics	Springville
ISU Northwest Research and Demonstration Farm	Sutherland
Croplan Genetics	Webster City

We needed these cooperators to put out the plots, but what made these plots effective was the close monitoring they received throughout the growing season. Trained professionals closely scouted these 21 locations for any signs of rust. We carefully inspected each plot every week. Diseases that were commonly seen in the plots were brown spot, bacterial blight, downy mildew, Cercospora leaf blight, and frogeye leaf spot. The results of these efforts were regularly posted on the USDA's sbrusa Web site.

Many thanks go to the field crop specialists who added weekly visits to sentinel plots to their already busy schedules. Without their assistance it would have been difficult to scout all the plots. ISU field crop specialists who helped in this regard are Mark Carlton, George Cummins, James Fawcett, John Holmes, Brian Lang, and Virgil Schmidt. Researchers from ISU's Department of Plant Pathology also scouted plots. We are sincerely grateful to everyone who helped in this important effort.



**Two photos of the sentinel plot at Allee Farm near Newell, Iowa. Two maturity groups were planted at different times so we could have soybeans at a reproductive growth stage early but continue to have green soybeans late in the season. In addition, rows of maturity group 7 forage soybeans were planted within the plots. In September the regular sentinel plot is approaching maturity, but the forage soybeans are 40 inches tall and just beginning to bloom. (Ralph von Qualen)**

We also used spore traps to learn whether any spores may have blown into our area.

Iowa's soybeans are no longer at risk for yield loss due to ASR. Nevertheless, researchers continue to monitor spore traps and some late planted long maturity group soybeans to learn whether any spores reach Iowa this fall.

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*Ralph von Qualen is an independent plant pathologist assisting with the sentinel plots. X. B. Yang is a professor of plant pathology with research and extension responsibilities in soybean diseases.*