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Media Contact: Martin Draper, National Program Leader, the USDA Cooperative State Research, Education and Extension Service, 202-401-1990, or mdraper@csrees.usda.gov

Online warning system saves farmers millions

A national warning system designed to help soybean farmers protect their crop from the devastating disease Asian Soybean Rust (ASR) has already saved millions of dollars. It will offer even more capabilities this year.

Asian soybean rust has struck nearly every continent, including Asia, Africa, Europe, South America and Australia. In November 2004 ASR rode hurricane Ivan into the southern U.S from South America, where it had caused crop yield losses of up to 80 percent. This invasion threatened the U.S. soybean crop, valued at more than \$19 billion.

The best defense a soybean farmer has against ASR is to apply a fungicide before disease symptoms appear. The dilemma the farmer faces is whether to spray the crop as a preventative measure when he is not even sure if the disease is present. This may cost each farmer thousands of dollars in fungicide and application costs. On the other hand, withholding treatment and betting that the disease has not reached his fields risks the loss of his entire crop. If the farmer had some information indicating the likelihood of disease presence, he could make more effective decisions. A new national online warning system provides that information.

The Integrated Pest Management Pest Information Platform for Extension and Education (IPM PIPE) began shortly after ASR was found in the US. The web-based system uses pest and crop data from sentinel plantings located from the Gulf Coast to the Canadian border, and from New Jersey to Oregon. Sentinel plantings are monitored by agricultural experts, and their findings are entered into a national database. Analysis of maps generated from that data along with weather information can inform farmers and farm advisors if the soybean rust disease is likely to affect the crop.

“Soybean farmers, co-ops and dealers have accessed the website thousands of times for real-time pest information since the site first became available in 2005,” said Don Hershman, Extension Plant Pathologist at the University of Kentucky and Chairman of the national IPM PIPE Steering Committee.

The ASR fungus does not survive the harsh northern winters, so it must restart its northerly invasion from the extreme southern regions of the US and Mexico each spring. How fast it spreads depends on many factors, including temperature, crop development, air movement (wind) and sunlight. The IPM

PIPE monitors and analyzes these factors to help plant pathologists predict disease spread.

Since the first US find of ASR in Louisiana, growers throughout the soybean belt have been prepared to apply fungicides if necessary. Even though ASR has the ability to be carried all the way to Canadian soybean fields, the IPM PIPE has shown that so far only fields in southern states – representing a relatively small portion of national production – have been at the greatest risk from this disease. Growers in most of the production belt, armed with disease location information and expert commentary provided with the maps, have been able to save large sums by forgoing unnecessary fungicide treatments. According to the USDA's Economic Research Service (ERS), savings attributable to the use of IPM PIPE during the 2005 season alone were as high as \$299 million. A similar savings presumably occurred during the 2006 season. Heyward Baker, from the USDA Risk Management Agency, the agency that manages the crop insurance system, touts IPM PIPE's grower tools for documenting their production practices.

"The Management Toolbox hosted on the site provides soybean growers with local guidelines for managing the disease and a good farming practices tool to aid in crop insurance claims," said Baker.

So far we have been fortunate that ASR has not infected very many of our farms. Experts expect, though, that sometime soon environmental conditions will allow the disease to invade more soybean growing states early in a growing season when real damage can be done to the crop. If that happens, the IPM PIPE will function as our early warning system, helping growers to correctly decide if and precisely when control applications must be made.

The development and maintenance of the IPM PIPE is the result of an unprecedented level of collaboration among government agencies (USDA Risk Management Agency; USDA Animal and Plant Health Inspection Service; USDA Cooperative States Research, Extension and Education Service; many state Departments of Agriculture), farm organizations (United Soybean Board, North Central Soybean Research Program, state grower associations), agricultural businesses and land grant universities.

The success of IPM PIPE has proven that U.S. agriculture can benefit from this technology and the organizations that support it. For the 2007 season the IPM PIPE will be expanded to cover other crops and pests. In soybeans, an invasive insect pest, the soybean aphid, will also be tracked. In other legumes including dry beans, chick peas and lentils, plant viruses and other fungal diseases will be tracked.

The future is bright for IPM PIPE. As it expands to more crops and pests, IPM PIPE will become an every-day resource for farmers, making U.S. agriculture

more efficient. An efficient agriculture means better profits for farmers, reasonable food prices for consumers and a healthier environment.

To see the IPM PIPE in action, visit the website at <http://www.sbrusa.net>. There you will find the real-time maps showing recent confirmed finds of soybean rust, weather information, national and state expert commentary, and more. For more information, contact Martin Draper, National Program Leader at the USDA Cooperative State Research, Education and Extension Service at 202-401-1990, or mdraper@csrees.usda.gov.