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Soybean rust and organic soybean production

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Abstract
The Iowa State University (ISU) Organic Ag Program has been asked to respond to the discovery of Asian soybean rust in the United States and how it relates to organic growers. The United States Department of Agriculture (USDA) announced the discovery of rust in Louisiana on November 10, 2004, and in the following weeks, the disease was found in eight additional states in the southern United States (see Figure 1). Iowa has approximately 60,000 acres of organic soybeans and all soybean growers are concerned about the prospect of rust appearing in Iowa in 2005.

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The Iowa State University (ISU) Organic Ag Program has been asked to respond to the discovery of Asian soybean rust in the United States and how it relates to organic growers. The United States Department of Agriculture (USDA) announced the discovery of rust in Louisiana on November 10, 2004, and in the following weeks, the disease was found in eight additional states in the southern United States (see Figure 1). Iowa has approximately 60,000 acres of organic soybeans and all soybean growers are concerned about the prospect of rust appearing in Iowa in 2005.

Varietal screening done in quarantine by the USDA reveals that virtually all the existing commercially grown soybean cultivars are susceptible. Sources of resistance to the prevalent natural populations of soybean rust have been identified. A number of different synthetic fungicides are known to be effective in rust management, but organic management has not been sufficiently studied due to the absence of the disease in the United States.

In May 2005, all available organically approved materials (copper, sulfur, hydrogen peroxide, and other naturally based materials) will be tested for efficacy against soybean rust. Tests will be conducted at the University of Florida where the disease was detected in 2004. The chances of finding a material as effective as the already-identified synthetic fungicides is not good, however. Organic farmers will need to identify the use of any fungicide in their organic plans for their certifying agency. Organic farmers, like conventional soybean farmers, will need to do a risk/benefit assessment and determine if economics favor spraying any materials if the disease is found in Iowa. Iowa State University will determine costs of materials for organic producers and help in developing best methods for dealing with this disease if it is found. Longer crop rotations and compost applications can assist with general disease management--the long-term effect of these strategies for soybean rust is not known at this time.

Soybean rust may or may not find its way to Iowa organic soybean fields this year. "Soybean rust will not overwinter in Iowa. We will have to wait for the spores to travel from the South every season. It's too early to make predictions, but we need to make predictions based on spring rust occurrence in the South and early summer weather systems, such as tropical storms, that may influence its travel," said X. B. Yang, plant pathologist at ISU.
ISU has developed a rapid analysis system if you find a suspicious leaf. The Iowa Fast Track System was developed to speed up reporting of soybean rust. Producers submit samples to first detectors at no cost. First detectors send suspect samples to triage personnel, who are Iowa State Extension field staff, for further diagnosis. The triage person then forwards suspect samples to the Iowa State University Plant Disease Clinic. There is no charge to producers for samples submitted through this system.

Extensive surveys of soybean and various legume hosts for Asian soybean rust will be carried out in Iowa, beginning in 2005. The Iowa State University Organic Ag Program will continue to provide updates as information is gained through USDA, ISU, and other university sources. Additional information about the Iowa State University Organic Ag Program [3] is available.


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