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Soybean rust: Are we out of the woods?

X. B. Yang
Iowa State University, xbyang@iastate.edu

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Abstract
In the discussion board portion of a website, I recently read a message with a similar subject title by a producer. This question is also one producers in the North Central Region are asking because of the light occurrence of soybean rust this past season. Development of the disease was surprisingly slower than most of us had anticipated. In this article, I will address the questions raised by producers by reviewing what we learned this past growing season, which was summarized during the National Soybean Rust Symposium held last month.

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Soybean rust: Are we out of the woods?

by X. B. Yang, Department of Plant Pathology

In the discussion board portion of the Stoprust.com Web site, I recently read a message with a similar subject title by a producer. This question is also one producers in the North Central Region are asking because of the light occurrence of soybean rust this past season. Development of the disease was surprisingly slower than most of us had anticipated. In this article, I will address the questions raised by producers by reviewing what we learned this past growing season, which was summarized during the National Soybean Rust Symposium held last month.

Where was rust found in 2005? The disease was first detected in late February in central Florida. To everyone's surprise, the disease spread slowly early in the growing season and widespread disease wasn't detected until late August. The severity of the disease was less than reported during the 2004 season. No rust was found in Missouri this year; however, the disease did reach Kentucky and Texas, as far north as and further west than last year. The drought in areas of the Midwest may have contributed to the slow development of soybean rust.

What's new this season? To many scientists, finding soybean rust in Texas is considered important to spore movement toward the northern production region if the disease eventually establishes there, which will be known after this winter. It will be easier for spores to spread north if significant disease occurs there next spring. This past season, two separate spore trapping networks, one led by the United States Department of Agriculture (USDA) Rust Lab in Minnesota and another by the University of Arkansas, found spores moved out of Florida and reached as far north as Wisconsin. Since the USDA team uses the DNA approach, it is a sure thing that spores can reach the northern region. However, the presence of spores does not necessarily mean there is an outbreak of the disease. We don't know if these spores remain alive after long-distance travel and if they can establish after depositing on soybean crops.

In 2005, the disease developed slower than anticipated in kudzu plants in southern states compared with those in South America, which is good news. If such slow development is due to the biology of the U.S. kudzu and not the drought, the risk of soybean rust in the northern region is reduced significantly. We need another year to reach a conclusion.

2005 sentinel plot in Florida. ***(X. B. Yang)***

Why is it too early for a conclusion? Because this past season was very dry and unfavorable for disease development, it is too early to conclude that slow development was due to the biological nature of the pathogen and its unsuitability to the Midwest climate rather than dry weather conditions. Some think the disease is a tropical disease and would not develop in the northern soybean production region. A counter argument is that southern corn rust is also a tropical disease, but it can periodically cause damage in the Corn Belt. In a recent journal article, soybean rust was compared with other rust diseases in the Midwest in terms of temperature suitability. Development of soybean rust is much slower than wheat leaf rust and common corn rust but similar to southern corn rust. Besides temperature and leaf wetness, which seem generally suitable for soybean rust in the North Central Region, other factors may affect the disease, such as rain. Every disease has its unique epidemiological nature; plant pathologists are still investigating factors affecting the development of soybean rust. Without knowing what determines its slow development, we are unable to make a no-risk prediction for the northern soybean production region, which accounts for more than 70 percent of the nation's soybeans.

In the past season, the national soybean rust sentinel plot program was successful in providing producers with early warning information. At the National Soybean Rust Symposium, the general message was that we should continue to monitor the development of soybean rust using the program. A monitoring system is being developed for the next growing season with funds from the federal government, industry, and check-off dollars.

What is the risk for next season? With our current knowledge of soybean rust, the way to assess the risk next season should be similar to what was recommended last year (refer to the February 28, 2005, special issue of the *ICM Newsletter*). The analysis is in three phases: (1) March or early April, check the overwintering status of soybean rust in the Gulf Coast region. Overwintering in regions west of the Florida Panhandle increases the risk of spores spreading to the North. (2) April to June, watch for outbreaks of soybean rust in regions from west of the Florida Panhandle to Texas. If they occurred, the risk for spores to move north is high. (3) July and August, if the weather conditions in the northern soybean production region are cool and wet, make sure you monitor the crops because these conditions are suitable for the disease to occur.

What is different this year is that we should pay extra attention to Texas. If the disease can overwinter there, the risk for spores to move to the northern region increases. However, keep in mind that whether the spores can establish and develop in soybean fields is yet to be determined by seasonal conditions.

X. B. Yang is a professor of plant pathology with research and extension responsibilities in soybean diseases.

Announcements

Continuing instructional courses for spring 2006

by Keven Arrowsmith, Extension Communications

Iowa State University's Pest Management and the Environment (PME) program provides training and certification for commercial applicators in Iowa through its Continuing Instructional Courses (CIC). Pesticide use in Iowa is regulated under the "Pesticide Act of Iowa," Chapter 206 of the Code of Iowa. Commercial applicators are divided into categories. An applicator must be certified in each category he or she will be applying pesticides under. Four CICs are scheduled for spring 2006:

Commercial Ag Weed, Insect, and Plant Disease Management—February 15, 2006
Categories 1A, 1B, 1C, 10

Seed Treatment—February 22, 2006
Categories 4, 10

Ornamental and Turf Applicators—March 9, 2006
Categories 2, 3O, 3T, 3OT, 10

Certified Handlers—March 17, 2006
Category Handlers, 10

All certified applicators receive a small postcard in the spring and in the fall listing commercial applicator programs and dates. Applicators also receive a large postcard for the categories they are certified in. The large postcard gives the date, time, and list of counties offering the program.

If you would like more information about the available CICs or would like to obtain a CIC registration form, visit the PME program Web site at **www.extension.iastate.edu/PME** or visit your local county ISU Extension office. If you have specific questions about the PME programs, please contact Beth Minner at (515) 294-0397 or by e-mail at **bminner@iastate.edu**.

Keven Arrowsmith is managing editor of ICM Newsletter *and extension communications specialist with responsibilities in pest management and the environment.*