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Monitoring soybean rust

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Monitoring soybean rust

Abstract

After the discovery of soybean rust, the United States Department of Agriculture and scientists from land grant colleges worked together to create a system that would monitor the development and increase of soybean rust in North America. In 2005, soybean rust sentinel plots were first used to track the progress of soybean rust. Soybeans, kudzu, and other susceptible crops at representative locations were closely watched for any evidence of disease, results were posted on the Internet, and researchers spoke together in a weekly teleconference to share observations. The use of sentinel plots proved to be an effective tool. Sentinel plots were used in 2006, and this year, Iowa will have 20 sentinel plots.

Keywords

Plant Pathology

Disciplines

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Monitoring soybean rust

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

After the discovery of soybean rust, the United States Department of Agriculture and scientists from land grant colleges worked together to create a system that would monitor the development and increase of soybean rust in North America. In 2005, soybean rust sentinel plots were first used to track the progress of soybean rust. Soybeans, kudzu, and other susceptible crops at representative locations were closely watched for any evidence of disease, results were posted on the Internet, and researchers spoke together in a weekly teleconference to share observations. The use of sentinel plots proved to be an effective tool. Sentinel plots were used in 2006, and this year, Iowa will have 20 sentinel plots.

The results from scouting the sentinel plots are posted at www.sbrusa.net. At the site, producers will see a map of the United States with some green and red spots. The green spots represent counties where sentinel plots have been scouted, but no soybean rust was found. The red spots represent counties where sentinel plots have been scouted and soybean rust was found. By clicking on an individual state, producers will get a summary of findings and advisories for farmers in that particular state. Want a closer view of the map? Click on one of the magnifying glasses just above and to the left of the map. The map can be magnified to the state or county level.

Do you want to know where these counties are in relation to cities or highways? Click on the drop-down menu on top of the map (to the right side and labeled "overlay") to see these features or see where the plots are in relation to the soybean growing regions of the country.

This map also may be used to learn where soybean aphids have been found. In the upper right-hand corner of the page, click beneath the drop-down menu that says "legumes/kudzu" and click on the drop-down menu that says "soybean rust" and select "soybean aphid."

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*2006 sentinel plot from northwest Iowa showing the different maturities of soybeans in plots.
(Ralph von Qualen)*

In addition to the sentinel plots, there are two spore traps in Iowa. One is located at the southeastern agricultural research farm and the other at the southwestern agricultural research farm. Slides from these spore traps are collected and studied each week to determine if any rust spores are present in Iowa. One should be cautious when interpreting a positive report of spores. Keep in mind that the spore traps cannot determine whether spores are alive or dead. Spores do not survive long in sunshine, so spores that are windblown are often not infectious unless they were protected from the sun by clouds and rain. An infectious spore requires conducive conditions (cool and wet conditions) and a susceptible host in order to cause disease. Nevertheless, these spore traps will be helpful in determining when and if Iowa soybeans may be at risk.

The presence of soybean rust in North America is a cause for concern and vigilance. With experience from the past two years, we now know that soybean rust will not be present in Iowa every year. Researchers use tools like the sentinel plots and spore traps to give producers the best possible risk assessment and advice regarding whether or not they should use a preventive fungicide treatment.

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.

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