

Louisiana Soybean Rust Detection

Q: Where has soybean rust been detected in the continental United States?

A: *Phakopsora pachyrhizi*, or soybean rust, was confirmed on November 9 in two research plots associated with Louisiana State University's research farm located approximately three miles from the main campus in Baton Rouge, Louisiana.

Q: What methodologies were used to positively identify the pathogen affecting the suspect samples as soybean rust? And, what does that testing process involve?

A: USDA scientists with APHIS' National Plant Germplasm and Biotechnology Laboratory in Beltsville, Maryland, confirmed the presence of soybean rust using polymerase chain reaction (PCR) and morphological testing. PCR testing is simply a DNA test. In using PCR techniques, DNA is extracted from spores or infected leaf samples, subjected to PCR, and then ground and purified before being analyzed for the presence of key diagnostic sequences of DNA that distinguish soybean rust from related species. Morphological testing is simply a microscopic examination of the spores or lesions on infected leaf samples. The testing process is generally completed within 24 hours.

Q: What is soybean rust?

A: Soybean rust is caused by either of two fungal species, *Phakopsora pachyrhizi*, also known as the Asian species, and *Phakopsora meibomia*, the New World species. Affected plants are quickly defoliated, resulting in reduced yields and seed quality. Soybean rust has devastated soybean crops in many parts of the world, with reported yield losses as high as 80 percent in some afflicted areas of Africa and South America. The Asian species of soybean rust is the species detected in Louisiana.

Q: How is soybean rust spread?

A: Soybean rust is a fungus, spread primarily by windborne spores that can be transported over long distances. Seed-borne transmission has not been documented. Clouds of spores are released if infected plants are disturbed by wind or by individuals walking through rust-infested areas.

Q: What is believed to be the source of infection for the recent detection?

A: APHIS has dispatched its Soybean Rust Detection Assessment Team to work closely with state officials to determine the nature and extent of infection. An exact source of infection may never be known, but a probable explanation is the spread of the disease from South America to the United States during the active hurricane season.

Q: What steps is APHIS taking to control or prevent the further spread of soybean rust in the United States?

A: At present, APHIS has dispatched its Soybean Rust Detection Assessment Team to determine the nature and extent of infection. Because soybean rust is spread via wind currents, quarantining the area will not be effective to contain the disease. In preparation for the possible introduction of the disease, APHIS had been working with industry groups and its sister agencies, Agricultural Research Service and Cooperative State Research, Education and Extension Service, to educate soybean producers nationwide on how to identify the disease and report suspected finds. With the soybean harvest in Louisiana complete and the detection of the disease in a research plot, this is the best possible time for the introduction. Now that we have detected the disease, we can better prepare growers for the upcoming season.

Q: Is the detection of soybean rust expected to impact the trade of U.S. exports?

A: No. USDA does not anticipate any effect on exports. The disease occurs in most areas where soybeans are grown: Asia, Australia, Africa, and South America Hawaii. The New World Species is also found in the Caribbean. Despite the presence of soybean rust, many of these countries export soybeans.

Q: Can soybean rust be controlled to minimize potential impacts?

A: Yes. Soybean rust can be managed with the judicious use of fungicides. However, early detection is required for the most effective management of soybean rust. Fungicide applications can reduce yield loss depending on the developmental stage of affected plants, the time when soybean rust is detected, and the fungicide application method. For efficacy information on fungicides labeled for use on soybeans, consult university extension personnel in your state.

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