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## Homeland Security status of ASR

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# Homeland Security status of ASR

## **Abstract**

Asian soybean rust (ASR) is listed in the Code of Federal Regulations (7 CFR 331) as a biological agent (see definition at the end of this article). This means possessing, using, and transferring anything infected with the fungus that causes the disease is currently regulated by federal law. Biological agents that affect agriculture can only be possessed by permitted entities with appropriate containment facilities and are governed by the United States Department of Agriculture (USDA).

## **Disciplines**

Agriculture | Plant Pathology

reduction because of a reduction in the number of filled pods, number of filled seeds, and a reduced seed size. Data from China show soybean rust reduces yield mostly through reduction in seed number and seed weight with moderate disease pressure. When rust was severe from the early reproductive stage, the number of pods was reduced. If an ASR epidemic occurs in Iowa, it is unlikely to attack soybean in early reproductive stages. This is more likely to affect seed weight and seed number.

As the soybean plant matures past R6 (full seed), the potential degree of yield reduction by ASR gradually declines. After R6, stress may cause yield reductions mostly by reducing seed size, but also by reducing pods

per plant and beans per pod. Yield reductions from stress occurring late in R6 are much smaller because the seeds have already accumulated a sizable portion of their mature dry weight. Stress occurring at R7 (physiological maturity) or thereafter essentially has no effect on yield. The influence of ASR on seed quality is not as clear since it is influenced by the timing, severity, and duration of the infection. No reports from Brazil indicate that ASR influences grain quality.

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## Plant Diseases

# Homeland Security status of ASR

by Robin Pruisner, Iowa Department of Agriculture and Land Stewardship

Asian soybean rust (ASR) is listed in the Code of Federal Regulations (7 CFR 331) as a biological agent (see definition at the end of this article). This means possessing, using, and transferring anything infected with the fungus that causes the disease is currently regulated by federal law. Biological agents that affect agriculture can only be possessed by permitted entities with appropriate containment facilities and are governed by the United States Department of Agriculture (USDA).

However, that status is about to change. Following the confirmation of ASR in the United States in November 2004, the USDA began the process of removing ASR from the biologic agent list. Normally, the delisting of a biologic agent would take years, but the final rule was still in process. The USDA had an opportunity to amend it before finalization, effective upon signature by the APHIS administrator Ron Dehaven, with publication in the Federal Register at a later date. The final rule is to be released by the Office of Management and Budget very soon.

What does the delisting mean to Iowa producers? Once delisted, ASR is on equal footing with any other commonly occurring crop disease. Researchers wishing to move the pathogen across state lines need to apply for a USDA permit to do so. This will allow field research on control and prediction strategies here in the United States. Up until now, all research on this disease was being conducted in other countries. The delisting will allow researchers to polish recommendations best suited for the distinct environmental characteristics in the United States.

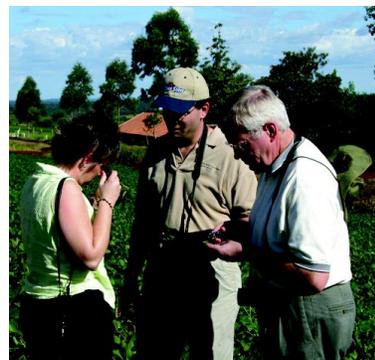
If ASR infects Iowa fields in the 2005 crop season, producers do not need to treat the crop as if it were a regulated pathogen under U.S. Homeland Security.

According to the Code of Federal Regulations, a biological agent is any microorganism (including, but not limited to, bacteria, viruses, fungi, rickettsiae, or protozoa), or infectious substance, or any naturally occurring, bioengineered, or synthesized component of any such microorganism or infectious substance, capable of causing:

- Death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism
- Deterioration of food, water, equipment, supplies, or material of any kind
- Deleterious alteration of the environment.

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Left: Robin Pruisner, Iowa Department of Agriculture and Land Stewardship, John Kennicker, ISU Extension field specialist for crops, and Craig Grau, professor of plant pathology, University of Wisconsin, examine soybean leaves possibly infected with rust spores in Brazil, February 2005. (Palle Pedersen)