

# Asian Soybean Rust Sentinel Plots in Louisiana for 2006

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## Introduction

Asian soybean rust (ASR), caused by *Phakopsora pachyrhizi*, was first discovered in North America just south of Baton Rouge, LA on the Ben Hur Research Farm of the LSU AgCenter. This discovery changed the dynamics of disease management in soybeans throughout the United States but especially in the southern US soybean production area.

Scouting for diseases in soybeans has always been emphasized within an integrated disease management system since the beginning of the monoculture of soybeans in the region. Since the beginning of production several diseases have become very important. Those include, but are not limited to: aerial blight, pod and stem blight, anthracnose, frogeye leaf spot and cercospora blight. Scouting techniques have been developed for the diseases so that they could be found easily and dealt with appropriately. The discovery of ASR in the US required a new method of scouting. The method covered great geographic areas in a short time, which brought about ASR sentinel plots. Louisiana had fifteen (15) CSREES-sponsored sentinel plots during the 2006 soybean season. ASR was detected in the first one on July 26, 2006 at Alexandria. Eventually ASR was found in all sentinel plots except the ones in Caddo and Plaquemines Parishes.

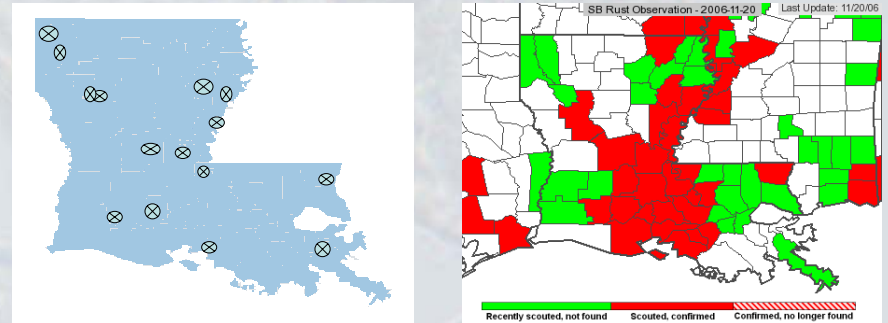


Figure 2. Louisiana Sentinel Plots, 2006 and, in red, parishes in which ASR was found.

Soybean sentinel plots were established in fifteen (15) locations in Louisiana. Each location was either on an LSU AgCenter research station or in a soybean production field. All sentinel plots were established in soybean production areas except in Plaquemines Parish. Plaquemines Parish is located in the southeastern section of the state and includes the mouth of the Mississippi River. This location was chosen for the possible exposure to spores coming across the Gulf of Mexico originating in the Caribbean, Mexico or southern Florida.

At each sentinel location two soybean varieties, representing maturity groups IV and V, were planted in 50 X 50 foot plots. These were planted two to three weeks ahead of the local commercial soybean plantings so that the sentinel varieties could be rust indicators assuming greater susceptibility in sentinel soybeans as they approached the reproductive stages.

Sentinel plots were visited each week during the season and after true-leaf establishment, random leaf sampling was made from both varieties. At each visit fifty (50) leaves were collected from each variety at each location. Samples were placed in plastic bags, labeled, kept cool, incubated approximately 72 hours and then examined under high magnification with a dissecting scope.

Positive finds in a sentinel location increased the survey of adjacent commercial soybean fields and aided soybean extension faculty determine the need for continued survey, fungicide advisories or both. During the 2006 season 24 Louisiana parishes were found to contain Asian soybean rust.

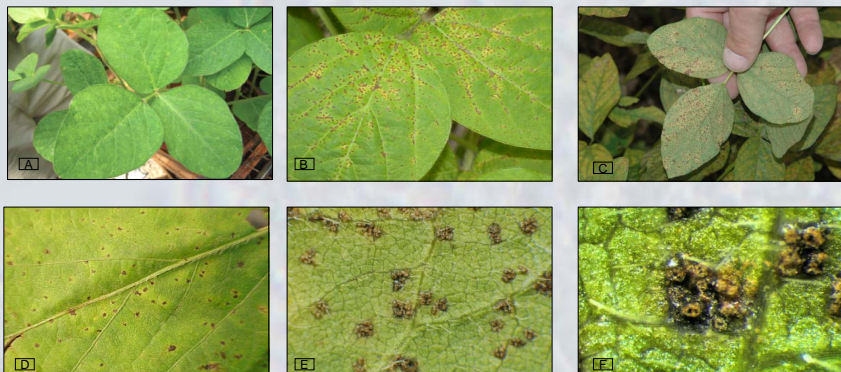


Figure 1. Asian soybean rust (ASR) identification. Early (A) and progressed (B) symptoms of ASR on upper leaf surface; advanced stage of disease development on lower leaf surface (C). Close-up of the symptoms (D); uredia of *P. pachyrhizi* (E); uredia ruptures releasing numerous urediospores (F). Image (A) courtesy of USDA-APHIS.