

Foliar Disease Assessment: A Benefit of the Soybean Rust Sentinel Plot Network in New York

Gary C. Bergstrom, Mary E. McKellar, Molly Swartwood, Kari Richards and Karen Snover-Clift, Department of Plant Pathology, Cornell University, Ithaca, NY



Introduction

Nineteen sentinel plots were monitored on a weekly basis from late June through September 2006 throughout the major soybean production areas of NY State. The sentinel network in New York is a cooperative venture of USDA, Cornell University, Cornell Cooperative Extension, private industry, and state government.



Figure 1. Symptoms of bacterial pustule on soybean. (Photo Mary McKellar, Cornell University)



Figure 2. Symptoms of downy mildew on soybean. (Photo Gary Bergstrom, Cornell University)



Figure 3. Symptoms of Septoria brown spot on soybean. (Photo Tom Zitter, Cornell University)

In addition to providing the New York soybean industry with an early detection and communication system for Asian soybean rust, the sentinel plot network also serves as a focal point for assessment and communication of broader pest management issues affecting soybean production. The NY State Soybean Rust Sentinel Plot Monitoring Network fulfilled three major objectives as outlined in this poster.

Objective 1: Provide early regional detection of Asian soybean rust in New York State.

•Nineteen sentinel plots (50 x 50 ft areas within commercial soybean fields) were monitored on a weekly basis from late June through September within 17 New York counties following the 2006 USDA Soybean Rust Scouting Protocol Guidelines.

•Asian soybean rust was not detected in New York in 2006.

•*Phakopsora*-like spores were detected in aerial spore traps in central New York from late July through early November (Figure 4). This suggests that atmospheric pathways exist for introduction of the live pathogen eventually, and thus justify continued monitoring for rust in 2007.



Figure 4. Loading the spore trap provided by Syngenta. Slides were assayed at the University of Arkansas. (Photo Gary Bergstrom, Cornell University)

Objective 2: Foster a network of cooperators for rapid communication of the occurrence of soybean rust and other foliar soybean diseases throughout New York State.

•Thirteen Cornell Extension Educators and others (table 1) volunteered their time to scout for soybean rust on a weekly basis over the growing season in a total of 16 sentinel plots. Three other plots were monitored by Cornell student employees.

•An initial volunteer coordination meeting for soybean rust scouting was held in April 2006.

•Monthly conference calls were held with the volunteer scouts throughout the growing season to answer questions and relay disease findings.

Table 1. Sentinel Plot Cooperators

New York County	Cooperator
Cayuga	Chanda Lindsay/ Brian Aldrich
Chautauqua	Dean Sprague
Chemung	Martin Vandergrinten, USDA-NRCS
Chenango	Kevin Ganceo
Genesee	Nancy Glazier
Jefferson	Mike Hunter
Montgomery	Kevin Ganceo
Herkimer	Kevin Ganceo
Oneida	Jeff Miller
Onondaga	Joseph Lawrence Bob Dewaine, Monsanto
Ontario	Monsanto
Oswego	Jule Dennis
Seneca	Mike Dennis
Wayne	Mike Stanyard
Wyoming	Bruce Tillapaugh
Columbia	Ken Wise

•The NY State Soybean Rust Information Center Website (www.ppath.cornell.edu/soybeanrustny) was updated weekly to biweekly with national and state information on soybean rust and other foliar soybean diseases.

Objective 3: Assess the spatial and temporal development of other foliar diseases of soybean in New York State.



•Septoria brown spot (Figure 3), downy mildew (Figure 2) and bacterial pustule (Figure 1) occurred widely. (Figure 5)

•Low levels of bacterial blight and frog-eye leaf spot were also observed. (Figure 6)

•*Alternaria* leaf spot and mosaic symptoms associated with *Alfalfa mosaic virus* were each confirmed in single locations. (Figure 6)

•Despite normal temperatures and the highest average rainfall (16.9 inches) ever recorded for June-August in NY State, foliar diseases were not severe in any sentinel plot.