Overview of Field Surveys for Crop Disease in South-Central North Dakota

G.J. Endres, J. Schneider, M.V. McMullen, and A.H. Lamey

During the 2000 growing season, field surveys were conducted in North Dakota by the NDSU Extension Service to identify primarily disease in small grain, canola, and sunflower. Carrington Research Extension Center employees Jerry Schneider, crop scout, and Greg Endres, area specialist/cropping systems, conducted the surveys primarily in the south-central portion of the state in cooperation with Drs. Marcia McMullen and Art Lamey, Extension plant pathologists. The following discussion will briefly describe the targeted pests and results from the survey work conducted by the Carrington Center staff.

The **small grain** survey was conducted from early June to early August in 15 counties in the north central, central, south central, east central, and southeast North Dakota crop reporting districts. A total of 272 commercial fields including winter and HRS wheat, durum, and barley were scouted. The primary focus of the survey was to observe leaf and head disease, but also included insects (aphids, cereal leaf beetles, grasshoppers, wheat stem maggot, and others). Leaf rust was found in 56% of the scouted fields with an average flag leaf severity of 7%. Tan spot was found in 58% of the fields with an average flag leaf severity of 2%. Septoria leaf spot was found in 39% of the fields with an average flag leaf severity of 22%. Sixteen percent of the fields had loose smut and these fields had an average severity of 2.7%. In 75 fields scouted after flowering, 43% had glume blotch. Fusarium head blight (scab) was found in 76% of 154 fields scouted after flowering throughout the five reporting districts, averaging 4% field severity.

The **canola** disease survey was conducted during August 3-8 in Stutsman, Foster, Wells, and Sheridan counties. Ten swathed canola fields were examined in each county for Alternaria black spot, aster yellows, blackleg, and Sclerotinia stem rot (white mold). Sclerotinia was the only disease present at economic levels. Sclerotinia incidence averaged 23% infected plants in Stutsman County (range of 2-78%), 13% in Foster County (range of 2-23%), 9% in Wells County (range of 2-45%), and 12% in Sheridan County (range of 0-55%). For each 1% of sclerotinia incidence, about 0.7% seed yield loss may occur. As an example, the average sclerotinia incidence of 23% in Stutsman County would cause a potential yield loss of 16%.

The **sunflower** survey was conducted in September in a total of 43 commercial fields in northern Barnes, northern Stutsman, Foster, and Wells counties. Diseases monitored included Sclerotinia (wilt and head rot), leaf rust, Phoma black stem, and Phomopsis. Downy mildew also was monitored in 25 south-central ND fields during June. In addition, incidence of sunflower midge, based on head symptoms, was recorded. Average Sclerotinia incidence by county was 31% in northern Stutsman, 16% in northern Barnes, 17% in Wells, and 13% in Foster. Phoma black stem was the most common disease found in the survey, averaging 69% across the four counties. Phomopsis and downy mildew incidence was very low. Sunflower midge incidence in field interiors averaged 2 to 12% in the four-county area.

Survey details may be obtained by contacting the Carrington Center, Dr. McMullen, or Dr. Lamey. The survey data is used for grower education, support for labeling of crop protection products, and for directing research and extension programs. Annual field survey work with small grain will continue in the future. Canola and sunflower field surveys may continue if resources are available.