Small Grain, Oilseed and Dry Bean Field Surveys in South-Central North Dakota

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During the 2012 growing season, field surveys were conducted in North Dakota by the NDSU Extension Service to identify pest presence and agronomic production factors in small grain, soybean, sunflower and dry bean. State survey coordinators were Marcia McMullen and Sam Markell, Extension plant pathologists; Jan Knodel, Extension entomologist; and Carrie Larson, North Dakota Department of Agriculture plant protection specialist. Regional coordinator was Greg Endres, Extension area agronomist. Kyle Aasand, summer crop scout at the Carrington Research Extension Center (CREC), conducted the survey in 253 fields in 12 south-central counties (Burleigh, Dickey, Eddy, Emmons, Foster, Kidder, LaMoure, Logan, McIntosh, Sheridan, Stutsman, and Wells). Use of the survey data includes grower and agriculture industry education, reference for research projects, and support for exporting North Dakota crops.

Maps displaying summaries of survey results by crop and pest are available at the following website: www.ag.ndsu.nodak.edu/aginfo/ndipm. An example listed below is the season's summary of adult grasshoppers found in North Dakota.

The small grain survey was conducted in 81 **spring and winter wheat,** and 12 **barley** fields during late May through mid-July, primarily for leaf and head diseases. Diseases included in the survey were bacterial leaf blight, barley yellow dwarf virus, black chaff, ergot, rust (leaf, stem, and stripe), scab (Fusarium head blight), Septoria, smut (flag and loose), spot blotch, tan spot, and wheat streak mosaic virus. In wheat, tan spot was the most common fungal disease found throughout the season. Leaf and stripe rust, and scab were present in scattered fields. Common insects surveyed in small grain were aphids, wheat stem maggots, barley thrips and grasshoppers. Grasshoppers and aphids were commonly found throughout the region, with grasshoppers found at the start of the survey and aphids appearing during mid-June. Also,

insect traps were placed in four wheat fields for an exotic insect and soil samples for nematodes were collected from 12 wheat fields (one per county) for the North Dakota Department of Agriculture.

The **soybean** survey was conducted in 108 fields for soybean aphid, bean leaf beetle, spider mites and grasshoppers. Soybean aphids were commonly found but densities were well below the economic threshold (≤ 10 aphids/plant). Seventeen **dry bean** fields were scouted from mid-July to mid-August for anthracnose, leaf rust and bacteria blight. All fields were negative for the diseases.

The IPM survey included 35 **sunflower** fields during early July through mid-August to inspect plants for downy mildew and leaf rust, and grasshoppers. Downy mildew was found in about 30 percent of fields, while no rust was found. Banded sunflower moth, *Cochylis arthuri*, and sunflower moth pheromone traps were located at the CREC during early July through mid-August to monitor the emergence and presence of the insects.

Also, a fall **sunflower** field survey was conducted in September by the National Sunflower Association in cooperation with the NDSU Extension Service. Data recorded included plant population, row spacing, tillage system, estimated yield, and presence of or damage by weeds, insects, disease and birds. Greg Endres; Joel Lemer, Foster County Extension agent; Tim Becker, Eddy County Extension agent; Lindsay Maddock, Wells County Extension agent, and Penny Nester, Kidder County Extension agent, surveyed 10 fields (8 oilseed and 2 confection) in Foster, Kidder, Sheridan, Stutsman and Wells counties during September 11, 17 and 19. Across these fields, average seed yield was estimated at 1785 lbs/acre (range of 1300 to 2400 lb/acre). Sunflower stands averaged 25,300 plants/acre, with a range of 19,800 to 32,300 plants/acre. The majority of fields were conventional-till (60%) and planted in 30-inch rows (80%). Birds, drought and plant spacing within the row were the most common yield-limiting factors. Plant lodging was noted in 70 percent of fields, with a range of 1 to 8 percent. Diseases present in at least 50 percent of the fields included phoma, phomopsis, leaf rust and sclerotinia. Phoma was present in all fields, with plant incidence ranging from 2 to 100 percent. Phomopsis was found in 70 percent of fields with average number of infected plants across infected fields at 3 percent. Leaf rust was present in 80 percent of fields but at very low severity (0.1 to 0.5%). Sclerotinia (wilt, mid-stalk rot and head rot) was found in half of the surveyed fields, but with the exception of one field, incidence was only 1 to 3 percent.

Details from the field surveys may be obtained by contacting the CREC.