N.D. Wheat Midge Populations Increase Generally, Dramatically in Certain Areas

The latest wheat midge surveys reveal that a general increase in North Dakota's overwintering population occurred throughout the northern and central counties. But dramatic population increases occurred in Divide and Burke counties, where wheat midge had not caused significant problems during the past three years.

"The population increases in an area from Pierce to Dickey counties in the central part of the state are particularly alarming, from the standpoint that past economic infestations were more localized," says Phil Glogoza, entomologist with the North Dakota State University Extension Service.

These increases emphasize the need for all wheat growers to plan for potential wheat midge problems this coming season, Glogoza says. In particular, wheat producers in the northwest corner of the state and in western Benson and central Stutsman counties must plan for control in 1999.

"We are recommending that farmers in areas where cocoons exceed 1,200 per square meter consider growing wheat only if they are prepared to monitor their fields for the adult midge and only if they are prepared to budget for and make timely insecticide treatments where warranted," Glogoza stresses. "Without these measures, undetected or uncontrolled infestations may result in significant economic losses."

Areas where populations are above 500 midge larvae per square meter also will require close vigilance by wheat farmers. These larval populations can lead to major economic infestations if the wheat crop is heading during adult midge emergence, Glogoza says.

"Weather conditions in the spring and summer of 1999 will be very important in determining if economic injury will actually occur," Glogoza says. "If heading coincides with emergence of the midge and weather conditions are favorable for the female to lay eggs, producers will need to monitor fields to determine if a pesticide application is necessary. High soil moisture, warm and calm conditions, and high humidities all favor egg laying."

The best preventive action producers can take is to plant their wheat as early as possible this spring and select an early maturing cultivar suitable to their region. With early planting, wheat can reach the flowering stage before significant levels of midge have emerged, Glogoza explains. Wheat is susceptible to midge infestation from the time the head emerges from the boot until 80 percent of the primary heads have anthers visible.

"We had a great opportunity in 1998 with the warm spring and favorable planting conditions in April. Many growers who took advantage of those conditions had their wheat heading before significant midge emergence began," Glogoza says.

Unfortunately, last year's temperatures during April and May turned out to be too warm in some areas, and wheat midge development began two to three weeks earlier than the pattern established during the previous four years. As a result, some producers who had planted their wheat by the last week of April last year still faced the risk of midge infestations. In prior years, producers faced the greatest risk if they planted wheat during the last two weeks of May.

"Our planting date is still the best defense we have against wheat midge," Glogoza stresses. "By monitoring spring temperatures, we should be able to alert farmers to that time when planted wheat will be at greatest risk to midge," says Glogoza.

Wheat that goes in the ground prior to the accumulation of 200 degree days for insect development should be heading prior to significant midge emergence. This period usually runs from mid- to late-May, depending upon the area of the
state. Glogoza says the formula for determining degree days for insect development differs from the formula for crop development. Entomologists use 40 F for midge development rather than 32 F for wheat development to calculate degree days. So from a midge-management perspective, the high-risk window for planting wheat extends from 200 degree days to 600 degree days.

Producers who must plant during that high-risk window should stagger their planting dates. Glogoza says wheat producers who wait until 600 degree days accumulate before planting are running the risk of frost damage or greater losses due to barley yellow dwarf, a virus transmitted by aphids.

Other tactics wheat farmers may want to consider when planning for wheat midge management this year include increasing seeding rates and using tram lines. Increased seeding rates reduce tillering and secondary heading and promotes a window of time for heading and flowering that is narrower than normal, thereby limiting the time available for midge to deposit eggs on heads in a field, Glogoza explains. Tram lines, established at planting, permit easier use of ground application equipment if treatments are necessary later in the season.

Glogoza reminds wheat producers that peak midge activity occurs about 9 p.m., on evenings when air temperatures exceed 59 F and wind speed is less than 6 miles per hour. When temperatures are less than 59 F, or wind speed is greater than 6 miles per hour, adults are not actively laying eggs on the primary wheat heads.

The current wheat midge soil survey was based on soil samples taken last fall by county extension agents under the direction of NDSU entomologists. The North Dakota Wheat Commission provided financial support for the effort.

[EDITORS: for a color map of wheat midge infestation in North Dakota, contact your county office of the NDSU Extension Service, or call the Department of Entomology, NDSU, at 701-231-7581.]

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Survey of Wheat Midge Larvae in North Dakota Soil Shows Overwintering Midge Numbers Up for 1999*

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