Wheat Midge Outlook Good for North Dakota

The orange wheat blossom midge may be less of a problem for many of North Dakota's wheat producers during the 2000 growing season, says an entomologist with the North Dakota State University Extension Service. Based on results from the latest wheat midge survey, the overwintering population has declined, overall, compared to the 1999 population, but a few hot spots remain in northwestern North Dakota.

"It looks really good right now, but some of our samples detected high populations of midge in Burke and Divide counties," says Phil Glogoza, extension entomologist at NDSU. "Growers in this area really need to pay attention to what they're doing if they're going to grow wheat. Once again, 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."

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

"Weather conditions during the spring and summer 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, even in areas where the survey says populations are low, to determine if a pesticide application is necessary. High soil moisture, warm and calm conditions, and high humidities all favor egg laying."

As the wheat midge populations increased the past few years, so did one of the insect's natural enemies: a parasitic wasp that lays its eggs in the eggs of the wheat midge and whose larva then develops as the wheat midge develops. The parasite is helping reduce the wheat midge population.

Glogoza explains, "A midge larva that is parasitized will die in June. It will not become an adult. This parasite provides a direct benefit going into the subsequent growing season, but it does nothing to aid producers in the current year."

Once again, 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 an 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.

"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 on 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 (BYDV), a virus transmitted by aphids.

Last year, wet conditions in north central North Dakota forced many producers to plant wheat after 600 degree days had accumulated, and while this late-planted wheat flowered after the significant midge flights, much of it was significantly affected by BYDV.

Glogoza offers the following suggestions that farmers may want to consider when planning for wheat midge management this year:

- Consult with extension agents to determine the accumulation of degree days
- Listen to media reports and review other information sources that detail area-specific high-risk windows for planting.
- 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.
- Tram lines, established at planting, permit easier use of ground application equipment if treatments are necessary later in the season.
- 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.

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[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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Click here for a PDF version of this graphic. (49KB b&w map -- wheat midge survey)
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