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Wheat Midge Concerns Primarily in Northwest North Dakota

The orange wheat blossom midge outlook is positive for many of North Dakota's wheat producers for the 2001 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 increased slightly in northwestern North Dakota but has remained small in most of the eastern counties when compared to populations in the previous season.

"It looks really good right now. Our samples are still detecting some higher populations of midge in northwestern counties, but none of these were classified in the highest risk category," says Phil Glogoza, extension entomologist at NDSU. "Growers in McLean, Ward, Renville, and Mountrail counties saw some higher numbers of adult midge during the 2000 growing season and did some treating along with growers in Divide, Burke and Williams counties. This increased activity translates into some higher larval numbers in the statewide survey."

None of the more than 300 fields sampled in the survey had overwintering populations of wheat midge larvae exceeding 1,200 larvae per square meter. This level of midge has been critical in the past. Midge management recommendations suggest that when larval counts exceed 1,200, farmers should consider growing wheat only if they are prepared to monitor their fields for the adult midge and are prepared to budget for and make timely insecticide treatments where warranted.

"Unfortunately, the survey does indicate more of the wheat producing areas in the northwest are in the 200 to 500 larvae per square meter range than the 1999 survey," Glogoza says. "We also detected some midge population increases in southern Towner and northern Pierce counties."

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 are 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 develop as the wheat midge develops. The parasite is helping reduce the wheat midge population. It has regularly affected 40 percent of the overwintering larvae in areas where midge populations are the greatest.

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 current growing season, but it did nothing to aid producers in controlling midge in the past 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 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 are 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 before 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 degrees F for midge development rather than the 32 degrees F used 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.

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 promote 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 degrees F and wind speed is less than 6 miles per hour. When temperatures are less than 59 degrees, 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.

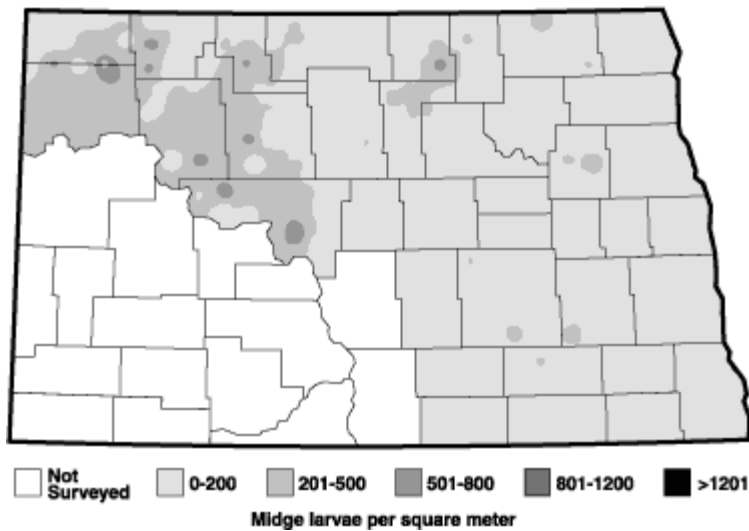
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[EDITORS: For a color map of wheat midge infestation in North Dakota, contact your county office of the NDSU Extension Service, or call the Department of Entomology, NDSU, at 701-231-7581]

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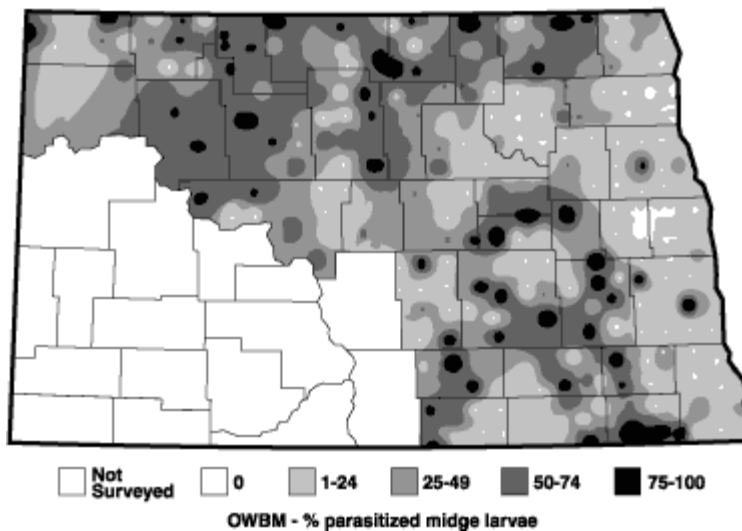
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2000 Wheat Midge Larval Survey



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2000 Wheat Midge Larval Parasitism (%)



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