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NDSU Entomologist Sees Low Risk of Wheat Midge Outbreaks in 2006

A soil survey conducted last year detected low levels of overwintering wheat midge larvae for the upcoming 2006 season, according to Janet Knodel, North Dakota State University Extension Service entomologist.

"This is good news for wheat and durum producers," Knodel says. "Wheat midge populations ranged from zero to less than 500 midge larvae per square meter, with most of the state having less than 200 midge larvae per square meter during 2005."

Areas with 201 to 500 midge larvae per square meter included southern Mountrail County, central McLean County and northwestern Towner County.

Fields with more than 1,200 midge larvae per square meter are considered high risk. At that point, some control tactic must be used to reduce midge populations.

There are several reasons for the decline in wheat midge populations. A majority of the 2005 wheat crop was planted early or late, avoiding the peak emergence period of adult wheat midge. Other factors included poor egg laying conditions, with night temperatures below 59 degrees and winds exceeding 6 mph, and a tiny, black parasitic wasp that helped control wheat midge populations.

This wasp, *Macroglanes penetrans*, parasitizes the wheat midge larvae and eggs and will emerge the following spring and kill the wheat midge larvae. Parasitism can range from 0 percent to 100 percent, with the higher rates occurring in areas where midge populations have been high the past few years. With the wheat midge population being low for the past several years, the survey is starting to observe a decline in the parasitic wasp population.

"Weather conditions and the stage of wheat will be important in determining if sporadic outbreaks of wheat midge will cause economic damage this year," Knodel says. "Environmental conditions favoring wheat midge development include moist soil conditions prior to emergence in late June to early July; warm, high humidity and light wind conditions during egg laying."

Economic injury still can occur if wheat or durum is in the susceptible stage (heading to 50 percent flowering) during wheat midge emergence and egg-laying. Damage can reduce crop yields and lower the grade of harvested grains.

Wheat midge was first detected in 1994 in the northeastern counties bordering Manitoba, Canada. Wheat midge continued to expand into the north-central region and eventually moved westward into northwestern North Dakota and Montana. Economic damage was

common in 1995 through 2001. However, for the past several years there has been a general decline in wheat midge populations, causing less economic damage to wheat and durum fields.

The wheat midge degree-day model developed by Canada has helped predict emergence and peak activity periods, as well as when field monitoring should take place.

"Careful, regular monitoring of wheat and durum fields is good insurance if your crop is susceptible (heading to early flowering) after wheat midge have emerged and are active," Knodel says. "Scout fields after 9 p.m. if the temperature is above 59 degrees and the wind speed is less than 6 mph. Count the number of adult wheat midge present on four or five heads at several locations and then use an average per field."

Economic thresholds are one midge per four to five wheat heads for hard red spring wheat and one midge per seven to eight heads for durum. At these levels of infestation, wheat yields will be reduced by 15 percent if the midge is not controlled.

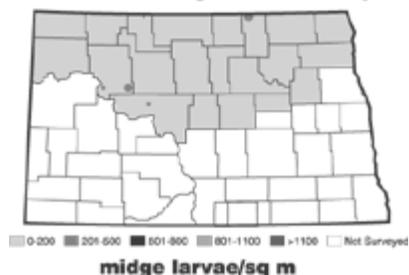
Not every small fly in the crop will be a wheat midge. Wheat midge is a small, fragile, orange-colored fly about 2 to 3 millimeters in size. Another small fly that is common in wheat fields is the lauxanid, which is larger (2.5 to 4 millimeters), more robust and yellowish brown. The wheat midge tends to flutter from plant to plant and rests with its head pointing skyward, while the lauxanid flies and rests in a horizontal position with its head pointing toward the ground.

The wheat midge survey is conducted by the NDSU Extension Service and supported by the North Dakota Wheat Commission.

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2005 Wheat Midge Larval Survey



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