Huge numbers of wheat midge lie in position to ambush the wheat crop in parts of northeastern and north central North Dakota, according to a new survey by the department of entomology at North Dakota State University.

In these areas more than 800 cocoons of the orange wheat blossom midge are strewn in every square meter of farm soil, on average. And in many spots the wheat midge density runs to more than 1,100 cocoons per square meter of soil.

Densities of just 600 cocoons per square meter can cause significant damage and economic loss to a wheat crop, according to Phillip Glogoza, entomologist for the NDSU Extension Service.

The biggest concentrations of wheat midge cocoons are in the same two regions where last year farmers suffered big losses from midge. One is a roughly circular area about 100 miles in diameter centered on the town of Hampden in northern Ramsey County. This hot spot includes major portions of Ramsey, Walsh, Pembina, Cavalier, Benson and Towner counties, and a bit of Pierce and Rollette.

The other large midge hot spot lies farther west, within a circle about 70 miles in diameter centered on a point near Mohall in Renville County. This area includes major portions of Renville, Bottineau and Ward counties and a bit of Burke.

The potential problem is so large that NDSU entomologists are advising farmers in the most heavily infested areas either to not plant wheat at all this year, or to prepare to do battle with midge by undertaking appropriate management measures.

"All wheat growers in North Dakota should plan on monitoring for wheat midge when wheat begins to head," says Glogoza. "Failure to do so could result in significant economic losses."

"In areas where the midge cocoons exceed 1,200 per square meter, farmers should seriously consider not growing wheat unless they are prepared to monitor for midge, and to budget for and make timely insecticide treatments where warranted."

Oilseeds and pulses are possible alternative crops, he says, and barley and oats can also be grown with little or no risk.

Wheat midge is always around, according to Glogoza, but usually it causes no big problem. In most years optimum conditions for it to cause damage simply don't prevail. Last year they did. Wheat development, wheat midge development and weather conditions conspired to explode wheat growers' profits.

"This year wheat growers should plant as early as possible and use and early-maturing cultivar suitable to their region," he advises. "If wheat can reach flowering before threshold levels of midge adults are active, infestations should be below economically-damaging levels."

Glogoza estimates that wheat planted between May 15 and May 31 will be most susceptible to midge damage, since it will be heading out in the first half of July, just at the time when midge are expected to be most active. Wheat is susceptible to midge infestations from the time the head emerges from the boot until 80 percent of the primary heads have anthers visible.

Tilling the ground before seeding should cut down on midge survival, he says, but this alone won't result in effective control.

Another tactic is to increase seeding rates to reduce tillering and secondary heading. This will promote a window of heading and flowering that is narrower than normal, and easier for midges to miss. Otherwise, even if midges do miss primary heads they are likely to strike the secondary ones coming later and so find a place not only to feed but to breed and cause problems next year.
"When the number of adult midges in a wheat field reaches one midge for every four to five heads inspected, treatment is justified," says Glogoza. "Fields should be treated within four days of reaching threshold, or immediately if 50 percent of wheat heads are flowering. Sample for the presence of midge at dusk, 8 to 10 p.m., which is when you will find the adults on the wheat heads."

"A good guideline is to treat when 75 percent of the plants are headed," he adds. "Once a field has 80 percent of the primary heads flowering, treatment will not be effective and is not recommended."

The best time of day to treat for midge is between 5 and 10 p.m. Insecticide applied by air requires at least two and preferably four gallons of water per acre. Ground application requires a minimum of 10 gallons of water per acre. Flat fan nozzles should be pointed 40 degrees forward for optimum coverage for the wheat heads.

"If ground application is an option," says Glogoza, "consider establishing tram lines in the field to permit treatments throughout the evening. Treating in the afternoon reduces the effectiveness of the insecticide."

The survey of wheat midge was carried out north of the Missouri River from the Montana border as far as Bismarck, and north of I-94 from Bismarck to Fargo. The southern half of the state was not surveyed. In all surveyed counties wheat midge cocoons were found in wheat fields.

Color maps of the areas infested but wheat midge may be viewed at any county office of the NDSU Extension Service. The North Dakota Wheat Commission provided the grant for the wheat midge survey, which was carried out by the department of entomology at NDSU.

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