Wheat Midge Risk Outlook Low, Good News for North Dakota Wheat Farmers

The orange wheat blossom midge outlook continues to be positive for North Dakota's wheat producers going into the 2003 growing season, according to an entomologist with the North Dakota State University Extension Service. Based on results from the latest wheat midge survey, the overwintering population continues to remain low, even in northwestern North Dakota where problems with this insect have persisted in recent years.

"The risk for wheat midge problems this coming year continues but at very low levels. Our samples detected generally low numbers of midge cocoons in the soil samples taken from last years wheat fields," says Phillip Glogoza, extension entomologist at NDSU.

None of the 200 fields sampled in the survey had healthy, overwintering populations of wheat midge larvae exceeding 1,200 larvae per square meter. This level of midge has been critical in past seasons. Because of the high risk of infestation associated with that level of overwintering 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 only if they are prepared to budget for and make timely insecticide treatments where warranted.

"There were scattered areas where midge populations were estimated to be in the 200 to 500 larvae per square meter," Glogoza says. "A few sampled fields were estimated to have 500 to 800 larvae per square meter."

One word of caution, though. Midge larvae were present in significant numbers at three locations: north-central Mountrail, central Ward, and northeastern Rollette counties. These small areas had cocoon counts that exceeded 800 per square meter, but larvae were parasitized at a rate as high as 75 percent. Parasitized larvae do not produce adult midge and therefore parasitism reduces the midge potential for the coming year in those locations.

As in previous years, areas where population estimates were above 500 midge larvae per square meter still 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 and environmental conditions are favorable for midge activity.

"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 humidity have all favored midge egg laying in past years."

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 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.

Glogoza has 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 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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