Wheat Midge Populations Lower in 2015 Than 2014

Soil samples in North Dakota indicate decreased levels of overwintering wheat midge larvae (cocoons) for the 2015 season, according to Janet Knodel, North Dakota State University Extension Service entomologist.

A total of 196 soil samples were collected from 21 counties in the fall of 2014 to estimate the regional risk for wheat midge. The distribution of wheat midge in 2015 is based on unparasitized cocoons found in the soil samples.

“Only 7 percent of soil samples statewide are moderate to high risk for wheat midge infestation in contrast to 21 percent last year,” Knodel says. “These ‘hot’ spots will need to be scouted to determine if fields are above economic thresholds and warrant an insecticide treatment for controlling wheat midge in 2015. Overall, most of the state is at low risk for wheat midge, which will reduce input costs, such as insecticides for wheat production.”

The high-risk pocket of 800 to greater than 1,200 midge larvae per square meter are concentrated in the northwestern area of North Dakota in Mountrail and Divide Counties, she adds. Areas with moderate risk of 501 to 800 midge larvae per square meter are only in Williams County.

Wheat midge populations decreased by more than half from last year and ranged from zero to 1,500 midge larvae per square meter, with an average of 61 larvae per square meter in 2014. In 2013, wheat midge populations ranged from zero to 3,285 midge larvae per square meter, with an average of 140 larvae per square meter.

In the remaining counties, 44 percent of the samples had one to 500 larvae per square meter (low risk) and 55 percent had zero larvae per square meter.

“Although one to 500 midge larvae per square meter is considered low risk, it is good insurance to scout for the orange flies at night when temperatures are greater than 59 F and the winds are calm (less than 6 mph) during the heading to early flowering crop stages,” Knodel says.

A degree-day model is a good predictor of wheat midge emergence for timing field scouting. The model is based on spring wheat development. It is available on the NDSU North Dakota Agricultural Weather Network website at http://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html.

“It’s looking like an early spring in 2015, and early planting (prior to 200 degree days for wheat midge) is a good way to decrease wheat midge damage because the crop will be in susceptible growth stages before the wheat midge emerges,” Knodel says.

The economic thresholds are the same as past years: one or more midge observed for every four or five heads on hard red spring wheat, or one or more midge observed for every seven or eight wheat heads on durum wheat. If wheat scab is a problem due to wet conditions during flowering, most insecticides labeled for wheat midge control can be tank-mixed with a fungicide.
Besides the good news for wheat midge populations being low, the parasitic wasp *Macroglenes penetrans*, which kills wheat midge larvae, has increased slightly to 11 percent parasitism from 7.6 percent in 2013.

“Although the parasitic wasp and wheat midge populations are cyclic, wasps play an important role in keeping wheat midge controlled naturally,” Knodel says.

Parasitism rates ranged from zero to 100 percent across the state, with the higher rates occurring in areas where midge populations have been high during the past few years, such as Burke, Divide and Williams Counties. Seventy-three percent of the larval cocoons had zero parasitism in 2014.

“We need to continue to conserve parasitic wasp populations when possible by spraying insecticides only when wheat midge populations are at economic threshold levels, and avoiding any late insecticide applications to minimize the negative impacts on the parasitic wasps that are active at that time,” Knodel says.

NDSU Extension Service agents collected the soil samples.

The North Dakota Wheat Commission supports the wheat midge survey.

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