



# Midge Tolerant Wheat Reaches Five-Year Milestone

Stewardship efforts ensure midge tolerance remains strong.

**2015 MARKS THE FIFTH ANNIVERSARY** of producers in Western Canada growing and protecting midge tolerant wheat.

Since the launch of the first commercial varieties in 2010, the industry has witnessed strong uptake of the technology that helps producers defend against orange blossom wheat midge, which can significantly reduce crop yield and grade. Not surprisingly, popularity of midge tolerant wheat continues to grow.

According to the Canadian Grain Commission, 18 per cent of total western wheat acres in 2014 were midge tolerant — that's up from 16 per cent the previous year. In Alberta, producers in the Peace River area were caught off-guard with a midge infestation in 2013. In 2014, midge tolerant varieties were shipped into the region and producers took advantage of the technology in anticipation of more midge pressure.

"Wheat producers really value this technology and are committed to maintaining its viability," says Mike Espeseth, communications manager for the Western Grains Research Foundation (WGRF) and co-chair of the Midge Tolerant Wheat Stewardship Team.

"The proof is in the numbers. Nearly four million acres of midge tolerant wheat were planted in 2013 and 2014 alone," he says. "The adoption is a testament to the quality of the varieties and the benefit and convenience that they provide producers."

Midge tolerant wheat varieties offer flexibility in crop rotations and seeding dates. Most importantly, they eliminate the need to use insecticide as a control method. Instead, midge damage is dramatically reduced with help of Sm1, a midge tolerant gene that is moved into wheat varieties using traditional plant breeding techniques.

"Growers told us they didn't have to worry about their wheat," says Ed Mazurkewich, business development consultant for AgCall, whose team interviewed producers in 2014. "They didn't have to scout and they didn't have to spray. Not spraying an insecticide was pretty critical to them," he says.

Midge tolerant wheat is sold as a varietal blend; 90 per cent is made up of a midge tolerant variety and the remaining 10 per cent is a midge susceptible variety. But that doesn't mean producers sacrifice any agronomic benefits. Those who grow midge tolerant wheat report significant yield and grade benefits — approximately \$36 per acre (based on wheat priced at \$6 bu/ac).

The varietal blends provide an "interspersed refuge system" that disrupts the midge's ability to produce resistant offspring, preventing a build-up of the resistant midge population. Without an interspersed refuge system, midge tolerance could break down within 10 years.

There are currently nine varieties of midge tolerant wheat available in Western Canada. Producers are anticipating the release of the first durum variety in 2016, which features the same Sm1 gene as the other varieties. Hence, the same stewardship principles will apply.

## STEWARDSHIP EFFORTS PAY OFF

"At the same time that we celebrate this five-year milestone, we need to keep vigilant to ensure the technology is protected for future growing seasons. To date, there is no other known source of midge tolerance. In other words, there is no Plan B if we lose the Sm1 gene," says Brenda Trask, communications manager, SeCan and co-chair of the Midge Tolerant Wheat Stewardship Team. The industry coalition, which includes plant breeders, government, seed growers, seed distributors and producer groups, has been active educating Western Canadian wheat producers on the importance of proper stewardship of the technology since before the launch of the technology.

To preserve midge tolerance, producers who buy midge tolerant wheat sign a Stewardship Agreement that limits the use of farm-saved seed to one generation past certified seed, keeping the refuge at the desired level.

"Five years of diligent stewardship communications has led to a strong awareness of the practices that are critical to preserving the technology," says Trask. "In addition to producer education, monitoring and enforcement are a key part of our committee's mandate."

It appears the efforts are paying off. Results of an annual audit show 96 per cent of producers were in compliance with the stewardship practices in 2014.

"By far, the majority of growers said that the technology and the stewardship was really critical for them. They understand it and they are doing everything they can to protect the technology," says Mazurkewich, whose auditors contacted a randomized list of producers and set up on-farm visits to ask questions about the status of their stewardship requirements.

According to Mazurkewich, the midge tolerant wheat audit was a pleasant experience for everyone involved. "Our auditors enjoyed working on this. It was a kitchen table, eyeball-to-eyeball conversation about farming and the use of good technology. The growers were absolutely appreciative and supportive that someone was following up and driving toward better awareness."

With this outlook, it looks promising that the industry will celebrate more midge tolerance milestones in the future.

*Editor's Note: This article has been brought to you by the Midge Tolerant Wheat Stewardship Team, a broad industry coalition representing plant breeders, government, seed growers, seed distributors and producer groups.*