

# Wheat Midge

## What to expect for 2018

### BATTLE RIVER IMPLEMENTS AGRONOMY UPDATE

February 2018

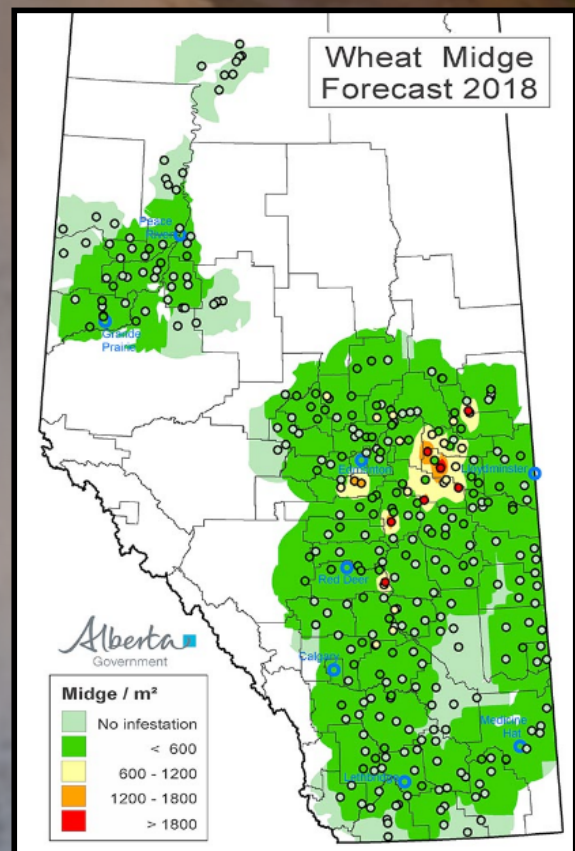


February has given us a rude reminder that we still do get snow and cold weather in Alberta. However, as far away as summer seems right now, there is no better time to start planning for what 2018 may bring us; and there is no better place to start than with Alberta Ag's 2017 Insect Survey and 2018 Insect Forecast maps. I'd like to focus on the Orange Blossom Wheat Midge today

but all the major insects can be found by following this link; [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/pmm13779](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/pmm13779)

I would like to use this survey map from the site to highlight a few things.

Overall, the surveys show a decrease in Midge levels in the Province, likely due to a combination of environment and increased use of midge resistant wheat varieties. That's the good news – the bad news is that if there is a hot spot in the province, we are right on the edge of it. Some of the highest levels expected are just to the north of Flagstaff County and in the southwest part of Camrose County. And remember, just because your farm may be in a low risk area does not mean that you are safe from Midge damage. Individual fields can still show high levels of damage in areas that have overall low populations.



While the map is a good starting point, you should also be considering what (if any) level of damage your wheat suffered last year. Did your wheat have grading issues last year due to Midge damage? If so, you should be thinking

about how you will manage this pest in 2018. The key to knowing what to do about Midge lies in understanding their life cycle and when they do their damage. So let's start there.



## Orange Blossom Wheat Midge Life Cycle

The Wheat Midge produces just one generation a year. The pest overwinters as a canola seed-sized cocoon in the soil, and thrives in the environment provided by minimum tillage. Emergence is tied to spring soil moisture and it is generally accepted that it takes about 25 mm of May rainfall to tempt the Midge to start their life cycle. Without sufficient rain, they simply remain in their cocoon. These cocoons can remain viable for up to 5 years in the soil, so a dry year without Midge damage does not necessarily mean they have gone away. This moisture dependence is geared

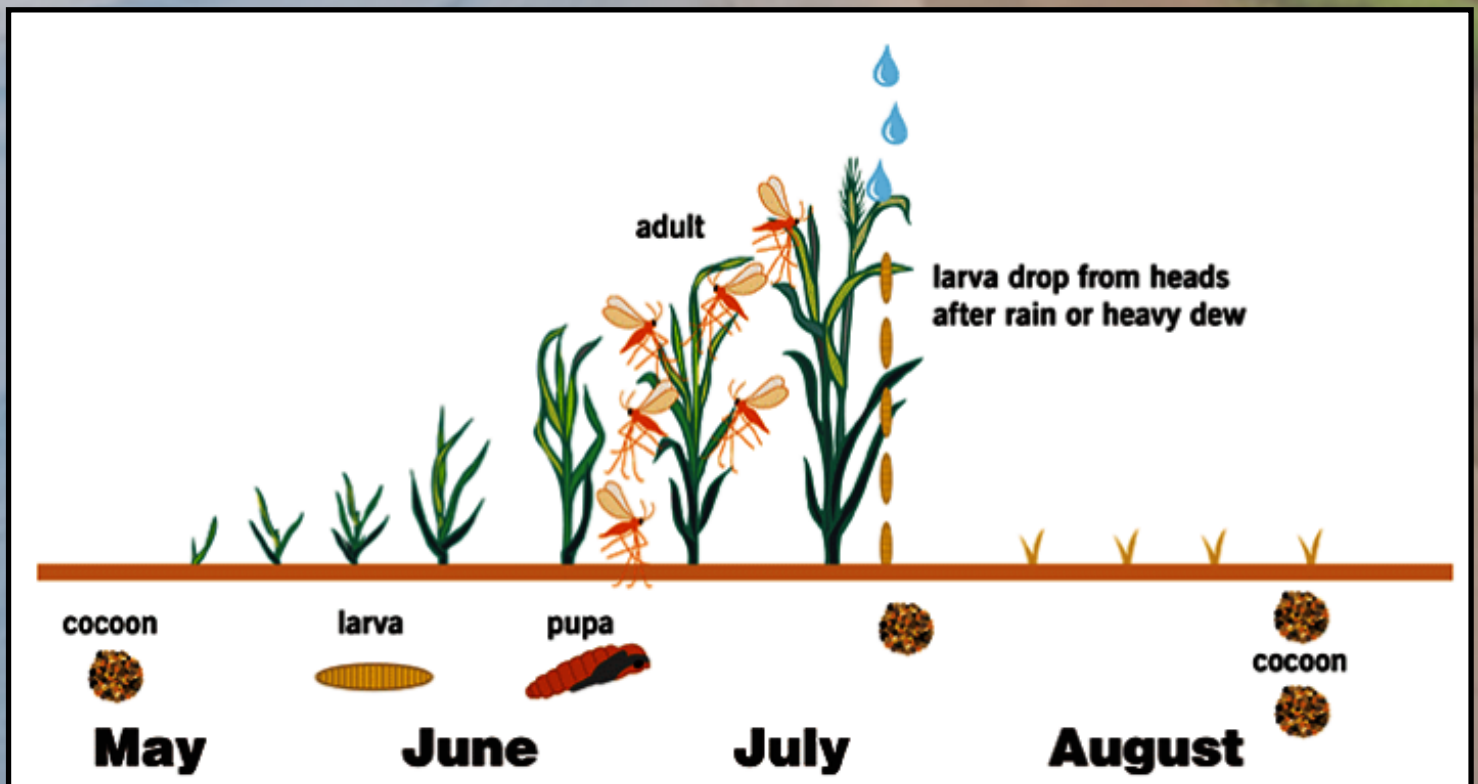
to ensure the Midge will become active at about the same time the wheat is emerging. Wheat Midge activity can also be loosely predicted using Growing Degree Days (GDD's). The adults start to become active at around 700 GDD's and by 900 most of the flight will have occurred. The adult females can start laying their eggs on the wheat heads any time between the head emergence from the boot right up until anthesis. The eggs hatch in 4 to 5 days and feed for about 2 weeks. After that period, the larva drop from the wheat head, assisted either by heavy dew or a rain. Once back on the ground, the larva form a cocoon and the cycle starts over again.

## Scouting for Wheat Midge

Scouting for Wheat Midge should be done in the time between the splitting of the boot up until the emergence of anthers from the florets. Wheat Midge are tiny and therefore weak fliers. They will stay hidden in the canopy until conditions are right for them, so the best time to find them is at either dawn or dusk, when the wind is calm and the humidity is high.

## Economic Thresholds

So when are there enough Wheat Midge that you need to consider taking action? If you are finding 1 adult for every 8 to 10 heads, you can start to see the quality start to suffer. Once you get to 1 adult for every 5 wheat heads, the yield also starts to be affected.



## Controlling Orange Blossom Wheat Midge

The best method of control is to plant a variety that avoids the problem all together. There are several “varietal blends” (VB’s) on the market that work well for keeping Midge under control. So far, plant breeders have only found a single gene source of Midge resistance. Because it is only a single gene, this is a type of resistance that can easily be overcome by the pest. To avoid that problem a Midge resistant variety is composed of 90% of the resistant variety mixed with 10% of a variety that is known to be susceptible, called a refuge crop. Thus, the designation of “varietal blend”. By using a VB, you can avoid spraying and this allows the population of the three known beneficial parasitoids to grow. Studies have shown that by allowing this population to thrive, the Midge population will be decreased in the following year by up to 40%. So if you know, or suspect, that you have an issue it only makes sense to plant a VB and let nature take a hand in controlling the population. Spraying should only be considered if you have a susceptible variety and are facing economic losses. And it should be a one-time only solution. Once you know you have a problem, it only makes sense to shift to VB’s and avoid the use of pesticides whenever possible.



So this picture, with three Midge on one wheat head, is definitely beyond economic thresholds. Insect levels of this scale can lead to the kind of damage shown in the picture below.



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