

# 2020 Tech Bulletin

## What is Wheat Midge?

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The orange wheat blossom midge (*Sitodiplosis mosellana*) is a small, fragile, orange fly about half the size of a mosquito that causes significant damage to wheat crops grown in Alberta, Saskatchewan, southern BC, Minnesota, North Dakota and Idaho.

### Wheat Midge

Adult midges remain within the crop canopy where conditions are humid during the day, in the evening females become active at the top of the wheat canopy, laying eggs on the newly emerged wheat heads. Upon hatching, the larvae will feed on the surface of developing wheat kernels.

(<https://www.alberta.ca/wheat-midge-overview.aspx>)

### Crop Damage

Crop damage occurs at the larval stage. The midge larvae feed on the developing wheat kernel causing it to shrivel, crack and become deformed. There are no visible external changes in color, size, or shape of the affected wheat head and the damage to the crop is not readily apparent. Damage can only be detected by inspecting the developing seed within the glumes.



Photo: [https://en.wikipedia.org/wiki/Sitodiplosis\\_mosellana](https://en.wikipedia.org/wiki/Sitodiplosis_mosellana)



Photo: <https://www.alberta.ca/wheat-midge.aspx>



Wheat Midge larvae feeding on developing wheat kernels.

Photos: <https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/crops-and-irrigation/insects/wheat-midge>

## Wheat kernel damage can affect mixes and refuge levels.

Damage to wheat kernels will vary within a single head. Kernels may have slight damage or be aborted entirely. Others will not fully develop and will be so small and light, they will pass through the combine with the chaff during harvest. The loss of kernels lowers the yield, whereas damaged kernels reduce the grade of the harvested wheat. These losses reduce flour quality. Protein will be abnormally high but gluten protein quality is inferior.



[Additional assessment information available at Grains Canada.](https://www.grainscanada.gc.ca/en/grain-quality/grain-grading/grading-factors/grading-factors-wheat/midge-damage.html)

Photos: <https://www.grainscanada.gc.ca/en/grain-quality/grain-grading/grading-factors/grading-factors-wheat/midge-damage.html>

## Midge Tolerant Wheat Stewardship Agreement



Using midge tolerant wheat and an interspersed refuge system will protect crops against midge damage, however in order to protect the technology proper stewardship is essential (<https://midgetolerantwheat.ca>).

The current stewardship agreement for Midge Tolerant Wheat limits the use of farm-saved seed to one generation past Certified seed. The agreement will maintain the refuge system at the proper level, preventing a build-up of resistant midge.

## Managing Wheat Midge with Refuge Blends

When wheat midge is at high levels, it can significantly reduce the amount of refuge in a field, therefore it is important that growers are using varietal blends that are mixed properly. Too much resistant wheat risks a build up of resistant midge: Too much susceptible refuge wheat and the grower risks greater yield loss.

## Testing Refuge Levels

Testing the refuge levels of midge tolerant wheat is an essential part in preserving midge tolerance and protecting growers from significant, unexpected yield loss. The list of varietal blends that are commercially available to growers can be found at <https://midgetolerantwheat.ca>.

20/20 Seed Labs Inc. supports the Midge Tolerant Wheat Stewardship agreement by providing testing on pedigreed seed for growers.

Refer to the **Quick Info Card** for the list of varietal blends 20/20 Seed Labs Inc. can test for, or contact us at [support@2020seedlabs.ca](mailto:support@2020seedlabs.ca), for more information.



Nisku, AB | Winnipeg, MB

Toll Free: 1-877-420-2099 Fax: 1-888-900-1810

[www.2020seedlabs.ca](http://www.2020seedlabs.ca)



# Sample Submission Form

507-11 Ave Nisku, AB T9E 7N5  
 Toll Free: 1-877-420-2099  
 Email: support@2020seedlabs.ca  
 Website: 2020seedlabs.ca

Complete all section and submit one completed form per sample (sequence #). Submit completed form and wheat sample to 20/20 Seed Labs Inc (address noted above).

### Contact Information:

Name/Account No:	Email:
Phone:	CSGA Grower #:

### Sample Identification:

RSE #:	Field ID:
CSGA Sequence #:	Crop Year:

### Select Pedigreed Class and Varietal Blend:

Select	Foundation	Registered	Certified
AAC Alida/ AAC Brandon	AAC <del>Jatharia</del> / AC Carberry	AAC Tenacious/ AAC Crusader	Conquer/ 5701PR
AAC Awesome/ AC Andrew	AAC LeRoy/ AAC Redberry	AAC Weyburn/ Precision	Goodeve/ AC Intrepid
AAC Broadacres/ AAC Brandon	AAC <del>Marchwell</del> / AAC Raymore	AAC Wheatland/ AAC Brandon	KWS Sparrow/ KWS <del>Alderon</del>
AAC Cameron/ AC Carberry	AAC Paramount/ AC Andrew	AC <del>Sadash</del> / AC Andrew	Shaw/ AC Domain
AAC Chiffon/ AC Andrew	AAC Prevail/ CDC Plentiful	CDC Adamant/ CDC Bradwell	SY Brawn/ SY Cast
AAC Darby/ AAC Hassler	AAC Rimbey/ AAC Penhold	CDC Carbide/ CDC Vivid	SY Chert/ SY <del>Sovite</del>
AAC Dutton/ AAC Brandon	AAC Russell/ AAC Brandon	CDC Hughes/ Cardale	SY479/ SY433
AAC Foray/ AAC Penhold	AAC Starbuck/ AAC Brandon	CDC Landmark/ AAC <del>Viewfield</del>	Unity/ <del>Waskada</del>
AAC Hodge/ AAC Hockley	AAC Succeed/ CDC Alloy	CDC Titanium/ AC Stettler	Vesper/ <del>Waskada</del>
AAC Indus/ AC Andrew		CDC Utmost/ Harvest	