

## Summary of Insects on Crops in Manitoba in 2018

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Abbreviations used: The following abbreviations will be used in this document to indicate the following agricultural regions in Manitoba; NW=Northwest, SW=Southwest, C=Central, E=Eastern, I=Interlake.

Estimated acres: Estimated acres grown in Manitoba in 2018 (shown in brackets under each commodity title) are from the Manitoba Agricultural Services Corporation (MASC) 2018 Variety Market Share Report. The symbol ↑ indicates an increase in acres from 2017, whereas ↓ indicates a decrease in acres from 2017.

**Weather for 2018 Growing Season** (Report from: Timi Ojo, Agricultural Meteorology Specialist, Manitoba Agriculture). Coming off one of the driest winters on record with three-quarters of agro-Manitoba receiving less than 40% of regular winter precipitation, many areas had a relatively dry spring. The months of May and June were about 3°C warmer than normal and this likely provided a boost to the vegetative growth of crops during the early stage. July and August were about 1°C warmer than normal at most regions. Apart from the increased heat, the main highlight of the season was precipitation, or lack of. During the critical period of reproductive phase initiation in crops in late June and July, many areas only had about half of the historical average precipitation. August was even drier with many locations having less than 40% of historical average precipitation. September precipitation came too late to make any difference in yield. Instead, it impacted harvest operations and about 60% of agro-Manitoba had above historical precipitation in September.

**Summary:** Insect pests of greatest concern to crops in Manitoba in 2018 were flea beetles in canola, cutworms, grasshoppers, bertha armyworm and diamondback moth. Flea beetles resulted in foliar insecticide treatments and some reseeding of canola, in spite of the seeds having an insecticide in the seed treatment. Both cutworms and grasshoppers were of concern in some fields of many crops. Levels of bertha armyworm larvae were high in the western part of Manitoba, with insecticide applications needed in some canola fields in late-July and August. Around mid-July there were some insecticide applications for diamondback moth in canola in the Eastern, Central and Interlake regions.

### Small Grain Cereals

**(Wheat (spring)**-2,799,324 acres↑ + 6,553 acres organic↑ + 2,569 acres durum↑; **Wheat (Winter)**-67,485↓ + 1,272 acres organic↑; **Barley**-264,472 acres↑; **Oats**-443,032 acres↓ + 3,099 acres organic↑; **Fall Rye**-41,925 acres↓; **Triticale**-1,200 acres↑)

**Wireworms** (Elateridae): No wireworm damage to small grains was reported.

**Cutworms** (Noctuidae): Cutworms populations were still a concern in some areas of Manitoba in 2018. There were reports of several fields of oats and wheat in the Central region that had insecticides applied for cutworms, and a couple of oats fields where some reseeding was necessary because of cutworm feeding. Redbacked and dingy cutworms appeared to be the main species causing damage.

**Wheat midge** (*Sitodiplosis mosellana*): Wheat midge was generally not a major concern in Manitoba in 2018. There were no reports of insecticide applications for wheat midge.

Some midge tolerant wheat variety blends were planted, with CDC Landmark and AAC Cameron being the most commonly planted midge tolerant variety blends. About 30,020 hectares (74,180 acres) were planted to midge tolerant wheat variety blends according to MASC.

### Sap Feeders

**Aphids:** Aphid levels were low in 2018 and there were no reports of insecticide applications in small grains. Some higher levels were noted in oats in early-August, but the crop was past the susceptible stage.

**Thrips:** There were isolated incidents where thrips were at noticeable levels in barley, however there were no reports of insecticides being needed.

### Defoliators

**Grasshoppers:** Grasshopper levels increased, compared to the previous year, and there was spraying of field edges and at times whole field of small grains for grasshoppers. Most of the reports of grasshopper control in small grains were from the Central and Eastern region.

**Armyworm** (*Mythimna unipuncta*): Armyworms were noticed in some fields of small grains in the Eastern and Central region. There were some insecticide applications in oats and wheat in the Eastern region.

**Cereal Leaf Beetle** (*Oulema melanopus*): Levels of cereal leaf beetle were generally quite low.

No populations were seen or reported that were high enough to collect larvae to test for parasitism by *Tetrastichus julis* (Eulophidae) as has been done in previous years. No new releases of *T. julis* were done in Manitoba in 2018.

## Corn

(380,823 acres **grain corn**↓; 115,803 acres **silage corn**↑)

**Cutworms** (Noctuidae): There were isolated incidence where cutworm levels were high and insecticides were applied in corn.

**Wireworms:** No wireworm damage to corn was reported.

**European corn borer** (*Ostrinia nubilalis*): European corn borer populations were generally low in 2018. The only report of higher levels was from a corn field near Ste. Rose (NW). There were no reports of insecticide applications for European corn borer in corn.

**Aphids:** There were a couple of reports of aphids on corn in early- and mid-August, but no reports of control.

## **Canola and Mustard**

(**Argentine canola**-3,251,203 acres↑; **Rapeseed**-7,120 acres↑; **Mustard**-4,662 acres↑)

**Cutworms** (Noctuidae): Cutworms were a concern in some canola fields, resulting in some insecticide applications. There were reports of reseeded in a canola field near Boissevain because of cutworm feeding, and reseeded of some canola fields in the Interlake due to cutworm feeding combined with other stresses on the plants.

**Root Maggots** (*Delia* spp.): There were a few reports of high levels of root maggots. In a canola field in southwest Manitoba, the crop appeared wilted and delayed in areas of the field with high root maggot levels compared to the rest of the field.

### **Sap Feeders**

**Lygus bugs** (*Lygus* spp.): There were reports of some canola fields in the Northwest with high levels of Lygus bug in August.

**Aster Leafhopper** (*Macrostelus quadrilineatus*): Aster leafhopper levels were generally low. There were reports of aster yellows from a couple of fields in the Interlake, but overall levels were not high.

### **Defoliators**

**Flea beetles** (*Phyllotreta* spp.): Use of seed treatments to manage early-season flea beetle populations continues to be common. However, feeding damage to young plants at or above threshold levels, and additional use of foliar insecticides, occurred in some fields in all agricultural regions. There were some reports of a second foliar insecticide application for flea beetles occurring. The most intense period of insecticide applications for flea beetles was the last week in May and the first week in June. Significant stem feeding by flea beetles was noticed in some fields in the Central region.

Some reseeded of canola due to flea beetle injury was reported from the Southwest, Central and Interlake regions. In some instances canola fields were experiencing additional stresses, such as dry soil, seeding too deep, or cutworm damage.

Some fields in the Central region had insecticides applied in early-August for late-season flea beetles. Growers are concerned that their feeding may lead to pods shattering.

**Bertha Armyworm** (*Mamestra configurata*): Levels of bertha armyworm larvae were high in the western part of Manitoba, with insecticide applications needed in some fields in late-July and August. All the higher populations and insecticide applications occurred in the Southwest and Northwest regions, and the western part of the Central region. A few thousand acres were reported to have been sprayed in the Northwest. No higher populations of bertha armyworm were reported from Eastern Manitoba.

There were a couple of reports from southwest Manitoba of bertha armyworm larvae dead and rotting on the pods. This was most likely a viral infection in the population.

Pheromone-baited traps to monitor adult moths of bertha armyworm were set up at 99 locations in Manitoba in 2018. The monitoring period was June 3<sup>rd</sup> to July 28<sup>th</sup>. Eighty-five of the 99 traps were in the low risk category (less than 300 cumulative moth count). Thirteen traps were in the uncertain risk category (300 to 900 cumulative moth count), and one trap in the Southwest was in the moderate risk category (900 to 1,200 cumulative moth count). Trap counts from 2018 were generally higher than in 2017, when there was 4 traps in the uncertain risk category, and the rest of the traps in the low risk category. Table 1 shows the highest trap counts for each agricultural region in Manitoba in 2018.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) moths in pheromone-baited traps for five agricultural regions in Manitoba in 2018.

Region	Nearest Town	Trap Count	Risk Category
Northwest	Bowsman	439	Uncertain
	Swan River	414	Uncertain
Southwest	Tilston	991	Moderate
	Pierson	469	Uncertain
Central	Somerset	495	Uncertain
	Mather	429	Uncertain
Eastern	Tourond	90	Low
	Steinbach	38	Low
Interlake	Grahamdale	92	Low
	Faulkner	82	Low

Peak trap catches occurred in many traps during the last week in June and first week in July.

The highest trap catch in a single week was 352 at a trap near Tilston on the week of June 17 – 23<sup>rd</sup>.

**Diamondback moth** (*Plutella xylostella*): Larvae of diamondback moth first started to be noticed in mid-June. In late-June there were reports of quite a few diamondback moth adults present in some canola fields in the Eastern and Central regions. Around mid-July there were some insecticide applications for diamondback moth in the Eastern, Central and Interlake regions. There were no reports of insecticide applications for diamondback moth in western Manitoba.

Issue of Concern: Some were making management decisions for diamondback based on levels of larvae or adults captured in a sweep net. This is not recommended. Levels of larvae can look alarming when sweep net sampling, yet levels per ft<sup>2</sup> of plants can be well below the economic threshold. One agronomist reported getting 15 to 20 diamondback moth larvae per 10 sweeps, but was only finding 2 to 4 larvae per ft<sup>2</sup> of plants, which is well below the economic threshold. There was one report of a farmer wanting to spray for diamondback moth based on counts of adults in a sweep net. Economic thresholds are not available for diamondback moth based on sweep net samples. What are perceived to be high levels of diamondback moth in a sweep net sample should only be used to indicate that they are present in the field and there is a need to shake some plants to do proper assessments.

Pheromone-baited traps for adult moths were set up at 89 locations in Manitoba in 2018. The monitoring period was generally from April 29<sup>th</sup> to June 30<sup>th</sup>.

- Until May 20<sup>th</sup> the highest count from any trap was 2.
- The week of May 20 to 26<sup>th</sup>, 3 traps in the northern part of the Central Region and southern part of the Interlake had moth counts that ranged from 29 to 36. The 2 weeks following this also saw some traps with moth counts in the 23 to 66 range in these regions.
- The following week, June 10-16, trap counts were generally low (10 or less), with the exception of

3 traps in the Northwest with counts ranging from 19 to 28.

- Although diamondback moth arrives on winds from the south, the Northwest region had higher trap catches than the southwest.

Table 2. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba in 2018.

Region	Nearest Town	Trap Count
Northwest	Bowsman	38
	Sifton	35
Southwest	Onanole	6
	Miniota	3
Central	Oak Bluff	107
	Morris	83
Eastern	Seven Sisters	33
	Tourond	15
Interlake	Warren	108
	Teulon	87

**Grasshoppers:** There were reports of grasshopper control in canola from the Central and Southwest regions.

### Flax

(Flax-35,672 acres↓ + 2,272 acres organic flax↑)

**Potato aphid** (*Macrosiphum euphorbiae*): There were no reports of high populations of aphids on flax in 2018.

### Sunflowers

(17,098 acres non-oil↓; 32,269 acres oil↓)

**Cutworms** (Noctuidae): There were reports of insecticide applications for cutworms on sunflowers in the Central and Southwest regions.

**Sunflower beetle** (*Zygogramma exclamationis*): No high populations or spraying for sunflower beetles was reported in 2018. The last year that economic populations of sunflower beetle have been reported in Manitoba is 2009.

### Seedhead Insects

Some fields of confection sunflowers were treated with insecticides during early flowering to control seedhead insects, mainly **Lygus bugs** (*Lygus* spp.) and **banded sunflower moth** (*Cochylis hospes*). Populations of **Red sunflower seed weevil** (*Smicronyx fulvus*) were low again in most areas this year.

**Beans (Dry)**

(121,452 acres↓: Pinto-48,368 acres↓, white pea (navy)-20,243 acres↓, black-27,610 acres↑, kidney-10,501 acres↑, cranberry-8,422 acres↑, small red-1,192 acres, other dry edible-5,116 acres)

**Cutworms** (Noctuidae): Some control of cutworms in dry beans was reported from the Central region.

**Peas (Field)**

(84,027 acres↑)

**Cutworms** (Noctuidae): Some control of cutworms in peas was reported from the Northwest region.

**Pea aphids** (*Acyrtosiphon pisum*): Levels of pea aphids were generally low in field peas. In many fields aphids were hard to find until well into July. One agronomist from the Central region reported finding a lot of minute pirate bugs while sweeping peas in late-June. Higher aphid levels and some control was reported from a couple of peaola fields (intercropping of peas and canola) in the Central region in mid-July.

**Grasshoppers**: A pea field near Winkler (C) was sprayed in late-June to control grasshoppers.

**Lentils**

(1,684 acres↓)

There were no reports of insects of concern in lentils.

**Soybeans**

(1,892,391 acres↓)

**Cutworms** (Noctuidae): There were no reports of control being needed for cutworms in soybeans.

**Soybean Aphid** (*Aphis glycines*): Soybean aphid levels were low and well below economic threshold in 2018. The first report of any soybean aphids did not occur until August 7<sup>th</sup> this year. Normally soybean aphids are first observed in Manitoba sometime in July. The last time that soybean aphids were not observed in Manitoba until August was 2009.

**Spider mites**: Spider mites were noted in some soybean fields. The outer edge of a soybean field near Carman (C) was sprayed for spider mites.

**Grasshoppers**: There were some reports of insecticide applications for grasshoppers in soybeans. In some instances just headlands were treated, in other instances whole fields were treated.

**Hemp**

(10,126 acres for grain↓)

No major insect concerns were noted in hemp, although the presence of **Lygus bugs** and **grasshoppers** was noted.

## Quinoa

**Bertha Armyworm** (*Mamestra configurata*): Bertha armyworm was reported to be doing significant damage to a couple of 10 acre fields of quinoa in southwest Manitoba.

**Goosefoot groundling moth** (*Scrobipalpa atriplicella*): Goosefoot groundling moth was noted at quite high levels in Agriculture and Agri-Food Canada plots of quinoa at Morden (C).

**Lygus bugs** (*Lygus* spp.): Lygus bugs were noted as a major noticeable pest in quinoa.

## Forages and Forage Seed

**Alfalfa weevil** (*Hypera postica*): Levels of alfalfa weevil appear to have declined compared to 2017. Some insecticides were still applied in the Interlake, but there were no reports of concern regarding alfalfa weevil from any other region.

**Grasshoppers**: Grasshoppers were a concern on some pastures, resulting in some insecticide applications.

**Spider mites**: An alfalfa field in the Interlake was sprayed for spider mites.

## Fruit Crops

Report from: Anthony Mintenko, Fruit Specialist, Manitoba Agriculture.

**Spotted-wing drosophila** (*Drosophila suzukii*): Monitoring for spotted-wing drosophila (SWD) occurred throughout July in select Manitoba locations. With the hot, dry weather strawberry, raspberry, saskatoons and other berry crops had early / short harvesting period. SWD did not become an economic pest until mid-July by which time most major berry crops harvesting was near completion. Unprotected raspberry crops still experienced 20-30% yield lost due to SWD.

**Fourspotted sap beetles** (*Glischrochilus quadrisignatus*): This insect was observed by raspberry producers in mid to late July once most the harvest was complete.

**Thrips** (*Frankliniella tritici*): Some strawberry growers experienced minor thrips infestations at bloom. The control of strawberries for tarnish plant bug/ lygus bugs resulted in the indirect control of thrips as well. Strawberry growers typically need to control Lygus bugs annually at bloom.

## Potatoes

Report from: Vikram Bisht, Horticulture Pathologist, Manitoba Agriculture.

**Colorado potato beetle** (*Leptinotarsa decemlineata*): Quite a few incidences of Colorado potato beetles appeared in July and in the later part of the potato season; some may have escaped the neonicotinoid insecticides or developed some tolerance. These cases may be apparent insecticide resistance to Admire/Titan/Actara (neonicotinoid) seed treated fields. This class of chemistry does not appear to be performing as well as it used to in a few locations. Delegate (spinetoram) insecticide was used in many

instances as foliar application. Organic potato growers have used Entrust (spinosad) with limited success due to high population pressure.

**Potato psyllid** (*Paratrioza cockerelli*): Dr. Vikram Bisht is coordinating potato psyllid monitoring in Manitoba as part of a national program being led by Dr. Dan Johnson at the University of Lethbridge. Two potato psyllids were found in Manitoba in 2016, but none were reported for 2017 and 2018.

**European Corn Borer** (*Ostrinia nubilalis*): Damage was seen in some fields as part of ECB monitoring; In some fields up to 15 ECB adults were trapped in a week on cards in pheromone-baited traps; however, the numbers were generally low. No Insecticide application was recommended; but some growers applied insecticide anyway.

**Aphids (Green Peach aphid** (*Myzus persicae*), **Potato aphid** (*Macrosiphum euphorbiae*) and other types): The numbers were extremely low for 2018; while the 2017 population appeared to be one of the highest in the last 5-6 year. Even the harvest of nearby crops did not lead to a significant influx this year.

Dipterous insect larvae were noted in many fields associated with potato stem rot problem, caused by *Pectobacterium* spp. In a wetter year, the incidence of stem rotting could be much higher.

## Vegetable Crops

Report from: Tom Gonsalves, Vegetable Specialist, Manitoba Agriculture, and Vikram Bisht, Horticulture Pathologist, Manitoba Agriculture.

**Flea beetles** (*Phyllotreta* spp.) **on Cruciferous vegetables**: There was moderate to high early season flea beetle pressure on cruciferous vegetable crops in the Portage la Prairie area. Also, there was late-season flea beetle damage on the kale in the Manitoba Agriculture high tunnel in Portage la Prairie. Frequent insecticide applications were needed to manage flea beetles in crucifer crops.

**Onion thrips** (*Thrips tabaci*): Onion had a late incidence of onion thrips infestation, leading to very minor injury.

**Spider mites** were an issue in tomato and cucumber crops in greenhouse/ high tunnel. Predatory mites, which were released in the high tunnel, appeared to have some effect in managing the pest mites, but were found to be slow acting.

**Aster leafhopper** (*Macrosteles quadrilineatus*) numbers on carrots appeared much lower than 2016 and 2017, resulting in <1% infected plants. Yellows affected plants tend to produce hairy carrots, which are often bitter in taste.

There were low levels of **wireworm** damage to carrots. It is becoming a concern, due to limited options for insecticides.

**Root maggots** on crucifer vegetables continue to be an issue. Many areas in canola-heavy regions are unable to successfully grow crucifer root vegetables, like radish, rutabaga, turnip etc. Some rutabaga hybrids identified as showing resistance/tolerance to root maggot damage were almost similar to Laurentian variety, which is considered susceptible by the farmers in Manitoba.