

Summary of Insects on Crops in Manitoba in 2015

Compiled by: John Gavloski, Entomologist, Manitoba Agriculture, Food and Rural Development, Box 1149, Carman, MB, ROG OJO Phone: 204-745-5668; Fax: 204-745-5690.



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 2015 (shown in brackets under each commodity title) are from the Manitoba Agricultural Services Corporation (MASC) 2015 Variety Market Share Report. The symbol ↑ indicates an increase in acres from 2014, whereas ↓ indicates a decrease in acres from 2014.

Summary: Flea beetles (*Phyllotreta* spp.) in canola and cutworms were the insects of greatest concern in Manitoba crops in 2015. Alfalfa weevil (*Hypera postica*) was at economically damaging levels in many alfalfa fields, and armyworms (*Mythimna unipuncta*) were a concern in many small grain fields. Populations of European corn borer (*Ostrinia nubilalis*) were higher than the past few years. Soybean aphid (*Aphis glycines*) got to economical levels in some soybean fields in August. High levels of natural enemies of soybean aphids were noted in some fields. Spotted wing Drosophila (*Drosophila Suzukii*) was a concern in many fruit crops from mid-July onwards.

Small Grain Cereals

(Wheat (spring)-2,915,537 acres↑ + 4,695 acres organic↑ + 2,396 acres durum; Wheat (Winter)-171,190↓ + 1,344 acres organic; Barley-392,393 acres↑; Oats-463,594 acres↑ + 3,378 acres organic↑; Fall Rye-68,077 acres↑; Triticale-3,631 acres↓)

Wireworms: There were some reports of wireworm damage to wheat in Central Manitoba.

Cutworms: Cutworms populations were generally still a concern in Manitoba in 2015.

Wheat midge (*Sitodiplosis mosellana*): Wheat midge was generally not a major concern in 2015. The only reports of insecticide applications for wheat midge were from western Manitoba, and only for a small amount of acres. In some regions, a lot of wheat was already flowering by the time of wheat midge emergence.

Midge Tolerant varieties: There was a decrease in acres seeded to midge tolerant varieties in Manitoba in 2015, compared to 2014. The wheat midge resistant variety blends CDC Utmost VB, Vesper VB, Unity VB, and Goodeve VB were seeded on about 48,592 acres, about 1.9% of the red spring wheat

acres in Manitoba in 2015 (based on MASC estimates). Smaller amounts of Fieldstar VB were also grown. About 2,039 acres of the prairie spring wheats Enchant VB and Conquer VB were seeded.

Sap Feeders

Aphids: There were no reports of aphids reaching economic levels in small grains. Barley yellow dwarf was reported on a small amount of acres in the central region.

Thrips: Some barley in the Central region was sprayed with insecticide for thrips.

Defoliators

Grasshoppers: Grasshoppers were a minor concern in small grains.

Armyworm (*Mythimna unipuncta*): Armyworms were a concern in many small grain fields. Most of the insecticide applications for armyworms occurred in July; by the end of July larvae were pupating and no longer an issue. In some fields it was the lodged areas where armyworm populations were high. Some head clipping in winter cereals was noted.

Clusters of pupal cases of *Cotesia* (Braconidae), a parasitoid of armyworms, became very noticeable on the heads in many cereal fields in mid-July (from about July 10-20th). These were often misidentified as egg masses.

Cereal Leaf Beetle (*Oulema melanopus*): No economic populations of cereal leaf beetle were reported, however, the known range of cereal leaf beetles in Manitoba continues to expand east through the Central region of Manitoba. New areas of Manitoba that cereal leaf beetle were found in 2015 include Austin (C), Portage la Prairie (C), and Carman (C).

From the field near Austin where cereal leaf beetle larvae were collected, 9 larvae were sent to Lethbridge, Alberta to determine if the parasitoid *Tetrastichus julis* (Eulophidae) was present in any of the larvae. Eight of the nine larvae were parasitized by *T. julis*. The nearest past releases of *T. julis* to this field were done near Treherne in 2013.

In early-July, a shipment of about 800 adult wasps of the parasitoid *Tetrastichus julis* (Eulophidae) was sent from Lethbridge, Alberta to Carman and released in various cereal fields. Populations of about 200 wasps were each released in fields of wheat near Roseisle (C), Rathwell (C), and Inglis (NW), and about 200 wasps were released in a field of oats near Carman (C). A second release of about 500 wasps of *T. julis* was distributed among 4 wheat fields near Notre Dame de Lourdes (C) and Roseisle (C) on July 20th. In October, about 200-300 cocoons containing *T. julis* were buried at the edge of fields near Carman and Rathwell, Manitoba (about 100-150 cocoons buried at each location).

Corn

(225,197 acres **grain corn**↓; 91,246 acres **silage corn**↑)

Cutworms: Cutworm damage to corn was reported from the Central and Eastern regions in early-June.

Wireworms: No damage to corn from wireworms was reported in 2015.

Seedcorn maggot (*Delia platura*): Although some seedcorn maggot were found in corn, there were no reports of levels that could damage plant stand.

European corn borer (*Ostrinia nubilalis*): Overall, populations of European corn borer appeared higher in 2015 than the past few years, and their presence was noted from several crops. Some insecticide applications to corn for corn borer management occurred in the Central region.

In 2015, acres of grain corn seeded to *Bt* varieties increased to about 44.9 %, and acres of silage corn seeded to *Bt* varieties was about 13.9%.

Percentage of acres of grain corn and silage corn seeded to *Bt* varieties in Manitoba.

Year	Grain Corn	Silage Corn
2015	44.9	13.9
2014	42.9	15.1
2013	26.8	13.1
2012	31.2	12.8
2011	40.8	21.2
2010	54.9	17.7
2009	56.3	17.6
2008	58.7	19.0
2007	63.9	10.8

This data is from the Manitoba Agricultural Services Corporation Annual Variety Market Share Reports.

Northern corn rootworm (*Diabrotica barberi*): An established population of northern corn rootworm was found in a corn field in southwest Manitoba. The field has been in corn for many consecutive years, and the field had severe lodging in 2014. Adult beetles were abundant in the field when examined in early-September. This is the first report of an established population of corn rootworm in Manitoba.

Corn stalk borer (*Papaipema nebris*): Some minor feeding from corn stalk borer was noted in a couple of corn fields in Roland (C) area.

Canola and Mustard

(**Argentine canola**-3,160,998 acres↑; **Polish canola**-969 acres; **Rapeseed**-8,184 acres↓; **Mustard**-4,508 acres↓)

Cutworms: Cutworms were a concern in some canola fields in 2015, resulting in some insecticide applications.

Root Maggots (*Delia* spp.): There were some reports of root maggots being noted while agronomists examine canola roots. However, it is hard to know based on these reports if root maggot populations have increased or if the increase observance of root maggots is because more people are examining canola roots because of potential pathogen issues such as clubroot.

Sap Feeders

Lygus bugs (*Lygus* spp.): There were reports of some canola fields with economical levels of Lygus bugs

in late-July and August. High levels of Lygus bug in canola were reported from the Northwest, Eastern and Interlake regions of Manitoba.

Aster Leafhopper (*Macrostelus quadrilineatus*): Levels of aster leafhoppers were low and not of concern in canola in 2015.

Swede midge (*Contarinia nasturtii*): Pheromone-baited traps were set up at 36 sites to trap and determine levels of swede midge in Manitoba in 2015. No swede midge were collected from the traps. Low levels of larvae were found in flower buds in less advanced canola in the Northwest in mid-August.

High or potentially economical levels of swede midge have never been documented in Manitoba.

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, was quite common. Some canola fields were reseeded because of high levels of damage from flea beetles, or a combination of flea beetle feeding and other stresses on the plants.

Bertha Armyworm (*Mamestra configurata*): Levels of bertha armyworm were low and uneconomical in 2015. There were no reports of control being needed.

Pheromone-baited traps to monitor adult moths of bertha armyworm were set up at 78 locations in Manitoba in 2015. The monitoring period was May 31st to July 25th. Cumulative moth counts all suggested low risk, with no traps catching more than 300 moths and getting to the uncertain risk category. Trap counts have been declining over the past couple of years, suggesting a decline in the population of bertha armyworm. By comparison, in 2013 31 out of 89 locations had cumulative trap counts greater than 300 (5 of these locations having greater than 900 moths), and in 2014 2 out of 72 locations had cumulative trap counts greater than 300. Table 1 shows the highest trap counts for 2015.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) moths in pheromone-baited traps in Manitoba in 2015.

Nearest town	Region	Trap Count	Risk Category
Darlingford	Pembina	264	Low
Somerset	Pembina	200	Low
Alexander	Southwest	192	Low
Douglas	Southwest	177	Low
Inglis	South Parkland	170	Low
Roseland	Southwest	111	Low

Peak trap catches occurred in most traps during early or mid-July.

The highest trap catch in a single week was 103 at a trap near Baldur on the week of June 28 – July 4th.

Diamondback moth (*Plutella xylostella*): Levels of diamondback moth were generally not economical. The only report of control for diamondback moth was the borders of a canola field treated for diamondback moth in the Northwest.

Pheromone-baited traps for adult moths were set up at 73 locations in Manitoba in 2015. The monitoring period was generally from April 26th to mid-June. Highest cumulative trap catches were 173 near Kane

(C), 159 near The Pas (NW), and 156 near Portage la Prairie (C).

Grasshoppers: There were no reports of economical populations of grasshoppers in canola in 2015.

Flax

(Flax-125,584 acres↑ + 1,256 acres organic flax↑)

Potato aphid (*Macrosiphum euphorbiae*): There were no reports of high populations of aphids on flax in 2015.

Sunflowers

(62,304 acres non-oil↑; 38,535 acres oil↑)

Cutworms: Cutworms damage was evident in some fields of sunflowers, and there were reports of insecticides being applied for cutworms in some fields in the Central regions. A field of sunflowers near Sperling (C) was reseeded because of damage from cutworms.

Sunflower beetle (*Zygogramma exclamationis*): No high populations or spraying for sunflower beetles were reported in 2015. The last year that economic populations of sunflower beetle have been reported in Manitoba is 2009.

Seedhead Insects

Some fields of sunflowers were treated with insecticides during early flowering to control seedhead insects, mainly **Lygus bugs** (*Lygus* spp.). In most instances *Lygus* bugs were the most common of the seedhead insects of concern. Populations of **Red sunflower seed weevil** (*Smicronyx fulvus*) were low again in most areas this year. No high populations of **banded sunflower moth** (*Cochylis hospes*) were reported.

Beans (Dry Edible)

(128,497 acres↓: White pea (navy)-37,602 acres↓, pinto-35,572 acres↓, black-20,302 acres↑, kidney-16,604 acres↓, cranberry-6,848 acres↑, small red-2,135 acres, other dry edible-9,434 acres)

European corn borer (*Ostrinia nubilalis*): European corn borer were noted in the stalks of some dry bean plants.

Peas (Field)

(67,883 acres↑)

Pea aphids (*Acyrtosiphon pisum*): Aphid levels in peas were generally low. There were no reports of insecticides being needed to manage their levels.

Soybeans

(1,414,338 acres↑)

Cutworms: Cutworm feeding was a concern in some soybean fields in the Eastern and Central regions. A

soybean field in the Central region was reseeded because of cutworm injury.

Soybean Aphid (*Aphis glycines*): Soybean aphids started to be noted in very low levels in soybean fields in mid-July. Populations got to economic levels in some soybean fields in Eastern and Central Manitoba in August and some insecticide applications were needed. High levels of natural enemies of soybean aphids were noted in some fields.

Spider mites: Although spider mites were noted on soybean plants in some areas, no economically damaging populations were reported.

Green Cloverworm (*Hypena scabra*): There were no reports of green cloverworm in soybeans in Manitoba in 2015.

Grasshoppers: Defoliation from grasshoppers was generally not a concern in soybeans.

Hemp

(21,220 acres for grain↑)

Questions from 2015 regarding insects in hemp included economic thresholds for **aphids** and monitoring techniques for **Lygus bugs**. These sap feeding insects were at times at high levels in hemp, but little is known about their how damaging they may be to the crop.

Other insects noted in hemp over the past year include **root maggots** feeding on the roots, and **European corn borer** (*Ostrinia nubilalis*) in the stalks.

Forages and Forage Seed

Alfalfa weevil (*Hypera postica*): Feeding injury from larvae of alfalfa weevil was common in many alfalfa fields, and at times caused quite severe damage to plants. Some alfalfa for hay was cut early because of the presence of alfalfa weevil. Insecticides were applied in many fields and there were some reports of insecticides not providing good control of alfalfa weevil. Damage was evident in some fields on the regrowth after the first cut. Alfalfa weevil control started in mid-June and extended into late-July.

Lygus bugs (*Lygus* spp.): Some alfalfa seed fields were sprayed to control Lygus bugs.

Armyworm (*Mythimna unipuncta*): Armyworms were a concern in some fields of timothy and perennial ryegrass.

Grasshoppers: Grasshoppers were reported to be prevalent on some pastures in the Interlake.

Potatoes

Report from: Dr. Vikram Bisht, Manitoba Agriculture, Food and Rural Development

Colorado potato beetle (*Leptinotarsa decemlineata*): A few samples of Colorado potato beetles were found in the later part of the potato season; some may have escaped the neonicotinoid insecticides or developed some tolerance. This class of chemistry does not appear to be performing as well as it used to in a few locations. About 80-90% of the potato acres had a neonicotinoid insecticide seed treatment.

European corn borer (*Ostrinia nubilalis*): Quite a few potato fields in Manitoba had ECB infestations in 2015, beginning in mid-to late July. Many plants, in patches, were damaged at various stages of plant growth. Damage on main stems appears to have affected the tuber enlargement, but the injury on secondary branches appeared to have no apparent deleterious impact.

Aphids (various species): Selected seed potato fields in Manitoba were monitored for aphid populations over the season. As in 2014 the aphid numbers, especially green peach aphids (*Myzus persicae*), continued to be low. However, petroleum oil alone or in combination with insecticides was used by some seed potato growers to prevent pathogen transmission by aphids.

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. Yellow sticky cards from potato fields across Manitoba were assessed and no potato psyllids were found in Manitoba in 2015, as in the previous two years.

Fruit Crops

Report from: Anthony Mintenko, Fruit Specialist, Manitoba Agriculture, Food and Rural Development

Spotted wing Drosophila (*Drosophila suzukii*): A province wide monitoring program for spotted wing Drosophila occurred from July to October in 2015. 2015 represented the earliest infestation date and the widest geographic range across southern Manitoba ever seen in the province. Drosophila were identified in traps 3 weeks earlier than the previous 2 years of monitoring, starting in summer-bearing raspberry fields the second week of July in the southern international border region of Manitoba. Drosophila were then identified extensively throughout southern Manitoba from mid to late July in commercial raspberry fields and home-owner raspberries. In the previous 2 years drosophila had been restricted to the south Red River Valley and south-central Pembina Valley regions. In 2015, yield losses approached 50-75% for many raspberry producers. Little control of drosophila occurred as infestations occurred very rapidly before drosophila was identified as a problem. It was identified in June-bearing strawberries and dwarf sour cherries in late July as well. It caused 50% yield loss for many sour cherry growers, but fortunately only affected the last June-bearing strawberry harvest, so yield loss was minimal. Day-neutral strawberry producers had to provide control of drosophila for the second round of berry harvesting from mid-August until early October.

Fourspotted sap beetles (*Glischrochilus quadrisignatus*): Were a problem in raspberry fields from mid-July onward, requiring control in some commercial fields. They may have been a secondary pest in many fields as a result of drosophila feeding damage softening the berries for easier infestation by sap beetles.

Stored Grains

Report from: Brent Elliott, Program Officer, Canadian Grain Commission

Fungus beetles: A variety of fungus-feeding beetles were abundant at harvest this year in Manitoba (and eastern Saskatchewan) notably in canola that was delivered straight to the elevator. Several loads were rejected due to the presence of insects in the shipment. The relatively wet summer in the eastern Prairies enabled abundant fungal growth on plant material that the beetles happily feed upon. If the field, fungal

spores are present on the plants during harvest and as such the beetles are collected along with the canola. These fungus beetles will generally not survive in storage if the grain is clean and free of disease. If the grain is not clean going into storage however further mould development will allow for the survival of these insects. Two of the more abundant species seen were the **foreign grain beetle** (*Ahasverus advena*) and the **square-nosed fungus beetle** (*Lathridius minutus*) and numerous other species were observed in samples. The foreign grain beetle is of concern because it physically resembles the rusty grain beetle (*Cryptolestes ferrugineus*) and misidentification may occur, causing loads to be rejected on the basis of the presence of rusty grain beetle when it is the foreign grain beetle that is present.

Rusty grain beetle (*Cryptolestes ferrugineus*): Rusty grain beetles continue to be the most common insect found in stored grain. Numerous reports of infestation, notably in grain stored over the summer season, were received this year. It is important to note that this pest can survive cold temperatures for long durations and as a result may survive throughout the entire winter season in grain that is not properly cooled. The rusty grain beetle is present year round and for summer stored grain the beetle is able to fly readily from bin to bin and infest during the summer months as well. Early indications are that we are returning to a somewhat lower presence of rusty grain beetle than was observed in 2014 but this still remains the number one pest of stored grain in Canada.

Lesser grain borer (*Rhyzopertha dominica*) – the survey for lesser grain borer in Canada continued for a second year as part of a joint project with Kansas State University. In 2014 traps were placed across the prairies close to the border with the United States as it is thought that the lesser grain borer migrates into Canada in a fashion similar to many summer field pests. Lesser grain borers were collected in all three Prairie Provinces in 2014. In 2015 traps were also placed at locations proximal to the border but more traps were also placed along the Trans-Canada Highway to determine whether lesser grain borer is reaching locations further to the north. Lesser grain borer was collected at twelve of thirteen locations including all locations along or north of the Trans-Canada highway indicating that the lesser grain borer should be considered as not just a pest in communities near to the U.S. border. From a Manitoba perspective it was collected at three of four locations where traps were set up. We have seen a minor increase in reports of the lesser grain borer being found in stored grain so it is worthwhile keeping an eye out for this serious pest. Regular monitoring of grain (every 2-4 weeks) is a standard recommendation for all insect pests of stored grain.