



Summary of Insects on Crops in Manitoba in 2020

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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 2020 (shown in brackets under each commodity title) are from the Manitoba Agricultural Services Corporation (MASC) 2020 Variety Market Share Report. The symbol ↑ indicates an increase in acres from 2019, whereas ↓ indicates a decrease in acres from 2019.

Weather for 2020 Growing Season (Report from: Timi Ojo, Agricultural Meteorology Specialist, Manitoba Agriculture and Resource Development).

Air temperature was similar to historical average throughout the growing season. Areas around Brandon ended the season with growing degree days (base 5) of 6-10% above historical average.

Precipitation: Almost all areas were drier than normal except areas south of the Riding Mountain National Park and in the far southeast corner of the province. These two areas had above normal precipitation mainly due to the weather systems that both areas received in June. Menisino in the southeast received 160 mm of precipitation between June 4 -10. Brandon received 152 mm on June 28.

Wind: In addition to air temperature and precipitation, 2020 will be remembered as one of the windiest. Analysis of wind speed at 40 locations across agro-Manitoba showed that between May 1 – Sept 30, average wind speed ranged from 11.1 – 12.9 km/h between 2007 – 2019 with a mean value of 11.9 km/h. In 2020, the average growing season wind speed was 13.7 km/h. On June 17, some locations in the Central and Interlake regions recorded wind gusts > 100 km/hr.

Summary: Insect pests of greatest concern to crops in Manitoba in 2020 were flea beetles in canola, armyworms, cutworms, and grasshopper. Flea beetles once again resulted in foliar insecticide treatments in many fields and some reseeding of canola, in spite of there being an insecticide in the seed treatment. Armyworms were a concern in cereal and forage grasses in all agricultural regions of Manitoba in late-June and early-July. Damage was at times severe. Cutworms and grasshoppers were a concern in many crops.

Small Grain Cereals

(**Wheat (spring)**-2,911,610 acres↓ + 8,045 acres organic↑ + 3,821 acres durum↑; **Wheat (Winter)**-29,013↓; **Barley**-383,142 acres↑ + 2,728 acres organic↑; **Oats**-647,043 acres↑ + 5,169 acres organic↑; **Fall Rye**-100,496 acres↑; **Triticale**-1,422 acres↑ + 1,354 winter triticale)

Wireworms (Elateridae): Wireworm damage was reported from a field of oats and a field of wheat in the Southwest.

Cutworms (Noctuidae): There were reports of cutworm damage in small grain cereals from all of the agricultural regions in Manitoba. Insecticide applications for cutworms in cereals were widespread in the first three weeks in June. Spot spraying was done in some instances. In the Eastern and Interlake regions, it was reported that cutworm problems seemed worst on the peaty land this year.

Wheat midge (*Sitodiplosis mosellana*): Wheat midge was generally not a major concern in Manitoba in 2020. There were no reports of insecticide applications for wheat midge.

Sap Feeders

Aphids (Aphididae): Aphid levels were low in 2020 and there were no reports of insecticide applications in small grains.

Thrips: Damage from thrips was reported for barley in the Southwest region, and on barley and wheat in the Northwest region.

Defoliators

Grasshoppers: Grasshopper levels continued to build, and there was spraying of field edges and whole field of small grains for grasshoppers. Most of the reports of grasshopper control in small grains were from the Central, Eastern, Interlake, and Northwest regions. Most insecticide application for grasshoppers in cereals occurred in late-June and July. Head clipping was evident in some wheat fields, and damage to panicles in oats. There are reports of wheat fields having been sprayed more than once for grasshoppers. Twostriped grasshopper (*Melanoplus bivittatus*) was the dominant species in many areas, and some areas of the Interlake region had high levels of clearwinged grasshopper (*Camnula pellucida*).

Armyworm (*Mythimna unipuncta*): Armyworms were controlled in some fields of small grains in all agricultural regions of Manitoba. Populations of larvae were quite high and widespread from the end of June through July. Fall rye fields had very high levels of armyworms in some areas.

Note – Several photos of *Cotesia* pupal clusters on cereal heads were also submitted during the same period when armyworms were being controlled.

Cereal leaf beetle (*Oulema melanopus*): Levels of cereal leaf beetle were generally quite low, with no high populations being reported.

Cereal leaf beetle larvae from Pilot Mound (C), Tolstoi (E), Sarto (E) and Dugald (E) were collect and sent to Agriculture and Agri-Food Canada in Lethbridge where they were tested for percent parasitism by *Tetrastichus julis* (Eulophidae). Collection dates ranged from June 22 to July 7th. Percent parasitism ranged from 10 to 58 percent of larvae parasitized by *T. julis*.

Table 1. Percent parasitism by *Tetrastichus julis* of cereal leaf beetle (clb) larvae from Manitoba in 2020.

Nearest Town	Crop	Collection Date	Number of clb larvae collected	Number of clb parasitized	Percent Parasitism
Pilot Mound	Oats	June 23	31	18	58.1
Tolstoi	Oats	July 7	30	3	10.0
Sarto	barley	June 22	33	12	36.4
Dugald	Wheat	June 26	69	37	53.6

Note – samples were also collected from Carman (2 larvae) and Arnaud (5 larvae), with no *T. julis* recovered, but sample sizes are too small to determine percent parasitism.

No new releases of *T. julis* were done in Manitoba in 2020 due to supplies not being available. Areas in Eastern Manitoba with low levels of percent parasitism in 2019 (Ste. Anne and Arnaud) remain priority areas for future releases of *T. julis* once sufficient supplies of the parasitoid are available.

Corn

(306,544 acres **grain corn**↓; 130,726 acres **silage corn**↑)

Cutworms (Noctuidae): Cutworms injury to corn was reported from the Central and Interlake regions. Some insecticide application to control cutworms were reported from the Central region in early-June.

Wireworms (Elateridae): There were no reports of wireworms in corn in 2020.

European corn borer (*Ostrinia nubilalis*): European corn borer populations were generally low in corn in 2020. There were no reports of insecticide applications for European corn borer in corn.

Grasshoppers: High grasshopper populations were reported from some corn fields, although there were no reports of corn fields having insecticides applied for grasshoppers.

Canola and Mustard

(**Argentine canola**-3,373,943 acres↑; **Rapeseed**-5,397 acres↑; **Mustard**-2,062 acres↑)

Cutworms (Noctuidae): Cutworms were a concern in some canola fields, resulting in insecticide applications. There were also reports from the Northwest of reseeded of canola because of a combination of cutworms and other stresses. Most cutworm control measures occurred in early to mid-June, although some reseeded canola in the Northwest was sprayed for cutworm at the beginning of July.

Root maggots (*Delia* spp.): There were no reports of high levels of damage from root maggots, although some were finding larvae and pupae when examining canola roots.

Sap Feeders

Lygus bugs (*Lygus* spp.): Lygus bugs were reported getting close to or above economic threshold in some canola fields in the Northwest and Eastern regions, but there were no reports of insecticide applications.

Aster leafhopper (*Macrostelus quadrilineatus*): Aster leafhopper levels were generally low. Although trace amounts of aster yellows could be found in many fields in some areas, there were no reports of high levels or aster yellows in canola.

Defoliators

Flea beetles (*Phyllotreta* spp.): Use of seed treatments to manage early-season flea beetle populations continues to be the norm. Protection from seed treatments was not long enough in many instances and feeding damage to young plants at or above threshold levels, and additional use of foliar insecticides, occurred in many fields in all agricultural regions. In some instances insecticides were applied to field edges, however often it was full fields being sprayed. Insecticide was added to herbicide applications to

manage flea beetles in some fields. There were several reports of multiple foliar insecticide application for flea beetles, with some making as many as three applications. Frost damage slowed the growth of canola seedlings in some areas, making plants more susceptible to flea beetles. There was a lot of stem feeding in some fields. Insecticide applications for flea beetles started in late-May and continued until late-June.

Reseeding of canola due to flea beetle injury was reported from the Northwest, Southwest, Interlake and Central regions. In some instances reseeded was due to a combination of flea beetle feeding and other stresses such as frost, cutworms, poor germination in dry conditions, wind and crusting issues. There are reports from the Interlake of some fields being reseeded twice.

In August there were reports of heavy flea beetle populations on podded canola, resulting in some insecticide applications.

Bertha armyworm (*Mamestra configurata*): Populations of bertha armyworm larvae were generally low, and below economic levels.

Pheromone-baited traps to monitor adult moths of bertha armyworm were set up at 84 locations in Manitoba in 2020. The monitoring period was June 7th to August 1st. Seventy-six of the 84 traps were in the low risk category (less than 300 cumulative moth count). Eight traps were in the uncertain risk category (300 to 900 cumulative moths), and no traps were in the moderate risk category (900 to 1,200 cumulative moths), or high risk category (1,200 plus moths). Trap counts from 2020 were generally lower than those in 2019, when there was 12 traps in the uncertain risk category, and one trap in the moderate risk category. Highest counts were generally in the Northwest and the western part of the Central region. Table 2 shows the highest trap counts for each agricultural region in Manitoba in 2020.

Table 2. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) moths in pheromone-baited traps for five agricultural regions in Manitoba in 2020.

Region	Nearest Town	Trap Count	Risk Category	Notes
Northwest	Durban	477	Uncertain	3 traps uncertain risk, 22 low risk
	Bowsman	476	Uncertain	
Southwest	Foxwarren	328	Uncertain	
	Inglis	191	Low	
Central	Dunrea	485	Uncertain	3 traps uncertain risk, 18 low risk
	Killarney	472	Uncertain	
Eastern	Tourond	182	Low	
	Stead	73	Low	
Interlake	Vidir	316	Uncertain	
	Teulon	204	Low	

Emergence of adult moths peaked in early and mid-July, with highest trap catches in many regions occurring during the weeks of July 5-11 and July 12-18.

The highest trap catch in a single week was 244 at a trap near Swan Valley on the week of July 12-18th.

Diamondback moth (*Plutella xylostella*): Larvae of diamondback moth started to be noticed in canola in some areas in late-June. Levels did build in some areas, and counts as high as 350-400 larvae per m² were reported from some fields in the Eastern region. Insecticide applications, however, were limited to a few fields in the Eastern and Central regions.

Pheromone-baited traps for adult moths were set up at 84 locations in Manitoba in 2020. The monitoring period was generally from May 3rd to June 27th.

- Highest cumulative counts were generally in the Eastern and South Interlake regions.
- During the 3-week period from May 31 to June 20th traps in the Eastern and Interlake regions were catching high levels of moths.

Table 3. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba in 2020.

Region	Nearest Town	Trap Count	Notes
Northwest	The Pas	123	
	Bowsman	50	
Southwest	Hamiota	15	Only 1 trap out of 25 with more than 10 moths.
	Brookdale	7	
Central	Gladstone	57	5 of 25 traps with more than 10 moths
	Reinland	52	
Eastern	Lac du Bonnet	400	4 of the 6 trap above 180 moths
	Whitemouth	372	
Interlake	Warren	241	5 of 7 traps above 95 moths
	Vidir	137	

The highest trap catch in a single week was 291 at a trap near Lac du Bonnet on the week of June 7–13th.

Grasshoppers: There were some reports of insecticide applications to control grasshoppers in canola. Some of these applications were occurring in June and early-July, targeting the nymphs. This early feeding was also a contributing factor to reseeding decisions in some instances. In late-July and August there were reports of grasshoppers feeding on pods in some canola fields. At times the pod feeding was more prevalent around the perimeter of the field. There were reports of dead grasshoppers at the top of plants from both the Southwest and Central regions in early August. This is caused by a fungal pathogen called *Entomophaga grylli*.

Cabbage seedpod weevil (*Ceutorhynchus obstrictus*) and **pollen beetle** (*Brassicogethes viridescens*) survey: A survey was once again conducted for cabbage seedpod weevils and pollen beetles in Manitoba in 2020. Three sets of 25 sweeps were done in 26 canola fields. A total of 7 cabbage seedpod weevils were found. This is down from 2019, when we found a total of 15 cabbage seedpod weevils in 17 canola fields in Manitoba. Cabbage seedpod weevil is still at low and hard to detect levels in Manitoba. There were no pollen beetles in any of the samples.

Flax

(Flax-48,392 acres↑ + 1,413 acres organic flax↓)

Potato aphid (*Macrosiphum euphorbiae*): There were no reports of high populations of aphids on flax in 2020.

Grasshoppers: There are reports of some flax fields in the Interlake being sprayed in June to control

grasshoppers, and some perimeter spraying of flax in the Central region for grasshopper control.

Sunflowers

(24,625 acres non-oil↑; 65,716 acres oil↑)

Cutworms (Noctuidae): Cutworms were a concern in some sunflower fields, and there were reports of insecticide applications for cutworms on sunflowers in the Eastern and Central regions. Some sunflower growers were adding an insecticide into their pre-emergent herbicide tank mix.

Sunflower beetle (*Zygogramma exclamationis*): No high populations or spraying for sunflower beetles was reported in 2020. The last year that economic populations of sunflower beetle have been reported in Manitoba is 2009.

Grasshoppers: There were few reports of grasshopper control in sunflowers, although a field in the Central region was treated in June because of high levels of grasshopper nymphs in the field.

Thistle caterpillar (*Vanessa cardui*): Although present in low numbers, thistle caterpillars were not an economic concern in sunflowers in Manitoba in 2020.

Sunflower midge (*Contarinia schulzi*): Sunflower midge and damage from their feeding was noticed in some fields in the Eastern region, particularly along the headlands in some fields.

Seedhead Insects

Some fields of confection sunflowers were treated with insecticides to control seedhead insects, mainly **Lygus bugs** (*Lygus* spp.). Populations of **red sunflower seed weevil** (*Smicronyx fulvus*) were low again in most areas this year. There were no reports of high levels of **banded sunflower moth** (*Cochylis hospes*).

Beans (Dry)

(185,109 acres↑: Pinto-95,417 acres↑, white pea (navy)-42,923 acres↓, black-20,940 acres↓, kidney-12,402 acres↑, cranberry-5,258 acres↓, small red-631 acres↓, other dry edible-7,538 acres)

Cutworms (Noctuidae): Some control of cutworms in dry beans was reported from the Central and Northwest regions.

Grasshoppers: Grasshopper feeding on dry beans was noticed in June, but there were no reports of insecticides applied.

Potato leafhopper (*Empoasca fabae*): Potato leafhoppers got to noticeable levels and around threshold in some fields of dry beans in the Central region. A couple of fields of navy beans near Darlingford (C) were sprayed for leafhoppers.

Faba beans

(6,679 acres↓)

Cutworms (Noctuidae): Cutworms were controlled in some faba bean fields.

Peas (Field)

(155,865 acres↑ + 519 acres organic↓)

Cutworms (Noctuidae): Cutworms were a concern in some pea fields. Insecticide applications for cutworms in peas were reported from the Northwest and Interlake regions.

Grasshoppers: Some spraying of grasshoppers in peas was reported from the Northwest region.

Pea aphids (*Acyrtosiphon pisum*): There were reports of pea aphids being sprayed in pea fields near Starbuck (C), St. Claude (C) and Killarney (SW). Additionally, a field of peaola near Winkler (C) was sprayed for pea aphids.

Pea leaf weevil (*Sitona lineatus*): Pea leaf weevil was verified in Manitoba for the first time in 2019, after an agronomist in the Northwest region sent some in for identification. In 2020, pheromone-baited pitfall traps for pea leaf weevil were set up in several locations in western Manitoba in the spring and early-summer to try to determine the levels and range of pea leaf weevil in Manitoba. Pea leaf weevils were found in traps near Kenville and Minitonas in the Northwest. In addition, a sample of weevils collected from peas near Dauphin in September were verified as pea leaf weevils. All traps in the southwest were negative for pea leaf weevil. Pea leaf weevil appears to be established through a large part of the Northwest region of Manitoba, but so far has not been detected outside this region.

Lentils

(2,522 acres↑)

There were no reports of insects of concern in lentils.

Soybeans

(1,103,974 acres↓)

Cutworms (Noctuidae): Cutworm injury to soybeans was reported for several areas, with some reports of soybeans being sprayed for cutworms in the Central region.

Wireworms (Elateridae): A soybean field near Otterburne (E) was reseeded because of wireworms.

Soybean aphid (*Aphis glycines*): Soybean aphid levels were once again low and well below economic threshold in 2020. The first report of any soybean aphids was on July 21st this year, but levels stayed quite low.

Spider mites: There were reports of spider mites becoming noticeable on soybeans in the Central, Eastern and Interlake regions in August, but no reports of control being needed.

Grasshoppers: Grasshoppers were of concern on soybeans in many areas, and there were reports of insecticide applications to soybeans for grasshoppers from the Eastern, Interlake, Central and Northwest regions. One report indicated use of a high residual insecticide in alternating strips, and feels they got good grasshopper control. There was some concern from the Eastern region over unnecessary spraying for grasshoppers in soybeans, with some using the justification that they will be controlling soybean aphids as well, although no soybean aphid had yet been found in the region.

Thistle caterpillar (*Vanessa cardui*): Thistle caterpillars were reported from soybean fields in the Central and Southwest regions in late-June and early-July. Levels were not as high as in 2019, and there were no reports of insecticide applications for thistle caterpillar in 2020.

Green cloverworm (*Hypena scabra*): Green cloverworm were at noticeable levels in soybean fields in the Eastern region in mid-July, but no insecticide applications were reported.

Hemp

(11,308 acres for grain↑ + 1,082 acres organic↓)

Cutworms (Noctuidae): A few hemp fields were sprayed for cutworms, and a field of hemp near Grandview (NW) was reseeded because of cutworms. Insecticide registrations are needed for cutworms in hemp.

Quinoa

Goosefoot groundling moth (*Scrobipalpa atriplicella*): Some observations and spraying for goosefoot groundling moth were reported.

Grasshoppers: A quinoa field in the Central region was sprayed for grasshoppers.

Forages and Forage Seed

Cutworms (Noctuidae): Cutworm were a problem in some forage crops. A field of alsike clover in the Central region was sprayed for cutworms, and a field of newly established perennial ryegrass in the Interlake was reseeded because of cutworms.

Plant bugs (Miridae) / **Lygus bugs** (*Lygus* spp.): Some alfalfa seed fields were sprayed for plant bugs.

Alfalfa weevil (*Hypera postica*): Some fields with high levels of feeding from alfalfa weevil were reported from the Eastern and Interlake regions. Alfalfa weevil feeding was also evident in some fields in the Central region. Early cutting was one of the management strategies used.

Grasshoppers: Some pastures, forage hay and alfalfa fields had insecticide applications for grasshoppers. Significant damage to pastures by grasshoppers was reported from the Northwest, Interlake and Central regions. In some instances the combination of dryness and high grasshopper levels causes reduced growth of pastures.

Armyworm (*Mythimna unipuncta*): Armyworm larvae first began to be noticed in mid-June, and populations became quite high in many forage grass fields. Some forage grass seed and hay crops in the Eastern, Interlake and Central regions had insecticides applied for armyworms, and high armyworm levels were also reported from the Northwest and Southwest regions. Damage was at times severe. There were reports of larvae moving into neighbouring fields after damaging the initial field. A report from the Eastern region was that most fields of grass forage seed in the northern districts were sprayed for armyworms. A report from the southern Interlake region in early July was that about 500 acres of hay that armyworms were feeding on went from 7-8 bales per acres to 0.5 bales per acre.

Potatoes

Report from: Vikram Bisht, Horticulture Pathologist, Manitoba Agriculture & Resource Development.

Colorado potato beetle (*Leptinotarsa decemlineata*): Again, 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, especially in southern and central potato growing areas of Manitoba. Resistance to neonicotinoid insecticides and reduced susceptibility has been confirmed and reported in the southern areas of Manitoba for many years. In 2020, Colorado potato beetles were controlled with foliar applications of diamides or spinosyns when seed treatment with the neonicotinoids were not adequate. Organic potato growers have used Entrust (spinosad) with limited success due to high population pressure.

European corn borer (*Ostrinia nubilalis*): Damage was seen in some fields as part of European corn borer monitoring. European corn borer was monitored using pheromone-baited traps in eight potato fields from mid-June until mid-August. Counts were generally low with only traps at three sites having counts over 10 moths in a week in traps at Shilo, Carberry and Melbourne. No insecticide application was recommended; but some growers applied insecticide anyway. Even though the direct injury due to European corn borer is very minor, the injury sites act as port of entry for *Pectobacterium* spp. stem rot and blackleg.

Aphids - (Green Peach aphid (*Myzus persicae*) and **potato aphid** (*Macrosiphum euphorbiae*) and other types): The numbers were low for most of the 2020 growing season, but numbers spiked towards the end. During harvest of nearby crops there was an apparent surge in aphid numbers in potatoes. Unlike, 2019, there were green peach aphids found in many seed fields. Green peach aphid and potato aphid are effective vectors of potato virus diseases, and can lead to downgrading of seed lots.

Potato psyllid (*Paratrioza cockerelli*): Potato psyllid is not being monitored anymore; research funding is not available.

Vegetable Crops

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

Flea beetles (*Phyllotreta* spp.) **on cruciferous vegetables**: There was generally high flea beetle pressure on cruciferous vegetable crops in the Portage la Prairie area. Frequent insecticide applications were needed to manage flea beetles in crucifer crops. Once canola had been swathed there was flea beetle damage on the kale in the Manitoba Agriculture and Resource Development high tunnel in Portage la Prairie.

Root maggots (*Delia* spp.): Root maggot damage on crucifer vegetables continues to be high. The crucifer root crops (rutabaga, radish) cannot be successfully grown in most areas where canola is a major crop. This is especially true in vegetable production farms near Portage la Prairie.

Cabbage looper (*Trichoplusia ni*): There were high late season populations of cabbage looper affected many types of vegetables.

Wireworms (Elateridae): There were low levels of wireworm damage to carrots. It is becoming a concern, due to the lack of registered insecticides for wireworms in carrots.

Spider mites were an issue in tomato and cucumber crops in greenhouses / high tunnels. Predatory mites (*Neoseiulus californicus*) were not available this summer during the optimum time period for use in Manitoba Agriculture and Resource Development's research/demonstration high tunnel at Portage la Prairie, which due to lack of access was planted significantly later than usual. As a result, plant vigour and yields suffered. However, most commercial producers who wanted to purchase predatory mites were able to in their optimum time window, which was the same as previous years.

Fruit Crops

Report from: Anthony Mintenko, Fruit Specialist, Manitoba Agriculture and Resource Development.

Monitoring for **spotted-wing drosophila** (*Drosophila suzukii*): Traps for spotted-wing drosophila were set up at five locations in Manitoba; near Altona (C), Deerwood (C), Carman (C), Portage la Prairie (C) and Grunthal (E). Low levels were found in traps the first week of July, which increased in numbers throughout July.

Strawberry: later harvest, last half of berries required control application for **spotted-wing drosophila**. Some **cutworms** (not identified, likely darksided or redbacked cutworms) in isolated fields south of Winnipeg.

Raspberry: later harvest, all of harvest required control application for **spotted-wing drosophila**, **sap beetles** present in second half of harvest (late July).

Saskatoons: last quarter of saskatoons had **spotted-wing drosophila** infestation in some orchards in southern Manitoba.

Spider mites: twospotted spider mite (*Tetranychus urticae* Koch) is quite common in many areas and causes a rather regular and serious infestation on raspberry. Incidence is minor on strawberry. **McDaniel spider mite**, *Tetranychus mcdanieli*, was also identified from raspberry.