November 2021

# Summary of Insects on Crops in Manitoba in 2021

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Estimated acres: Estimated acres grown in Manitoba in 2021 (shown in brackets under each commodity title) are from the Manitoba Agricultural Services Corporation (MASC) 2021 Variety Market Share Report. The symbol ↑ indicates an increase in acres from 2020, whereas ↓ indicates a decrease in acres from 2020.

**Weather for 2021 Growing Season (**Report from: Timi Ojo, Ag Systems Modeller, Manitoba Agriculture and Resource Development).

**Precipitation**: The low soil moisture status in the fall of 2020 coupled with less than 40% of normal snow accumulation set many parts of Manitoba on a dry trajectory at the start of the growing season. There was barely any snow on field by early March. Many areas received much needed rain during the third week of May as concerns grew about dry seedbeds. However, as crops approached the active vegetative stage in late June into July, the precipitation deficit intensified and many areas were at least 200 mm short of water deficit for the growing season.
**Temperature**: Limited precipitation and intense heat are two sides of the same drought coin. All locations ended the 2021 growing season with above-normal heat units accumulation. Recent warm years typically have locations around 10% above historical average growing degree-days (GDD base 5) accumulation. Some areas such as Arborg, Moosehorn, and Minnedosa were at least 20% above the normal GDD heat accumulation at the end of the 2021 season.
**Wind**: Analysis of wind speed at 25 locations in the spring showed that both the maximum and average wind speeds in the spring of 2021 were greater than the 15-year average. On June 11, Clearwater, Somerset, Waskada, Snowflake, Killarney, Manitou, and Windygates had a wind gust of at least 100 km/hr.

**Summary:** Flea beetles in canola and grasshoppers, in many crops, were major insect concerns in 2021. Diamondback moth was a concern in canola in some regions from mid-July to mid-August. Alfalfa weevil was a concern in alfalfa fields in some regions in mid- and late-June. Aphids were abundant in small grains in some regions from late-June to late-July, although in some of these fields natural enemies were also abundant. Western corn rootworm and cannabis aphid were found in Manitoba for the first time.

# Small Grain Cereals

(**Wheat (spring)**-2,711,580 acres↓ + 7,289 acres organic↓ + 1,488 acres durum↓; **Wheat (Winter)**-36,680↑; **Barley**-407,767 acres↑ + 1,355 acres organic↓; **Oats**-643,901 acres↓ + 3,455 acres organic↓; **Fall Rye**-100,065 acres↓; **Triticale**-1,091 acres↓ + 954 acres winter triticale↓)

**Wireworms** (Elateridae): Wireworm damage was reported from wheat and oats in the Central region, and wheat in the Northwest region.

**Cutworms** (Noctuidae): Some cutworm damage was reported from oats in the Southwest region.

**Wheat midge** (*Sitodiplosis mosellana*): Wheat midge was generally not a major concern in Manitoba in 2021. There were no reports of insecticide applications for wheat midge.

Pheromone-baited traps were placed in 26 fields in Manitoba. A couple of the traps had cumulative counts of over 1,000 wheat midge. Pest Management decisions for wheat midge currently can not be made based on data from pheromone traps.

### Sap Feeders

**Aphids** (Aphididae): Aphids began to be noticed in small grains about mid-June. Reports of aphids being abundant on small grains were mainly from the Eastern, Central and Southwest regions, and from about late-June to late-July. Some insecticide applications were reported from the Eastern region in late-June; some were applied mixed with a fungicide, others alone as an insecticide. In some cereal fields where aphids were found, agronomists also reported finding lots of natural enemies, such as lady beetle larvae, lacewing larvae and hover fly larvae. Some had trouble with identification of hover fly larvae, unsure if they were a crop feeder or predator.

**Thrips**: High levels of thrips were found in some fields of barley in the Southwest region in late-June.

### Defoliators

**Grasshoppers**: Insecticides for grasshopper control were applied to field edges and whole field of small grains. Most reports of insecticide application for grasshoppers in cereals occurred in late-June and July. One agronomist reported that some cereal fields, and also soybeans and canola, had a high residual insecticide applied in strips for grasshopper control, and felt control was good.

A grasshopper survey in August of 2021 counted grasshoppers and recorded the dominant grasshopper species at 97 locations in Manitoba. Twostriped grasshopper (*Melanoplus bivittatus*) was generally the most abundant species, but this varied with region. In the Northwest agricultural region, migratory grasshopper (*Melanoplus sanguinipes*) was the dominant species in the most locations, followed closely by twostriped. In the Southwest, twostriped grasshopper was the dominant species in 18 of the 19 locations surveyed (migratory being dominant at one site). In the Central region, twostriped was generally the dominant species, with migratory being dominant at just a few locations. In the Eastern region, both twostriped and migratory were of roughly equal dominance at many sites, and in the Interlake twostriped was generally the dominant species, but there were a few location where clearwinged grasshopper (*Camnula pellucida*) was among the dominant species.

**Armyworm** (*Mythimna unipuncta*): After some widespread issues with armyworms in 2020, pheromone baited traps (Multipher 1) were set up in late-April or early-May at 25 sites across Manitoba, and monitored for 12 weeks. Low levels of armyworm moths were caught in the traps; the highest cumulative count was 27 (near Elgin in the Southwest), and only three traps had cumulative counts over 20. There were no reports of armyworm larvae being a concern in Manitoba in 2021.

**Cereal leaf beetle** (*Oulema melanopus*): Cereal leaf beetles and their feeding were noticeable in some cereal fields in the Eastern and Central regions. There were no reports of control being needed. Samples of larvae were once again collected to test for the parasitoid *Tetrastichus julis*, but results are currently not available.

**Other insect observations**: An agronomist in the Eastern region reported finding about 5 **Lygus bugs** per 20 heads in fall rye as the crop was entering the soft dough stage in early-July. Hay nearby had been cut recently.
In late-July, an agronomist in the Interlake noticed that many dried out wheat plants had crickets on them, yet they were not on the greener plants. This was noticeable from the road.

## Corn

(383,647 acres **grain corn**↑; 124,029 acres **silage corn**↓)

**Cutworms** (Noctuidae): Insecticide applications for cutworms in corn were reported from the Northwest and Eastern regions.

**Wireworms** (Elateridae): A field of corn in the Eastern region was reseeded (to canola) because of wireworm feeding.

**European corn borer** (*Ostrinia nubilalis*): European corn borer populations were generally low in corn in 2021. There were no reports of insecticide applications for European corn borer in corn.

**Grasshoppers**: Some concerns about grasshoppers in corn were reported from the Southwest and Eastern regions.

**Corn rootworm** (*Diabrotica* spp.): Lodging of corn in fields with heavy corn rootworm populations was observed in fields near Miami (Central region) and Souris (Southwest region).

Until this year, only northern corn rootworm (*Diabrotica barberi*) was known from Manitoba, with established populations having first been found in 2015. Western corn rootworm (*Diabrotica virgifera virgifera*) had never been recorded from Manitoba. In one of the corn fields inspected near Souris, western corn rootworm adults were easy to collect off of the remains of corn plants, even though the corn had been already cut for silage. Some northern corn rootworm were found in this field as well, but western corn rootworm seemed to be more common. Some of the western corn rootworm specimens collected were sent to Agriculture and Agri-Food Canada in Ottawa for the Canadian National Collection, and confirmation of species identification, as this is a new species record for Manitoba. An individual western corn rootworm was also found this summer on a sticky trap that had been placed in a corn field near Miami.


Western corn rootworm

Yellow sticky cards were placed in 4 corn fields in the Central region on July 30, and checked weekly until the end of August, to monitor for corn rootworm adults. Counts were low in three of the fields, but high in a field near Miami.

# Canola and Mustard

(**Argentine canola**-3,472,345 acres↑; **Rapeseed**-3,979 acres↓; **Mustard**-2,856 acres↑)

**Cutworms** (Noctuidae): Cutworms were a concern in some canola fields. Insecticide applications as well as reseeding were reported from the Northwest region. Most cutworm control measures occurred in early to mid-June.

**Root maggots** (*Delia* spp.): There were no reports of damage from root maggots on canola in 2021.

### Sap Feeders

**Lygus bugs** (*Lygus* spp.): Some insecticide applications for Lygus bugs in canola were reported from the Northwest and Eastern regions in late-July and early to mid-August.

**Aster leafhopper** (*Macrosteles quadrilineatus*): Some aster yellows was reported from the Northwest region and Central regions, but overall there was little concern over aster yellows in canola in 2021.

**Canola flower midge** (*Contarinia brassicola*): Canola flower midge was noted in canola in the Northwest region.

### 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.

In early-May there were reports that some canola growers were delaying canola seeding until forecasts look more favourable for rapid germination and emergence. In drier areas, some chose to seed crops they could seed deeper, such as soybeans, prior to seeding canola, while they waited for rain. There were also reports of canola sitting in cold, dry soil for up to three weeks before emerging.

Insecticide applications for flea beetles started in mid-May and continued until late-June. Severe feeding caused some canola to be delayed in development. There was a lot of stem feeding in some fields. At times hot weather was a concern in terms of insecticide performance. There were several reports of multiple foliar insecticide application for flea beetles, with some making as many as four applications.

Reseeding of canola due to flea beetle injury was reported from the Northwest, Interlake and Eastern regions. In some instances reseeding was due to a combination of flea beetle feeding and other stresses such as frost, wind, extended dry conditions or crusting. One estimate from the Eastern region in early-June was that 10 to 15% of canola acres were reseeded because of extensive flea beetle damage.

An agronomist from the Northwest commented that canola direct seeded into cereal stubble seemed to have much less flea beetles. A canola grower also shared some observations, and photos, of there being very few flea beetles on volunteer canola (which would be untreated) growing in a wheat field next to a canola field that had just been sprayed for flea beetles.

The late-summer population of flea beetles began to be noticed in late-July. In August there were reports of heavy flea beetle populations on podded canola, resulting in some insecticide applications. There were reports of insecticide applications for flea beetles in August from the Southwest, Northwest, Central and Eastern regions. At times populations were highest along the field margin, and dropped dramatically as you moved into the field.

**Bertha armyworm** (*Mamestra configurata*): Populations of bertha armyworm larvae were generally low, and below economic levels. There were no reports of insecticide applications for bertha armyworms in canola in 2021.

Pheromone-baited traps to monitor adult moths of bertha armyworm were set up at 100 locations in Manitoba in 2021. The monitoring period was June 6th to July 31st. All of the 100 traps remained in the low risk category (less than 300 cumulative moth over the trapping period). Trap counts from 2021 were generally lower than those in 2020, when eight traps were in the uncertain risk category (300 to 900 cumulative moths). Table 1 shows the highest trap counts for each agricultural region in Manitoba in 2021.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) moths in pheromone-baited traps for five agricultural regions in Manitoba in 2021.

| Region | Nearest Town | Trap Count | Risk Category |
|---|---|---|---|
| Northwest | Makaroff | 135 | Low |
| | Swan River | 74 | Low |
| Southwest | Boissevain | 142 | Low |
| | Decker | 108 | Low |
| Central | Snowflake | 270 | Low |
| | Darlingford | 144 | Low |
| Eastern | Ste. Anne | 42 | Low |
| | River Hills | 24 | Low |
| Interlake | Warren | 24 | Low |
| | Vidir | 22 | Low |

The highest trap catch in a single week was 120 at a trap near Snowflake on the week of June 27- July 3.

**Diamondback moth** (*Plutella xylostella*): Larvae of diamondback moth did get to high levels in some areas. Insecticide applications were reported from the Eastern, Central and Interlake regions from mid-July until about mid-August. One agronomist in the Central region also commented on there being fairly high populations of green lacewings (about 5 adults per square meter in some fields).

Pheromone-baited traps for adult moths were set up at 98 locations in Manitoba in 2021. The monitoring period was generally from April 25th to June 26th.

- Trap counts were generally low until late-May. After that some moderate counts occurred in traps in the Northwest, Central, Interlake and Eastern regions.
- Only 66 traps caught any diamondback moths; almost a third of the traps caught no diamondback moths over the trapping period.

Table 2. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba in 2021.

| Region | Nearest Town | Trap Count | Notes |
|---|---|---|---|
| Northwest | The Pas | 155 | 12 trap out of 25 with more than 10 moths. |
| | Bowsman | 68 | |
| Southwest | Minto | 48 | Only 4 trap out of 28 with more than 10 moths. |
| | Carberry | 36 | |
| Central | Haywood | 68 | 7 of 30 traps with more than 10 moths |
| | Edwin | 57 | |
| Eastern | Stead | 106 | All 6 traps with more than 10 moths |
| | Beausejour | 43 | |
| Interlake | Selkirk | 171 | 6 of 9 traps above 10 moths |
| | Clandeboye | 66 | |

The highest trap catch in a single week was 96 at a trap near Selkirk on the week of June 6–12th.

**Grasshoppers**: There were some reports of insecticide applications to control grasshoppers in canola. Some of the applications were to ditches around fields or field edges, in other instances whole fields were treated. Most of the grasshopper control in canola was from about mid-June until late-August. At times the grasshoppers were moving into canola from cut hayfields and ditches.

In two separate instance in July, very high levels of grasshoppers were noted in canola fields directly across from pastures, but no damage was noted to the canola. In both instances the grasshoppers were identified as clearwinged grasshopper (*Camnula pellucida*) a species that is primarily a grass feeder.

**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 2021. Three sets of 25 sweeps were done in 23 canola fields. Cabbage seedpod weevil was found in four fields, with eight weevils being found in total. Although levels remain low, and well below economic levels, the known range of cabbage seedpod weevil did expand significantly in the 2021 survey. One of the weevils collected in the survey was from a canola field south of Gladstone, MB. In addition to this specimen, an agronomy specialist with the Canola Council of Canada also found and submitted two cabbage seedpod weevils from the same field near Gladstone. These are the furthest east in Manitoba cabbage seedpod weevil has been found. Numbers of weevils found in this year's survey were very similar to 2020, when we found a total of seven cabbage seedpod weevils in 26 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-67,297 acres↑ + 1,535 acres organic flax↑)

**Potato aphid** (*Macrosiphum euphorbiae*): There were no reports of high populations of aphids on flax in 2021. The last year economic populations of aphids were reported in flax in Manitoba was 2014.

**Grasshoppers**: There were reports of some flax fields being sprayed in July to control grasshoppers. Damage included feeding on the bolls and stripping of the stalks.

**Crickets**: High populations of crickets were reported from some flax fields in the Interlake. The crickets were causing boll loss and some fields were sprayed. A couple of border treatments for crickets in flax were also reported from the Eastern region.

## Sunflowers

(15,652 acres non-oil↓; 64,238 acres oil↓)

**Cutworms** (Noctuidae): There were reports of some sunflower fields in the Interlake having insecticide applications for cutworms. There were also some reports of cutworms in sunflowers from the Southwest region.

**Sunflower beetle** (*Zygogramma exclamationis*): No high populations or spraying for sunflower beetles was reported in 2021. The last year that economic populations of sunflower beetle have been reported in Manitoba is 2009.

**Grasshoppers**: Some grasshoppers were reported on or around sunflower heads in the Southwest region in late-July / early-August.

**Seedhead Insects**

**Lygus bugs** were noticeable in the Central region in sunflowers for both oil and confection. There was a report of insecticide application for Lygus bugs and **banded sunflower moth** in confection sunflowers from the Central region, and a report of Lygus control in sunflowers in the Southeast. Some weevils were reported around the heads of sunflowers in the Southwest region in August.

## Beans (Dry)

(176,283 acres↓: Pinto-86,179 acres↓, white pea (navy)-40,204 acres↓, black-27,846 acres↑, kidney-9,454 acres↓, cranberry-6,352 acres↑, other dry ebible-6,248 acres)

**Grasshoppers**: Farmers in the central and southwest areas did edge sprays in dry beans for grasshoppers, sometimes multiple edge sprays. Some control of grasshoppers in black beans was also reported from the Northwest region.

**European corn borer** (*Ostrinia nubilalis*): European corn borer larvae were noticeable, although not economical, in a navy bean field in the Central region.

**Lygus bugs** (*Lygus* spp.): Lygus bug damage was an issue this year in navy beans and great northern beans. There was a report of a shipment to France being met with difficulty because of the level of damage. This seemed to be an issue mainly in white beans; coloured beans (such as pintos, cranberries and kidneys) seemed to have no damage.

**Bean leaf beetle** (*Cerotoma trifurcata*): An agronomist from the Central region submitted a sample that turned out to be bean leaf beetle. They were not abundant and there was minimal damage, but because this is an insect not often seen in Manitoba it is noteworthy.

## Faba beans

(5,206 acres↓)

**Lygus bugs** (*Lygus* spp.): Lygus bug damage was noticeable in harvest samples from on-farm trials of Manitoba Pulse and Soybean Growers Association near Russell and Stonewall.

**Pea leaf weevil** (*Sitona lineatus*): Pea leaf weevils were quite noticeable in some faba bean fields in the Northwest in August.

## Peas (Field)

(226,377 acres↑ + 2,349 acres organic↑)

**Pea aphids** (*Acyrthosiphon pisum*): There were a few reports of aphids in peas, although in most cases they were not at high levels. The only report of pea aphid being at threshold in peas was from the Fork River area in the Northwest in late July, although the peas were already formed and starting to dry down.

**Grasshoppers**: There was a report of grasshoppers on some field edges, but they seemed to prefer the weeds in the field over the peas.

**Pea leaf weevil** (*Sitona lineatus*): Pea leaf weevils were noticeable in some pea fields in the Northwest in August.

The known range of the pea leaf weevil in Manitoba has expanded. Pea leaf weevil was first detected in Manitoba in 2019, and all samples collected in 2019 and 2020 were from the Northwest region. Pheromone-baited traps were placed in some fields of peas or faba beans this spring, and were catching weevils in some fields, mainly in the Northwest region. But a large part of the documented range expansion is because of some keen agronomists who have been collecting weevils from faba beans and peas in late-July and August. In 2021, pea leaf weevils were found in some areas of the Southwest and Central regions. In early-August an agronomist sent in a sample of weevils collected near Sinclair, in Southwest Manitoba, all of which were pea leaf weevil. Later in August, an agronomist with the Manitoba Pulse and Soybean Growers Association collected pea leaf weevils from near Cyress River and Holland, expanding the known eastward distribution of pea leaf weevil.


Pea leaf weevil

## Lentils

(1,070 acres↓)

There were no reports of insects of concern in lentils in 2021.

## Soybeans

(1,249,977 acres↑)

**Cutworms** (Noctuidae): Cutworms were reported causing damage to soybeans in the Southwest and Northwest regions.

**Soybean aphid** (*Aphis glycines*): Soybean aphid levels were once again low and well below economic threshold in 2021. The first report of any soybean aphids was on July 8th this year, but levels stayed quite low. Soybean aphids have not been at economic levels in Manitoba since 2017.

**Spider mites**: Spider mites first began to be noticed on soybeans in late-July. Some high populations were reported from the Central and Eastern regions. A few fields in the Eastern region had insecticide applied for spider mites in early-August. A report from the Eastern region indicated that some symptoms caused by the dry conditions were being confused for spider mite damage.

**Grasshoppers**: There were some reports of insecticide applications to control grasshoppers in soybeans. Some of the applications were to ditches around fields or field edges, in other instances whole fields were treated.

**Blister beetles** (Meloidae): A few agronomists commented on the noticeable levels of blister beetles on soybeans, although there were no reports of control being needed or taken. One agronomist noted blister beetles concentrating on iron deficiency chlorosis patches in soybeans. Another agronomist noted blister beetles preferentially feeding on volunteer canola that was flowering in a soybean field.
Note- the species that were being reported were mainly *Epicauta* spp., whose larvae feed on grasshopper eggs.

## Hemp / Cannabis

(6,131 acres of hemp for grain↓ + 1,412 acres organic hemp↑)

**Grasshoppers**: Grasshopper control on hemp was reported from the Northwest region in mid-June.

**Cannabis aphid** (*Phorodon cannabis*): This past September, assistance was requested identifying insects that had established on cannabis, being grown in a greenhouse in Eastern Manitoba. Samples were collected, all of which were cannabis aphid. This was the first time cannabis aphid had been found in Manitoba. Eggs of cannabis aphid and aphid mummies were also among the material collected. The cannabis producers had already started a biological control program for the aphids.

## Quinoa

**Bertha armyworm** (*Mamestra configurata*): A quinoa field in the Central region had insecticide applied for bertha armyworm in early-August.

## Forages and Forage Seed

**Lygus bugs** (*Lygus* spp.): Some spraying for Lygus bugs and aphids in alfalfa seed crops was reported from the Interlake region in late-June.

**Alfalfa weevil** (*Hypera postica*): Alfalfa weevil was a concern in some alfalfa fields in the Eastern, Interlake and Central regions in mid- and late-June. Some insecticide applications for alfalfa weevil were reported from the Interlake region. In the Eastern region, it was reported that dairy hay was cut in a hurry to prevent further losses. An estimate from the Eastern region was that hay yields were impacted by about 10% because of alfalfa weevil.

**Grasshoppers:** Grasshoppers were a concern on pastures in all agricultural regions. Insecticide applications to pastures for grasshoppers were reported from the Interlake, Northwest and Southwest regions.

**Armyworm** (*Mythimna unipuncta*): After some widespread issues with armyworms in 2020, there were no reports of armyworm larvae being a concern in Manitoba in 2021.

## Potatoes

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

**Colorado potato beetle** (*Leptinotarsa decemlineata*): Compared to 2020, fewer high population incidences of Colorado potato beetles appeared in 2021, mostly in July and in the later part of the season, 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 the rest of Manitoba, seed treatment with neonicotinoids has been sufficient for effective control. In 2021, 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 thirteen potato fields from mid-June until mid-August. This year, Iowa and NY strain lures were used. Counts peaked on July 12-19, with >20 to 80 adults trapped at five sites, mostly in western Manitoba potato fields. The last two weeks had significant declines in catches of European corn borer. Adults were trapped on NY strain traps also; and the moths have been sent for strain confirmation. 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 2021 growing season, but numbers spiked towards the end. During harvest of nearby crops there was an apparent surge in aphid numbers in potatoes. Green peach aphid and potato aphid are effective vectors of potato virus diseases, and can lead to downgrading of seed lots.

## 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 serious infestation on commercial cauliflower and insecticide (Verimark) was used.

**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. It is currently less of a concern in cauliflower crop, where the harvestable part is not affected by the larvae.

**Wireworms** (Elateridae): There was minor damage by wireworms to carrots, similar to last year. The problem is increasing with years.

**Spider mites** were an issue in tomato and cucumber crops in greenhouses / high tunnels. Predatory mites (*Neoseiulus californicus*) were 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. The predatory mites were effective in keeping the spider mites under control.

## Fruit Crops

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

Monitoring for **spotted-wing drosophila** (*Drosophila suzukii*): Traps for spotted-wing drosophila were set up at three locations in Manitoba; Deerwood, Carman, and Portage la Prairie. Low levels were found in traps in late June and early July, which increased in numbers throughout July as more commercial berry fields ripened. More insects were trapped over time at locations without control applications than locations with control applications.

Strawberry- Later strawberry harvest starting in early July. Some **cutworms** (not identified, likely darksided or redbacked cutworms) were found in isolated fields in south central Manitoba. Control applications were applied for **Lygus bug/ thrips** at bloom.

Raspberry- Later harvest starting mid-July. Control was required for **spotted-wing drosophila** and **sap beetles.** Both were an issue half way through harvest.

Saskatoons- above average yield starting in mid-July. There were few issues with insect pests over the harvest period.

## Insects on Trees

Report from: Fiona Ross, Pest Management Biologist, Manitoba Agriculture and Resource Development, Winnipeg.

**Emerald ash borer** (*Agrilus planipennis*): Discovered in Winnipeg in November of 2017. The city of Winnipeg remains the only regulated area for emerald ash borer in Manitoba.

Manitoba Agriculture and Resource Development deployed 150 green prism traps at high risk locations throughout the province. Additional partners deployed traps across the province as one tool to aid in the detection of emerald ash borer in any new locations. All traps in Manitoba were found to be negative for the presence of emerald ash borer.

**Jack Pine Budworm** (*Choristoneura pinus*): A small pocket of jack pine budworm defoliation was observed in the Interlake Forest Section in 2015. The outbreak area expanded in 2016, 2017, 2018, 2019, 2020 further expanded 2021. In 2021, 2,035,037 hectares of defoliated jack pine budworm forest was

observed across the Province. The trap catches and egg mass counts for 2021 are still being processed to determine were the population is building and were it is decline.

**Spruce budworm** (*Choristoneura fumiferana*): Small pockets of spruce budworm defoliation were observed in the northwest corner of the province in 2019. In 2021, 156, 055 hectares of moderate and severe spruce budworm defoliation was seen across the province. Population indices based on trap catches and egg mass counts are still being processed, with results expected mid-November.

***Lymantria dispar dispar***: A reproducing population was confirmed in 2020 with multiple life stages present. A management plan was conducted in the spring of 2021 consisting of three aerial application of *bacillus thruringiensis* (Btk) with the RM of Portage la Prairie. Monitoring will continue in the area for the next couple of years before eradication is considered successful.

**Forest tent caterpillar** (*Malacosoma disstria*): Small isolated pockets were observed; however populations are considered light across the province (34,937 ha).

**Dutch Elm Disease** (*Ophiostoma novo-ulmi*): Manitoba's integrated, community-based Dutch Elm Disease Management Program partners with 38 participating communities throughout the province. With financial support provided by the province, communities are responsible for tree removals and implementing preventative measures such as basal spraying, tree inventories and forest health monitoring. The Manitoba government continues to coordinate the delivery of the program, provide technical support, and conduct annual detection surveys. This partnership approach results in increased community participation and enhanced protection efforts for Manitoba's urban forests.

Provincial survey crews marked approximately 3,696 infected trees in 2021. These numbers do not include the City of Winnipeg, which has its own independent program.