

Prairie Pest Monitoring Network Weekly Updates – July 6, 2016 **Otani, Giffen, Weiss, Svendsen, Olfert**

1. Greetings! All our Staff are surveying so a brief version of the Weekly Update is provided for the week of July 6th!

2. Insect of the Week - This year beneficial arthropods will be featured! **Field Crop and Forage Pests and their Natural Enemies in Western Canada: Identification and Field Guide** (2015) by Hugh Philip is a new publication from Agriculture and Agri-Food Canada. **This week features Parasitoids of Bertha armyworm, the Ichneumonids and Tachinids.**

Monday, 4 July 2016

Insect of the Week - July 4, 2016

Bertha armyworm parasitoids - *Ichneumonids and Tachinids*

Last year, the focus of the **Insect of the Week** was crop pests. This year, we're changing things up and highlighting the many natural enemies that help you out, silently and efficiently killing off crop pests. [note: featured Insects of the Week in 2015 are available on the [Insect of the Week](#) page]

This week's **Insects of the Week** are *tachinids*, and *ichneumonidae*. The adult tachinid will feed on flower nectar, honeydew from aphids, scales, and mealybugs. The tachinid, *Athrycia cinerea* (Coq.), is a parasitoid of the Bertha armyworm. *Ichneumonidae* adults also eat nectar and aphid honeydew, however, its larvae (*Banchus flavescens*, Cresson) are parasitoids of Lepidoptera, Coleoptera, Diptera, Hymenoptera, and some spiders.

For more information about these parasitoids, the other pests they control and other important crop and forage insects, see the new **Field Crop and Forage Pests and their Natural Enemies in Western Canada - Identification and Management Field Guide** for identification, life cycle and conservation options (download links for field guide available on the [Insect of the Week](#) page).



Ichneumonid - adult (*Banchus flavescens*). © John Gavloski, Manitoba Agriculture

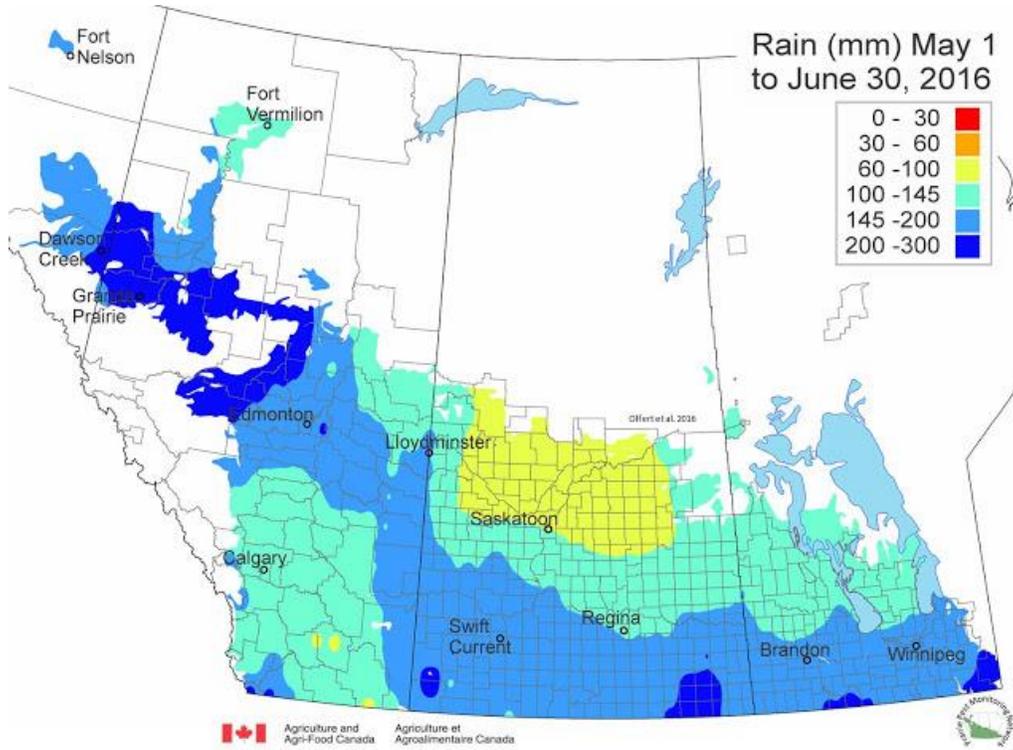


Tachinid- adult. © Alberta Agriculture and Rural Development

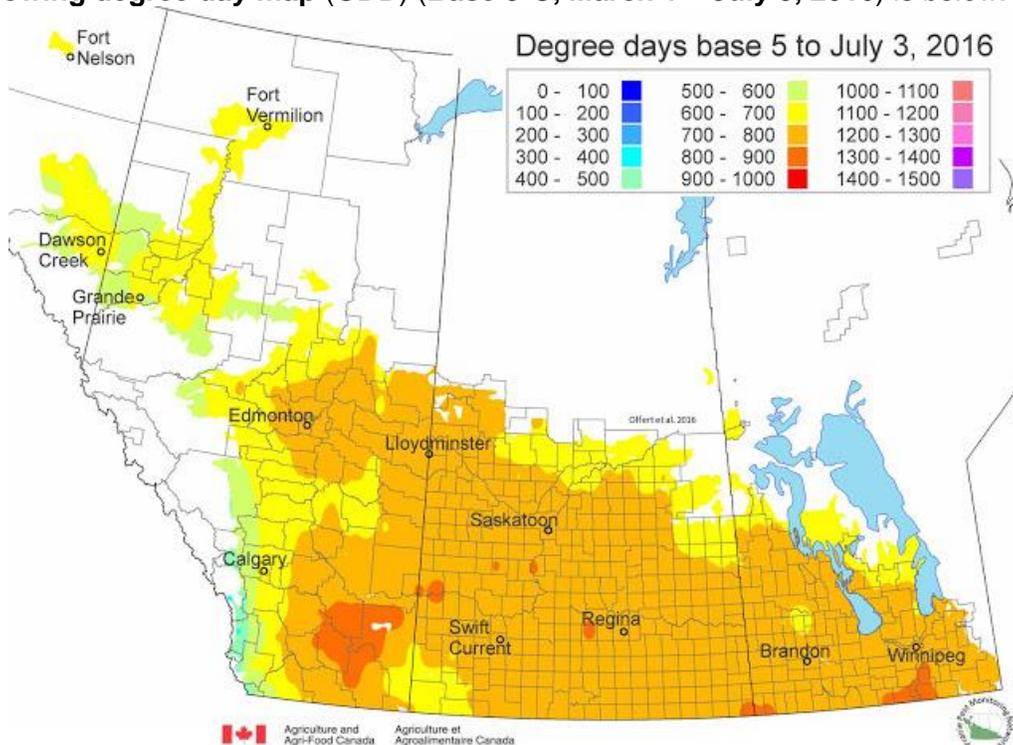


3. Weather synopsis – Staff are busy surveying so some maps are not available this week.

The map below reflects the **Accumulated Precipitation for the Growing Season** so far for the prairie provinces (i.e., **May 1-June 30, 2016**):

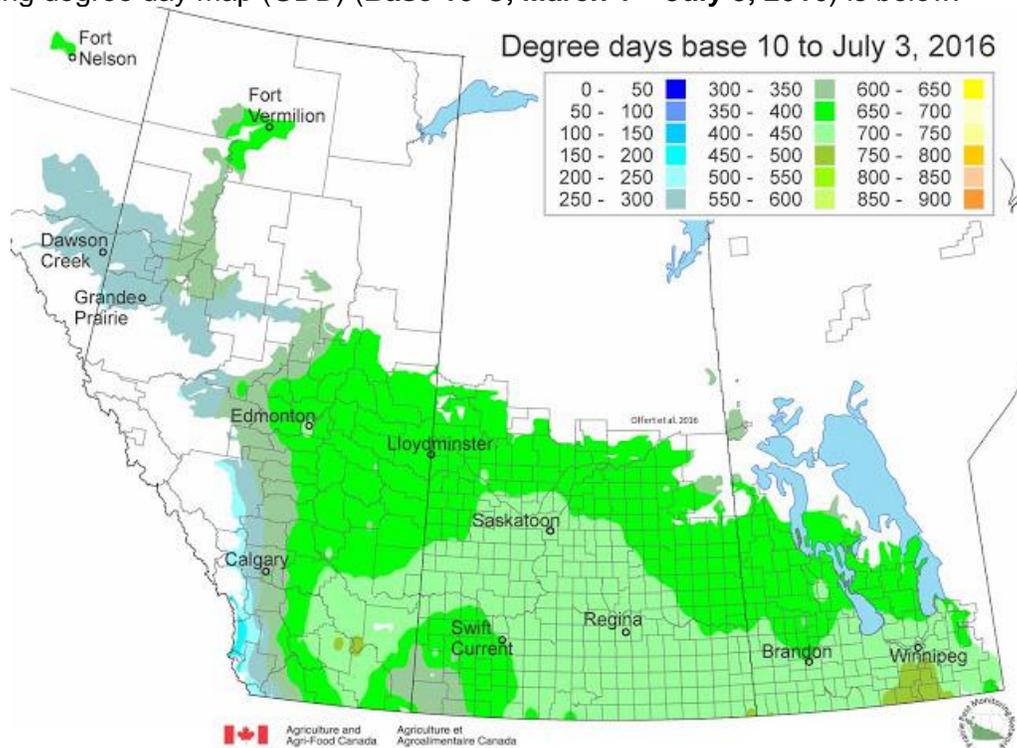


The updated **growing degree day map (GDD) (Base 5°C, March 1 – July 3, 2016)** is below:





While the growing degree day map (GDD) (Base 10°C, March 1 – July 3, 2016) is below:



The maps above are all produced by Agriculture and Agri-Food Canada. Growers may wish to bookmark the [AAFC Drought Watch Maps](#) for the growing season.

4. Cabbage seedpod weevil (*Ceutorhynchus obstrictus*) - Reminders for monitoring:

- Begin sampling when the crop first enters the bud stage and continue through the flowering.
- Sweep-net samples should be taken at ten locations within the field with ten 180° sweeps per location.
- Count the number of weevils at each location. Samples should be taken in the field perimeter as well as throughout the field.
 - Adults will invade fields from the margins and if infestations are high in the borders, application of an insecticide to the field margins may be effective in reducing the population to levels below which economic injury will occur.
 - An insecticide application is recommended when three to four weevils per sweep are collected and has been shown to be the most effective when canola is in the 10 to 20% bloom stage (2-4 days after flowering starts).
 - Consider making insecticide applications late in the day to reduce the impact on pollinators. Whenever possible, provide advanced warning of intended insecticide applications to commercial beekeepers operating in the vicinity to help protect foraging pollinators.
 - High numbers of adults in the fall may indicate the potential for economic infestations the following spring.

Damage: Adult feeding damage to buds is more evident in dry years when canola is unable to compensate for bud loss. Adults mate following a pollen meal then the female will deposit a single egg through the wall of a developing pod or adjacent to a developing seed within the pod (refer to lower right photo). Eggs are oval and an opaque white, each measuring ~1mm long. Typically a single egg is laid per pod although, when CSPW densities are high, two or more eggs may be laid per pod.



Photo-Lloyd Dossall



Photo-Lloyd Dossall

There are four larval instar stages of the CSPW and each stage is white and grub-like in appearance ranging up to 5-6mm in length (refer to lower left photo). The first instar larva feeds on the cuticle on the outside of the pod while the second instar larva bores into the pod, feeding on the developing seeds. A single larva consumes about 5 canola seeds. The mature larva chews a small, circular exit hole from which it drops to the soil surface and pupation takes place in the soil within an earthen cell. Approximately 10 days later, the new adult emerges to feed on maturing canola pods. Later in the season these new adults migrate to overwintering sites beyond the field.



Photo-Lloyd Dossall



Photo-Lloyd Dossall

Please find additional detailed information for CSPW in fact sheets posted by [Alberta Agriculture and Forestry](#), [Saskatchewan Agriculture](#), or the [Prairie Pest Monitoring Network](#).

Also watch provincial reports for updates on surveying underway now. Alberta Agriculture & Forestry has released a new [live CSPW map](#) and [online reporting tool](#) for growers. A screenshot (retrieved 06 Jul 2016) is included below.



Alberta Agriculture and Forestry

Alberta.ca - Agriculture and Forestry - Maps - Seedpod Weevil Survey Results On-line Map

About the Ministry Agriculture Forestry Find Staff Decision Making Tools Directories General Store Maps & Multimedia

Cabbage Seedpod Weevil Survey Results [about](#)

Choose Region: [Alberta](#) [North](#) [Central](#) [South](#)

Map: Satellite

Map data ©2016 Google, INEGI Terms of Use Report a map error

There are [41 Locations](#) that have Any Sweep Counts

Any Sweep Counts Locations

Show: Any Sweep Counts

- [Calston Location #1](#)
0% of sweep counts below ET
- [Calston Location #2](#)
100% of sweep counts below ET
- [Calston Location #3](#)
80% of sweep counts below ET
- [Calston Location #4](#)
0% of sweep counts below ET
- [Calston Location #5](#)
0% of sweep counts below ET
- [Cypress Location #1](#)
100% of sweep counts below ET
- [Egby Mile Location #1](#)

Legend

Percentage of Sweeps below above Economic Threshold

- 0% All samples are below an Economic Threshold of 3 per sweep
- >0% - <25% Less than 25% of samples are above an Economic Threshold of 3 per sweep
- ≥ 25% 25% or Greater of samples are above an Economic Threshold of 3 per sweep

Alberta Home Government Search Government Expense Disclosures
Using this Site Privacy Contact Us
Phone the AgInfo Centre, toll-free in Alberta at 310-FARM (3276), for agricultural information.
© 1995 - 2016 Government of Alberta Copyright and Disclaimer

5. Alfalfa Weevil (*Hypera postica*) – Reminder - Please refer to [earlier posts](#) to find information related to the appearance, damage and biology of this insect pest.



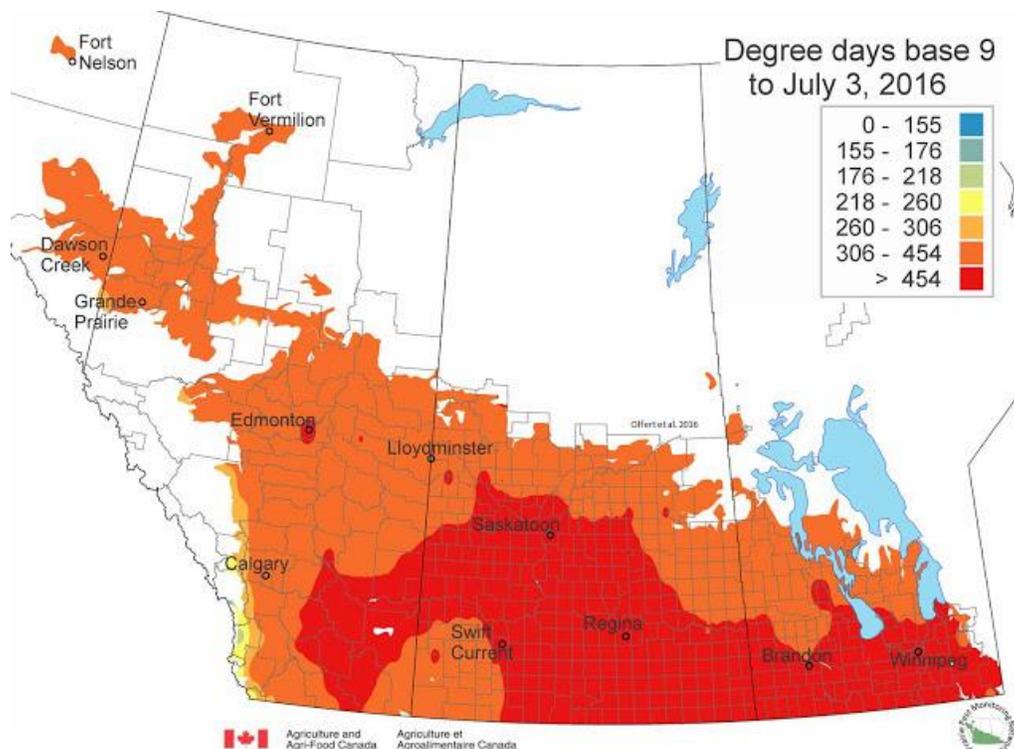


Updated - Degree-day maps of base 9°C are now being produced by Soroka, Olfert, and Giffen (2016) using the Harcourt/North Dakota models. The aim of the modelling is to predict the development of Alfalfa weevil (*Hypera postica*) across the prairies and to help growers time their in-field scouting as second-instar larvae are predicted to occur. Compare the following predicted development stages and degree-day values copied below (Soroka 2015) to the map below.

Predicted degree day accumulations for peak numbers of alfalfa weevils.		
Stage or event	Degree days (Base 9°C)*	Weevil activity
Egg hatch	155-167	
Instar 1	176-206	Light leaf feeding
Instar 2	218-243	
Instar 3	260-280	Major leaf feeding
Instar 4	306-331	

* Peak alfalfa weevil developmental times from Harcourt (1981) and Beauzay et al. (2013)

For the week of July 3, 2016, the following map predicts the developmental stages for alfalfa weevil and corresponding degree-days. Areas highlighted orange are predicted to find fourth instar larvae.



Economic thresholds for Alfalfa weevil (adapted from Soroka 2015) vary by crop type (hay or seed), area fed upon and larval densities.

In hay fields, forage losses can be economic if one or more of the following symptoms are noted:

- if 25-50 % of the leaves on the upper one-third of the stem show damage, or
- if 50-70% of the terminals are injured, or
- if 1 to 3 third or fourth instar larvae occur per stem (with shorter stems having lower economic thresholds and 3 or more larvae requiring treatment no matter what the alfalfa height), or
- 20-30 larvae per sweep occur when 12% leaf loss is acceptable.
- Also consider these two points:
 1. Early cutting of the first growth of alfalfa or insecticide treatment will reduce alfalfa weevil populations.
 2. If the hay crop value is high and weevil injury is seen or 2 or more larvae per stem reappear in regrowth after cutting, insecticide may be necessary (if a second cut is anticipated).



In alfalfa seed fields:

- Economic thresholds are 20-25 third to fourth instar larvae per sweep or 35-50% of the foliage tips showing damage.
- Thresholds increase with the height of the alfalfa, and decrease in drought conditions.
- Also know that several small wasps parasitize alfalfa weevil larvae and adults, and in the past these natural control agents kept the weevil in check in most years. One of these wasps, *Bathyplectes curculionis* (Thomson), parasitizes alfalfa weevil in Alberta and Saskatchewan, and is now found in Manitoba.

6. Cereal leaf beetle (*Oulema melanopus*) – Reminder – Please refer to earlier posts for information related to the biology, damage and monitoring of the Cereal leaf beetle.



Figure 1. Larval stage of *Oulema melanopus* with characteristic feeding damage visible on leaf.

Monitoring:

Give priority to following factors when selecting monitoring sites:

- Choose fields and sections of the fields with past or present damage symptoms.
- Choose fields that are well irrigated (leaves are dark green in color), including young, lush crops. Areas of a field that are under stress and not as lush (yellow) are less likely to support CLB.
- Monitor fields located along riparian corridors, roads and railroads.
- Survey field areas that are close to brush cover or weeds, easy to access, or are nearby sheltered areas such as hedge rows, forest edges, fence lines, etc.

Focus your site selection on the following host plant priorities:

- **First** - winter wheat. If no winter wheat is present then;
- **Second** - other cereal crops (barley, wheat, oats, and rye). If no cereal crops are present then;
- **Third** - hay crops. If no hay crops or cereal crops are present then;
- **Fourth** - ditches and water corridors

Sweep-net Sampling for Adults and Larvae:

- A sweep is defined as a one pass (from left to right, executing a full 180 degrees) through the upper foliage of the crop using a 37.5 cm diameter sweep-net.
- A sample is defined as 100 sweeps taken at a moderate walking pace collected 4-5 meters inside the border of a field.
- At each site, four samples should be collected, totaling 400 sweeps per site. The contents of each sample should be visually inspected for life stages of CLB and all suspect specimens should be retained for identification.
- Because the CLB larvae are covered in a sticky secretion, they are often covered in debris and are very difficult to see within a sweep-net sample.



- To help determine the presence of CLB, place the contents of the sweep net into a large plastic bag for observation.

Visual Inspection:

Both the adults and larvae severely damage plants by chewing out long strips of tissue between the veins of leaves (Fig. 1), leaving only a thin membrane. When damage is extensive, leaves turn whitish.

Fact sheets for CLB are published by the province of [Alberta](#) and available from the [Prairie Pest Monitoring Network](#). Also access the [Oulema melanopus page](#) from the new "Field crop and forage pests and their natural enemies in western Canada - Identification and management field guide".

7. Provincial entomologists provide insect pest updates throughout the growing season so we have attempted to link to their most recent information:

- Manitoba's Insect and Disease Update ([July 4, 2016](#), prepared by John Gavloski and Pratisara Bajracharya).
- Saskatchewan's Insect Report which mentions rebacked cutworms but emphasizes scouting for cabbage seedpod weevil, wheat midge and grasshoppers ([Issue 4](#), prepared by Scott Hartley).
- Watch for Alberta Agriculture and Forestry's [Call of the Land](#) for updates from Scott Meers who recently provided an update (posted on [July 7, 2016](#)).

8. The following list of previous 2016 Posts is below – click the hyperlink to review:

- [Crop reports](#)
- [Cereal leaf beetle](#)
- [Bertha armyworm development and flight](#)
- [Grasshoppers](#)
- [Swede midge](#)
- [Canola scouting chart](#)
- [Wind trajectories](#)
- [Cutworms](#)
- [Flea beetles in canola](#)
- [Predicted cereal leaf beetle development](#)
- [Predicted lygus bug development](#)
- [Predicted wheat midge development](#)
- [Pea leaf weevil monitoring](#)
- [Crop protection guides](#)
- [Using Environment Canada's radar maps to follow precipitation events](#)
- [Iceburg reports](#)
- [Multitude of mayflies](#)
- [Monarch migration](#)

9. Questions or problems accessing the contents of this Weekly Update? Please e-mail either [Dr. Owen Olfert](#) or [Jennifer Otani](#). Past "Weekly Updates" are very kindly archived to the Western Forum website by webmaster, Dr. Kelly Turkington. Please [click here](#) to link to that webpage.