

Manitoba Crop Pest Update

Issue 12: August 5, 2020



Summary

Insects: Grasshoppers are currently the biggest insect concern. Some sunflower midge has been observed in sunflowers in the Eastern region, mainly around field edges, which is typical for this insect. Lygus bugs have also been noted in sunflower fields. Diamondback moth larvae in canola remains a concern for growers and agronomists in the Eastern region, with lots of scouting and some limited insecticide applications occurring.

Diseases: We are now completely consumed by disease surveys in Canola, Spring Wheat, Oat, Barley and Soybean. I have also visited the odd Sunflower, Flax and Corn field. Diseases we've seen (but never at Yield-limiting incidence) include: Fusarium head blight, glume blotch and ergot in wheat, barley and oat; blackleg, Sclerotinia and aster yellows in canola; and bacterial blight & Septoria brown spot in soybean; and Alternaria leaf spot and downy mildew in sunflowers.

Plant Pathology

The symptoms of FHB infection in oat and barley are difficult to assess. Here are a few pictures from we have teased out:





FHB and sooty mold on barley 1

FHB on oat 1

Some examples of what agronomists
are seeing right now:



3 LSD on wheat - Rejean Picard

1 bacterial blight on soybean - Cam Hildebrand 2 tip blast on barley - Ingrid Kristjanson

Entomology

Flea beetles: Regarding flea beetles in canola late in the summer, a study was done at Agriculture and Agri-Food Canada in Saskatoon to determine how economical they are. The study concluded that:

Flea beetle feeding on canola in late-summer is rarely an economic concern. Flea beetle feeding that occurs when seeds in lower pods of canola are at the green stage or beyond is unlikely to affect seed yields regardless of the infestation rate of flea beetles. Even when seeds are translucent to green, numbers higher than 100 flea beetles per plant, and for some cultivars higher than 350 per plant, may be necessary to cause significant yield reductions (Soroka and Grenkow. Can. J. Plant Sci. 2012: 97-107).



Insects on Sunflower Heads: Lygus bugs are present in many sunflower fields and banded sunflower moth have been noted as well. There have been no reports of high levels of sunflower seed weevils in Manitoba.

When does it become too late to manage Lygus bugs in sunflowers? In research trials in North Dakota, damage to sunflower heads by Lygus bugs was approximately twice as severe when feeding occurred at late bud and early bloom compared to stages when heads had completed flowering. At these earlier stages, the feeding will injure the kernels, and the destruction of the cells will result in the characteristic depressions and browning of the kernel. If adult densities reach the economic threshold in sunflowers for human consumption, lygus bug management should be initiated prior to or at the beginning of the bloom stage. When flowering has finished (by R6) the seeds are probably too mature to sustain damage any longer.

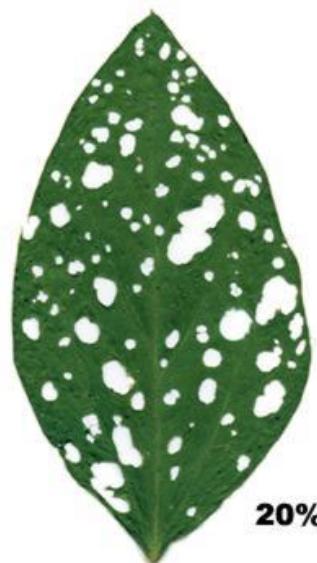
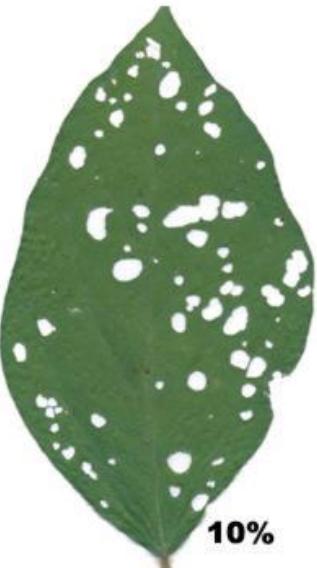


Pollinators and Sunflowers: Also consider that in flowering sunflowers there will be pollinators, which are also helping improve yield of the sunflowers, as well as providing a livelihood for beekeepers. Controlled studies showed that in most sunflower hybrids, seed set, seed oil percentage, seed yields and oil yields increase when pollinators (mainly bees) are present. Yield can increase as much as 48.8 percent and oil percentage can increase 6.4 percent in bee-exposed hybrids. Hence the challenge, when seed-feeding insects get to economic levels, how to manage them without losing these pollinator benefits. The only insecticides registered for Lygus bugs in sunflowers are Matador/Labamba and Voliam Xpress, which can not be applied to flowering crops when bees are visiting the treated area. Both labels also state "spray deposits should be dry before bees commence foraging in treated crop". If treatment is necessary for Lygus bugs in sunflowers, spraying as late in the day as practical is preferred. Makes sure to notify beekeepers with hives in the area in advance.

Defoliation Thresholds in Soybeans: Estimating the amount of defoliation caused by insects can be a tricky, and sometimes inexact, as our eyes tend to be drawn to the injury. It is easy to overestimate leaf injury, which can lead to unnecessary insecticide applications. Thus having tools to help make good estimates are helpful, as is understanding what levels of defoliation are tolerable.

Leon Higley, editor of the Handbook of Soybean Insect Pests, writes, "Unlike many crop species, soybean has a remarkable capacity to withstand much insect injury without significant yield loss. It accomplishes this by both tolerating and compensating for injury. For example, soybean plants can tolerate large levels of leaf feeding without ill effect. Yield losses are prevented because soybean plants typically produce excess leaves. In addition, when leaf loss becomes too great, plants can help compensate for losses by retaining older leaves and maintaining high levels of photosynthesis. Soybean also can compensate for stand losses. Usually, gaps in soybean stands are filled by additional growth and branching of the remaining plants. In this way, soybean yields are maintained despite substantial reductions in plant population. These tolerance and compensatory traits of soybean reduce the need for pesticides or other management tactics in many situations."

To help field scouts accurately estimate defoliation, six leaves with defoliation in 5 percent increments are shown below. Consider treatment of soybean if leaf-feeding insects (grasshoppers, thistle caterpillars, etc.) are present and defoliation reaches 20 percent in the pod-forming and pod-filling stages. Reductions in yield can occur during any crop stage and pod-forming and pod-filling stages are at greater risk than other plant stages. A 40 percent leaf loss during any vegetative stage will result in only a 3-7 percent yield reduction. Defoliation of 20 percent during the pod-forming and pod-filling stages will result in similar yield reductions.



Grasshopper pathogens: A few people have reported observing dead grasshoppers hanging from the tops of plants. This is a fungal pathogen called *Entomophaga grylli* that is killing the grasshoppers. This fungus can help control grasshoppers under warm, humid conditions. This has been noted in fields near Altona, south or Carman, and in the Southwest in the Minnedosa / Neepawa–Brandon regions.



Photo by Angela Brackenreid –
Canola Council of Canada

Weeds

What's bleaching the tops of the Canada thistles?

Last week on CropTalk John Heard and Tammy Jones had differing opinions on what was causing the bleached tips of Canada thistles shown below. This is a common scene along roadsides of Manitoba this summer and many often assume that a herbicide is causing such symptoms.



John's story is the American version - which he originally heard from Dr. Don Wyse, weed researcher at University of Minnesota in the early 1990's. Dr. Wyse had isolated the bacterium, *Pseudomonas syringae* pv. *tagetis*, (PST for short) which was the causal organism and was excited about the potential for culturing as a biocontrol. As noted in <https://bygl.osu.edu/node/300> "The bacterium received a great deal of research attention in the early 2000s as a possible biocontrol agent for Canada thistle. Unfortunately, PST has defied being cultured in a laboratory; all testing thus far has been done using extracts from infected plants. Also, even though flower head production was reduced by as much as 87% in research trials, the thistle is such a prolific seed producer researchers concluded that PST would not be able to overcome re-seeding by surviving plants".

Fast forward and Tammy Jones relayed that AAFC researchers had found the fungus *Phoma macrostoma* naturally infects Canada thistle, also causing plants to turn white. Without chlorophyll, the plants die. The fungus had been isolated and purified from plants growing in Saskatchewan and other provinces by AAFC scientists and was being developed as a bioherbicide to control broadleaved weeds like dandelion, Canada thistle, and clover. <https://www.agr.gc.ca/eng/agriculture-and-climate/agricultural-practices/agricultural-pest-management/agricultural-pest-management-resources/agriculture-and-agri-food-canada-biopesticide-phoma-macrostoma/?id=1553020651320>

Perhaps both organisms are contributing to some measure of natural control of Canada thistle. Read on and John Gavloski will reveal another ailment of this weed.

Forecasts

Bertha Armyworm. A network of pheromone-baited traps are monitored across the Canadian prairie provinces in June and July to determine levels of bertha armyworm adult moths, and forecast risk of their potentially being economic levels of larvae somewhere in the region. The traps do not determine risk for the field specifically that the trap is in, but can estimate regional risks, which can help prioritize scouting for larvae. Trapping for adult moths is now complete.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) in pheromone-baited traps for five agricultural regions in Manitoba as of August 5, 2020

Region	Nearest Town	Trap Count
Northwest	Durban	477
	Bowsman	476
	Swan Valley	461
	Grandview	268
Southwest	Foxwarren	328
	Inglis	191
	Minto	157
	Souris	133
Central	Dunrea	485
	Kilarney	462
	Somerset	400
	Snowflake	296
Eastern	Tourond	182
	Stead	73
	Lac du Bonnet	49
	Ste. Anne	43
Interlake	Vidir	312

0-300 = low risk - green
300-900 = uncertain risk - yellow
900-1,200 = moderate risk
1,200+ = high risk

	Teulon	204
	Balmoral	154
	Clandeboye	138

Traps to monitor adult moths of bertha armyworm were set up at 83 locations in Manitoba in 2020. 75 traps were in the low risk category (less than 300 cumulative moth count), and 8 traps were in the uncertain risk category. No traps were in the moderate or high risk categories. Highest counts were in the Western part of the Central Region and the Northwest. The highest trap count is 485 near Dunrea in Central Manitoba.

When scouting canola, it is good to have a look under debris and on the ground to see what levels of bertha armyworm are like, particularly in those areas that had higher trap counts.

Grasshopper Survey: A reminder for those participating in the grasshopper survey, that counts are done during August, when the majority of grasshoppers are in the adult stage.

Agronomists and farmers who would also be interested in estimating grasshopper numbers in or around the fields they are in and have this information included in the survey are encouraged to see the survey protocol (at the link below) for more details of the survey and where to send data.

Estimates of grasshopper levels can be collected during regular farm visits. "Estimates" of grasshopper populations is stressed as it will not be possible to accurately count grasshoppers along a field edge or ditch area as they will be moving around as you get near the area of the count. But estimates of what is present gives us some idea of the relative numbers that are present in different areas.

Data from the survey, along with weather data during the egg laying period of the grasshoppers, is used to produce a forecast for 2021.

The protocol and data sheet for the grasshopper survey is at:

<http://www.gov.mb.ca/agriculture/crops/insects/mb-grasshopper-survey.html>

Identification Quiz:

Question: A couple of people have sent in photos over the past week of these abnormal growths on Canada thistle.



Answer: This is the Canada thistle stem gall fly (*Urophora cardui*). They are native to central and southern Europe, but have been introduced to North America for thistle control. They overwinter as a mature larvae inside the gall.

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To report observations on insects, plant pathogens, or weeds that may be of interest or importance to farmers and agronomists in Manitoba, please send messages to the above contacts.

To be placed on an **E-mail list** so you will be notified immediately when new Manitoba Crop Pest Updates are posted, please contact John Gavloski at the address or numbers listed above.