Manitoba Crop Pest Update
Issue 7: June 23, 2021

Manitoba Agriculture

Summary

Insects: Grasshopper nymphs are being managed in some areas; some of these being field edge treatments. Alfalfa weevil is a concern in some alfalfa fields in the Eastern, Interlake and Central regions. Some have cut their alfalfa early as a means of managing the alfalfa weevil, others have used insecticides. Barley thrips are being noted in some barley fields, a field in the southwest was at boarderline threshold. Aphids are present in cereals in the Central and Eastern regions, but not at threshold levels. People are noting a lot of blister beetles in some crops; some of the species that seem to be abundant have larval stages that specialize in feeding on grasshopper eggs. Cereal leaf beetle feeding has been noted on some wheat and oat fields in the Eastern region; samples have been collected to determine the percent that are parasitized.

Diseases: The disease issues for the week have been, in order of reporting prevalence – 1. Bacterial blight in oats, 2. White heads in fall rye (primarily hybrid type) caused by numerous environmental stresses, not insect or pathogen, and 3. Lower canopy lesions in field peas (bacterial or fungal?). I'll put together a more comprehensive treatment of these next week. For now, refer to the images in the Disease Section below.

Weeds: Spraying continues across the province, as some crops were reseeded we've got a big range in growth stages. Cereals are pretty much wrapped up, canola and soybeans have mostly had their first spray and second sprays are ongoing. Earliest fields were sprayed weeks ago, keep up with post –spray scouting so we can see which weeds have been missed or have started to regrow. Some products give good in-crop burnoff of bigger weeds or perennials but later the weeds start to regrow. If this is a problem in your fields then evaluate your herbicide choices, a different product might be better for next year. Plan your pre-harvest and post-harvest sprays to take care of these weeds that got missed. When doing a second spray in canola or soybeans leave at least 10 days between applications to let the crops recover. Watch crop staging to make sure you're still within the maximum growth stage for crop safety and pre-harvest intervals.

Entomology

Grasshopper development: Model simulations by Agriculture and Agri-Food Canada in Saskatoon were used to estimate grasshopper development as of June 20, 2021. Above normal temperatures have been responsible for advanced development of eggs and nymphs across southern Manitoba. Hatch is predicted to be greater than 90% across most of the province. Grasshopper populations south of Winnipeg are predicted

to be mostly in 3rd and 4th instars (Fig.1). The grasshopper model was projected to July 6 to predict potential development near Winnipeg over the next two weeks. Results indicate that first appearance of adults may occur by July 1.

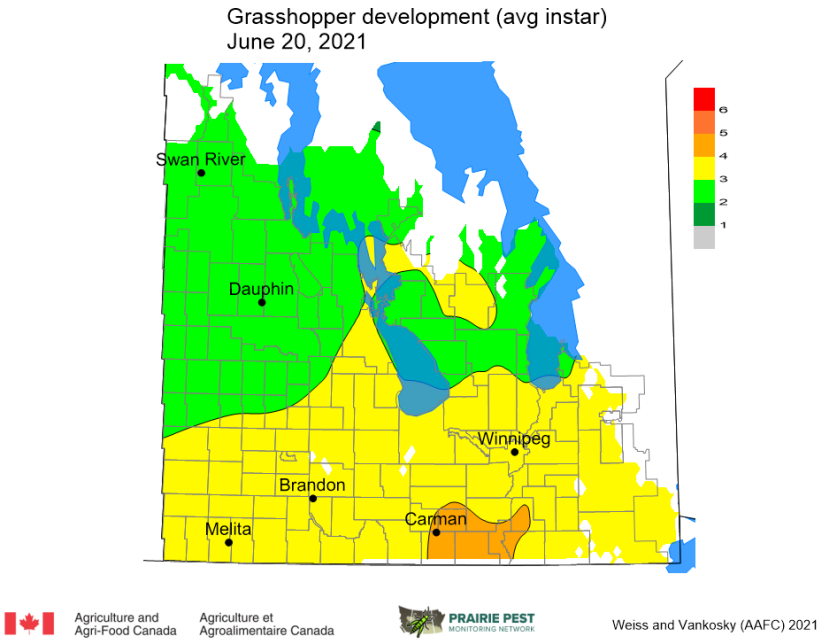

Figure 1. Predicted grasshopper (*Melanoplus sanguinipes*) development, presented as the average instar, across Manitoba as of June 20, 2021.

Thresholds for thrips in barley: Barley thrips (*Limothrips denticornis*) seem to prefer barley to other cereal, although there is a closely related species called grain thrips (*Limothrips cerealium*) that can be found on all types of small gains, but is more common on wheat, rye, and oats. For barley thrips, sampling should begin when the flag leaf is first visible and continue until head is completely emerged form the boot. There can be an edge effect with barley thrips; there are usually more near protected field margins than other areas of the field. Most barley thrips can be found under the top 2 leaf sheaths. Unroll the leaf sheaths away from the stem to find the thrips.

With barley thrips on barley there is an equation that can be used to determine the most appropriate threshold: Treat when thrips are equal to or greater than the number calculated by: Threshold (Thrips/stem) = (Cost of Control ÷ expected $ value per bushel) / 0.4. This often works out to about 7 or 8 thrips per stem. Insecticide treatments are only effective when applied before heading is complete.

Crop or plant residue reducing flea beetle feeding. In the June 9, 2021 update we had an article discussing how canola seeded into zero-till conditions can reduce feeding from flea beetles. The following photo was submitted, demonstrating how the environment canola is emerging into can affect flea beetle feeding. There was very little feeding from flea beetles in this volunteer canola (which is of course completely untreated) growing in wheat. A canola field next to this wheat field was sprayed for flea beetles, and received heavy feeding from flea beetles.

Photo by Larry Bohdanovich – Grandview, MB

Plant Pathology

Weeds

We've been getting a lot of calls this past week about herbicide carryover, particularly group 2 injury on peas. Here are some of the symptoms:

Typical group 2 injury is yellowing of the growing point, as we see in the first pic. Our middle pic show the plant branching out from the crown, the growing point on the main stem is damaged so the plant is sending out new growth. Our third pic shows new shoots coming from the seed, the plant is trying to send out new shoots as the above ground growth is damaged from the herbicide residue.

Here we see in the first pic an affected area in the field, all plants in this area are showing the yellowing and are stunted. Our next two pics are looking across the landscape, we can see the damage is worse on the hilltops. Previous crops were wheat sprayed with flucarbazone (Everest, Sierra) in 2020. The recropping intervals are on the label, and here's a snip from the "Restrictions" section of the 2021 Guide to Crop Protection (page 216):

Soil Zones and Rotational Crops			
Grey-Wooded	Black	Dark Brown	Brown
Spring wheat Barley Canola (all varieties) Field pea*	Spring wheat Barley Canola (all varieties) Durum wheat Field pea* Flax Field bean Soybean† Sunflower†	Spring wheat Barley Canola (all varieties) Durum wheat Field pea* Flax Soybean† Sunflower†	Spring wheat

† Not including *Sierra 3.0* at this time.

*** NOTE: Field pea may be grown the year following flucarbazone application in fields where precipitation has been equal to or above the 10-year average during the growing season, and where organic matter content is above 4 percent, and pH is below 7.5. The company suggests a minimum of 100 mm (4 inches) of rain is needed in the 60 days following application for adequate breakdown to take place.**

NOTE: Other rotational crops may also be affected if rainfall is less than the 10 year average for the area. Soils in the grey wooded, black and dark brown soil zones with a combination of low organic matter (less than 2 percent), light textured soils or high pH (greater than 7.5) (i.e. eroded knolls, sandy soils) may result in delayed growth and development in rotational crops.

Field peas can be grown in MB the year following flucarbazone application only if three criteria are met – precipitation is equal to or above the 10 year average during the growing season (not in 2020), OM is above 4% and pH is below 7.5. Lighter textured areas of the fields, as well as eroded knolls will not meet the last two criteria. As we can see from the landscape pics above the hilltops are the most affected areas of the field. Some of these pants may recover, but they have been set back and yield will be affected. When planning for peas next year, watch where flucarbazone has been applied, if we get adequate moisture during this growing season, a minimum 4 inches, there may be adequate breakdown. Building up organic matter and lowering pH on eroded knolls is a longer term landscape restoration project.

Soil Fertility

Striped Corn – What's the culprit?

A number of nutrient deficiencies or stresses can lead to striping symptoms of corn. In our environment and soil characteristics, it is more typically either sulphur and zinc deficiency. The photo below left is zinc deficiency (slight), confirmed by soil and tissue testing. It is most common where soil pH is high, organic matter low and if any subsoil has been exposed, through erosion or land leveling.

Zinc deficiency (left) and sulphur deficiency (right)

Sulphur (S) deficiency is more general yellowing and full-length extension of the stripes on leaves. It is more likely where S is leached from the top soil, and S has not applied to other crops in the rotation.

Diagnostic sampling, ie paired tissue and soil sampling of poor versus adjacent better areas, is recommended.

Nitrogen and water use by cereals

Manitoba growers have become profitable in managing for high yield wheat with high populations and nitrogen rates. But aggressive nitrogen fertilization can go wrong in very dry years due to “haying off”.

“Haying off” is a term coined by Australians for a wheat crop that produces much vegetative growth early in the season but exhausts the stored soil reserves and does not have sufficient moisture at grainfilling. Nitrogen encourages tiller initiation and development, producing greater foliage and subsequently greater transpiration of water. Now that the cereal crop is full canopied, the transpiration rate is about 1/3” of water per day. Many of our cereals still appear to have good yield potential, because the root system is lengthening to 3-4’ deep until anthesis. At that stage, further root exploration stops and the crop uses that remaining soil moisture reserve and in-season rainfall.

Under dry conditions the wheat crop will cut its losses to some extent by sloughing or pinching off extra tillers.

With unpredictable precipitation and limited soil moisture reserves, it remains to be seen if we are heading to a season of “haying off”.

Forecasts

Diamondback moth. A network of 98 pheromone-baited traps are being monitored across Manitoba in May and June to determine how early and in what levels populations of diamondback moth arrive. Of these, diamondback moth has been found in 62 of the traps, and levels vary. Trap counts were generally low until late-May. Since then some moderate counts have occurred in traps in the Northwest, Central, Interlake and Eastern regions. The highest cumulative trap count so far is 142 from a trap in the Interlake region. The first report of larvae, and a diamondback moth pupal case, came in this week. These were from a cruciferous vegetable field. No high levels of larvae reported yet though.

Table 1. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba as of June 23, 2021.

Region	Nearest Town	Trap Count	
Northwest	The Pas	135	
	Bowsman	59	
	Makaroff	39	
	Grandview	33	
Southwest	Minto	28	
	Boissevain	15	
	Fairfax	11	
	Carberry	8	
Central	Haywood	68	
	Edwin	57	
	Altona	35	
	Starbuck, Culross	21	
Eastern	Stead	58	
	Beausejour	43	
	River Hills	26	
	Hadashville	24	
Interlake	Selkirk	142	← Highest cumulative count
	Clandeboye	46	
	Arborg	43	
	Vidir	43	

Highest counts in each region and a monitoring summary are updated twice weekly (Fridays and Tuesdays) on the Insect Page of the Manitoba Agriculture and Resource Development website at: https://www.gov.mb.ca/agriculture/crops/insects/diamondback-moth-forecast.html

Armyworms (*Mythimna unipuncta*). As a new monitoring program this year in Manitoba, a network of 29 pheromone-baited traps are being monitored from early-May until mid-July to determine how early and in what levels populations of armyworms have arrive. So far counts have generally been quite low. The highest count is 22, from a trap near Minto in the Southwest.

Table 2. Highest cumulative counts of armyworms in pheromone-baited traps for five agricultural regions in Manitoba as of June 23, 2021.

Region	Nearest Town	Trap Count
Northwest	0 in all traps so far	
Southwest	Minto	22
	Boissevain	8
	Fairfax	6
	Elgin	1
Central	Kane	1
	Glenboro	1
	Remaining 5 traps all reporting 0	
Eastern	Beausejour	8
	Lac du Bonnet	5
Interlake	Gimli	0

← Highest cumulative count

A map showing armyworm counts from Manitoba, Eastern Canada, and several Northeast U.S. states is available at: https://arcg.is/0Lry5a. Go to the link “TAW”. Those within the Manitoba government wanting to access this website, you may have to do it from your phones, as we seem to be blocked from accessing it on our computers.

Bertha Armyworm (*Mamestra configurata*). 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. Traps are set up in about 90 locations in Manitoba. 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 still in the early stages, and the counts in Manitoba are still very low. The highest cumulative trap count so far is 10 near Horndean in Central Manitoba.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) in pheromone-baited traps for five agricultural regions in Manitoba as of June 22, 2021.

Region	Nearest Town	Trap Count
Northwest	Bowsman, Angusville	3
	Bowsman, Benito	2
	Remaining traps all 0	
Southwest	Brandon	6
	Boissevain, Oakburn	4
	Strathclair	3
	Rivers, Shoal Lake	2
Central	Horndean	10
	St. Joseph	9
	Emerson	8
	Haywood	5
Eastern	Beausejour, Stead, Hadashville	4
	River Hills	3
	Remaining traps all 0	
Interlake	Arborg	4
	Vidir	1
	Remaining traps all 0	

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

Highest counts from bertha armyworm traps in each region and a monitoring summary are updated twice weekly (Fridays and Tuesdays) on the Insect Page of the Manitoba Agriculture and Resource Development website at:
https://www.gov.mb.ca/agriculture/crops/insects/bertha-armyworm-forecast.html

Identification Quiz:

Question: What do these three beetles have in common:

Answer: These are all species of blister beetles, which make up a family of beetles called Meloidae. There are 46 species of blister beetles in Canada. The upper two photos are blister beetles that belong to the genus *Epicauta*. Larvae of blister beetles in this genus specialize in feeding on grasshopper eggs. Not surprisingly, people are noticing a lot of blister beetles this year.

The blister beetle in the bottom picture is called a Nuttall's blister beetle, *Lytta nuttalli*. They will feed on many plants; some of the plants they have been observed feeding on include sweet clover, alfalfa, lupines, milkvetch, caragana, locoweed, canola, beets, sainfoin, etc. They are generally not regarded as a crop pest though.

Larvae of blister beetles go through “hypermetamorphosis”. Young larvae are sleek, host-seeking larvae, and become a plump couch potato once they find their desired food.

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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.