

Manitoba Crop Pest Update

Issue 11: July 31, 2019



Summary

Insects: Grasshoppers continue to be a concern. Diamondback moth larvae are being noted in some canola fields. Bertha armyworm larvae are being noticed in some canola fields in the Southwest.

Diseases: After another week with scant precipitation, it was very quiet on the disease front around the province. Is the yellowing in your soybeans the result of root disease or is it another abiotic stress? Check out the guest article by Terry Buss, a MB Agriculture agronomist and member of the Pulse team.

Weeds: Harvest aids (for weed control or desiccation) have begun to be (or soon will be) applied. Weed patches are increasingly evident and the collection of seed samples for herbicide resistance is also beginning. Growers are the ultimate controller of food safety and need to follow labels, observe pre-harvest intervals and be aware of Maximum Residue Limits – keepingitclean.ca is a great resource.

Entomology

Diamondback moth on Canola: There have been some reports of levels of diamondback moth around the economic thresholds in the Central and Interlake regions. In some cases the canola is in the later podding stages, and agronomists are considering the economics of control at this stage. A few things to consider regarding management decisions for diamondback moth are:

- Where are they feeding? It is feeding directly to the pods, particularly young pods, that is likely to be most economical. Feeding to leaves would have little impact on yield late in the season, except in more extreme situations. In addition to counting larvae, consider how much feeding is occurring on the pods, and how developed the pods are.
- Stage of the larvae. Are they starting to turn to pupae. The larvae are the only stage capable of damaging the crop.

Also note that heavy rain can be a natural mortality factor of small larvae.



Grasshoppers ID Quiz: For farmers and agronomists, it is good to know the more common species of grasshoppers, and particularly the 3 species that more commonly can get to higher levels and feed on our crops in Manitoba. See how well you do on the following 2 grasshopper identification questions.



Question: The 2 grasshoppers in this photo both appear to have 2 pale lines running down their back. They are different species, both potential pest species, and have different feeding habits. The lower grasshopper has some dark patches on the forewings. What are these grasshoppers?

Answer: The top grasshopper is a two-striped grasshopper. It will feed on a variety of crops.

The grasshopper on the bottom is a clearwinged grasshopper. Note that it is smaller than the two-striped grasshopper, and has black spots on the wings, so not really clear wings. They are primarily grass feeders.



Question: These 2 grasshoppers both have 2 pale stripes, but are different colours and slightly different sizes, and neither has dark spots on the wings like the clearwinged grasshopper. What species are each of these?

Answer: These are both two-striped grasshoppers. They can vary somewhat in colour.

Plant Pathology

Yellowing in soybeans – How much is environmental stress?

Root rots are now showing up in soybeans in a much more noticeable way. A variety of things are going on in these spots. In some areas, the soils were evidently waterlogged for some time due to heavy downpours earlier in July. Often it's areas with heavier soil textures and low spots/ditches. Plants are yellow in these areas due to root rots and/or

the loss of nitrogen-fixing nodules. Crown nodules in particular, when starved for oxygen long enough, get sloughed off, then the plant shows evidence of re-starting nodulation farther down the root system. The result is a generalized yellowing typical of nitrogen starvation followed by a slow greening up. Another condition in these yellowed spots is transient nutrient deficiencies; the lack of adequate mass flow causes symptoms which then dissipate a while after the rainfall event once the plant has time to recover.

There has also been a second flush of IDC-type symptoms (interveinal leaf chlorosis in new growth with the retention of dark green leaf vein colour). This tends to occur on areas of fields where IDC had occurred previously and where there is evidence of salinity. In these fields, it appears that recent rainfall was not enough to remediate soil salinity issues. Rather, it served to make the problem worse by restarting evaporation which had stopped when the top inch or two of soil had become completely dry.

In both cases, of transient nutrient deficiency or a resurgence of IDC-type symptoms, some fields are now showing recovery where the new growth turns normal again, leading to a band of leaf symptoms mid-way up the canopy. Being that the plants are as large as they are and have ample root systems, it seems that they have the capacity to overcome these challenges with time. I think it is due to the unusually long dry period being ended by dramatic rain events just when the plants were seriously moving into their reproductive stages and their nutrient demands went through the roof. This caused a flash of symptoms from which the soybeans' sheer size and pace of growth has sometimes allowed them to recover. It sure has created a lot of odd looking fields as evidenced by the following pictures.

In all the cases where I anticipate there has been either a transient nutrient deficiency or I suspect salinity is rearing its head again, I have suggested to the grower or agronomist that paired soil and tissue testing be done both in affected areas and good areas so that comparisons can be made. I have also told them to get a soil test that covers off all macros, micros, salinity and carbonates so they can establish clearly what is going on.

Terry Buss, Farm Production Extension Specialist



1. Mid-canopy IDC



2. Close-up of partial recovery from IDC



3) Patches in field affected by transient nutrient deficiency and salinity

Weeds

Lamb's quarters – why can't it be controlled?



Lamb's quarters is flourishing in many crops this year. Photo credit: Stewart Boyd, FCL

Due to the widespread nature of the infestation in this field and little concern about this specific weed in previous years, it is unlikely that this weed control issue is due to herbicide resistance.

Potential reasons for poor weed control include:

- lack of weed growth limiting herbicide uptake
- thickened cuticle limiting herbicide uptake
- dry, cool spring weather resulting in a lack of crop competition
- dust which can both bind and physically impede herbicide uptake.
- Rains after in-crop weed control resulting in another flush of weeds

It is always recommended to check fields within two or three weeks after herbicide application to see if a second application is required. Waiting until

6 weeks after herbicide application makes it almost impossible to reconstruct what might have happened.

Research from the Michigan State suggests that the average lamb's quarters plant sets 70, 000 seeds and that only 50% of that seed is depleted 12 years after the issue. After 20 years, 32% of the seed was viable.

Kochia (or other weeds) as feed

Talk about making lemonade out of lemons, haying weeds has many positives. Not only will it minimize weed seed return to the problem field, it provides an alternate source of forage in a dry year. Kochia has been investigated several times for its forage suitability, and can make good feed. Nitrates are a potential problem, and so feed quality should be tested prior to feeding to livestock. An additional concern of baling any weed as feed is transportation and spread of noxious weeds. Regulations are in place to prevent the spread of Noxious Weeds. While the dead plant is unlikely to be a cause for concern, all weeds should be harvested prior to seed set in order to avoid spreading problems. A reminder, kochia and lamb's quarters are a Tier 3 Noxious Weeds based on Manitoba regulations.

Assessing Physiological Maturity



Figure 2. Wheat spikes before (left) and at (right) physiological maturity.

I stole this picture from The University of Minnesota Extension website, but when assessing physiological maturity in cereal crops, the peduncle can speak volumes. The Wheat spike on the right is brown which indicates the head is filled, no more sugars are being put into the head and the crop has reached physiological maturity. This is the right timing for harvest aid applications, if the peduncle is still green, then there is too much risk of yield loss and herbicide residues to apply a harvest aid.

Forecasts

Entomology:

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 there 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.

Note – The week of July 21 to 27th was the last week of data collection, so traps should now be removed.

Table 1. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) in pheromone-baited traps for five agricultural regions in Manitoba as of July 31, 2019.

Region	Nearest Town	Trap Count
Note: Highest counts from 87 traps being monitored		
Northwest	Minitonas	418
	Ste. Rose	403
	Durban	394
	Bowsman	378
Southwest	Miniota	380
	Rivers	264
	Souix Valley	247
Central	Glenboro	501
	Halbstadt	454
	Mather	318
Eastern	Tourond	172
	Beausejour	101
	Steinbach	100
Interlake	Warren	238
	Rosser	207
	Balmoral	207

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

Out of 87 traps:

Four traps in the Northwest, three traps in the Central region, and one trap in the Southwest are in the uncertain risk range.

All other traps have cumulative counts in the low risk range.

So far the only higher populations of bertha armyworm larvae reported in Manitoba have been in the southwest along the Turtle Mountains. Now is a good time to be looking for the larvae on the soil and under debris. Let us know if you are seeing any higher populations of

larvae.

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 estimate 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 2020.

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: What mite the red things be on the back of this grasshopper?



Photo by Katlyn Richaud, shur-gro.

Answer: These are red velvet mite. The adults prey on insect eggs and other small arthropods. The immature stages of these mites are parasitic on grasshoppers and other insects.

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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.