Manitoba Crop Pest Update
Issue 7: July 5, 2023

Manitoba Agriculture

Summary

Insects:
Armyworms in cereals and forage grasses continue to be the biggest insect concern in field crops. **Grasshopper** levels are also heavy in some areas, but this varies greatly between regions. **Sunflower bud moth** continues to be noted in some sunflower fields. **Thistle caterpillars** have been noticed in some fields of soybeans in the Northwest region.

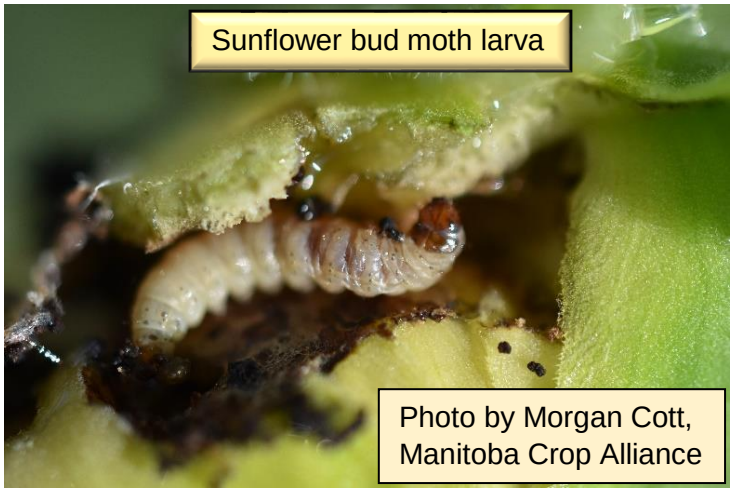
Diseases:
Most spring-seeded cereal crops are near the vulnerable stage for Fusarium head blight infection. According to the most recent Crop Report, fungicide spraying to combat FHB is well underway, except in late seeded crops. Have you followed the daily FHB risk forecast? If you have, and are curious about what the model is showing, consider the times of day (or night) when relative humidity is high, despite dry soils and less than "normal" rainfall. Read further on that subject and some other diseases – both abiotic and pathogenic – in canola and barley.

Weeds:
Post-emergent herbicide applications have wrapped up for the year. Recent rains have helped crops recover and compete against the weeds, but the weeds haven't slowed down. We've seen explosive growth in warm season weeds like pigweeds, and most weeds are flowering and setting seed.

Entomology

Wheat Stages Susceptible to Wheat Midge: Wheat heads are most susceptible to damage from wheat midge when egg laying occurs during heading; based on Zadoks scale for growth stages this would be from stages 51 (ear just visible) to 59 (ear fully emerged). Damage declines dramatically when egg-laying occurs after anthers are visible. Fields should be inspected from the time wheat heads emerge from the boot leaf until anthers are visible on the heads. Once anthers are present on the plants the wheat is no longer susceptible to wheat midge. Much of the wheat in Manitoba probably has anthers by now and would no longer be susceptible to wheat midge. Some later seeded fields may still be in the susceptible stages though.

Sunflower Bud moth: Signs of sunflower bud moth include noticing an entrance hole surrounded by black frass. If the stalk or head is dissected, you may find the larvae inside. Mature larvae will pupate within the sunflower plant near the entrance of the entrance hole. Some higher than normal populations are being noticed this year. Insecticides are not registered for sunflower bud moth though.



Plant Pathology

FHB Risk Forecast

The newly created forecast model behind our risk maps now covers a longer period (14 days vs. 7 days) and focusses on measured relative humidity (%RH) and temperatures most favourable to infection. Many ask, “How can humidity be considered *high* when the weather has been hot and the soil surface is dry?”

We are currently in mid-summer and trees are in full leaf. Trees and fast-growing crops produce a tremendous amount of moisture through transpiration. Overnight and in the early morning, cooler, calmer conditions keep this moisture close to the ground. Many nights, the temperature remains in the zone that is ideal for infection. Risk factors for infection may indeed be high. However, infection is unlikely to occur *without rainfall events* that drive inoculum (spores) from old crop residues up into the crop canopy. Such events have been extremely variable so far in 2023.

Other Diseases

This photo came to us from an agronomist in Northwest Manitoba earlier this week. Subject line: Very strange girdling on above ground stem on canola plants. Indeed! One of their comments - Plants are starting to fall over, it looks like the stem “burst.”

For you eager diagnosticians out there – **is this a pathogenic disease or an abiotic one?** For the answer and the most likely cause, turn to the next page.

True loose smut *Ustilago nuda* on barley. Image © Diseases of Field Crops in Canada

Have you encountered true loose smut in barley? This seed-borne fungal disease is only likely to appear when seed treatment is not used. We intentionally did so in our planting at the 2023 Crop Diagnostic School. If you are already registered this week or next, we can show you the finer points of smuts and bunts.

The spores of true loose smut, easily dislodged by wind, stealthily infect healthy heads around them. There will be no visible signs of infection but the fungus grows *within* the germ. You will not notice smutted heads at harvest – all that is left of the infected spike will be a bare rachis.

The incidence in our plots is <1% but, if we kept the seed and planted again next year (without seed treatment), we could expect at least a ten-fold increase in the level of infected plants.

Answer to diagnostic question on canola: These symptoms fit the typical effects of sub-lethal exposure to a phenoxy herbicide when the canola plants were exposed to drift at the rosette stage. The agronomist confirmed such exposure had occurred – an adjacent wheat field was sprayed to control volunteer canola.

Later exposure would lead to twisting of stem and racemes. What happens at the rosette stage is a *blistering of the lower stem* just above the soil surface and an *excessive proliferation of secondary roots*.

The pathogenic disease that might spring to mind is clubroot. No! These symptoms are **not** characteristic of that disease.

Weeds

Are there still weeds in your fields? Now is the time to scout for weed escapes or misses and come up with a plan for dealing with them. Most of our weeds are annuals so its important to prevent seed set.

So why are those weeds still there? Here's some questions to ask to figure that out:

- How well does the herbicide work on those weeds – is it labelled for control or suppression? Are those weeds even on the label?
- How big were the weeds when you sprayed? Spraying weeds beyond recommended staging can lead to poor performance or outright failure.
- What was weed pressure? You never get 100% of the weeds and under heavy weed pressure there can be misses.
- Was the right rate used? Some products have higher rates for different weeds or larger weeds
- What about water volume? Coverage is crucial especially for contact herbicides, make sure you have the right nozzles and enough water to get good coverage. If you have good clean water then more is ALWAYS better.
- What were weather conditions around spray time? Cold nights, hot temps, low humidity – these can all affect herbicide performance. Weeds that are under stress do not take up and translocate herbicides effectively.
- Did it rain after application? Rainfast periods range from 15 minutes to 8 hours depending on the herbicide.
- Is there a pattern, could you attribute the misses to something mechanical like plugged nozzles or spray misses? Was there dust on the leaves, in the sprayer tracks or along roadsides? Dust can lead to poor performance particularly for glyphosate and glufosinate.

Maybe nothing went "wrong" and the weeds emerged after spraying. Healthy vigorous crops compete well with weeds and normally we don't see much weed growth after spraying. But this year with lack of moisture and extreme heat we saw poorly growing crops and lots of opportunity for weeds to survive and thrive. If weeds survived spraying and you've eliminated the reasons listed above then we have to consider herbicide resistance. We will talk about this next week and discuss testing and management options.

Forecasts

Diamondback moth. A network of pheromone-baited traps were monitored across Manitoba in May and June to determine how early and in what levels populations of diamondback moth arrive. Traps have now been removed.

Diamondback moth were found in 75 out of 84 traps that counts were reported from. Trap counts were low until the week of May 21-27th, when some moderate counts occurred in traps in the Eastern region. The following week (May 28-June 3rd) higher counts occurred in some traps in the Eastern and Central region, with counts in 4 traps approaching or exceeding 100. The week of June 4-10th there were 3 traps with counts exceeding 100, two in the Eastern region and one in the Central region. One of the traps in the Eastern region (near Beausejour) continued to have a high moth count the week of June 11 – 17, although many traps had lower numbers that week. A trap near Whitemouth exceeded 100 diamondback moth the week of June 18-24.

The highest cumulative trap count so far is 513 from a trap near Beausejour in the Eastern region.

Table 1. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba as of July 5, 2023.

Lower Risk: 0-25 Elevated Risk: 26-200 Higher level of moth catch: 200+

Region	Nearest Town	Trap Count
Northwest	Durban, Minitonas	33
	Makaroff	25
	Birch River, Grandview	23
	Grandview	21
	Russell, Shell Valley	17
Southwest	First week with weekly trap count greater than 25: June 18-24	
	Lauder	103
	Tilston	72
	Miniota	29
	Minnedosa, Russell	19
	Minto	17
Central	First week with weekly trap counts greater than 25: May 28 – June 3. Weekly trap counts greater than 100 occurred at the Brunkild and Altona traps for the week of June 4 – 10.	
	Altona	294
	Horndean	177
	Brunkild	170
	Rosenfeld	165
	Gretna	117
Eastern	First week with weekly trap counts greater than 25: May 21 – 27. Weekly trap counts greater than 100 occurred at the Beausejour trap for the weeks of May 28 - June 3, June 4-10 , and June 11-17	
	Beausejour	513
	Whitemouth	278

← Highest cumulative count

	Hadashville	74
	Stead	60
	Ste. Anne	44
Interlake	First week with weekly trap count greater than 25: June 4-10	
	Arborg	101
	Rosser	60
	East Selkirk	53
	Ashern	52
	Selkirk	50

Highest counts in each region and a monitoring summary are updated weekly on the Insect Page of the Manitoba Agriculture website at: https://www.gov.mb.ca/agriculture/crops/insects/pubs/diamondback-moth-monitoring-05-24-2023.pdf

Larvae of diamondback moth have been found in some areas, although not at economic levels. Look for diamondback moth larvae when doing crop scouting in canola or other cruciferous crops.

Bertha armyworm: Cumulative counts are still all in the low risk range in the traps for bertha armyworm, except for a trap near Waskada, which has moved into the uncertain risk range. The highest cumulative trap count so far is 329 near Waskada in Southwest Manitoba.

Table 2. Highest cumulative counts of bertha armyworm (*Mamestra configurata*) in pheromone-baited traps for five agricultural regions in Manitoba as of July 5, 2023.

Region	Nearest Town	Trap Count
Northwest	Durban	89
	The Pas (East)	61
	Minitonas	58
	The Pas (West)	36
	Inglis	25
Southwest	Waskada	329
	Miniota	110
	Minto	108
	Pierson	58
	Rapid City	40
Central	Lowe Farm	110
	Emerson	49
	Barnsley	12

← Highest cumulative count

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

	Barnsley	11
	Altona, Carman	10
	Gretna	9
Eastern	Beausejour	45
	Stead	24
	Whitemouth	20
	Tourond	10
	Ste. Anne	9
Interlake	Teulon	102
	Hodgson	51
	Poplarfield	44
	Ashern, Steeprock, Stonewall	40
	Meadows	37

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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.