Manitoba Crop Pest Update
Issue 1: May 25, 2022

Manitoba Agriculture

Summary

Insects: Insect activity on crops has been light so far, mainly because of the delays in seeding and little crop emerged. As crops come up, cutworms, in many crops, and flea beetles, in canola, are insects of priority to scout for. Some flea beetle feeding has been observed on volunteer canola.

Diseases: It is too early to be talking about seedling diseases with so little crop already in the ground. Today, we will look ahead to an old disease – ergot – that might be more evident this year, especially if recent weather is a portent of a wetter year ahead. Be aware of changes to market acceptance of ergot-contaminated and recently registered fungicide uses that could be beneficial in management.

Entomology

"Re-gift your cutworms: Several hundred live cutworms are required for a couple of research trial on controlling cutworms. If you come across a field with a lot of cutworms, and don't mind some of them being taken from the field, please contact John Gavloski (see bottom of report for contact information) so a sample can hopefully be collected for the project.

Model for estimating flea beetle activity needing testing: Ukko Agro has developed a weather-based model for estimating current and forecasted levels of flea activity in canola fields. The model needs people who are out doing regular early-season crop scouting in canola to test and provide feedback on this model. If you are interested in being involved in this project, please contact John Gavloski (see bottom of report for contact information). We can then add the location of the field you will be monitoring with the other data.

Plant Pathology

Will we see more ergot in 2022? There are several reasons why this may be a valid question.

The first is that the most vulnerable crop – fall rye – has increased in acreage for several years, all but replacing winter wheat as the winter cereal of choice. Rye is especially susceptible to ergot because, at the time of flowering, its glumes remain open

for some time awaiting pollen from neighbouring plants. Unlike other small grain cereals (wheat, barley and oat) which are largely self-pollinated, rye is open-pollinated and receives pollen on the wind or from insects; more about that later.

Ergot is a fungal disease that can infect nearly all grasses. Native grasses, such as brome, found in ditches surrounding fields, and grassy *weeds*, especially quackgrass, serve as early hosts. Ergot bodies germinate early in the spring as tiny drumstick-shaped structures called stromata. If you are familiar with apothecia produced by the resting bodies of Sclerotinia, these stromata perform a similar function. They produce wind-blown ascospores which infect early-flowering grasses. Infected ovules produce an asexual spore stage, described as honeydew for its amber colour and sticky nature. Honeydew is highly attractive to insects, especially flies. They carry honeydew on their bodies out into cereal crops that are flowering, hence ergot incidence is often concentrated along field edges or in the headlands.

Honeydew spore stage on quackgrass

Ergot bodies formed in maturing quackgrass

If there are patches of quackgrass within a field, ergot bodies will be found on the heads of cereals well beyond the field margins. Ergot bodies in infected grain are often harvested with the crop, especially those that are a similar size to the healthy kernels. Larger ones are often knocked loose and fall to the ground. The stepwise infection of grasses first, then cereals, occurs because the ergot bodies germinate long before a spring-seeded crop is in flower.

Wetter years are more likely to see a higher incidence of ergot. Could that happen in 2022? The spring thus far has been wetter than usual and we certainly hope the months after planting will not be as dry as they have been over the last several years. It's an unknown. However, should persistent rainfall occur while wheat, barley, and oats are flowering, their glumes hang open longer than they normally would and elevated levels of ergot infection may occur. Actually any stress that hinders pollination

can have the same effect. On sandy or peaty soils that are deficient in copper, more ergot may be seen.

The current tolerance for ergot bodies in wheat (0.25%) is very low because of the ergosterol toxins they contain. On an international trade scale, tolerances may be even lower. Since ergot bodies are often larger and less dense than grains, they may be separated by cleaning. If, however, there is a noticeable infection around the outside of the field, that area should probably be harvested/binned separately so as not to contaminate all the grain in storage.

Finally, two fungicides (MIRAVIS Ace and Prosaro PRO) have recently had label extensions that include *suppression* of ergot, in wheat, barley and oats. These products would also provide suppression of FHB and be used preventatively at a similar timing.

More information on ergot and its management are found on Manitoba Agriculture's website here: https://www.gov.mb.ca/agriculture/crops/plant-diseases/ergot.html

Soils

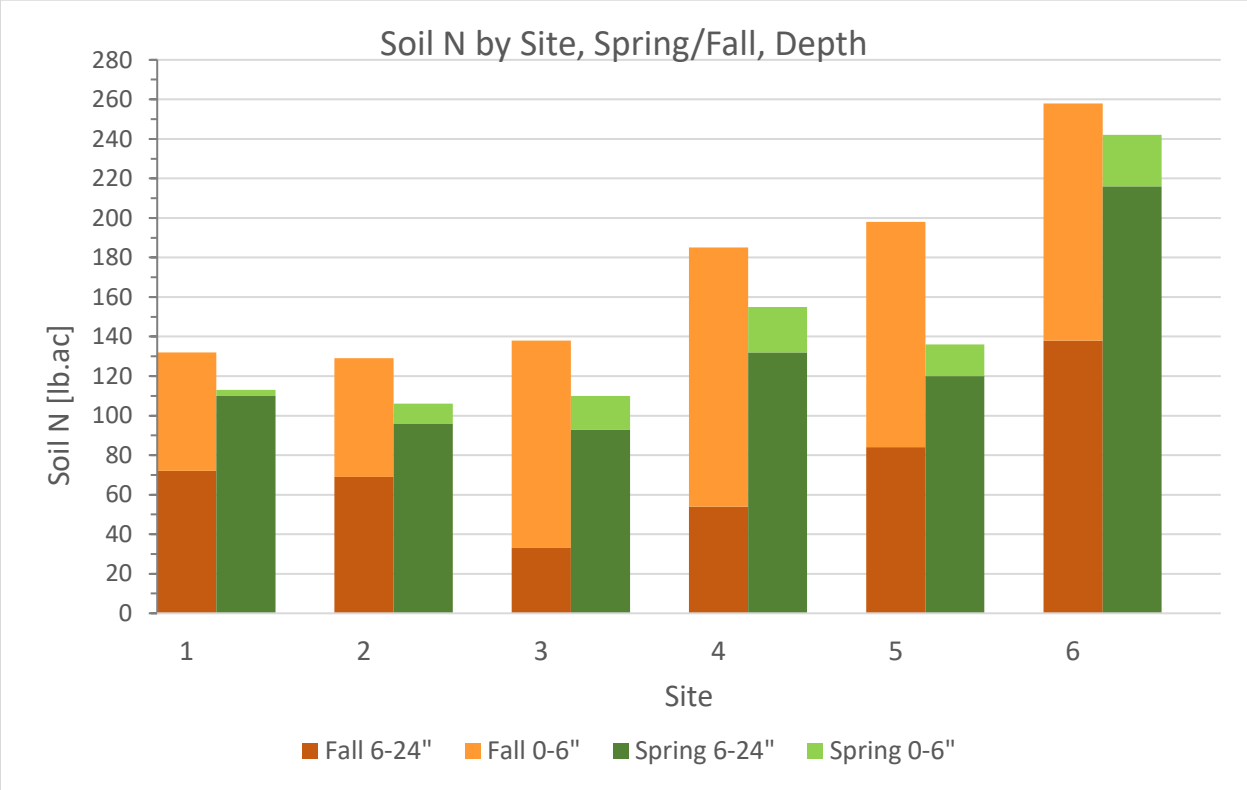
Spring Soil Nitrogen Levels in Manitoba Fields

Last year drought reduced yields in many Manitoba fields resulting in some very high soil nitrate-N (nitrogen) residual levels. In many fields there appeared to be sufficient N to supply much of the 2022 crop needs, and agronomists and farmers planned N rates and applications accordingly. Since then record amounts of late winter snowfall and rain have contributed to conditions conducive for losses.

This soil nitrate-N is vulnerable to loss to physical leaching below the rooting zone of the crop. Under warming soil temperatures, nitrate-N can be microbially converted to N_2 and N_2O gases through denitrification, and lost. Since soil temperatures until the end of April were less than 0°C, these initial losses are likely slight.

So a number of agronomists provided me with GPS coordinates for fall sampled fields from some of their client's high testing fields. We spring sampled a number of fields in central MB, with the results shown in Figure 1.

Figure 1. Fall 2021 vs spring 2022 soil nitrate-N levels on medium to heavy texture soils.



Observations:

1. All soils started as high to VH in N. Most ranged from clay loam to heavy clay soils, but were not flooded. A sandy loam soil (not in graph) had some 90 lb nitrate-N move out of the 0-24" depth, and now has 140 lb nitrate-N in the 2-4 foot depth this spring.
2. It is apparent that the extremely high N levels present in the surface 0-6" last fall, moved deeper due to leaching.
3. Total N loss from the 0-24" depth was modest, ranging from about 20-60 lb N/ac, but most soils still tested high in total N.
4. We avoided testing any fields with fall applied N – it is very difficult to interpret such samples which contain both ammonium and nitrate forms and are often placed in bands.
5. Losses reported here are most likely due to leaching. With warm soil any further flooding or saturation will increase denitrification loss.

What should farmers do?

Job one is seeding so if they suspect substantial losses have occurred they can topdress with needed N later. Another way to verify losses are placing a N Rich strip in

the field where higher N is applied. If colour differences are apparent in mid June, losses probably substantial and some replenishment can be made during stem elongation of cereals and prior to bolting canola.

Some soybean farmers were timid about seeding into high N fields due to reduced nodulation. The spring flushing of the surface soil allays much of this fear, especially if fields have a history of successful past soybean production and seed is inoculated.

John Heard, Manitoba Agriculture Soil Fertility Specialist

Partnering soil samplers: Mitch O'Brien, Dane Froese, Dan Fox, Field2Field, Kory Van Damme, Amber Knaggs

Forecasts

Diamondback moth. A network of 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. So far, diamondback moth has only been found in 14 traps. Levels are generally very low, with the exception that some moderate counts have occurred in the Eastern region, particularly over the past week. The highest cumulative trap count so far is 24 from a trap near Hadashville 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 May 25, 2022.

Region	Nearest Town	Trap Count	
Northwest	Inglis	2	
	Roblin, Dropmore, Makaroff and Russell	1	
	All other traps with 0		
Southwest	All traps with 0 so far		
Central	Altona and Halbstadt	2	
	Emerson and Belmont	1	
	All other traps with 0		
Eastern	Hadashville	24	← Highest cumulative count
	Stead	15	
	Whitemouth	10	
	Beausejour	6	
	Tournond	2	

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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.