Manitoba Crop Pest Update
Issue 6: June 16, 2021

Manitoba Agriculture

Summary

Insects: Foliar insecticide applications for flea beetles in canola have been widespread, with multiple foliar applications having occurred in some fields. There have been fields where plants in the 3-4 leaf stage were heavily damaged. Flea beetle populations are declining, and canola advancing, so the flea risk should soon become low. One agronomist commented on there being noticeably less flea beetle damage on canola direct seeded into cereal stubble. See last week's update for an explanation of potential effects of zero-till on flea beetles. Grasshopper emergence is well underway. There have been some insecticide applications to field edges and pastures for grasshoppers. There were still some reports of cutworm damage, although cutworms are turning to pupae. A couple of agronomists commented this week about not finding any economic populations of cutworms this year on any of the fields they scout. Levels do seem to be lower overall from what we have had the last few years. Aphids are just starting to show up in small grains; reported in some fields of oats near Altona.

Diseases: Recent rainfall across much of Manitoba has given established crops a bit of a lift. Many however are still patchy, shorter than normal, and without a full canopy, the result of a series of stresses such as frost wind and extreme heat. One pathogenic disease noted by agronomists is bacterial blight on oats. It appears soon after driving rain and strong winds. Of course fungicides are ineffective against bacterial disease. It is a good time to be scouting field peas as they approach flowering. Be on the lookout for fungal diseases such as Mycosphaerella blight. Also be aware of the risk of fusarium head blight as spring cereals approach heading and flowering. The risk forecast map is now being posted daily since Monday this week.

Weeds: Spraying continues across the province, furthest ahead in the south. Challenging conditions of heat and high winds kept sprayers out of the fields at times. Last weeks rain has caused a flush of weeds, we're seeing lots of warm season weeds like foxtails, barnyard grass and red root pigweed coming now. Know your label limitations for crop staging, cereal crops may be further along than you think. We're seeing wheat in boot stage, starting to head out and its not knee high yet. Label restrictions on staging must be followed, for a couple of reasons. First of all crop safety - as the plant enters reproductive stage and is heading out, metabolism changes within the plant could mean less tolerance and this can affect yield. And secondly the preharvest interval must be obeyed in order to stay below Maximum Residue Limits (MRL's) as established by international standards. Pre-harvest intervals can be found in the "Restrictions" section of each product page in the Guide to Crop Protection.

Entomology

Bean leaf beetles: An agronomist scouting dry beans in the Central Region noticed some defoliation on the leaves, and upon closer inspection found a few beetles, as shown in this photo. This is the bean leaf beetle, *Cerotoma trifurcata*. Although they have been found in Manitoba before, they are a rare occurrence here, and have been found only in very small numbers (never in numbers that could cause economic damage), and not consistently from year to year. If you do happen to come across any of these while out scouting soybeans or dry beans, please contact John Gavloski (see contact information below) so we can determine the extent of their population in Manitoba. Note that these are a small beetle, about 5 mm long.

Grasshopper development: Entomologists at Agriculture and Agri-Food Canada in Saskatoon use model simulations to estimate grasshopper development, based on data for migratory grasshoppers, *Melanoplus sanguinipes*. The map below shows grasshopper development as of June 13, 2021. Above normal temperatures have been responsible for advanced development of eggs and nymphs across southern Manitoba. Average development of eggs (95% of embryonic development completed) is well ahead of the long term average values (84%). As of June 13, hatch was predicted to be greater than 66% across most of the province with hatch nearly complete near Winnipeg, Carman and Melita (Fig. 1). Grasshopper populations south of Winnipeg are predicted to be mostly in 2nd - 4th instars (Fig. 2). The grasshopper model was projected to June 29 to predict potential development near Winnipeg over the next two weeks. Results indicate that by June 29, populations will primarily be in the fourth and fifth instars.

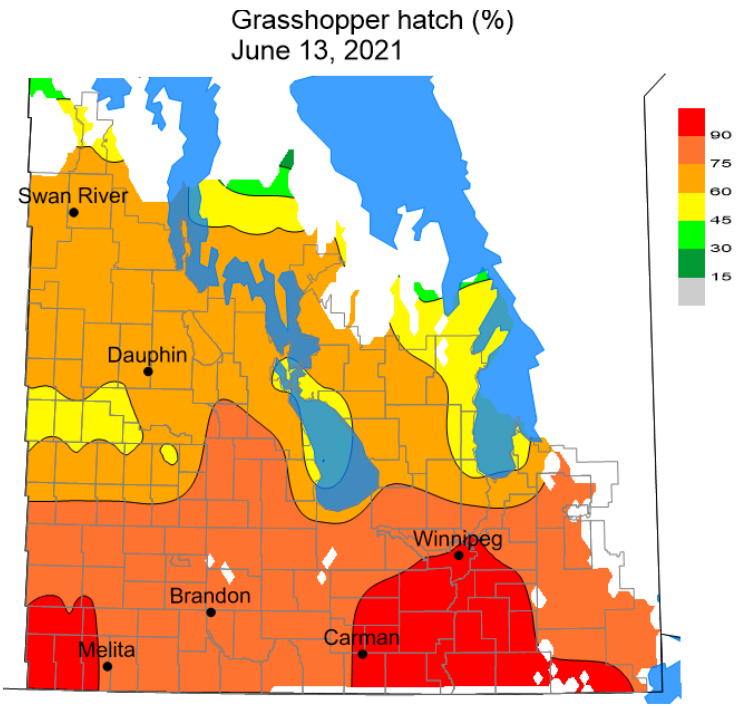


Figure 1. Predicted grasshopper (*Melanoplus sanguinipes*) hatch (%) across Manitoba as of June 13, 2021.

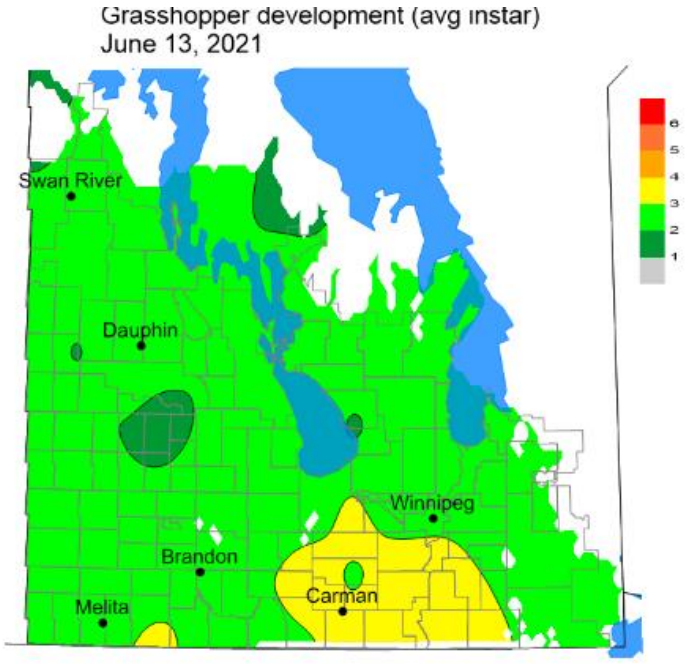
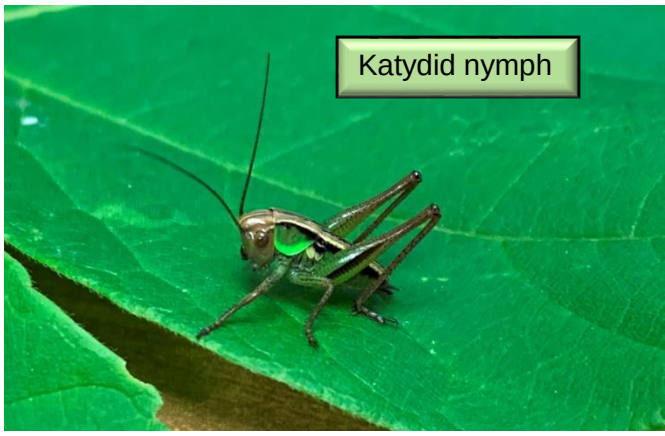


Figure 2. Predicted grasshopper (*Melanoplus sanguinipes*) development, presented as the average instar, across Manitoba as of June 13, 2021.



Grasshopper Identification: An agronomist was doing some sweeping in the Northwest, and notes that almost all the grasshoppers in the sample they collected from a patch of roadside vegetation were katydids. Although they could easily be confused with the potential pest species of grasshoppers, katydids have much longer antennae. They will not move into crops and become a crop pest. Note that not everything that jumps in a ditch or field edge is a grasshopper, or pest species of grasshopper. We covered young grasshoppers vs. leafhoppers in the June 2 update, and katydids are another group not to confuse with potential pest species of grasshoppers. More information of how to identify non-pest vs. pest species of grasshoppers can be found at: https://www.gov.mb.ca/agriculture/crops/insects/grasshoppers.html

Weeds

With a good part of herbicide spraying behind us, now is the time to start post-spray scouting to see how good our weed control was. Which weeds are dead and gone, or at least dying, and which weeds are still there. Post-spray scouting should start 7-10 days after spraying and keep checking every week for 4-6 weeks. Contact herbicides work the quickest, a week after spraying you should see lots of carcasses. Systemic

herbicides take longer to work, for example group 2's can take up to three weeks before you can see how successful they were, especially on bigger weeds. Group 2's affect the growing point, so 1-2 weeks after spraying you should see yellowed growing points and the weeds should have stopped growing. Some weeds may not be affected at all, start asking which weeds are left behind, and why? Here's a couple of pics of weeds that you may be noticing now:

You'll recognize the first pic, we've been getting a lot of calls on foxtail barley (*Hordeum jubatum*) in-crop, and local agronomists have told us they've seen a lot more this year than ever. The second pic is oak-leaved goosefoot (*Chenopodium glauca*), which you probably won't see much of in-crop, it's a low growing weed, usually on field edges or in saline spots. But it's an indicator weed, tells us somethings going on in the soil there. Weeds in the Chenopodiaceae family tolerate salinity well (think kochia, Russian thistle) as does foxtail barley. Salinity goes hand-in-hand with dry conditions, without a lot of in-season precipitation water will rise from deep in the soil profile through capillary rise. It brings soluble salts with it, which end up at or near the soil surface. These weeds do well in salty soils, and depending on crop competition (barley is pretty tolerant to salinity whereas beans are very sensitive to salt) saline-tolerant weeds can thrive and cover a lot of acres. Its too late to do anything about weeds this size now, but start planning for next year. In-crop options for foxtail barley are limited, quizalofop (Assure II, Yuma, Idol and others) is your best option but only does small seedlings. To get at the bigger plants a combination of Olympus + glyphosate pre-seed, followed by Varro or Velocity in-crop does a really good job in wheat.

Soil Fertility

1) Growers may be speculating on the effect of this June's high temperatures and dry weather on cereals and canola yields, especially if they have planned a split application of nitrogen fertilizer. At this point we still consider yield effects to be slight, as timely rains can still produce good yield potential. For details on how heat and drought effect on yield components – see this article by Anne Kirk[1].

If some are wondering about adjusting N rates based on drier conditions – our 2009 cereal recommendations are tailored based on studies done in MOIST, DRY and ARID

conditions (Figure 1). For wheat, under DRY conditions yields were some 15-20 bu/ac less than in MOIST environments, but optimum N rate was just slightly less (about 10 lb/ac). [2]

So do not consider short changing your crops at this time. But timely applications are nearing to maintain high yields. Very good wheat yield and protein response can occur with applications of the remaining N split between stem elongation and flagleaf emergence (Figure 2).

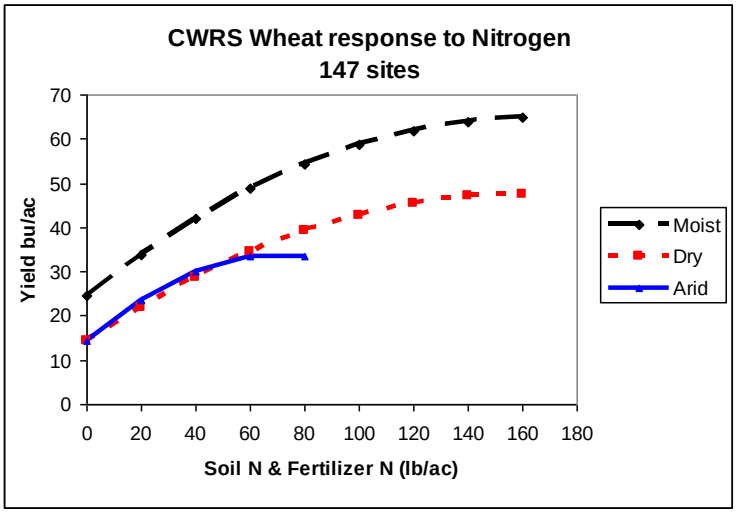


Figure 1. Wheat response to Nitrogen

Figure 2. In-season application stages for nitrogen: stem elongation (T1) and flag leaf emergence (T2).

Split nitrogen applications should be on canola before the 4-6 leaf stage according to Canola Council guidelines.[3]

[1] https://www.gov.mb.ca/agriculture/crops/seasonal-reports/pubs/wheat-corn-development-warm-dry-conditions.pdf

[2] https://www.gov.mb.ca/agriculture/crops/seasonal-reports/pubs/dry-conditions-cereal-yield-nitrogen-response.pdf

[3] https://www.canolacouncil.org/canola-watch/2020/06/24/top-dress-tips-for-nitrogen-and-sulphur/

2) Watch for green wheel tracks in the peatier parts of fields this spring. Its telltale symptoms of manganese (Mn) deficiency. These following photos were taken by a MB agronomist this spring (left) and my vintage photo from an Ontario field (right)

Figure 1 and 2. Manganese deficiency of wheat in peaty soil between green wheel tracks (Manitoba, 2021 on left, vintage Ontario photo on right)

Almost all Manitoba mineral soils have sufficient manganese levels (> 1.0 ppm DTPA), but not so peat soils. The high organic levels bind manganese tighter than what roots can often remove, so a sufficient level is > 7.0 ppm DTPA is used on organic soil. And under cool, dry springs Mn deficiency is even more prevalent. Under oxidized conditions (aerated and dry) manganese is present in the unavailable Mn^{4+} form. Under wetter, slightly anaerobic conditions it is greatly reduced to the Mn^{2+} form and is highly available. This is what is happening in the wheel tracks.

On peat soils an imbalance with copper (Cu) may also trigger the deficiency: if the Mn/Cu ratio is <1, a Mn deficiency may occur. If the Mn/Cu ratio is >15, a Cu deficiency may occur.

Peat soils are a challenge and so plan to spend some time, and soil and tissue testing dollars to diagnose properly and aid growers in management. In this case with foliar micronutrient applications.

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 59 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 135 from a trap in the Northwest region.

Table 1. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba as of June 16, 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	Edwin	35
	Haywood	32
	Ninga	15
	Culross, Starbuck	12
Eastern	Stead	58
	Beausejour	43
	River Hills	26
	Hadashville	24
Interlake	Selkirk	112
	Clandeboye	24
	Vidir	21
	Arborg	20

← Highest cumulative count

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 16, 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	4
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.

Identification Quiz:

Question: Note the white heads in this fall rye. What may have caused this?

Hint: The head pulled out of the stem easy.

Photo from Lionel Kaskiw

Answer: Although there are pathogens like root rots that can result in cereal plants turning white, in this instance the white heads are caused by larvae of a fly called the wheat stem maggot, *Meromyza americana*. Plants with wheat stem maggot may have white heads when heads on un-infested plants are still green. Wheat stem maggot will use a range of native and introduced grasses as hosts, including wheat, rye, barley, oats, millet and timothy. Feeding by the larvae kills the upper part of the stem and the head, resulting in the white heads. Typically, only a small percentage of the heads are affected, but it can be quite noticeable. There are generally 2 generations of wheat stem maggot per year. The white heads in this photo would be the result of feeding by larvae from the first generation.

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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.