Manitoba Crop Pest Update
Issue 4: June 10, 2020

Manitoba Agriculture

Summary

Insects: Flea beetles in canola and cutworms are still the main insects of concern. Spraying foliar insecticides for flea beetles was once again reported from all agricultural regions. Grasshopper hatch is being monitored and some high populations are being reported.

Diseases: Plant pathogen concerns remain minimal. The recent wet weather may increase the risk of plant diseases in some areas.

Weeds: Wind and water seem to be the biggest threat to effective weed control. Adjusting herbicides to reflect staging of crop and weeds is getting to be increasingly important as both are growing quickly.

Entomology

We could still use your cutworms: We are still looking for cutworms for a couple of research trials. If you have fields that have easily detectable levels that some can be collected from, please contact John Gavloski at the contact information below.

Monitoring grasshopper stages: As a general guideline, when many of the grasshoppers are third instars the hatch is over the peak, or almost completed. If there are levels of grasshoppers that appear to be economical and control is desired, timing it when most of the grasshoppers have reached the third instar is ideal. If you were to control them earlier than this, be aware that more hatch is likely and consider a product with good residual. Our pest species of grasshoppers generally go through five juvenile stages (instars) before becoming adults.

Grasshopper development: Degree day models for migratory grasshopper can be used to predict the percent hatch, and the percentage of grasshoppers expected to be in each of the juvenile instars. The table below presents this data as of June 7, 2020 in Manitoba. Hatch rates were greatest in a region extending from Winnipeg to Carman. Across MB, 37% grasshopper eggs are predicted to have hatched. This compares with 11% last week. The model simulation indicates that 63% of the population is still in the egg stage while 25, 11 and 1% of the population are in the first, second and third instar stages, respectively.

Location	% Embryonic Development	% Hatch	% Eggs	% 1st Instar	% 2nd Instar	% 3rd Instar
Northwest						
Swan River	86.3	19.4	80.6	12.4	7.0	0.0
Dauphin	90.4	34.8	65.2	23.8	11.1	0.0
Roblin	86.5	16.2	83.8	10.3	5.8	0.0
Southwest						
Brandon	92.0	37.5	62.5	22.5	11.9	3.2
Melita	93.8	38.3	61.7	22.2	12.0	4.1
Virden	90.1	36.6	63.4	23.3	13.3	0.0
Minnedosa	88.0	36.7	63.3	25.9	10.8	0.0
Central						
Winnipeg	88.4	69.8	30.2	56.4	8.5	4.9
Portage La Prairie	93.0	35.4	64.6	23.3	12.2	0.0
Carman	89.7	49.2	50.8	33.4	15.8	0.0
Morden	91.1	52.3	47.7	31.3	14.9	6.1
Cartwright	87.9	33.7	66.3	27.1	6.6	0.0
Eastern						
Steinbach	90.6	24.7	75.3	7.4	17.3	0.0

Alfalfa weevil development: Alfalfa weevil larvae develop through four growth stages. Degree day models can also be used to predict their development. As of June 7, 2020, alfalfa weevil hatch is almost complete with less than 5% of the population predicted to be in the egg stage. Model simulations estimate that 4-12% of the population is in the first instar. Populations in Northwest and west-central Manitoba are predominantly in the second instar. Alfalfa weevil larvae in southern Manitoba are generally in the third instar.

Degree Day predictions of alfalfa weevil stages in Manitoba as of June 7, 2020

Location	% Eggs	% 1st Instar	% 2nd Instar	% 3rd Instar
Northwest				
Swan River	7.1	8.9	64.5	19.4
Dauphin	4.7	5.4	31.2	58.7
Roblin	8.2	11.2	76.3	4.3
Southwest				
Minnedosa	4.6	6.4	47.6	41.5
Virden	4.0	5.7	34.8	55.5
Brandon	3.5	4.6	26.6	65.3
Melita	2.3	5.6	20.8	71.3
Central				
Winnipeg	2.2	4.0	13.4	80.3
Portage La Prairie	2.6	4.8	20.7	72.0

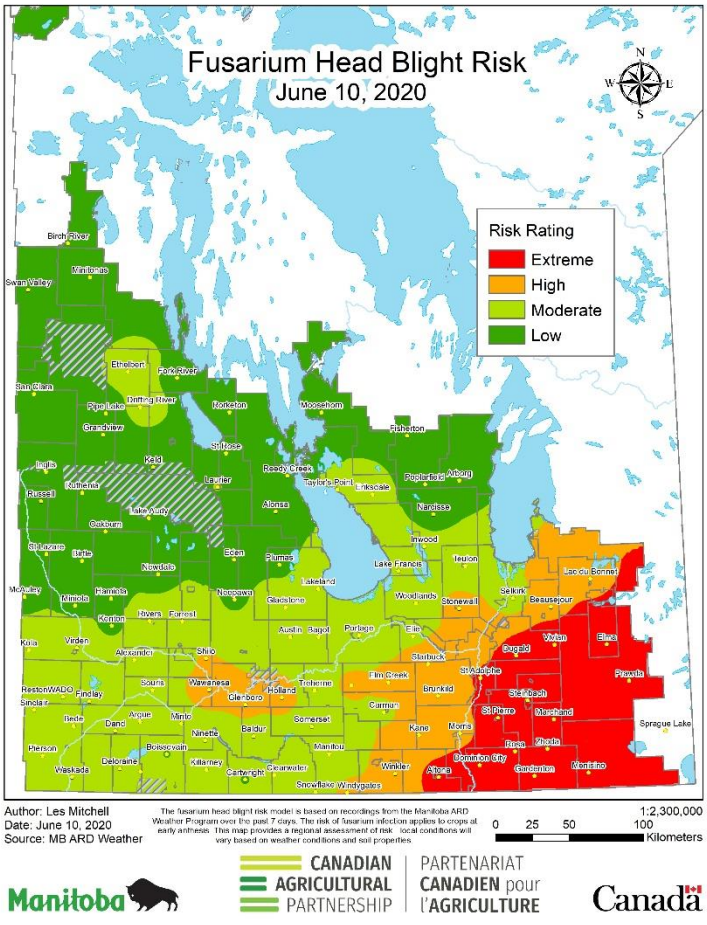
Carman	2.0	4.6	19.2	74.1
Morden	2.1	4.2	17.3	76.4
Cartwright	4.5	5.9	50.4	39.2
Eastern				
Steinbach	3.2	4.0	26.9	65.8

Alfalfa weevil larvae should be monitored. Information on the biology of alfalfa weevil, how to monitor for them and economic thresholds can be found at: https://www.gov.mb.ca/agriculture/crops/insects/alfalfa-weevil.html

Plant Pathology

Interpretation of the premiere Fusarium Head Blight risk forecast map for 2020

Although it was looking like a dry spring across much of southern Manitoba that has suddenly changed with widespread rainfall across much of the region and especially heavy rainfall in the southeast. The first Fusarium Head Blight (FHB) risk forecast map shows a lot of red in that quadrant. Remember that the model we employ is strongly influenced by precipitation over the last 7-day period. This can drive the coincidence of heat (ideal range 15 – 30C) and humidity (above 85%) that are conducive to infection.



In practical terms, though, the only crops that are vulnerable at this stage are fall rye and winter wheat. Fall rye is currently heading and may be flowering over the coming days. Winter wheat is a little behind in development with heads just beginning to break out of the boot. Flowering in rye happens over an extended period and, if fungicide is warranted, timing may be very difficult to provide adequate protection. There are only three fungicides specifically registered for FHB in rye: Caramba, Proline and Twinline. Check the current Guide to Field Crop Protection for specifics on timing.

Thankfully, spring cereals are still in vegetative stages and not susceptible to FHB infection at this time.

Weeds

Herbicide resistant weed scouting

Scouting for herbicide resistance begins with assessing the herbicide application 14–21 days after it is applied. A general indication of herbicide resistance is a significant variation in herbicide effect within a small area of similarly sized weeds (only one kind of weed survives) that does not have a pattern - i.e., not a sprayer miss, not a nozzle issue, nor an environmental influence. Herbicide resistance is a numbers game. A one in a million occurrence seems rare until you think about the number of weeds in a patch and the number of times that you spray those weeds. Typically, a patch in a field that won't die is the first sign of herbicide resistance. This kochia plant is alive and well, while the susceptible fall rye is dead and the herbicide tolerant corn is just fine as well. Testing glyphosate resistance in kochia can be done through green leaf material that is submitted to mbpestlab.ca. Their specific procedure is outlined at the following link: http://www.mbpestlab.ca/uploads/images/Slide1.JPG

Pre-emergent choices matter!

The two pictures below show the difference in choosing a pre-emergent product that is registered for a crop. The left-hand picture is soybean emergence when glyphosate alone is applied versus a dicamba/glyphosate tankmix on the right. Clearly this is not an Extend soybean and therefore there is significant impact on emergence. Knowing what type of herbicide tolerant crop is seeded and applying the correct products may be more important than you think – this was done for demonstration purposes only!

Spray drift concerns

The questions about preventing drift have been coming in frequently. Here is a slide from the the CropTalk webinar this morning on some tips to reduce spray drift. If you want to hear more, the link for the webinar is: CropTalk June 10. And the link to SPRAYcast® (a tool that may help define when there is a decent window for application) is: http://www.mbpotatoes.ca/spraycast.cfm

How windy is too windy?

- Some breeze is good – dead calm is not good
- Use caution when the wind is above 15 km/h (9 mph)
- *Sprayers101.com* suggests the upper limit is 20-25 km/h **if precautions are used**:
  - Herbicide
  - Droplet size
  - Nozzle type
  - Volatility
  - Lower your boom
  - Slow down!
  - Know what is downwind

BEAUFORT SCALE

Force	Anemometer reading mph	kmh	m/s	knts	Description		Effect on kite
0	0-1	<1	<0.3	0-1	Calm; smoke rises vertically.	Calm	Launch frustration
1	1-3	1-5	0.3-1.5	1-3	Direction of wind shown by smoke drift, but not by wind vane.	Light air	Very large lightweight delta, Rokkaku etc. may fly on a light line
2	4-7	6-11	1.5-3.3	4-6	Wind felt on face; leaves rustle; ordinary vanes moved.	Light Breeze	Sutton tf30 lofts 650g at 3.5mph
3	8-12	12-19	3.3-5.5	7-10	Leaves and small twigs in constant motion; wind extends light flag.	Gentle Breeze	
4	13-18	20-28	5.5-8.0	11-16	Raises dust and loose paper; small branches are moved.	Moderate Breeze	Drogue needed on Flowform kites
5	19-24	29-38	8.0-10.8	17-21	Small trees in leaf begin to sway; crested wavelets form on inland waters.	Fresh Breeze	Reduce kite size increase line weight & drogue size
6	25-31	39-49	10.8-13.9	22-27	Large branches in motion; whistling heard in telegraph.	Strong Breeze	

Soils

Seedplaced fertilizer injury

As more cereal fields are scouted for emergence and weeds, I'm hearing of some thin stands – probably in part due to seedplaced fertilizer.

The lefthand slide below are seedlings on a sandy soil – some shoot, but no root development. Stands were thinned about 25%. It's even harder to confirm canola injury on such soils and its often put down to "dry seedbeds" (photo A. Knaggs)

The seedlings on right are from a heavy clay soil which are typically tolerant of higher seedplaced fertilizer rates (photo D. Caron). Again very poor root growth and leafing out below ground. Being seeded on the wet side, smeared and compacted soil probably compounded the injury. Some of these soil structural issues are mitigated with timely, gentle rainfall after seeding before soils set up hard in the heat.

Wind damage and sand blasting

Not only have high winds been plaguing spray operations, but causing some crop injury.

Moderate wind speeds increase transpiration which results in water stress and leaf wilting. As wind speed increases, cell damage can occur.

When sand blasting accompanies wind, photosynthesis is reduced when abrasion causes loss of viable leaf area, and the moisture stress when ruptured cells allow rapid moisture loss. The most vulnerable stage for crops is usually 7-14 days after emergence when plants have exhausted energy supply in seeds and is completely dependent on the leaves to produce photosynthesis. Loss of leaf tissue places additional burden on the plants energy supply, which is diverted from growth to repair of tissue damaged by sandblasting.

Crops like corn and cereals will survive since their growing point is still below the soil surface at this stage, and usually there is no measurable yield effect. But corn leaves injured by abrasion are more susceptible to bacterial infection by Goss's Wilt.

Forecasts

Diamondback moth. A network of pheromone-baited traps are monitored across the Canadian prairie provinces in May and June to determine how early and in what levels populations of diamondback moth arrive. Highest counts are now in the Eastern region, although trap counts in the Northwest have increased recently as well.

Table 1. Highest cumulative counts of diamondback moth (*Plutella xylostella*) in pheromone-baited traps for five agricultural regions in Manitoba as of June 10, 2020.

Region	Nearest Town	Trap Count
Northwest	The Pas	54
	Bowsman	23
	Bowsman	15
	The Pas	12
Southwest	Brookdale	7
	Foxwarren	5
	Carberry	2
	Hamiota	2
Central	Gladstone	51
	Kilarney	10
	Winkler	9
	Baldur, Ninga	8
Eastern	Whitemouth	176
	Stead	131
	Beausejour	56
	Lac du Bonnet	45
Interlake	Warren	135
	Gunton	36
	Vidir	35
	Clandeboye	24

The highest count in last weeks update (June 3) was 14 for the Northwest. Some traps in the northern part of this region increased over the past week. Interesting that the highest count in Western Manitoba is way up in The Pas.

Counts in the Eastern region climbed substantially over the past week. 162 moths were in the trap near Whitemouth over the past week, and 115 in the trap near Stead.

Identification Quiz:

Question: This green bug was noted in a field of barley. What is it?

Photo from Sheila Elder

Answer: This is green grass bug (*Trigonotylus coelestialium*). It will feed on cereal crops, but is generally not considered a serious pest. Their feeding may result in some white spotting and speckling on leaves, which we have seen a bit of this year. Generally cereal crops outgrow the feeding from this insect well.

Weed ID: I'm happy to report the Weed ID clinic and Weed ID quiz videos are posted and 1.0 CCAs are available for those who complete the quiz for the minor fee of $10. Email crops@gov.mb.ca for the quiz and further details on this opportunity for CEU credits.

- Back to Basics: Spring Weed Identification https://www.youtube.com/watch?v=ySi9ZtLBnWI
- Back to Basics: Spring Weed Identification, The Quiz https://www.youtube.com/watch?v=ir6cPoMLDww

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Compiled by:

Manitoba Agriculture and Resource Development Pest Management Specialists:

John Gavloski, Entomologist
Phone: (204) 750-0594

David Kaminski, Field Crop Pathologist
Phone: (204) 750-4248

Tammy Jones, Weed Specialist
Phone: (204) 750-1235

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.