

Manitoba Insect and Disease Update

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To report observations on insects or plant pathogens that may be of interest or importance to Farmers and agronomists in Manitoba, please send messages to the above contact address.

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July 6, 2012

Recent Insect and Plant Pathogen Activity

Cereals

Armyworms in cereals: Populations of armyworms are quite high in many cereal fields in several areas in Manitoba. High populations and some insecticide applications have been reported in crops near Beausejour, Stead, and the Whitemouth / River Hills area in eastern Manitoba, the Arborg / Riverton area in the Interlake, and in some corn fields in the Shilo area. Note that this insect that is feeding in the cereal crops is the armyworm (*Mythimna unipuncta*) and not the bertha armyworm (*Mamestra configurata*).

Older larvae of armyworms like to hide under debris on the soil during the day, so if seeing feeding on cereal leaves, look on the soil to see if armyworms may be the cause. The economic threshold is 4 unparasitized larvae smaller than 2.5 cm (1 inch) per square foot. Stage of larvae is something to consider when determining the potential economic impact of an armyworm population. If most larvae are greater than about 2.5 cm, they will be finishing feeding and pupating soon, so control in these situations is generally not recommended unless populations are very high.

Regarding the feeding behaviour of armyworms, the following is from a study in Ontario on their life history and behavior: “The larvae skeletonize the surface of the leaf blades or the inner surface of the sheath during the early instars, and later feed on the margins of the leaves, consuming all the tissues. The inflorescence is seldom damaged unless leaf foliage is scarce but in some grasses, notably timothy, the green heads are often readily consumed by the older larvae even when foliage is abundant” (The Canadian Entomologist: 93: 1141 – 1153).

Hot temperatures can result in armyworm mortality. In a study looking at the effects of temperature on armyworms, survival was still good at 29°C, but larvae had trouble surviving to the pupa stage at a constant temperature of 31°C (The Canadian Entomologist. 101: 1320-1327). Insects vary in their response to high temperatures, but armyworms do not do as well under continuous high temperatures.

Figure 1 below shows armyworm larvae. Note in figure 1 the variation in colour, and the habit of curling up when the larvae are disturbed.



Figure 1. Armyworm larvae

Wheat Midge: Wheat midge emergence is expected to be about 50% complete in many parts of Manitoba, based on degree day accumulation. Much of Manitoba has now received about 800 to 850 accumulated degree days (base 5) which is what we use to predict percent emergence. So far no high populations have been reported.

A reminder that **once the wheat crop has flowered (the heads will have anthers), the wheat heads are no longer susceptible to damage from wheat midge.** Even if adults are still noticed in the field, the larvae will not feed on the grain once the crop has produced anthers. The critical stages to scout for wheat midge, and apply controls if economic thresholds are surpassed, is from as soon as heads are visible until about 75% of the heads have anthers.

Insecticide applications beyond the flowering stage, or when wheat midge levels are below economic threshold, are not recommended as they will not provide an economic return. Insecticide applications for wheat midge will also adversely affect parasitic wasp levels. Parasitic wasps can regulate wheat midge populations to below economic levels. Insecticides applied late or when wheat midge levels are low can cause more harm than good by destroying these natural enemies, reducing the natural controls available in subsequent years.

It will likely just be some of the later seeded fields that are still susceptible to wheat midge.



Figure 2. Wheat head that has flowered. Notice the flowering structures dangling from this wheat head.

White heads in wheat, could it be wheat stem maggot? White heads of wheat are noticeable in some fields of wheat that should otherwise have green heads still. One possible cause of this is wheat stem maggot. There are diseases and environmental factors that can also cause white heads in wheat, so it is not always immediately obvious what the cause is. If wheat stem maggot is the cause, most of the heads will easily slide out of the stem when you pull on them. And if you slit the stems you may be able to see the pale green maggots inside. They also tend to leave frass in the stem that looks like sawdust. In some of the fields around Carman the white heads are quite noticeable.

This is another example of something that can be very noticeable, because of the way the white heads stand out, but is rarely of economic significance. If even 1 in a few hundred plants have a white head, it often looks bad to some when scouting the field because the white heads are so noticeable when looking over the field. But the reality is that this will have very little impact on overall yield. And there are no insecticides registered for wheat stem maggot, nor guidelines for timing an insecticide. So it is worth checking out what is the cause of the white heads, but for wheat stem maggot it is not something to get too alarmed over.

There are crop production practices that can help minimize future populations of wheat stem maggot. These may need to be considered if growers or agronomists are concerned over the levels seen in fields. More information on wheat stem maggot can be found on the MAFRI website at:

<http://www.gov.mb.ca/agriculture/crops/insects/fad19s00.html>



Figure 3. White head from wheat stem maggot

Pulse Crops

Green Cloverworms: Some green cloverworm are being found in dry beans, soybeans, and alfalfa in the central region of Manitoba. So far there have been no populations approaching economic thresholds, but agronomists are starting to notice some of the caterpillars in these crops. Green cloverworm will loop when they walk, so it is easy to mistake them for alfalfa looper. One difference though is that green cloverworm will rapidly wiggle when disturbed. Below is a photo of a green cloverworm larva.



Figure 4. Green cloverworm

Surveys and Forecasts

Traps for moths of bertha armyworm: Some higher counts of moths are occurring in the pheromone-baited traps for bertha armyworm.

Table 1. Highest cumulative trap counts for moths of bertha armyworm in Manitoba as of July 5, 2012

Location	Cumulative Trap count
Carberry	2,107
Baldur	753
Carberry	692
Swan River	505
Crystal City	355
Treherne	344
St. Claude	322

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The following table relates the cumulative moth counts with the risk of larval infestation.

Cumulative Number of Moths/Trap		Larval Infestation Risk Level
From	To	
0	300	Low - Infestations are unlikely to be widespread, but fields should be inspected for signs of insects or damage.
300	900	Uncertain - Infestations may not be widespread, but fields that were particularly attractive to egg-laying females could be infested. Check your fields.
900	1200	Moderate - Canola fields should be sampled regularly for larvae and for evidence of damage.
1200	1500+	High - Canola fields should be sampled frequently for larvae and for evidence of damage.

Note that in regions where the trap counts are higher, what is recommended is to make sure fields get scouted for the larvae, which are the potentially damaging stage. Currently there would be egg masses and potentially some early-instar larvae on the leaves. Starting around mid-July we will likely start seeing the middle instar larvae appear. It is around this time when it is good to be regularly scouting canola fields and know what levels in the fields are like.

Note also that high trap counts do not mean the particular field where the trap is placed is at a higher risk. Sometimes in fields where the trap counts were high the level of larvae that are found may be low (we have seen this happen frequently). But usually if several traps in a region have high counts we can expect some economic populations in that region. Hence this is a regional monitoring program, and not designed to try to predict what will happen in individual fields.

The full data set for adult counts of bertha armyworm can be viewed at:
<http://www.gov.mb.ca/agriculture/crops/insects/bertha/index.html>