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.

To be placed on an E-mail list so you will be notified immediately when new Manitoba Insect Updates are posted, please contact John Gavloski at the address or numbers listed above.

June 29, 2012

Recent Insect and Plant Pathogen Activity

Cereals

Stripe rust has been observed in spring and winter wheat in Minnesota and North Dakota. Severe infection on spring wheat near Langdon, North Dakota have been reported (Figure 1) including infections on the varieties 'Faller', 'Prosper', 'Vantage', and 'RB07'. Fungicide applications for stripe rust are beneficial when the crop is still in the boot to early heading stage and stripe rust pressure is present. Applications need to be applied before stripe rust infection is established on the flag leaf – fungicides will not cure already present infections. Monitor conditions in your fields and reports of stripe rust in your area. Stripe rust can advance rapidly when moderate temperatures and dew occur.

Figure 1. Stripe rust infection on spring wheat near Langdon, ND. (Photo: Ron Beneda, NDSU Extension Service)

Crown rust in oats in Minnesota has been reported in Renville county in the southern part of the state, west of Minneapolis. This is the first reported case in Minnesota and there have not been any reported cases in North Dakota yet this season. The optimal conditions for crown rust include mild to warm sunny days (20-25°C) with mild nights (15-20°C) and dew formation.

Although there have not been any observations of cereal rusts in Manitoba these reports from North Dakota and Minnesota indicate that they are "knocking on our door". Vigilant scouting for these diseases should be occurring across the province. Please report any cases (pictures are appreciated) to me at the Crop Knowledge Centre in Carman (holly.derksen@gov.mb.ca), so that I can relay the information to the subscribers of these updates.

Canola

Diamondback moth: Diamondback moth populations seem to have declined in some areas, and plants are getting to the stage where they can tolerate more feeding. We may be in between generations as well in some areas. One of the enquiries this week was regarding producers wondering about tank-mixing an insecticide with their fungicide application to get early control on diamondback moth. This is discouraged for several reasons.

Canola can compensate very well for loss of buds and flowers, as long as growing conditions are reasonably good. So unless levels of diamondback moth are extremely high, often it is best to hold on and assess what levels of diamondback moth are present when canola goes into the podding stage. Unless we are having a year where the crop is heavily stressed, such as by drought, it is the podding stage that is most critical to protect form diamondback moth feeding, particularly if they start to feed on the pods. The plants don't have the same ability to compensate during podding as they do early on.

Another reason to avoid spraying too early for diamondback moth, particularly if levels of larvae are below economic threshold, is because in some years parasitoids can become quite effective and result in diamondback moth populations declining. It is best to give this process a chance rather than tank-mix with an insecticide out of convenience. Recall how the diamondback moth population in Manitoba crashed last August because of a parasitoid called *Cotesia*. Heavy rains can also cause large declines in diamondback moth populations, something we may already be seeing in some areas this year.

A third reason to consider only applying insecticides to flowering canola if absolutely necessary is because of pollinators. Although canola is self-compatible to a large extent, insect pollination does increase the yield of canola. Honey bees can travel substantial distances to get nectar and pollen from canola, so by avoiding applying insecticides during flowering you eliminate the risk of bee kills, plus help maximize the yield benefits that bees and some other pollinators (some species of flies, etc.) can provide to canola.

Will pollinators really help improve yields in canola? Pollinators can improve the yield of canola, however, the effect of pollinators on yield of canola will likely depend on the density of the pollinators in the field, the weather conditions during the blooming period of canola, and possibly the type of canola that is grown. As might be expected, the results of studies looking at the effect of bees on the yield of canola are quite variable. Research in Quebec showed an improvement in seed yield of 46% in the presence of three honey bee hives per hectar, compared with the absence of hives (Journal of Economic Entomology: 98: 367-372. 2005). This is a fairly high density of bees that was used in the study, but does show the potential yield improvements that can exist when there is good pollination. In an earlier study on oilseed rape (*B. napus*) there was a13% seed yield increase in plots with bees compared to those without bees, although the authors did state that oilseed rape gives good yields without insect pollination (Journal of Agricultural Science. 71: 91-94, 1968).

A study in Australia looked at the effect that distance from an apiary can have on pod yield in canola. The number of pods/plant decreased as distance from the apiary increased (Australian Journal of Experimental Agriculture. Vol. 40, No. 3: 439-442, 2000). Their regression analysis predicted a pod loss of about 15.3 pods/plant over a distance of 1000 m from an apiary. This was equivalent to a 16% loss.

In the study from Quebec , the research found that three honeybee colonies per hectare reduced the blooming period of Argentine canola (*B. napus*) by 3.8 days, or 17% compared to the absence of pollinators. Because of the efficient pollen transfer, the honeybees resulted in the flowers living for a shorter period of time, and also reduced the number of flowers the plant had to produce to reach its carrying capacity (Journal of Agronomy and Crop Science. 192: 233-237. 2006). The reduced flowering period and fewer flowers the plant needs to produce to reach its carrying capacity could have implications for disease management. For example, the risk of sclerotinia may theoretically be reduced by a shorter flowering period and fewer petals being produced. This association between increased pollination and decreased risk of sclerotinia has never been directly tested however, and there would be other factors such as weather conditions that would also factor in.

So aside from trying to help the beekeepers maintain their livestock, there can be good economic incentive for canola growers to avoid using insecticides during flowering.

Forage Crops

Alfalfa Weevil: Reports of heavy feeding on alfalfa by alfalfa weevil have been coming in from across Manitoba. Some of the heaviest feeding seems to be in the western part of the province.

One of the common questions this week has been how long the feeding will continue. Both larvae and adults will feed on alfalfa, but feeding by the larvae causes most of the injury. Larvae get to about 10 mm when fully grown. After that they will turn into pupae, a non-feeding stage.
Figure 2 below shows the larval, pupal, and adult stages. If the pupal cocoons are being found on the foliage or ground, the feeding population may be declining. There is only one generation of alfalfa weevil in Manitoba, so once the feeding by the larvae decreases, the majority of damage will be done for this year. Where possible, early cutting is a good way to control alfalfa weevil. The early cutting eliminates foods and leads to desiccation of the larvae.

Figure 2. Alfalfa weevil larvae (left), pupae (middle) and adult (right).

General Crop Scouting

Thistle caterpillar: Some have been noticing thistle caterpillars on soybean and sunflowers. One of their favorite hosts is thistles, and they will often preferentially go to thistle plants. When these are not abundant, or have been controlled, they will feed on crops like sunflowers and soybeans. So far the feeding has been minor, and some of the caterpillars are getting quite big. They eventually become a butterfly known as the painted lady butterfly.


Figure 3. Thistle Caterpillar

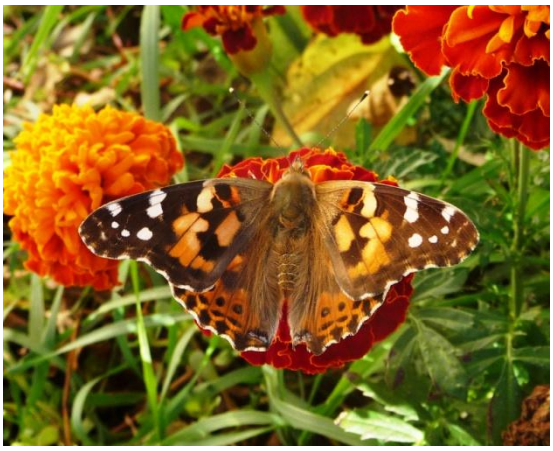
Figure 4. Painted Lady butterfly

Resources

Factsheet on beneficial insects: If you are looking for help identifying some of the beneficial insects you are finding as you scout fields, a new factsheet on "Predators and Parasites of Crop Feeding Insects" has been posted on the MAFRI website: http://www.gov.mb.ca/agriculture/crops/insects/pdf/predatorsofinsectsfactsheet.pdf

Research Request

Dr. Martin Erlandson with Agriculture and Agri-Food Canada is studying the genetic diversity of bertha armyworms. This could have implications for how we monitor and manage bertha armyworms.

Martin is looking for volunteers to send in the dead bertha armyworm moths that you catch in the pheromone traps. So if you can save and send to Martin some of the samples of moths caught in the traps, that would help Martin in his study. I wouldn't worry about sending in samples of just a few moths, but if you are in the 100+ range, these moths can be helpful to Martin in his study. Please use the protocol below to send the moths:

Protocol for sending bertha armyworm moths:
Male bertha armyworm moths from weekly pheromone trap collections should be placed in paper bags (dry samples only), up to a maximum of 100 moths per trap collection. The following information should be written on the bag; collection date, name and phone number of cooperator, and legal land description.

The samples should be shipped in crush proof containers to Martin Erlandson, Agriculture & Agri-Food Canada, Saskatoon Research Centre, 107 Science Place, Saskatoon, SK – S7N 0X2.

Surveys and Forecasts

Traps for moths of bertha armyworm: Some higher counts of moths are starting to be found in the pheromone-baited traps for bertha armyworm.

Table 1. Highest cumulative trap counts for moths of bertha armyworm in Manitoba as of June 28, 2012

Location	Cumulative Trap count
Carberry	607
Carberry	275
Swan River	247
Fork River	241
MacGregor	156

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.

So we currently have 1 site into the uncertain risk zone. As we are still early in the monitoring period for the adult moths, some of these counts should continue to grow over the coming weeks.

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