Manitoba Crop Pest Update
Issue 14: August 23, 2023

Manitoba Agriculture

Summary

Insects: There are still some areas where **grasshopper** levels are of concern. **Flea beetles** are still being noticed at high levels on the pods in some canola fields. **Bertha armyworm** has been noticed in some canola fields, but there were no reports of control for it over the past week. Many crops have advanced to stages where they are less susceptible to damge by many of the insects that feed on them.

Weeds: Damp conditions in the last few days have put harvest on hold, this is a good time to scout your remaining unharvested fields for suspicious weeds. There's a good chance that weeds like kochia, wild oats, common ragweed, giant ragweed and waterhemp are herbicide resistant so these weeds should be destroyed before they add to the weed seedbank in your fields. Single weeds or small patches should be hand pulled, removed from the field and burnt. Larger patches can be mowed down, while this does not remove the weed seeds from the field it stops them from going through the combine. When resistant weeds are combined the seeds are scattered and spread across the field, the combine is contaminated and will spread weed seeds across your farm. This should be avoided at all costs.

Entomology

Preventing and Monitoring for Insects in Stored Grain. There have been reports of beetles in stored grain, and questions on how to manage them. The first step is knowing what species of beetle is present, and whether it is a species that feeds on the grain itself, or more on fungus growing on the grain or in the bin. Without magnification it can be difficult to determine the difference between rusty grain beetles, one of the more common beetles feeding directly on many stored grains, and foreign grain beetle, which is primarily a fungus feeder. Note the club-shaped antennae on the foreign grain beetle in the photo.

If placed in a glass jar, foreign grain beetles will climb up the sides, while rusty grain beetles cannot.

Preventing insects being introduced into or establishing in grain bins. A few steps to reduce stored grain insects establishing in grain bins include:

- Clean in and around storage facilities.
- Inspect grain storage facilities for signs of deterioration, leaks or holes.
- Clean equipment used to move grain. Combines, grain wagons, truck beds, augers and other equipment used to move grain should be cleaned of grain residue before being used.
- Dry and cool grain (ideally below 15°C) as quickly as possible after harvest.

Controlling insects found in stored grain. Knowing the species you are dealing with is important when determining the most effective and economical means of control. If it is a fungus feeder such as foreign grain beetle, practices that result in grain drying may be all that is needed.

For insects that feed directly on the grain, if the grain is being kept over the winter, lowering the grain temperature through aeration or moving the grain can kill stored gain insects.

Grain vacs, if used at a slow enough speed (such as 200 bushels per hour), can kill stored grain insects. Removing too large a volume of grain at a time results in the grain protecting the insects and reduces kill. Insect killing efficiency is greatly increased when a 90° angle is made in the grain vac pipe. The grain should be dry for this method to work well.

Depending on the crop being stored and insect pest, chemical control options can include fumigants (such as phostoxin or fumitoxin), diatomaceous earth (Protect-It, Insecto), or malathion. There are things that should be considered before using any of these chemical control options, however.

Fumigants such as phostoxin and fumitoxin are restricted to applicators with a valid stored agricultural products license. These products can not be used when the grain temperature is below 5°C, as the tablets release the gas too slowly.

Diatomaceous earth damages the cuticle of the insect, reducing the insect's ability to retain moisture. The insect eventually dies from dehydration. It can take weeks for diatomaceous earth to control insects in grain bins, assuming the grain is dry.

Also note that some commodities, such as canola, flax and sunflowers, should not be stored in facilities recently treated with malathion.

Weeds

Be on the lookout for large weeds appearing above the crop canopy, we are seeing more waterhemp appearing in the southeast part of the province. Other weeds that we're seeing are common and giant ragweed, if you suspect these are glyphosate resistant let us know and we can arrange for testing. If you think you may have

waterhemp let us know and we can get it identified and tested to see which herbicides it's resistant to. Since waterhemp is a prolific seed producer its crucial to remove plants before they add to the weed seedbank in the soil. An average waterhemp plant will have 200,000 to 300,000 seeds and larger plants will have 500,000 to 1,000,000 seeds. Remove **any** suspicious pigweed and get it tested to know what you are dealing with. **Waterhemp is a Tier 1 weed listed under the Noxious Weeds Act and must be destroyed when found.** Here are some photos of fields where there are only a few waterhemp plants, removing these before they set seed is relatively easy. Allowing even one plant to set seed means years of dealing these plants – they are extremely competitive and difficult or impossible to control in some crops.

This final picture shows some single waterhemp plants on the edge of this field (red arrow) as well as some clumps of giant ragweed plants further on. The green plants on the edge of this field are all weeds – including many waterhemp plants. The waterhemp plants in the field must be removed and the field edge must be mowed to prevent seed moving around.

Forecasts

Grasshopper Survey: A reminder for those participating in the grasshopper survey that counts are done during August, when the majority of grasshoppers are in the adult stage.

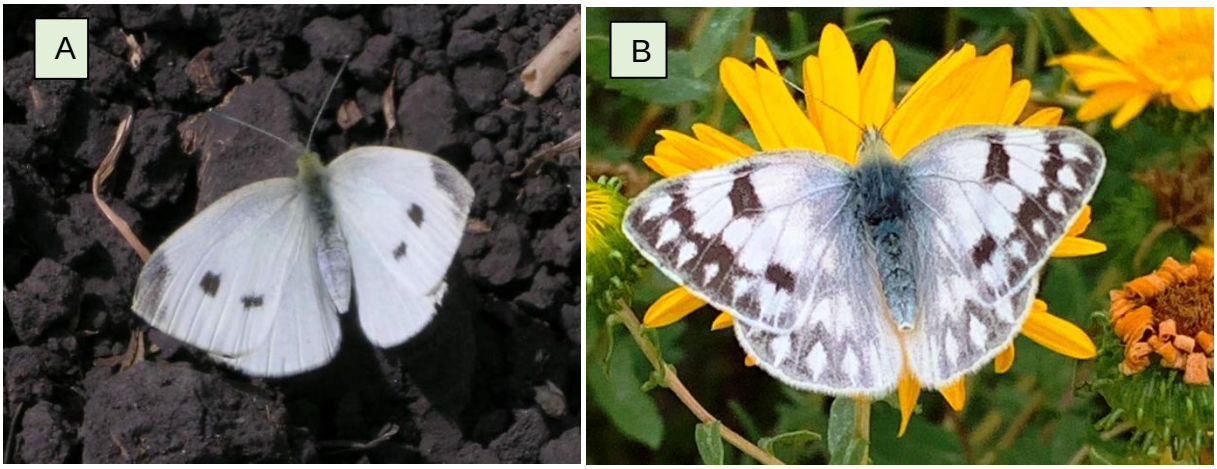
Agronomists and farmers who would also be interested in estimating grasshopper numbers in or around the fields they are in, and having this information included in the survey, are encouraged to see the survey protocol (at the link below) for more details of the survey and where to send data. Your counts would be welcomed.

Data from the survey, along with weather data during the egg laying period of the grasshoppers, will be used to produce a forecast for 2024.

The protocol and data sheet for the grasshopper survey is at:
https://www.gov.mb.ca/agriculture/crops/insects/pubs/grasshopper-survey-protocol-revised-july2023.pdf

Identification Quiz:

Question: There are a lot of white butterflies flying around currently, and if you look carefully, they may not all be the same. What are the white butterflies in the photos below?



Answer: The first photo (A) is the cabbage white, *Pieris rapae*. It is also sometimes called the cabbage butterfly. Larvae are called imported cabbageworms (see photo below), and can be pests of cruciferous vegetable crops. It was accidentally introduced to Quebec around 1860 and spread rapidly throughout North America. Imported cabbageworms can be found in canola, but generally do not do significant damage to canola.

The second photo (B) is the checkered white, *Pontia protodice*. The appearance of this species can vary somewhat, as the females have considerably more dark markings on the forewings than the males. You may also find the odd caterpillar of this species on canola, but they are not considered pests of canola.

Both the cabbage white and checkered white belong to a family of butterflies called the whites, yellows and sulphurs; Pieridae is the scientific name for this family. There are 42 species of Pieridae in Canada, and 20 species in Manitoba. Most caterpillars in this family of butterflies feed on crucifers and legumes. Worldwide there are about 1,160 species of Pieridae that have been identified. Some of the yellow butterflies you see flying around currently also belong to this group.

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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.