Manitoba Crop Pest Update
Issue 15: August 18, 2021

Manitoba Agriculture

Summary

Insects: Grasshopper levels continue to be a concern in some areas. Diamondback moth has been a concern in canola in some areas, with reports this week of high levels in some fields in the Central region. Lygus bug levels continue to be monitored in some later maturing canola, as well as faba beans, although many of the remaining canola fields will be too mature for Lygus bugs to be a concern. Flea beetle levels are high in some canola fields, resulting in some insecticide applications. Spider mites in soybeans are noticeable in some areas.

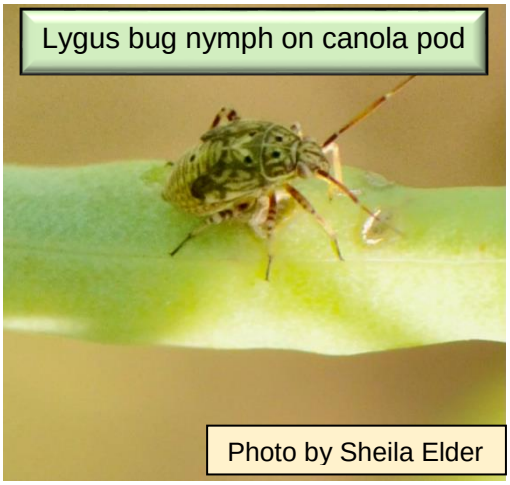
Diseases: More hot, dry weather – **not** conditions that are conducive to disease infection. However, such weather may reveal disease issues that have been percolating for some time, whose symptoms only become apparent later in the season, especially where moisture stress is a concern. Many agronomists and growers are wondering about the poor performance of canola. Is it just drought or are there other factors at work? We'll try to tackle that question this week and next.

Weeds: Harvest continues and green, actively growing weeds are a problem in some fields. Consult prior editions of our Crop Pest Report for appropriate use and timing for preharvest weed control and desiccation products that can be used to assist harvest and storage. Continue to scout for noxious weeds – infestations of waterhemp have been newly found in the RM of Stuartburn and La Broquerie. Waterhemp is a Tier 1 Noxious weed that must be destroyed. Other weeds of concern are those in the Parsley family - water hemlock and other closely related species. Many members of this family have toxic properties, particularly water hemlock which is extremely poisonous to people and livestock.

Entomology

Length of nymph stages for Lygus bugs: Lygus nymphs are the dominant stage on crops in some areas. We noticed this while out sweeping quinoa this past week, and the same has been reported from canola.

In a research study *Lygus lineolaris*, which is usually the most common species of Lygus bug in Manitoba, was reared on green beans (another host of Lygus bugs) at



Lygus bug nymph on canola pod

Photo by Sheila Elder

multiple constant temperatures and longevity of various stages and reproduction was measured (Environmental Entomology. 2012. 1-10).

The time it took *Lygus lineolaris* to go through their 5 nymph stages varied with temperature (in the study these were constant and not fluctuating temperatures):

Temperature °C	Days in nymph stages
17	35
18	28
25	16
27	13
30	12
32	12

With daytime temperatures in the 20 – 30C range and temperatures in the evening getting below 20C, it will probably take about 2 to 3 weeks to go through their 5 nymph stages. But as the data shows this is very temperature dependent.

Stages of soybeans susceptible to spider mites: A reminder that the stages of soybeans that are most susceptible to spider mites are the R4 (full pod) through R5 (beginning seed – when seeds are filling) stages. Once the soybeans reach R6 (full seed or green bean stage) the feeding from spider mites will have less impact on yield.

Plant Pathology

My canola looks terrible! Is it Verticillium stripe, Blackleg, drought or … ?

These are all fair questions. We all know it has been a year that was/is much dryer than "normal", even drier that the last three years. Many crops are suffering or showing the effects of insufficient water. But how do you know these effects are from drought alone?

The samples pictured above are from some canola fields in the northwest region of Manitoba. The "poor" plants (right) were in patches throughout the fields while the

“good” plants (left) were a lesser proportion of the whole fields. The soil is a Peguis clay, described as “gleyed” and with imperfect natural drainage. The soil tests are from the fall and show no anomalies other than a low level of boron (0.5 ppm) and slightly acidic pH (6.1-6.4). As with other fields in the region, the crop looked very good until after flowering, whereupon parts of the field deteriorated rapidly. Was the decline due to “lenses” of soil that have poorer water-holding capacity? Could a nutrient issue be at play? These questions are being addressed through soil (0-6” depth) and tissue tests from good and poor areas of the field.

And what about disease? Cross sectioning of basal stems and roots showed none of the dark discoloration of blackleg, nor Verticillium stripe. Likewise, aboveground symptoms of those two diseases were not present. Pathogenic disease seems an unlikely cause.

Other notable symptoms on the badly affected plants were profuse secondary root proliferation near the soil surface and thicker stems/more prominent branching above ground. Lots of clues – still a mystery. What do you think is going on here? It really is a diagnostic conundrum at this point. There may be more to the story next week. Let us know your educated diagnoses, SWAGs and prognoses for these crops.

Here are the symptoms of blackleg (left) and Verticillium stripe (right), just for your reference should you find yourself investigating similar situations in canola.

Weeds

Waterhemp

We've talked about waterhemp in previous editions of this report, and diligent scouting is needed to keep waterhemp at bay. Waterhemp will become our number 1 weed if its allowed to grow here, and as a Tier 1 weed under the Noxious Weeds Act it must be destroyed. This weed is extremely invasive on cropland and is particularly problematic in soybeans, corn and sunflowers. In-crop control options become extremely limited or unavailable due to herbicide resistance. Here are some pics from a newly found infestation:

Waterhemp seeds are tiny and black, indistinguishable from other pigweed seeds. Waterhemp needs to be destroyed preferably before seed set as it's capable of producing hundreds of thousands of seeds. If you suspect you have waterhemp, samples can be taken to the PSI labs in Winnipeg and DNA- analyzed for species identification. Unlimited samples (up to 8 plants per sample) can be tested for free for MCGA members.

Livestock producers need to be watching for water hemlock and other members of the Parsley family as these plants can be toxic to livestock. Water hemlock is by far the most toxic, with water parsnip and cow parsnip less so. As they are difficult to distinguish from one another its best to treat suspect plants as if they were water hemlock. Previous editions of this report have told how identify the different species, all the above-mentioned weeds will have white flowers in that distinctive umbel shape. Here's a pic of water hemlock:

Soils

Pay attention to Potassium

Potassium (K) deficiency field strips or the “canola swath syndrome” rears its head again. We are seeing the occasional yellow stripping in soybean and dry bean fields this year. Traditionally it follows a previous wet fall when canola swaths are rained on, washing the soluble K from crop residue into the soil below. Next year high K use crops show deficiencies between these “slightly enriched strips”.

But there were few rains last fall onto canola swaths, and these patterns appear due to narrow cereal straw and chaff spreading from the combine. Soybeans are now translocating K from leaf tissue for seed fill, and so these K malnourished plants exhibit full scale deficiency symptoms on upper leaves.

Potassium deficiencies are most common on sandy textured soils naturally low in soil K, but are becoming more common on loam and clay loam soils.

Potassium deficiency on soybeans in strips on sandy soils (photo credit: D. Hill)

But tissue K levels appear to be low in several crops I have been testing this year – I’m blaming the dry weather. Under dry conditions, the sheets of clay close together tightly and trap or “fix” K between them, reducing the availability. Sometimes this is observed as lower K levels than expected when soil testing very dry soils in the fall. And soluble K moves over short distances by diffusion, needing a continuous water film surrounding soil particles to provide a pathway to root hairs.

And some farmers have removed straw from cereal fields for livestock feed and bedding. On many heavier textured soils this removal will not show up as lower soil tests, but may if removal becomes common practice.

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 have 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.

Estimates of grasshopper levels can be collected during regular farm visits. "Estimates" of grasshopper populations is stressed as it will not be possible to accurately count grasshoppers along a field edge or ditch area as they will be moving around as you get near the area of the count. But estimates of what is present gives us some idea of the relative numbers that are present in different areas.

Data from the survey, along with weather data during the egg laying period of the grasshoppers, will be used to produce a forecast for 2022.

The protocol and data sheet for the grasshopper survey is at:
https://www.gov.mb.ca/agriculture/crops/insects/pubs/grasshopper-survey-protocol-2021.pdf

Identification Quiz:

Question: These swellings are quite noticeable on Canada thistle in some areas. When sliced open, a maggot-like insect may be found inside. What is this?

Answer: This is the gall and larva of the Canada thistle stem gall fly (*Urophora cardui*). The flies overwinter in the gall as mature larvae, and emerge as adults in spring. Galls typically contain one to ten larvae each. The larvae excrete a substance which reverses the vascular system of the plant, causing great nutrient losses to the plant during gall formation. The plants nutrients concentrate in the gall and do not go to other places of the plant. The plant pores (stomata) are stretched during gall formation which prevents their closure and causes the plant to lose 47 % more moisture than the equivalent length of unaffected stem. The plant may then have a harder time dealing with other stresses and have a stunted growth. The stem is usually too deformed to reproduce seeds. Thistle reproduction on plants with these galls is thus stopped or slowed, but these gall flies do not normally kill the plant.

Adults of this fly have black bodies and clear wings which have four distinct dark bands that form a “W”. The following link from BugGuide contains photos of the adults: https://bugguide.net/node/view/110075

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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.