Insect Update for 2022

John Gavloski
Entomologist
Manitoba Agriculture

Manitoba

What we will discuss?

- What were the top insect concerns from 2021?
  - John's top 5 list

- What can we forecast for these insects in 2022?

- Management and scouting tips

Top Insect Concerns From 2021

- Flea beetles in canola
- Grasshoppers

- Diamondback moth in canola
- Aphids in small grains

- Lygus bugs

Flea Beetles on Canola:
Situation from 2021

- Most canola seed with neonicotinoid seed treatment.
- Many fields received additional insecticide applications.
- Some reseeding due to flea beetles.
- Additional stresses on canola seedlings in some areas, such as dry weather, frost, wind and crusting issues.
- Some insecticide applications on podded canola in August.

Flea Beetles in canola

- The challenge:
  - To get the canola plants to a stage where they can naturally tolerate flea beetle feeding (3-4 leaf stage) without having occurred significant feeding injury.

- Slow emergence and early season growth makes canola more vulnerable to flea beetles.

Why were these untreated canola seedlings not being damaged?

- No flea beetle damage in volunteer canola in wheat field next to canola field that needed to be sprayed for flea beetles.

Reduced Tillage and Flea Beetles

- Direct seeding provides a micro-climate which is less ideal.
  - Flea beetles prefer environments exposed to bright sunlight and relatively warm.

- Greater damage to canola grown with conventional tillage compared with a zero tillage regime.
  - Borstlap and Entz. 1994. Can. J. Plant Sci. 74: 411-420
  - Milbrath et. al. 1995. Can. Ent. 127: 289-293.
  - Dosdall et. al. 1999. Crop Protection: 18: 217-224.
  - Lundin. 2019. Agriculture. Ecosystems, & Environment: 278: 1-5.

Late-season flea beetle feeding on canola

- Flea beetle feeding that occurs when seeds in lower pods of canola are at the green stage or beyond is unlikely to affect seed yields regardless of the infestation rate of flea beetles. Even when seeds are translucent to green, numbers higher than 100 flea beetles per plant, and for some cultivars higher than 350 per plant, may be necessary to cause significant yield reductions.
  - Soroka and Grenkow. Can. J. Plant Sci. 2012: 97-107.

Forecasting Flea Beetle Levels the Following Season?

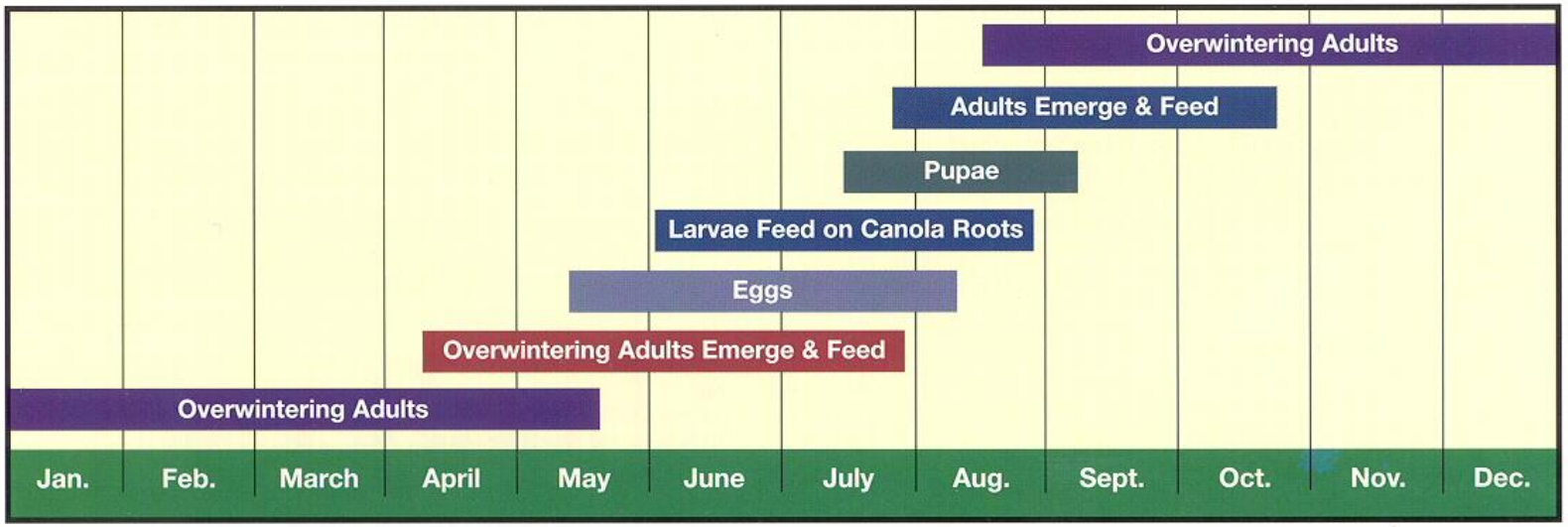


FIGURE 3. Flea Beetle Life Cycle.

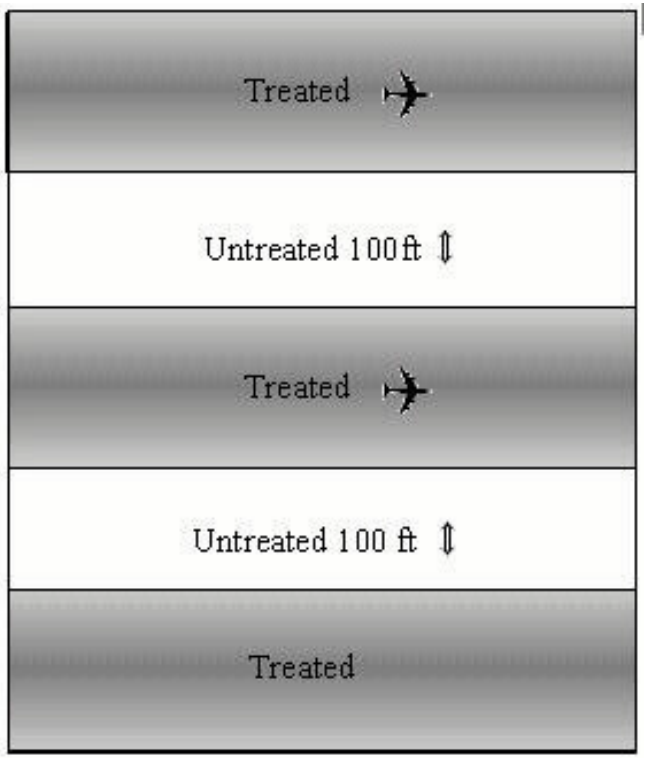
August

June

Grasshoppers:
Situation from 2021

- Population increasing over past few years.
- Control along field edges and whole fields.
- Significant damage to pastures in some areas.

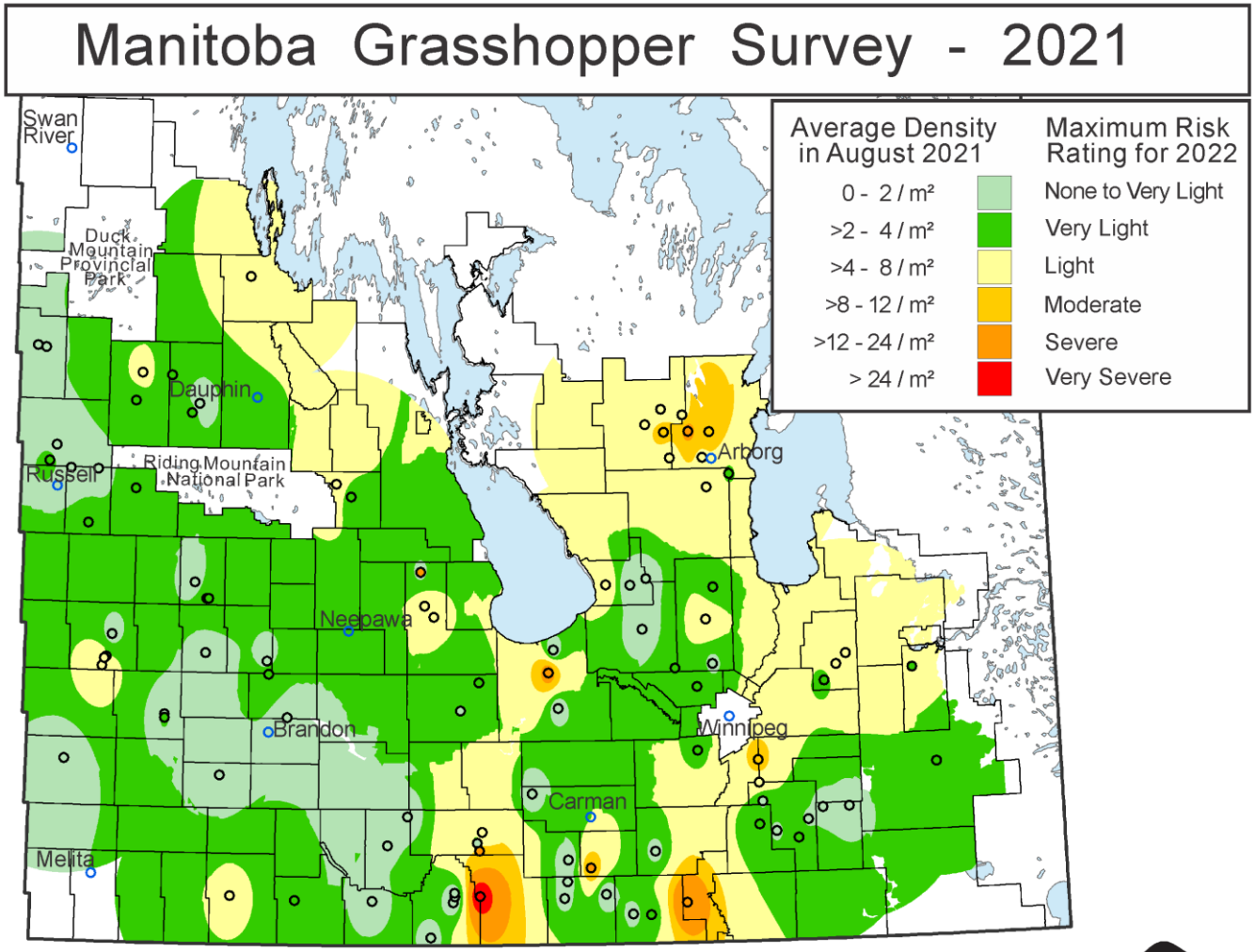
Reduced Area and Agent Treatments



"Normally will result in 80 to 95 percent control, which is approximately 5 to 15 percent lower mortality than with a standard (high rate, blanket coverage) treatment."

Cooperative Extension Service University of Wyoming College of Agriculture.

Forecasting Grasshopper Levels for 2022

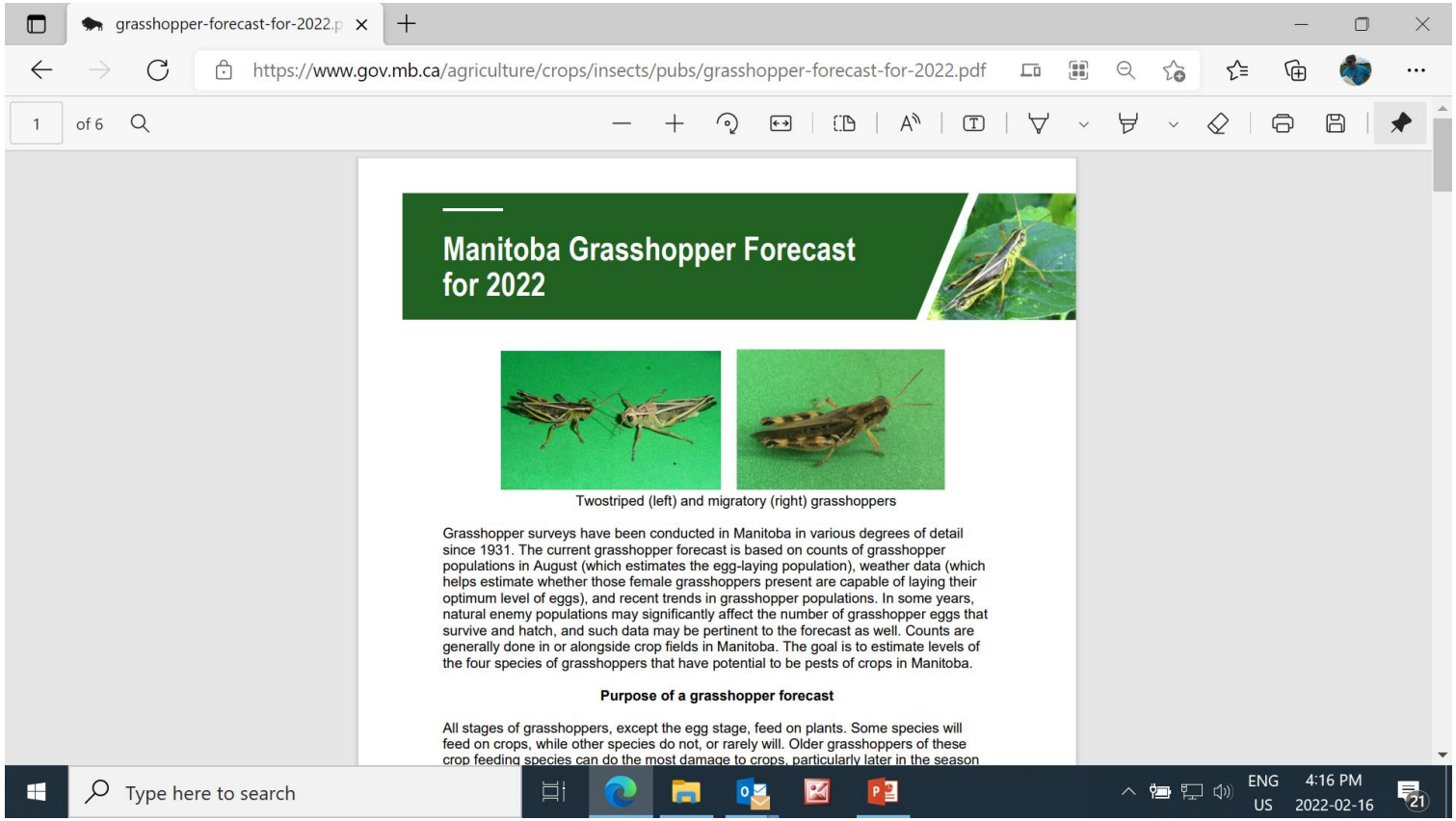


Canada

Manitoba

Forecasting Grasshopper Levels for 2022

- https://www.gov.mb.ca/agriculture/crops/insects/pubs/grasshopper-forecast-for-2022.pdf for full forecast.



Predators of Grasshopper Eggs

- Bee fly larvae
- Blister beetles
- Ground beetles
- Field Crickets

- Consider management techniques that minimize harm to predators and parasites.

Grasshopper – Monitor for nymphs

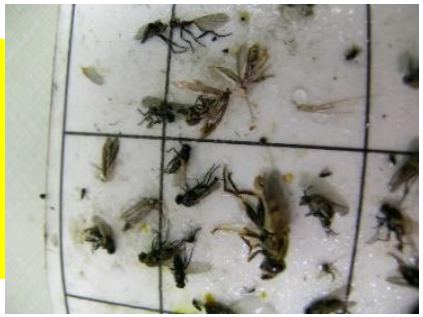
- Monitor field edges and roadsides early in the season

Diamondback moth

Situation from 2021

- Control in Eastern, Interlake and Central regions from mid-July until about mid-August.

Diamondback Moth
What the traps forecasted



Highest cumulative trap counts by region in MB in 2021

Region	Nearest Town	Trap Count
Northwest	The Pas	155
	Bowsman	68
Southwest	Minto	48
	Carberry	36
Central	Haywood	68
	Edwin	57
Eastern	Stead	106
	Beausejour	43
Interlake	Selkirk	171
	Clandeboye	66

Traps set up at 98 locations

Monitoring period generally from April 25 to June 26

Diamondback moth forecast for 2022?

- Very few, if any, survive winters in the Canadian prairies.
- Size of the population in any given year depends on:
  - overwintering populations to the south
  - strong south winds to transport the moths north into Manitoba.

Aphids on small grains

- Began to be noticed about mid-June.
- Some high populations in Eastern, Central and Southwest regions from about late-June to late-July.
- High levels of natural enemies noted in some fields.

Natural enemies reported included…

- Lady beetle larvae, lacewing larvae and hover fly larvae

Thirteenspotted lady beetle larva

Lacewing larva

Hover fly larvae

Lygus bugs

- Lygus bugs were controlled in some fields of canola, sunflowers, alfalfa seed, and strawberries.
- Lygus damage was also an issue in a shipment of dry beans to Europe.

New Economic Thresholds for Lygus bugs in Canola

- A threshold of 20-30 per 10 sweeps is suitable for good growing conditions. Using the lower end of the threshold (about 20 per 10 sweeps) may be appropriate for stressed canola with less ability to compensate for feeding.

New Economic Thresholds for Lygus bugs in Canola

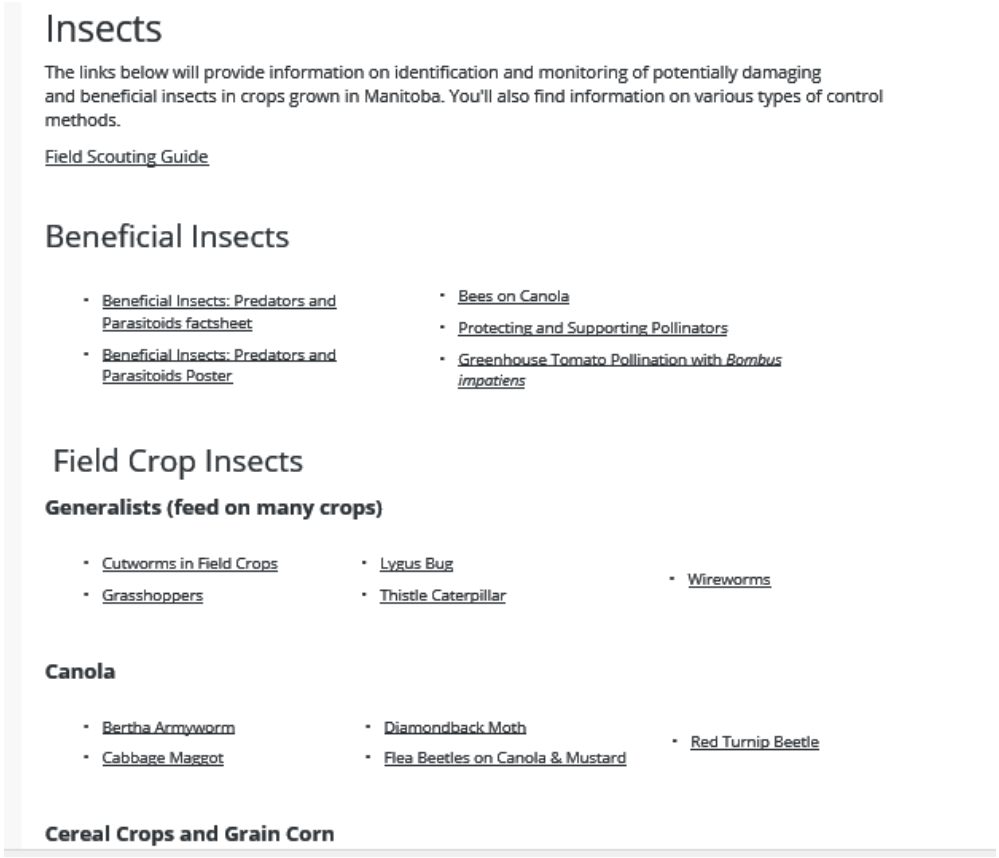
- The most vulnerable crop stage for Lygus feeding is when seeds are enlarging on lower pods. When most pods become “leathery” and when seeds inside are firm, Lygus bugs can no longer penetrate the pods or seeds with their mouthparts and are no longer an economic threat.

What Didn't Happen in 2021

- Soybean aphids
  - Outbreak years: 2006, 2008, 2011, 2017
- Aphids in flax.
  - Last economic levels - 2014
- European corn borer in corn
- Bertha armyworm in canola
- Armyworms

Factsheets, Forecasts and Insect Pest Summaries

- http://www.gov.mb.ca/agriculture/crops/insects/index.html



Insects

The links below will provide information on identification and monitoring of potentially damaging and beneficial insects in crops grown in Manitoba. You'll also find information on various types of control methods.

Field Scouting Guide

Beneficial Insects

- Beneficial Insects: Predators and Parasitoids factsheet
- Beneficial Insects: Predators and Parasitoids Poster
- Bees on Canola
- Protecting and Supporting Pollinators
- Greenhouse Tomato Pollination with *Bombus impatiens*

Field Crop Insects

Generalists (feed on many crops)

- Cutworms in Field Crops
- Grasshoppers
- Lygus Bug
- Thistle Caterpillar
- Wireworms

Canola

- Bertha Armyworm
- Cabbage Maggot
- Diamondback Moth
- Flea Beetles on Canola & Mustard
- Red Turnip Beetle

Cereal Crops and Grain Corn

Summary

- Flea beetles and grasshoppers were the biggest insect concerns in field crops in 2021.

- Grasshopper levels have been increasing.

- Keep updated on insects that blow or migrate in, and unexpected insect concerns.
  - Manitoba Crop Pest Update

Discussion and Questions?

John Gavloski
Entomologist
Manitoba Agriculture

Phone: (204) 750-0594
Email: John.Gavloski@gov.mb.ca