

Irrigated Crop Production Update 2010

- 7 Insects with an annual survey
 - Bertha Armyworm, Diamondback Moth, Wheat Stem Sawfly, Grasshoppers, **Pea Leaf Weevil, Cabbage Seedpod Weevil, Wheat midge**
- Mealybug on barley
- Cereal Leaf Beetle

Bertha Armyworm

- Low end of the cycle for past two years
- Annual survey still very important
- We should get a warning of an increase a year ahead of a major outbreak
- Traditionally excellent cooperation from the agriculture industry

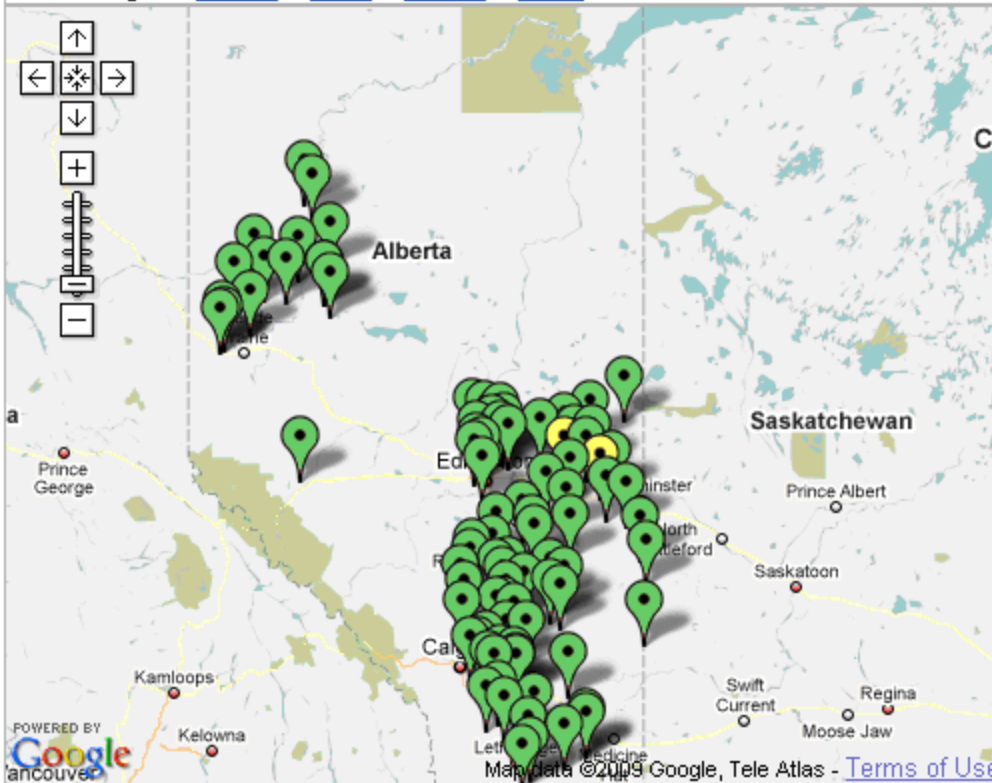
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Bertha Armyworm 2009 Survey Results [\(forecast\)](#)

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There are 91 Trap Locations that have Any Risk

Any Risk Trap Locations

Show Locations with :

Any Risk

Print

[Beaver Location #1](#)
Low [81]

[Beaver Location #2](#)
Low [79]

[Beaver Location #3](#)
Uncertain [301]

[Beaver Location #4](#)
Low [95]

[Birch Hills Location #1](#)
Low [32]

[Birch Hills Location #2](#)
Low [0]

[Birch Hills Location #3](#)
Low [24]

[Camrose Location #1](#)
Low [37]

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AA

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Uncertain Risk Trap Locations

Show Locations with :
Uncertain Risk ▾

Print

- [Beaver Location #3](#)
Uncertain [301]
- [Minburn Location #1](#)
Uncertain [486]

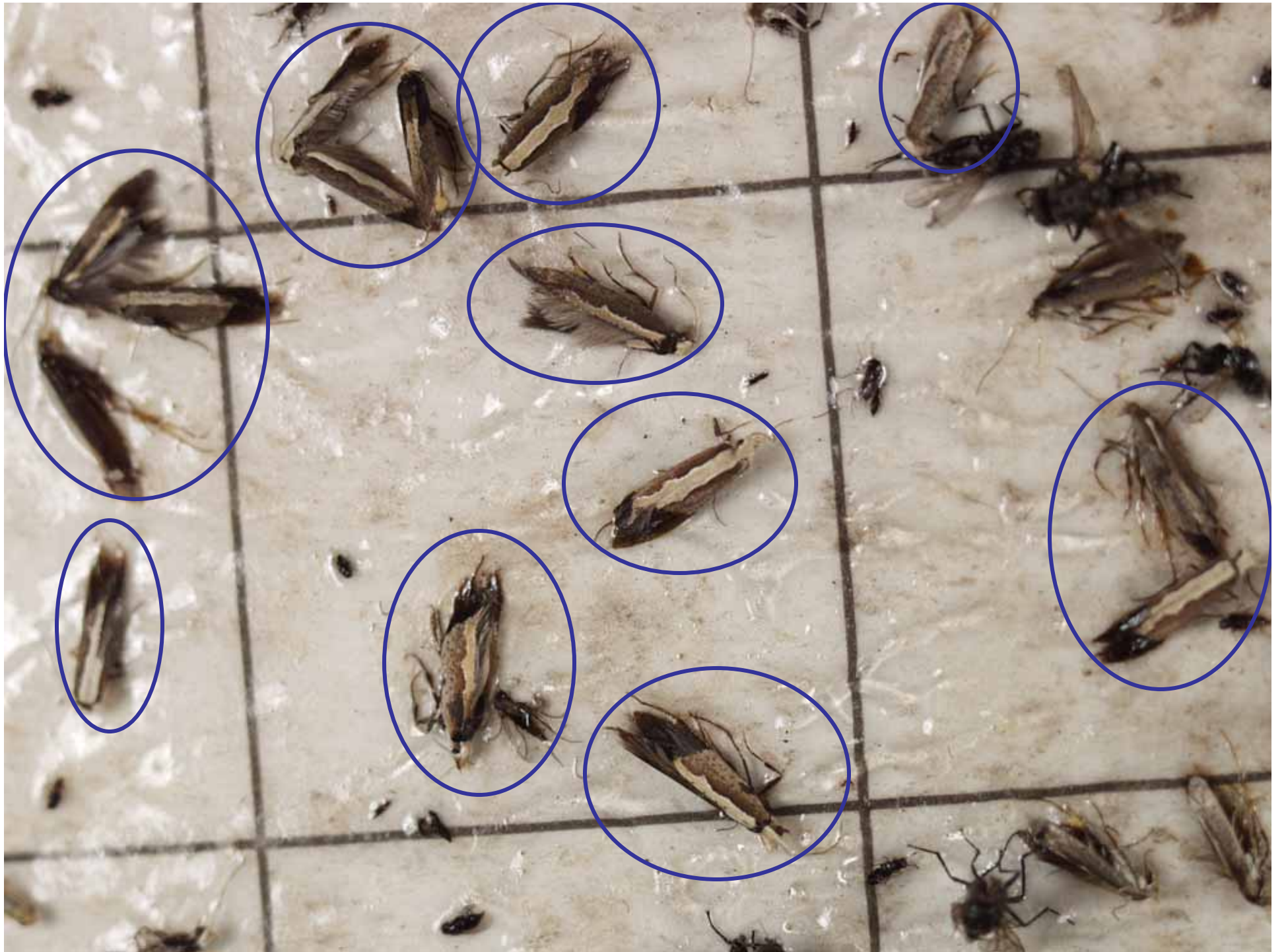
There are 2 Trap Locations that have Uncertain Risk

Diamondbacked Moth



Photo Property of Manitoba Agriculture and Food
Soils and Crops Branch






Wheat Stem Sawfly

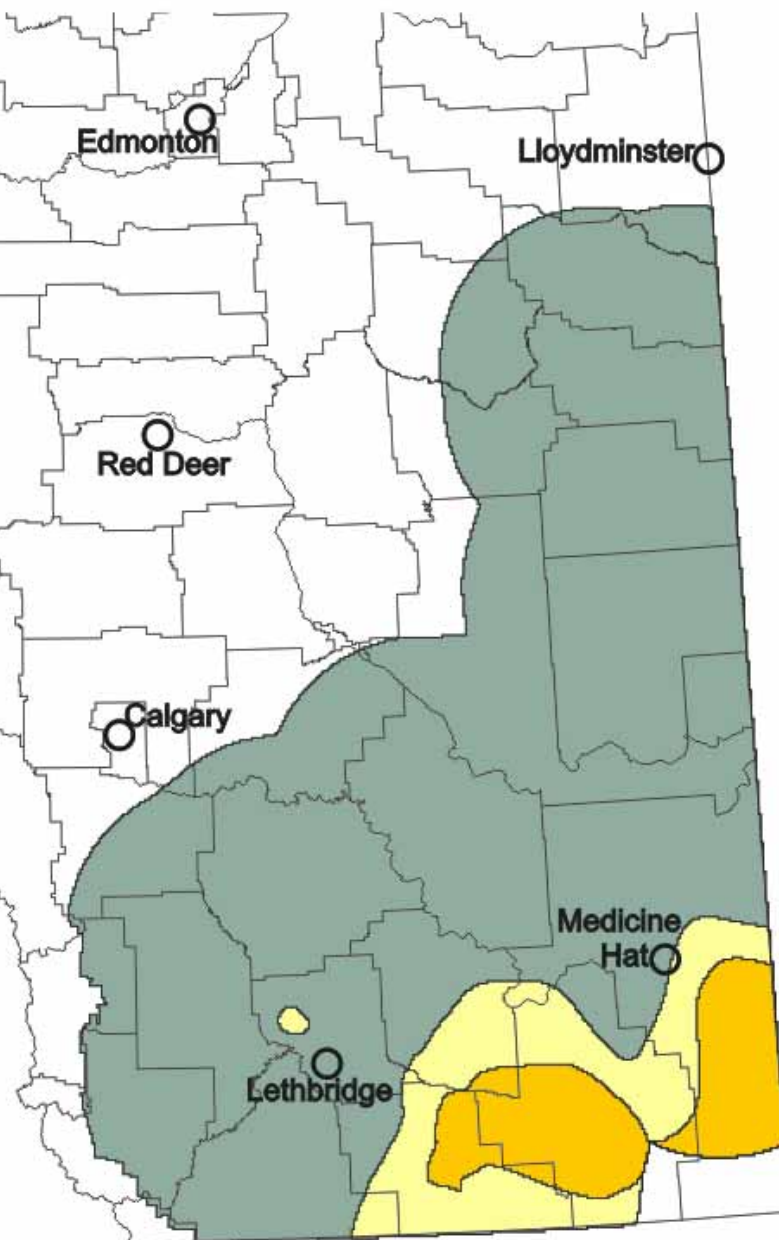
- Generally populations are lower than they have been in 8 to 10 years
- Still pockets of sawfly
- Dry years – especially a dry August favors population increases
- Parasitism and solid stem wheat are major population drivers

Wheat Stem Sawfly Survey 2009

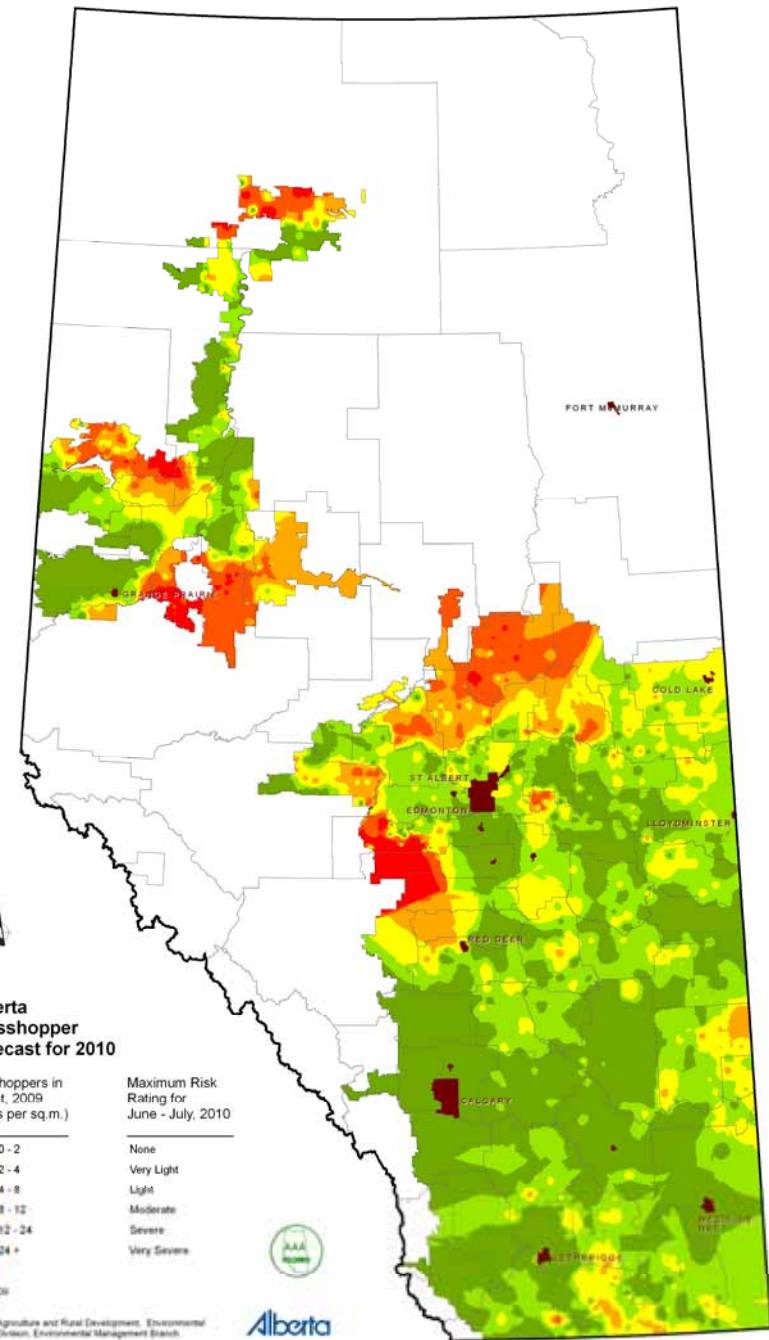
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Percent stems cut	Damage severity
0 - 2	Very low
2 - 10	Low
10 - 25	Moderate
> 25	High

 Agriculture and Agri-Food Canada Agriculture et Agroalimentaire Canada



Grasshoppers



Pea Leaf Weevil

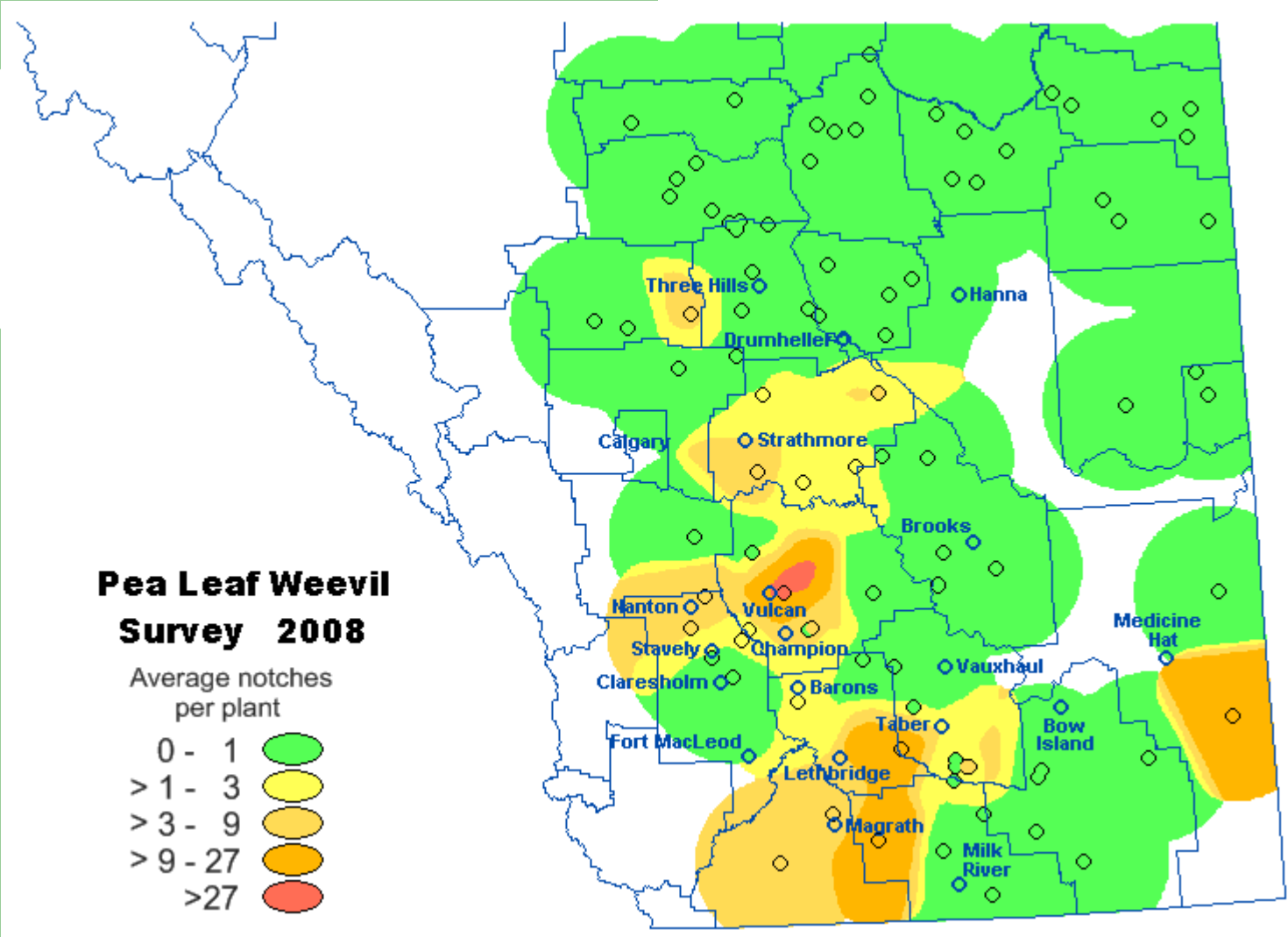


Larva inside nodule



Photo - Earl Greenhough





**Pea Leaf Weevil
Survey 2008**

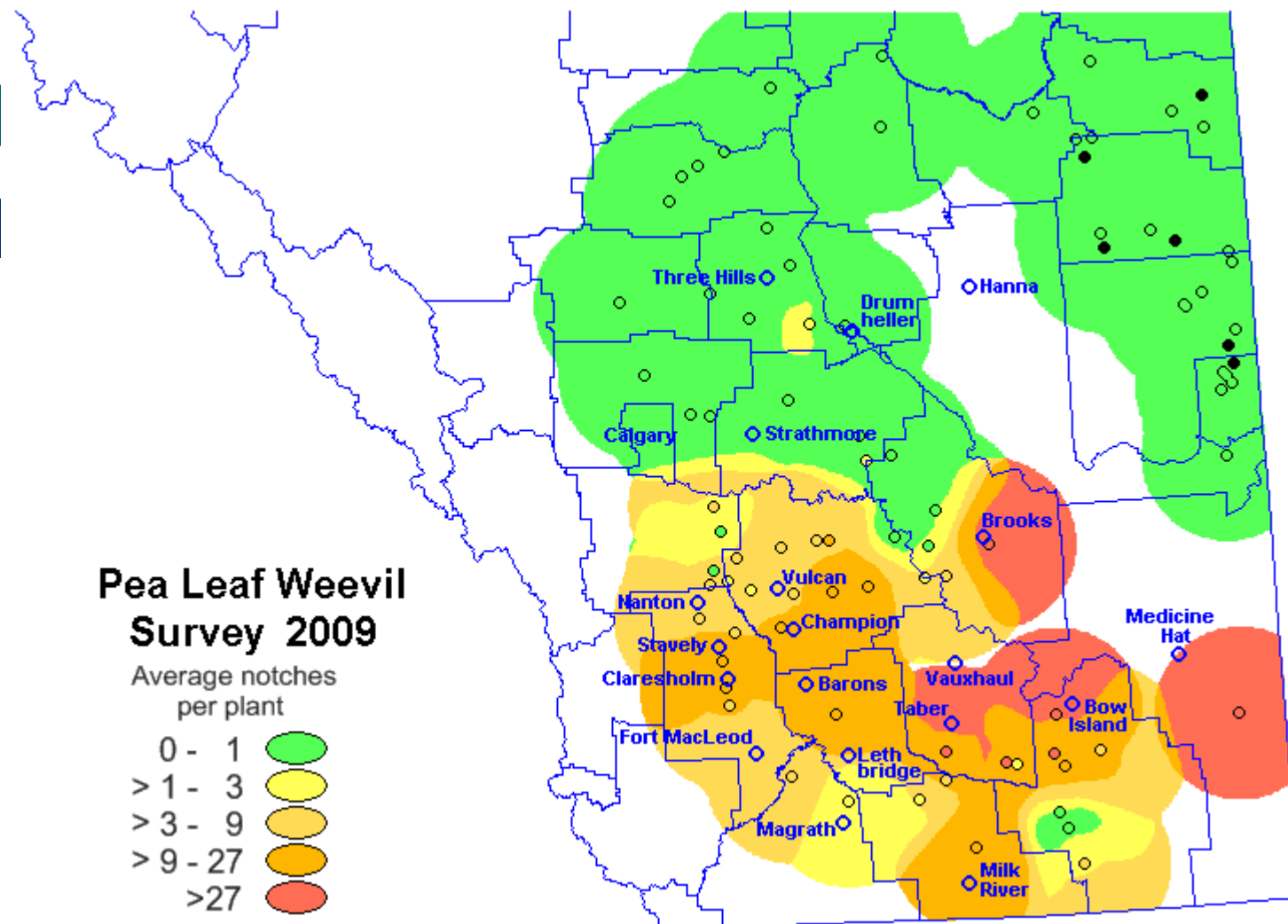
Average notches
per plant

- 0 - 1 ●
- > 1 - 3 ●
- > 3 - 9 ●
- > 9 - 27 ●
- > 27 ●

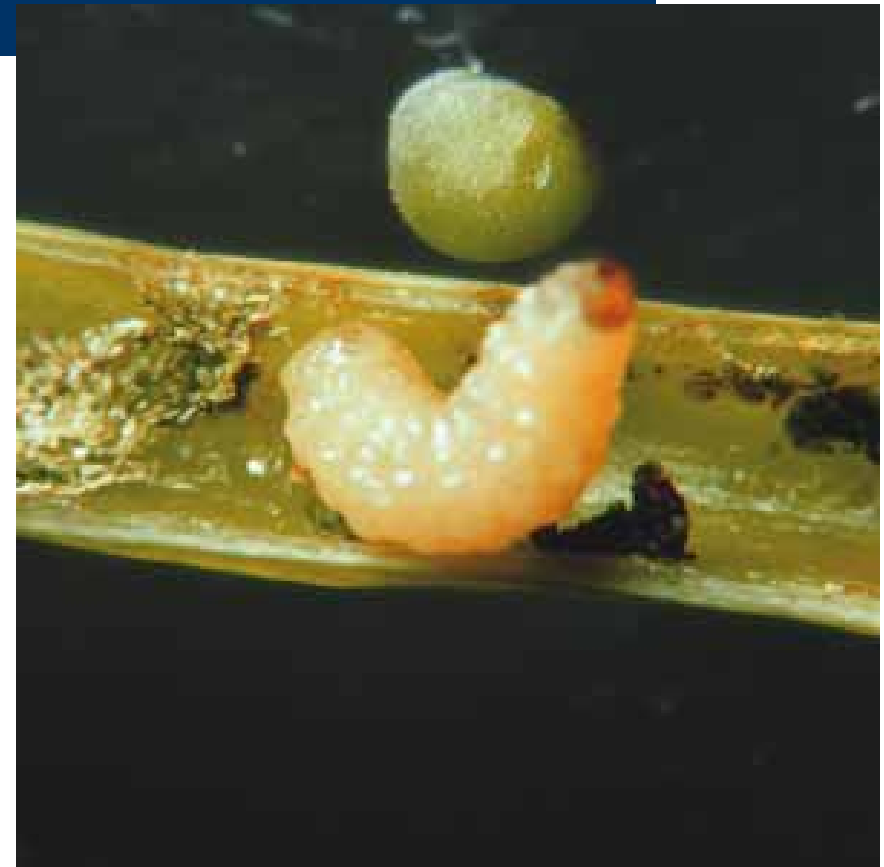


Pea Leaf Weevil Survey 2009

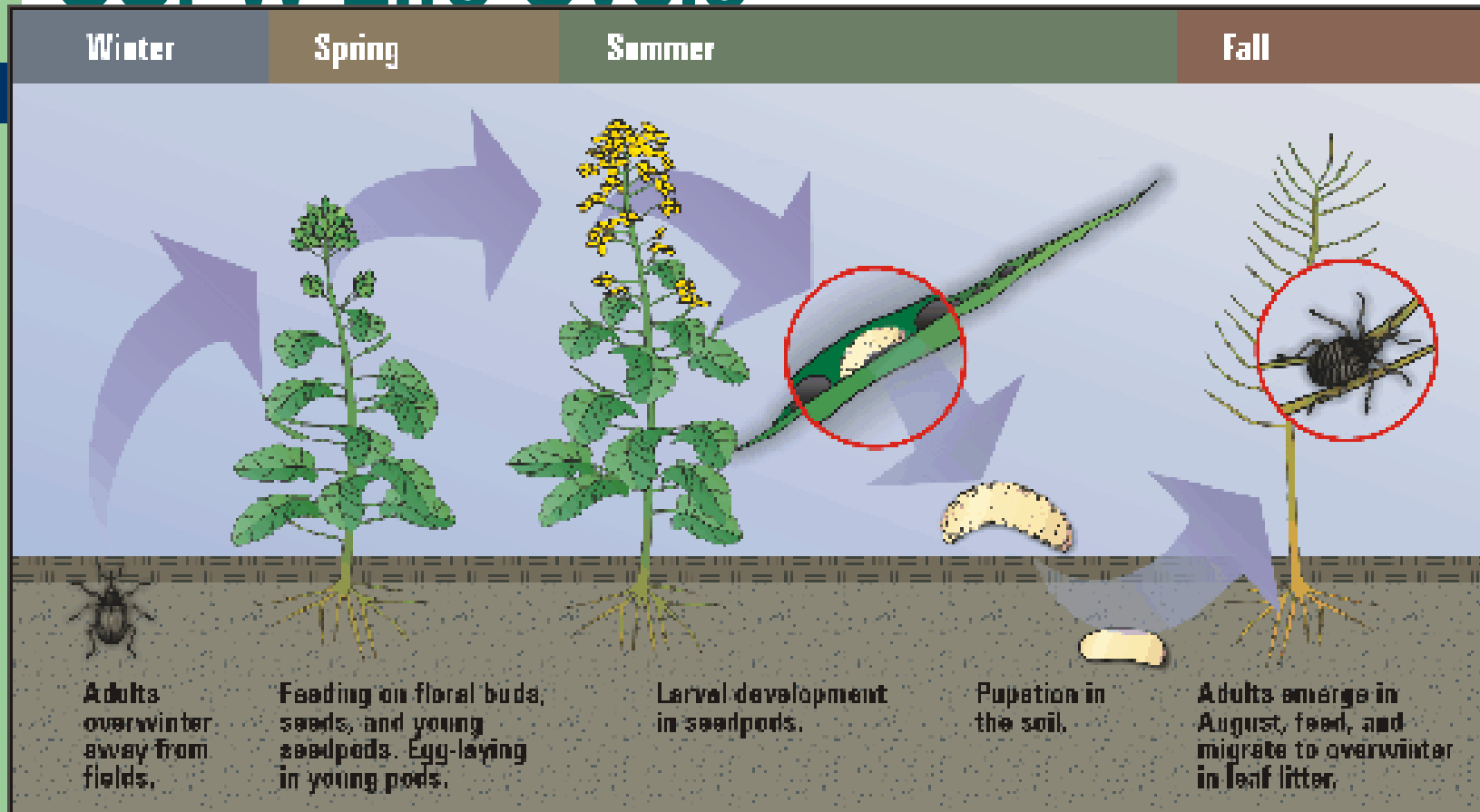
Average notches per plant



Cabbage Seed Pod Weevil

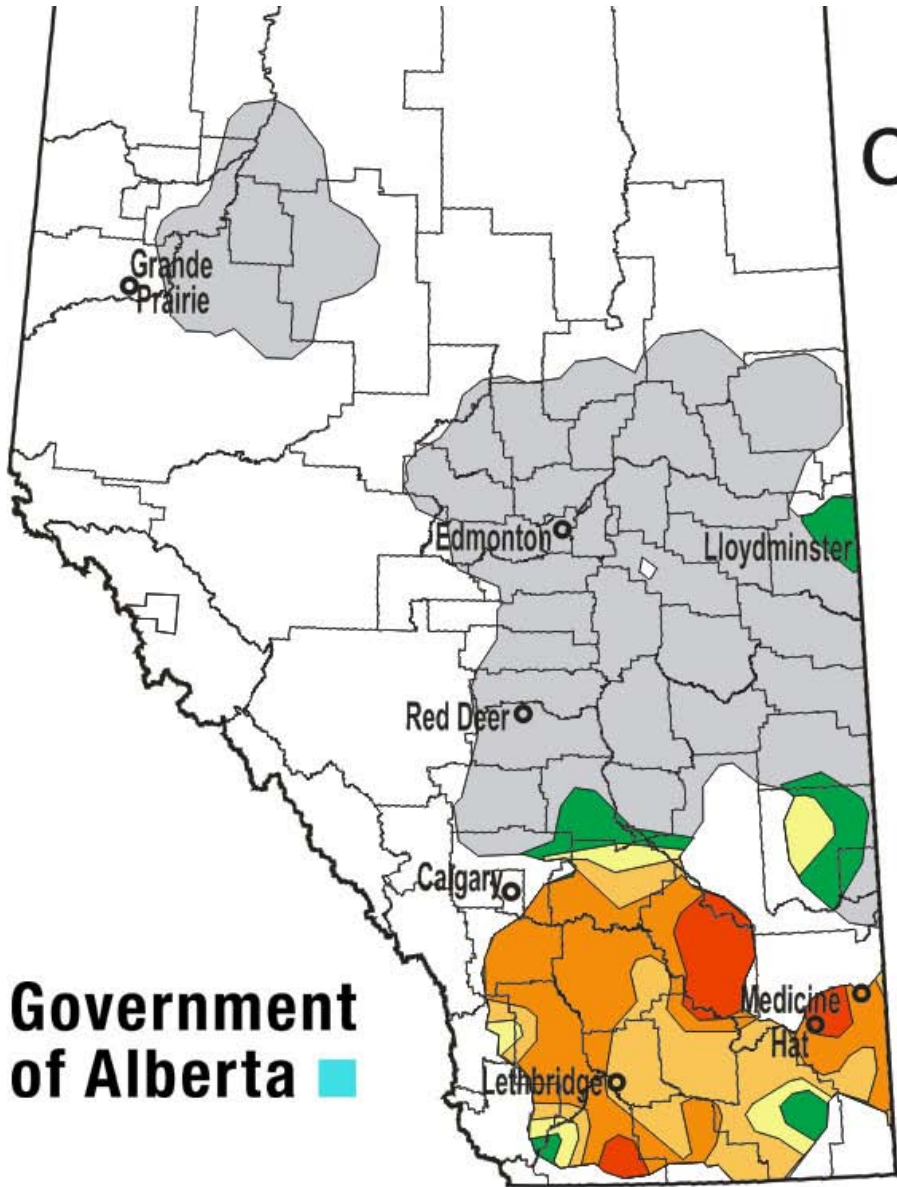


CSPW Life Cycle



Cabbage Seedpod Weevil

2009 Survey



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Emergence Hole





Wheat Midge

- A cautionary note!!!!
- Wheat on wheat – irrigated wheat in S. AB

Cocoons

- Cocoons

- Overwintering form
- Most larvae remain in the top 5 cm (2")
- Some may burrow 10 cm (4 inches) below the soil surface

wheat midge cocoons
canola seeds



Damage

- Damage
 - After hatching, midge larvae feed on the surface of the developing wheat kernel causing it to shrivel, crack and become deformed
 - larvae



Adults

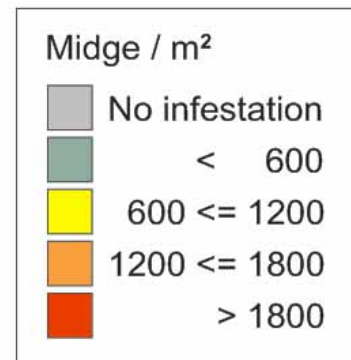
- Adults
 - Small, fragile orange fly about 2-3 mm (1/8") long
- Emerge from pupa late June or early July
 - Temperature dependant
 - Using degree-days to estimate emergence



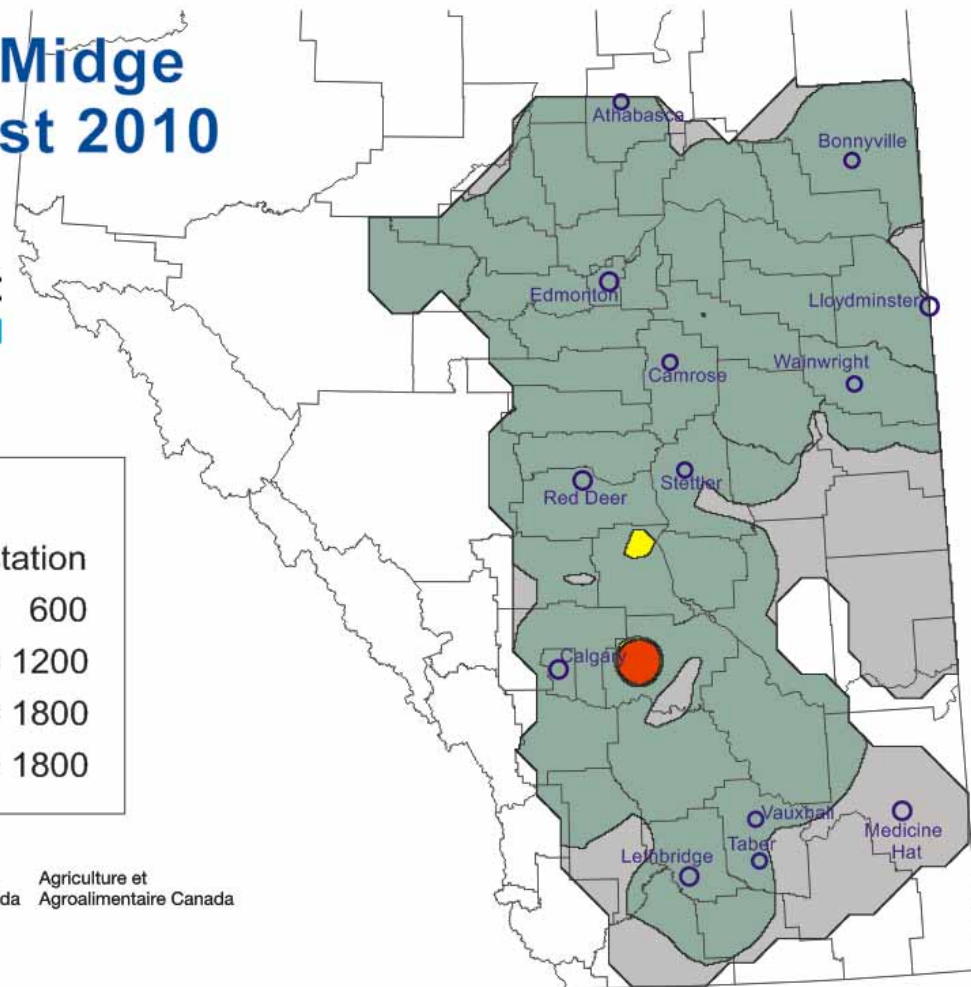
Wheat Midge

Wheat Midge Forecast 2010

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 Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada



Barley Mealybug

- Same Order (major group of insects) as aphids and leafhoppers
- Complex lifecycle
 - Different forms, parthenogenetic cycle, mating cycle
- Haanthen vs American grass mealybug
- Rotation, rotation, rotation

Mealy bug damage



Mealy bug damage



Mealy bug close up



Mealy bug crawler – immature form



Mealy bug above ground evidence



Haanchen vs American Grass Mealybug

- Similar patchy damage – more obvious in dry conditions
 - AGMB – all damage and wax is below ground
 - HMB – wax appears higher up on the plant
- Same genus – very hard to tell apart
 - Need adult females for definitive identification
- HMB appears to cause more serious damage from U.S. reports

Mealybug control

- Rotation, rotation, rotation
 - Specific to cereals – seem to prefer barley
 - Severe cases have been continuous barley
 - Can be found in other cereals
 - Does not move around efficiently
- Chemical
 - Foliar has not been effective in the U.S.
 - Seed treatments have shown promise in the U.S.
 - US experience is based on HMB

Cereal leaf beetle

- Eurasian pest
- Found in Michigan in 1962
- Generalist graminaceous feeder
- Prefers oats, wheat and barley
- Found in Lethbridge in 2005
- CFIA Quarantinable pest
 - Lifted in 2008



CLB Hosts

Oats

Orchard grass

Corn

Wheat

Ryegrass

Sorghum

Barley

Foxtail

Millet

Brome

Bluegrass

Fescue

Rice

Quack grasses

Wild Oat

Reed canary grass

CLB Adult Damage



Courtesy of Gary Brown

CLB Adult



Picture by Garrett Clevenger



Collops hirtellus (beneficial)



Adult CLB

Cereal Leaf Beetle Larva



Resembling small slugs, the larvae drop to the soil to pupate in earthen cells

CLB Larval Feeding Damage

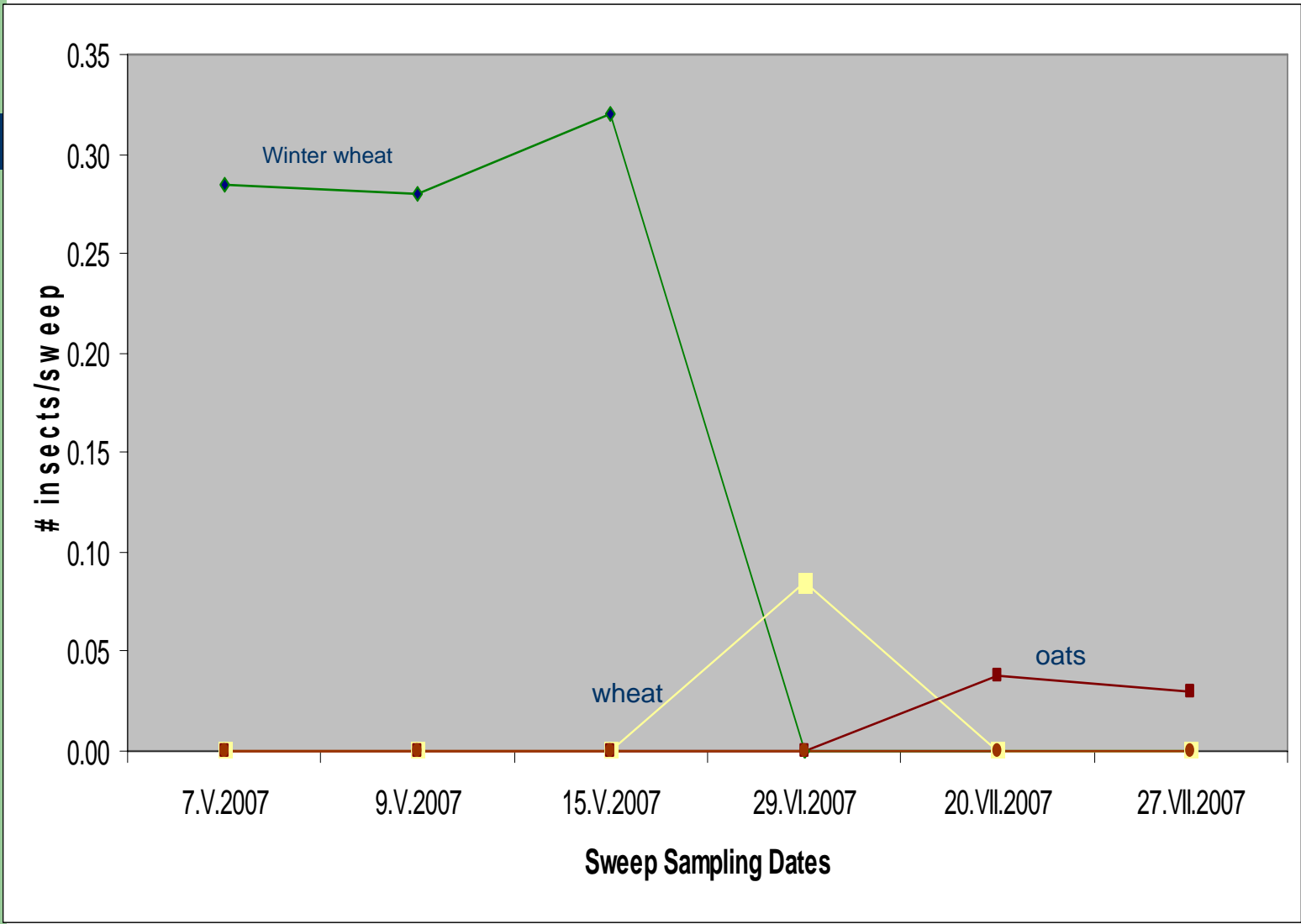


CLB Damage

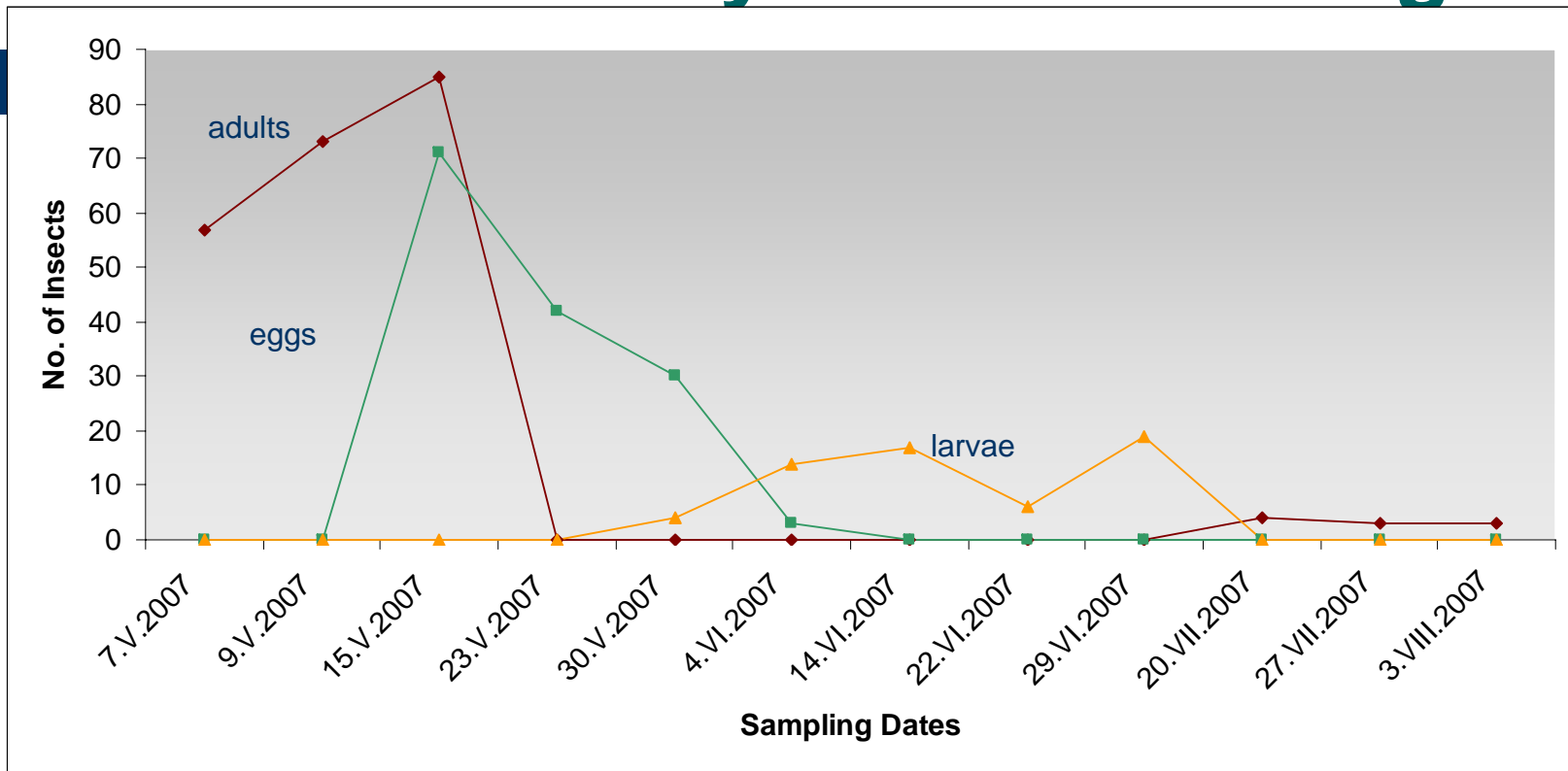


CLB Nursery site near Lethbridge





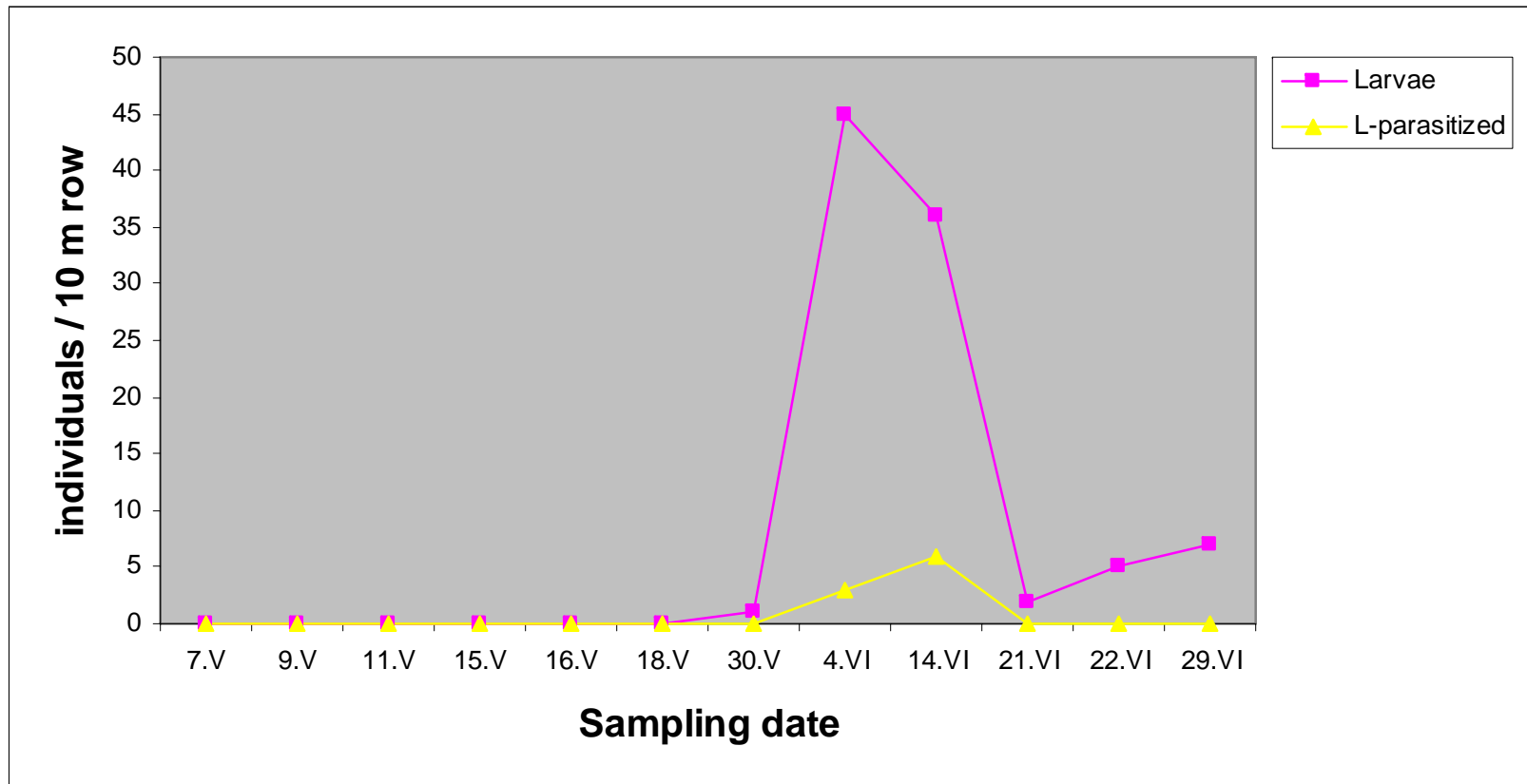
Seasonal activity near Lethbridge



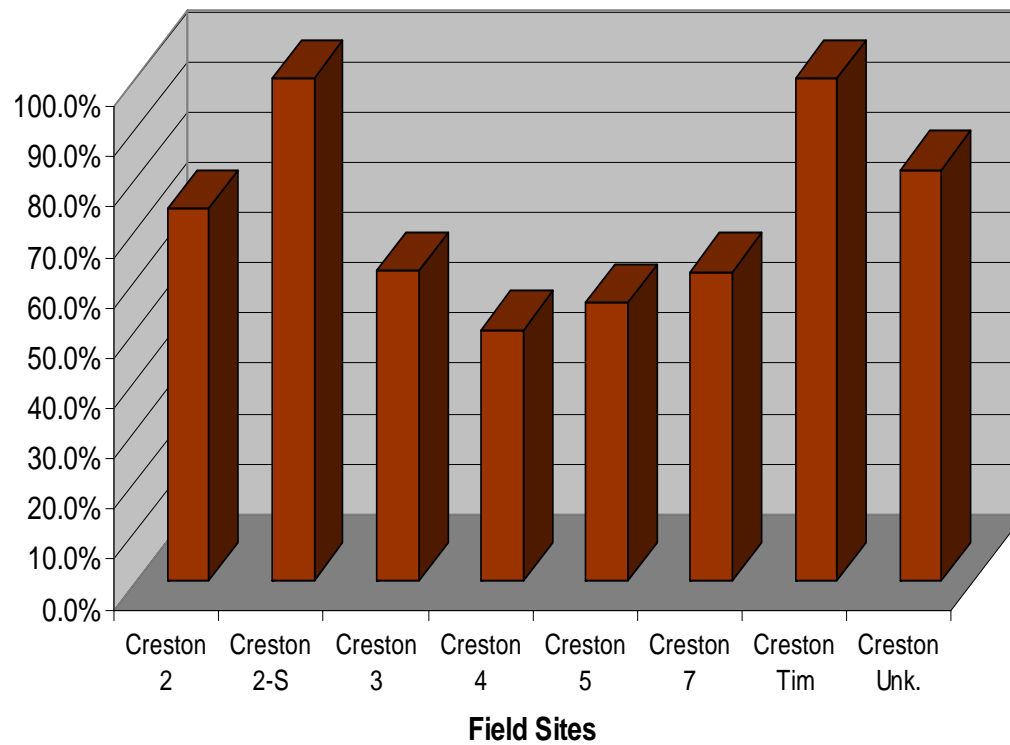
CLB larval parasitoid
Tetrastichus julis



Larvae parasitized near Lethbridge



Larval parasitism near Creston, BC



2006 – Survey 1

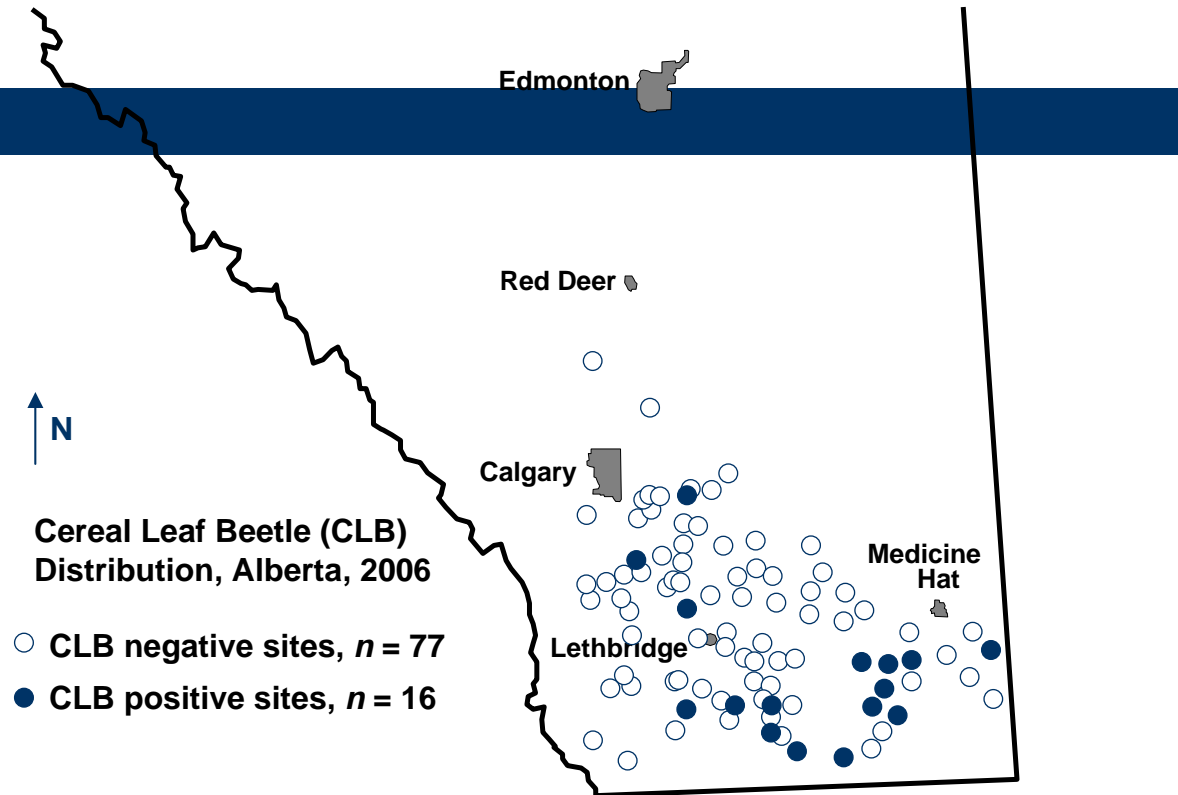
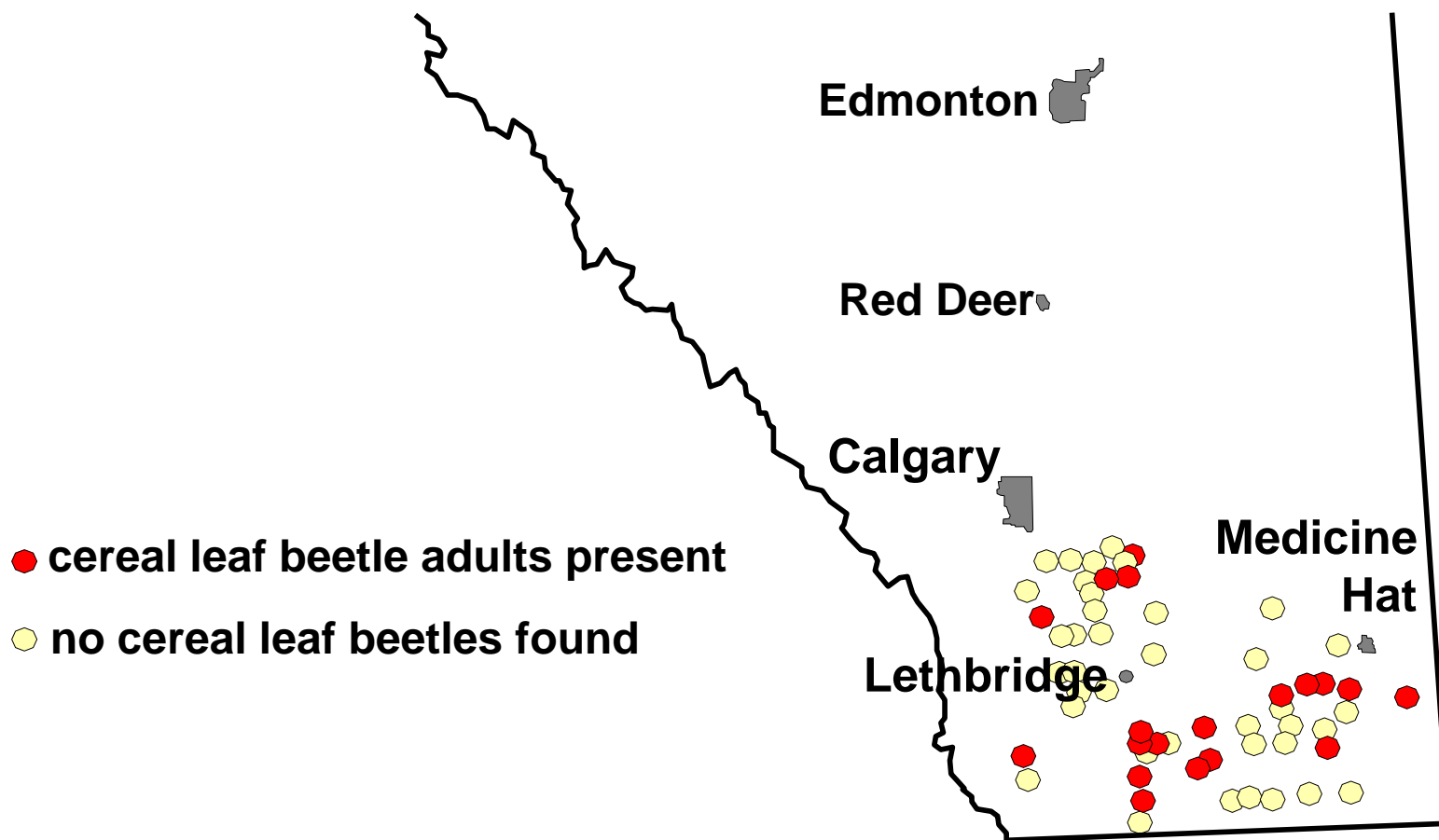


Fig. 1. Sites in southern Alberta, Canada where specimens of the cereal leaf beetle, *Oulema melanopus* L., were collected during the survey of cereal fields from 19-30 June 2006.

2008 Cereal Leaf Beetle Survey #3 16 – 19 June

Cereal Leaf Beetle Larvae in Spring and Winter Cereals





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