

Agronomy Update

Crop Production Week

January 16th, 2009

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Agronomist

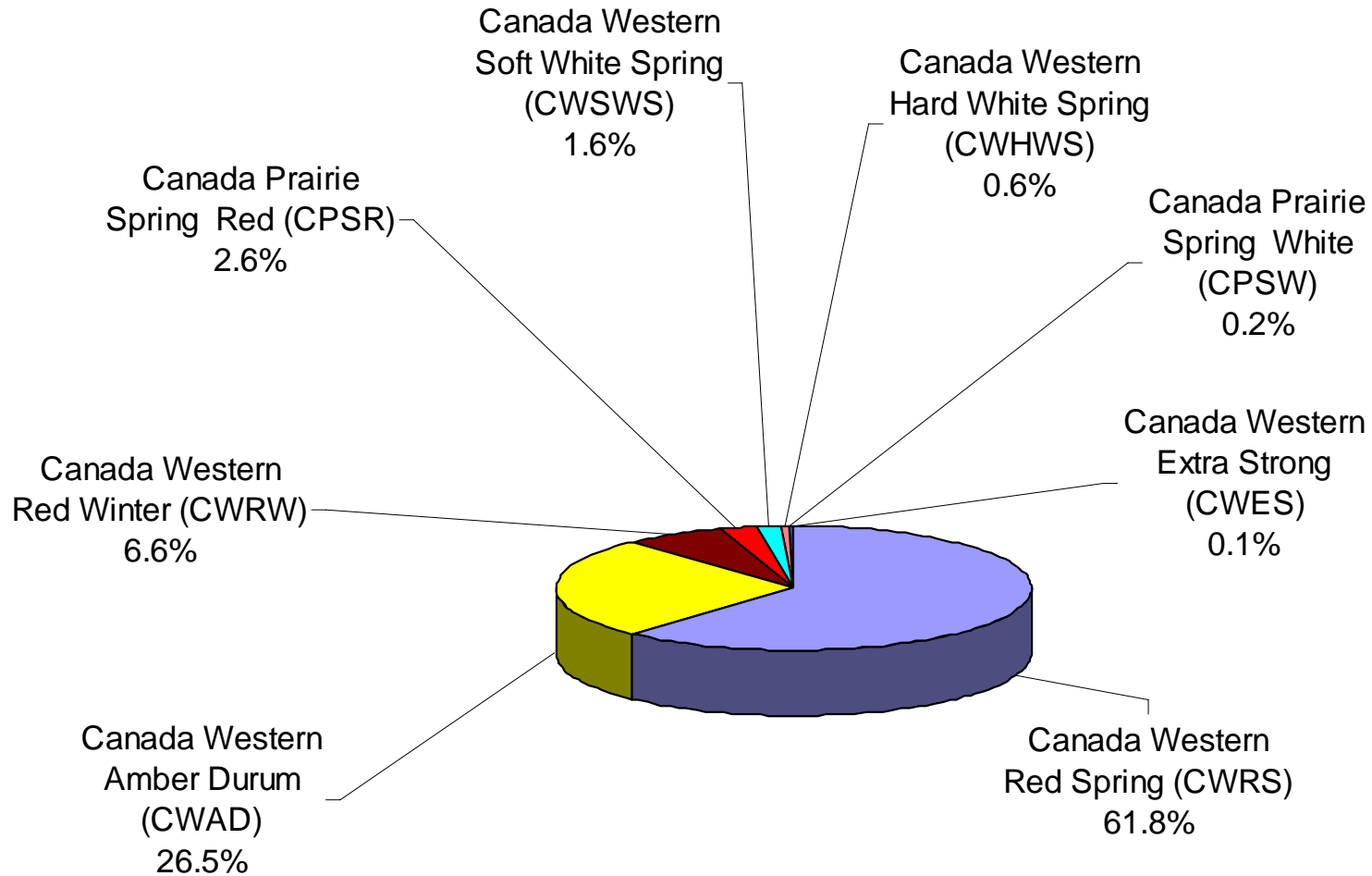


Prairie strong, worldwide

Presentation Outline

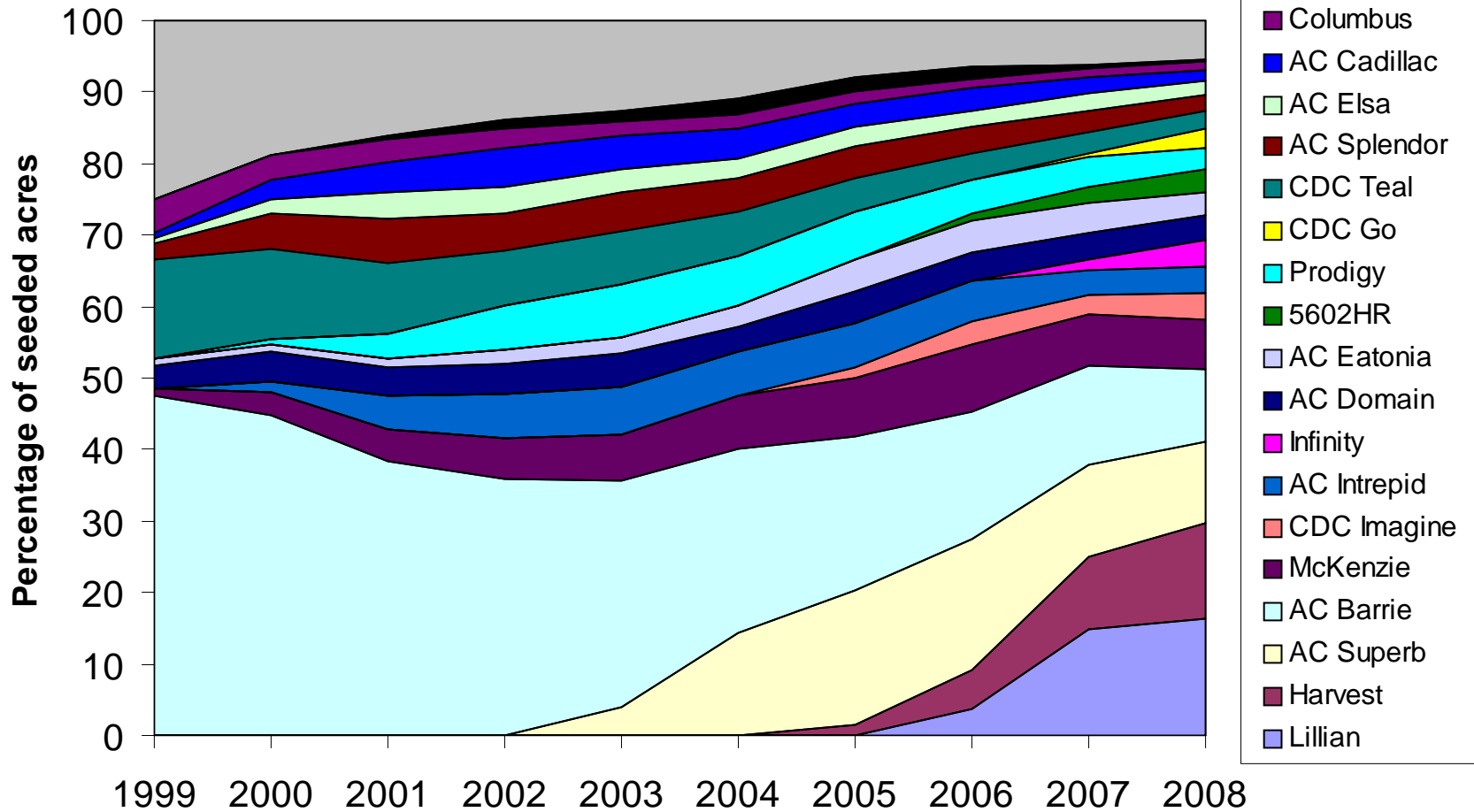
- Variety Overview
 - What's coming out in 2009 and beyond
- Pest Update
 - Midge
 - Ergot
 - Sawfly
 - Grasshopper
 - Fusarium Head Blight

2008 CWB Variety Survey All Wheat- Prairies



CWB Variety Survey (1999-2008)

CWRS - Prairies



New wheat varieties – since Superb in 2001

(*Denotes WGRF Supported Varieties)

- | 2002 to 04 | % 08 Survey | 2005 to 07 |
|-------------------|-------------|-------------------------------------|
| 5500HR | Trace (T) | PT425 |
| CDC Imagine | 3.8 | Helios |
| *Harvest | 13.2 | CDC Abound (Clearfield) |
| 5601HR | 0.4 | *Alvena |
| Journey | 0.5 | *AC Kane |
| Peace | T | *Goodeve (Midge Resistant) |
| *Lovitt | 0.2 | *Waskada |
| *CDC Osler | 0.1 | *Unity (Midge Resistant) |
| *CDC Go | 2.6 | *Fieldstar (Midge Resistant) |
| *Lillian | 16.4 | |
| *Infinity | 3.6 | |
| *Somerset | 0.3 | |
| CDC Alsask | 0.2 | |
| 5602HR | 3.2 | |
| | | 2008 |
| | | BW388 |
| | | BW859 |
| | | BW867 Stettler |

Variety	Variety Survey % Seeded Acres	Relative Maturity	Lodging	Sprouting	Stem Rust	Leaf Rust	FHB
Lillian	16	0	F	G	G	VG	VP
Harvest	13	-1	VG	VG	G	G	VP
Superb	11	+3	G	F	G	P	P
AC Barrie	10	100	G	G	G	P	F
McKenzie	7	-1	F	G	G	VG	F
Infinity	4	-1	G	G	G	G	VP
5602HR	3	+1	F	P	G	VG	G
CDC Go	3	-1	G	P	G	F	P
AC Kane		+1	G	VG	G	VG	F
AC Goodeve VB		-2	VG	G	G	G	VP
AC Unity VB		0	F	G	G	VG	P
AC Waskada		+1	F	G	G	F	G
AC Fieldstar VB		0	F	G	G	VG	F

Midge Update

High levels of degrading in 2006 and 2007.

Good News:

Less degrading damage observed in 2008.

Improvement in 2009 Wheat Midge Forecast risk

2009 Considerations:

Know your local risk level

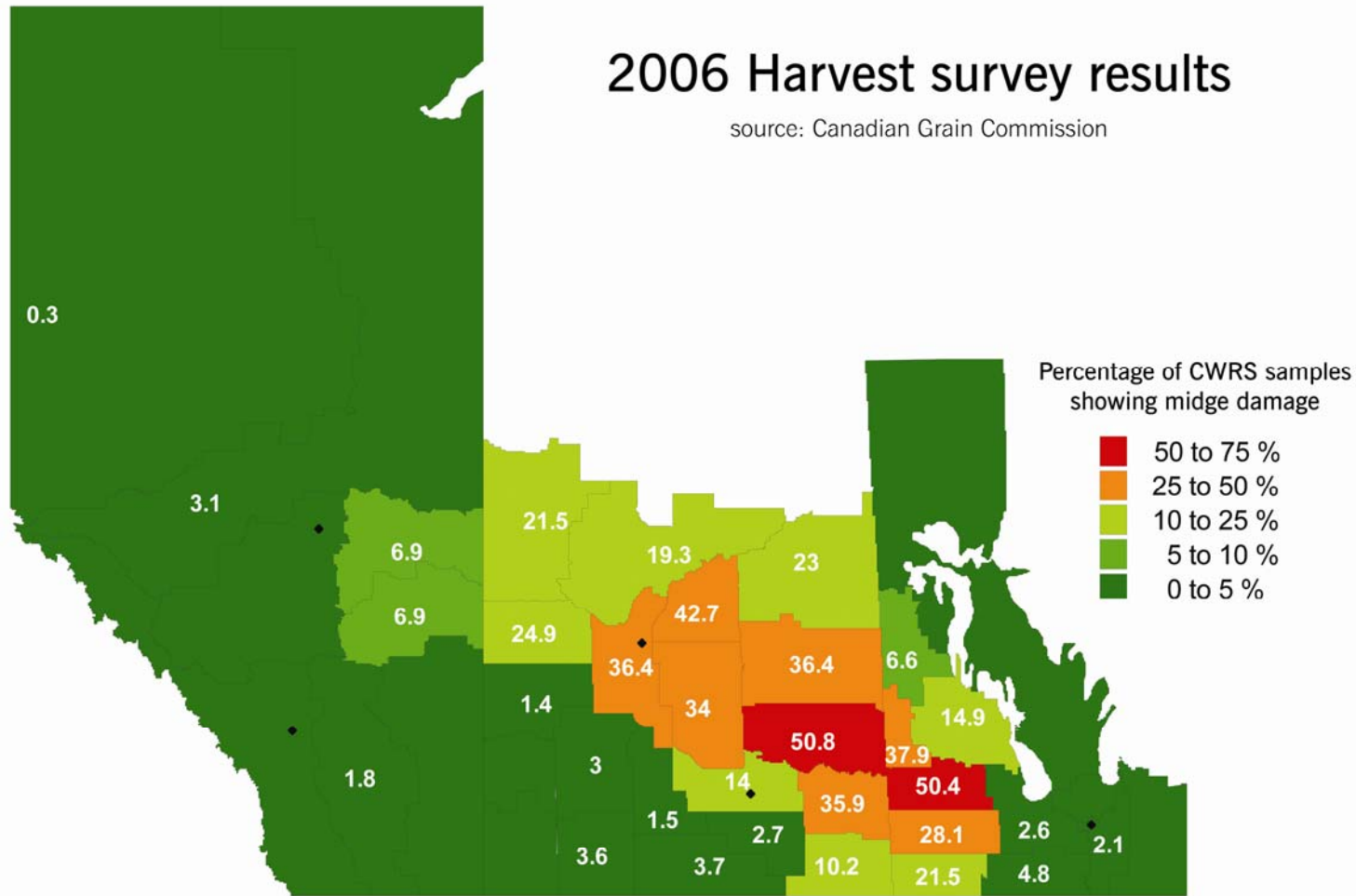
Continue field scouting

Use tools such as wheat midge emergence model to be scouting at the right time



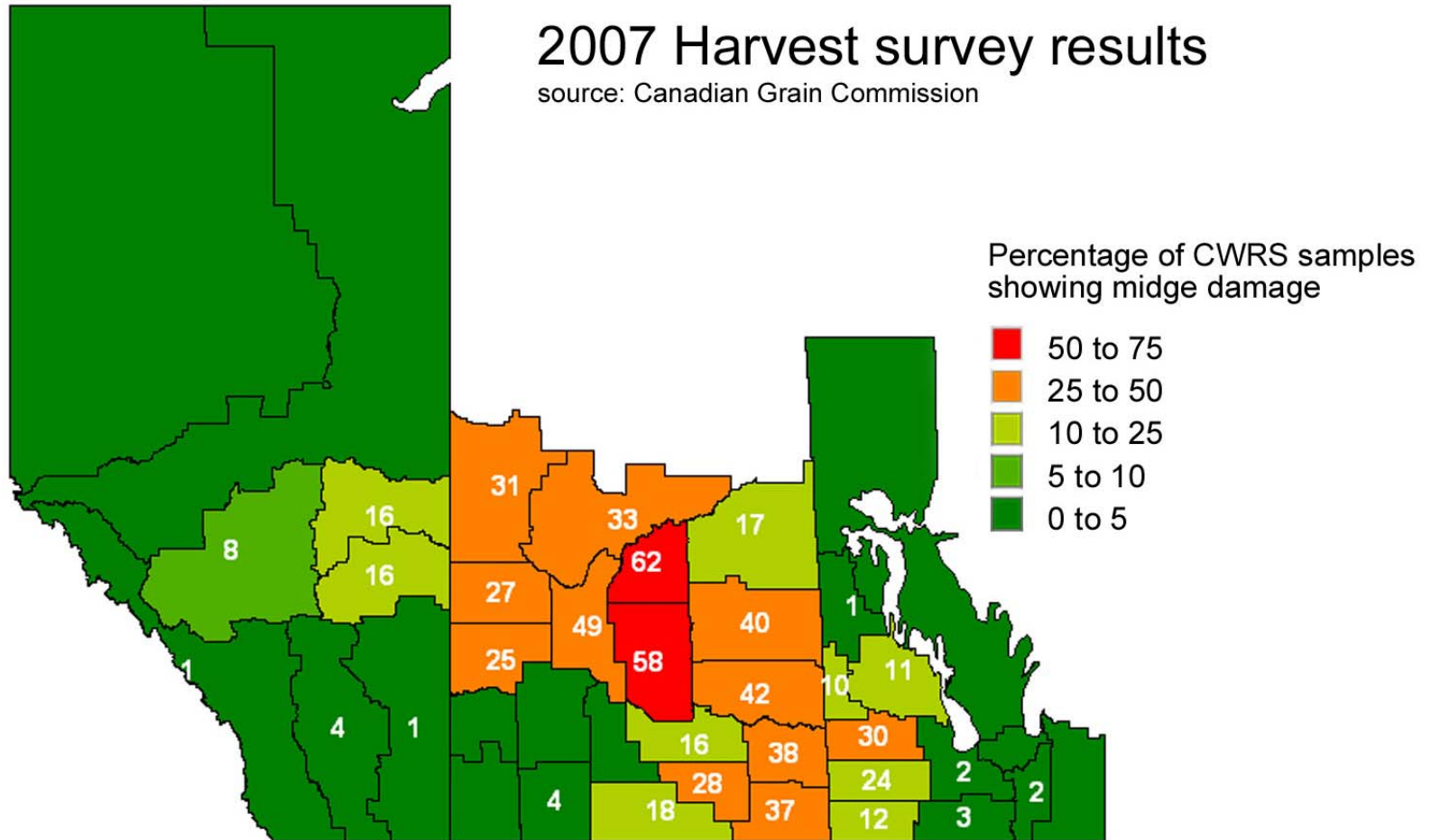
2006 Harvest survey results

source: Canadian Grain Commission

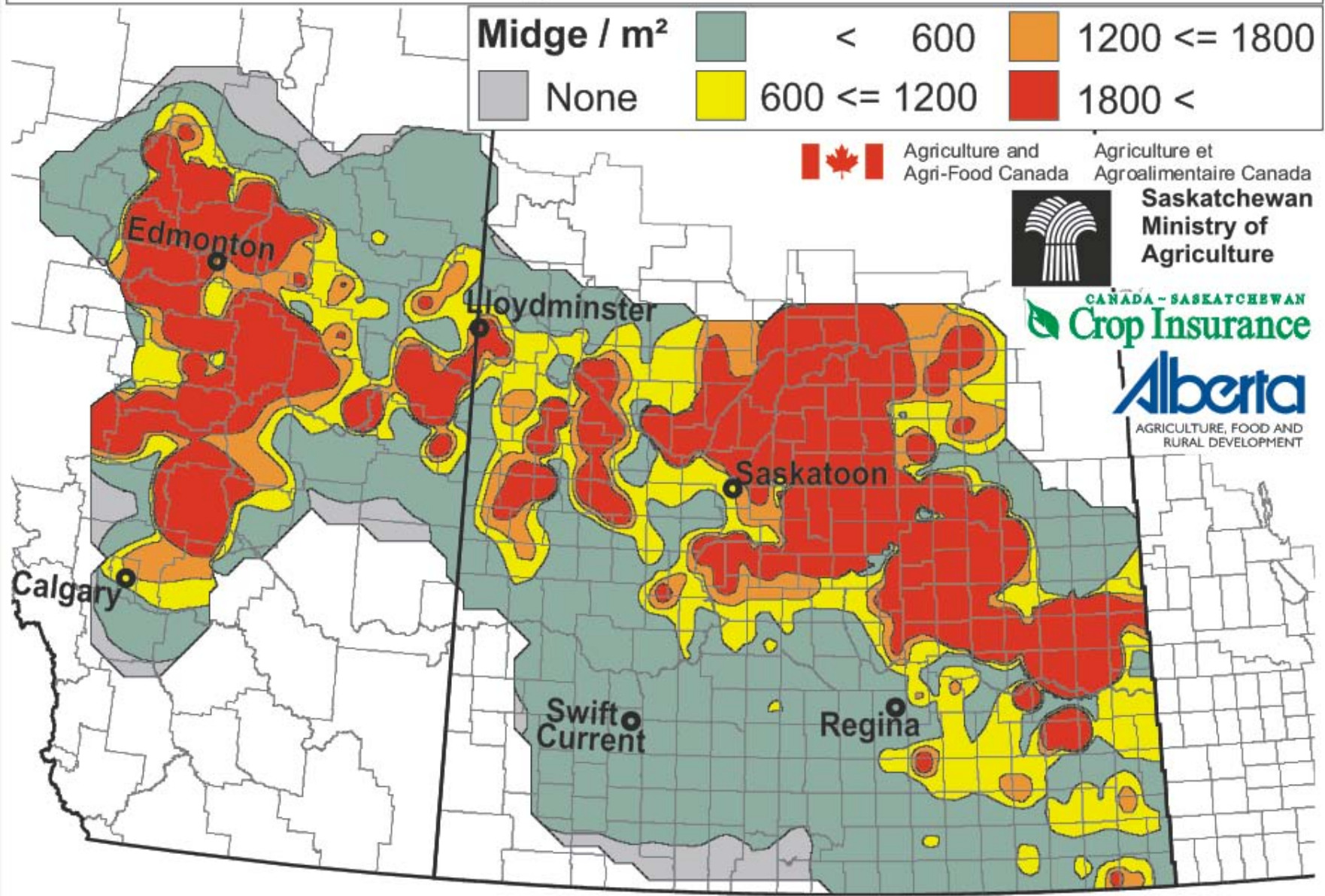


2007 Harvest survey results

source: Canadian Grain Commission



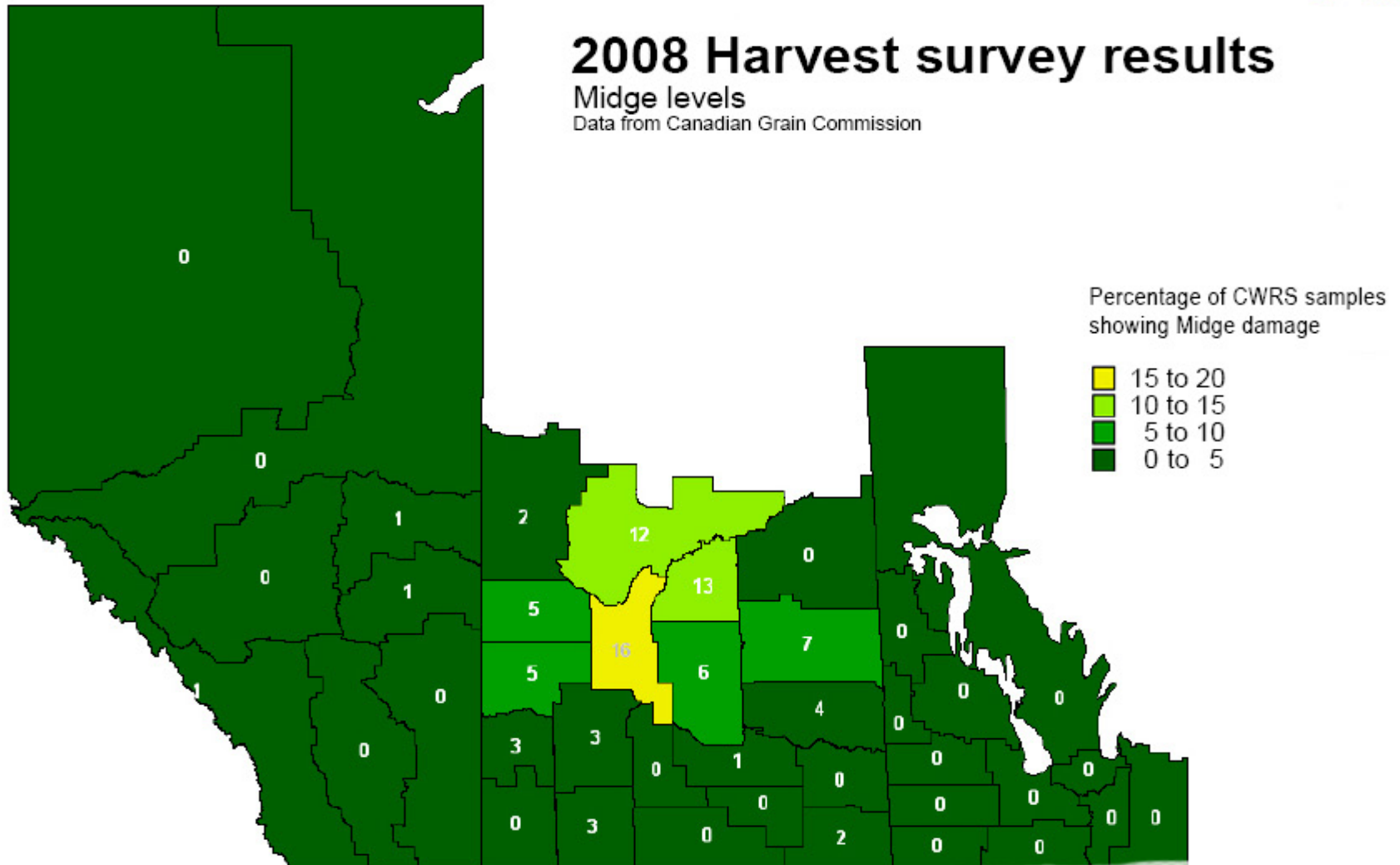
Wheat Midge Forecast 2008



2008 Harvest survey results

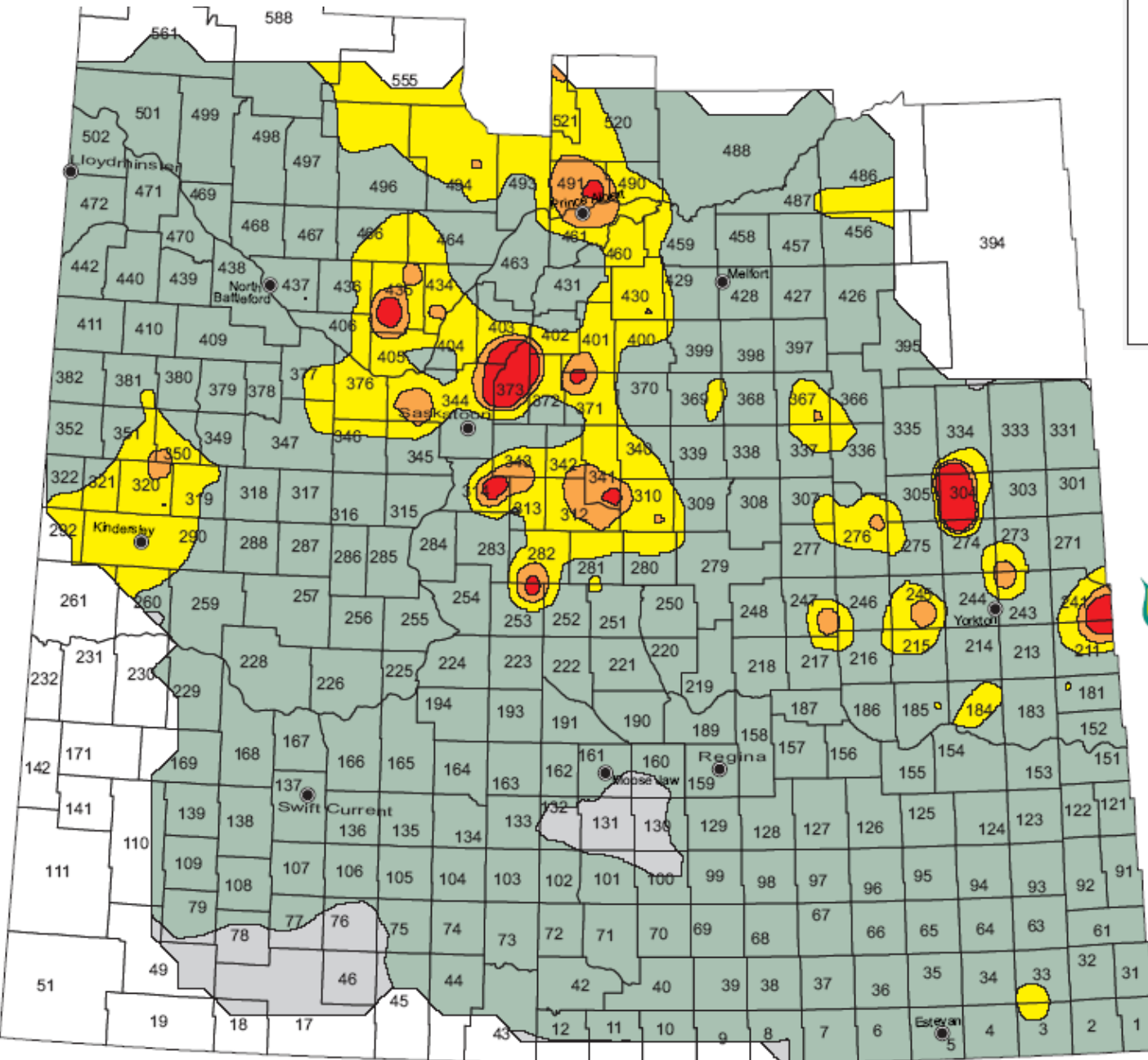
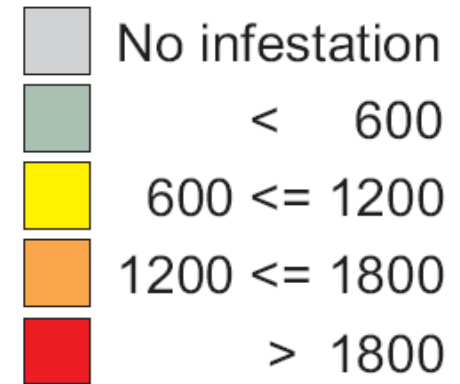
Midge levels

Data from Canadian Grain Commission



Wheat Midge Forecast 2009

Midge / m²



**Saskatchewan
Ministry of
Agriculture**

CANADA - SASKATCHEWAN
Crop Insurance



**Agriculture and
Agri-Food Canada**



Why reduced Midge risk for 2009

- The wheat crop got a jump on wheat midge due to early seeding and the cooler temperature conditions. Most of the wheat was at an advanced heading stage (past flowering) and no longer susceptible by the time wheat midge reached their peak emergence period.
- Dry conditions through May in some areas further delayed wheat midge emergence.
- High grower awareness of the risk levels and emergence patterns optimized pesticide application where wheat was at the susceptible stage.
- Increased levels of parasitism during 2008 versus 2007 resulting in reduced forecast risk for 2009.

On their way - Midge Tolerant Varieties

Commercial introduction 2010

Use of seed blends as a refuge stewardship management plan

CWRS

- AC[®] Unity VB (AC[®] Waskada)
- AC[®] Fieldstar VB (AC[®] Waskada)
- AC[®] Goodeve VB (AC[®] Intrepid)

CWES

- AC[®] Glencross (AC[®] Burnside)

Future

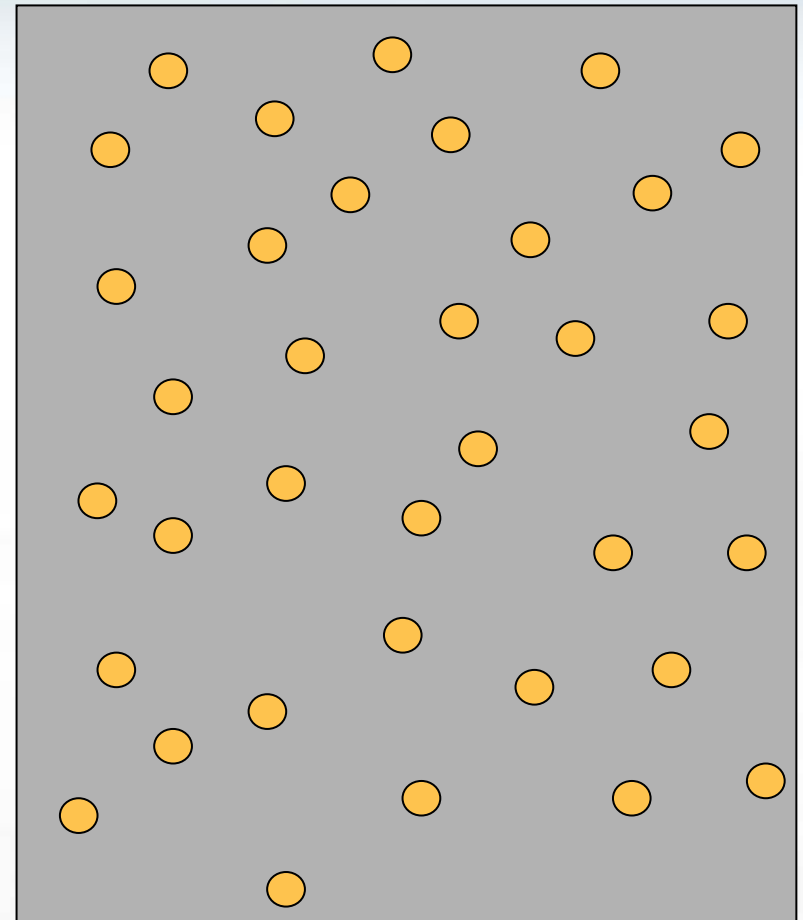
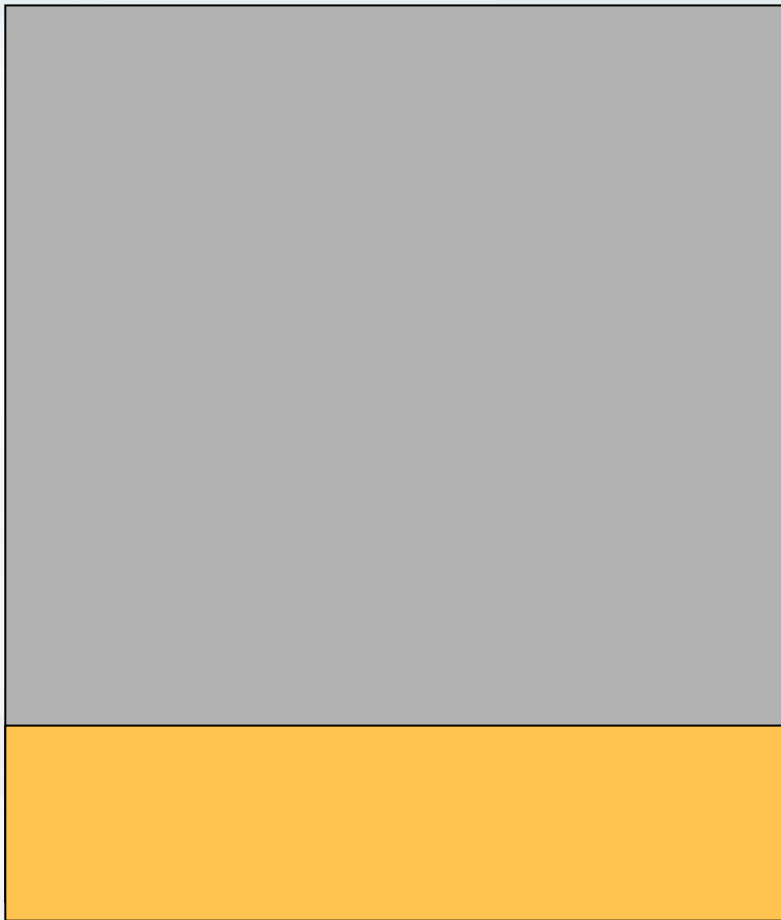
2013?: CWRS, CPS and CWHWS – lines coming up this Feb

20???: CWAD – crosses have been made but variety development further behind other classes



Traditional Refuge Plan
10 per cent of area
Ex: Bt Corn

Protecting *Sm1* resistance
90:10 Seed Blend
Interspersed Refuge



No refuge system

If midge tolerant wheat is grown in a pure stand, only virulent midge survive.



No refuge system

The virulent midge would mate only with other virulent midge.



No refuge system



A large virulent population quickly builds and feeds on tolerant varieties.

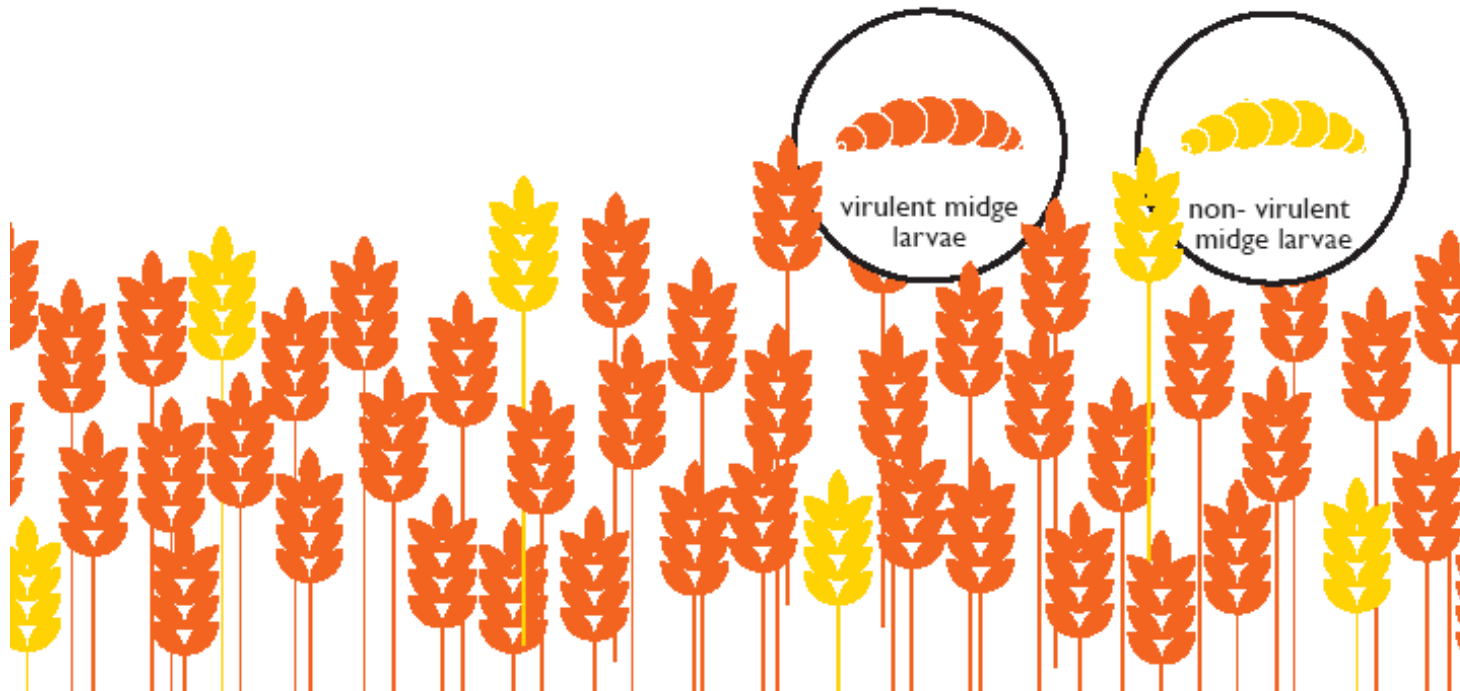


Without an interspersed refuge system, midge tolerance could break down within 10 years.



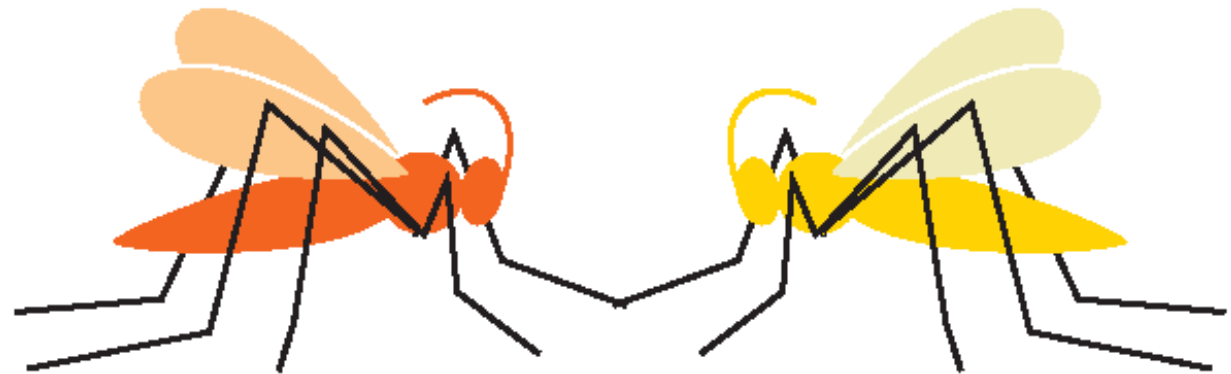
Interspersed Refuge System

In an interspersed refuge system, non-virulent midge survive on the 10% susceptible plants.



Interspersed Refuge System

The non-virulent midge would inter-mate with virulent midge.



Interspersed Refuge System



The progeny of this cross would be non-virulent. This prevents a build up of virulent midge.

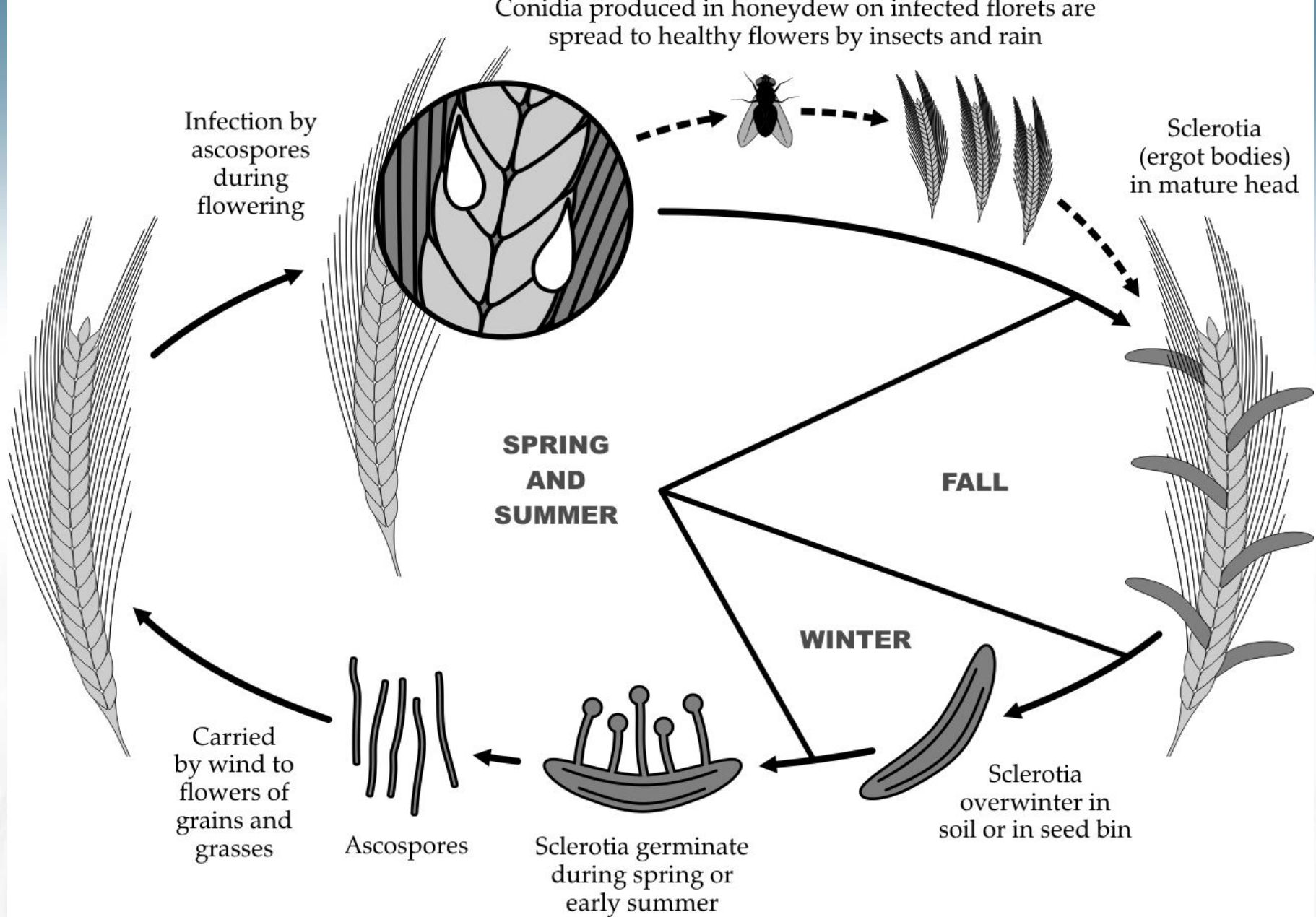


An interspersed refuge system could extend the life of midge tolerance to 90 years or longer.



MIDGE TOLERANT WHEAT

Plant · Protect · Preserve



Taken from Diseases of Field Crops in Canada
 Editors K.L. Bailey, B.D. Gossen, R.K. Gugel & R.A.A. Morral.
 See page 91.







Figure 8-4. Ergot; germinated sclerotium.

Photo from Diseases of Field Crops in Canada
Editors K.L. Bailey, B.D. Gossen, R.K. Gugel &
R.A.A. Morral. See page 92.



Ergot Management

Focus is on Prevention & Sanitation

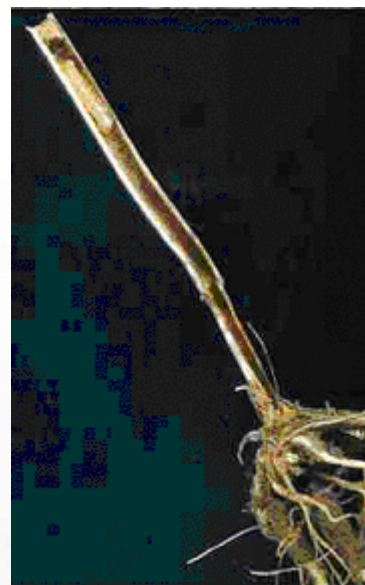
- Crop rotation and field selection
- Clean seed
 - No effective seed treatment available
 - Prevent or reduce introduction into clean fields
- Headland and ditch sanitation through mowing
 - Minimize honeydew production as an infection source
 - Breaking inoculum cycle – future benefit
- Harvest management
 - Isolating headlands
 - Delaying harvest to allow ergot bodies to drop?
- Disposal of screenings
 - Pit burial
 - Burning?

Main Questions on Ergot Management

- **Variety Recommendations?**
 - **NO!**
 - **Subtle differences between varieties**
- **2008 primary factors**
 - **Wet weather conditions prior to heading**
 - **Extended flowering period due to uneven growth (tillers) as well as wet conditions during flowering period**

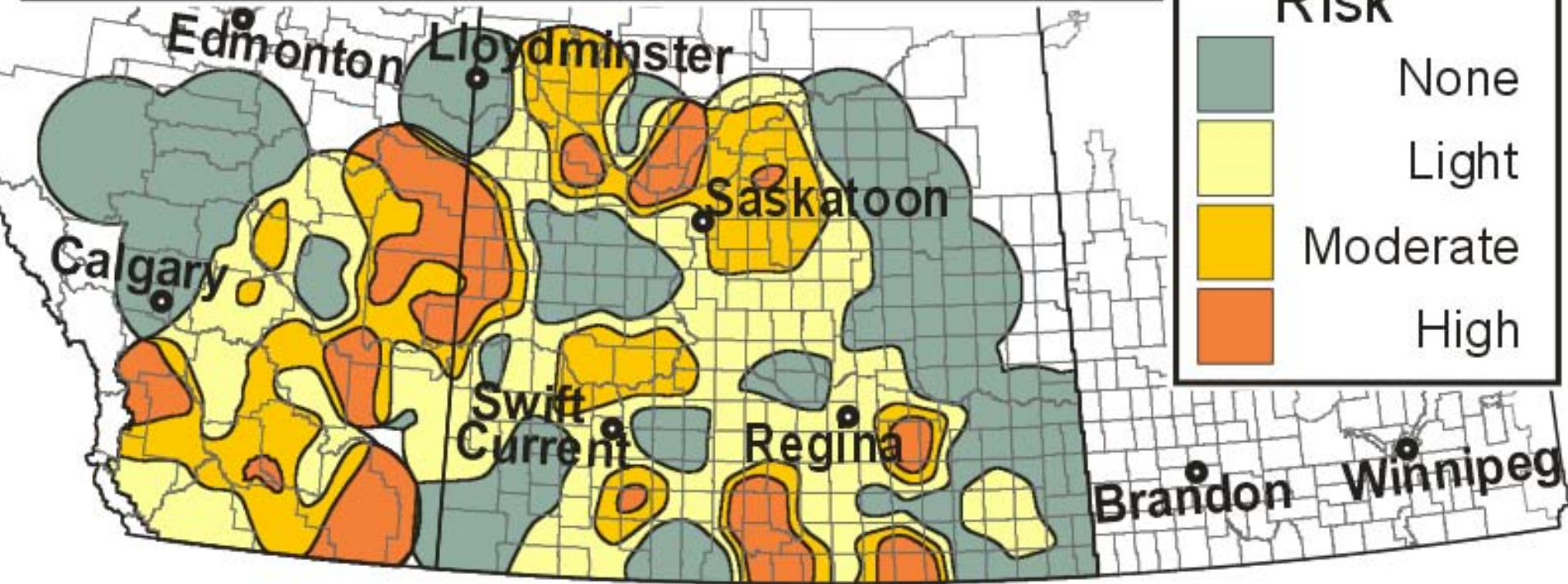
Sawfly Update

- No in-season control methods available for sawfly
- Crop management decisions need to be in advance of seeding
- Understand sawfly population trends in your area. What are you seeing for stem cutting in wheat and durum



Wheat Stem Sawfly 2005 Field Margin Survey

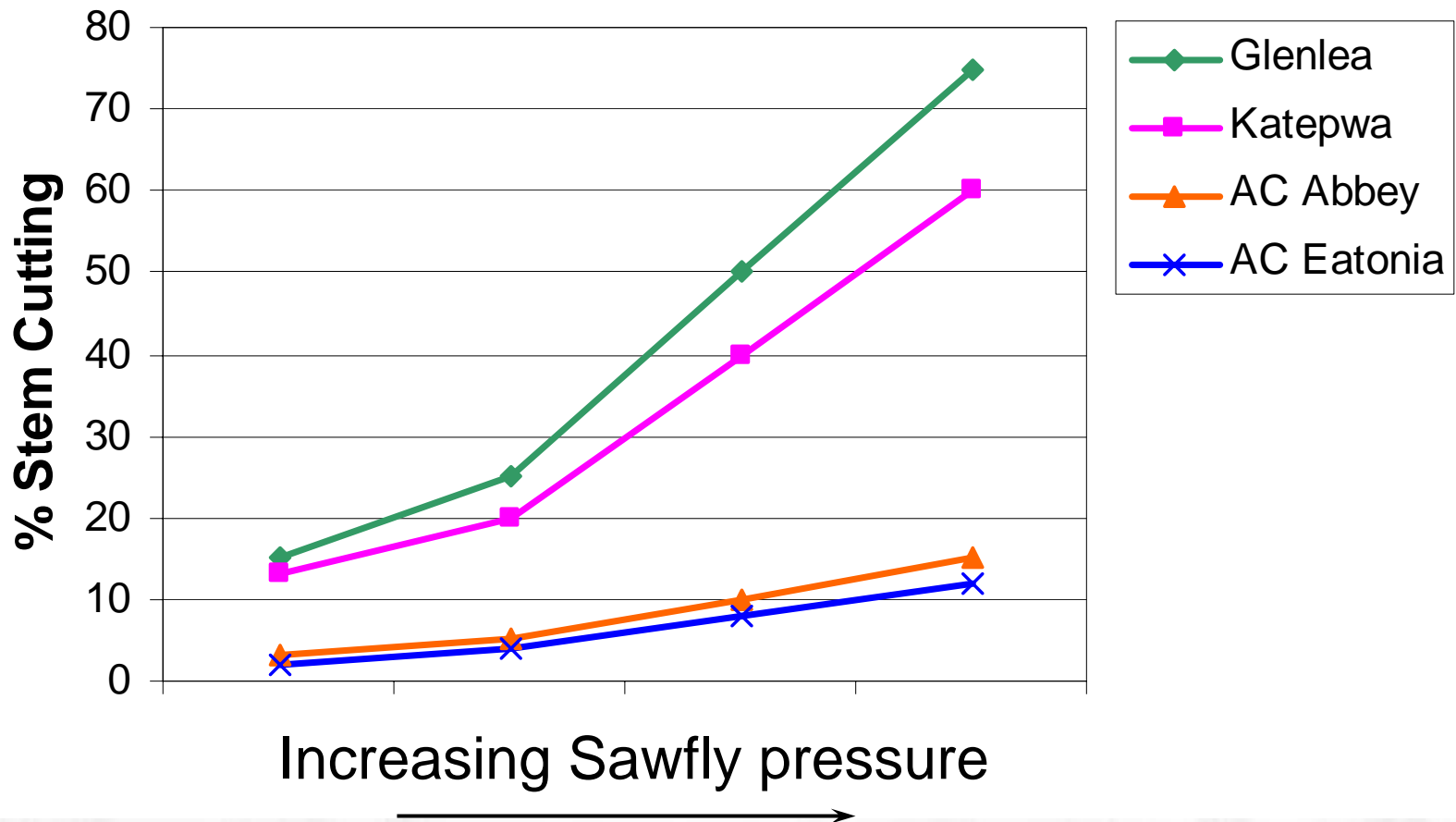
Indicated
Damage
Risk



Sawfly Management

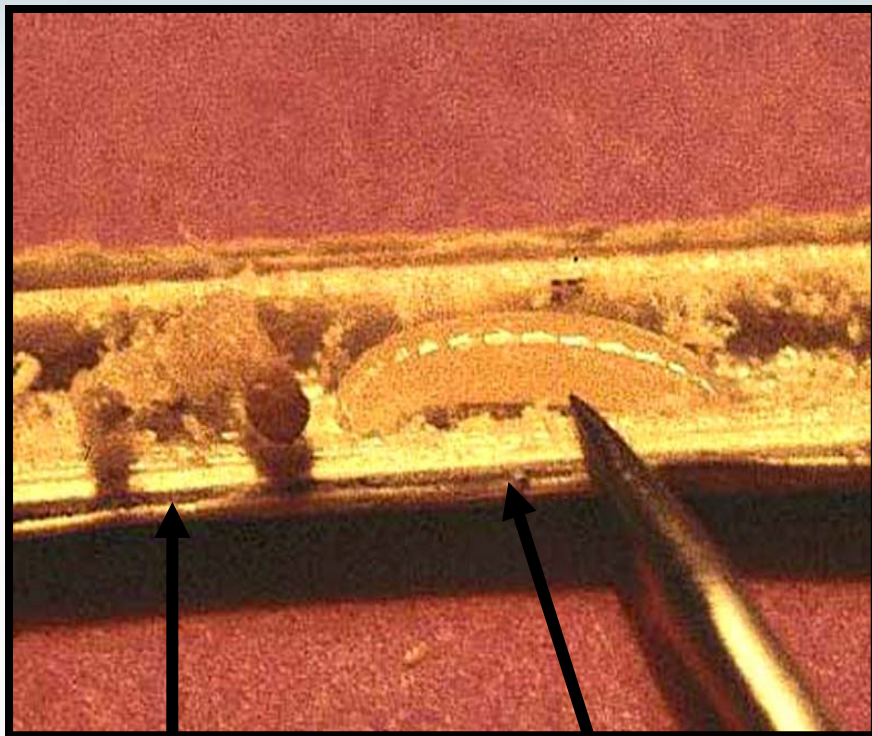
- Sawfly tend to be weak fliers, fields adjacent to where sawfly damage has been observed are at highest risk
- Control methods:
 - Crop rotation out of wheat to non cereals or oats & barley
 - Use of solid stem varieties for wheat
- Must have proper expectations for control methods and your management decisions
- Need consistent approach with tolerant varieties in order to have an impact on reducing overall sawfly population

Managing expectations for sawfly stem cutting with solid versus hollow stem varieties



Source: Dr. Ron DePauw, AAFC Swift Current

Parasitoid and Its Host



Sawfly

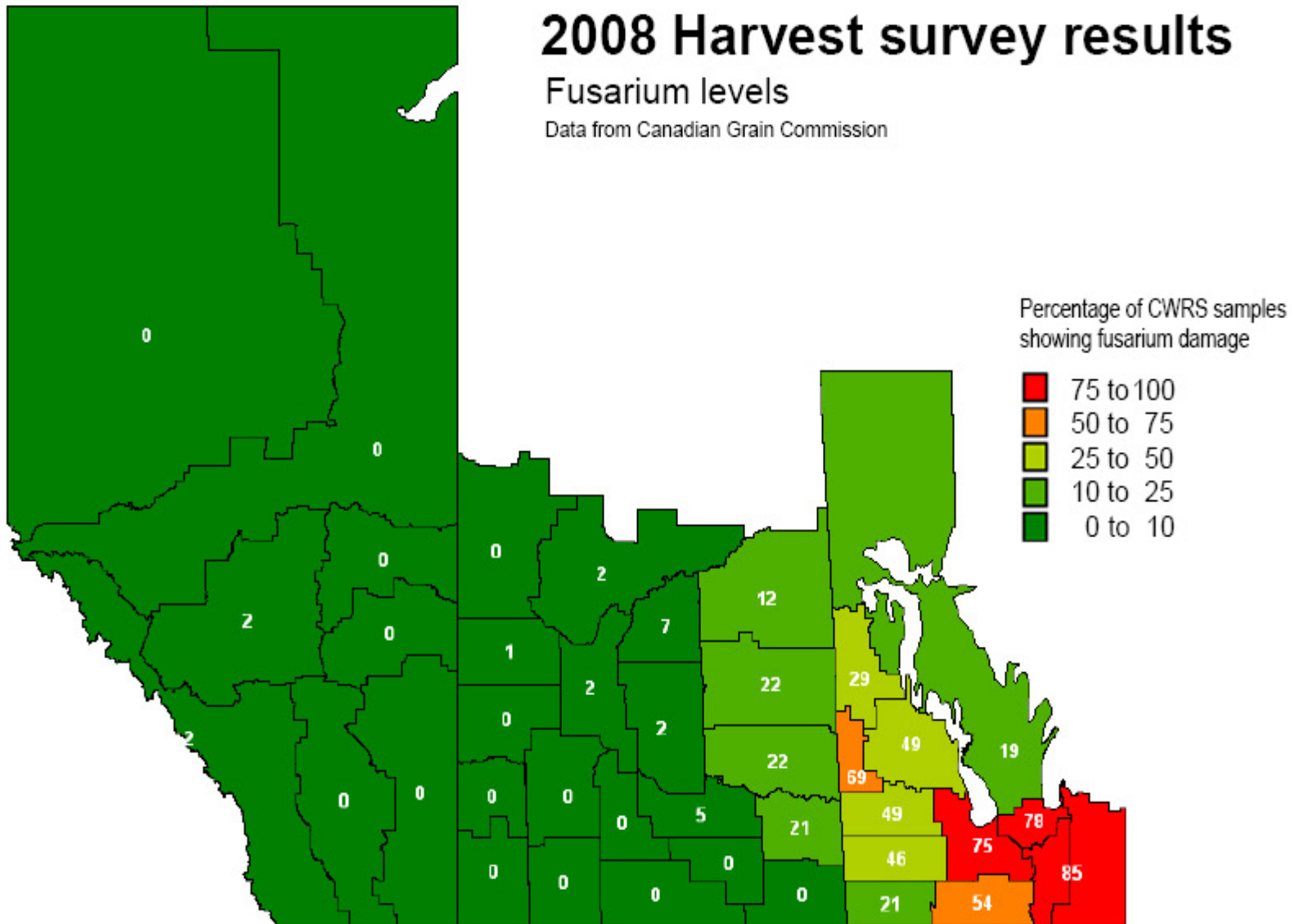
Parasitoid

- Sawfly feeding stops immediately
- Sawfly is killed before cutting
- Parasitoid overwinters at point of parasitism
- Number parasitoid generations higher in higher moisture environments (i.e. dark brown versus brown soil zones)

2008 Harvest survey results

Fusarium levels

Data from Canadian Grain Commission



Questions?

