“Formulas For Success”
Max Flax Challenge &
Flax Canada 2015 Grower Survey

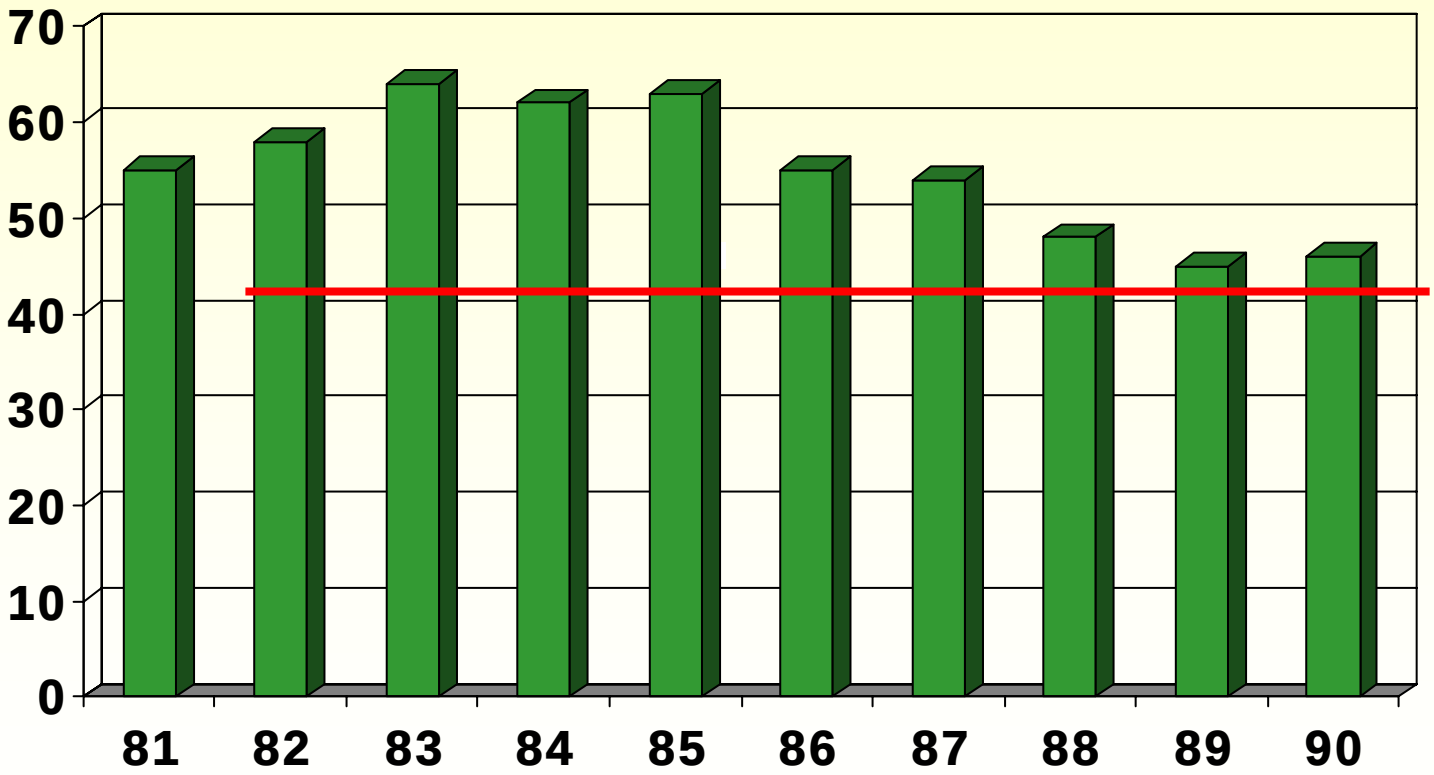
Robert Park
Manager, Industry Focus
Manitoba Ag, Food & Rural Initiatives

Manitoba
Building for the Future

Overview

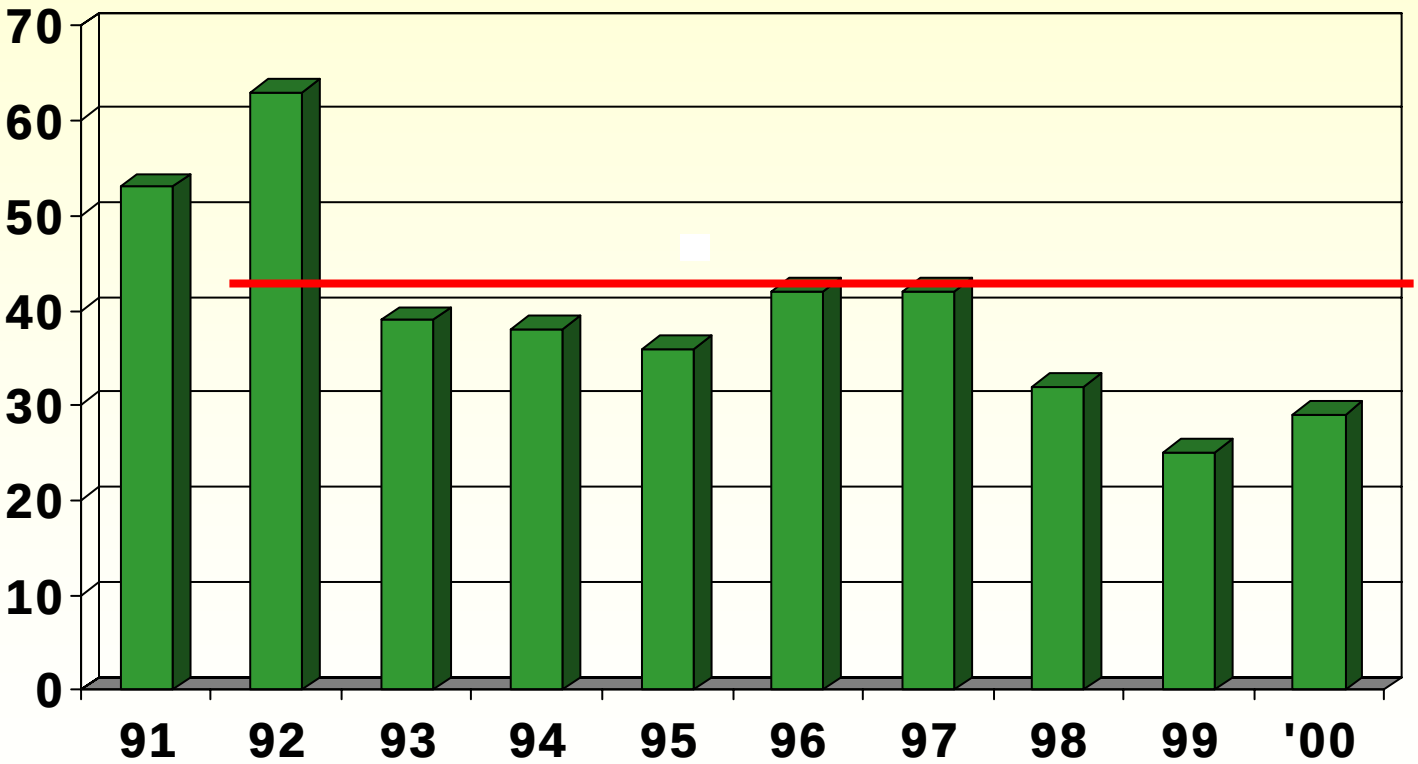
- Flax Production in Manitoba
- Max Flax Challenge 02, 03 & Flax Canada 2015 Grower Survey
- What are the most NB factors to remember?
- Summary

MB Flax Prod. as % of Canada 1981-1990



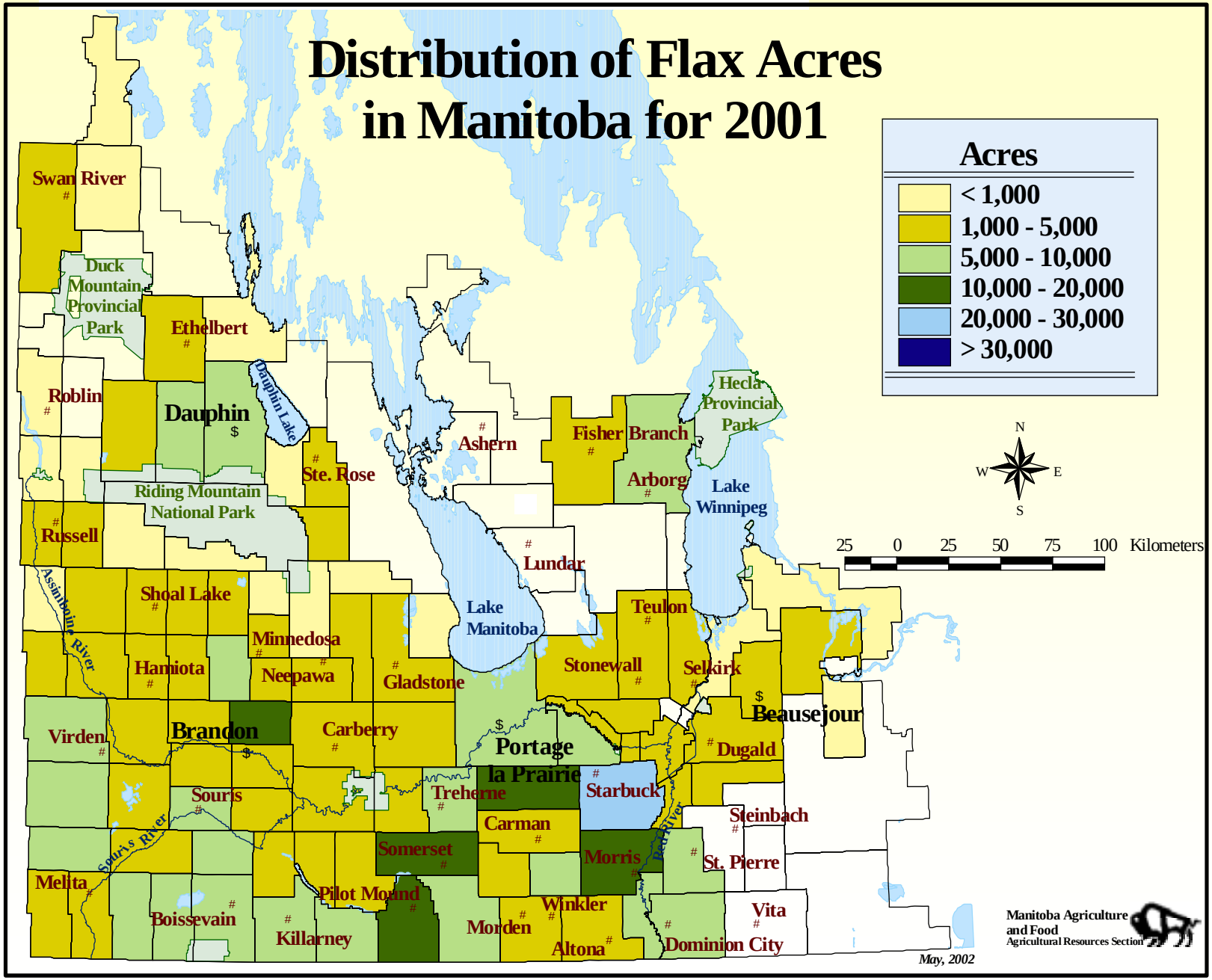
Source: MAF - Market Analysis and Statistics Section

MB Flax Prod. as % of Canada 1991-2000



Source: MAF - Market Analysis and Statistics Section

Distribution of Flax Acres in Manitoba for 2001



Max Flax Challenge & Flax Canada 2015 Grower Survey

- Variable flax yields - Why?????????
- 2002 & 2003 worked with Ag Reps in all regions of Manitoba
- 61 growers participated in 2002 & 31 growers in 2003
- Flax Canada 2015 – funded a grower survey in Dec 05, *Insightrix* here in Saskatoon, currently summarizing the data

Max Flax Challenge & Flax Canada 2015 Grower Survey

- **Top** yields vs. **Mid** yields vs. **Bottom** yields
- Difficult to make any major conclusion but it's a snap shot looking at what are the top performers doing.
- The main goal is to get farmers in their flax field looking for problems and sharing info about flax production.
- Attempt to change the thinking of flax as a forgotten crop.

What are the most NB factors to remember?

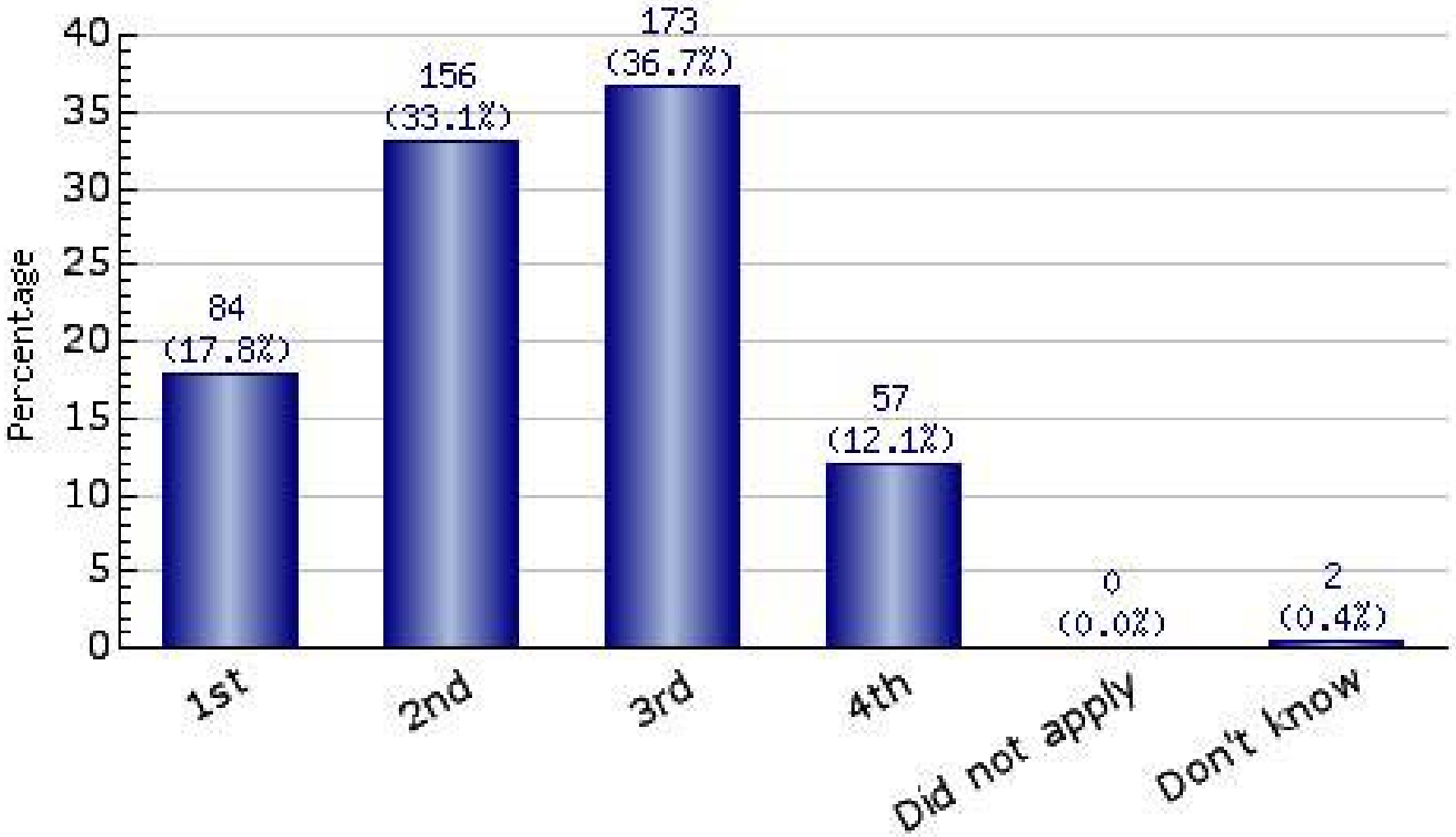
- Stand establishment
  - Seeding date - Can't seed everything early? - heat stress during flowering
  - Seeding rate (40 - 40 - 40 rule)
  - Certified Seed
  - Seeding depth
  - Seed Placed Fertilizer – Phosphate, Mycorrhizae and crop rotation
- Insects - Potato Aphids
- Disease - Pasmo

Seeding Date

- **2002**
- Top 20 = **May 16** (11 before May15)
- Mid 20 = **May 20** (6 before May 15)
- Bot. 21 = **May 20** (3 before May 15)

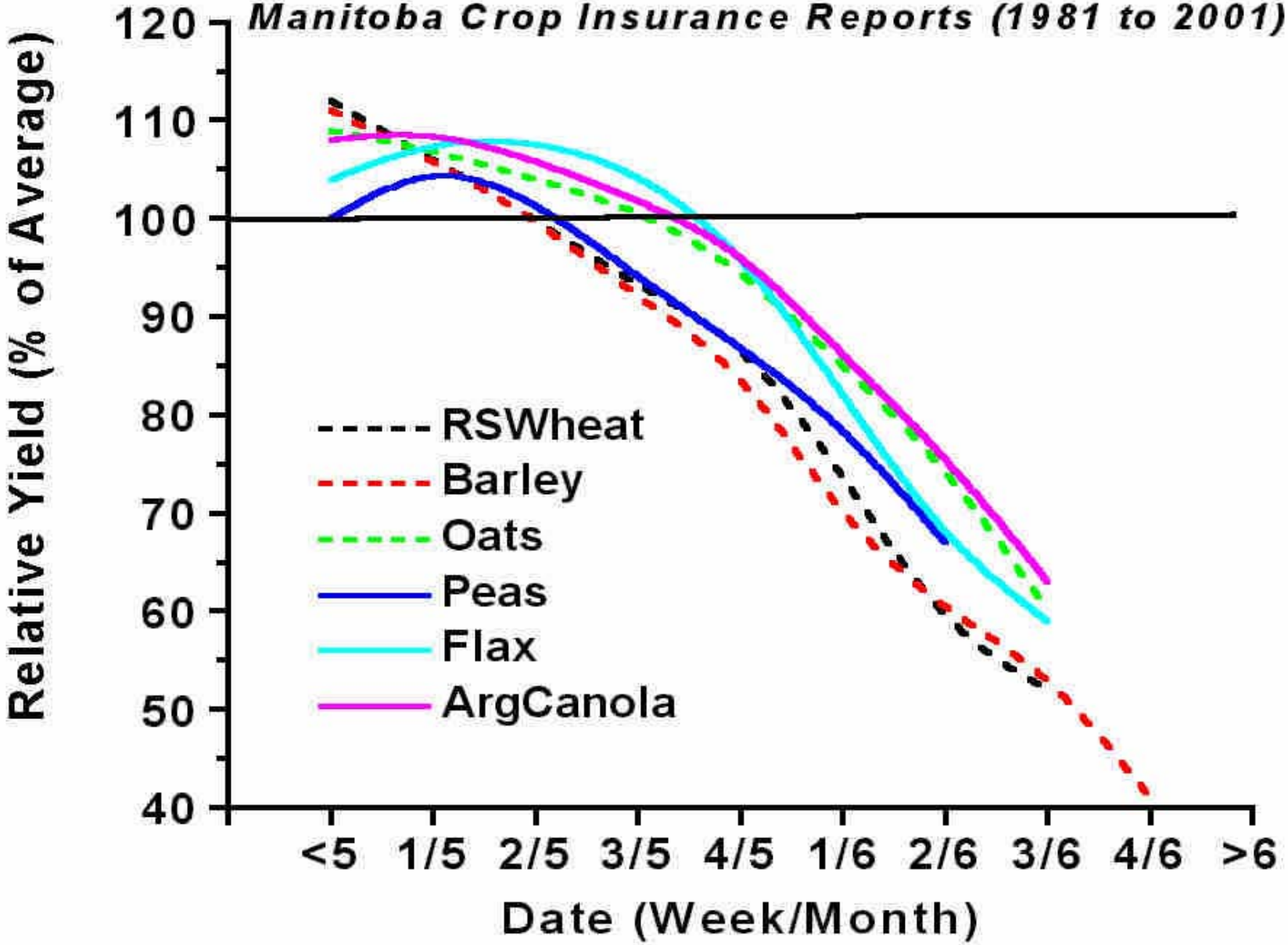
- **2003**
- Top 10 = **May 19** (4 before May 15)
- Mid 10 = **May 18** (2 before May 15)
- Bot. 11 = **May 20** (3 before May 15)

FC 2015 – Seeding Date



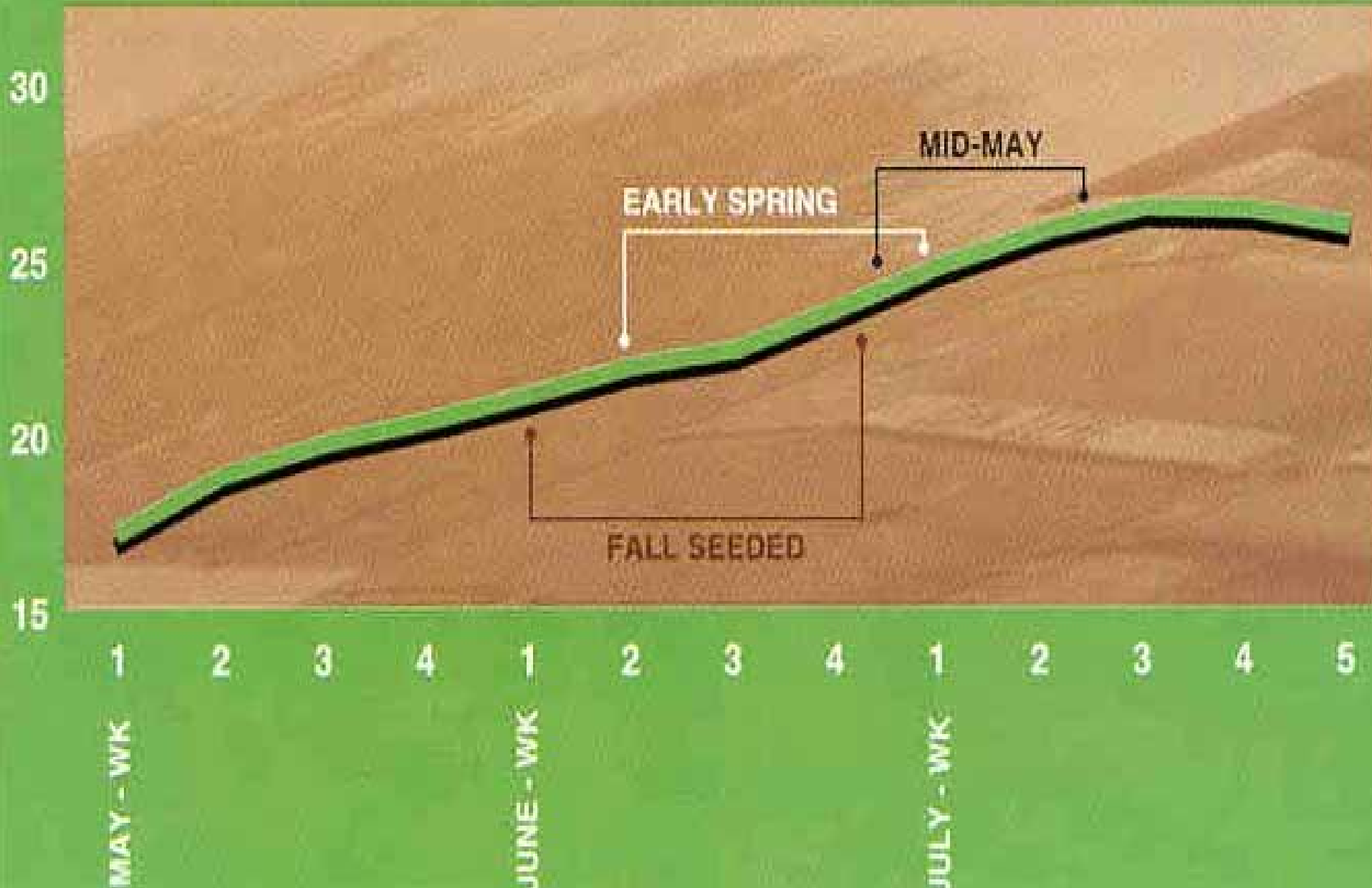
472 responses

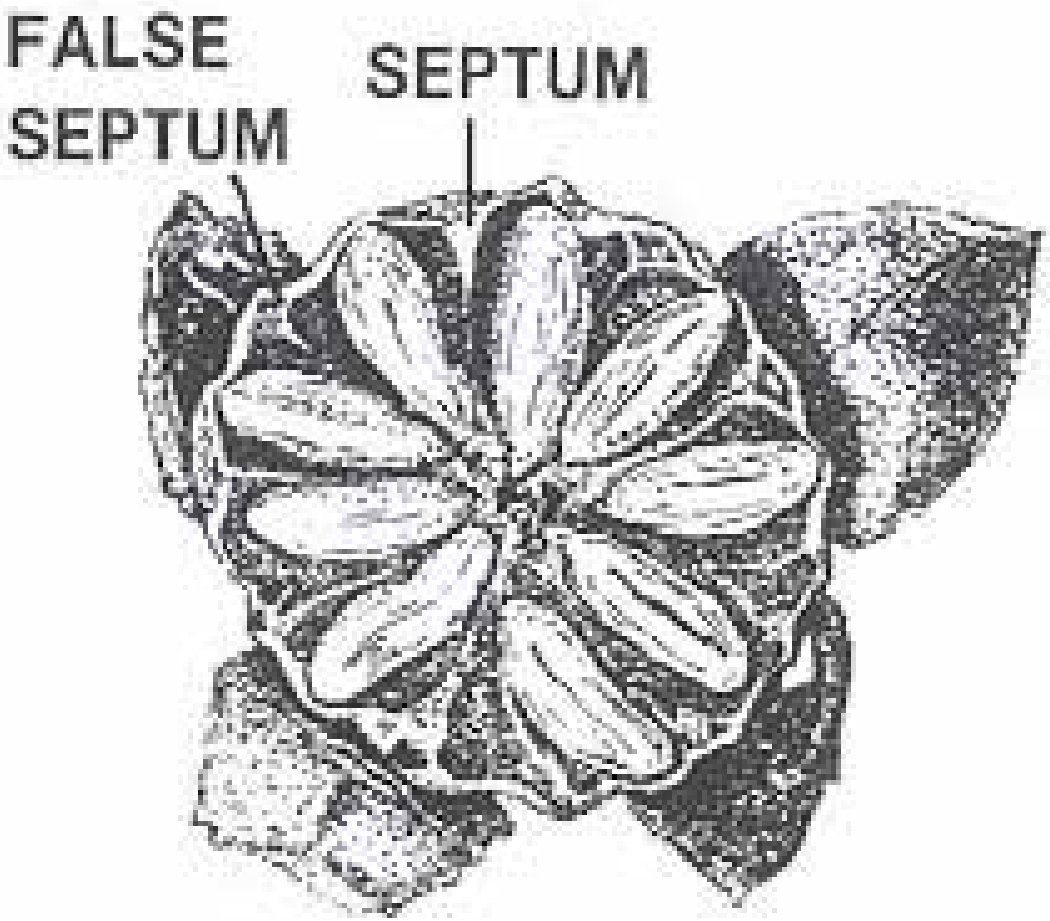
Crop Yield Response To Planting Date



Heat Stress During Flowering

Typical Flowering Periods for Canola Seed Dates vs Weekly Mean Max Air Temperature




FALSE
SEPTUM
SEPTUM

Seeding Rate & Plant Populations

- **40-40-40 rule**
- 40 lbs / acre
- 40 plants / sq ft
- 40 bushels / acre
- Ideal plant pop. (>35 & <45 / sq ft)

Seeding Rate & Plant Populations

- **Top 10 = 49.3 plants / sq ft**
  (7 of 10 > 40)
- **Mid 10 = 40.2 plants / sq ft**
  (3 of 10 > 40)
- **Bottom 11 = 40.2 plants / sq ft**
  (3 of 10 > 40)

Note: Ideal canola plant pop (4 to7 plants / sq ft). Canola has a much greater ability to branch, flax doesn't.

FC 2015 – Seeding Rate of Conventional Flax

Greater than 50 lbs/ac	19%
45 to 49 lbs/ac	22.5%
40 to 44 lbs/ac	35%
35 to 39 lbs/ac	15%
Less than 35 lbs/ac	8%

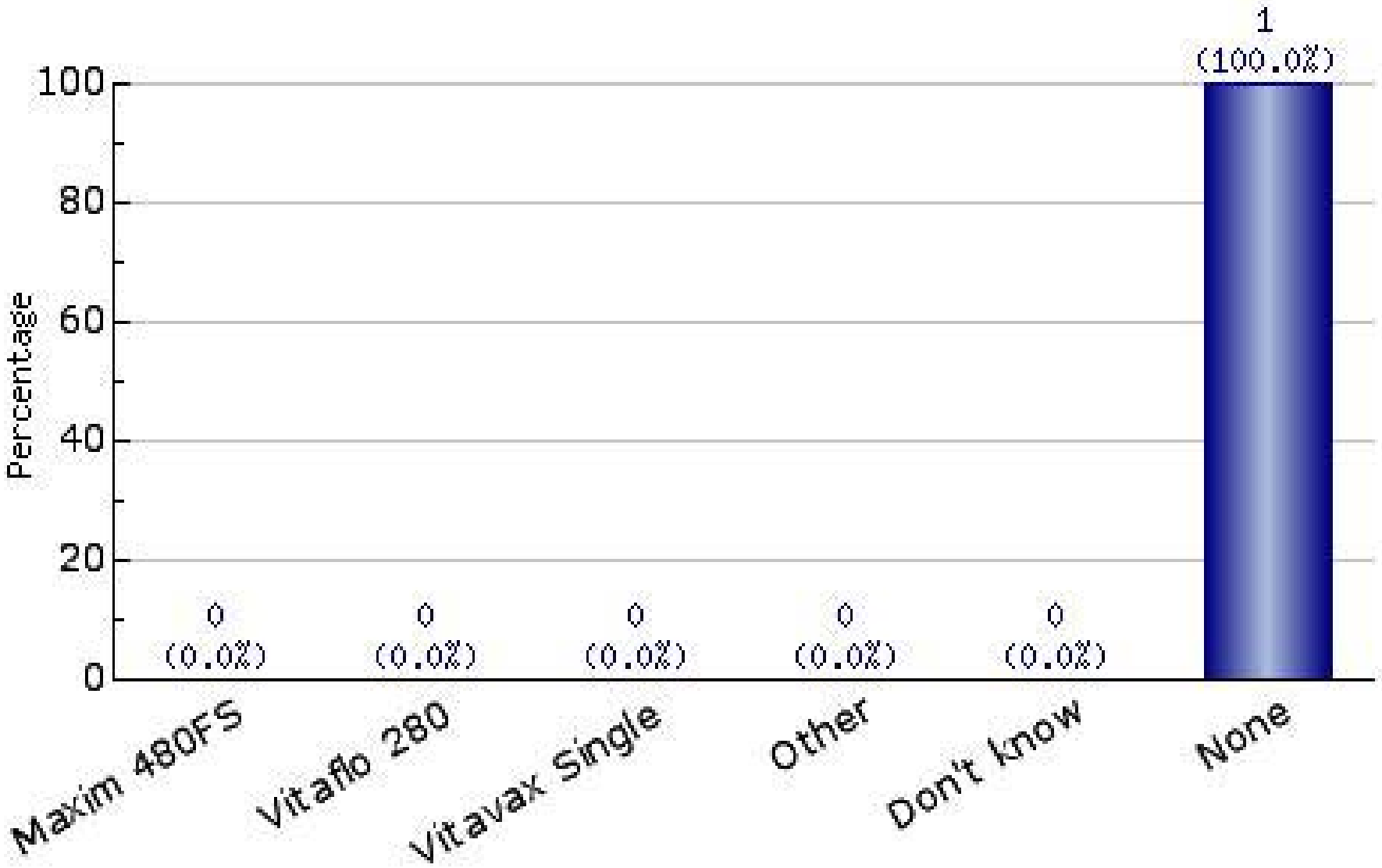
Certified Seed

- Minimal weed content
- Genetic purity
- Good germ & vigour
- Sound Kernels - less cracked and damaged
- **Note: 50 to 60% emergence rate is common with flax**

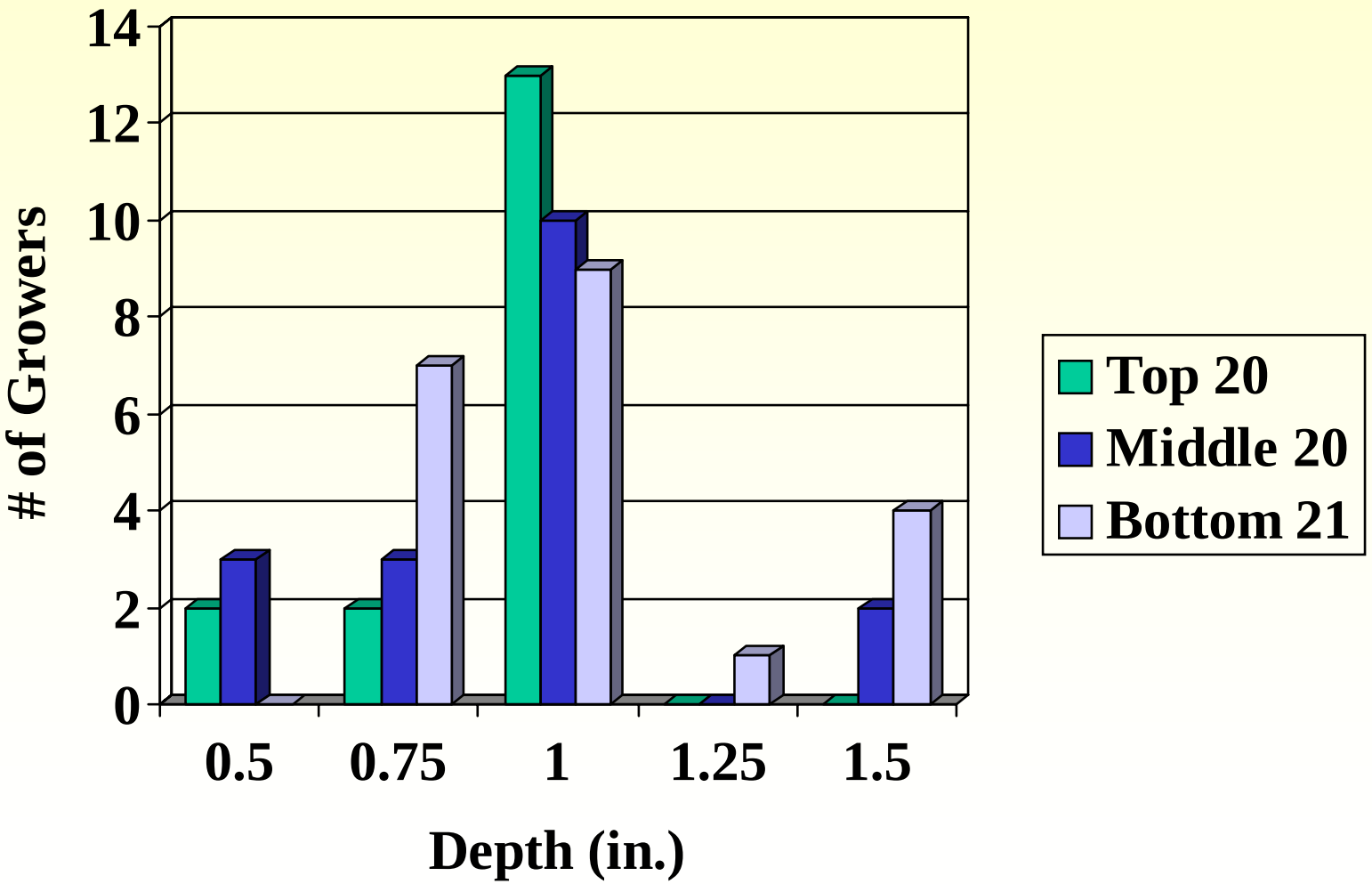
Seeding Depth

- Ideal seeding depth (0.5 to 1.0 inch)
- “If you can’t see seed on the surface you’re too deep.”
- **Note: Seeding depth has a large impact on seedling vigour. Deep seeding will reduce plant stand**

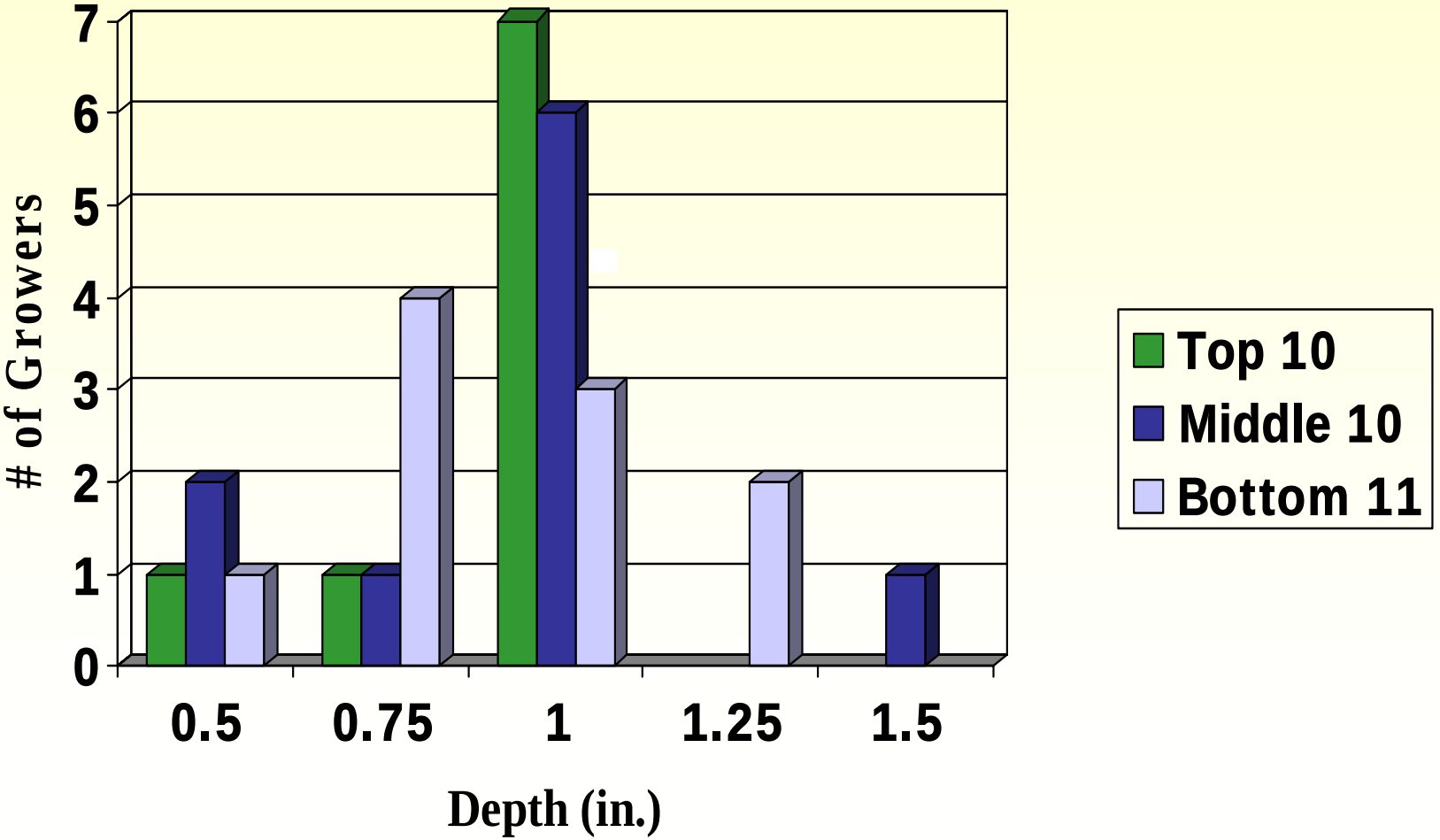
FC 2015 – Seed Treatment



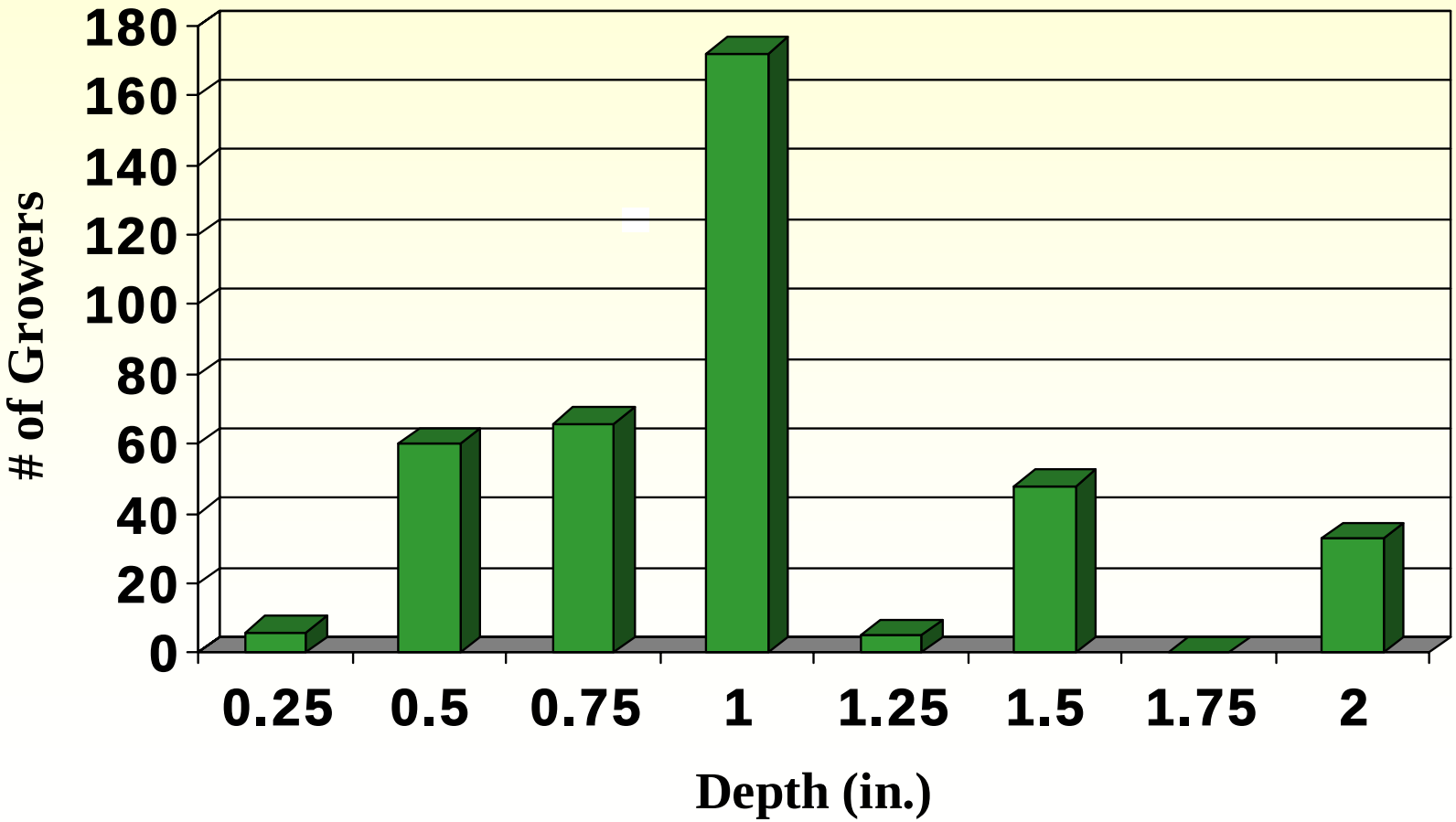
2002 Seeding depth



2003 Seeding Depth



FC 2015 – Seeding Depth (data from 387 growers)

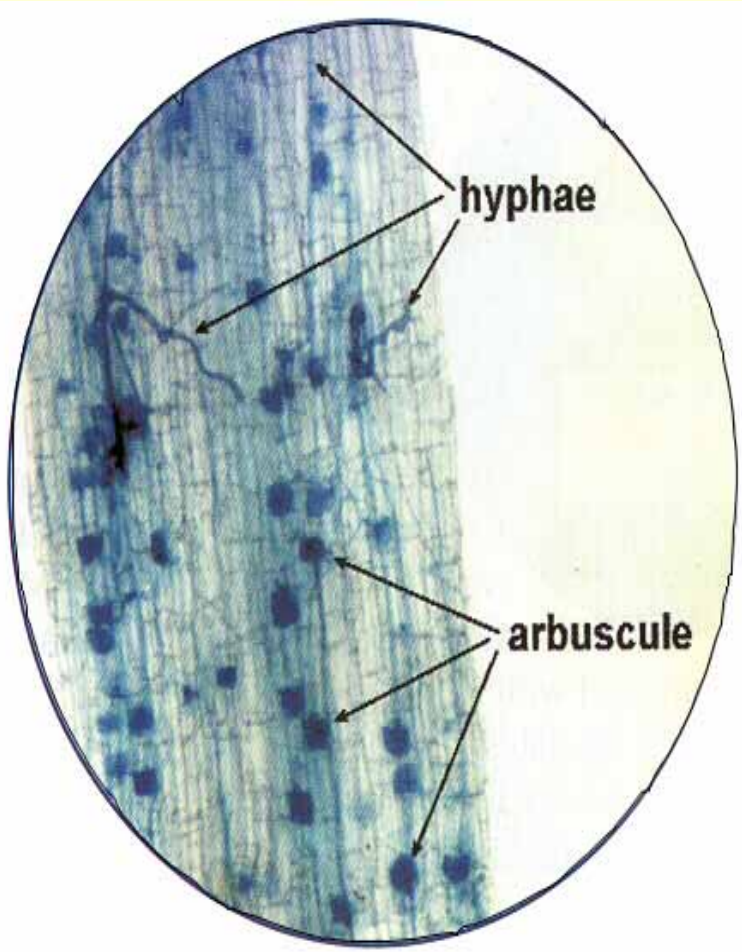


Phosphorus fertilization & Mycorrhizae

- P is required, but responses are variable often due to method of application
- Seed placed P can reduce the stand
- P is required in the first few weeks of growth after that it has little effect on yield
- How do we get P to the plant early in the season? P placement? Do we rely on the natural system?

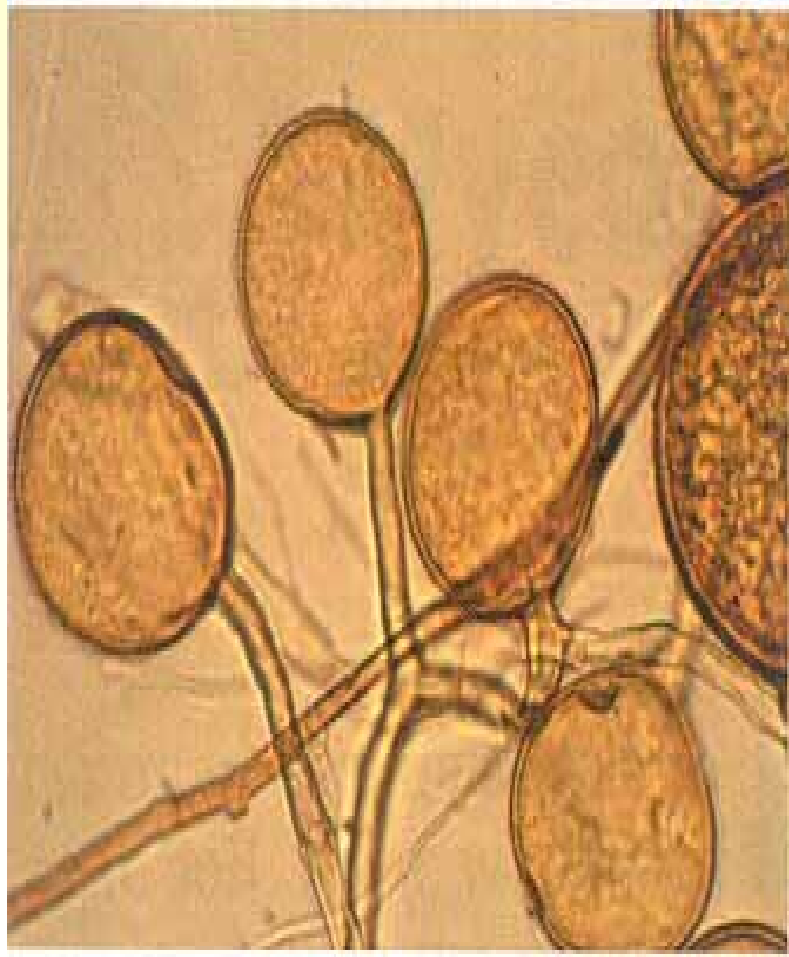
Mycorrhizae

- Flax doesn't use applied P very well
- Greatly affected by the previous crop
- Mycorrhizae (fungus - root) works with the flax root to source P
- the fungus increases the amount of root hair increasing the P uptake

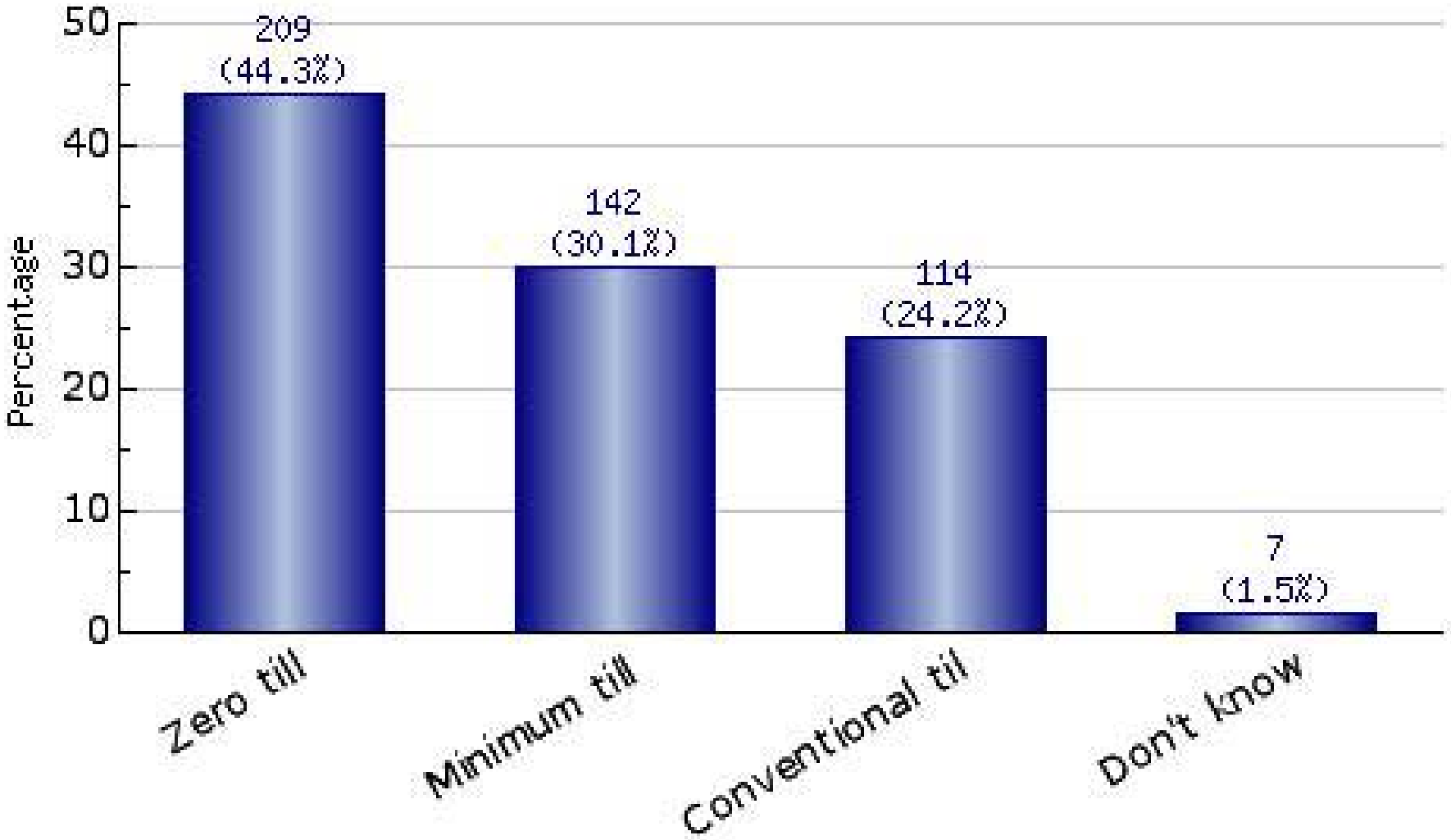


Mycorrhizae

- 80% of all crops use the fungus (flax, wheat, corn)
- Brassicas (Canola) doesn't - mycorrhizae population will be low after canola
- Tillage will also reduce the population



FC 2015 – Tillage System



472 responses

2002 - Previous Crop

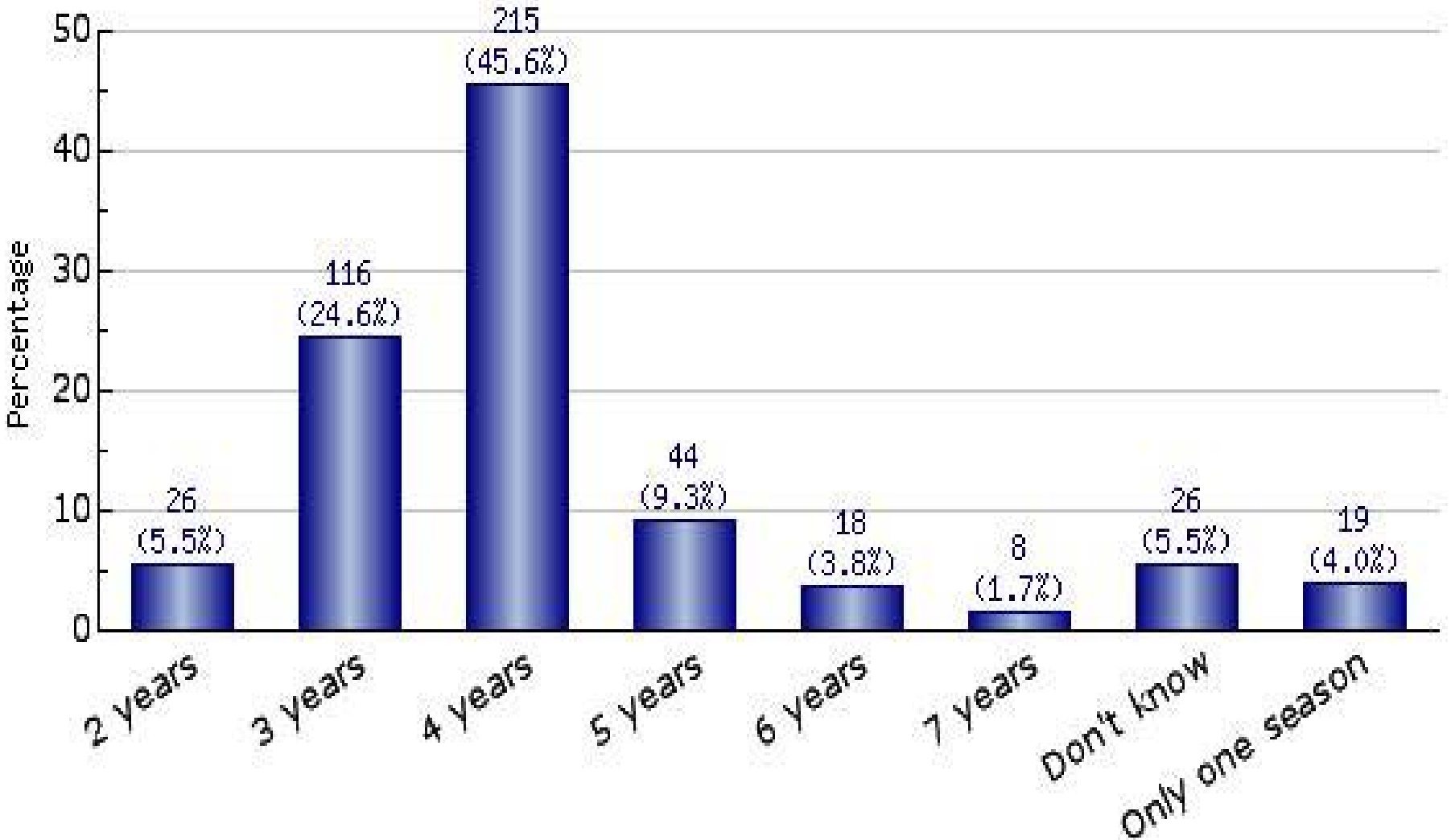
- Top 20 **-18 of 19 Wheat**
  -1 of 19 Barley
- Mid 20 **-15 of 19 Wheat**
  -1 of 19 Barley & Oats
  -2 of 19 Summer Fallow
- Bottom 21 **-14 of 21 Wheat**
  -1 of 21 Barley & S.F.
  -2 of 21 Oats
  -3 of 21 Canola
- Prev. Canola = The 2nd, 14th & 18th lowest yields out of 61 growers

2003 - Previous Crop

- Top 10 - **8 of 10 Wheat**
- Mid 10 - **10 of 10 Wheat**

Bottom 11 - **9 of 11 Wheat**
- 1 of 11 Barley
- **1 of 11 Canola**
(8th lowest yield)

FC 2015 – Flax Rotation

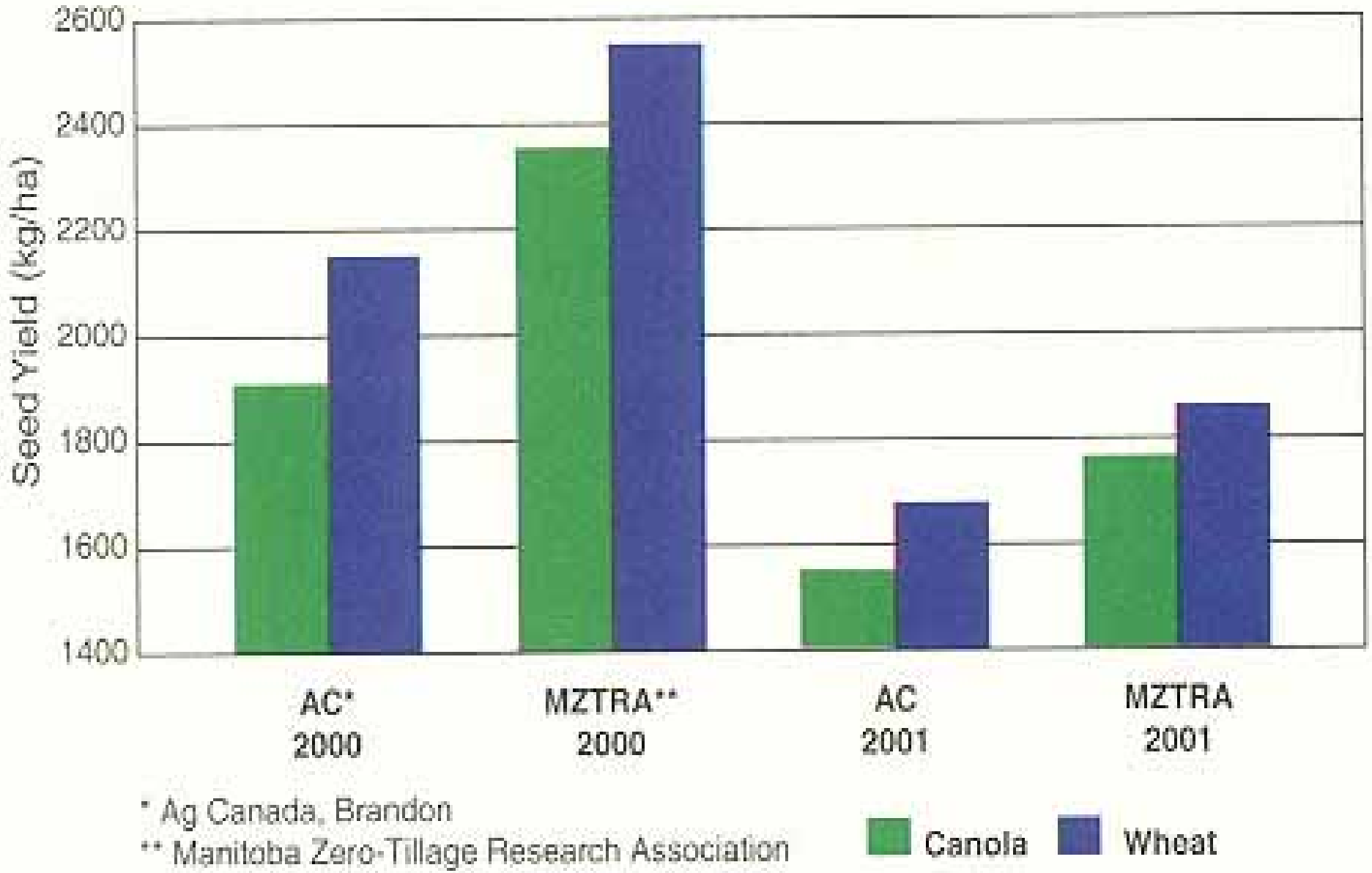


472 responses

FC 2015 – What do you grow before flax?

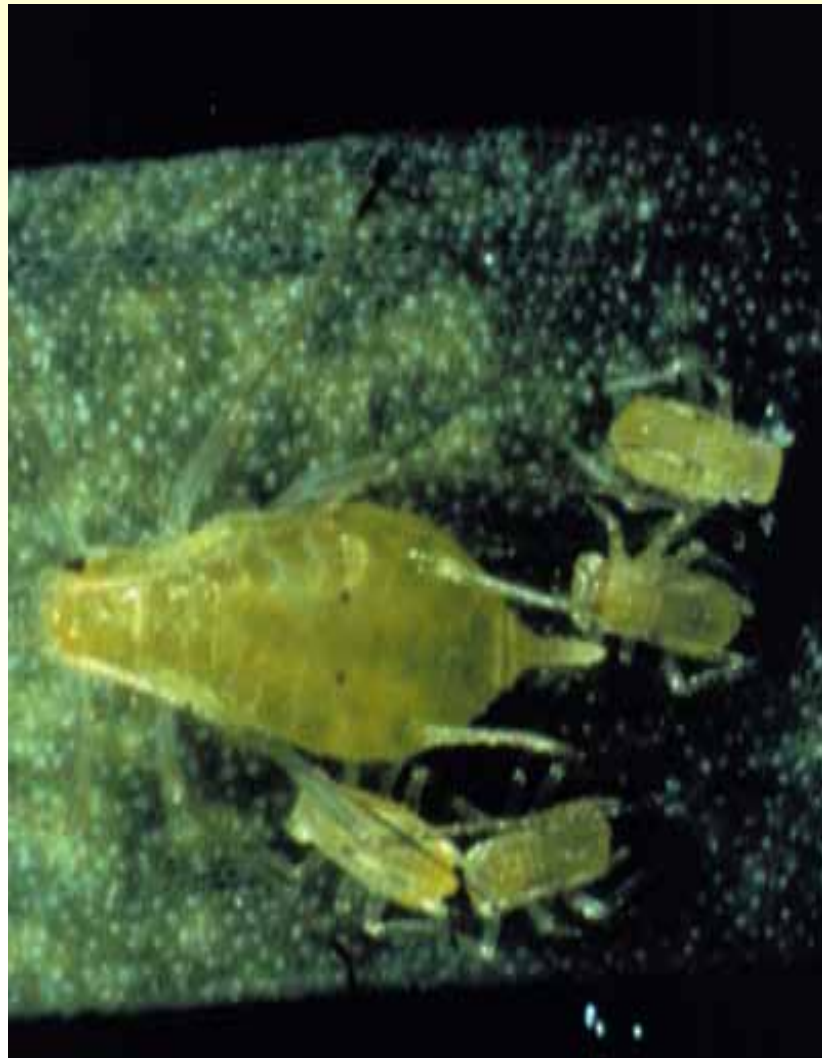
- **2 year rotation**
  - Cereals - 21 growers
  - Canola - 3 growers
  - Pulses - 2 growers
  - Summer fallow - 4 growers
- **3 year rotation**
  - Cereals - 68 growers
  - Canola - 38 growers
  - Pulses - 12 growers
  - Summer fallow - 5 growers
- **4 year rotation**
  - Cereals – 163 growers
  - Canola - 27 growers
  - Pulses - 23 growers
  - Summer fallow – 5 growers

Figure 1. Flax prefers wheat stubble



Insects - Potato Aphid

- 1/4 in length
- pale green, pointed back end
- distinctive tail pipes off of the back
- Host crops - flax, potatoes, tomatoes, lettuce and sunflowers



Insects - Potato Aphid

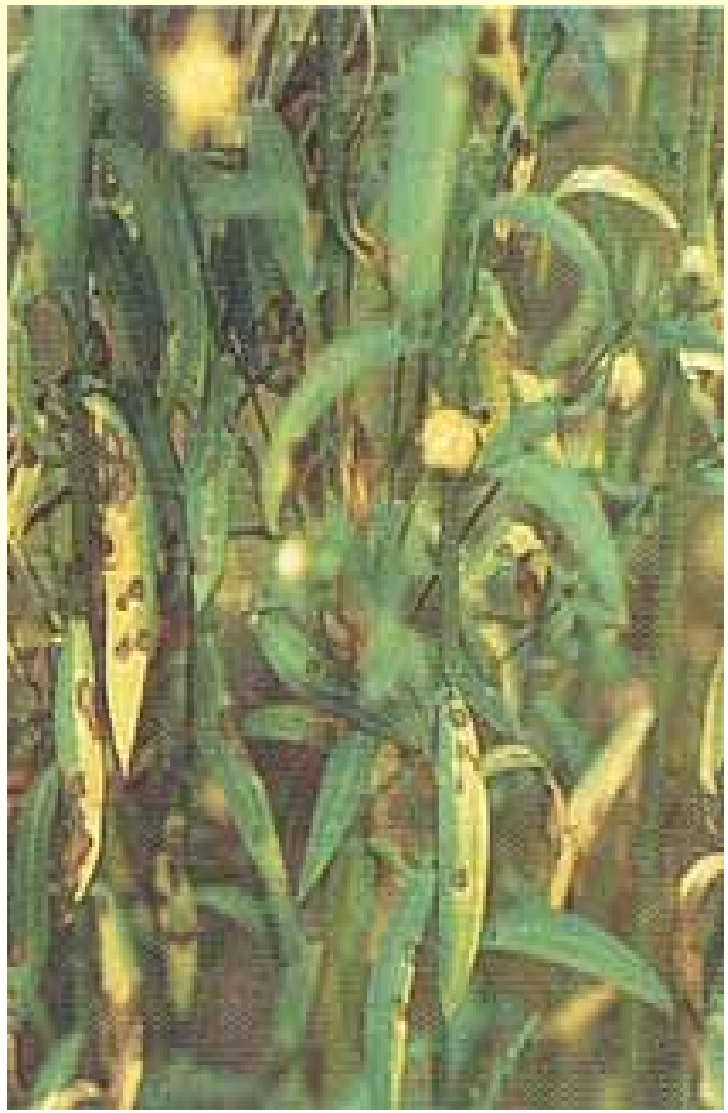
- Sap feeders - leave honeydew on the stem
- Damage occurs late in the season - flowering & green boll
- ET - 2 to 3 aphids / plant at flowering or 8 aphids / plant at green boll

What About Disease?

- Breeding efforts have concentrate on wilt and rust
- None of the current varieties has any measure of resistance to pasmo
- In co-op disease nurseries where flax residues are significant, ‘squirt & look’ investigation with foliar fungicides has shown impressive yield response
- Pasmo?

Disease - Pasmo

- Preliminary studies showing good fungicide response
- Circular brown lesions on the leaves
- Occurs during ripening - causing weakening and boll-drop
- Worse in moist cond.



Summary

- Flax shouldn't be the forgotten crop (planted last, managed at a low end)
- Small fine tuning will go a long way
- Planting early
- Achieving good plant stands
- Flax is not as forgiving as canola

Robert Park
Manager, Industry Focus - MAFRI
1-204-745-5665 or rpark@gov.mb.ca