Dry Bean Projects, Surveys and Demonstrations

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Ontario Acres

	2022	2021	2020
White	45,000	48,400	75,200
Black	12,000	9,500	17,300
Cranberry	7,500	7,500	11,000
Kidney	13,600	15,700	21,300
Japan/Other	5,500	6,000	10,700
Adzuki	18,200	13,300	21,000
Total	**102,000**	**100,400**	**156,500**

Agricorp Data
(rounded)

Thrips in 2022

Found in 2 fields at very high levels
Middlesex & Oxford

- Narrow body, cigar shaped
- 0.5 – 1.0 mm in length
- Hot, dry weather
- Found on leaves and in leaf buds

A flower thrips.

Photo by J. R. Baker, NC State University

Eastern Flower Thrip - beans, oats, alfalfa

Two-Spotted Spider Mites

- Dimethoate the only registered product
- Resistance confirmed in ON
- GFO funded 4-year project, AAFC and Western U
- Contact us if you have spider mites

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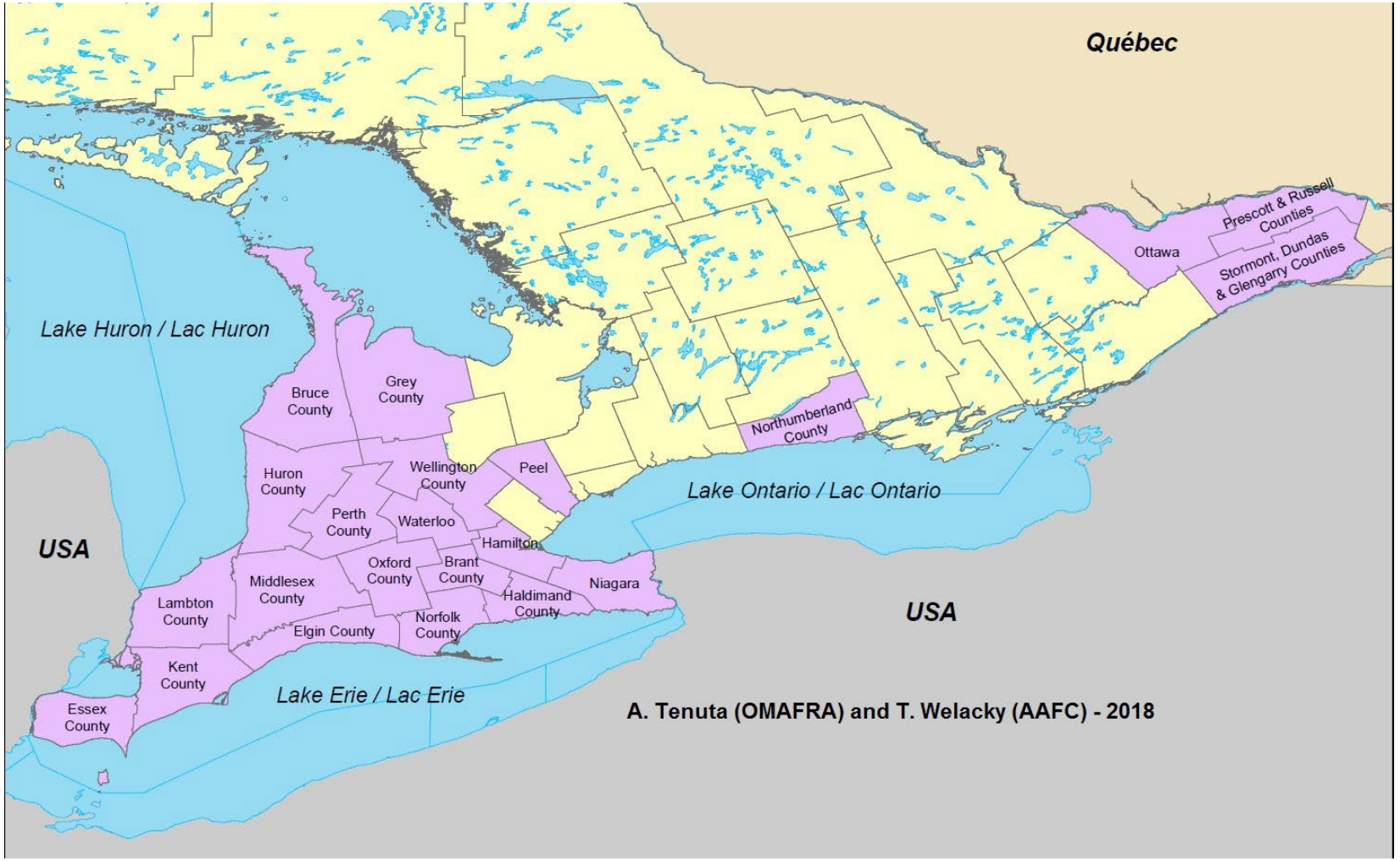
SCN Survey of Dry Bean Fields 2020-2022

70 fields sampled
10 positive for SCN
- Huron (5)
- Middlesex (3)
- Waterloo (1)
- Oxford (1 - peas)

Half at “high risk” levels for soybeans.

SCN Distribution in Ontario



<u>Symptoms:</u>

Stunting

Poor canopy closure

Fewer pods

Mature early

Chlorosis

Gently dig up roots 30-45 days after emergence

Desiccation of dry beans with the Weed Zapper

Meghan Moran, Mike Cowbrough – OMAFRA
Dr. Rob Nures, Dr. Jamie Larsen – AAFC

Slides by Mike Cowbrough

Would electrification be a plausible way to desiccate dry beans as an alternative to chemical desiccation?

Slides by Mike Cowbrough

40’ unit - ~$93,000 CAD (delivers 12,000-13,000 volts)
225 hp tractor - $150,000 – 250,000
Slides by Mike Cowbrough

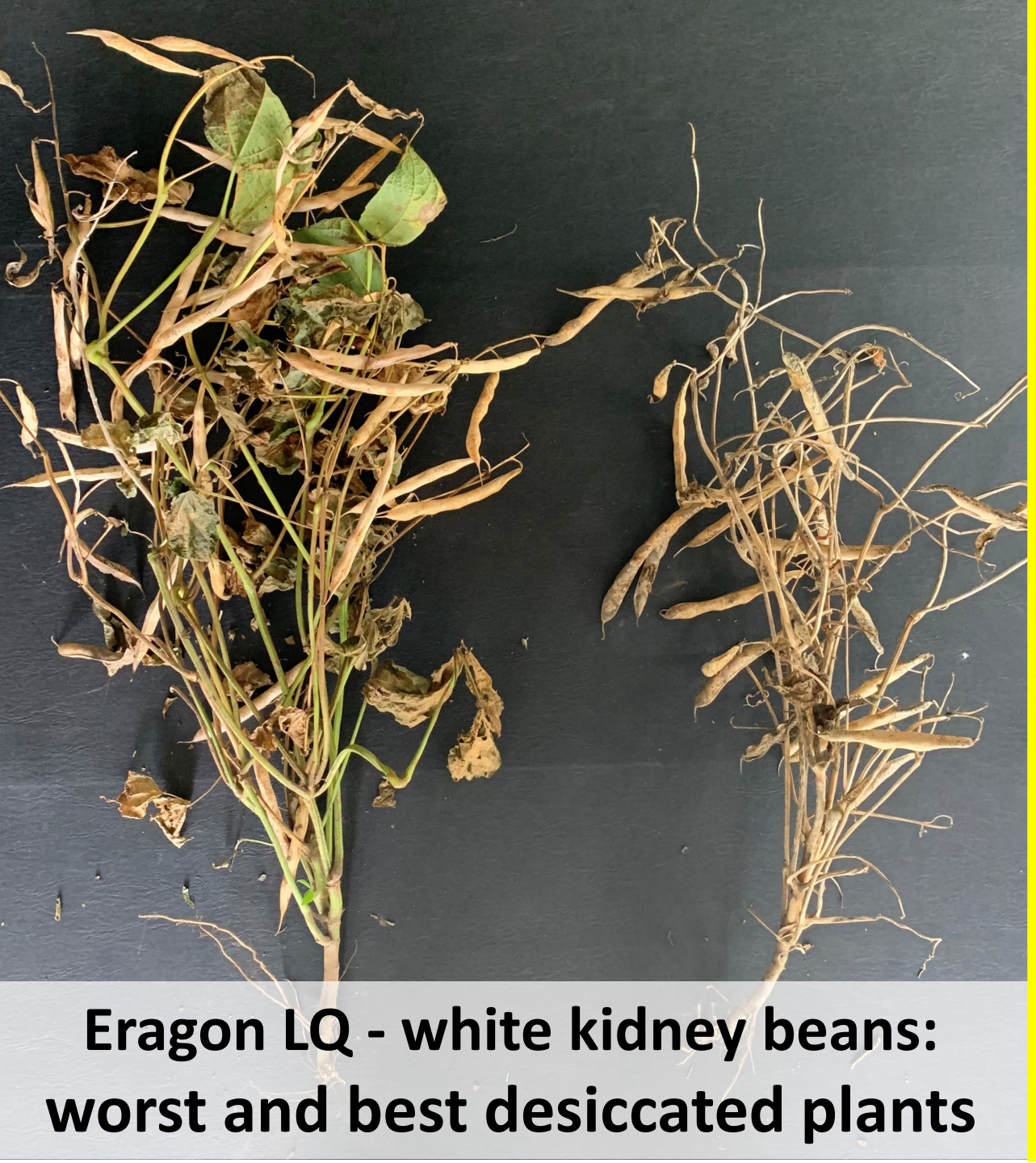
- Zorro black beans
- Just prior to zapping,
  85% pod colour change

- Zorro, same plot
- 8 days post-zap
- 98% pod colour change

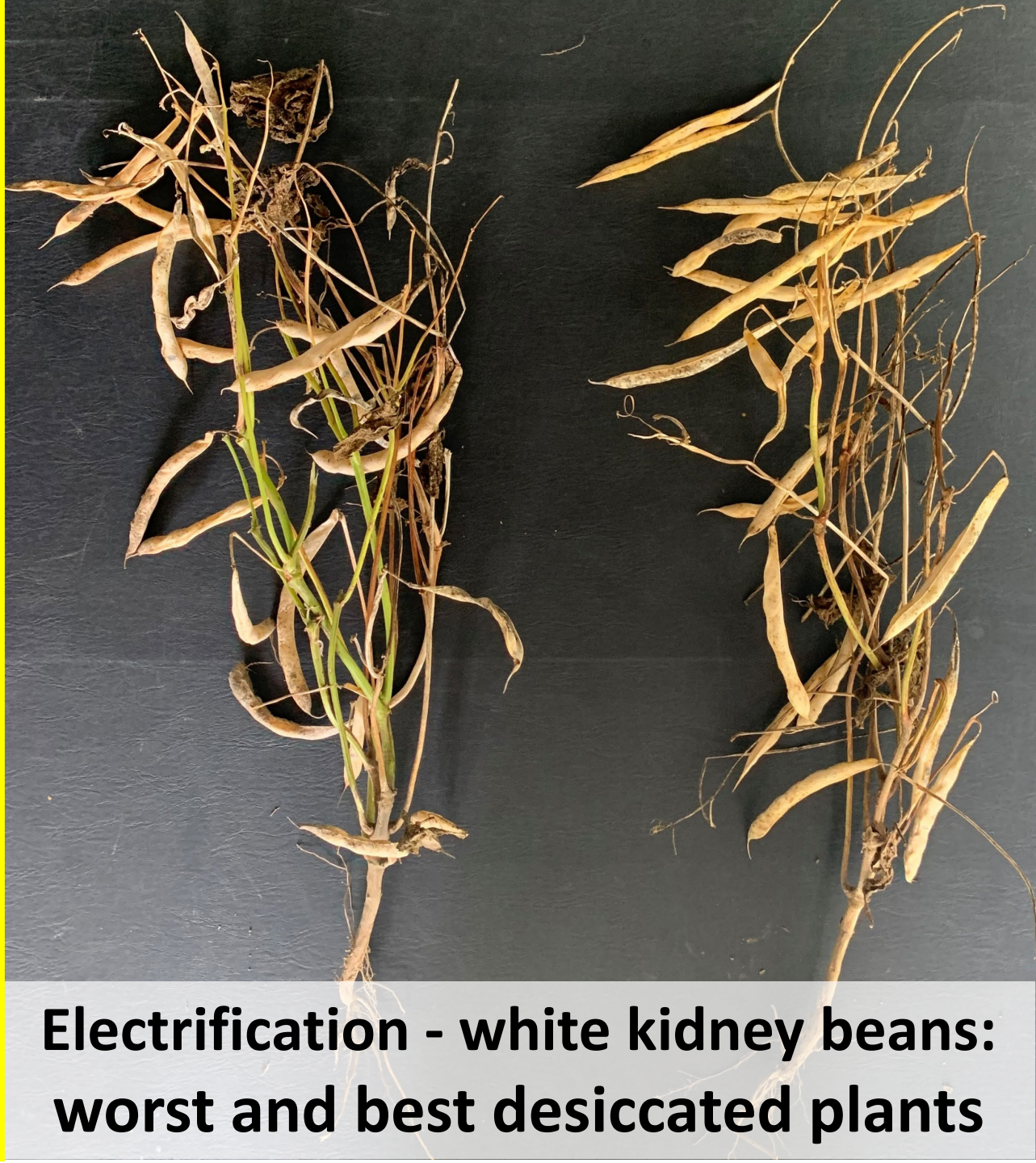
Most stems have good dry down

About 5% green stems.

Some plots had green in the vines.

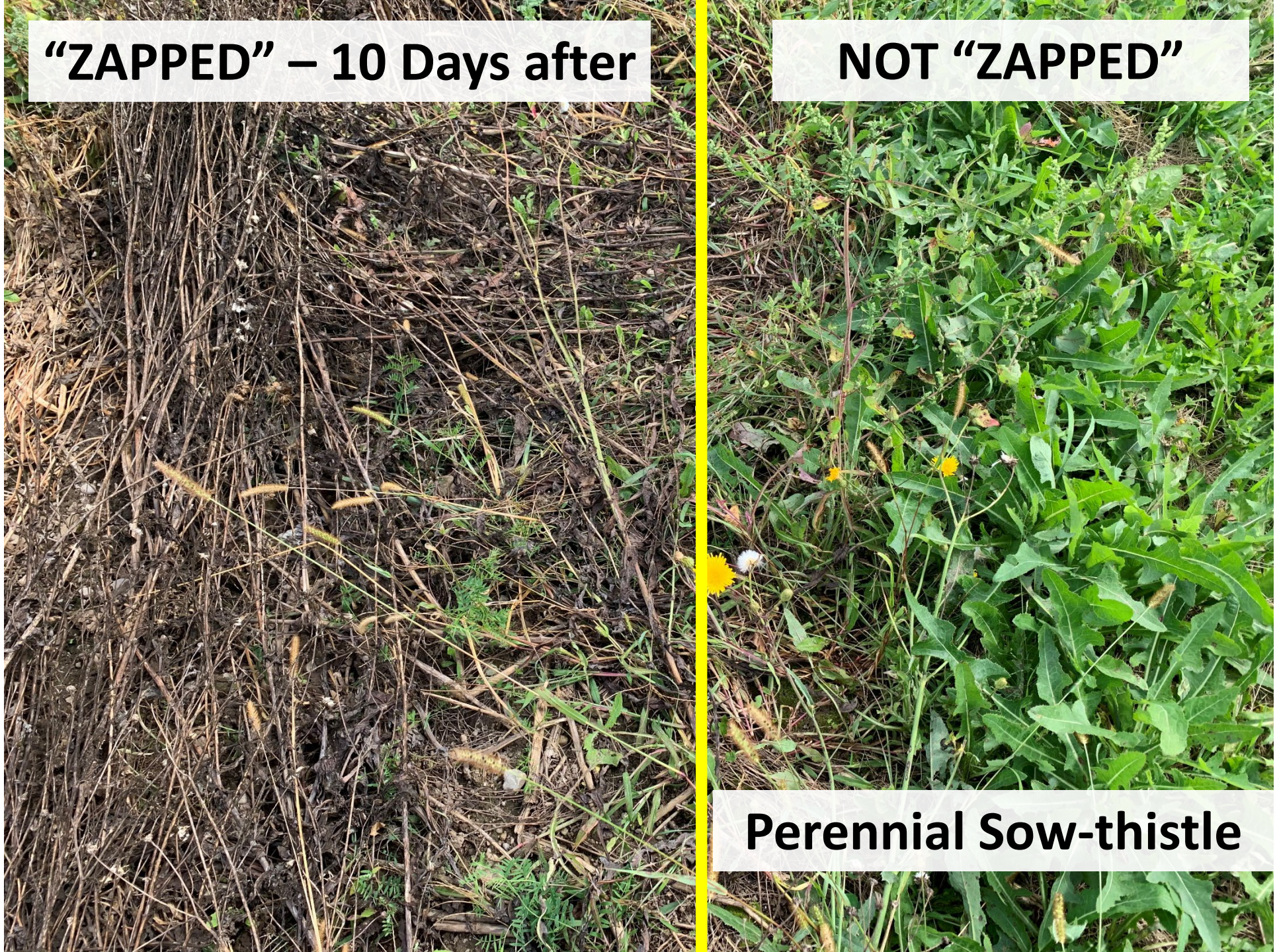


Eragon LQ - white kidney beans:
worst and best desiccated plants



Electrification - white kidney beans:
worst and best desiccated plants

Lambsquarters


“ZAPPED” – 10 Days after
NOT “ZAPPED”
Perennial Sow-thistle

Weed Zapper was comparable to Eragon LQ but misses weeds that are below canopy *(Hairy nightshade and Hairy galinsoga)*

Slides by Mike Cowbrough

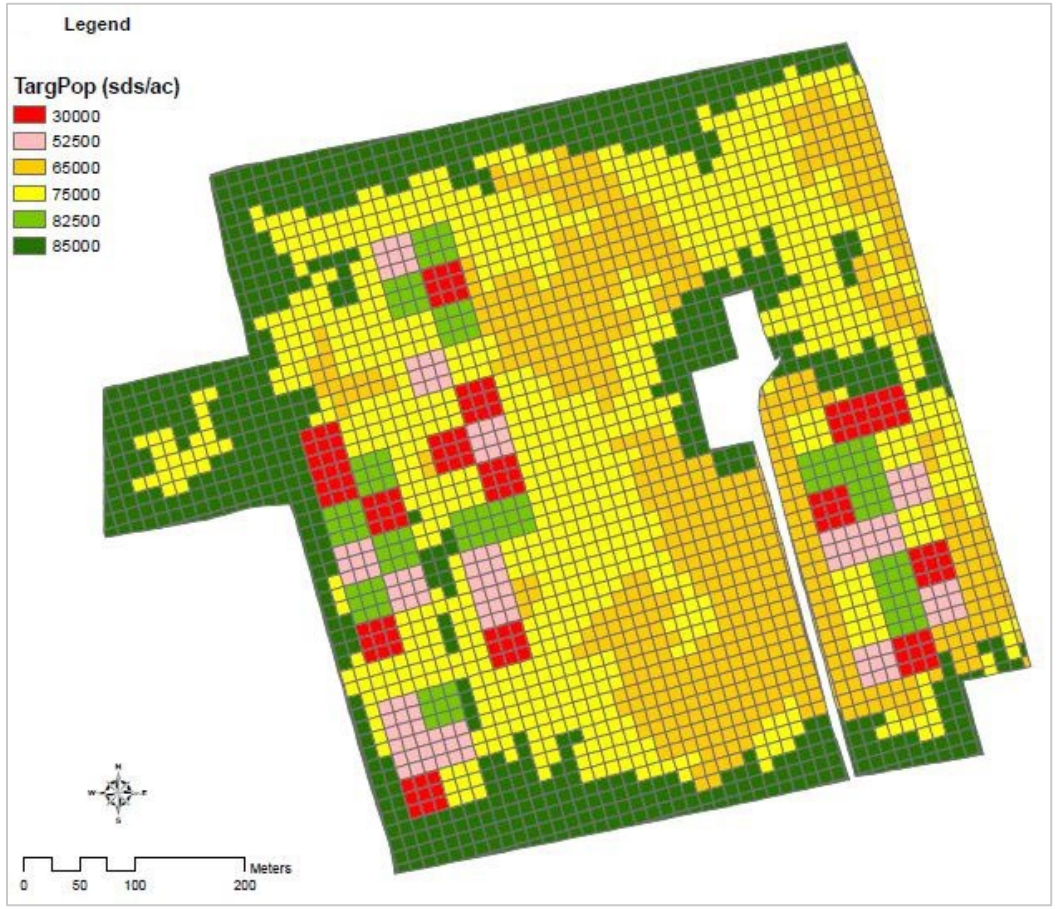
Weed Zapper Demo Summary

- Comparable desiccation of dry beans vs. Eragon LQ.
- Good control of weeds above the crop canopy
- Does not control weeds below canopy
- Worthy of pursuing further

Dr. Rob Nurse, AAFC Harrow, leading proposal currently under review with Organic Cluster

Slides by Mike Cowbrough

Seeding Rate Project 2018-2020
Premier Crop Systems® Enhanced Learning Blocks ®



One Learning Block within each Yield Zone (high, avg, low)

15 reps of each seeding rate.

Each plot is ~0.6 ac

Plug seeding prescription into the farmer's planter.

HUGE THANK YOU to Greg Kitching and 6 producer cooperators

Seeding Rate Project

White/Black Beans

- 3 fields x 3 years
- 30” rows
- Seeding rates (seeds/ac)

44,000	77,000
110,000	120,000

Cranberry Beans

- 3 fields x 3 years
- 30” rows
- Seeding rates (seeds/ac)

40,000	52,500
68,000	82,500

- load cell yield monitors on Pickett combines

Blanket rates of all other crop inputs

Super-Brief Conclusion: White & Black Beans

- $7/ac avg return with variable rate seeding by yield zone
- Weak correlation between optimal seeding rate and plant available water
  - SoilOptix

- Economically optimal blanket seeding rate 88,000 – 94,000 seeds/ac

Visit **drybeanagronomy.ca** and search **“seeding rate project”**

Super-Brief Conclusion: Cranberry Beans

- $18/ac avg return with variable rate seeding by yield zone
- No correlation between soil parameters and optimal seeding rate
  - SoilOptix

- Economically optimal blanket seeding rate 54,200 seeds/ac

Visit **drybeanagronomy.ca** and search **“seeding rate project”**

Adzuki Seeding Demo 2022

Enhanced Learning Blocks®, 75 plots total

70,000 seed/ac

85,000 seeds/ac

100,000 seeds/ac

- One farm in Oxford County
- Hand harvest a subset of plots for yield and seed size

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