Update on Electric Weed Control Research in Atlantic Canada



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Electric Weed Control Demo Day

July 22 2026

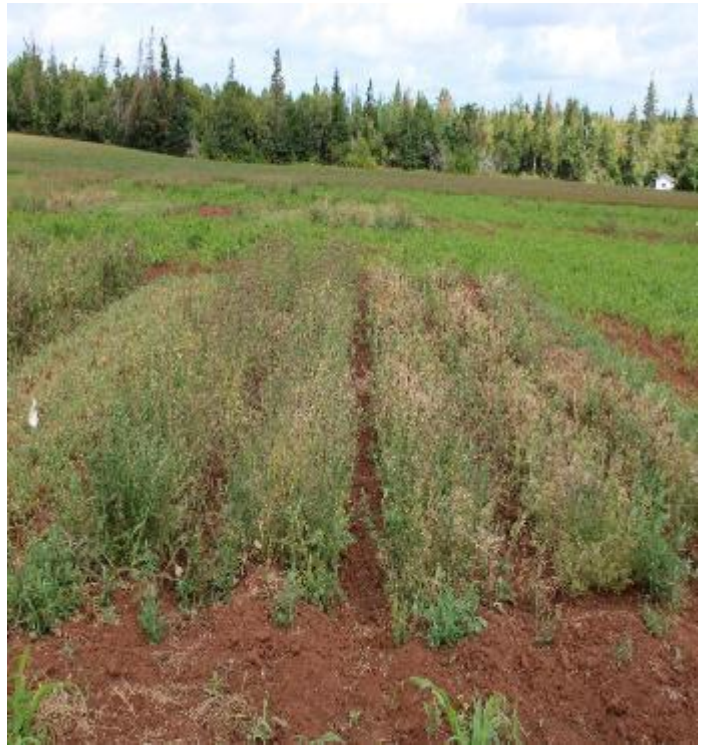
Electric Weeding Demo Day

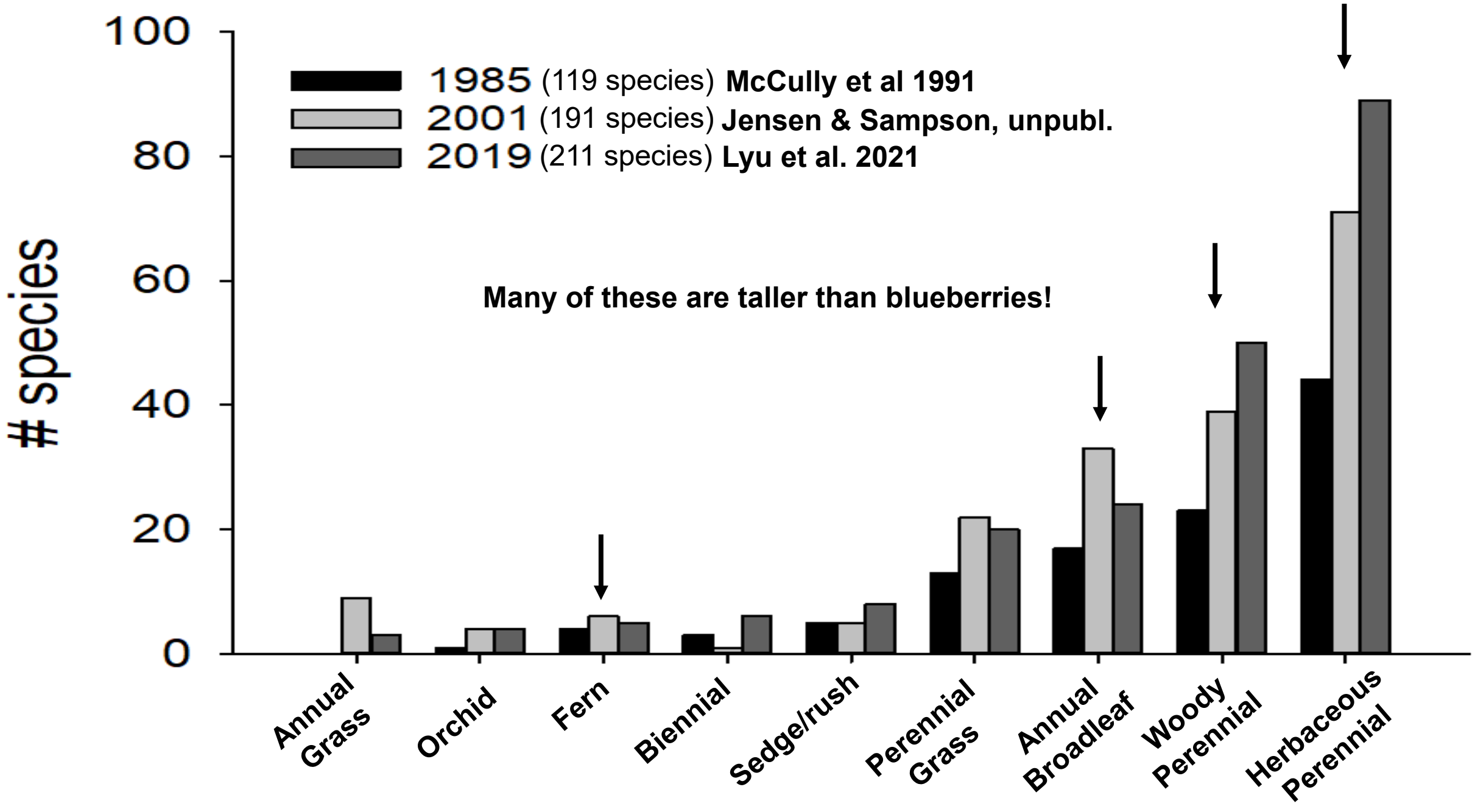
July 2026

- Weed zapper experience in wild blueberry in Nova Scotia
  - Scott, Travis, Chloe, and Spencer
- Weed zapper experience in potato, rutabaga, carrot, and cover crop termination
  - Andrew and Nicole








100
80
60
40
20
0
species
1985 (119 species) McCully et al 1991
2001 (191 species) Jensen & Sampson, unpubl.
2019 (211 species) Lyu et al. 2021
Many of these are taller than blueberries!
Annual Grass
Orchid
Fern
Biennial
Sedge/rush
Perennial Grass
Annual Broadleaf
Woody Perennial
Herbaceous Perennial

Tall weeds suitable for electric weed control in wild blueberry



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Tall weeds suitable for electric weed control in wild blueberry









Traditional approaches to controlling tall weeds

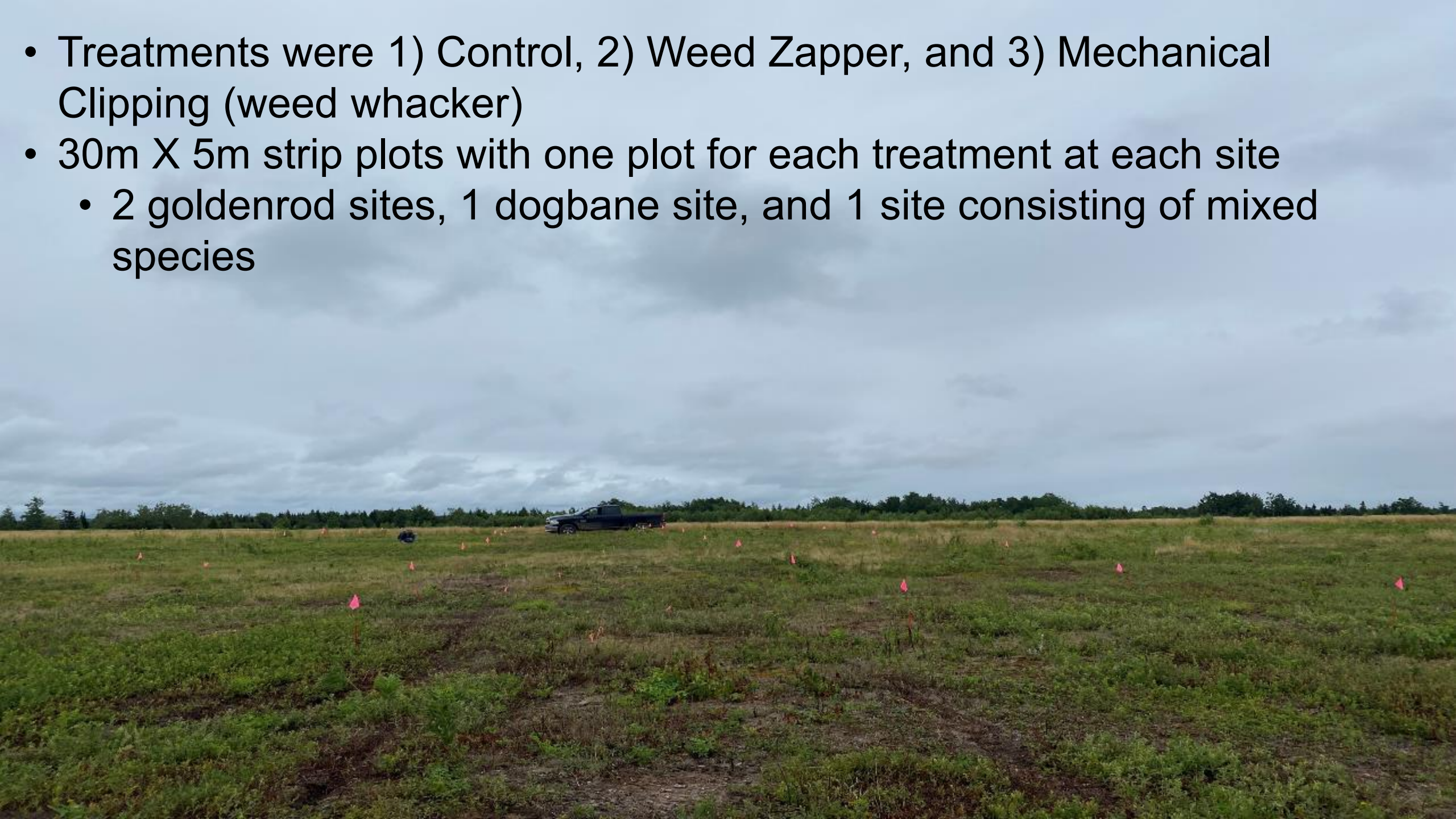
Electric Weeding Demo Day

July 2026

- Weed Zapper Annihilator 12R30 with a 4.6 m (15’) rigid copper boom
  - 155 kW generator
  - 15,000 Volts at the boom
- Case IH Maxxum 145 (145hp)
- Unit is powered by PTO
  - 1000 rpm and 120 hp
- Two coulters are used for electrical grounding
  - At least one must be in contact with ground at all times
- Travel speed can vary based on terrain and weed infestation
  - We used around 6km hr^{-1}



- Treatments were 1) Control, 2) Weed Zapper, and 3) Mechanical Clipping (weed whacker)
- 30m X 5m strip plots with one plot for each treatment at each site
  - 2 goldenrod sites, 1 dogbane site, and 1 site consisting of mixed species



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Data Collection

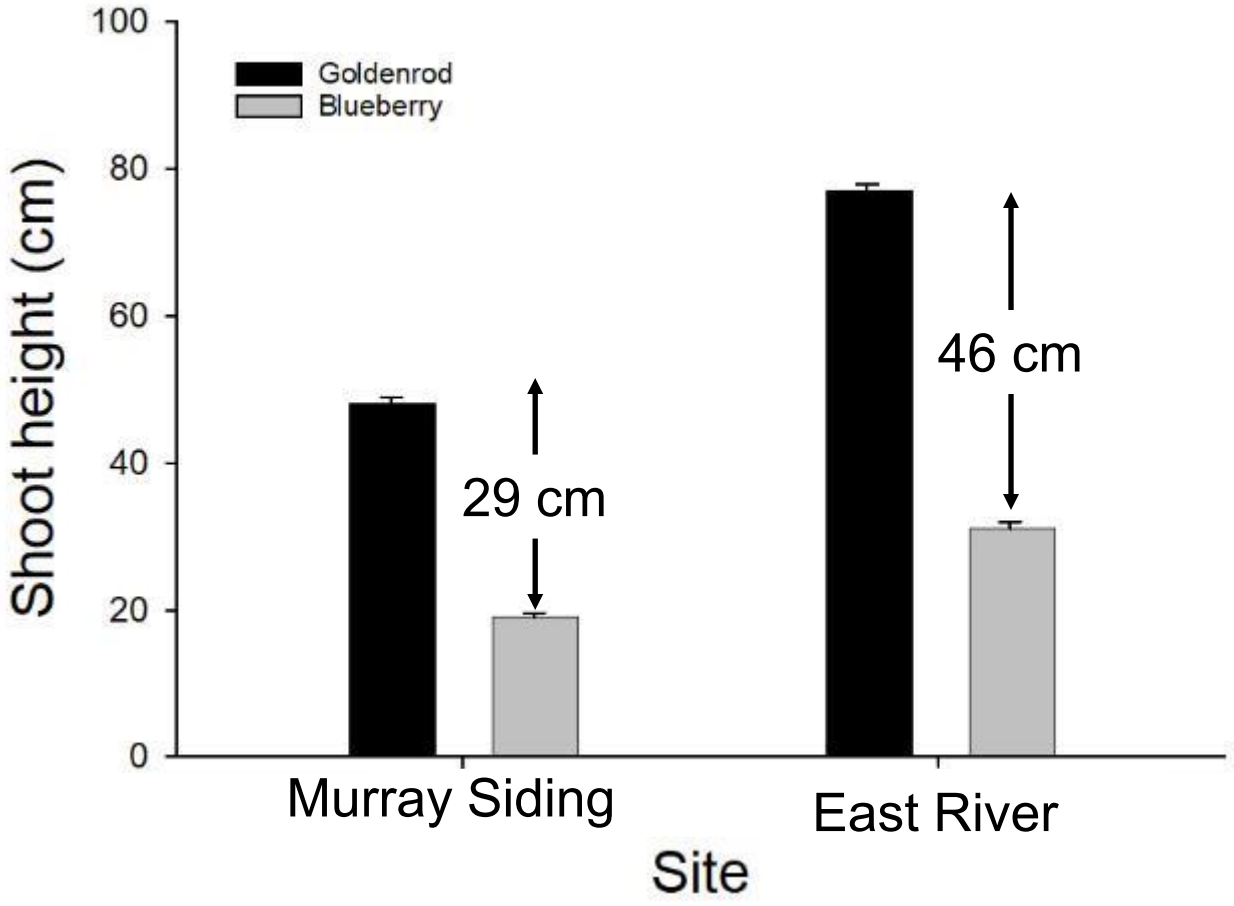
- Prior to treatment application
  - Density of target weed
    - ~20 1m^2 quadrats per plot
  - Weed and blueberry height
    - 25 individual shoots per plot
  - Tagged plants for injury ratings and branching

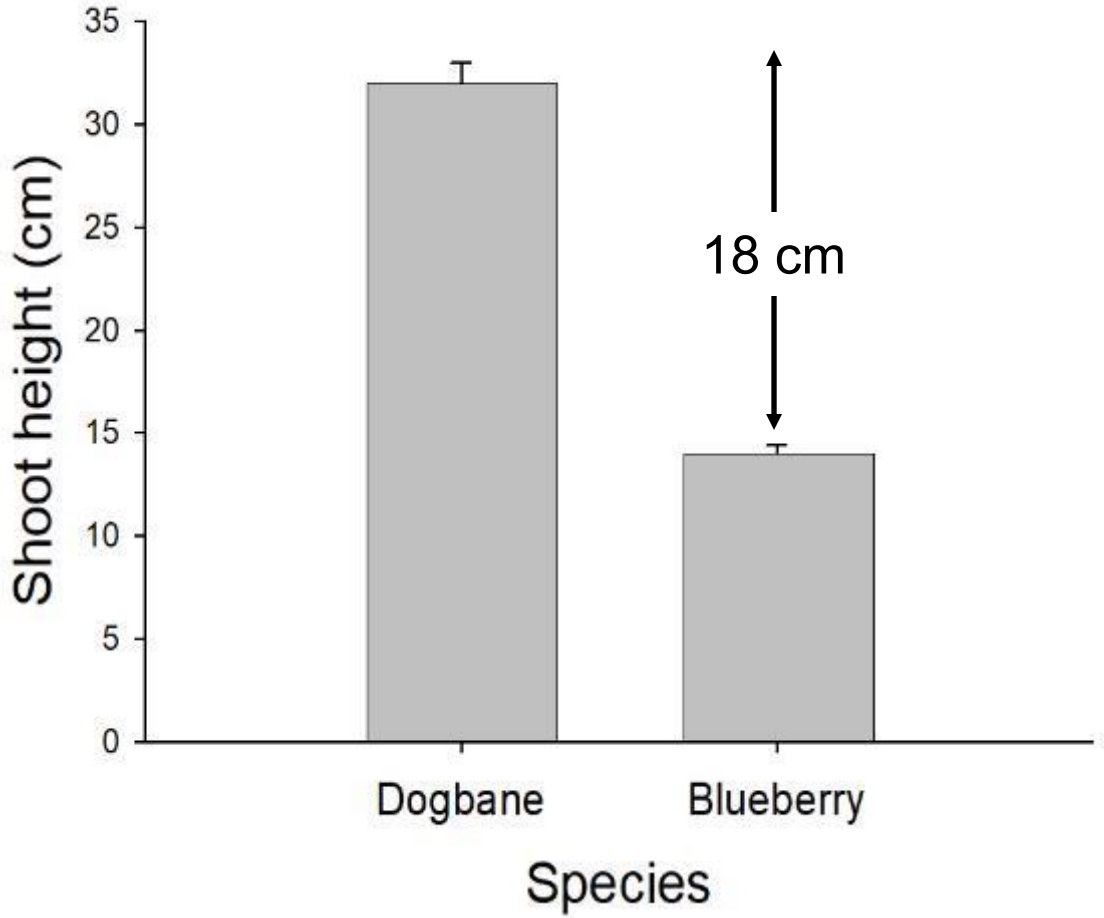


- After treatment application
  - Density of target weed
    - ~20 1m^2 quadrats per plot
  - Visual injury ratings of tagged plants
  - Branch number of tagged plants



Crop and weed height differential at application





10 – 15cm differential recommended (Weed Zapper Manual)

Weed Zapper





Cutting



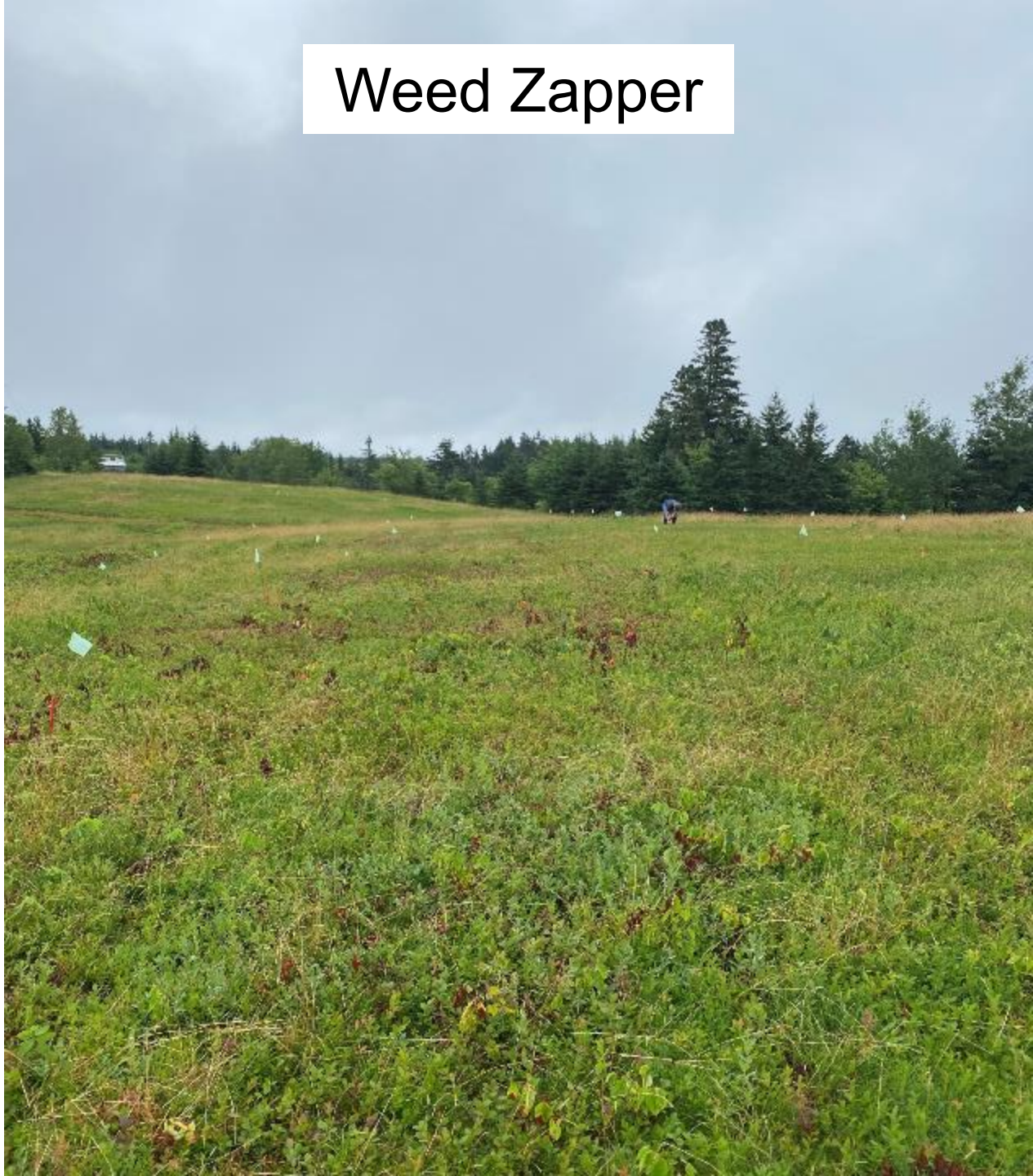



Control:
24 shoots m2
Weed Zapper:
3 shoots m2
Clipping:
16 shoots m2




Weed Zapper
Control
Clipping


Control


Weed Zapper


Bracken fern
60 - 90%


Bracken fern
60 - 90%


St. John’s Wort
70%


Asters
100%

Canada fleabane

100%




<25%
Black bulrush


Grasses
<10%

Zapping goldenrod in a carrot field in NS



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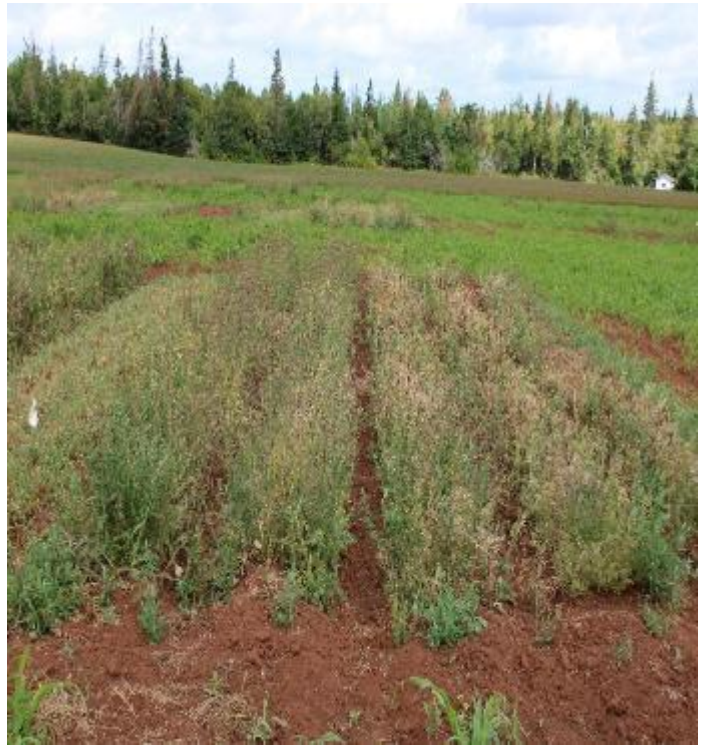


2025













Grower Fields and Demos





2025



Experimental Plots

- 2-year project
- Potatoes, carrots, beets, rutabagas
- Data analysis ongoing for year 1
- Treatments: EWCx1, EWCx2, inter-row cultivation + EWC, wick weeding, wick weeding +EWC

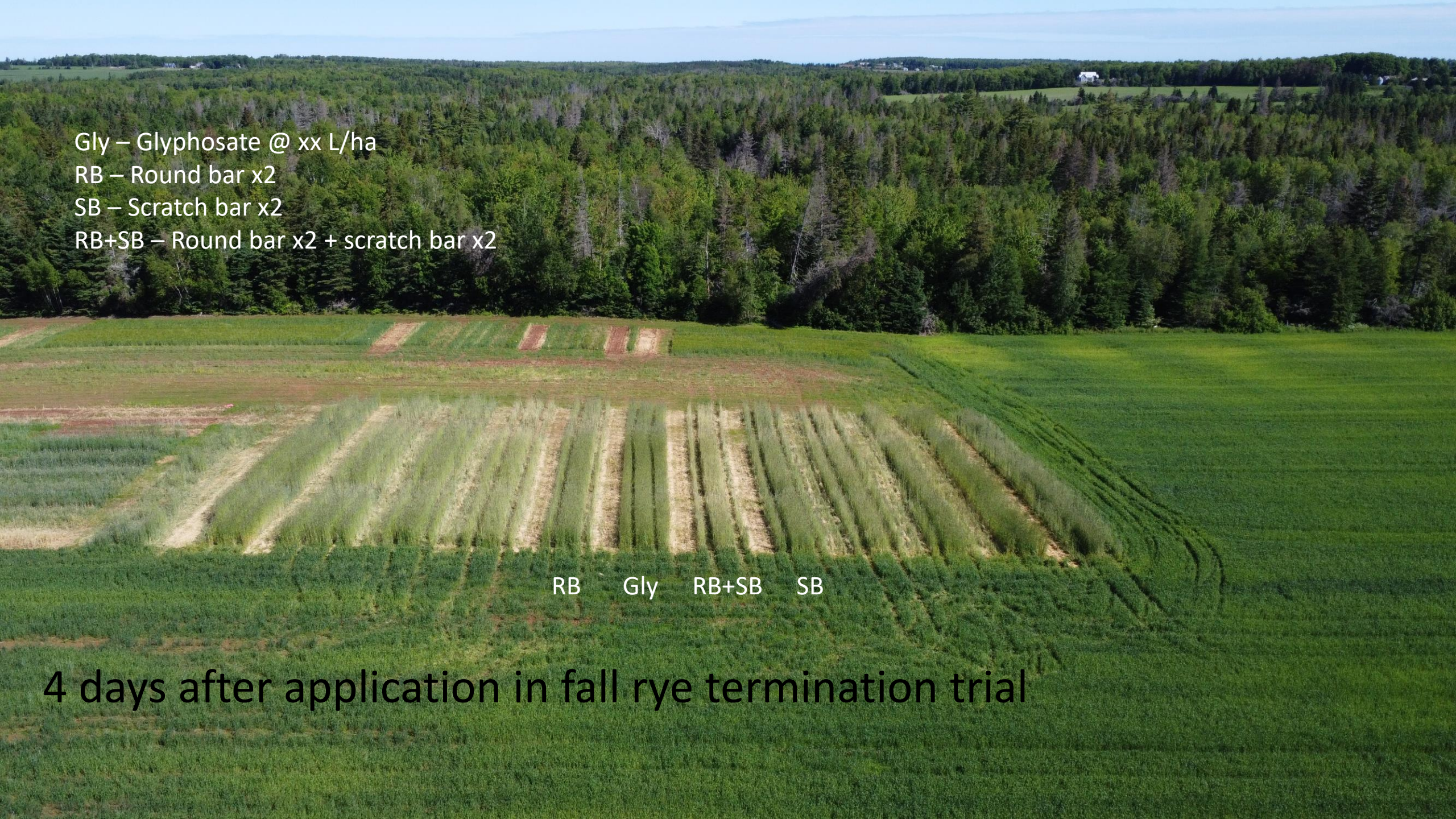
Data Collection

- Crop yield
- Weed heights, biomass, and seed viability



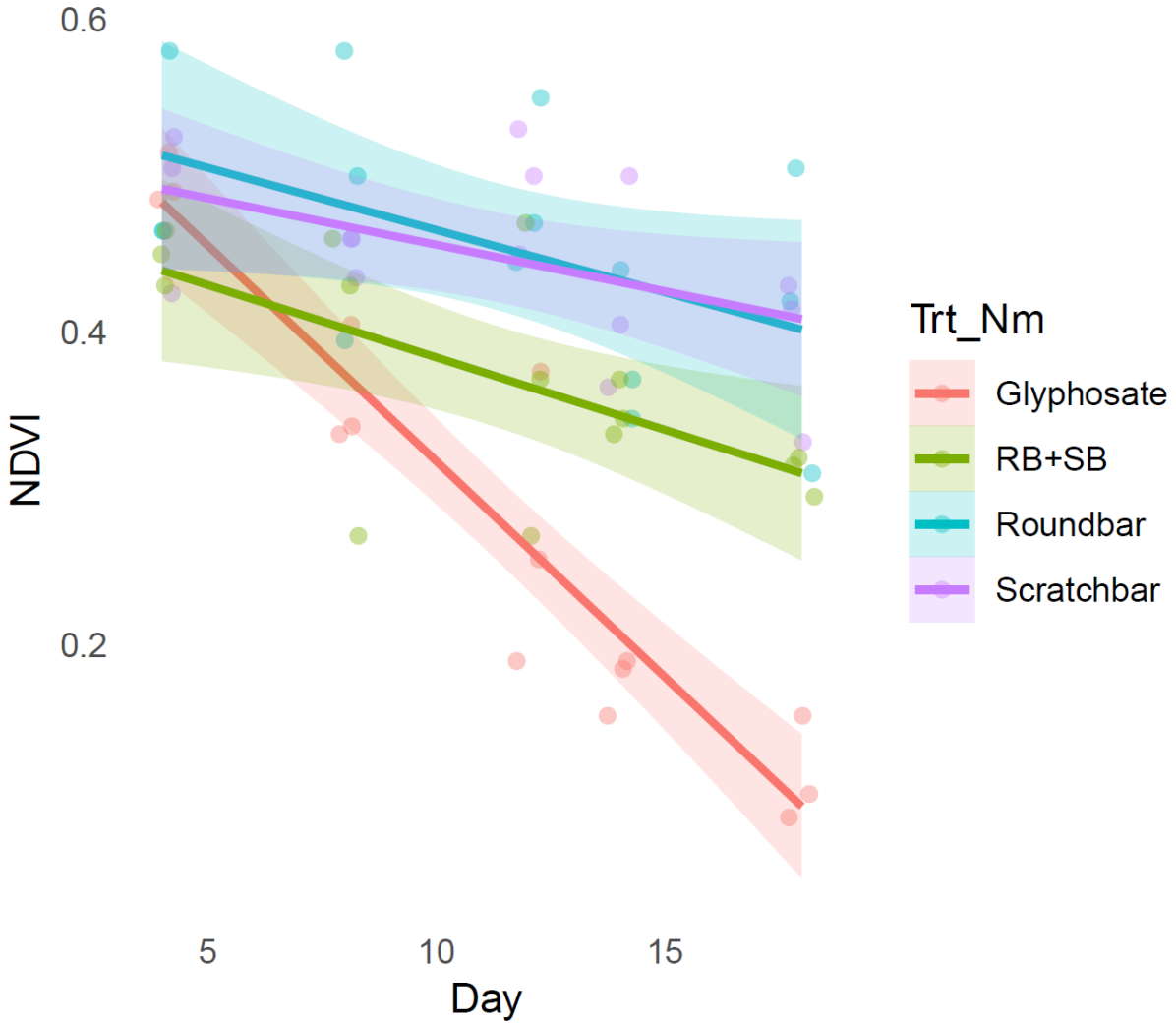


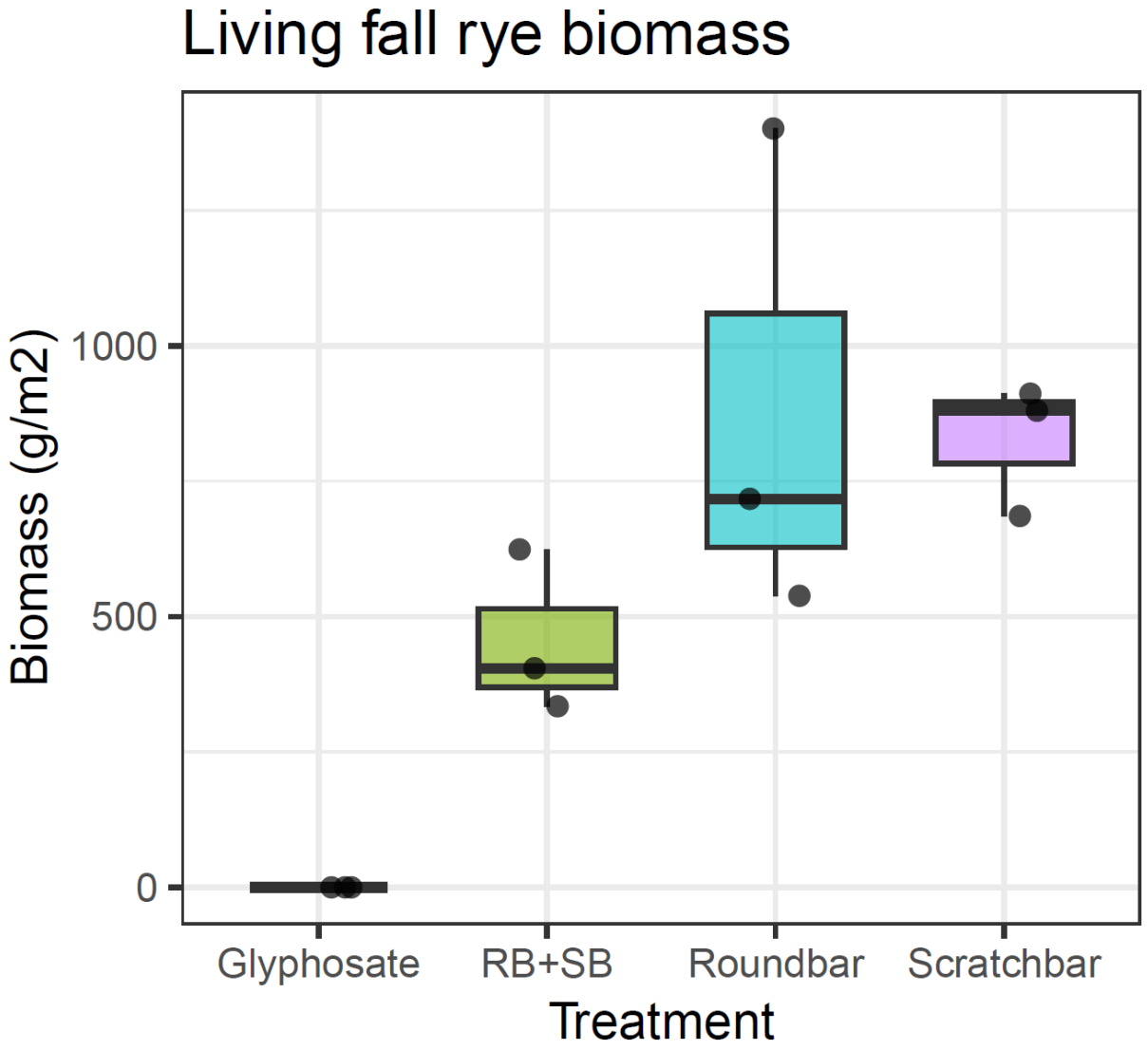
Sheperd purse, 1 week after treatment 6-July



4 days after application in fall rye termination trial

Four passes was more effective than two but still not as effective as glyphosate





28 DAA

Weed Zapper

Glyphosate



Summary

- Weed Zapper Annihilator 12R30 with a 4.6 m (15’) rigid copper boom caused >80% injury to goldenrod and spreading dogbane shoots
- The unit was also effective on bracken fern shoots and fleabane
- Generally weak on black bulrush and grasses
- Carrot grower feedback was very positive
  - Probable future investment
- Lots of opportunity to tweak settings, evaluate multiple passes, etc. in future work

Summary

- Huge potential for electric weeding in many crops in Atlantic Canada
  - Potato, rutabaga, carrot, and other hort crops
- Role in cover crop termination uncertain at this point





Acknowledgements

- Genevieve, Guillaume, and Dominique
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NSERC CRSNG

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Thank You!

