



Recherche de l'Innovation Farms Ontario 2025

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WELCOME / Bienvenue

Presentation by Kaya Moore



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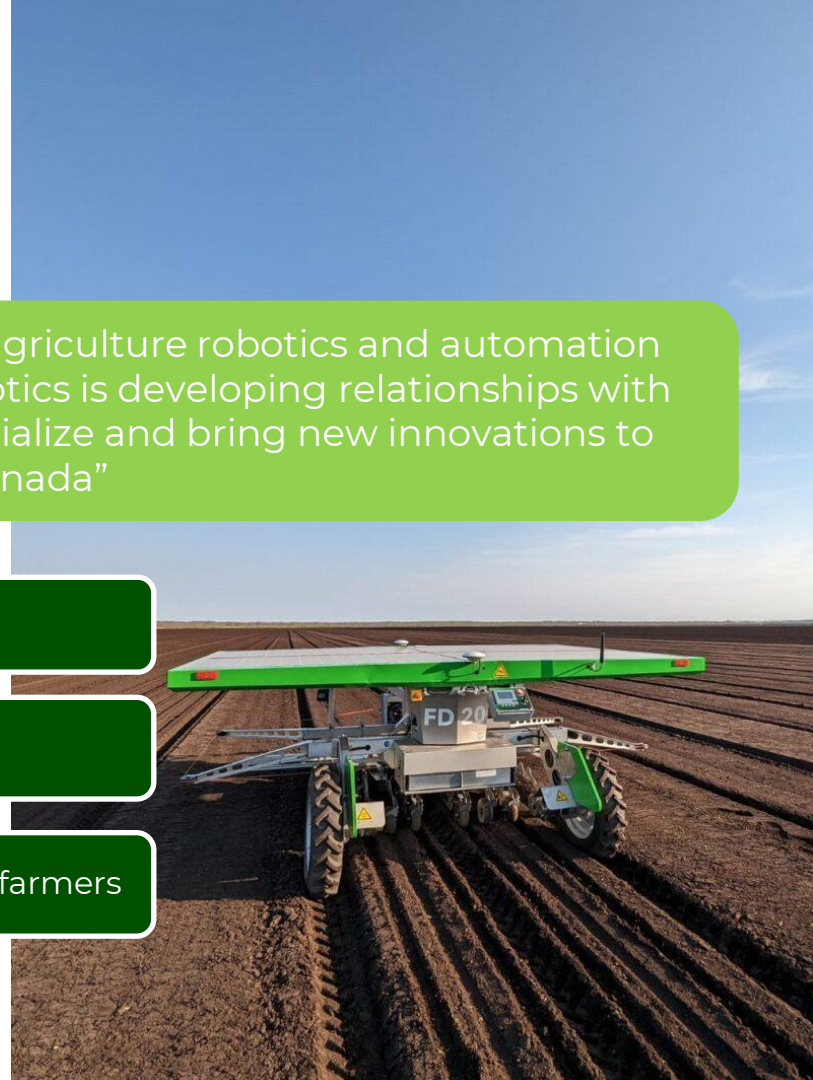
HAGGERTY AgROBOTICS

“Haggerty AgRobotics is a leader in the emerging agriculture robotics and automation industry. As we look to the future, Haggerty AgRobotics is developing relationships with the leading ag technology companies to commercialize and bring new innovations to farmers in Eastern Canada”

Ground truth & test new technologies on Canadian soil

In-house develop on new and existing technologies

Commercialize innovative agricultural technology to Canadian farmers



Why AgRobotics?

AgRobotics Role in Filling Industry Gaps & Advancing Sustainable Agriculture

Easing labour challenges through autonomy

Providing alternatives for herbicide resistant weeds

Input reductions through advanced precision

GHG emission reductions

Lightweight designs promoting healthier soils





AgRoboticsWG

“The role of AgRobotics Working Group is to be a single-point resource for producers and industry to learn about new technologies, get support for existing technologies, and collaborate for the betterment of the Ontario AgRobotics ecosystem.”

Member-to-member outreach through weekly meetings, demo days, events and industry connections

Research support to ground truth commercially ready robotics solutions

Mentorship support for start-up, early-stage AgTech and Robotics-based companies



INNOVATION FARMS

Powered by AgExpert 

“Innovation Farms Ontario, powered by FCC AgExpert, is a part of a Canadian network of innovative farms, willing to provide practical research and farm testing on new technologies such as automation, robotics and sustainability.”

Assess the state of AgRobotics' for addressing key challenges – derisking, transition, efficiency, gaps and ROI

Support R&D with Data-Backed Findings

Showcase Ag Tech Innovation

Drive Real-World Impact



AgRobotics Working Group 2025 Projects

Funded by OMAFA

Asparagus Harvester Study with
Harvest Corp Technologies



Alternative Weed Control in
Permanent Plantings



Image Detection Models in
Permanent Plantings



Squash Plot Trial at Simcoe
Research Station



Innovation Farms 2025 Projects

Funded by FCC

Picketa LENS Adoption for Grain
Crops



AgRobotics for Vegetable Production and
Weed Management at the Bradford Ontario
Crops Research Station



Ukko Agro-Weather Stations



Innovation Farms Ontario Research

Guiding Research Questions & Associated Data

Are the robots efficient?

Robot Productivity (area, time, work rate)

Are the robots effective at their given tasks?

Ground Truthing Tests (weeding, stand counts)

Do the robots reduce labour needs?

Labour Hours (Set-up, Maintenance, Supervision)

Is there cost savings to production?

Costs (labour, inputs, machinery)

Are there reductions to inputs used & emissions?

Inputs (spray, seed, fuel)

Energy (kWh)

Squash Plot at Simcoe Research Station

Naïo Technologies' Oz

Technology Being Trialed:

- Naïo Technologies' Oz

Project Overview:

- Tasks: planting, spraying pre-emergent herbicide on the row, cultivate between rows until canopy cover closes

Trial Objectives:

- Monitor machine productivity, efficiency, and human involvement
- Assess logistics, usability, reliability, and economic feasibility
- Next year: Side-by-side trial comparing Oz to conventional machinery



Squash Plot at Simcoe Research Station

Naio Technologies' Oz

General Information:

- **Crop Type:** Butternut Squash
- **Planting Density:** 60-70 cm apart
- **Row Spacing:** 1.5 m
- **Rows Total:** 17
- **Field Size:** 0.94 acres

Deployment Information:

- **Time Planting:** 1.7 hours (1 pass on field)
- **Time Spraying (pre-emergence):** 1.4 hours (1 pass on field)
- **Cultivating (between rows):** 18 hours
- **# of Cultivation Passes in Field:** ~2.5



Squash Plot at Simcoe Research Station

Naio Technologies' Oz

Stand Count Experiment Results:

~75% emergence rate across the field

Cultivation Weeding Efficiency Results:

~97% of inter row weeds were eliminated in single pass

Grower feedback:

- Weeds remaining on plot are on the row (herbicide escapes)
- **~27%** reduction in herbicide product used

Harvest Results:

5,006 butternut squash harvested

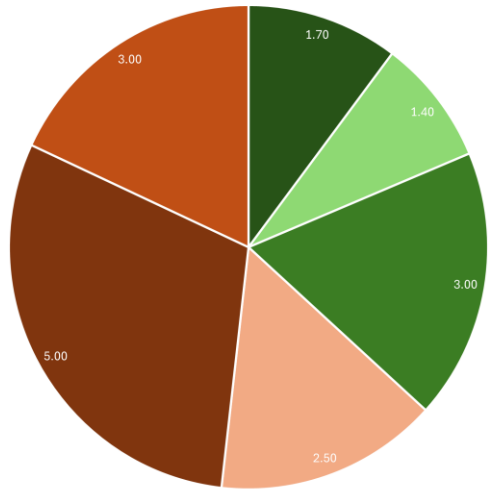
~18,923 lbs of marketable yield

1.3 times more lbs/acre then predicted by OMAFA's standards

Uptime vs. Downtime

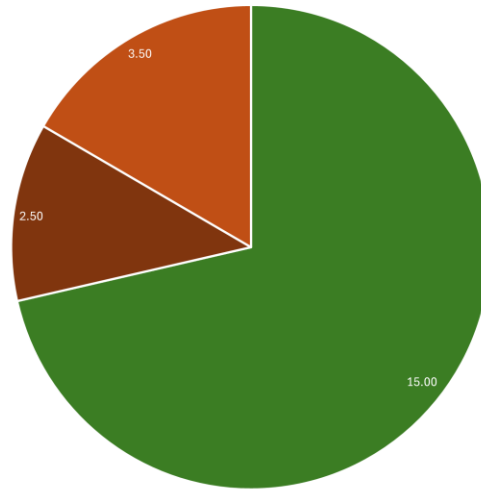
Naio Technologies' Oz

Oz Simcoe June



- Time Planting (hours)
- Time Spraying (hours)
- Time Cultivating (hours)
- Time Mapping (hours)
- Laboured Setup Time (hours)
- Laboured Maintenance & Repair Time (hours)

Oz Simcoe July

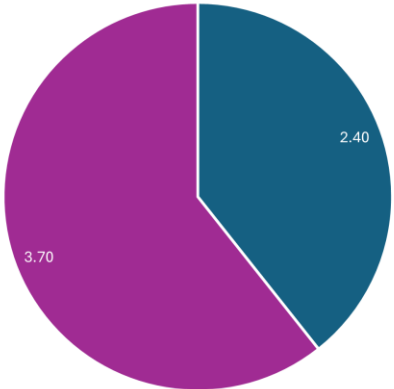


- Time Planting (hours)
- Time Spraying (hours)
- Time Cultivating (hours)
- Time Mapping (hours)
- Laboured Setup Time (hours)
- Laboured Maintenance & Repair Time (hours)

Supervision Levels

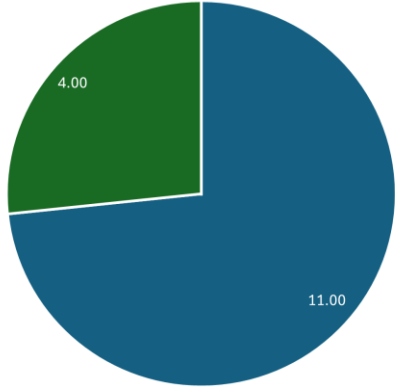
Naio Technologies' Oz

Oz Simcoe Supervision Level June



- Hours Operating Supervised
- Hours Operating Unsupervised
- Hours Operating Hands on

Oz Simcoe Supervision Level July



- Hours Operating Supervised
- Hours Operating Unsupervised
- Hours Operating Hands on

Sustainability

Comparing GHG Emissions

Comparative Study of One Pass of Cultivation at Simcoe Research Station					
Equipment	Time (hours)	Entire Area (acre)	Energy / Fuel	Cost (\$)	Co2e Emissions (kg)
Diesel Tractor & Cultivator	0.33	1.00	0.63 Us Gal	3.18	5.89
Oz	4	1.00	1.24 kWh	0.15	0.18



Cultivating with the Oz costs ~21 times less for fuel, with ~33 times less CO2e emissions

*Conventional equipment cultivated entire field, oz cultivated between rows

Why This Matters

Importance of trials for new Ag Tech

Derisk adoption of new technology

Understand economic benefits and feasibility (ROI, Labour Reduction Costs, Input Reduction Costs, Etc.)

Compare conventional to new methods of production

Developing a sustainable sector for the future (soil, emissions, noise, pesticide use reductions)

Keeping Canada resilient and at the leading edge of Innovation



Thank You / Merci !



Sustainable Canadian
Agricultural Partnership
Partenariat canadien pour
une agriculture durable

