



vineland

RESEARCH & INNOVATION CENTRE



Technology Advancements: Labour Saving

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Senior Research Scientist, Automation



Vineland's mission

Improve the economic viability, sustainability and competitiveness of horticulture in Canada



Innovation goals

1. Diversify and enhance horticultural products for domestic and export markets
2. Ensure new technologies are optimized for future production environments
3. Improve the connectivity of products and processes across supply and value chains

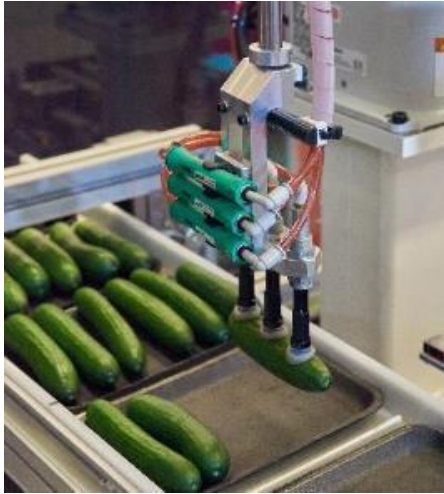


R&D programs

Plant Variety
Development



Automation



Consumer,
Sensory &
Market Insights



Plant Responses
&
the Environment



Biological Crop
Protection

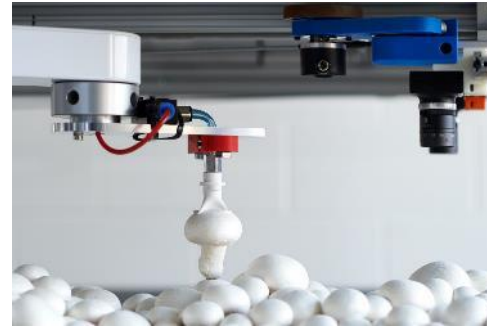


Strategic R&D or technical services



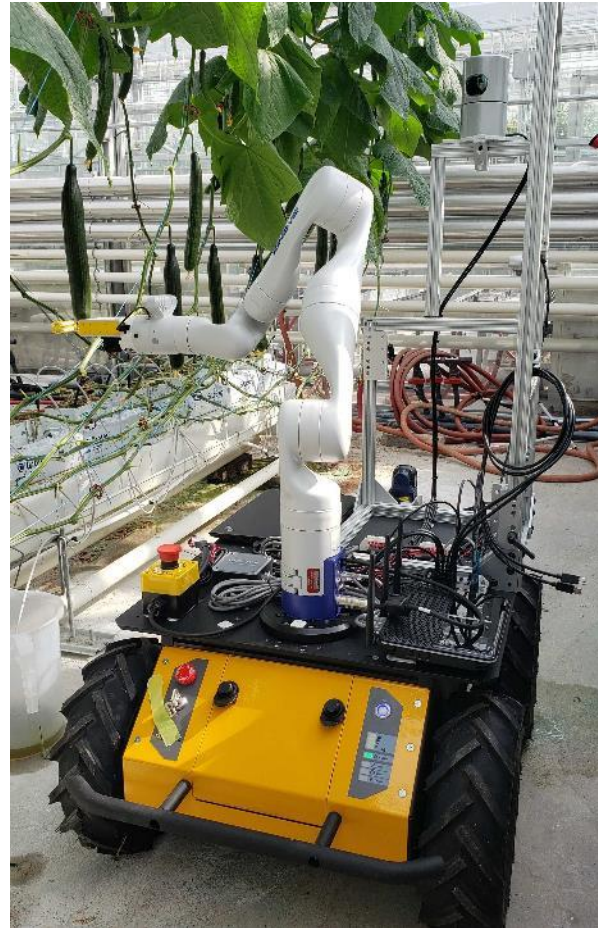
Automation

- Focus on supporting industry members and growers to improve automation in Canadian horticulture
- Develop and integrate new technologies or components
- Test, validate and demonstrate new technologies in a safe, neutral and controlled but also representative environment



Robotic greenhouse cucumber harvesting

- AAFC Automation Cluster project 2018-2023
- Integrated system developed and tested both at Vineland and at a commercial greenhouse
- Customized robotics, computer vision and AI systems
- Commercialization efforts underway through partnership



Automation in horticulture



[1]



[2]



[3]

Mechanical harvesting

[1] <https://www.futurefarming.com/tech-in-focus/field-robots/ortolanda-without-our-radish-harvesting-and-bunching-robots-we-would-need-25-people/>

[2] <https://www.mondomacchina.it/en/industrial-tomatoes-mechanized-harvesting-c2743>

[3] <https://hausbeck.com/pickles/>

Automation in horticulture



Autonomous field robots

- [1] <https://modernfarmer.com/2020/02/futuristic-farming-has-arrived-with-weeding-robots/>
- [2] <https://www.americafem.com/2020/10/06/ecorobotix-present-its-high-precision-spraying-robotics/>
- [3] <https://www.futurefarming.com/tech-in-focus/field-robots/agrointelli-launches-new-long-range-robotti-field-robot/>



Automation in horticulture



[1]



[2]



[3]



[4]

Robotic harvesting

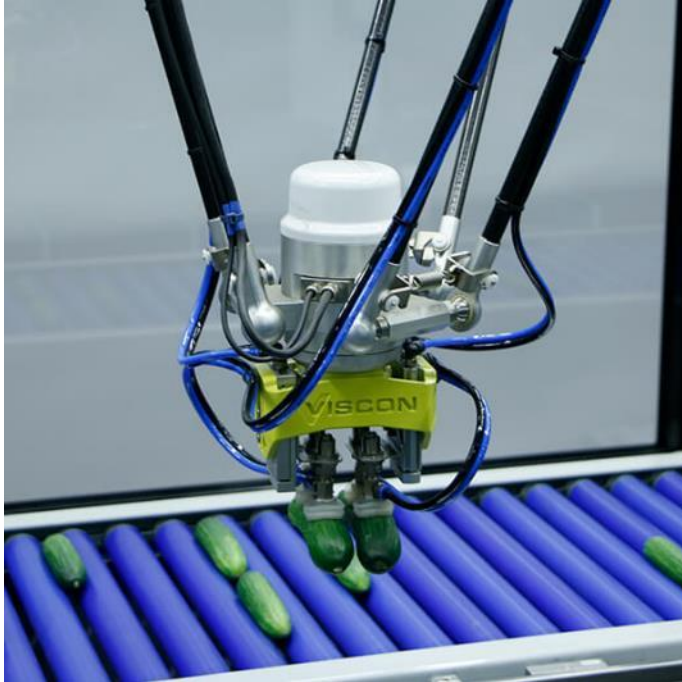
[1] <https://www.therobotreport.com/strawberry-picking-robot-maker-raises-75m/>

[2] <https://www.goodfruit.com/lots-of-bots-video/>

[3] <https://www.israel21c.org/israeli-startup-develops-first-tomato-picking-robot/>

[4] <https://www.freshplaza.com/asia/article/9381725/innovation-field-tests-for-robotic-broccoli-harvesting-performed-in-quebec/>

Automation in horticulture



[1]



[2]



[3]

Postharvest automation

[1] <https://viscongroup.eu/news/smart-vision-software-technology/>

[2] <https://www.aweta.com/en/produce/cucumber>

[3] <https://www.aweta.com/en/produce/cucumber>

Ontario field cucumbers

40,000

Tons harvested¹

\$16,000,000

Gross farm value¹



50%

Labour costs²

50%

Harvesting labour²

[3]

[1] <https://www.opvg.org/ontario-processing-vegetables/cucumbers>

[2] https://practicalfarmers.b-cdn.net/wp-content/uploads/2018/10/15.H.Enterprise_Budgets_for_Cucumbers.pdf

[3] http://www.omafra.gov.on.ca/CropOp/en/spec_veg/cucurbits/orcuc.html

Automation for field cucumbers



Labour assistance

<https://phys.org/news/2018-02-lightweight-robots-harvest-cucumbers.html>



Automation for field cucumbers



[1]



[2]

Robotic harvesting

[1] <https://www.digitaltrends.com/cool-tech/cucumber-picking-robot/>

[2] file:///C:/Users/Brian.Lynch/Downloads/Automatic_Detection_of_Field-Grown_Cucumbers_for_Robotic_Harvesting.pdf

Thank you



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