

Clean Resources

Smart Agriculture and Food

FUNDING DETAILS

An Interactive Farm Logistics Planning Software

Modern crop farmers are constantly seeking to improve efficiency and increase productivity and yield while reducing costs. Today's farm operations involve multiple complex and interdependent systems of machinery, and assessing the most effective deployment of this equipment can be a challenge. This project aims to develop an interactive web application for farm logistics that will enable farmers to plan the precise movement and management of equipment in the field. Using 3D digital models of fields and artificial intelligence for path planning helps farmers ensure their machinery is deployed in the right place and the right time, thereby reducing costs and increasing environmental sustainability.



RECIPIENT:
Verge
Technologies Inc.
PI: Dr. Godard



PARTNERS:
PIC
Supercluster



TOTAL BUDGET:
\$1,000,000



AI FUNDING:
\$500,000



PROJECT DATES:
March 2021 –
December 2022



PROJECT TRL:
Start: 3
End: 7

APPLICATION

The target customers comprise: (1) growers focused on planning and optimizing their operations across every field to increase overall efficiency and (2) landowners focused on assessing the impact of sustainable field operations to improve the financial return on their assets. The target market is 660 million acres representing cropland in Canada, United States, Brazil, Argentina and Australia where growers have adopted automation technologies for their farm operations.



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PROJECT GOALS

- To develop an interactive web application for farm logistics planning that enables growers to assess the economic impact of movement of their agriculture machinery with regards to field efficiency and sustainability.
- To validate the outcome of the project through field trials and post-operational analytics that can provide actionable insights to the customers.
- To enable growers to achieve increased operational efficiencies that have a direct economic impact through reduced equipment, time, labour and input costs.
- To demonstrate that data-driven decisions can lead to considerable environmental improvements from reduction in soil erosion, compaction, and reduction in application of chemical fertilizers and crop protection products.

BENEFITS TO ALBERTA

- The web application will increase operational efficiencies and thus reduce equipment, labour and input costs on farm.
- The savings resulting from increased operating efficiencies total \$12-\$14/acre of cultivated farmland, resulting in potential annual economic impact of \$252 million across Alberta's 21 million acres of cropland.
- Increased job opportunities and the training and long-term retention of highly qualified personnel in Alberta, such as full stack developers, data scientists and artificial intelligence experts.



2 Students Trained



2 Patents



7 Project Jobs



14 Future Jobs



2 New Products/Services



20-25 kT/yr Project GHGs Reduced



2000-2500 kT/yr Future GHGs

CURRENT STATUS

November 2021

Initial version of the interactive planning software was used for seeding, spraying and harvest operations planning by two growers in Alberta during the 2021 growing season. Machine log data from the operations were compared against the plans created to identify discrepancies and areas for improvement. Preliminary machine data shows up to 26% reduction in fuel consumption compared to 2020 growing season data.