

Ukko Agro Flea Beetle Pressure Model

About the technology: Ukko Agro has developed a software called ForeSite which uses machine learning to collect field modeling information from weather stations and inform producers on what is happening in their field. Their pre-commercial Flea Beetle Model uses weather data to understand and predict the beetle's feeding cycle to help producers and agronomists determine which fields require immediate attention. The model follows the growth stage of the canola crop from seedling to four-leaf stage, which is when the plant is most susceptible.

Innovation Farms' Objectives

- Validate the accuracy of Ukko Agro's ForeSite Flea Beetle Model.
- Test the commercial applicability to agronomists and producers.
- Test the user experience of the ForeSite application.

What this technology could unlock

When abundant, flea beetles commonly cause yield losses of about 10% even with pesticides (Manitoba Agriculture, 2023). Ukko Agro's Flea Beetle Model could help producers identify which fields to prioritize for agronomy scouts and in-crop applications to help improve overall crop yield.



Ukko Agro weather station used for predictive modelling.

Our approach

- Installed four Ukko Agro weather stations across EMILI's Innovation Farms within a three kilometer radius of target canola fields. The weather stations were connected to the ForeSite app.
- Conducted daily scouting activities in four canola fields from May to mid-June to verify or correct the app's prediction of canola growth stages from cotyledon to four-leaf stage.
- Conducted daily in-field inspections of insect activity on plant canopy and compared it to the app's prediction of flea beetle activity.

Project collaborators:

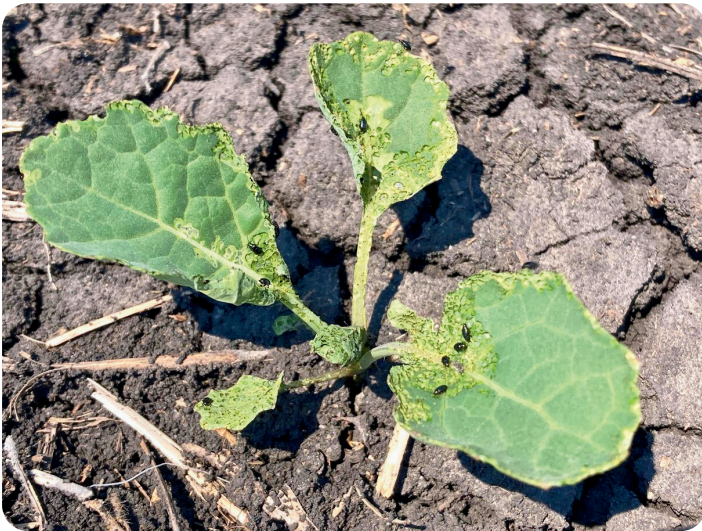


At Innovation Farms powered by AgExpert, EMILI provides innovators across industry and academia with access to leading-edge equipment, technology, and production practices to increase productivity, sustainability, and profitability across the agriculture and agri-food sector.

Last updated: October 17, 2025

What we learned

- Has the potential to reduce crop yield loss by accurately predicting canola crop's growth stages and the beetle's feeding cycle.
- Further testing of the Flea Beetle Model is required as some comparative field observations found insect activity to be lower than the model's prediction.



Flea beetles on a young canola plant at EMILI's Innovation Farms.

Innovation spotlight

Minimal data entry is required by the user, meaning producers can access powerful field-specific insights with limited additional effort.



Installing Ukko Agro's weather stations at EMILI's Innovation Farms.

Learn more about Ukko Agro

Ukko Agro specializes in weather-driven predictive crop growth-stage and pest models. Ukko operates at the intersection of plant science and data science with the goal of making farming more profitable and sustainable.



“

Ukko Agro has worked with EMILI's Innovation Farms since 2023 to develop digital ag tools that support agronomists and growers. Innovation Farms provides Ukko Agro a space to enhance products and ensure accurate and actionable models

Nikolas Marsiglio, Account Manager Ukko Agro

”