Project Summary

EMILI Crop Intelligence by South Country

Updated: October 2026

Crop Intelligence Farming Ultra Hardware

About the technology

Crop Intelligence Farming Ultra is an advanced data-driven hardware and software solution that measures in-field weather and soil conditions to model a crop's Water Driven Yield Potential (WDYP) in real-time. This commercial tool enables informed agronomic decisions for producers to optimize productivity.



Crop Intelligence Dryland Farming Ultra hardware package installed in a corn field at EMILI's Innovation Farms Grosse Isle (Photo credit: EMILI).

EMILI objectives

Throughout 2025-2026, EMILI deployed Dryland and Irrigated Farming Ultra hardware packages in wheat, canola, corn and potato fields at Innovation Farms in order to:

- Validate if the WDYP model effectively provides real-time insights into how much water is available to crops.
- Validate and increase understanding of the technology's effectiveness at estimating yield potential amongst various crops types.

What we learned

Dryland Farming Ultra Hardware

Dryland Farming Ultra Hardware packages, designed to help producers measure WDYP and environmental factors to optimize crop performance without relying on irrigation, were installed in wheat, corn, and canola fields. The WDYP of a wheat field in 2025 was estimated with relative accuracy, predicted to be 38 bu/ac, just shy of its actual 41 bu/ac yield.

Irrigated Farming Ultra Hardware

Irrigated Farming Ultra Hardware is a new avenue for Crop Intelligence, with the package designed to measure WDYP and provide additional insight on how to best utilize water from both irrigation and rainfall. This hardware was installed in two potato fields and weekly scouting reports on crop staging were collected to ground truth and validate the models used for potato production.

API Integration

Crop Intelligence integrates with John Deere Operations Centre to centralize farm management data, encompassing site-specific weather, environmental and soil moisture insights. GPS coordinates of in-field hardware can also be shown on John Deere machine displays to prevent equipment damage. As a standalone platform, Crop Intelligence can be used with any equipment brand, but continued integration with additional manufacturers could improve interoperability.



What this technology could unlock

Crop Intelligence Dryland and Irrigated Farming Ultra Hardware packages could unlock more precise, data-driven crop and water management by combining soil moisture and environmental data. This could help producers better understand field conditions, make informed irrigation and crop management decisions, optimize water use, and improve yield potential.

EMILI INNOVATION FARMS powered by AgExpert

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