



# AI DISRUPTION IN AGRICULTURE



# ABOUT FARMERS EDGE

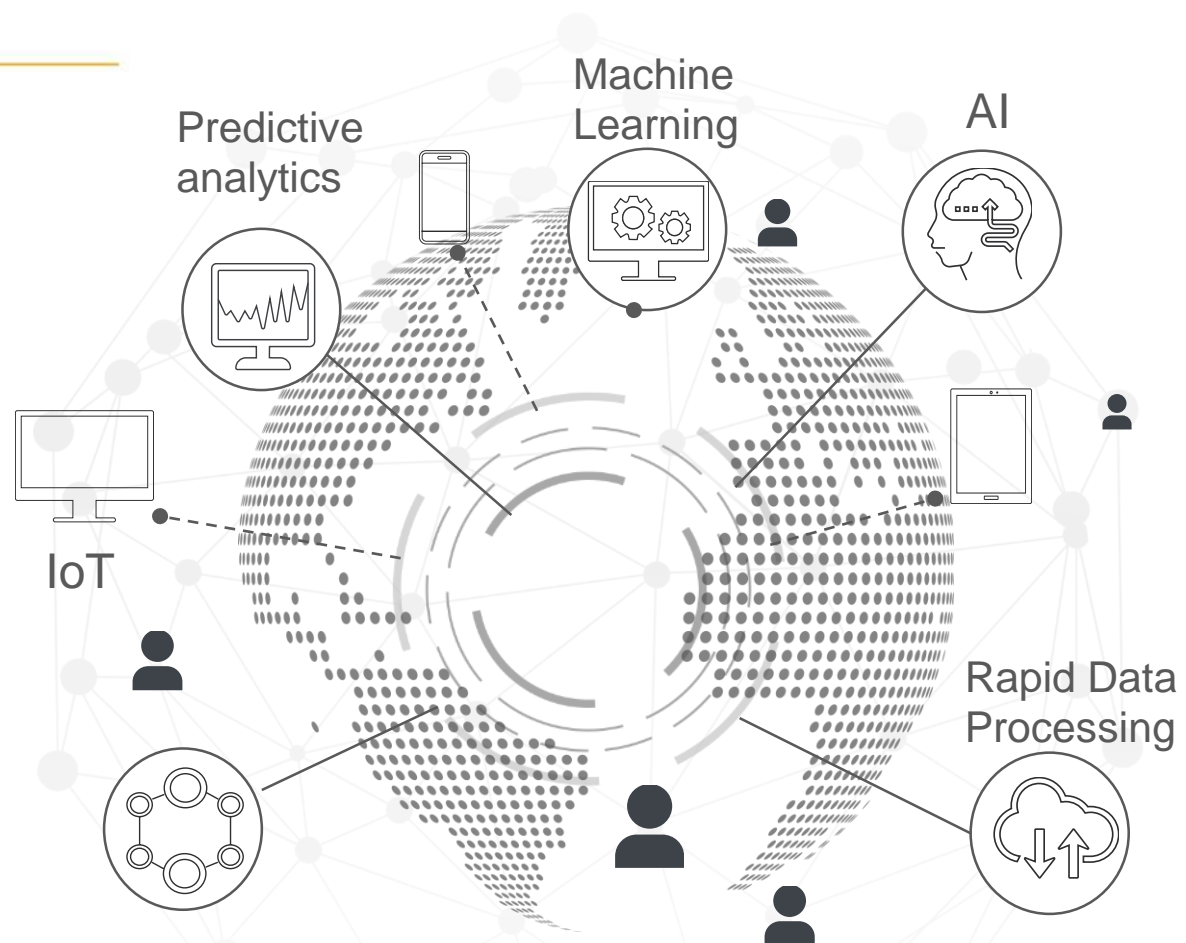


*Transformed from precision consulting  
to a global leader in decision agriculture*

2005

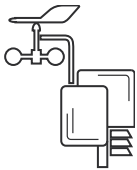


TODAY

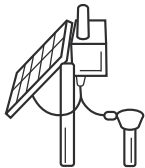


# DATA COLLECTION

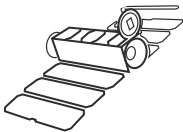
Farmers Edge precision technology specialists install and maintain on-farm hardware to collect field-centric data.



Weather Stations



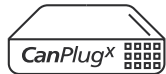
Soil Moisture Probes



Satellite Imagery



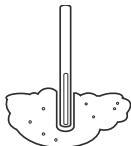
Telematics Devices  
*for All Makes and Models of Equipment*



On-Board Diagnostic Devices



Grain Cart Weighing Devices

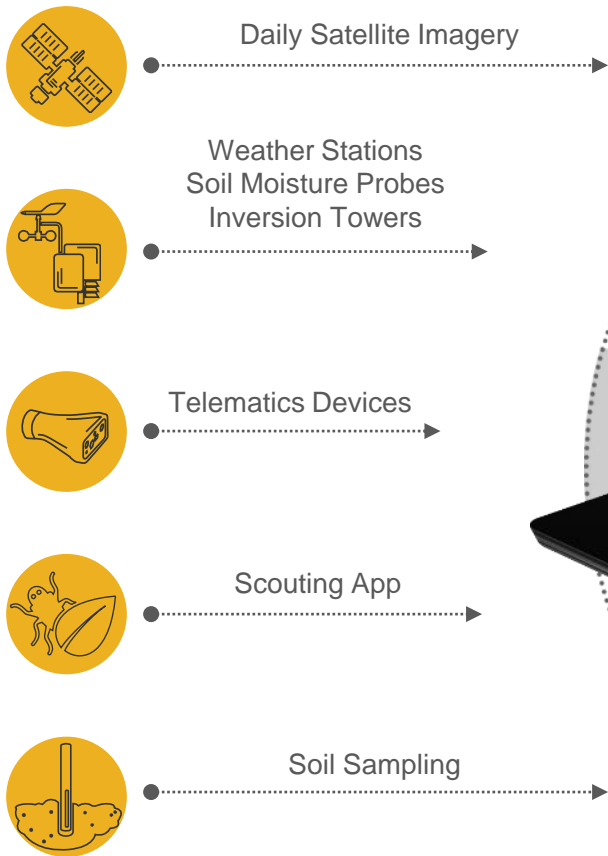


Soil Sampling

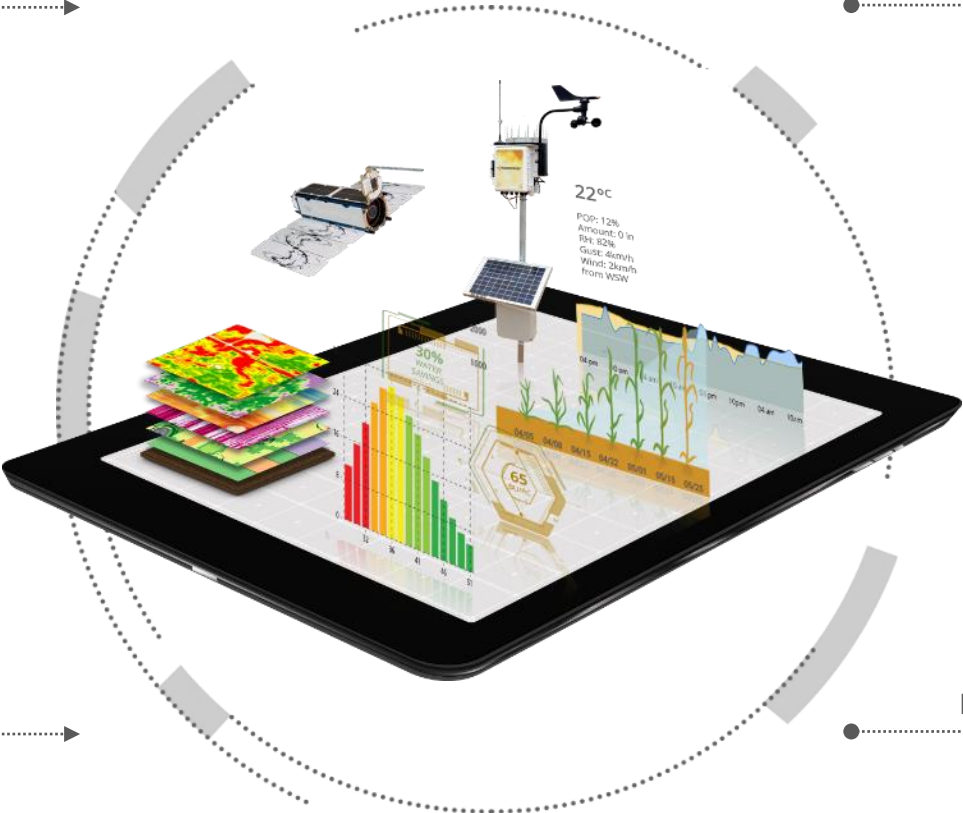


# PRECISION DIGITAL PLATFORM

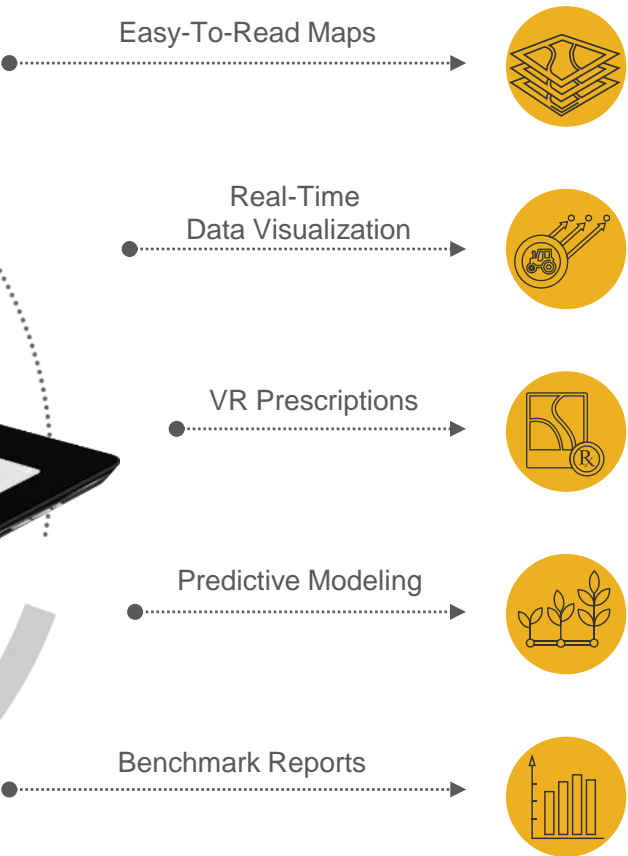
## DATA COLLECTION TOOLS



## DATA INTEGRATION PLATFORM



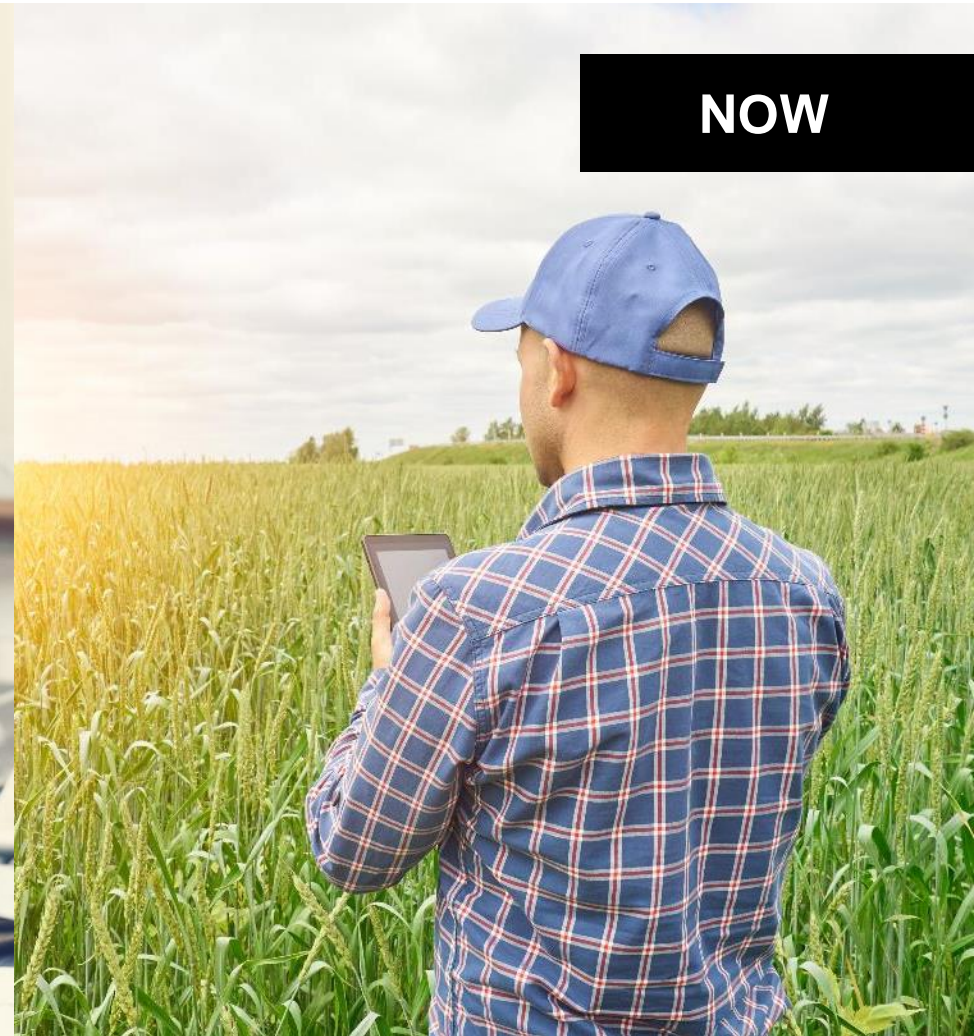
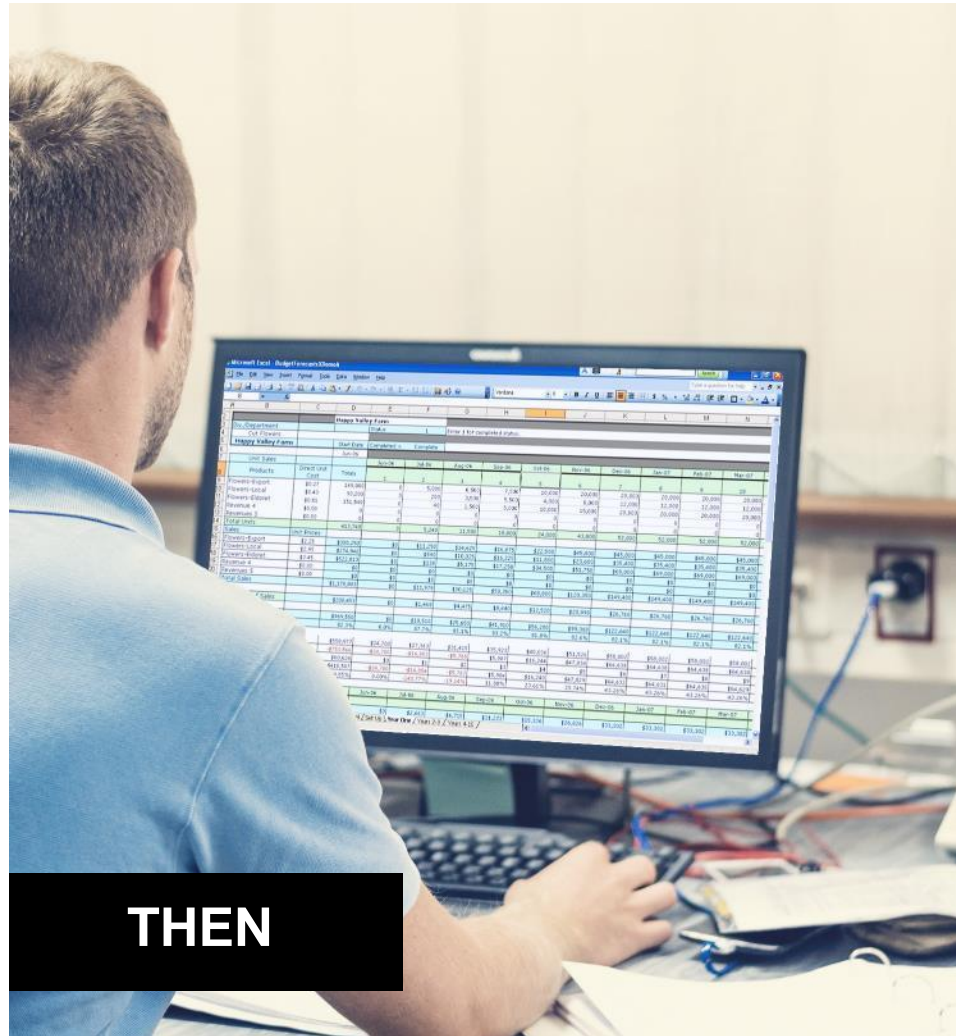
## TURNING DATA INTO ACTIONS



ONGOING SUPPORT AND TRAINING



# POWER OF PREDICTIVE ANALYTICS

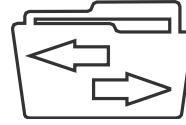


# DATA DRIVES DECISIONS

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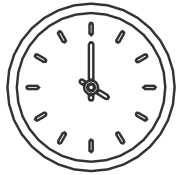
Equipment performance  
by region & field operation



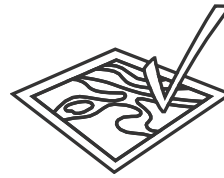
Outcomes of management  
decisions before they are  
made



Best seed varieties for  
the farm



Exact timing & type of  
disease that will attack a crop



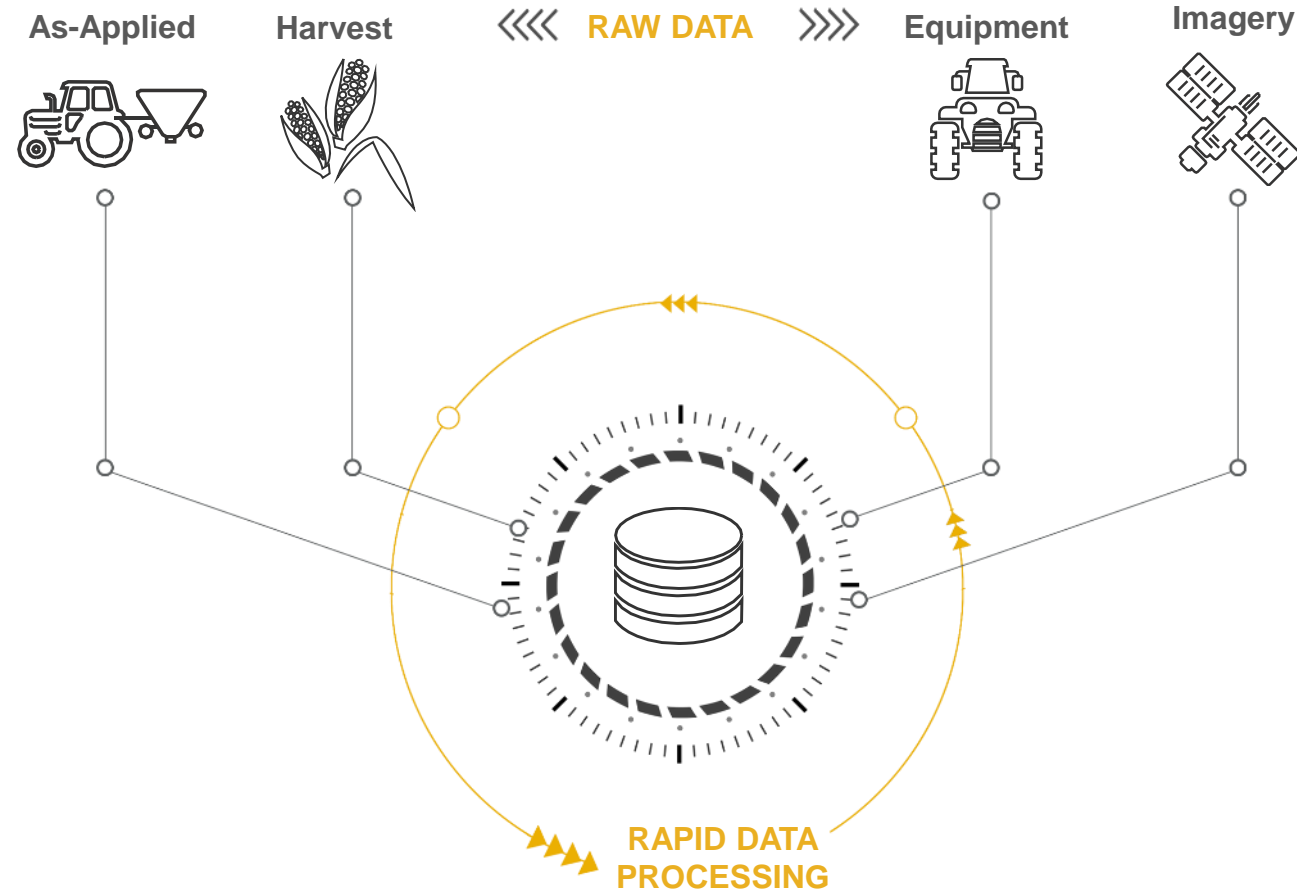
Which products perform  
best on each zone



Yield & profits before  
harvest



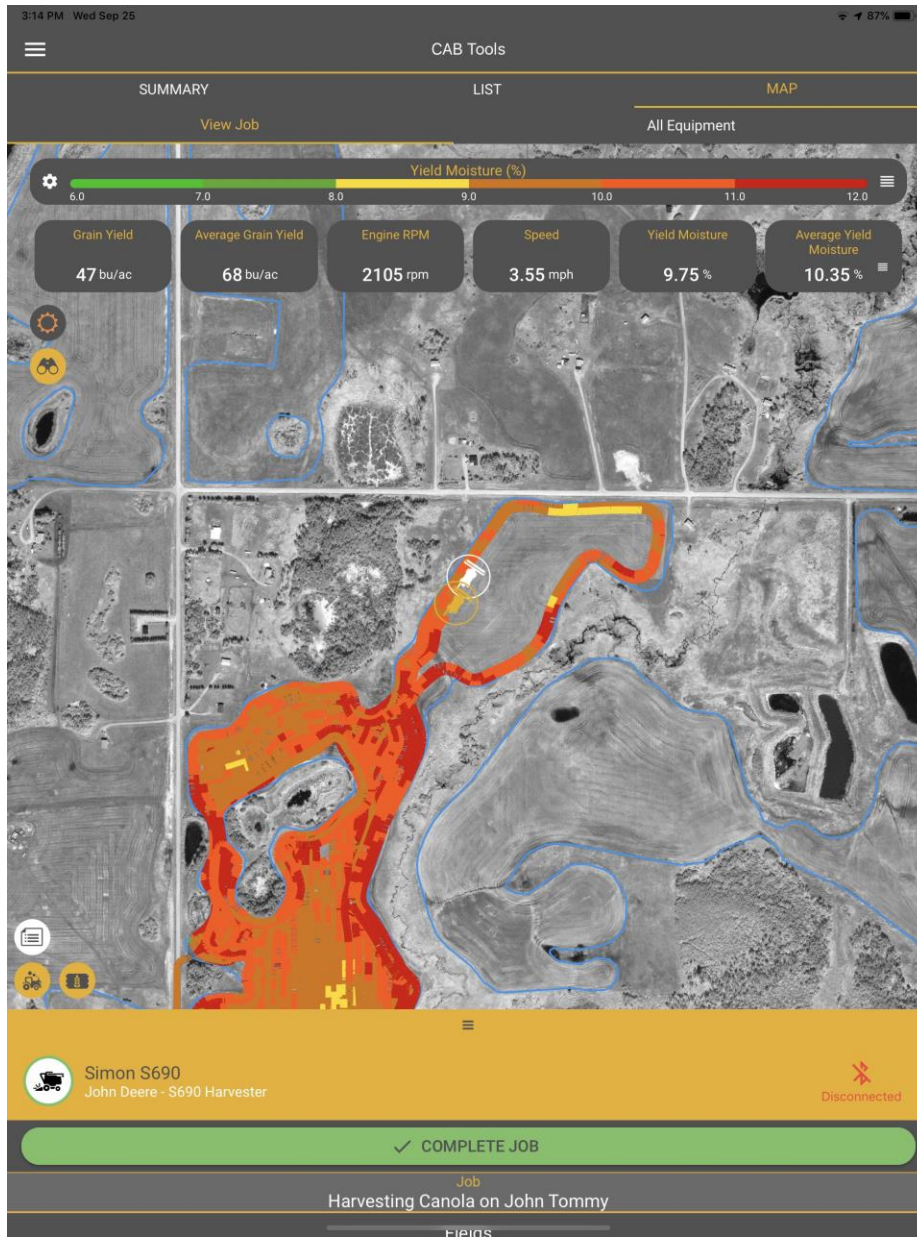
# RAPID DATA PROCESSING ENGINE



**FarmCommand™**  
**ACTIONABLE DATA**



# Live Telematics

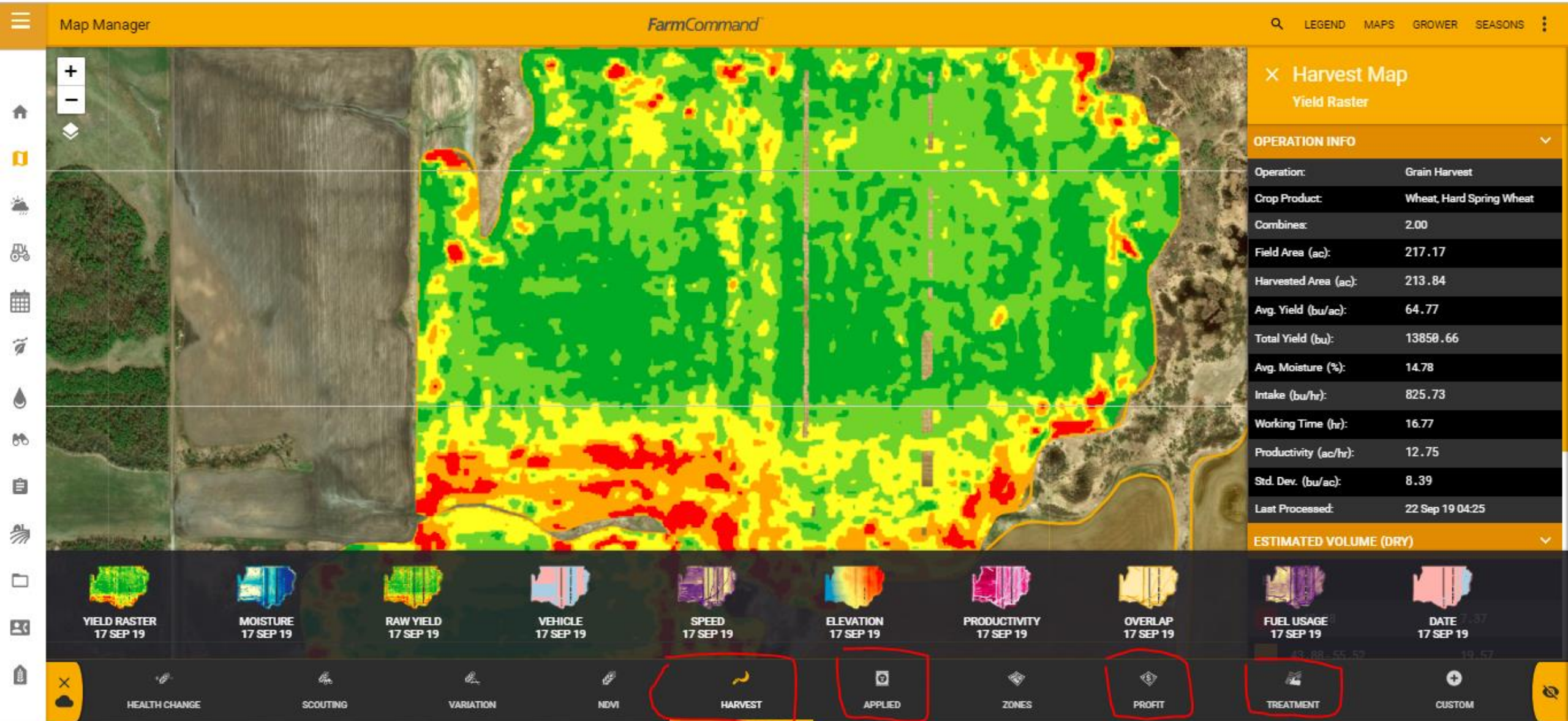


FarmCommand streams data live from multiple brands and machine types

- Yield
- Moisture
- Speed
- Sprayer volumes
- Seeder volumes

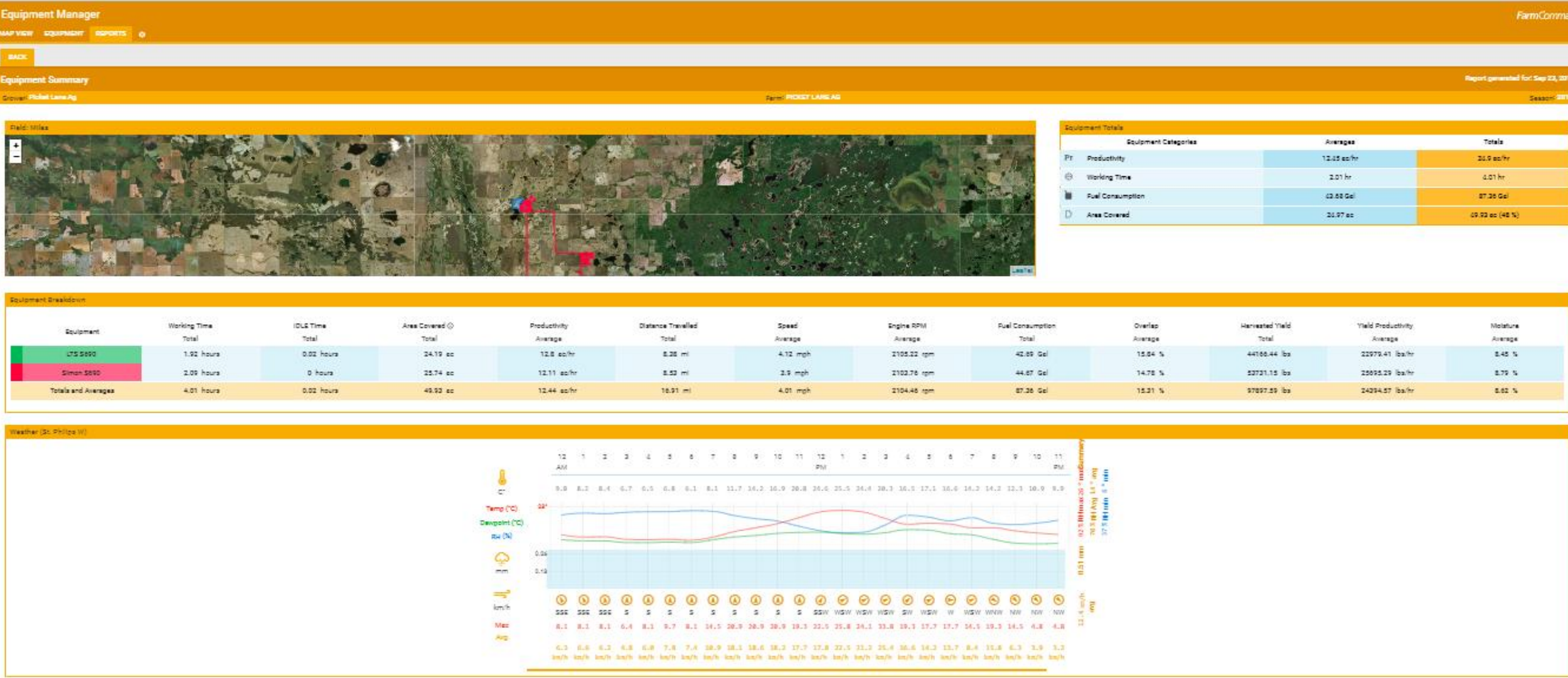


# Actionable processed information from telematics





# Actionable processed information from telematics





# Actionable processed information from telematics

Equipment Manager

FarmCommand

MAP VIEWEQUIPMENTREPORTSG

BACK

Field: Felix

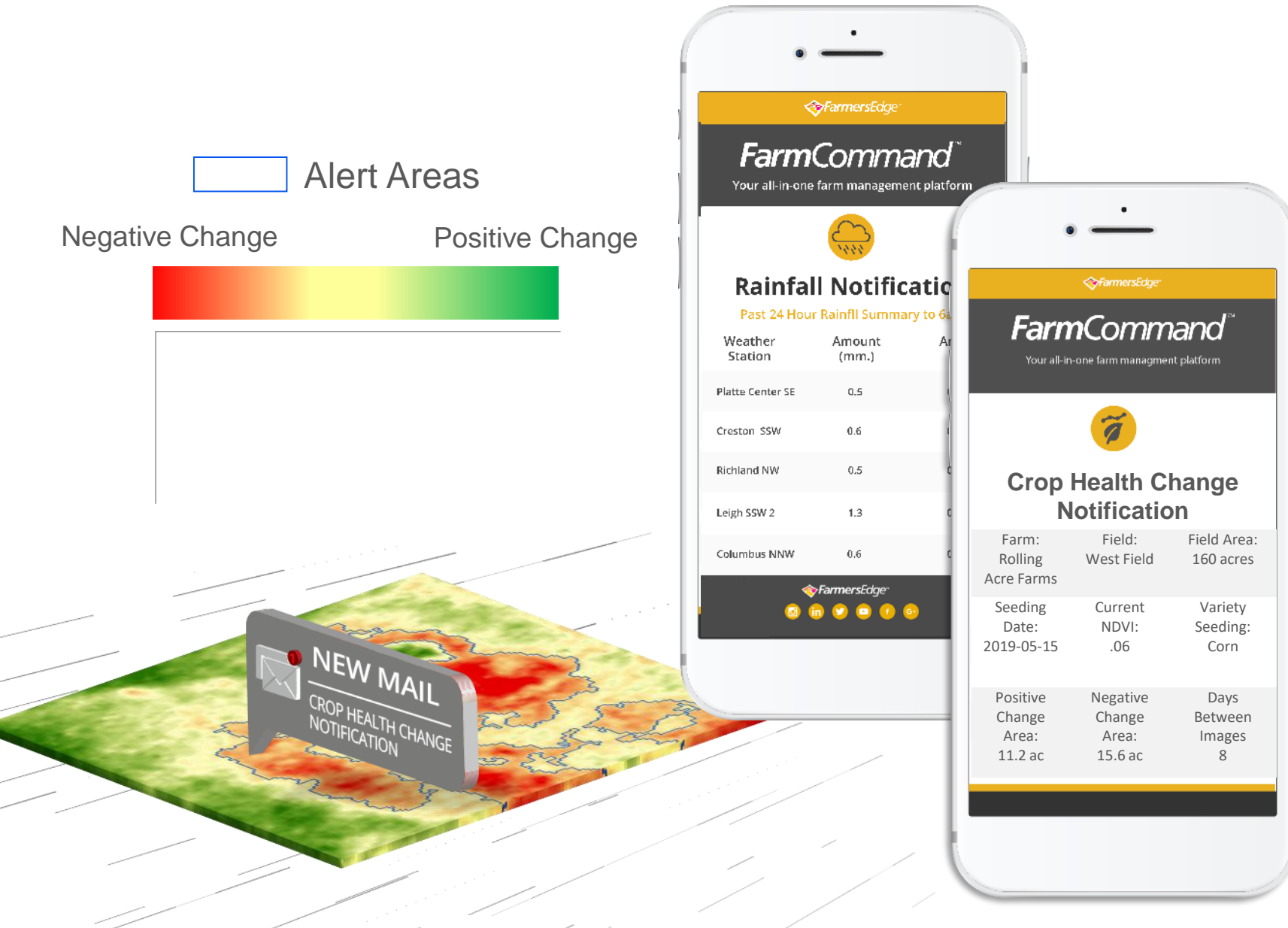
Equipment Totals

Equipment Categories	Averages	Totals
Productivity	14.48 ac/hr	28.97 ac/hr
Working Time	2.45 hr	4.89 hr
Fuel Consumption	60.55 Gal	121.1 Gal
Area Covered	45.51 ac	91.03 ac (38 %)

Equipment Breakdown

Equipment	Working Time	IDLE Time	Area Covered	Productivity	Distance Travelled	Speed	Engine RPM	Fuel Consumption	Overlap	Harvested Yield	Yield Productivity	Moisture
	Total	Total	Total	Average	Total	Average	Average	Total	Average	Total	Average	Average
LTS S690	2.41 hours	0.56 hours	50.4 ac	15.79 ac/hr	11.93 mi	4.66 mph	2120.85 rpm	62.69 Gal	8 %	132041.11 lbs	54742.26 lbs/hr	16.59 %
Simon S690	2.48 hours	0.41 hours	40.63 ac	13.18 ac/hr	10.92 mi	4.12 mph	2111.85 rpm	58.41 Gal	6.32 %	112780.01 lbs	45464.53 lbs/hr	16.6 %
Totals and Averages	4.89 hours	0.97 hours	91.03 ac	14.47 ac/hr	22.85 mi	4.39 mph	2116.29 rpm	121.1 Gal	7.16 %	244821.12 lbs	50038.39 lbs/hr	16.6 %

# PERIL NOTIFICATIONS



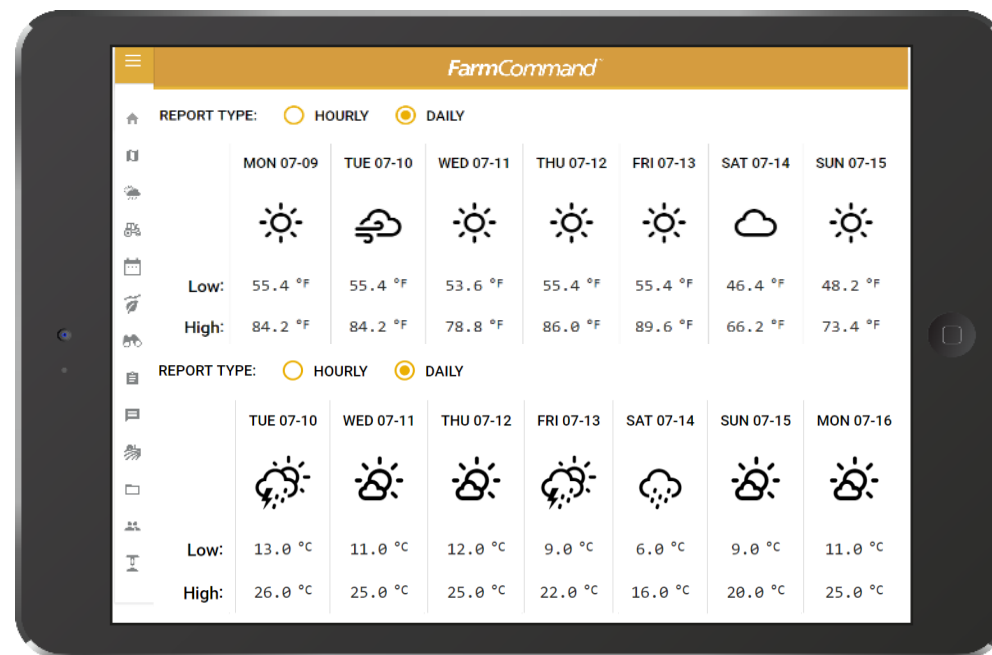
FarmCommand sends automatic notifications to alert growers of changes in the fields. Notifications include:

- Rainfall Monitoring
- Crop Health Change Detection
- Soil Moisture Reporting



## TURNING DATA INTO ACTIONS

# REAL-TIME DATA VISUALIZATION – FIELD-CENTRIC WEATHER



Powered by advanced on-farm weather stations, FarmCommand provides access to enhanced radar along with field-centric current, forecasted and historical weather conditions, including: temperature, rainfall, windspeed, humidity, Delta-T conditions and more.

Users also receive access to the entire Farmers Edge network of stations to better assess conditions surrounding their farm.



**Average ROI: \$1.25/acre**

Acres Tested: 12.8 MM

Growing Seasons: 2016-2018

# CROP MODELS



Corn



Wheat



Soybeans



Canola



Barley



Cotton



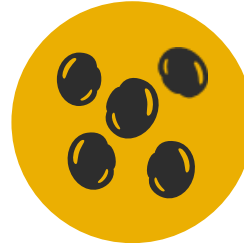
Winter Wheat



Oats



Peas



Lentils



Sugar Beets



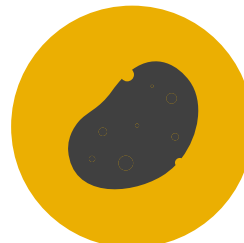
Desi Chickpeas



Sunflowers



Flax



Potato

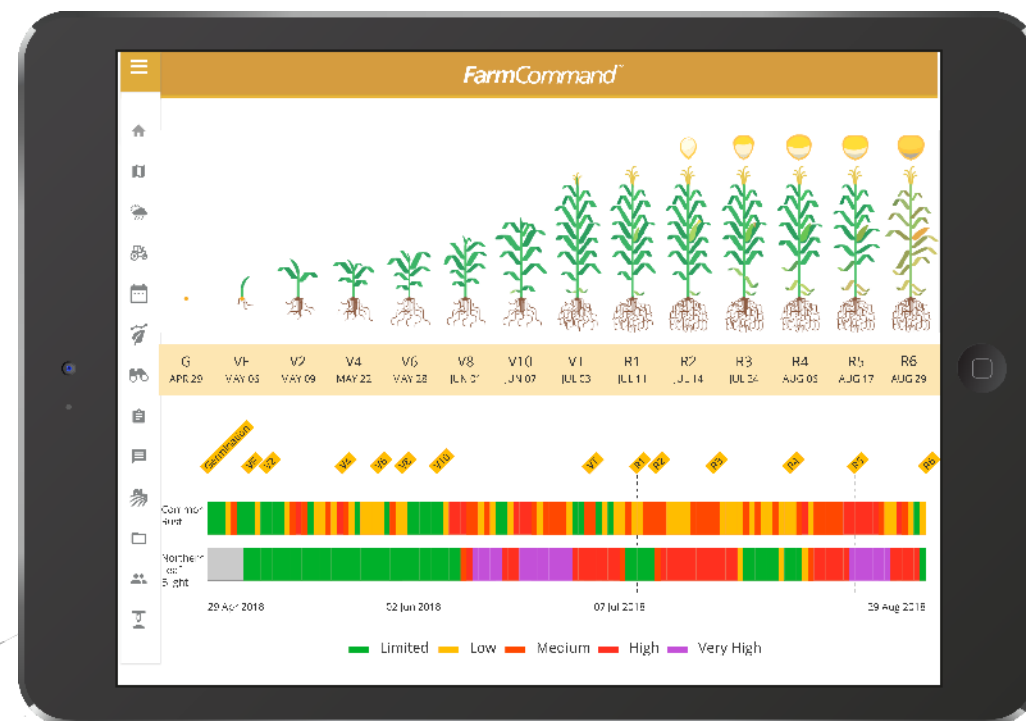


Sorghum



# TURNING DATA INTO ACTIONS

## PREDICTIVE MODELS



Driven by field-centric data, sound agronomy, machine learning and AI-Analytics, FarmCommand provides the following crop models:

### Crop Growth Staging

- Eliminates need to drive to each field to check stages
- Supports timing and requirements of each field operations

### Disease Modeling

- Enhances scouting accuracy
- Supports spraying decisions

### Insect Modeling









- Allows to identify thresholds
- Supports spraying decisions

**Average ROI: \$7.75/acre**

**Acres Tested: 11.9 MM**

**Growing Seasons: 2017-2018**

# CROP & PEST NOTIFICATIONS

Crop Health Rank ↑	NDVI ↑	Seeding Date ↑	Current Stage ↑	Next Stage ↑	Days to V6 ↑	Days to VT ↑	Days to R6 ↑	Northern Leaf Blight Risk ↑	Common Rust Risk ↑
		27 Apr 18						N/A	N/A
	0.06	28 Apr 18	R4	R5	-60	-30	16	high	low
	-0.02	01 May 18	R4	R5	-59	-32	19	high	low
	-0.005	30 Apr 18	R4	R5	-60	-33	18	high	low
	0.14	30 Apr 18	R4	R5	-60	-34	18	high	low
	0.1	26 Apr 18	R3	R4	-61	-27	29	high	low
	0.04	26 Apr 18	R4	R5	-60	-29	16	high	low
	0.04	23 Apr 18	R4	R5	-62	-40	13	high	low

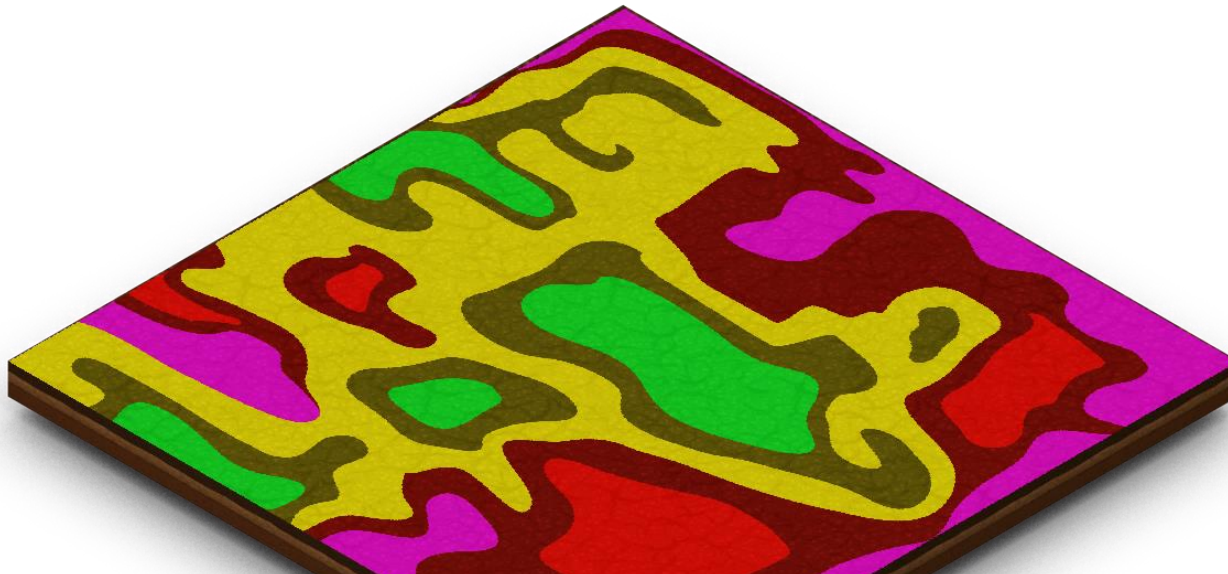


# VIRTUAL SOIL SAMPLING

AST	
Zone	N03 – N Total
2	14
3	13
4	27
5	21
6	15

VST	
Zone	N03 – N Total
2	18
3	16
4	27
5	21
6	19

Virtual Soil Sampling is a science-based algorithm that utilizes known soil test values (AST) to train the model along with proven removal, gains, and losses from the soil profile to deliver a soil test result.





# N-MANAGER

ZONE	N03 - N - TOTAL
2	17
3	13
4	27
5	21

## Zone 1

NITROGEN  
RECOMMENDATION:  
**62 lb/ac**

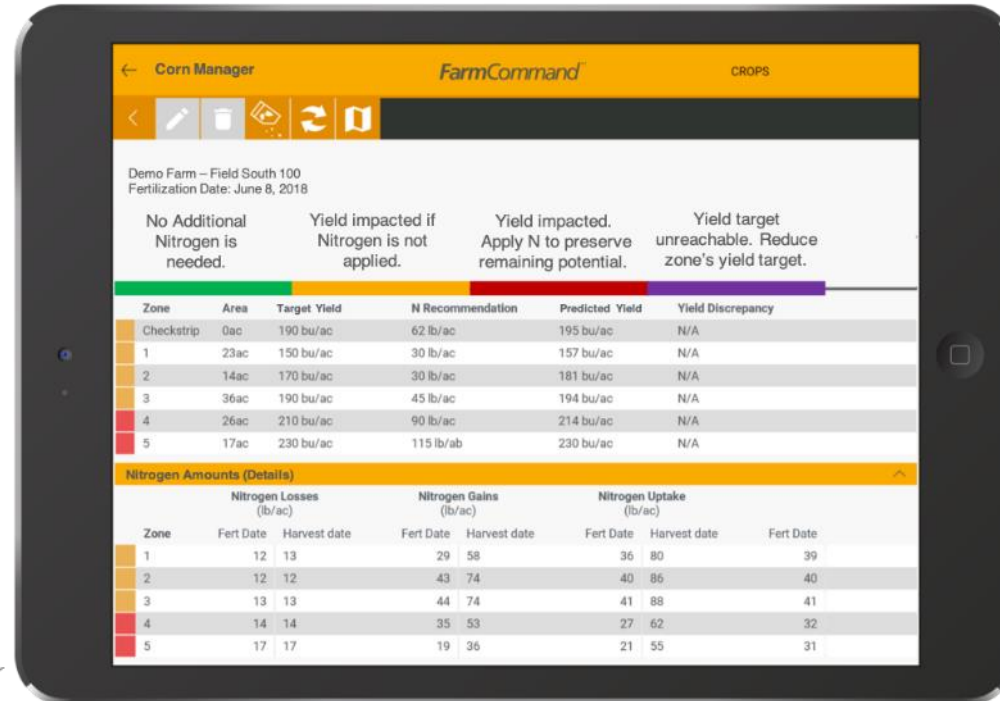
- Losses: **18 lb/ac**
- Gains: **29 lb/ac**
- Target Yield: **200 bu/ac**
- Predicted Yield: **205 bu/ac**



# NITROGEN MANAGEMENT

Zone 2  
Good

Zone 1  
Warning



Zone	Area	Target Yield	N Recommendation	Predicted Yield	Yield Discrepancy
Checkstrip	0ac	190 bu/ac	62 lb/ac	195 bu/ac	N/A
1	23ac	150 bu/ac	30 lb/ac	157 bu/ac	N/A
2	14ac	170 bu/ac	30 lb/ac	181 bu/ac	N/A
3	36ac	190 bu/ac	45 lb/ac	194 bu/ac	N/A
4	26ac	210 bu/ac	90 lb/ac	214 bu/ac	N/A
5	17ac	230 bu/ac	115 lb/ac	230 bu/ac	N/A

Zone	Nitrogen Losses (lb/ac)		Nitrogen Gains (lb/ac)		Nitrogen Uptake (lb/ac)		Fert Date
	Fert Date	Harvest date	Fert Date	Harvest date	Fert Date	Harvest date	
1	12	13	29	58	36	80	39
2	12	12	43	74	40	86	40
3	13	13	44	74	41	88	41
4	14	14	35	53	27	62	32
5	17	17	19	36	21	55	31

Driven by more field-centric variables than any other model available, N-Manager provides a zone-specific nitrogen model to help plan nitrogen applications, minimize fertilizer loss and take an informed position in the market place.

**Average ROI: \$36.30/acre**

Based on:

Average Corn Yield - 200 bu/acre

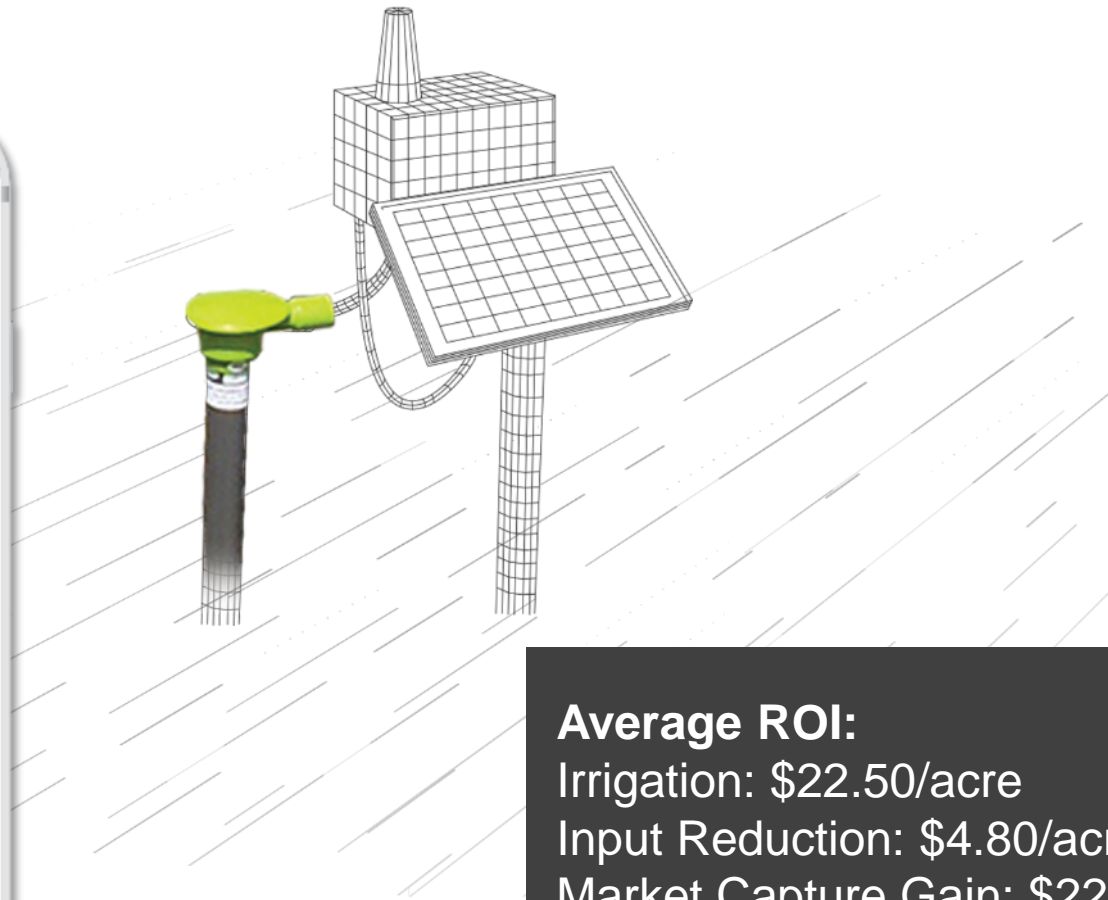
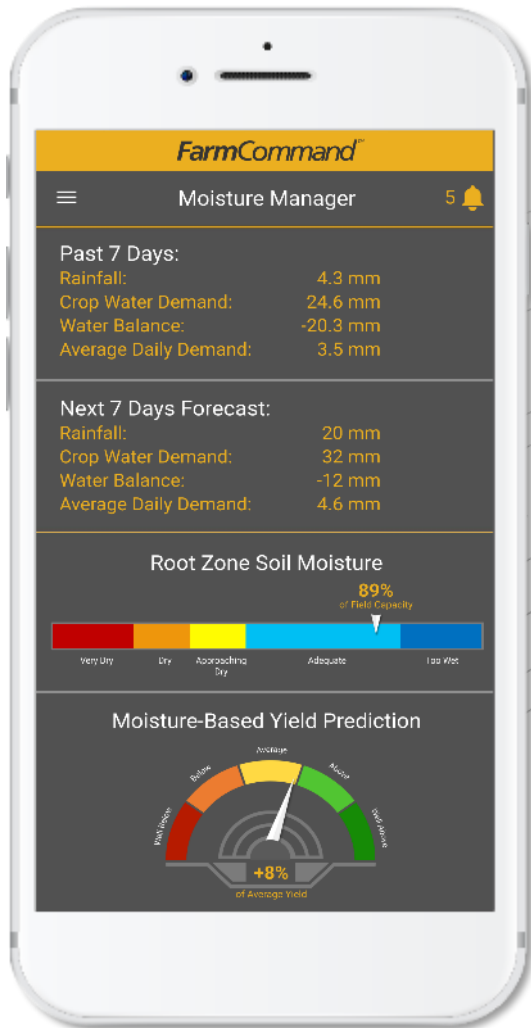
Nitrogen Savings - 10%

Yield Increase - 5%

Acres Tested: 663 K

Growing Seasons: 2016-2018

# MOISTURE MANAGER



Moisture Manager monitors soil moisture to support proper irrigation use and fertility application and timing.

The tool provides moisture-based yield prediction to help growers prepare for harvest and marketing decisions.

**Average ROI:**  
Irrigation: \$22.50/acre  
Input Reduction: \$4.80/acre  
Market Capture Gain: \$22/acre  
Acres Tested: 171, 878  
Growing Season: 2018



# SUPPORT FROM POST-SECONDARY PROGRAMS

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Train highly technical software developers



Promote co-op placements



Re-enforce people skills



Cross-training opportunities



Build and maintain a portfolio



The image shows two men in a field of golden wheat. They are both wearing red and black plaid shirts. The man on the left is also wearing blue jeans, while the man on the right is wearing dark jeans and a brown baseball cap. They are shaking hands. In the background, there is a large white and blue grain elevator. The sky is blue with some white clouds. There are white geometric lines and a dotted line forming a circle around the men. A dark grey banner is at the bottom left.

**QUESTIONS?**  
Info@FarmersEdge.ca