



FOOD AND AGRICULTURE · PLANNING & FORECASTING

Soil Moisture Prediction

A major GCC agriculture company used Quantum One as a virtual soil moisture sensor, with an EBITDA uplift of 1.2–3.5%.

IMPACT

+1.2–3.5%

EBITDA uplift from higher yield and water savings

~1%

Prediction error on soil moisture

50 × 50 m

Grid resolution of irrigation recommendations

CLIENT PROFILE

CLIENT

A major GCC agriculture company with worldwide farming operations

REGION

GCC, global operations

SCENARIO

Planning & forecasting

INDUSTRY

Food and Agriculture

COMPANY TYPE

Agribusiness

CHALLENGES

- A leading agribusiness operating in water-stressed regions set out to increase yields while reducing irrigation costs.
- It needed better precision in water management, and stronger sustainability and resource efficiency.

APPROACH

An AI-powered virtual soil moisture sensor predicts soil moisture to roughly 1% error and issues field-level irrigation recommendations.

The system integrates weather, soil, crop and irrigation data into a three-step prediction model and delivers recommendations through a web application for field staff.

BENEFITS

- High-precision soil moisture prediction from weather stations, sensors and crop data
- Automated irrigation recommendations per 50 × 50 m grid
- Integration with existing irrigation infrastructure, including pivot systems
- Real-time interface for farm operators with actionable recommendations

MVP FUNCTIONALITY

- Shows soil moisture status by pivot, highlighting underirrigated, overirrigated and optimal zones with supporting irrigation and moisture trends.
- Groups fields by irrigation status and provides recommendations based on crop type, current moisture and target thresholds.
- Breaks recommendations down by pivot sector, showing required water volume, pressure and speed settings for precise irrigation control.

TIME TO PRODUCTION

Stage	Quantum One	Typical process	
Problem definition	1 week	2–3 weeks	
Proof of concept	2–3 weeks	4–6 weeks	
MVP	4–6 weeks	8–12 weeks	
Scale-up	1–2 months	3–4 months	
Maintenance	Ongoing	—	

TAKE THE NEXT STEP

Speak with our experts to discuss tailored AI solutions for your industry

quantumone.ae