How Smart Agriculture Transforms Farm Management: Veea Drives Innovation at Cyr Farms

The demand for food production continues to rise amidst challenges such as limited resources, climate change, and labor shortages. Smart farming is essential to modern agriculture as traditional methods often lack the precision needed to maximize yields sustainably.

Without smart farming, the result is wasted water, energy, and materials.

By adopting smart agriculture technologies — such as IoT-connected sensors, real-time data monitoring, and automated systems — farmer owners gain detailed insights into crop health, soil conditions, and weather patterns.

Challenges of Smart Agriculture Implementation

Smart farming brings greater resilience to agricultural systems and paves the way for a more efficient, sustainable approach to food production that benefits the environment while focusing on farm profitability.

Current challenges to implementation include:

- Limited access to advanced technology in remote or rural areas
- Increasing demand for sustainable and eco-friendly farming practices
- Soil degradation and water scarcity issues
- Need for real-time data and analytics in farming decisions
- Variability in climate conditions affecting crop yields
- High operational costs and resource inefficiency
- Challenges in managing large-scale farms effectively
- Dependency on traditional farming methods limiting productivity
- Balancing profitability with environmental responsibility
- Adapting to rapidly changing market demands and consumer preferences

Veea's focus is on harnessing technology to overcome these hurdles, ensuring that farmers are equipped to meet the demands of a rapidly growing world.

Partners

- Mainstream Fiber
- Microclimates
- AmeriCrew

Project Overview

- **Customer:**
  Cyr Farms, Indiana
- **Solution:**
  Veea Wi-Fi Connectivity & LoRaWAN
- **Outcomes:**
  - 20%-plus improvement in crop yields[1]
  - 30% reduction in energy consumption[2]
  - 40% reduction in water usage, with mitigated flooding risk[3]

Intelligently Connected™

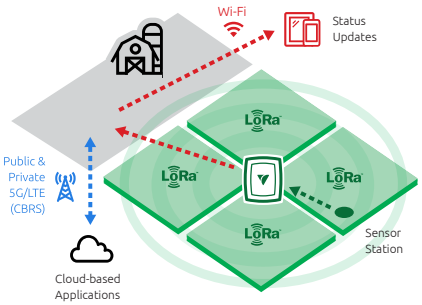
Cyr Farms' Smart Approach: The What & How

Veea is the first-to-market pioneer in hyperconverged multiaccess platform products for edge-cloud computing and communications. When deploying its Climate Smart Agriculture solutions at Cyr Farms in Benton County, Indiana, Veea partnered with Mainstream Fiber Networks, Microclimates, and AmeriCrew.

The Old Way	The New Way	The Benefits
Static data collection and reactive crop management	Edge-based real-time data collection and processing	Providing predictive analytics and prescriptive intelligence
Micromanagement of different applications & platforms	Single pane of glass across disparate end-points and platforms.	Simplified deployments and management
Siloed focus that does not address digital inclusion	Ease of Access Connectivity First approach which maximizes adoption and utilization	Community benefits through broadband equity and inclusion (tele-health, remote learning, etc.)
Static and centralized data analytics	Edge-based actionable data collection	Real-time decision making and data processing
Reliance on passive and historical indicators to manage farms	Bringing Industry 4.0 to the farm edge	Using technology to increase yields and productivity
The Past	Today	Future

The use cases implemented are:

- High-speed Wi-Fi network and long-range wide-area network (LoRaWAN) across the outdoor workspace and farming fields.
- Grain elevator and bin monitor and control to monitor energy consumption, CO2, temperature and humidity, and fill and volume level of each of four bins.
- Soil, weather and land monitoring including soil moisture, temperature and pH, and weather station data.



Mainstream Fiber provides the high-speed, reliable broadband network necessary to implement and access Veea's infrastructure. Their connectivity solution ensures that Cyr Farms has the capacity to run real-time monitoring and control systems.

The dashboard solution from Microclimates is designed to provide a universal control system that automates the different climate control, soil information and irrigation systems, thus reducing costs, maximizing efficiency and increasing crop value — all of which are essential for staying competitive.

The Veea Edge platform seamlessly supports the Microclimates environmental automation solution. Leveraging the enterprise-level computing and connectivity capabilities of VeeaHubs, this combination provides a comprehensive and reliable solution for indoor farming automation.

[1] Karanisa, T., Achour, Y., Ouammi, A. et al. Smart greenhouses as the path towards precision agriculture in the food-energy and water nexus: case study of Qatar. Environ Syst Decis 42, 521–546 (2022).
[2] Vijayakumar, S., Chatterjee, D., Subramanian, E., Ramesh, K., Saravanane, P. (2023). Efficient Management of Energy in Agriculture. In: Rakshit, A., Biswas, A., Sarkar, D., Meena, V.S., Datta, R. (eds) Handbook of Energy Management in Agriculture. Springer, Singapore
[3] Lakhiar IA, Yan H, Zhang C, Wang G, He B, Hao B, Han Y, Wang B, Bao R, Syed TN, et al. A Review of Precision Irrigation Water-Saving Technology under Changing Climate for Enhancing Water Use Efficiency, Crop Yield, and Environmental Footprints. Agriculture. 2024; 14(7):1141.

Learn More About Precision Agriculture Solutions from Veea

Find out how your organization can benefit by contacting us at sales@veea.com or by visiting **veea.com/resources**

Veea, Inc. 164 E 83rd Street | New York, NY, 10028
sales@veea.com • veea.com