# Pioneering the Future of Agriculture: How the Meadow IoT Platform Enables Hardware Solutions for Sustainable Organic Farming


## Summary

Jeff Julian, owner of Julian Farms, harnessed the Meadow IoT platform to create solutions that doubled egg production and significantly reduced livestock feed costs. This vastly increased farm productivity and profitability, highlighting the versatility of Meadow to solve real-world challenges for businesses of all sizes.


## Introduction

The growing interest among Americans to understand the origins of their food and explore local agriculture has motivated individuals like Jeff Julian to pursue a small-scale organic farming venture. Jeff has been a .NET developer since 2001, and a Microsoft MVP for 10 years. A full-time software consultant since 2004, he also co-authored Wrox *Professional SharePoint 2007 Development*. After working for years as a consultant, Jeff decided to try something new and bought a 35-acre farm in the Kansas City metro area, one of the last farm plots in their city.

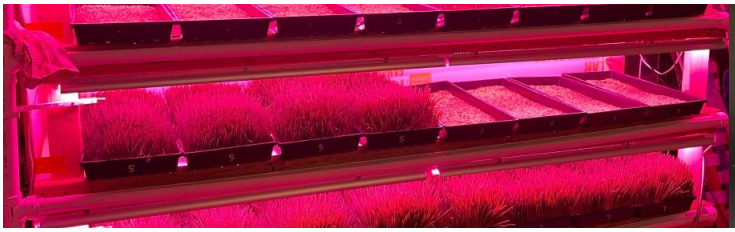
## Challenges in Traditional Farming

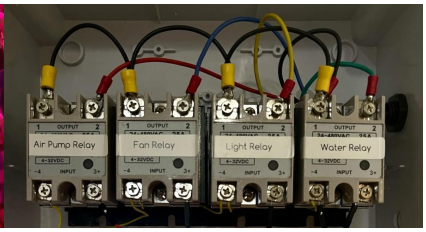
When Jeff became a farmer, he witnessed first-hand the numerous challenges faced by them; ranging from power outages, unpredictable weather conditions, and the threats posed by

parasites and predators. Additionally, the high costs associated with most agricultural technology make it inaccessible for many small-scale operators, deterring them from adopting modern solutions that could enhance their operations, increase their margins and make small-scale farms financially viable. Jeff's vision is to use the Meadow IoT platform to create open source solutions that anyone in the farming community can use.

### Harnessing the .NET-powered Meadow IoT Platform

Most agtech solutions in the market today are expensive to implement and operate. As an alternative, Jeff sought out the Meadow IoT platform because it's a full-stack IoT platform that enables developers to utilize .NET to build embedded solutions in a fraction of the time and cost of traditional tools. The unique architecture of the platforms provided the flexibility Jeff required to build a suite of low-cost tools designed specifically for farm management. His approach emphasizes practicality, which empowers farmers like himself to overcome the limitations of traditional methods.






### Solving Real-World Problems for Agriculture

One project that Jeff used the Meadow IoT platform for was to develop what he called Project Abraham. A fodder system for livestock feed designed with an aim to reduce costs by growing low-cost barley seeds into fodder for farm livestock. Not only does this approach save farmers money because they will have a decrease in their cost for hay and grains, but it also helps provide feed during dry seasons when water is scarce. The process involves soaking barley seeds, placing them on trays with artificial lights, and watering them for several days until they grow into a substantial amount of feed. The lighting system that powers the process was developed on the Meadow IoT platform and Jeff was able to get it live in a matter of days instead of the month-long process it would have been with traditional Agtech solutions.

Another project that Jeff has used the Meadow IoT platform to develop he calls Project Isaiah, a system that automatically controls switches for lighting like heat lamps that keep the livestock warm or warming pads to prevent eggs from cracking during the cold Kansas winters. Project Isaiah also is used to manage lights in a chicken coup. By providing more light in the winter the chickens remain active and produce eggs all year long, doubling egg production.

## Conclusion

Jeff Julian's innovative solutions showcase the power of the technology by allowing a single developer to build practical, automated tools that emphasize affordability and usability. The open-source approach allows other farmers to build on top of Jeff's work and improve their farm management practices.

The Meadow IoT platform holds significant promise for helping to create a more sustainable, efficient, and connected farming community, paving the way for a future where local, organic produce is more accessible.

**"Nearly all of the technology available in the agriculture sector is designed for a large-scale agribusiness and is much too expensive for a small-scale farm to own and operate. But with the aid of the Meadow IoT platform, I can create low-cost technology that solves real problems that family farmers like me face. The Meadow team is exceptional; they offer great support and are always working on product enhancements. Most other IoT solutions were too proprietary, designed for hobbyists or STEM education, or were too expensive for small farms and homesteads. The Meadow IoT platform is an incredible innovation for the agricultural industry, with it I can bring the power of enterprise IoT to small-scale farming, and I take great pride in being a part of it."**

**— Jeff Julian, Owner, Julian Farms**

## About Wilderness Labs

Wilderness Labs is the creator of the Meadow IoT platform. Our mission is to make building and maintaining hardware as fast and easy as web or mobile apps. To learn more about the Meadow IoT Platform and Wilderness Labs, visit our website at www.wildernesslabs.co.