



*Professional Services for Farmland Owners and Investors*

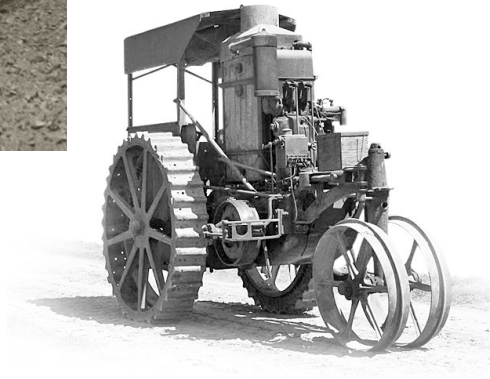
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# Technology and AI in Agriculture

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Secure Your Farm's Future | Summer 2026





# Agenda

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- Benefits
- 7 Key Tech/AI Applications
- Implementation Challenges
- Key Takeaways



# What is AI in Agriculture?

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- Machine Learning
- Computer Vision
- Robotics
- IoT+ Analytics



# Why Agriculture Needs AI

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- Population Growth
- Climate Variability
- Resource Constraints
- Labor Shortages



# Overall Benefits of AI

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- Higher Yields
- Lower Costs
- Improved Sustainability
- Better Decisions
- Labor Shortages



# Application 1:

## Automated Weed Control

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AI distinguishes crops from weeds for precision treatment.

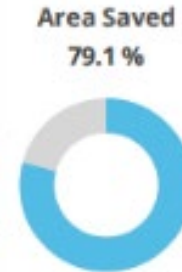
### Case Example - Precision Spraying:

- Targets only weeds
- Reduced Herbicide Usage
- Lower Operating Costs



## Work Totals

| Area Type    | Area     | % of Area | Applied Rate | Applied Total | Target Rate | Target Total |
|--------------|----------|-----------|--------------|---------------|-------------|--------------|
| Area Worked  | 225 ac   | 100 %     | 4.31 gal/ac  | 969.1 gal     | 20 gal/ac   | 4,500 gal    |
| Area Applied | 47 ac    | 20.9 %    | 20.64 gal/ac | 969.1 gal     | 0 gal/ac    | 0 gal        |
| Area Saved*  | 178.1 ac | 79.1 %    | ---          | ---           | 20 gal/ac   | 3,561 gal    |



\*This is the area the machine worked but did not spray. The "Target Rate" and "Target Total" represent the product saved by using See & Spray technology.

## Map: Applied Rate



**79.1% Reduction  
in Post  
Application**



# John Deere See & Spray

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Source: EIA

[www.Hertz.ag](http://www.Hertz.ag)

**Hertz**  
Farm Management, Inc.

# Application 2:

## Crop Disease Detection

Cameras identify diseases early using images and sensors.

### Benefits:

- Earlier Intervention
- Reduced Crop Loss
- Lower Pesticide Usage



# The Process



**1**

**ACQUISITION**

We cover millions of acres of leaf-level data with submillimeter resolution and at optimal timing



**2**

**ANALYTICS**

AI and Machine Learning deliver actionable crop insights at scale



**3**

**ACTION**

Engage with growers and drive input decisions both in-season and post-season planning



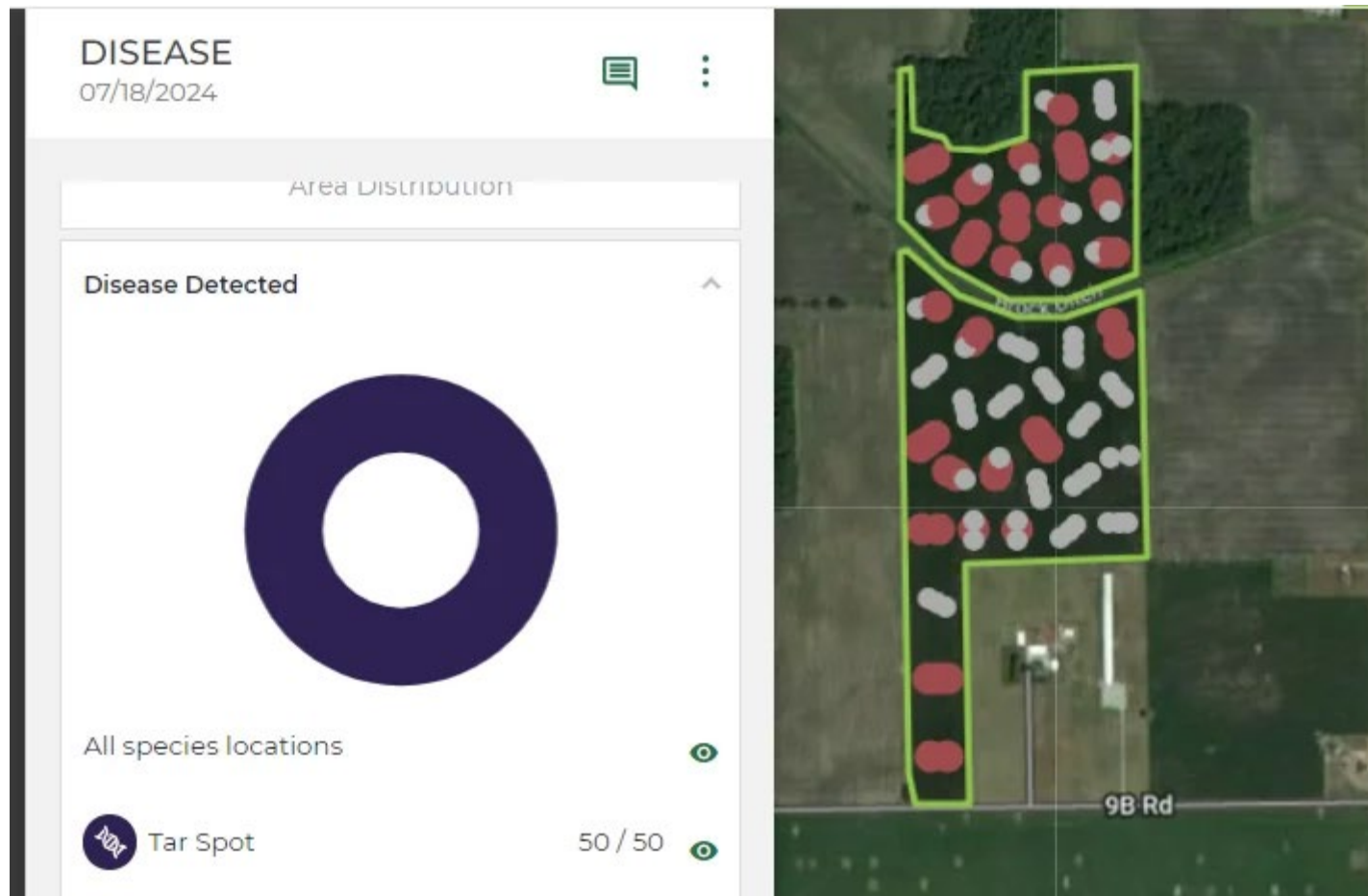
**4**

**AG ASSISTANT™**

Industry first Ag LLM, multimodal data sources, generates comprehensive agronomic recommendations

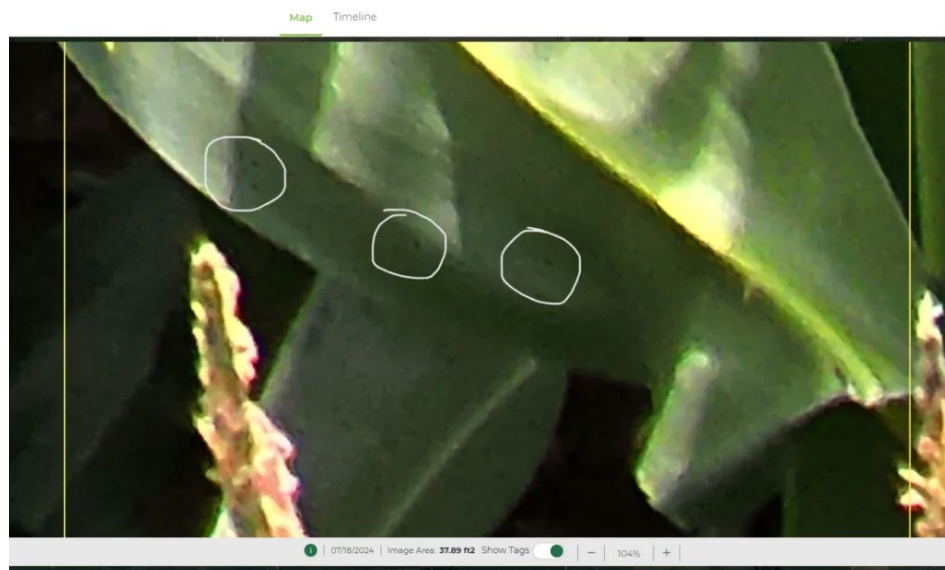


# The Problem



# Recommendation

## Drone Photo



## Crop Advisor



# Application 3:

## Nutrient-Use Efficiency Management & Robotics

- Variable Rate Application
- AI in Agronomy
- Real-Time Sensors
- Autonomous Field Scouting/Application



Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User ... Powered by Esri



Kane County, IL/EagleView, Maxar | Esri Community Maps Contributors, County of Kane, © OpenStreetMap, Micro... Powered by Esri

Source: Tanner Clementz



Source: Liang Dong, Iowa State University



# Looking Ahead



Image Source: [upsiderobotics.com](https://www.upsiderobotics.com), [deere.com](https://www.deere.com),  
[greenfieldincorporated.com](https://www.greenfieldincorporated.com)  
**[www.Hertz.ag](https://www.Hertz.ag)**

# Application 4:

## Predictive Yield Analysis

- Forecasts crop yields all season long
- Uses weather, soil, and real-time field condition data
- Optimize fertilizer, irrigation, and other inputs
- Improves harvest logistics, storage, and marketing decisions
- Real-time results

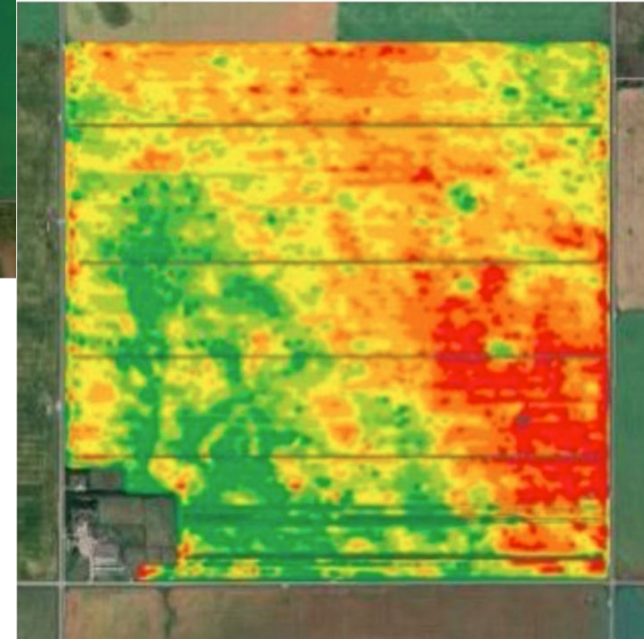
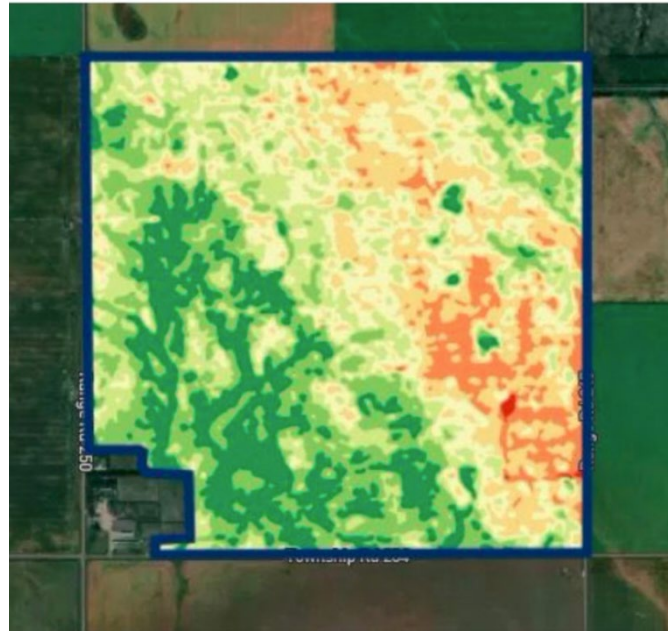


Image Source: geopard.tech

[www.Hertz.ag](http://www.Hertz.ag)

# Real-time Predictive Yield

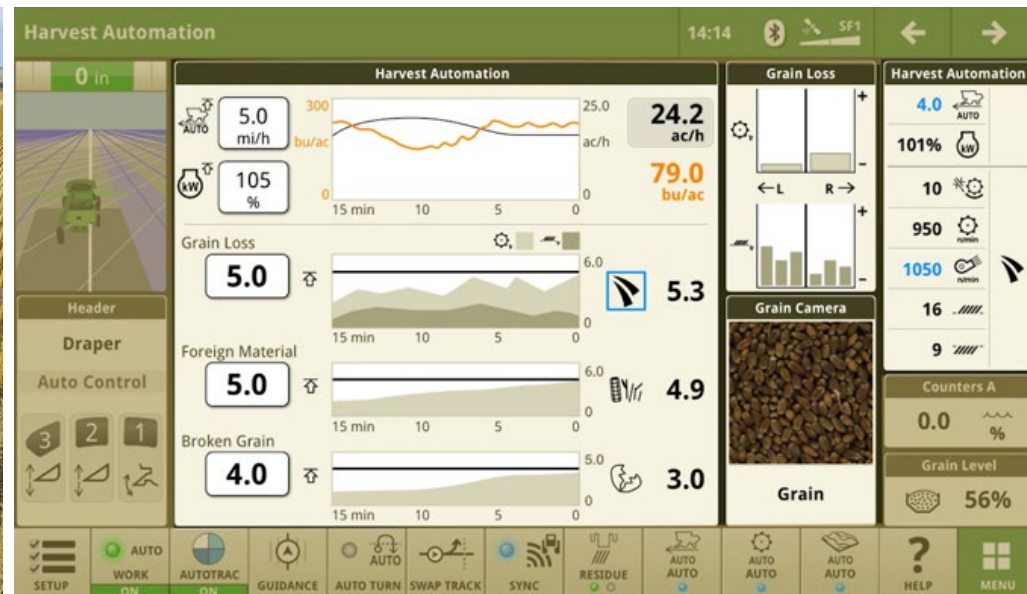


Image Source: [deere.com](http://deere.com)

[www.Hertz.ag](http://www.Hertz.ag)

# Application 5:

## Supply Chain Forecasting

Predict demand and optimize agricultural logistics.

### Benefits:

- Reduced Waste
- Improved Inventory Management
- Higher Profitability

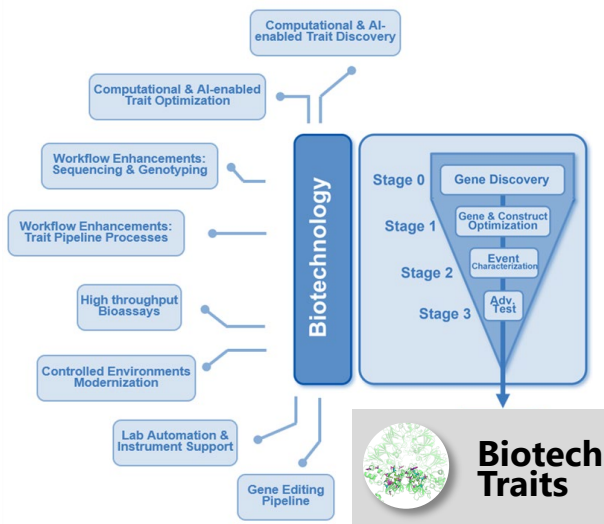


# AI has a long history of use in the Seeds R&D Pipeline

Select examples show how AI increased the scale of Seeds R&D and shortened timelines to deliver products

## DISCOVERY

**12X** Increase in speed from traditional to AI-driven discovery

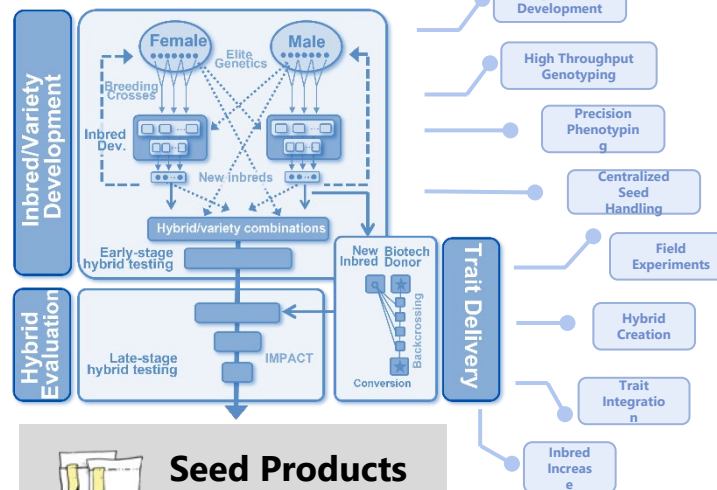


For Example:

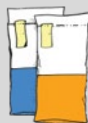
**30-40%**

increase in key soy amino acid content with GenAI designed gene edits

**>90%** of germplasm candidates disqualified prior to field testing



## Seed Products



are delivered 1-2 years faster

## DEVELOPMENT

**>85 M** data points generated through AI-based field sensing pipeline

**94%**

Reduction in cotton plot costs by using AI with drone imagery instead of harvesters to measure yield

**>40%**

Increased throughput at R&D Seed Handling facility with optimization algorithms

**>4.5 bu/ac**

Yield lift by using models to predict the best corn hybrid for a customer field

# Application 6:

## Precision Irrigation

Optimize water use efficiency through Variable Rate Irrigation.

### Benefits:

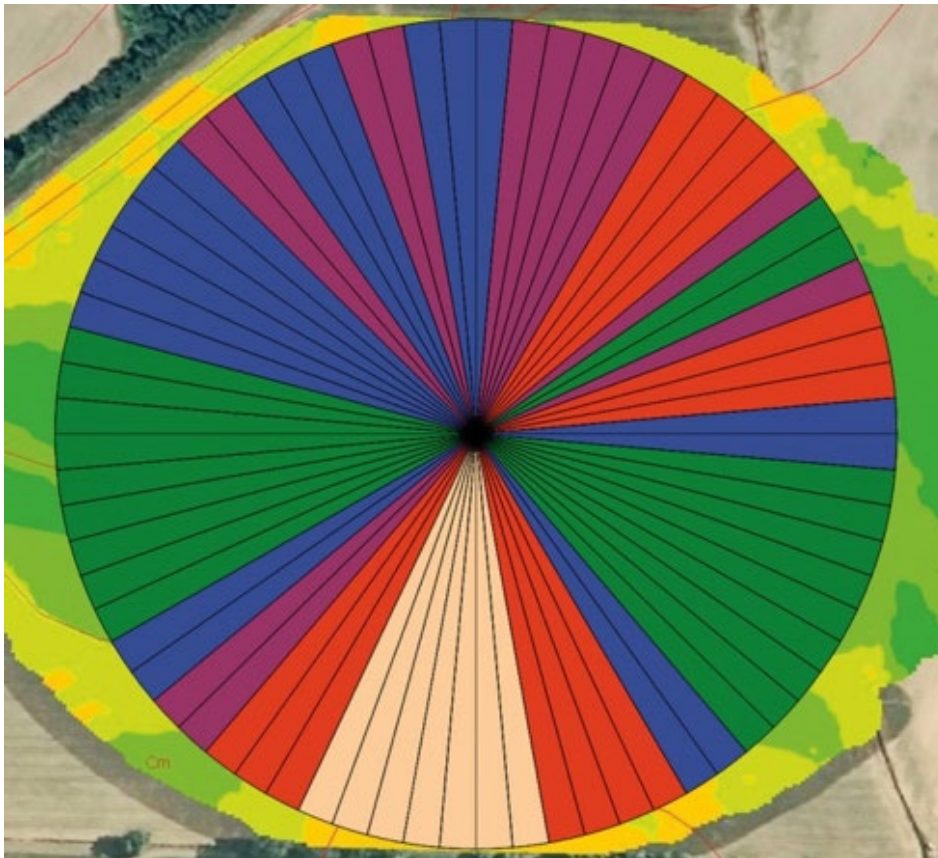
- Improved Water Use Efficiency
- Application Timing
- Application Rate



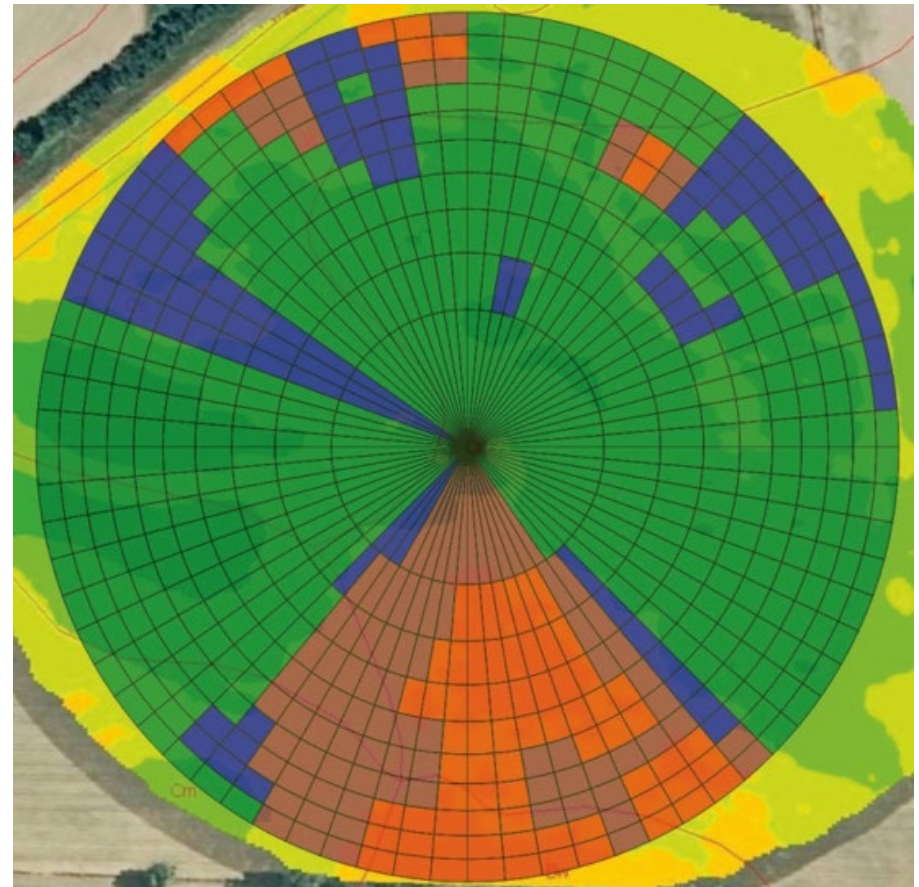
# Examples of Variable Rate Irrigation

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## Speed Control

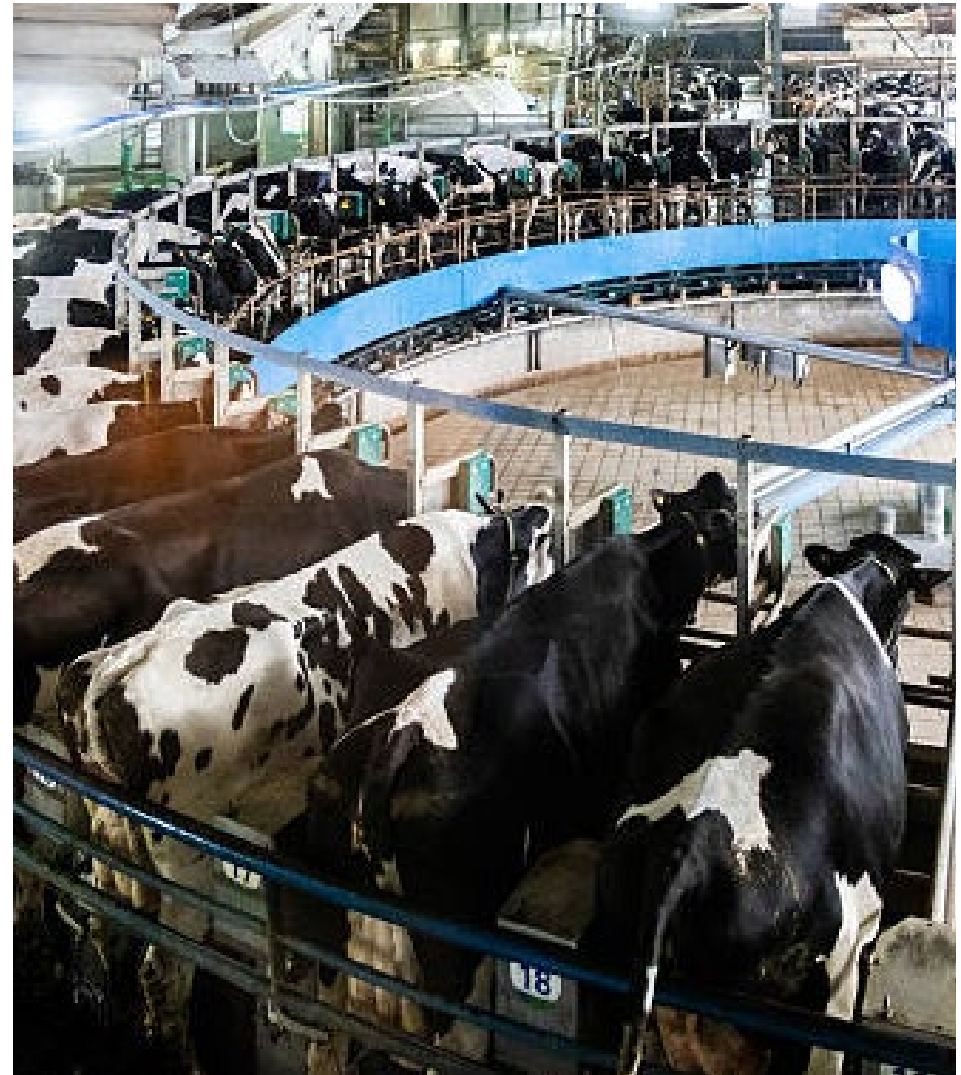


## Zone Control

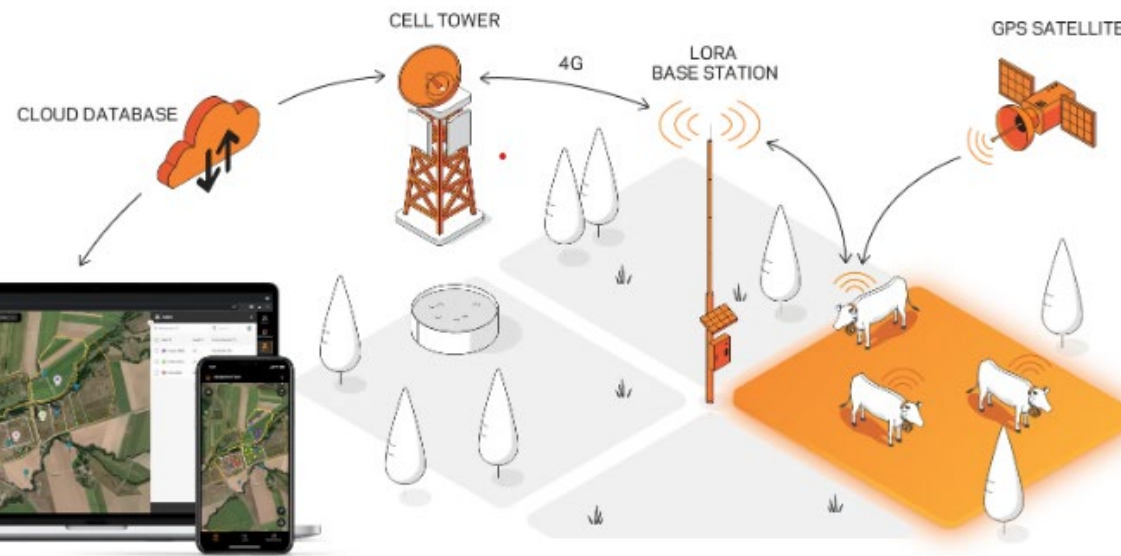


## Application 7: Livestock Monitoring

- Wearables, cameras, and sensors track animal health.
- **Benefits:**
  - Higher Productivity
  - Improved Welfare
  - Lower Veterinary Costs



# Virtual Fencing



# Implementation Challenges

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- Cost
- Connectivity
- Data Quality
- Skills Gap



# Key Takeaways

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- Technology is evolving at a rapid pace.
- Adoption will continue, but challenges remain.
- Education and continued evaluation.



# Questions & Discussion

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