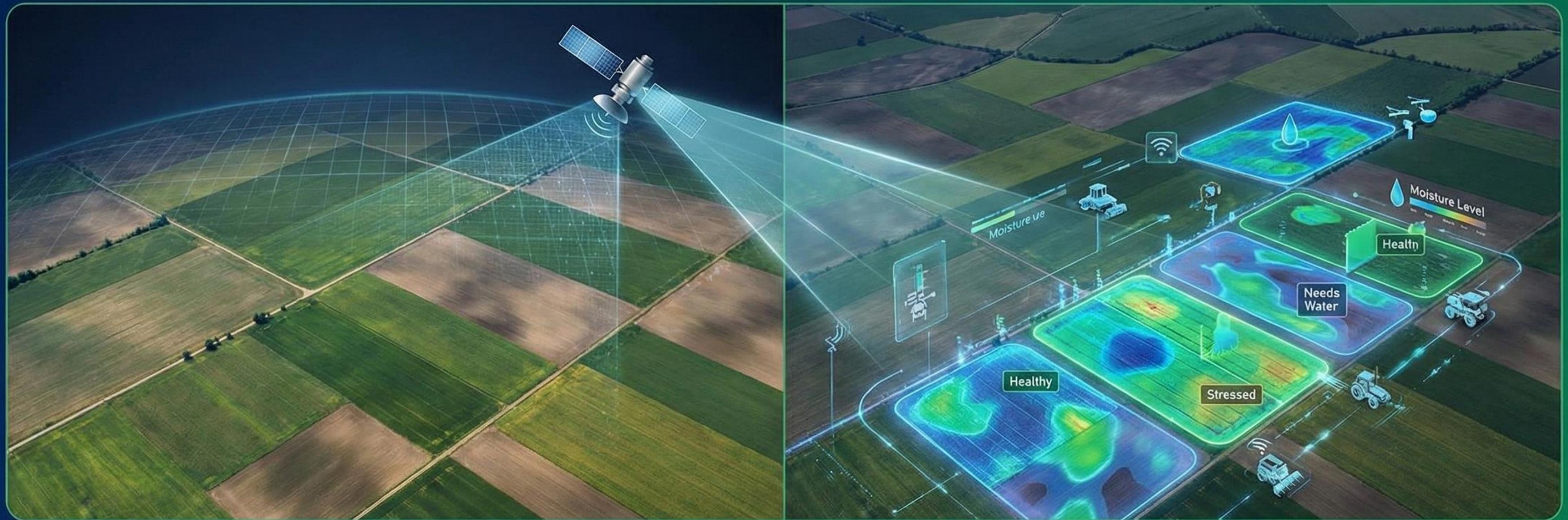


# DECODING SATELLITE DATA FOR FARM APPLICATIONS

From Space to Soil: Turning Satellite Insights into Smart Farm Decisions



Presented By

PlanetEye Farm AI Ltd

# Webinar Context & Relevance

- Agriculture is becoming data-driven
- Satellites provide continuous, large-scale monitoring
- Helps farmers reduce risk, cost, and uncertainty
- Enables early detection of crop & soil stress



# What is Satellite Data in Agriculture?

- Earth-observing satellites capture crop reflectance
- Data collected in multiple spectral bands
- Enables analysis of:
  - Crop health
  - Water stress
  - Soil condition
- Non-invasive & cost-effective



# Why Farmers Need Satellite Intelligence

- ⌚ Traditional field scouting is time-consuming
- 📡 Satellite data offers:
  - ✓ Regular monitoring
  - ✓ Objective insights
  - ✓ Large area coverage
- 🚜 Supports precision farming



✖ **Manual Inspection:**  
Slow & Limited  
error  
prone

✓ **Satellite Monitoring:**  
Fast & Comprehensive  
an  
accuracy

# Understanding Crop Growth & Vigor

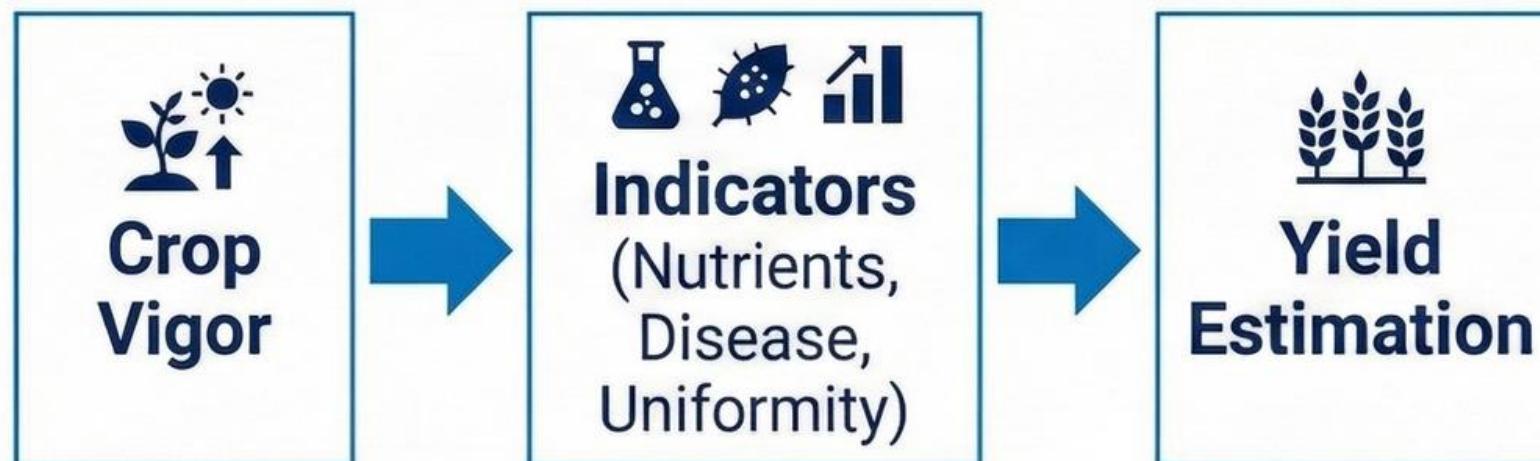
## Key Points

 **Crop vigor** = plant health & photosynthetic activity

 Indicates:

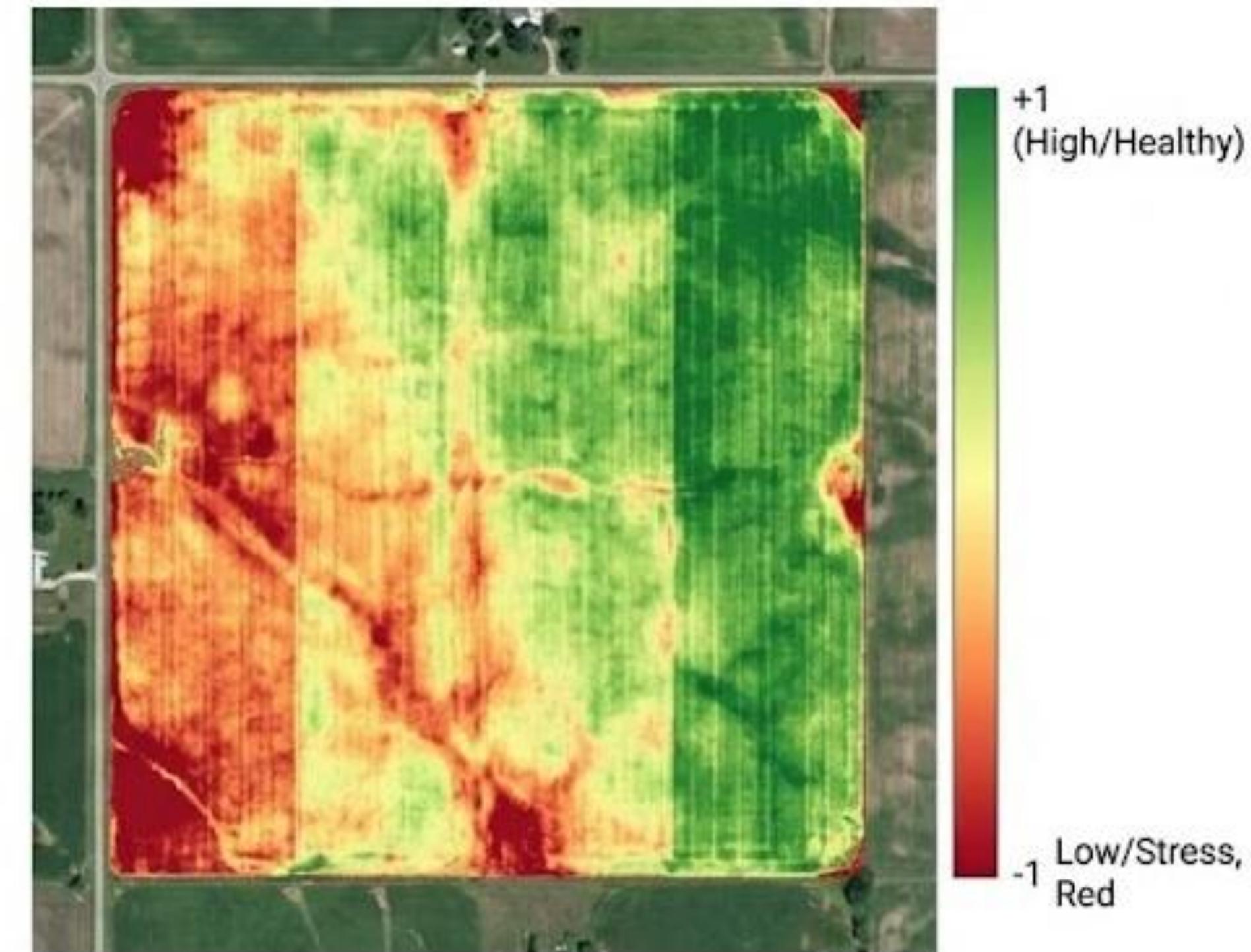
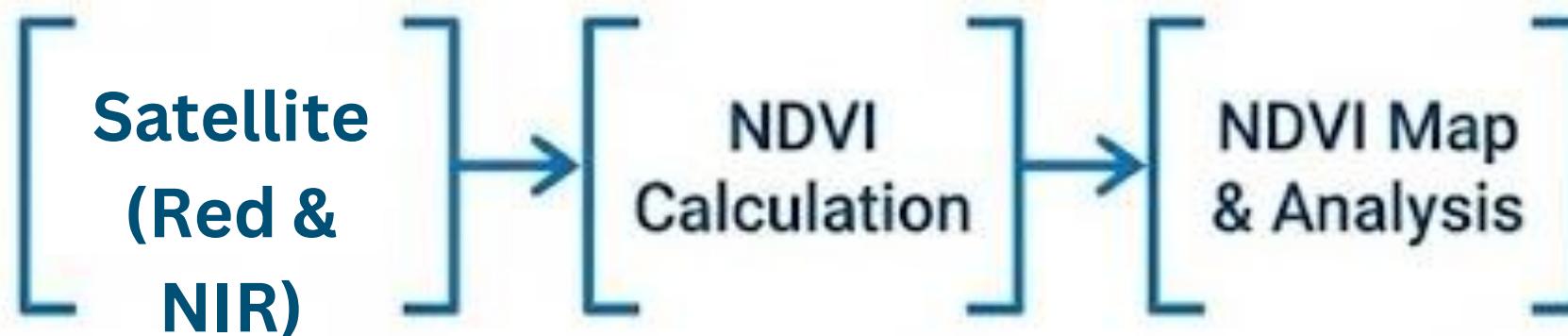
- Nutrient status
- Disease impact
- Growth uniformity

 Basis for yield estimation



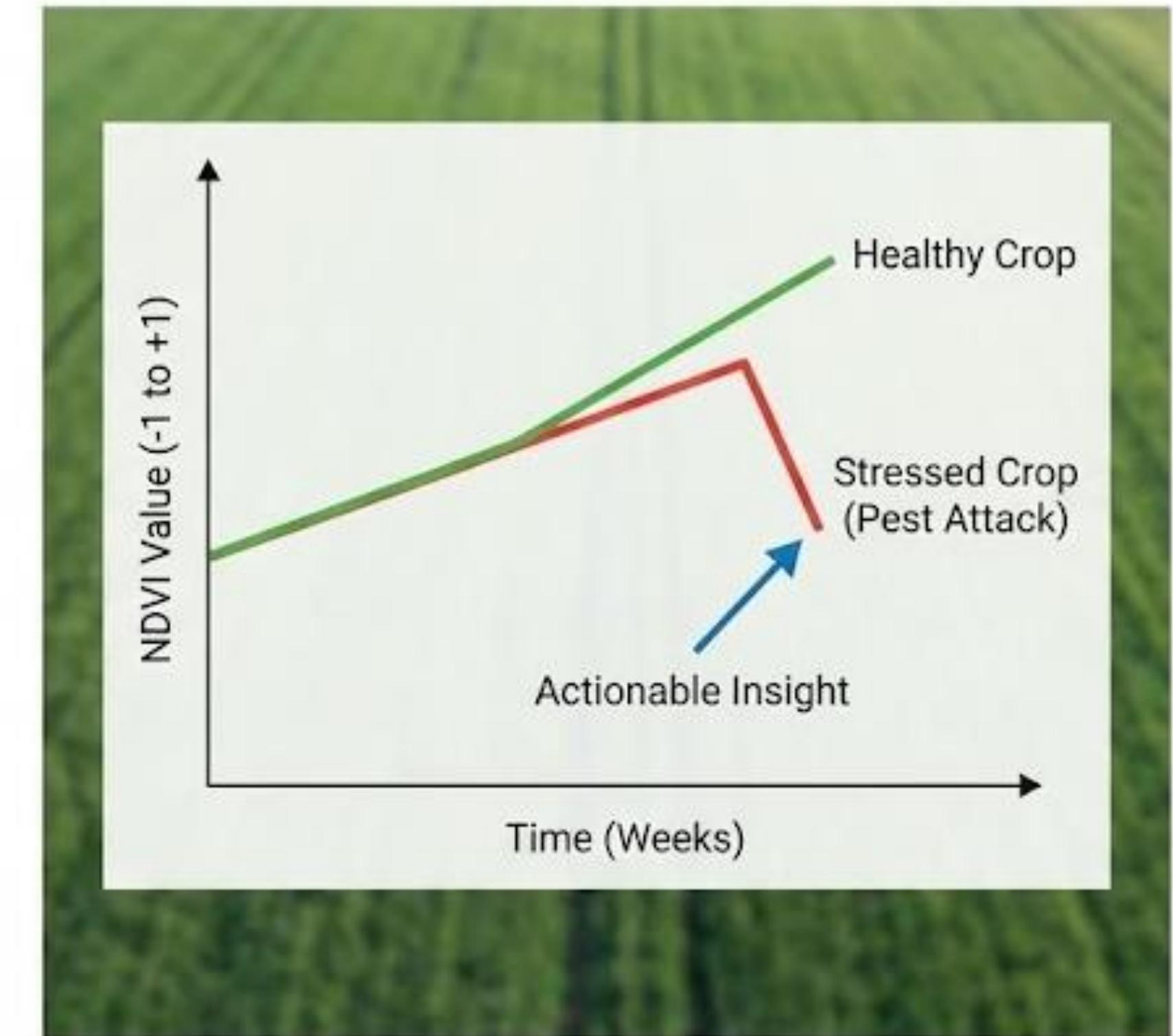
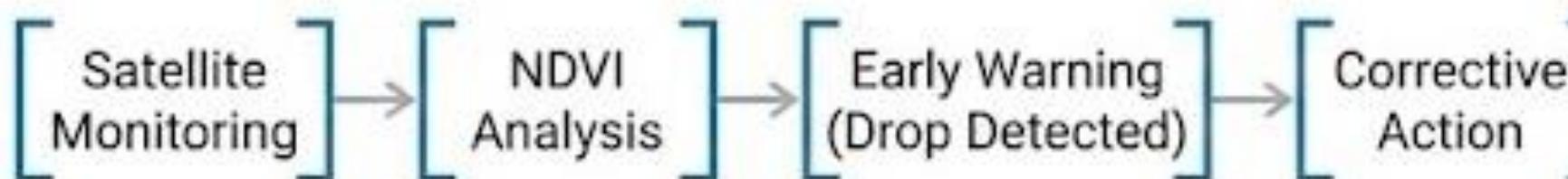
# NDVI: Normalized Difference Vegetation Index

- Measures green biomass
- biomass
- Values range from -1 to +1
- High NDVI = healthy, dense vegetation
- Low NDVI = stress, sparse crops



# NDVI Interpretation for Farmers

- Consistent NDVI increase = healthy crop growth
- ⚠ • Sudden NDVI drop may indicate:
  - Pest/disease attack
  - Nutrient deficiency
  - Nutrient deficiency
  - Water stress
- ➔ • Enables early corrective action



# Our Decision Support for Crop Vigor

## ANALYSIS & MAPPING



Zone-wise crop health mapping & Identification of low vigor patches

## TARGETED ADVISORY



Fertilizer correction & Pest scouting priority

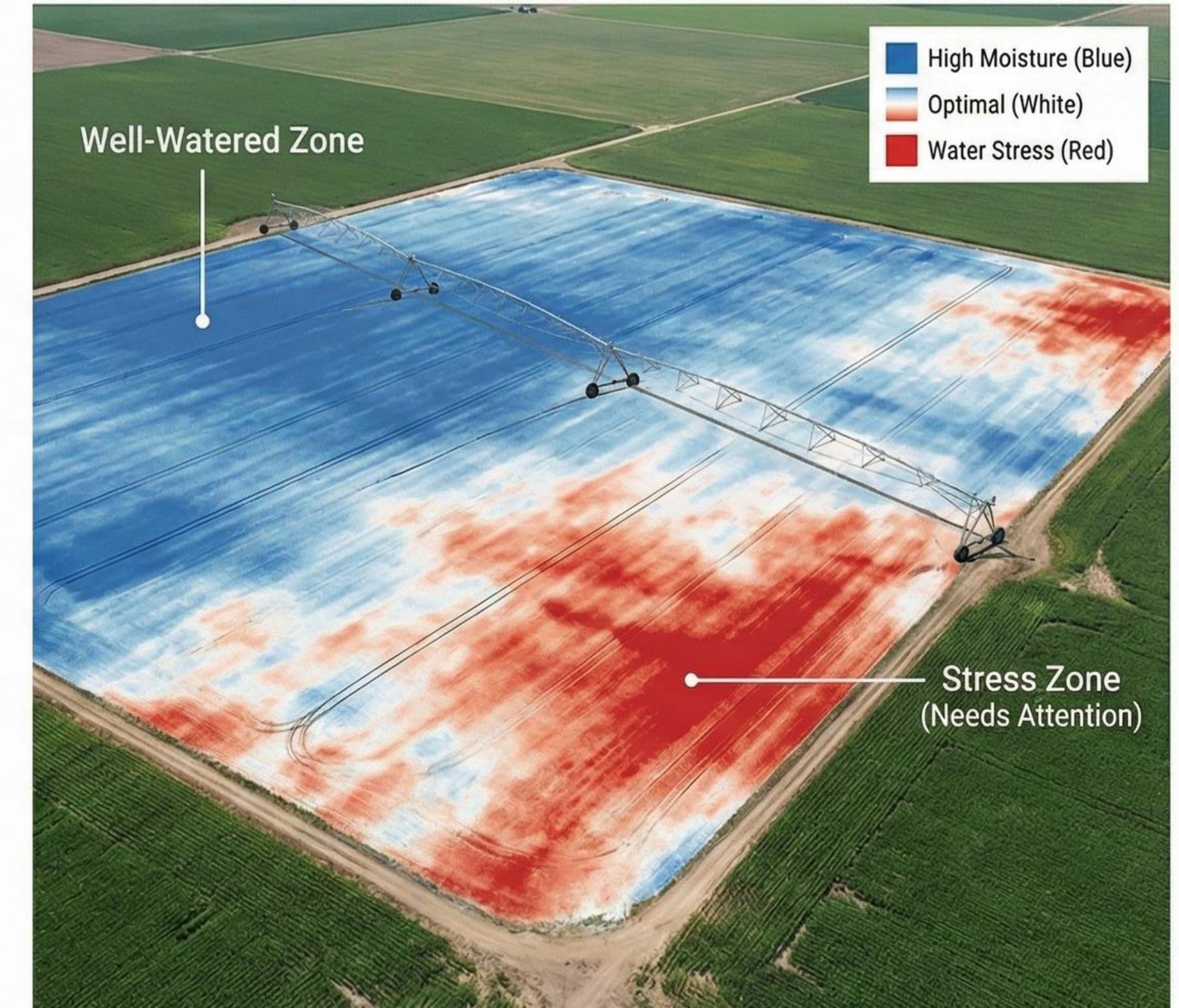
## OUTCOME



Reduces unnecessary input cost

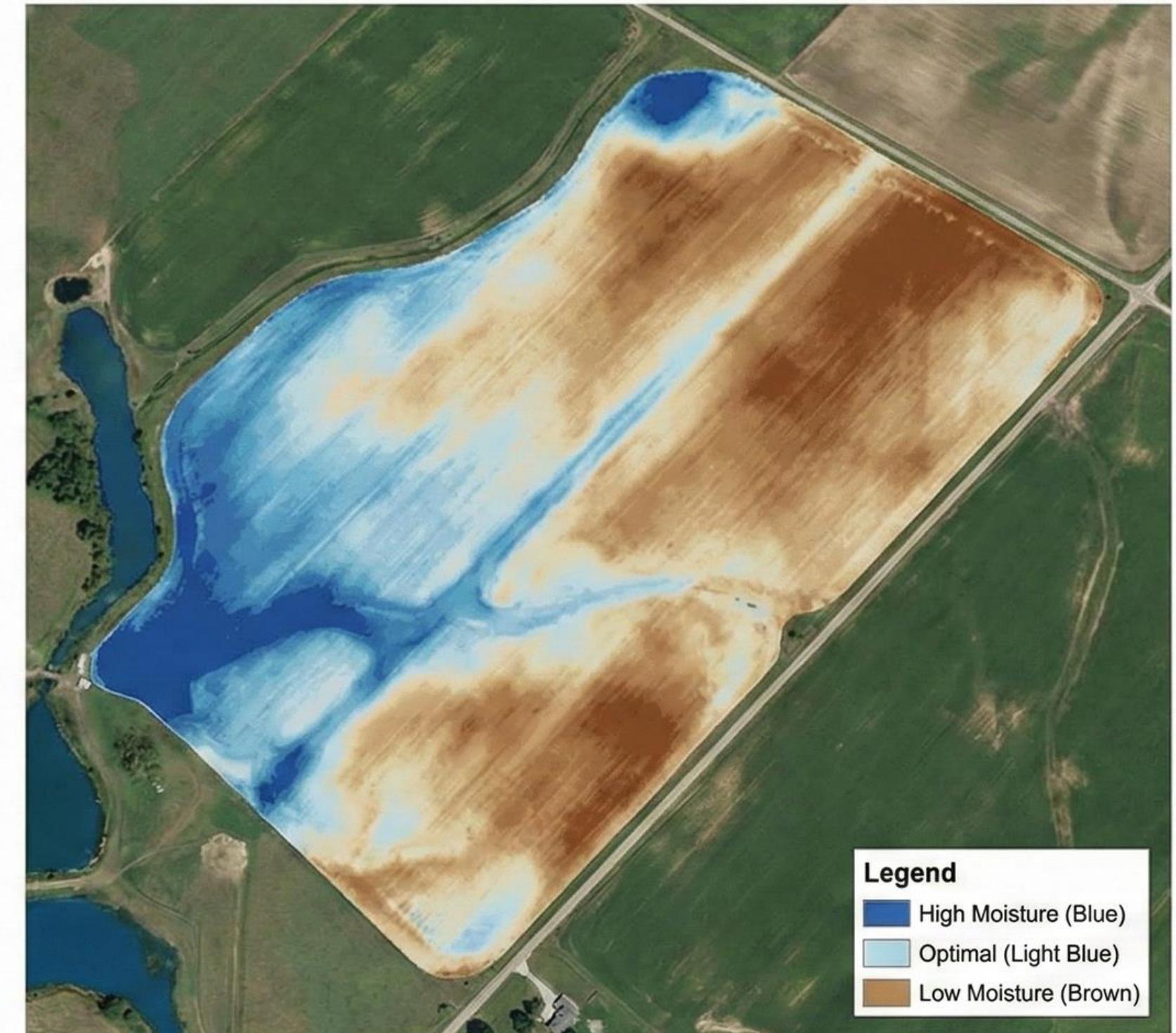
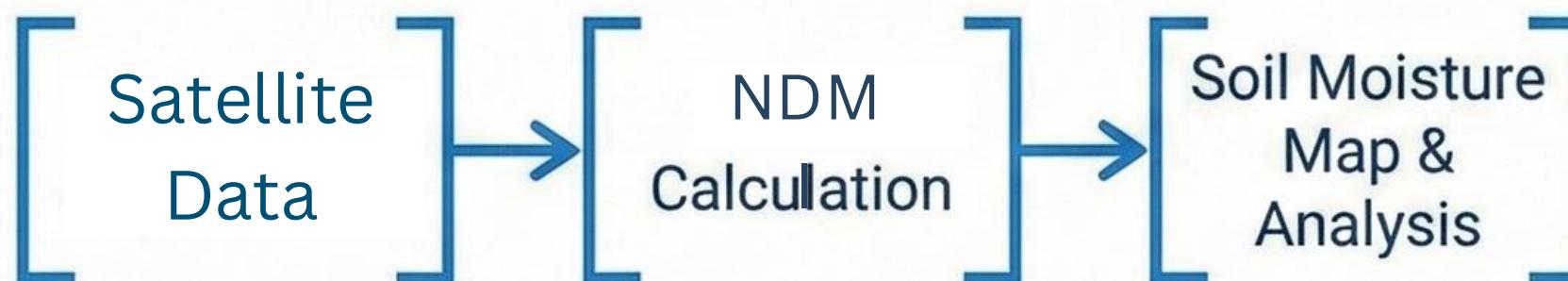
# Importance of Water Uptake Monitoring

- Water stress directly impacts yield
- Over-irrigation wastes resources
- Satellite data helps:  
Optimize irrigation timing
- Detect stress before visible symptoms



# NDMI – Moisture Index

- NDMI reflects soil water content
- Sensitive to: moisture content present in soil
- Root-zone moisture availability
- Complements NDM analysis



# NDWI – Water Index



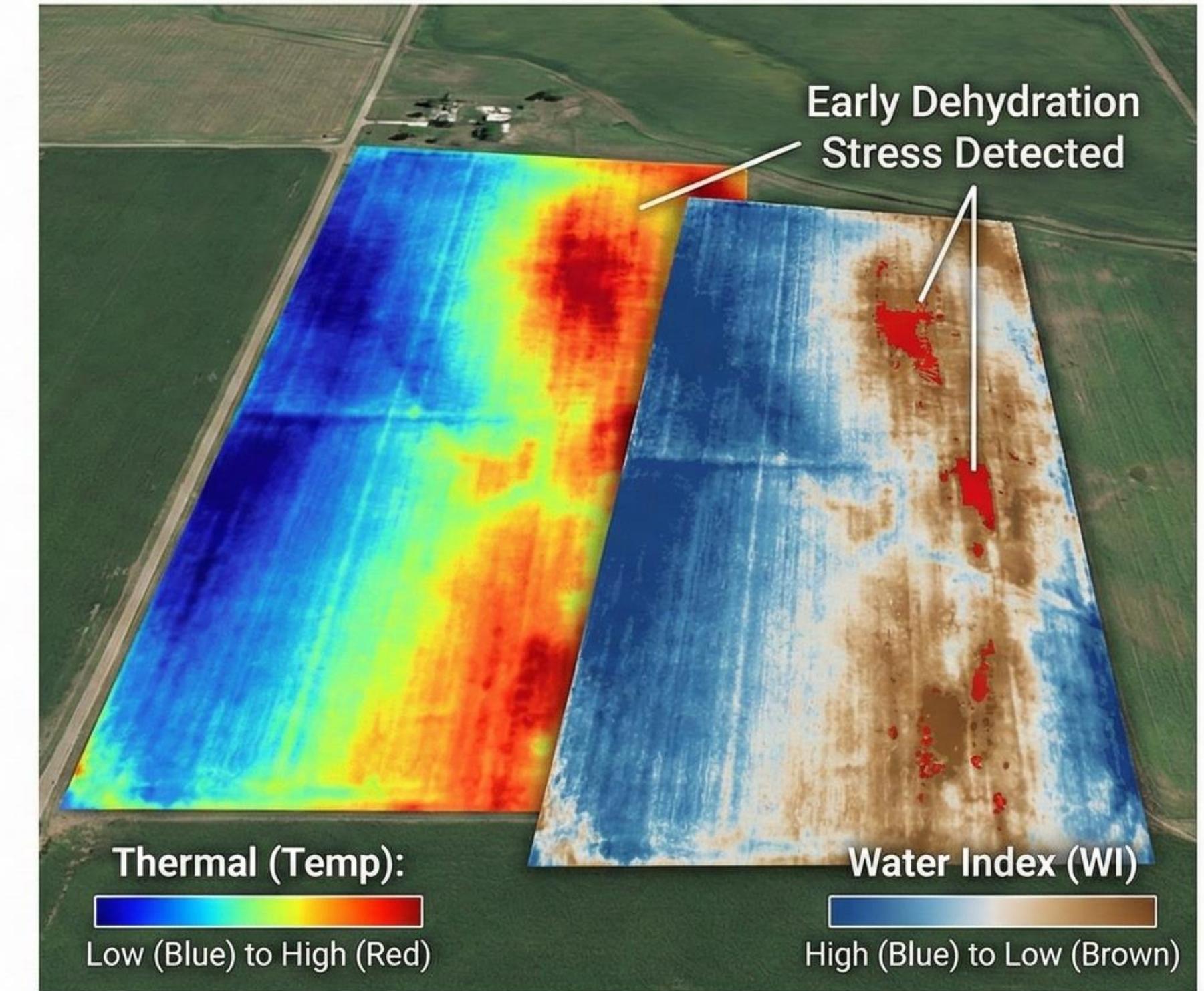
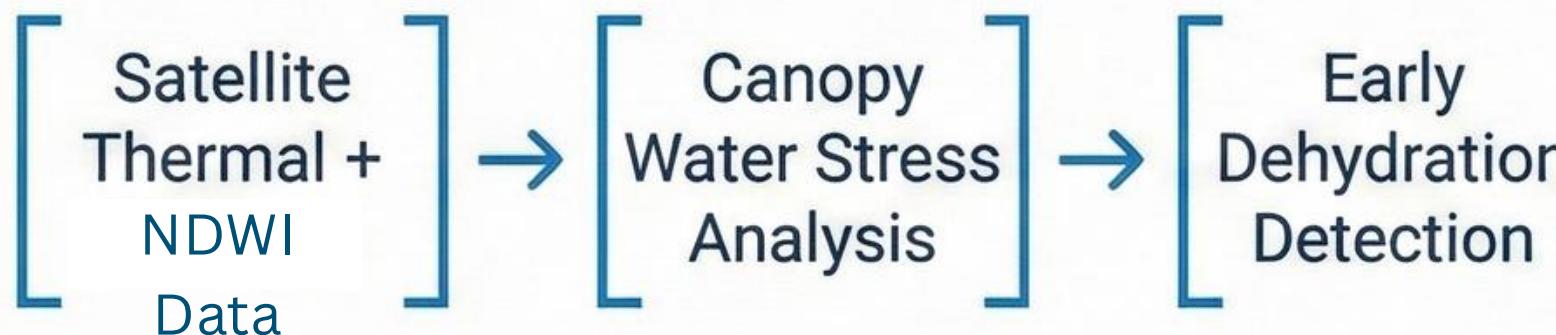
- NDWI indicates water absorption by canopy



- Useful during:
  - Peak growth stages
  - High-temperature periods



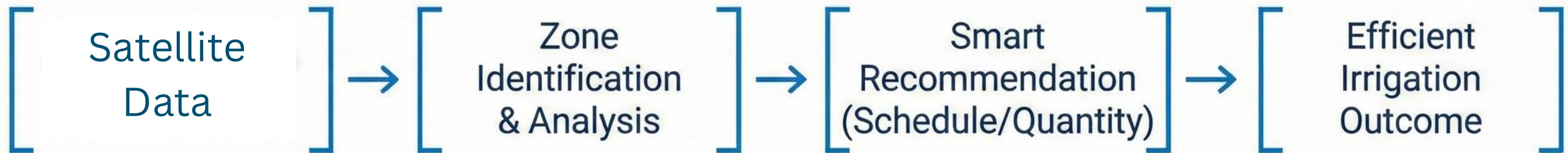
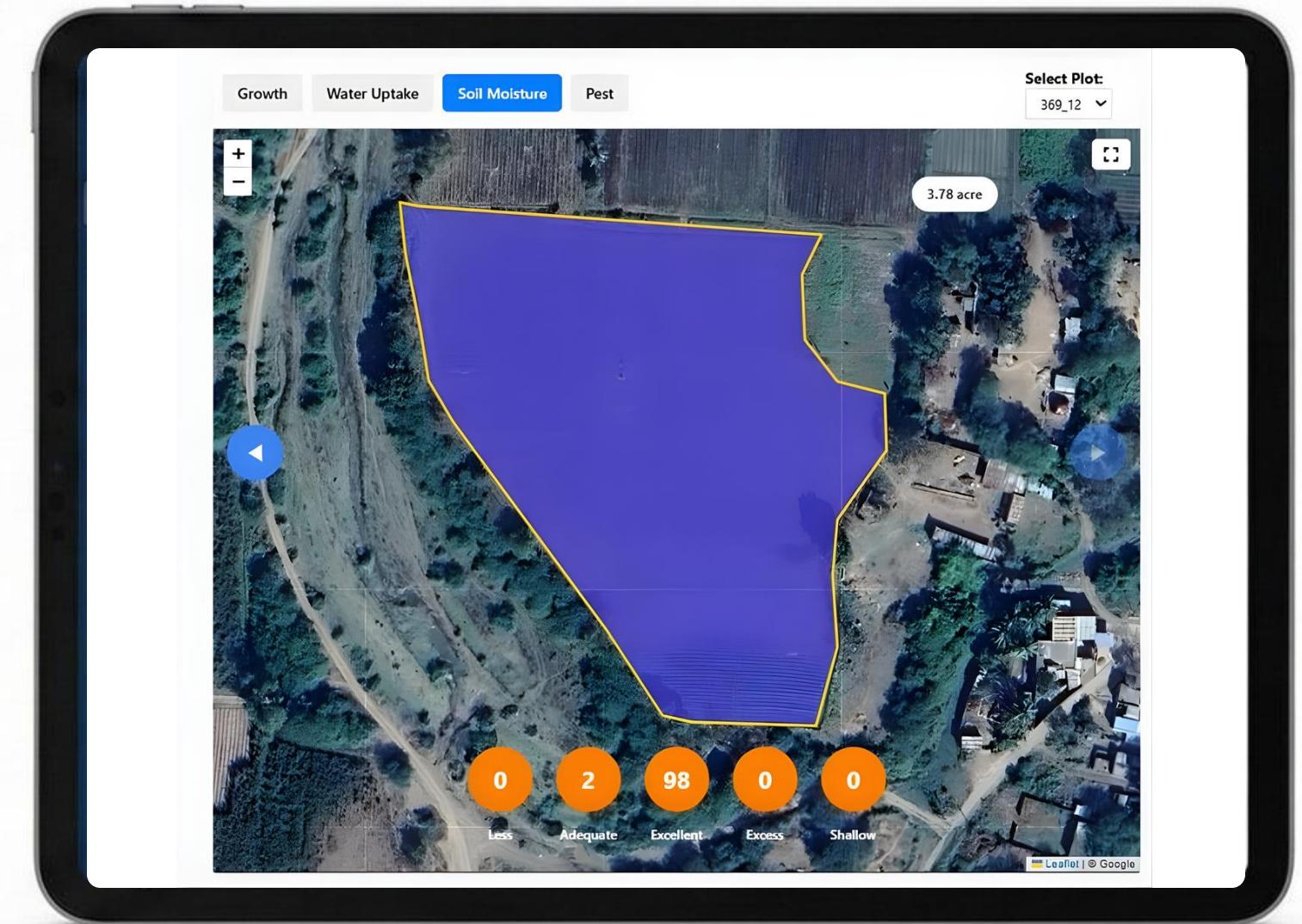
- Detects early dehydration stress



# Irrigation Decision Support



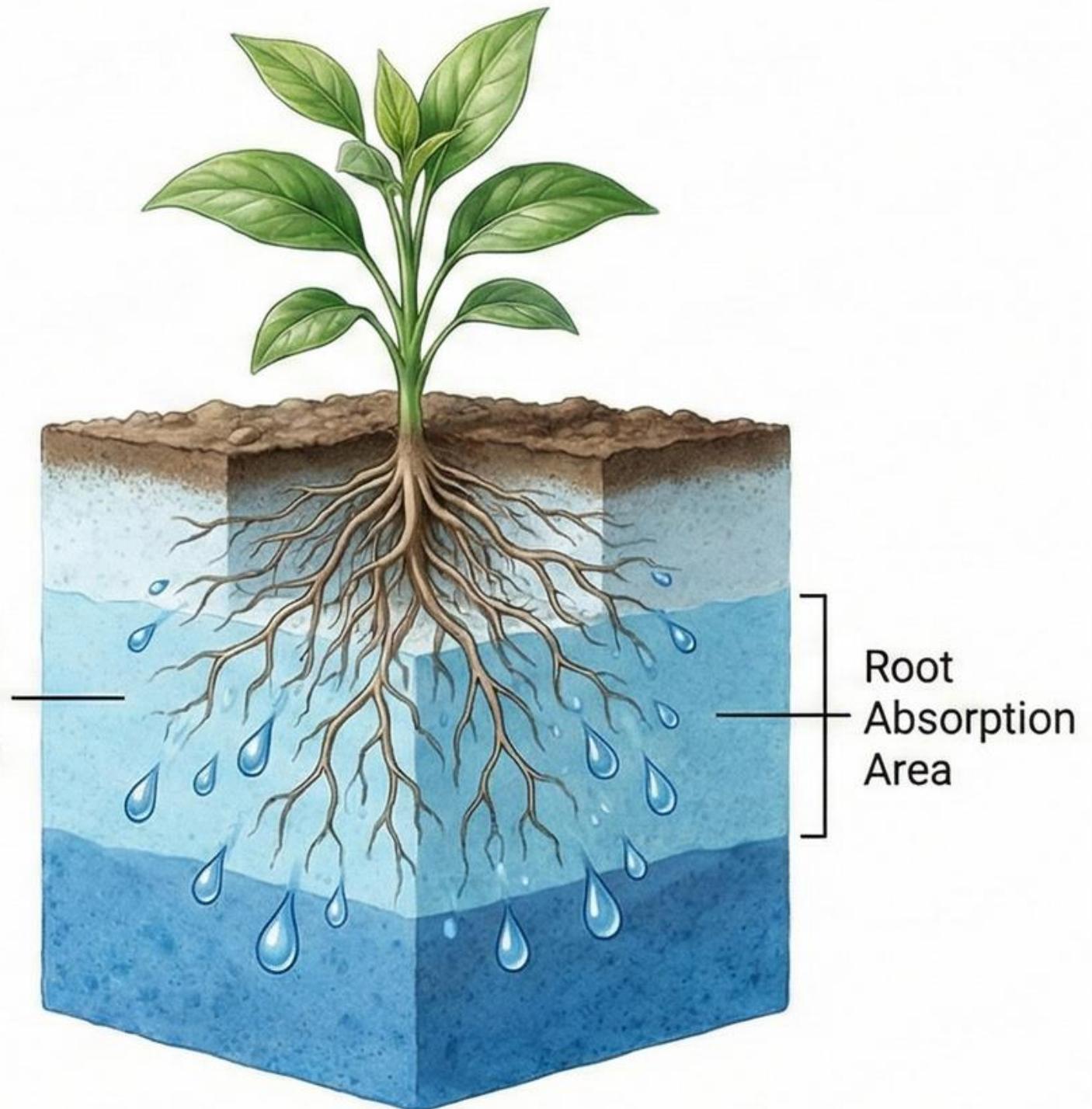
- Identify under- and over-irrigated zones
- Recommend: Irrigation scheduling, Quantity adjustment
- Improves water use efficiency



# Why Soil Moisture Matters

- Controls nutrient uptake
- Affects root development
- Influences disease occurrence
- Critical during sowing & tillering stages

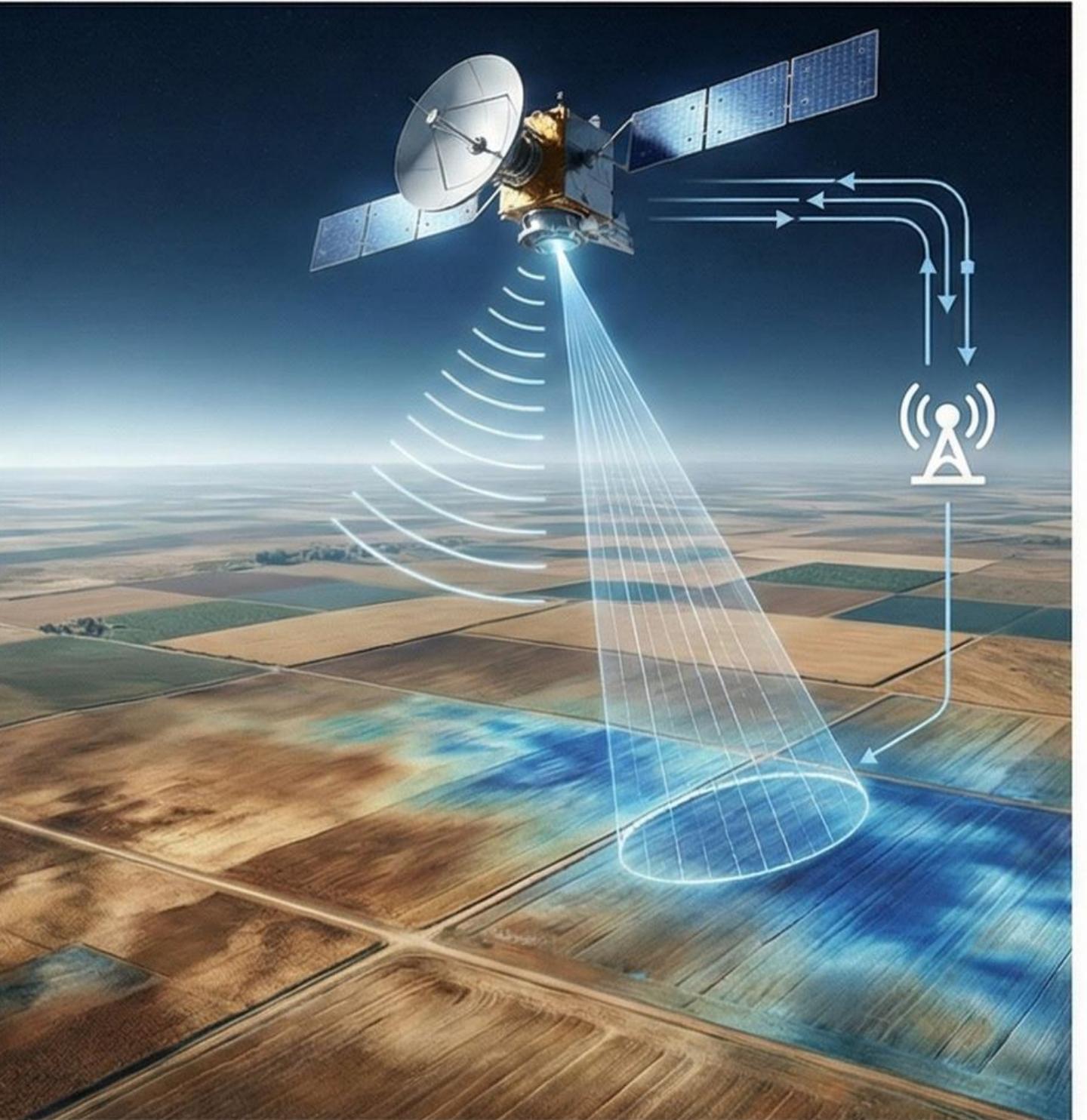
Sufficient Moisture → Optimal Nutrient Uptake & Root Development → Disease Management → Healthy Crop Growth



# Satellite-Based Soil Moisture Insights



- Radar & optical data used together
- Helps detect: Dry stress, Waterlogging
- Works even for large farms



# Soil Moisture Advisory Use Case



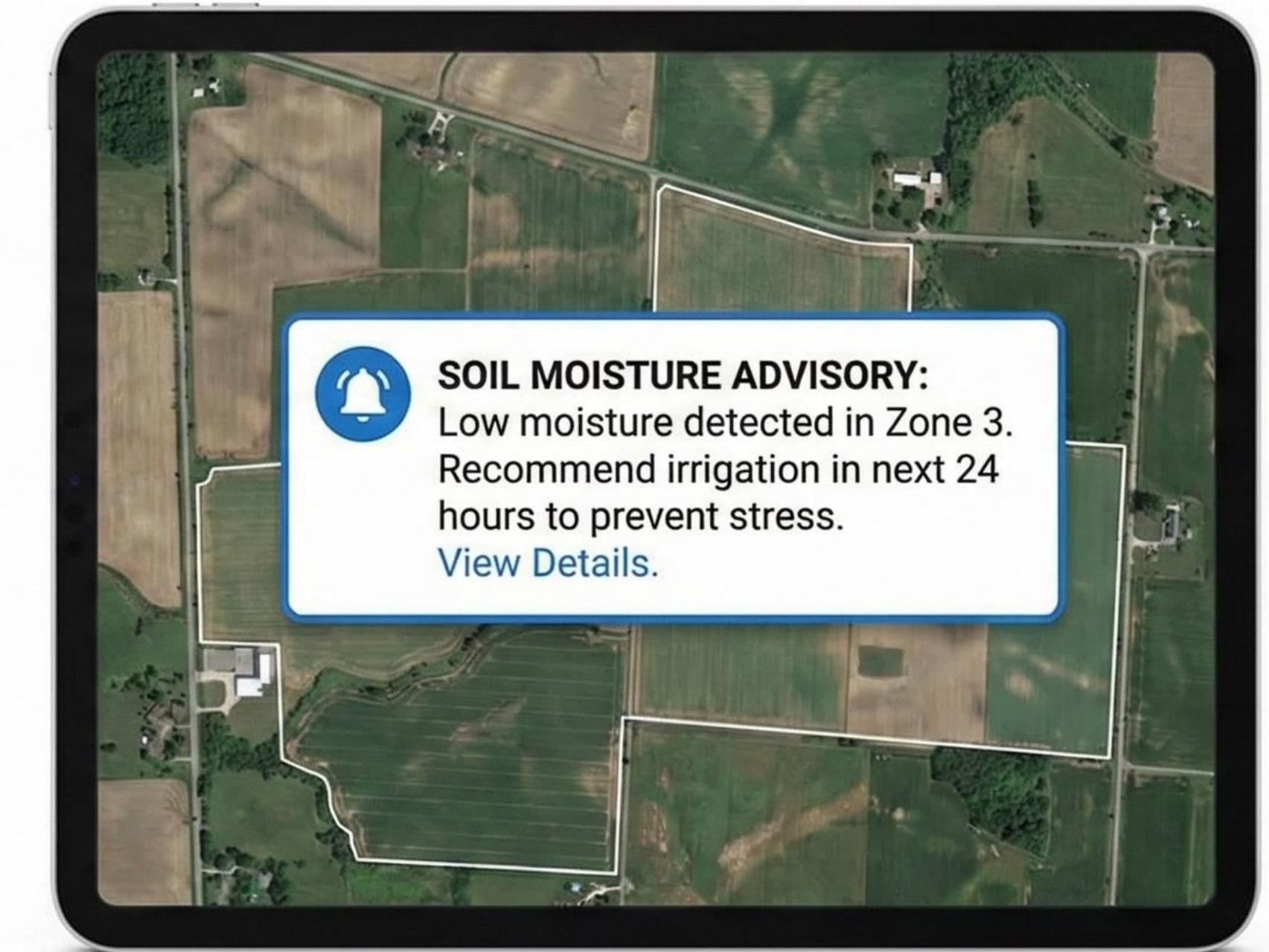
- Adjust irrigation frequency



- Avoid fertilizer loss due to leaching



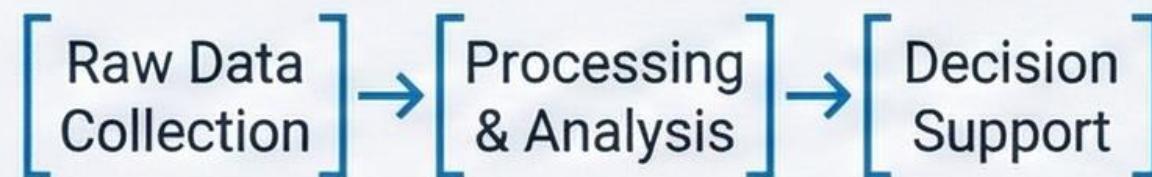
- Prevent crop stress in critical stages



# From Data to Decisions

## Key Points

- Raw satellite data → processed indices
- Indices → meaningful insights
- Insights → actionable recommendations



# Actionable Farm Recommendations



- Variable-rate fertilizer application



- Targeted pest scouting



- Smart irrigation planning

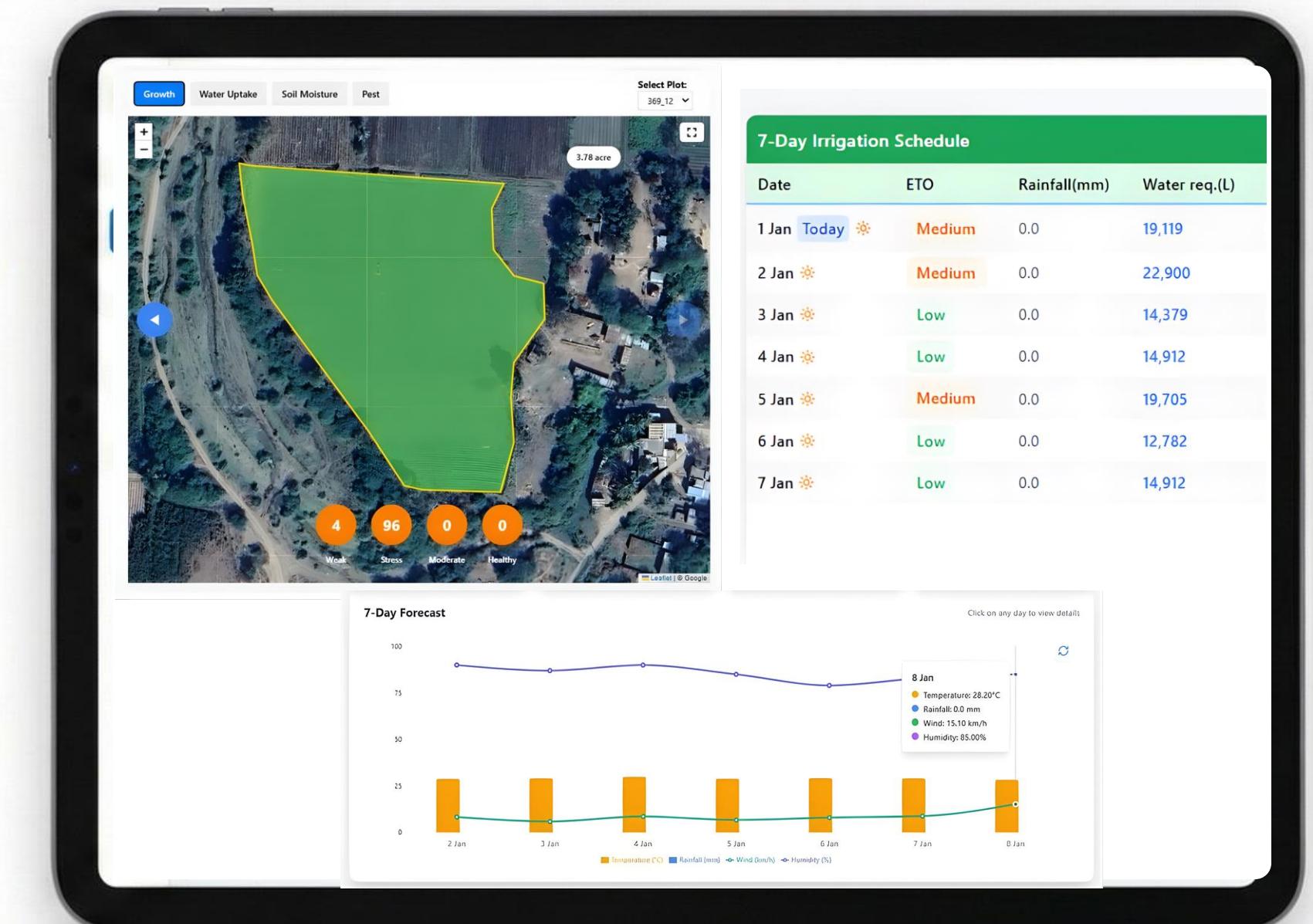
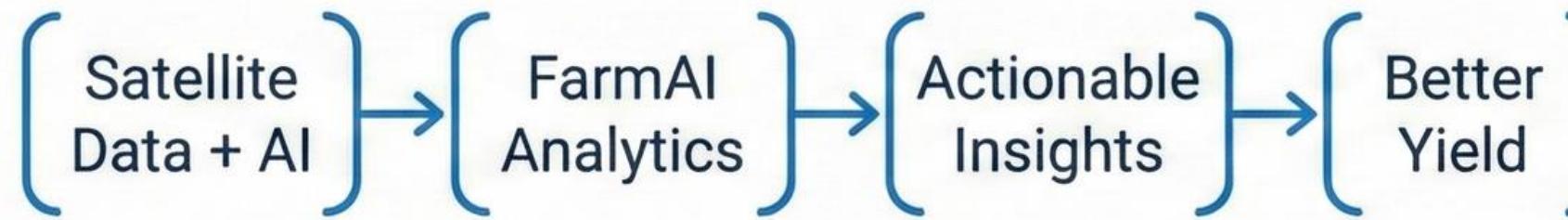


- Yield risk assessment

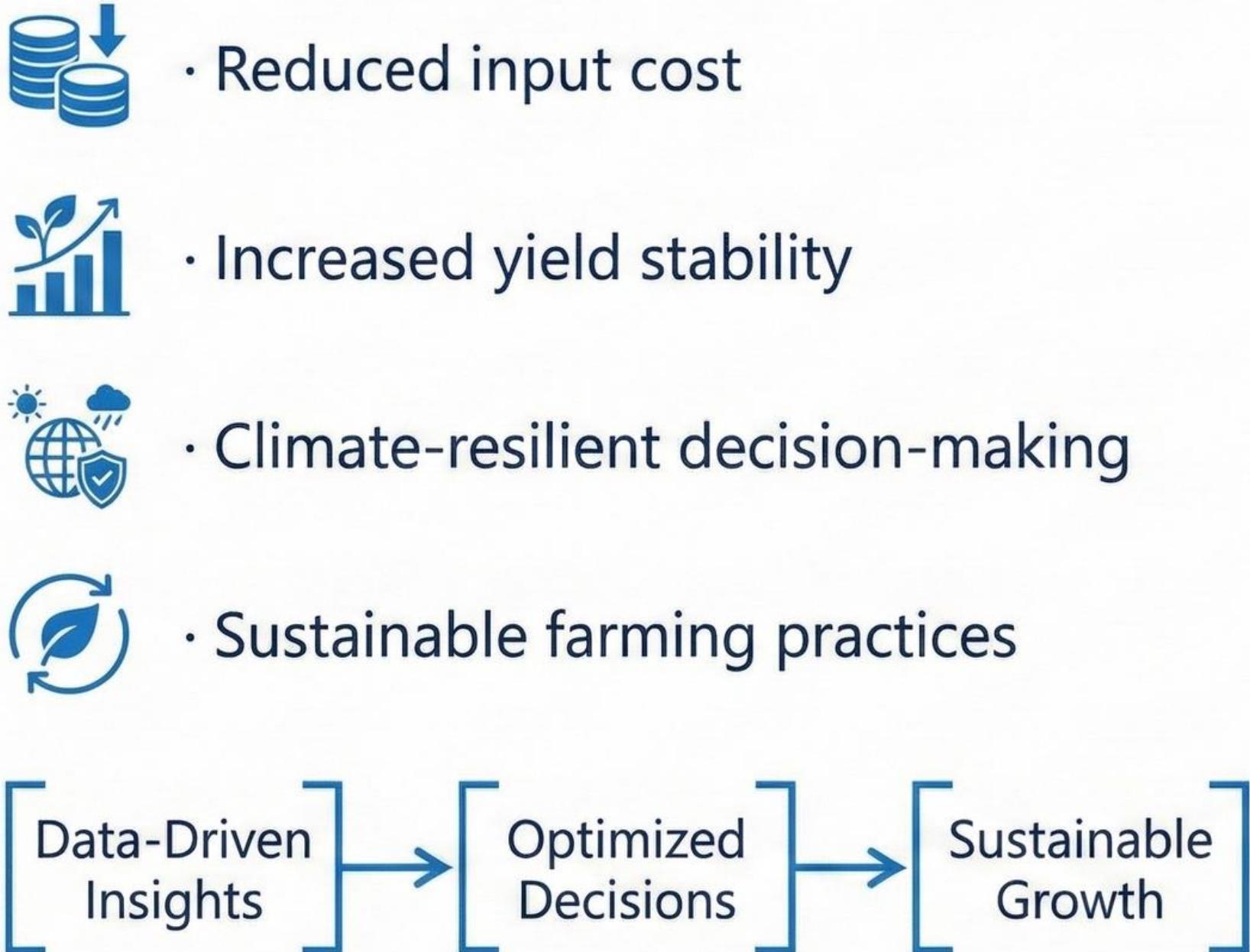


# How PlanetEye FarmAI Supports Farmers

- AI + satellite-based analytics
- Real-time field insights
- Crop-stage-specific advisories
- Scalable for small & large farms



# Benefits to Farmers & Agribusiness



# Conclusion

-  • Satellite data is transforming agriculture
-  • Right interpretation creates real value
-  • Future of farming is precision-driven
-  • Let's move from observation to action



**[Observation] → [Action] → [Sustainable Future]**

Start Your Precision Journey

# Thank You

for your participation



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