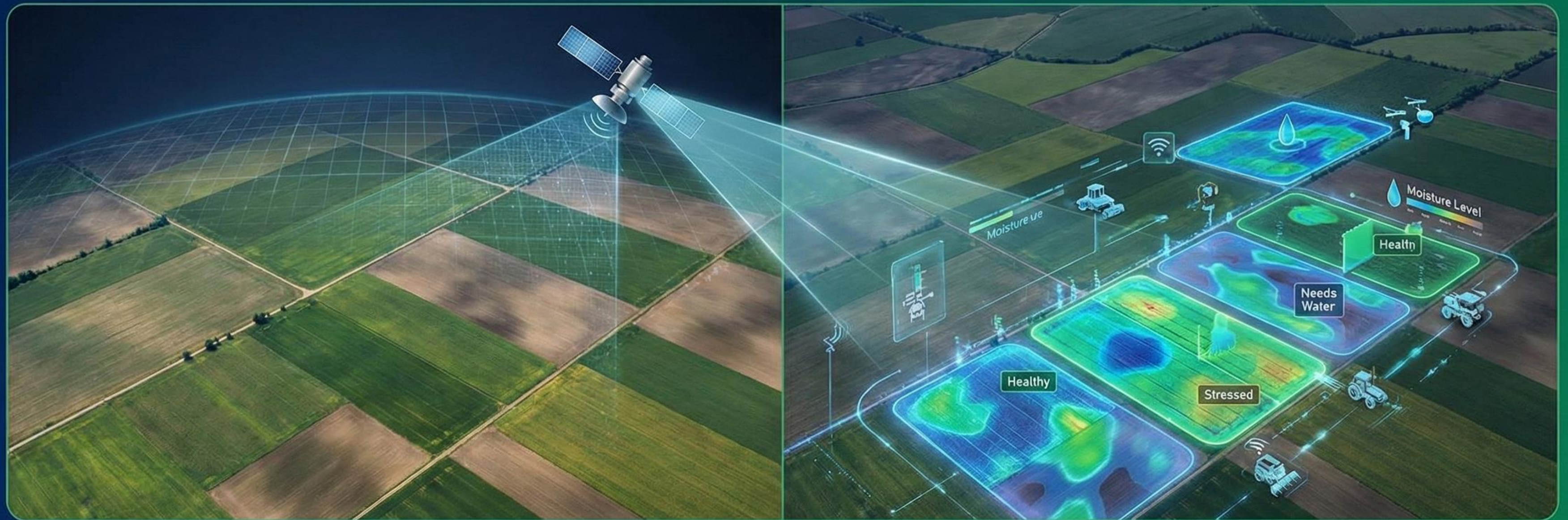


DECODING SATELLITE DATA FOR FARM APPLICATIONS

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

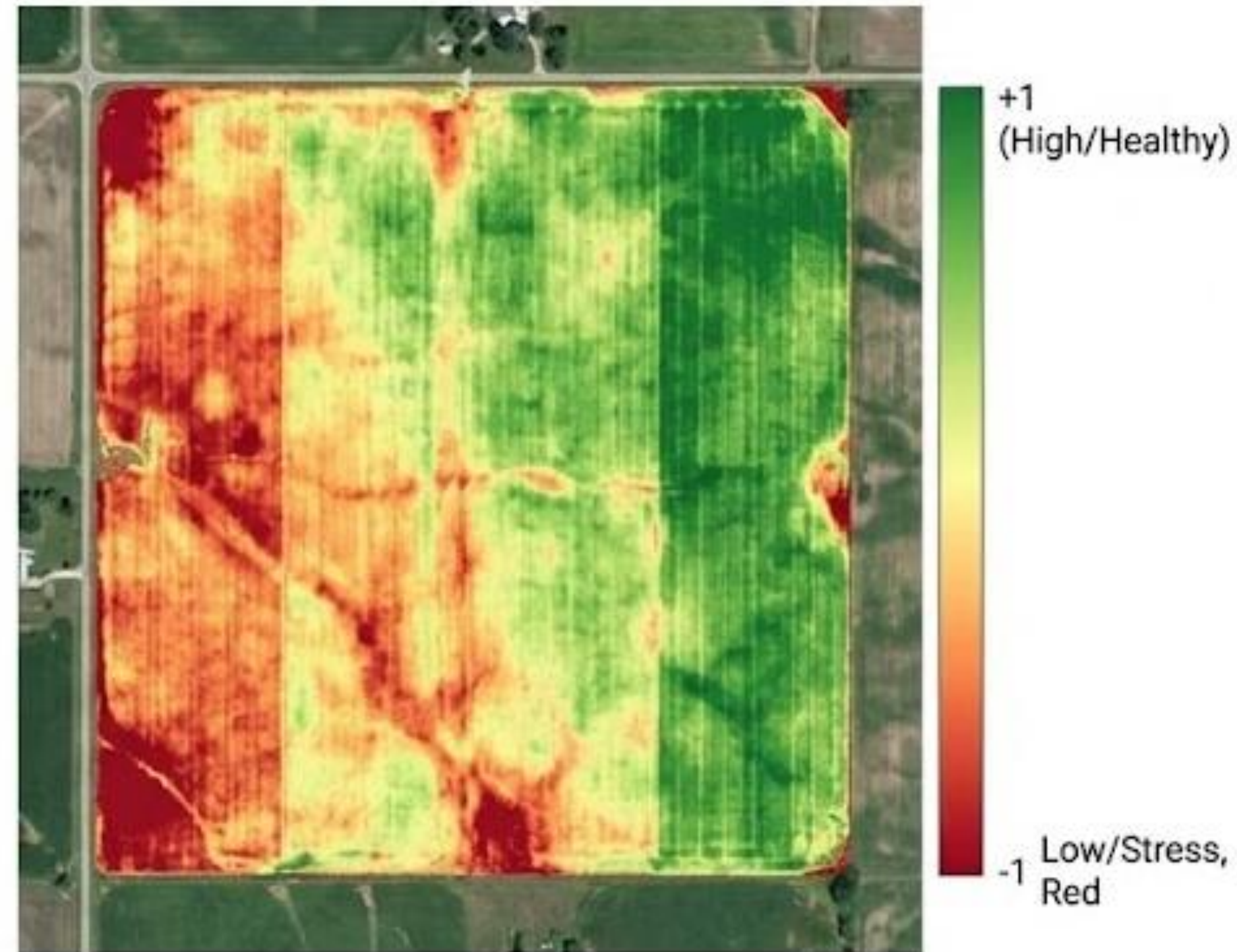
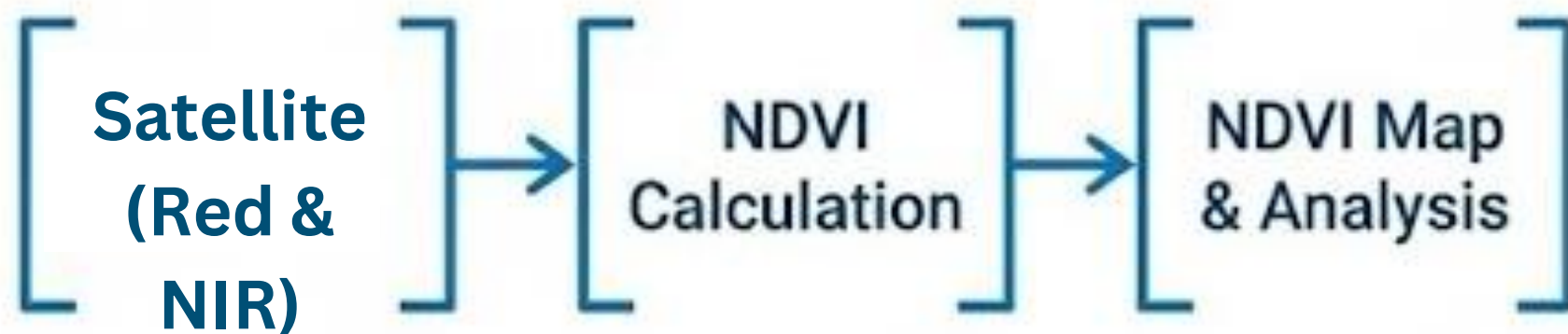
-  Indicates:
- Nutrient status
 - Disease impact
 - Growth uniformity

 Basis for yield estimation



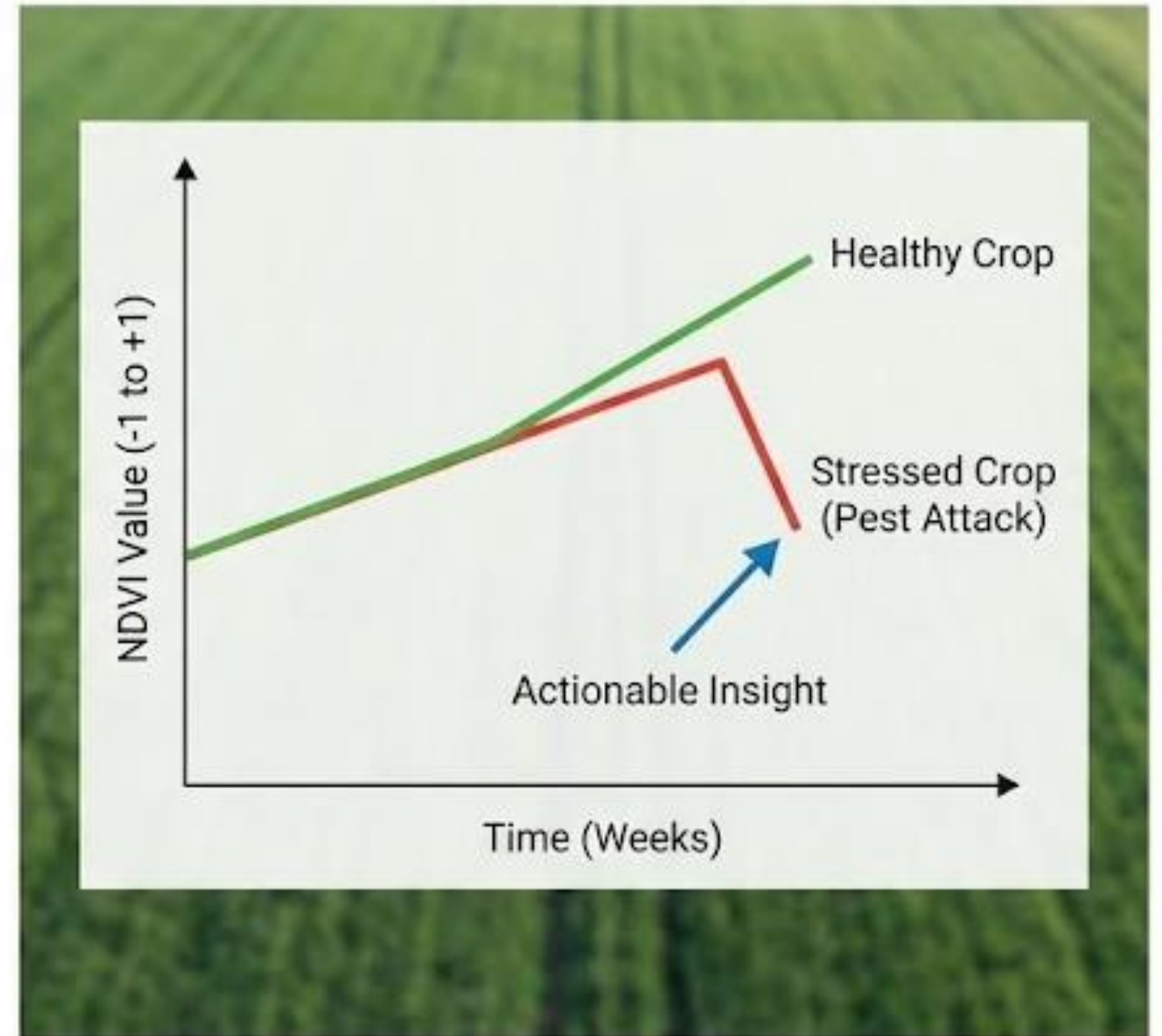
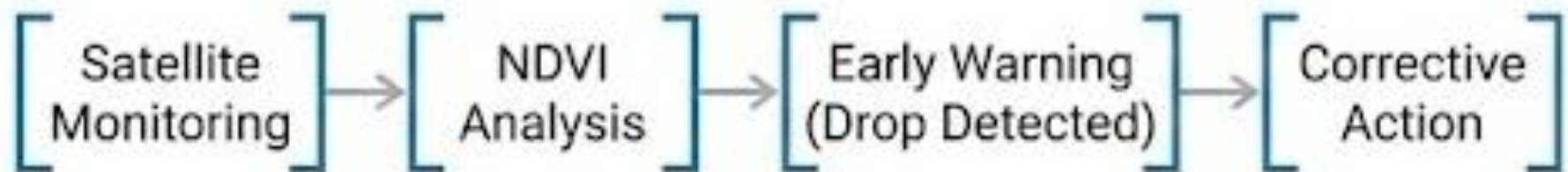
NDVI: Normalized Difference Vegetation Index

- 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

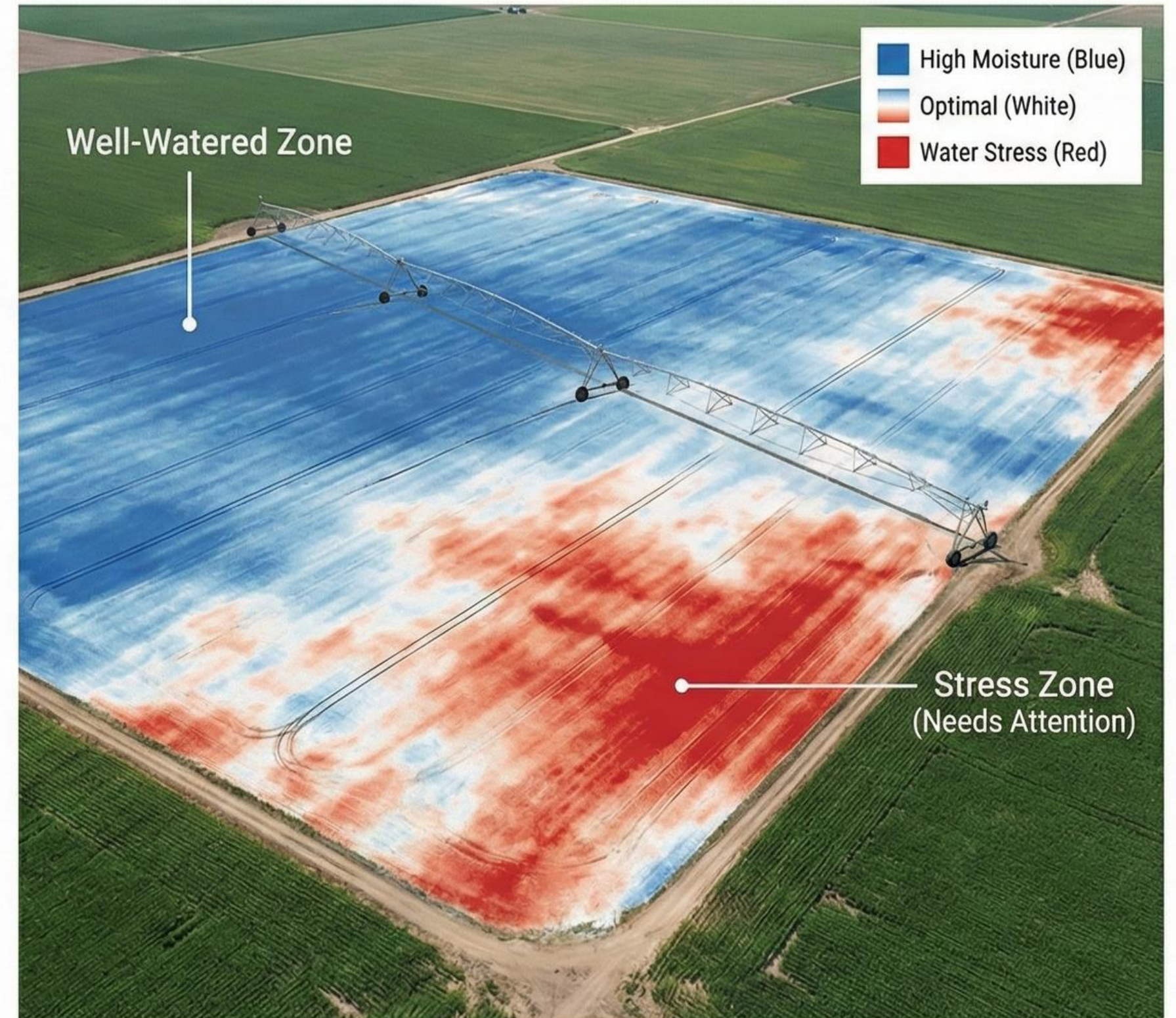
OUTCOME



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



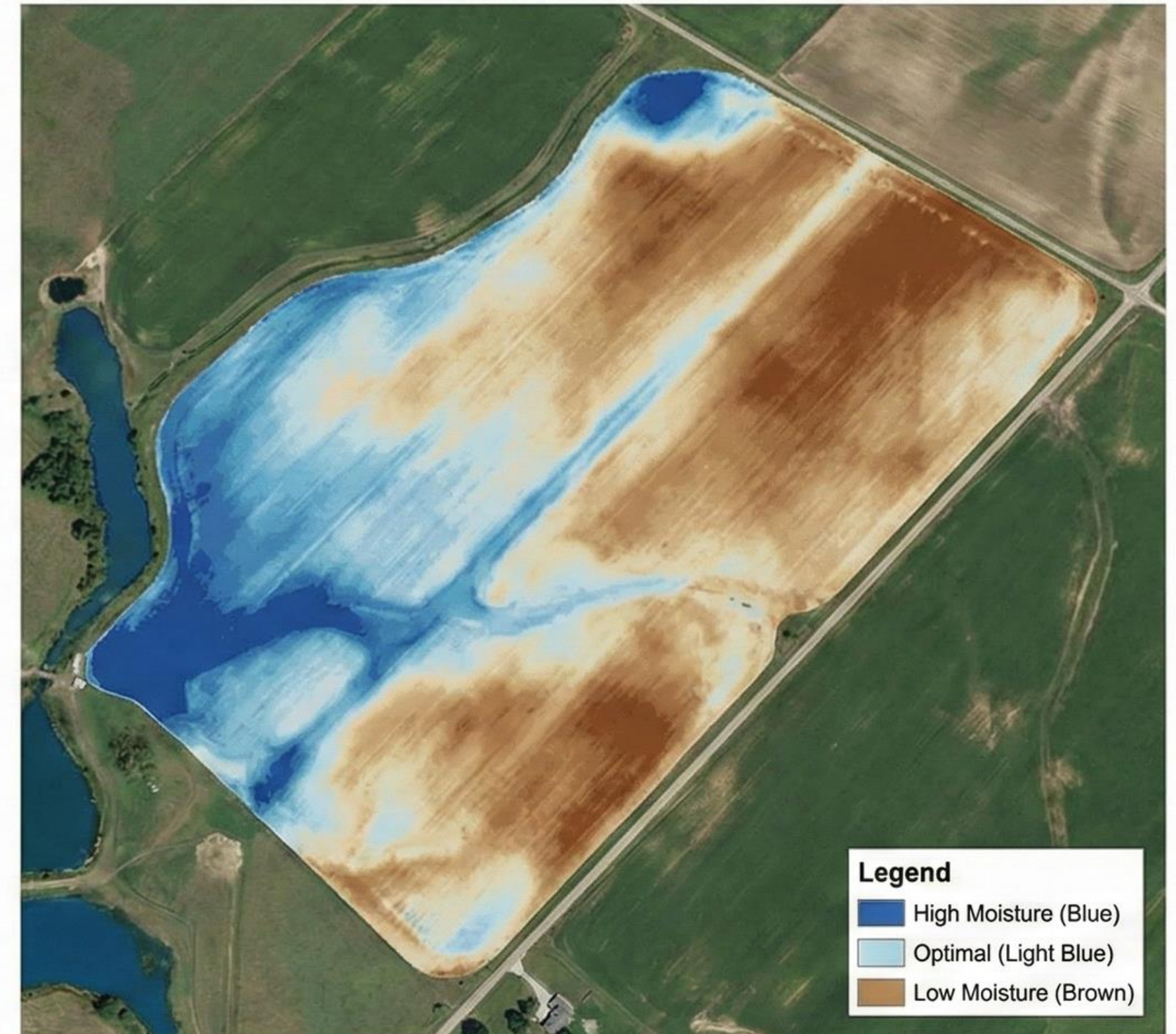
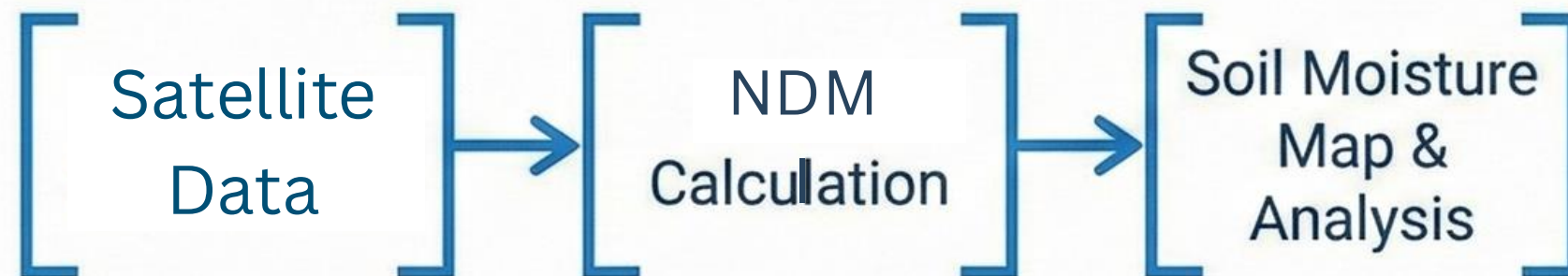
- Sensitive to: moisture content present in soil



- Root-zone moisture availability



- Complements NDM analysis



NDWI – Water Index



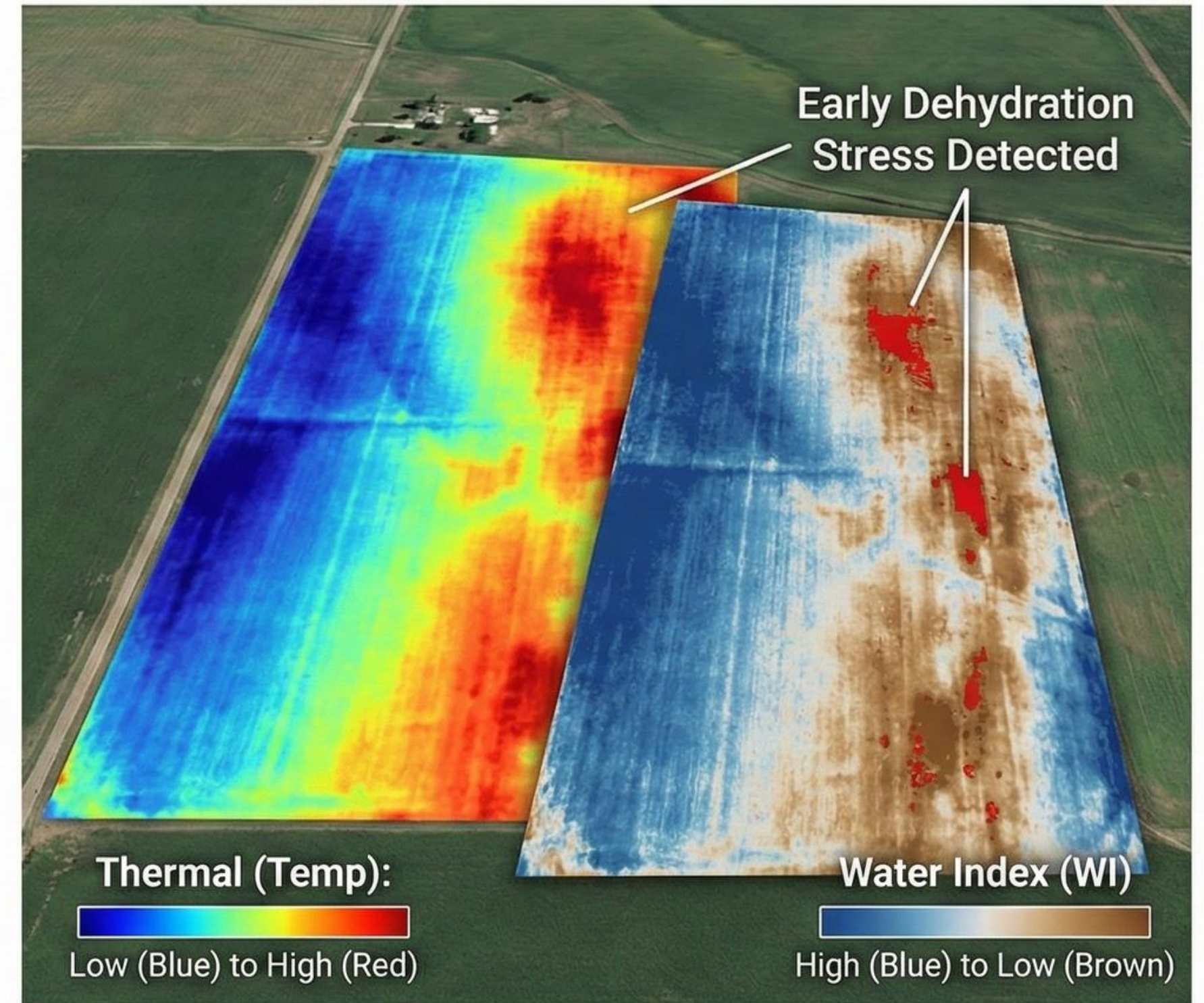
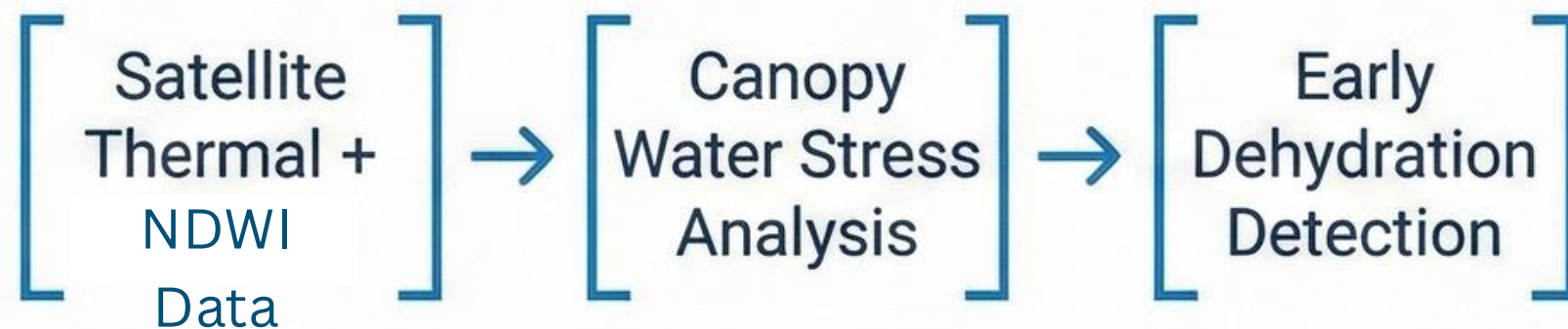
- NDWI indicates water absorption by canopy



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



- Detects early dehydration stress



Irrigation Decision Support



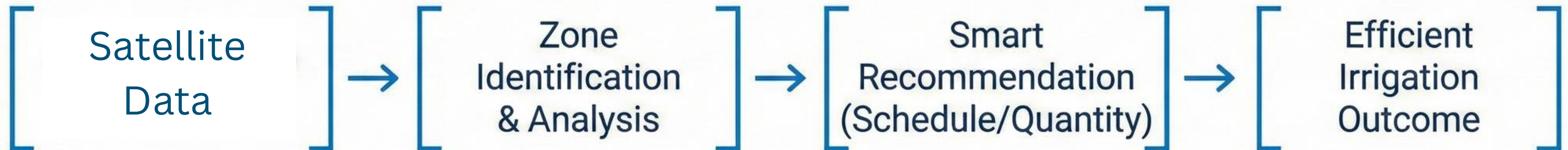
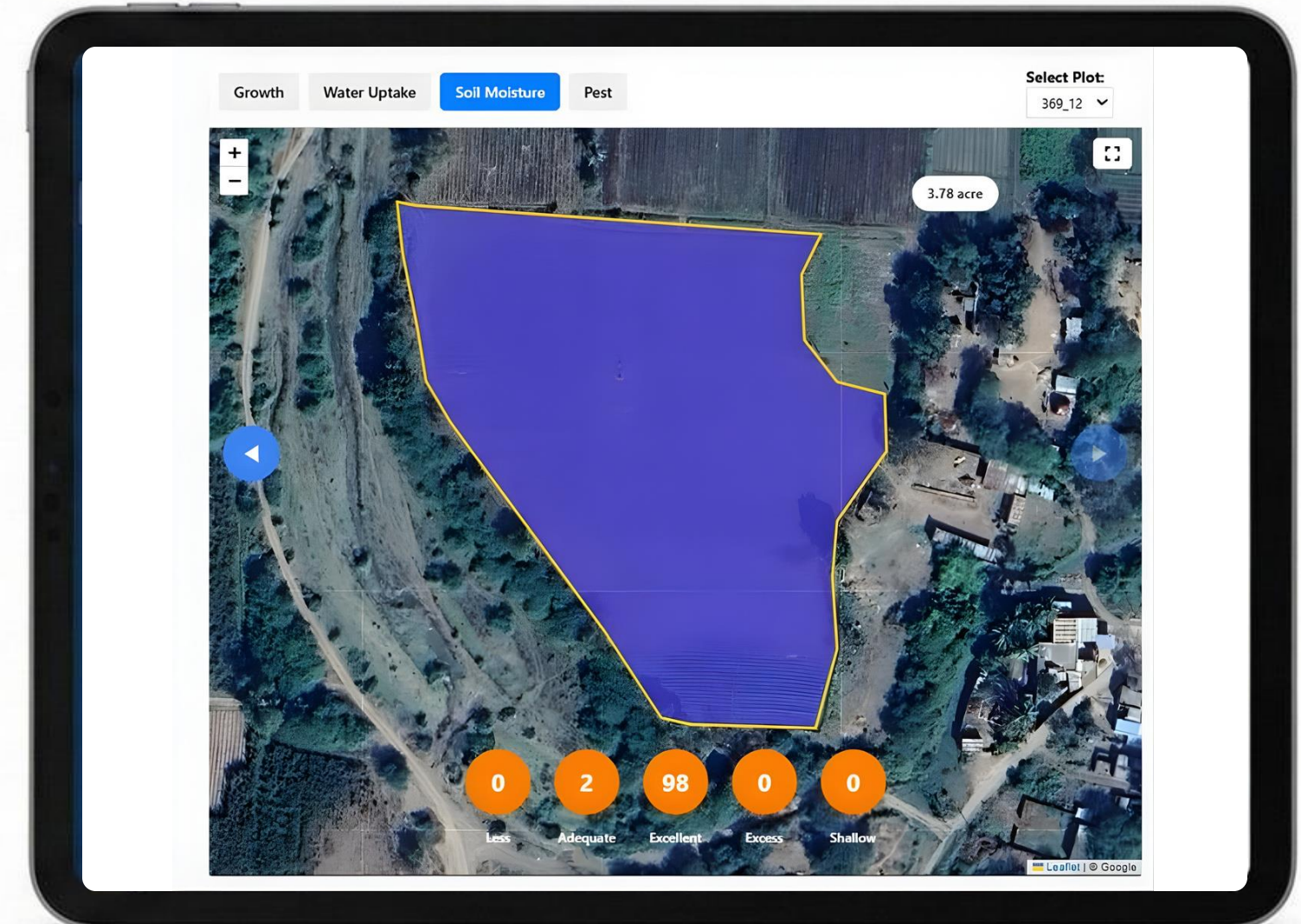
- Identify under- and over-irrigated zones







- Recommend: Irrigation scheduling, Quantity adjustment

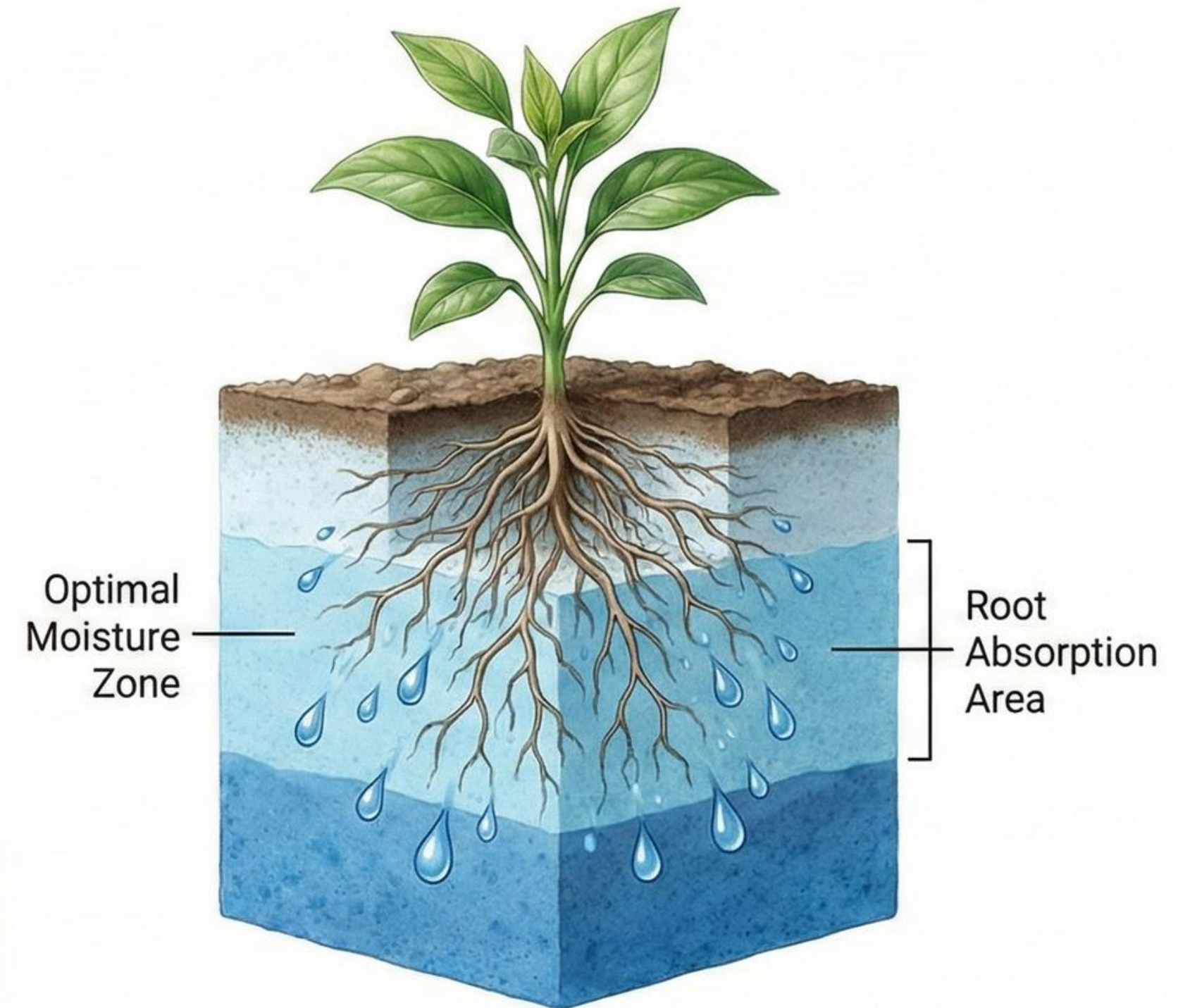
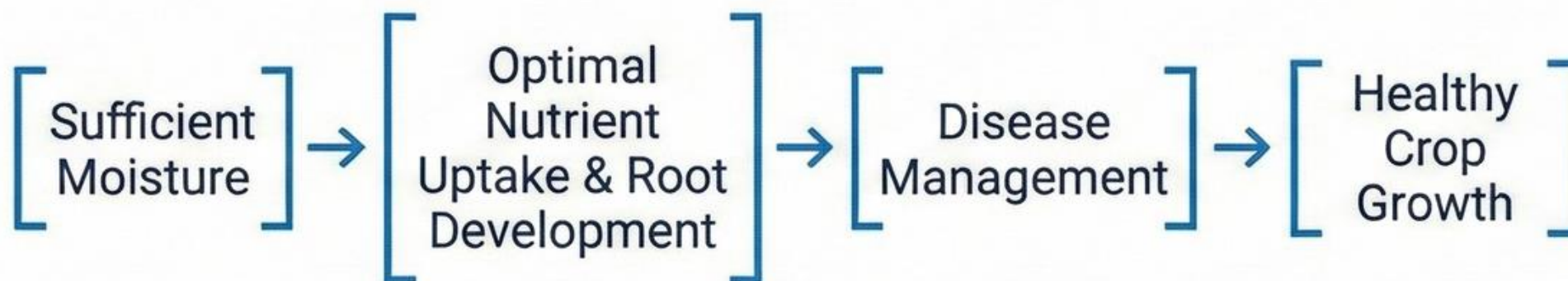


- Improves water use efficiency



Why Soil Moisture Matters

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



Satellite-Based Soil Moisture Insights



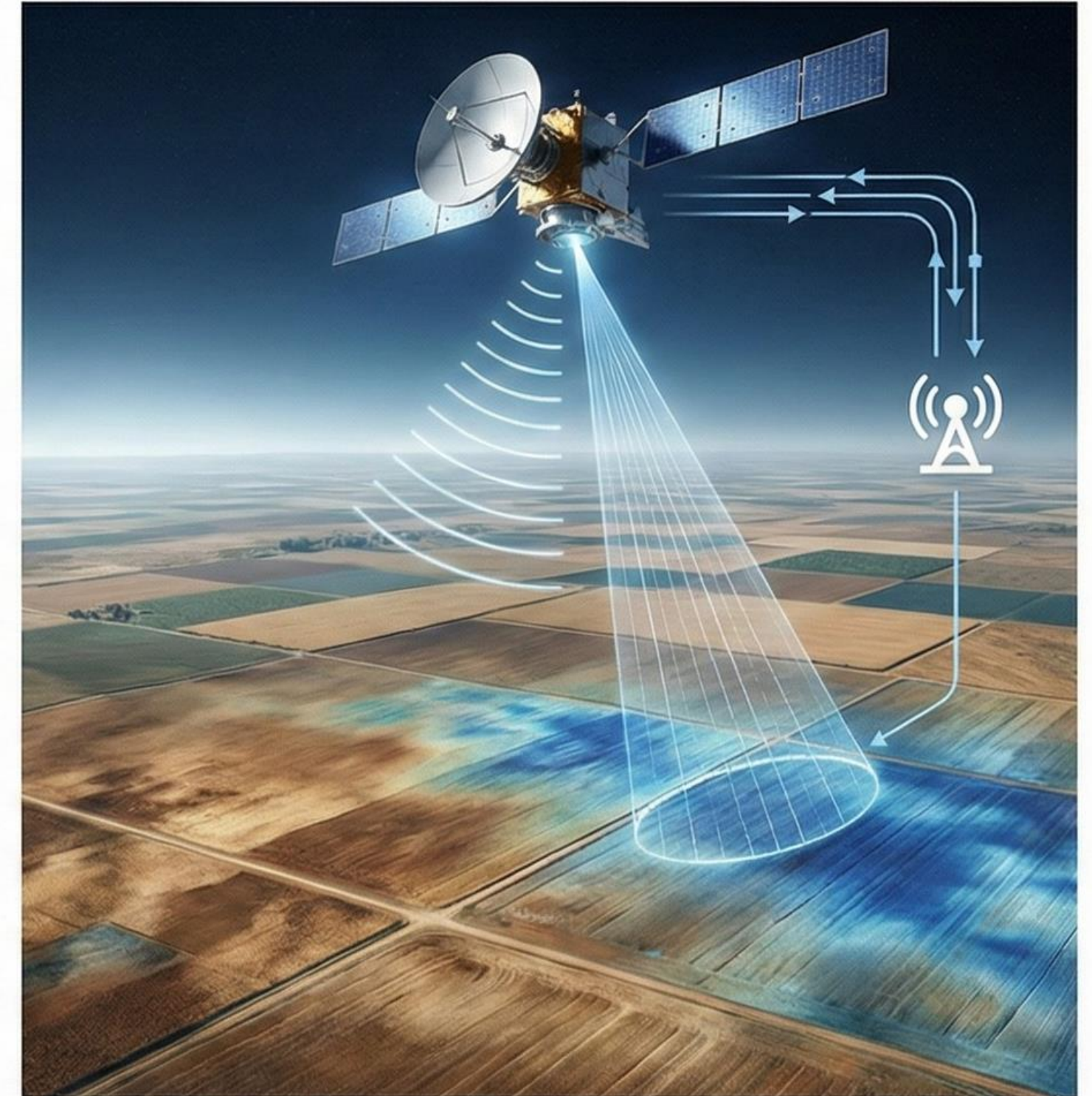
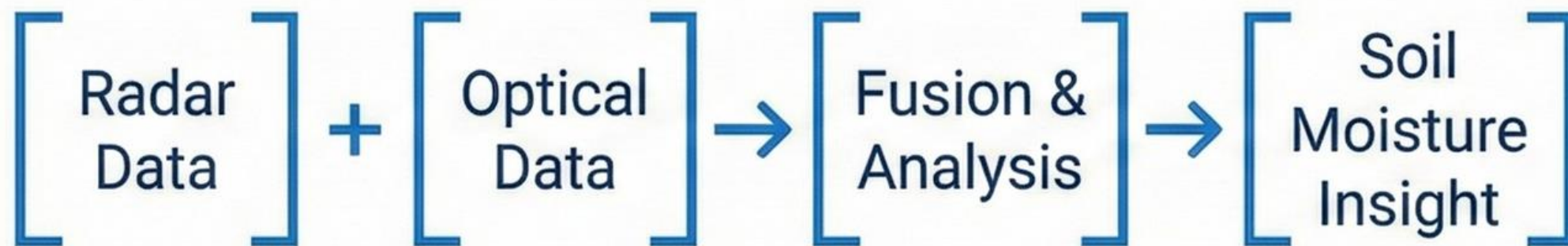
• Radar & optical data used together



• Helps detect: Dry stress, Waterlogging



• Works even for large farms



Soil Moisture Advisory Use Case



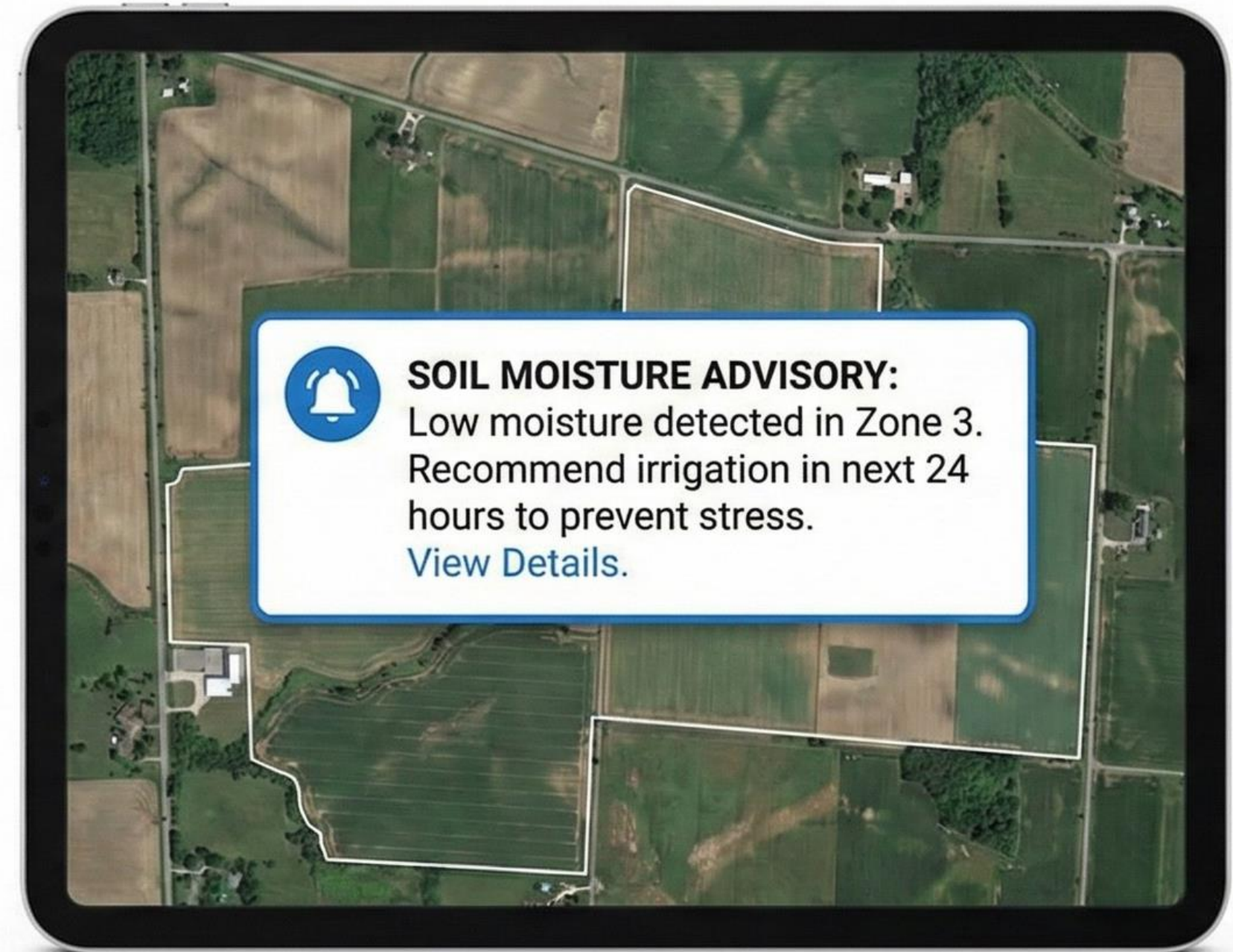
• Adjust irrigation frequency



• 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

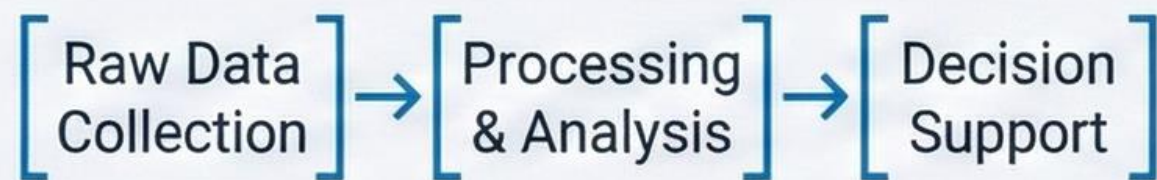


Satellite Data

Processed Indices

Meaningful Insights

Actionable Recommendations



Actionable Farm Recommendations



- Variable-rate fertilizer application



- Targeted pest scouting







- Smart irrigation planning

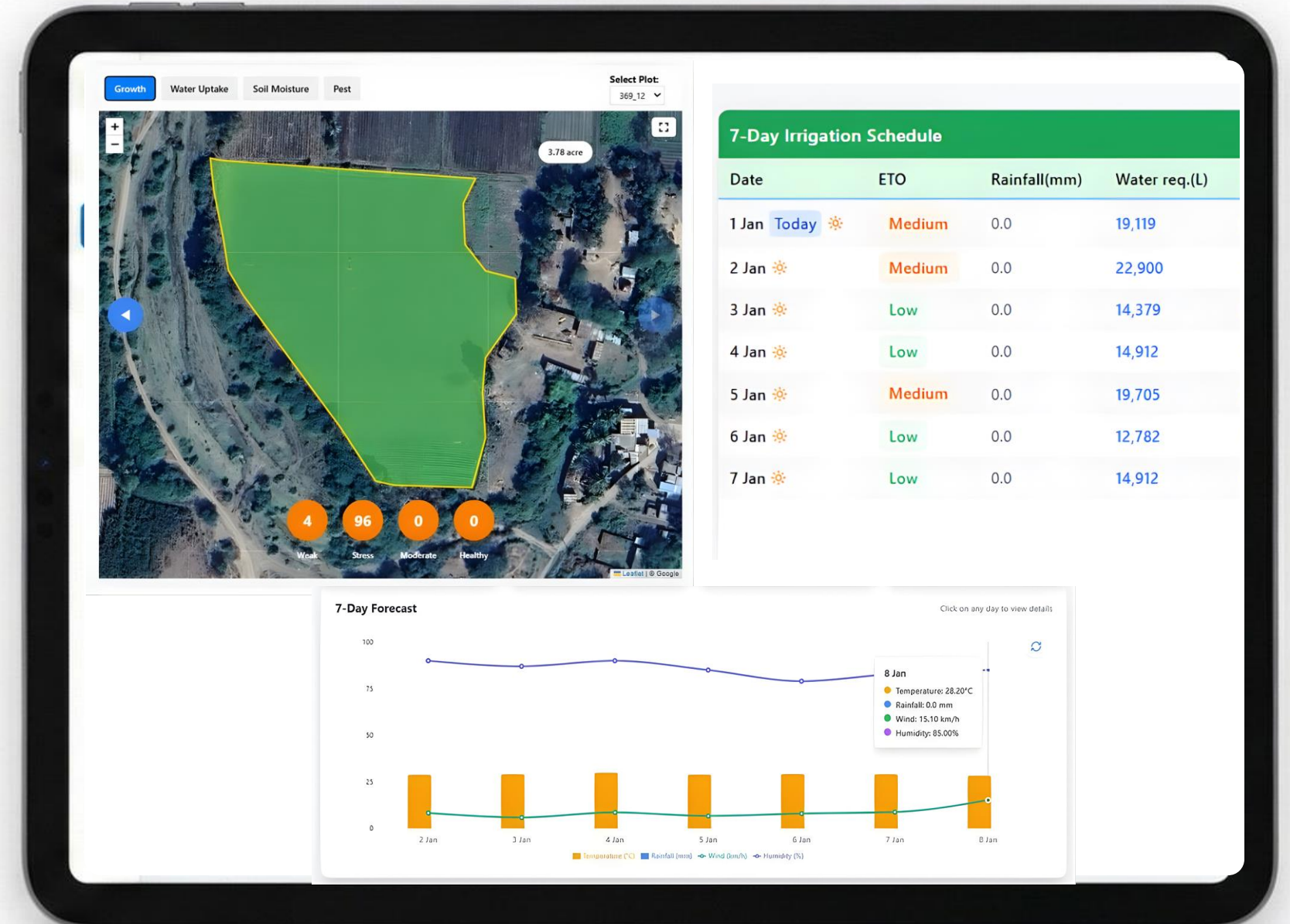


- Yield risk assessment



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



• Reduced input cost



• Increased yield stability



• Climate-resilient decision-making



• Sustainable farming practices



Conclusion



- Satellite data is transforming agriculture



- Right interpretation creates real value



- Future of farming is precision-driven



- Let's move from observation to action



Start Your Precision Journey

Thank You

for your participation



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