Innovative Space Technology Approaches Sustainable Development Goals Addressed:

- Zero Hunger (Goal 2)
- Decent Work and Economic Growth (Goal 8)
- Industry, Innovation and Infrastructure (Goal 9)
- Responsible Consumption and Production (Goal 12)
- Life Below Water (Goal 14)
- Life on Land (Goal 15)
- Partnerships for the Goals (Goal 17)
Innovative Space Technology Approaches to Serve the Needs of Developing Countries for Precision Agriculture
Data-Driven Precision Agriculture is a Reality in the West
Remote-Sensing: Efficiency & Cost Reduction in Agriculture

01 Daily Farm Management
- Daily Prescriptions & Guidance
- Early Warning
- Crop Stress Identification
- Directed Scouting
- Water, Nitrogen and Protection Management
- Variable Rate Application
- Yield Prediction
- Archival Record

02 New Product Crop Trials
- Product Application Efficacy
- Compliance
- Return on Investment
- Manual Labor cost Reduction
- Connectivity
- Automated Data Archival & Retrieval
Remote Sensing Water Stress

Remote Sensing: Early Warning has Economic Impact

Map

Acres: 8.7
Ave Yield: 18.2 bu/ac
Yield Loss: 137.6 bu/acre
1197 total bushels
Economic Loss: @ $6 corn (2012) $7182

Harvest Yield Map

Acres: 9.3
Ave Yield: 128.8 bu/ac
Yield Loss: 27.2 bu/acre
253 total bushels
Economic Loss: @ $6 corn $1518

Data Source: SaraniaSat partner Cornerstone Mapping
Remote-Sensing: Drought Resistance Comparison

Data Source: SaraniaSat partner Cornerstone Mapping
Remote-Sensing: Crop Response to Variable Fertilizer Rates

Data Source: SaraniaSat partner Cornerstone Mapping
Ground truthed population counts verify damage seen in the Remote Sensing

Affected Area: 44-acres

Data Source: SaraniaSat partner Cornerstone Mapping
Proposed CANEUS Pilot Projects in Asia and Africa

CANEUS Vision: Widespread adoption of Remote-Sensing based Data-Driven Agriculture
Proposed CANEUS Collaborative Pilot Project Structure

1. Define Key Agricultural Questions to be answered by Space-based Remote Sensing.

2. Design Pilot Project and Determine Expected Outcomes.

3. Execute the Pilot Project and Acquire Necessary Data

4. Evaluate Project Results and Conclusions based on Predetermined Success Criteria

5. Assuming Success, Determine Future Projects and Expansion of the Program
Global Adoption of Data-Driven Agriculture has Multiple SDG Payoffs