

OBJECTIVE: Develop methodology for evaluating biofuel crop water and growth status at field scale using remote sensing

Description

- Description of Problem:** Remotely sensed crop information can be used to validate ALMANCAC model and SWAT model
- Technical/conceptual approach:**



Develop real time crop growth status maps (canopy cover, LAI, NDVI, water status, etc.)

Ground truth measurements

Key Accomplishments & Findings

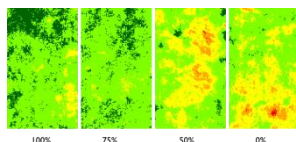
- Maintained irrigation treatments field.
- Worked with the vendor for UAV training and system maintenance; worked with FAA.
- Developed methods for calibrating, geo-referencing, image processing using professional image processing software.

Deliverables:

- Identified energy crops are more tolerant to water stress than sugarcane crops.
- Determined more suitable remote sensing system and platform for farm practice in windy environment.

Tools & Methods

- Our technical approach is primary remote sensing data collection, image calibration and processing; using remotely sensed data to predict crop physiological parameters and water status; then linking with ALMANAC and SWAT models.
- Tasks include: integrated UAS system, obtained COA, made cameras working functionally, UAV flight training, field crop parameters, maintained irrigation trial, wrote code for image processing and model developing.



Project Management Information

- FY2015 Funding:** \$95,899.5 +10% ARS overhead; received from cooperator on June 24, 2015.
- Collaborators: USDA-ARS in Parlier, CA.

Affiliation	Email Address
USDA-ARS, Fort Collins, CO	Huihui.zhang@ars.usda.gov