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Support Crop Modeling with High Resolution Measurements of H2O, CO2, and Energy Fluxes, and Forcing Variables

Description

1. Understand hydrological and crop responses to environmental variables to support SWAT and ALMANAC implementation
2. Determine crop water use, growth, energy exchange, and ecophysiological characteristics in response to variations in climate and moisture

Key Accomplishments & Findings

1. Established new study site in Field 100 in NE part of plantation, capturing previously unmonitored climatic and soil influences representing >50% of the plantation
2. Upgraded sensing capabilities with new Net Radiometers, Wind Sensors, and Additional Soil Moisture Sensors
3. Analyzed eddy covariance and climate at monitored sites
4. Found contrasting fluxes and response characteristics at new site compared with previously monitored sites
5. Measured and analyzed leaf-level fluxes and characteristics
6. Found site differences opposite to expectations.

Tools & Methods

1. Eddy covariance approach at multiple sites, over annual cycles/crop cycle
2. Calculate ET, NEE, WUE, and RUE
3. Make biometric and leaf-level photosynthesis measurements

Project Management Information

1. Field 917 (low rainfall site) flux tower reinstalled in February 2015 following harvest and replanting.
2. Field 100 (higher rainfall site) recently currently being reinstalled.
3. Survey of leaf area for crops of different ages planned for January-March 2016.
4. Flux data sets and light-response curve results available for use by modeling groups.

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