



## Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program

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### **Trip Report: India**

3-23 June 2011

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**Purpose:** The primary purpose of this trip was to prepare and collect initial soil and labor data from both the on-farm and experimental CAPS trials for planting in the second year of project implementation. In addition, socio-economic, farmer knowledge, and gender surveys were conducted in the village of Tentuli; two additional new village sites (Bayakumutia and Talachampe) were visited and assessed for future project implementation; and in-country research associates were trained in various data collection methods.

**Sites Visited:** Odisha (formerly referred to as Orissa) University of Agriculture and Technology (OUAT) main campus, Bhubaneswar; OUAT agriculture research station, Kendujhar (formerly referred to as Keonjhar) District; Tentuli, Bayakumutia, and Talachampe villages, District of Kendujhar

### **Description of Activities:**

The site of the 2011 experimental plots at the OUAT research station in Kendujhar was visited. These experimental plots are designed as a full-cross to test the effects of reduced tillage, maize/cowpea intercropping, and residue retention of a mustard crop. The experimental design included 3 replications with the reduced tillage treatment consisting of only one pass of the plow to remove weeds prior to sowing, as compared with two passes for conventional tillage plots. The residue retention plots consist of mustard vegetation being returned to the field post-harvest, in which case the residue remains throughout the dry winter season. During the visit, baseline soil samples were collected to measure initial soil pH, bulk density, and soil nutrients. Preliminary analysis for soil moisture and bulk density of these samples was conducted at the OUAT soil laboratory in Bhubaneswar, with further analysis to be continued by Dr. K.N. Mishra and the OUAT-based research fellow. Furthermore, field research methods and data collection trainings for these experimental plots were held with the in-country PI, research coordinator, and

research associates. These practical trainings included: use of a soil core for sampling, a SPAD meter to measure chlorophyll content, and resin bags to assess soil nutrient content.

In the village of Tentuli, the first site for on-farm project implementation, farmer plots were visited and mapped with a GPS. At the time of the visit, farmers had begun land preparation (including plowing of conventional tillage treatments) and demarcation of the experimental plots in preparation for maize and cowpea. The baseline socio-economic surveys were completed, including all households participating in the 2011 on-farm trials. Additionally, a farmer knowledge survey was conducted to assess farmer perceptions of various agricultural practices (including the three components of CAPS) and physical determinants of soil quality. This survey also included a basic assessment of household food security. All households participating in the on-farm trials were surveyed, with the male and female heads of household interviewed separately, for later analysis of gender differences in agricultural knowledge and initial perceptions of CAPS. A total of 26 farmer knowledge surveys were conducted. The project coordinator, an economics research associate, and two OUAT master's students were trained in the implementation of both the socio-economic and farmer knowledge surveys.

Upon arrival to Tentuli, the weather station installed in the Spring was found to not be collecting data. This weather station was re-programmed, and training conducted with the local village representative, host-country SMARTS Project Coordinator and C. Lai lead by J. Halbrendt was completed on how to troubleshoot data collection issues and how to re-install the data logger and sensors. This detailed training lead by J. Halbrendt ensured that both the village representative and the host-country project coordinator (S. Dwibedy) would be able to check the weather station regularly, troubleshoot, and collect data on a regular basis.

The two newly selected village sites, Bayakumutia and Talachampe, were visited. These villages were selected based on the following criteria: marginal landholdings, maize-based production systems, little or no current use of CAPS, willingness to participate, and road accessibility throughout the year. At each of these villages, community meetings were held to introduce the project. Focus groups of farmers were held to collect information on basic farming practices, types of crops cultivated, seasonal farming calendar, and village infrastructure. Baseline socio-economic surveying was initiated in Bayakumutia, with a continuation of surveying in both villages to be completed by research associates in the coming months.

Market surveys were conducted at both the village and Kendujhar town levels. The survey was designed to assess: crop varieties sold, prices, seasonal availability of crops, potential for market growth of specific crops, and seller demographics (male or female, farmer or trader, etc.).

**Training Activities Conducted:**

Program type (workshop, seminar, field day, short course, etc.)	Date	Audience	Number of Participants		Training Provider (US University, host country institution, etc.)	Training Objective
			M	F		
Short Course	6-Jun	India SMARTS Research Associate and Project Coordinator	2	2	University of Hawaii	To train India SMARTS staff of administering the farmer knowledge and perception survey
Focus Group	7-Jun	Tentuli Village Farmers	9	2	University of Hawaii	To determine and discuss the social structure and organized groups of Tentuli village
Short Course	9-Jun	OUAT Graduate Research Associates	1	3	University of Hawaii	To train OUAT staff of administering the farmer knowledge and perception survey
Short Course	9-Jun	India SMARTS and OUAT Research Associates	4	3	University of Hawaii	To train staff methodology of soil sampling
Short Course	9-Jun	India SMARTS Agronomist and Project Coordinator	2	1	University of Hawaii	To train staff of specific protocol of data collection regarding labor on experimental and on-farm plots
Short Course	10-Jun	SMARTS Project Coordinator (India) and Hawaii Graduate Research Associate	1	2	University of Hawaii	To train SMARTS graduate assistant and project coordinator of use of weather station
Focus Group	11-Jun	Baikumutia village farmers	29	3	University of Hawaii	Introduce villagers to the SANREM/SMARTS project, discuss present agricultural practices, concerns, crops produced within village, and complete seasonal calendar of agricultural activities

Focus Group	11-Jun	Talachampeii village farmers	14	10	University of Hawaii	Introduce villagers to the SANREM/SMARTS project, discuss present agricultural practices, concerns, crops produced within village, and complete seasonal calendar of agricultural activities
Short Course	12-Jun	India SMARTS and OUAT Research Associates	1	4	University of Hawaii	To train India SMARTS research fellow project coordinator, and OUAT graduate student how to administer the market survey
Short Course	13-Jun	India SMARTS and OUAT Research Associates	4	3	University of Hawaii	To train India SMARTS Research associates of using the SPAD meter, implementing resin bags and assembling weather stations
Short Course	13-Jun	India SMARTS Project Coordinator	1	1	University of Hawaii	To train India SMARTS Project Coordinator of administering the baseline socio-economic survey
Short Course	16-Jun	India SMARTS Research fellow	1	1	University of Hawaii	To train India SMARTS Agricultural Socio-economic research fellow of administering the baseline socio-economic survey
Short Course	16-Jun	OUAT and SMARTS Hawaii Graduate Research Assistants		3	University of Hawaii	To train graduate research assistants on the methodology of in lab soil sample analysis (weight, bulk density, moist/dry analysis)

**Suggestions, Recommendations, and/or Follow-up items:**

- The Hawaii SMARTS team should ensure that regular follow-ups be conducted by the host-country collaborators with OUAT research associates to ensure that the soil analysis and socio-economic surveys are continued and completed in a timely manner. These follow-ups should be done regularly, recorded and relayed back to the Hawaii SMARTS team to ensure that everyone is kept informed regarding progress and that concerns are answered within the project.
- Reports of the field experiments with pictures should be required throughout the growing season, as some components of field experiments are often not as expected or described.

**List of Contacts Made:**

*(Please note that this list consists of new employees that were hired for the India SMARTS team and introduced for the first time this trip)*

<b>Name</b>	<b>Title/Organization</b>	<b>Contact Info (Address, phone, email)</b>
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