



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

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### Trip Report: Kenya and Uganda

29 March – 13 April 2011

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University of Wyoming

#### **Purpose of Trip:**

1. Monitor CAPS trial initiation progress;
2. Provide guidance to SANREM graduate student;
3. Interact with collaborating partners and farmers; and
4. Assist with planting and soil sampling at our four study sites in western Kenya and eastern Uganda.

#### **Sites Visited:**

Twenty research sites, including one on-station site and four on-farm sites in each of our four areas: Kitale and Bungoma in Kenya, and Kapchorwa and Tororo in Uganda.  
Moi University, Eldoret, Kenya.

#### **Description of Activities:**

This trip occurred near the onset of long rains in order to interact with and provide support for our host-country partners, PhD student Jeremiah Okeyo, project research coordinator Dominic Sikuku, as well as the cooperating farmers and research station managers, after they had delineated and collected baseline soil samples form and during planting of the CA treatments. Norton visited all 20 research sites and met with most of the farmers and station managers. Okeyo and Sikuku are experienced agronomists and have ensured through frequent visits and direct oversight, that all the CA trials have been established in a consistent and timely manner.

#### **31 March-4 April: Kitale, Eldoret**

- Started with briefing of activities by Dominic Sikuku, contracting research associate coordinating and expediting all research trial establishment activities. All on-station and on-farm sites have been demarcated and soil sampled in four depth increments to 100 cm, as well as 0-5 cm samples for Mike Mulvaney, VT. Plots are all being prepped, fertilized, and planted this week.
- Met with Syngenta rep Humphrey Kirvaye, who assisted with PERSUAP. Humphrey has provided training for a conservation agriculture project in Laikipia, Mount Kenya area,

run by a partnership including FAO, KenDAT, CETRAD. He provided the insight that weed control is key. He provided information and advice on herbicides. Key products are Touchdown (glyphosate) and Dual Gold – a pre-emergence, early post-emergence product that can be used on maize-bean intercrop right after planting. Humphrey can provide training on herbicides and CA if needed, but would like me to discuss with his superior in Nairobi (tried to arrange a meeting during my layover on 12 April, but it fell through).

- Traveled to Eldoret with Dominic to meet with Co-PI Prof. Robert Okalebo of Moi University Soil Science Department, his two SANREM MS students, and Eusebius Mukhwana. They have received some of the soil samples and begun processing them. They will retrieve remaining ones from storage in Bungoma, Kitale, and Tororo next week. Eusebius has been coordinating our application for a KEPHIS permit and we expect that to be issued soon in order to import samples from Uganda. We discussed travel arrangements for Okalebo and Sikuku to attend SANREM annual meeting and visit the University of Wyoming. Student/technician Patrick Oluko will coordinate shipping to Blacksburg and Laramie once all the samples are gathered at Moi. Discussed graduate student projects and agreed to have each student write a one-page concept statement about their project. Patrick is interested in microbiology and would like an opportunity for training in the US because Moi is weak right now in soil micro. The other Moi student, Phanice Ogonga, is interested in soil physics, including structure and soil-water relationships.
- Visited Kitale area on-farm sites. All had been planted just the previous day and look good. Met with each farmer except Billia. They are each engaged and hopeful to learn something. This groups seems to understand the partnership arrangement very well. Plots are being fenced by MHAC. Rain gauges are installed and farmers are comfortable monitoring them.
- Jeremiah Okeyo, UW SANREM PhD student arrived at Manor House Monday morning, 3 April. Observed Manor House on-station planting on 3 April. I planned to help, but 18 skilled laborers showed up and had the job done very rapidly and efficiently with Jeremiah and Dennis Ashiende of Manor House instructing, patrolling, and planting. They had soaked mucuna seed for two days. They planted mucuna in surrounding field for seed production. Used panga for no-till planting and hoe for min till and farmer practice.

#### 4 April-6 April: Kapchorwa

- Stopped at Bungoma on-station site at Mabanga briefly to pick up soil probes. Met Johnstone Odera. Crops are just emerging; planted on 29 March; continued to Noah's Ark Hotel in Kapchorwa. AT crew arrived late at night.
- Planted on-station plots at Keere research station with crew of ~30 laborers, supervised by Ketty, Julian, Jeremiah, Wilson, Josephat, and Dominic. Chaotic, but done accurately and efficiently. David Chemusto also assisted and is an excellent local contact that will visit on-station and on-farm sites very often and engage with farmers and others. He has BS in ag education and would like to study in US. Dominic and I collected 0-10 and 10-30 cm bulk density samples: four cores per plot.

- Continued to Kwasir on-farm sites and planted those. Only collecting BD samples on-station. Met farmers and Dominic and Jeremiah installed one of the rain gauges and taught them how to monitor them.
- Dominic, Jeremiah, and I visited the other two on-farm sites and talked to farmers. These farmers also seem to understand the project and partnership very well. AT crew planted these the following day.
- Explored idea of watershed assessment/modeling. There is a flume-like bridge on a side road downstream from study sites that could be simply instrumented to record stage and collect suspended sediment samples. Need to look into availability of some sort of digital elevation model (DEM), or cost of flying to create a DEM.

#### 7 April-8 April: Tororo

- Collected bulk density samples at DATIC on-station site with assistance from George Patrick (GP or Mr.) Wandera, who is engaged in this project and a good on-station partner. Fence was being built around plot. Maize and beans are up and mucuna, which was soaked, is just emerging; planted on 24-25 March. After sampling we spent 3 hours sorting and packing the soil samples from earlier into gunny sacks to be ready for transport once our KEPHIS permit is issued.
- Visited Kisoko on farm sites in evening with chairwoman Dinah Twinomugishe. These fields are in very good shape with all crops emerging. Farmers are engaged and even doing their own research on plots like ours on adjacent ground. Joaquim, for instance has a groundnut plot with “local” (broadcast) seeding and one planted in rows to compare performance. Checked rain gauge installation at both farms: excellently done. Mary Oboyi is new farmer since last fall because of disagreement among owners of the one originally identified.
- Visited Molo farms the next day. Also in very good shape with rain gauges nicely installed and being properly monitored. Obo Moses Owori replaced Faith Osinde because of disagreement by husband about participation.

#### 9 April: Bungoma

- Visited Farmers in Siritanyi area; both new ones since identifying them in October. Abubakar Wafula and Violet Mbuya. Fields look good but have weed problems. Farmers agreed to get on it today and James agreed to check. Fences and rain gauges are not installed yet.
- Met with Eusebius and agreed to reduce his RA contract by half because he has many commitments to SACRED and other projects; Jeremiah, Dominic and Josephat collected bulk density samples at Mabanga on-station plot.
- Visited Khachonge area farmers Lawrence Wanyonyi and Protus Opiche. Lawrence’ field emerged but weedy; he agreed to weed. We fixed up his rain gauge. Protus’ field looked good. He agreed to remove volunteer amaranth from some plots.
- Left for Kitale. Dominic will return on Wednesday to check fields and discuss ways to achieve better management with Johnstone and James of SACRED. The farmers are not taking ownership but consider them to be SACRED plots and wait to be told what to do. (Talked to Dominic from the Detroit airport; all plots weeded and look good. Dominic has discussed improving management with both SACRED and farmers.)

### 10 April-12 April: Kitale

- Collected on-station bulk density samples; viewed photos and discussed testing later this year of tillage implement prototype with Joshua Ouko, MHAC animal draft instructor.
- Final meetings with Dominic and Jeremiah regarding development of their individual research objectives.
- Met with Jennifer Lamb regarding her research.

### **Suggestions and Recommendations**

Overall, first-year establishment at all our plots is going exceptionally well. We will improve upon minimum tillage treatment as we identify or develop implements for farmers to try. We will write up the detailed protocol that resulted from all the on-the-fly decisions that had to be made so that next planting season all sites will be even more consistently managed. I discussed with all partners that the minimum-till option should be able to be done without herbicides, but we need to find the right tools before taking this step. I re-emphasized the importance of the tillage, rotation, and covercrop treatments. We discussed that, as long as those treatments are well-accomplished, we could alter crops and even cover crops if farmers feel it would improve the research. We agreed (with Dominic and Jeremiah) that all the plots (on-station and on-farm) within each of the four main study areas should remain the same, but could vary among the four areas.

### **List of Contacts Made:**

Name	Title/Organization
Rita Laker-Ojok (via phone)	Director, AT Uganda, and Co-PI
Julian Nyachwo	Technical Advisor, AT Uganda
Johnstone Tungani	Interim director, SACRED Africa
Nicodemus Nyongesa	Interim director, Manor House Agricultural Centre
Polly Noyce	Board of Trustees, Manor House Agricultural Centre
J.R. Okalebo	Professor, Moi University and Co-PI
Joshua Ouko	Manor House draft animal instructor
Dennis Ashiende	Manor House instructor/Kitale area SANREM coordinator
George Patrick Wandera	DATIC station manager, Tororo, Uganda
Jennifer Lamb	Graduate student, Virginia Tech.
David Chemusto	Kapchorwa local contact
Dinah Twinomugishe	Kisoko farmers' group chairwoman
John Onongo (via phone)	Molo contact/interpreter
Mary Oboyi	Kisoko farmer
Joaquim Osuna	Kisoko farmer
Obbo Moses Owori	Molo farmer
Jackson M	Kwosir farmer
Dominic Sikuku	SANREM E. Africa research associate/field coordinator
Jeremiah Okeyo	PhD Student, University of Wyoming
Bernard Steven	Kwosir farmer
Patricia	Kwosir farmers' group chairwoman

Name	Title/Organization
Florence Maunya	Atari River farmer
Chris	Atari River farmer
Patrick Oluko	MSc student, Moi University
Phanice Odongo	MSc student, Moi University
Eusebius Mukhwana	SANREM research associate, SACRED Africa
Humphrey Kirvaye	Syngenta field rep.
Tom	Research director, Mabanga Ag training center, Bungoma
Ketty Nambozo	AT Uganda field coordinator for Kapchorwa & Tororo
Julius Ochuodho	Agriculture Dean, Moi University