

## **Drs. Cardina and Erbaugh IPM IL trip to Kenya and Tanzania**

July 30 – August 6, 2016

### **1<sup>st</sup> August 2016**

#### Meetings at KALRO-Kandara to discuss progress of project implementation

First meeting with Kenya IPM IL coordinator, Jesca Mbaka.

We discussed the following:

1 – Graduate student training.

There is funding for one PhD student studying in Kenya. Jesca has asked for concept notes from all those interested and will choose the best for the PhD.

We wish to recruit one student from Kenya to complete an M.S. degree at OSU (for which we have a tuition scholarship from OSU Graduate School). We asked her to help identify a student, preferably a young applicant who will need to take the TOEFL and GRE.

2 – Baseline surveys.

Beth Ndungu has been working with George Norton on this; they completed surveys the last week of July.

Beth and Jesca are working with five irrigation schemes in semi-arid areas. There are five farmer groups of 500-1000 farmers. Within them they are trying to form marketing groups.

3- Budget issues

The team is now bigger than in the original project document, including a biometrician, for example. The money will be spread to more people. Payment will be based on reports. Travel costs will be paid for project activities. Social science and biometrics cut across other areas.

4 – Metrics for farmer groups

We emphasized that in farmer group meetings they should be recording the number of farmers, gender and age.

5 – Working with Real IPM (preliminary discussion with Dr. Mbaka about working with Real IPM).

Real IPM seems to be working mostly in Western Kenya, also in Meru.

WhatsApp is widely available, as are cell phones. There is no need to spend project funds on cell phones; we can use those funds for more important things.

Suggest that efforts be made to do training jointly, especially KALRO is better placed. This should be a win-win situation, expanding the market for Real IPM and making the connection to their products for research and demonstration where KALRO is working.

Farmers need to understand the mode of action of biocontrols; this is where KALRO can help; Real IPM can do the training on how to use the biocontrols.

As for a diagnostic web site, it seems that commercial growers simply use Google images, but verification and authenticity can be questionable.

6. Meeting later in the morning with KALRO-Kandara personnel engaged in IPM IL activities. This meeting was led by Dr. Beth Ndungu with those listed below participating.

Project Participants Meeting: (6 female; 4 male)

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The socioeconomic survey was conducted in four counties: Tharaka Nithi, Nyeri, Nakuru and Bomet (in Rift Valley – mostly a maize area). The main focus for vegetable production will be in Tharaka Nithi. About 100 farmers from each county were interviewed. Enumerators were trained at ICIPE. Surveys were recorded on tablets electronically, so data should be available soon. George Norton has the data; his student will do analysis. Each interview took about 45 minutes to an hour.

The Ministry of Agric. office in each county provided lists of farmers at the sub-county level for sampling. A random group of farmers was chosen from this list. For example, within three irrigation projects there were five farms. The sub groups –marketing groups – are good to work with.

Vegetable production is focused in Chuka, where they are setting up irrigation. There are 100 farms in Chuka and four irrigation schemes (four of many); about 25 farmers were chosen from each of the four irrigation schemes for the biological baseline study.

### **August 2<sup>nd</sup>–**

Early A.M. held second meeting with Jesca Mbaka to discuss budget details. Later met with George Mburu who will serve as the KALRO Kandara accountant for IPM IL.

Drs. Mbaka, Cardina and Erbaugh traveled to Real IPM offices near Thika to discuss the role of Real IPM with IPM IL. We met with Collins Wanyama (commercial development mgr) and Patrick Mathenge (Information System Officer).

We reviewed the proposed idea that field staff would use WhatsApp to capture images of pests and diseases for diagnosis. Originally, it was proposed that Real IPM would be the main repository of those images. We discussed the need to set up a diagnosis network and a means to connect diagnostic information with diagnosticians for response information and/or recommendations. This is in progress, and participants need to find ways to work with Real IPM to make this happen.

Additional suggestions and challenges that emerged from this meeting were:

We should start small and just focus on tomato. Need to focus on developing the reporting system for diseases and then decision-making process among diagnosticians for providing diagnoses of diseases and insects. Since we are working with growers it was emphasized that the diagnostic system needs to have relatively rapid turn-around otherwise the system will not be sustained. The initial reporting system should focus on training extension agents and Real IPM promoters on use of IT reporting. Patrick said he would move ahead on setting up web site.

### **3 August 2016**

Meeting at U.S. Embassy, Dar es Salaam.

Met with David Charles, Feed-the-Future Coordinator and Judith Kitivo (horticultural specialist in the Mission) to discuss the project and seek their suggestions and inputs on Mission value chain partners with whom we might collaborate.

The main points of this discussion are as follows:

Main partners to work with are:

- TAHA – the principal voice of the horticulture industry in Tanzania, working on policy and advocacy for horticulture production. He suggested that TAHA should be the critical partner for scaling up because they are focused on horticulture and have organized groups of farmers in Iringa. They are being funded by USAID through USDA for three years. Jackie Mkundi is Executive Director of Taha in Arusha and Kiturwa Mbwandbo is her technical assistant. USDA contact is: Susan Waage. Suggested scaling up partner should be TAHA (because focus is on horticulture) and TAHA has organized farmer groups in Morogoro and Iringa region, and Zanzibar. MVWATA (national farmer association) would be good, but they are not focused on horticulture.
- TAAP - current contractual status is still in procurement discussion; The next iteration will be called M&M project (Miboga na Matunda: Vegetables and Fruit) There is support for IPM and Hort ILs built into this project.
- USAID has supported three horticultural efforts in: Kisambani (Zanzibar), Hort Tengeru, and the Hort farm at SUA (Hort Tengeru was funded on post-harvest of veggies: standards etc.). SUA Horticulture Farm, a key practical training center (PTC).
- He Suggested we do training thru hort farm at SUA and bring in Hort. Tengeru and that some of our trials could be done at the SUA Hort farm since this was being supported by the Mission.
- Mission supported IPM training at Hort Tengeru thru Programs Office who reached out to SUA/BACUS (SUA's consulting firm of faculty), specifically Delphina Mamiro who brought in faculty from SUA - 2 weeks of training and 25 people
- Ministry of Agriculture, Livestock and Fisheries (MALF) technical institutes being supported by mission are additional training/research sites in Tengeru , Ayoli and SUA

Additional Notes from meeting at USAID/Dar

- Morogoro region through SUA's PTC.
  - Iringa region- TAHA has a community-based extension system here. There are 'lead farmers' trained by TAHA. Iringa is of interest due to large amount of tomato production. There is an "Iringa hub" with 10 projects in this area. Iringa is conducive to horticulture production, resource management (e.g. water, soil conservation) and such issues. Farmer groups in this area are organized by TAHA and these should be good sources of research and demonstration sites, as well as participants in training.
  - Hort Innovation Lab is working at PTC in Hort Tenguru. One innovation is the charcoal coolers, cool chambers for post-harvest storage, grading tables. They are demonstrating post-harvest storage technologies for vegetable crops.
  - Metrics of primary interest:
    - Number of farmers using a technology as a measure of adoption;
    - Number of hectares connected with this adopted technology;
    - Number of farmers participating in short-term training.
- TAHA is also accounting for these metrics.
- Darsh Industries: has a plant in Iringa to process tomatoes. They are now in Arusha. Because the tomatoes are used in processing, not fresh, they use lesser quality fruit, i.e. 'seconds' and pay only for seconds. This does not give a good return for farmers as a primary source of their production efforts.

## **4 August 2016**

### Meeting with Peter Sserewagi at MARI, Dar es Salaam

This meeting focused on two main issues:

#### 1 – Budget.

All the forms should have been sent from OSU. The accountant should receive these within a few days. Florentine Malamucha Chief accountant at MARI.

We emphasized that overhead indirect costs can only be charged on expenditures; they cannot be taken out of the budget at the start of the project. Therefore, to make these funds available, spending must take place as per the project budget. For this reason and many others, funding needs to begin as soon as funds are available, for research and for the diagnostic training.

#### 2 – Diagnostic Workshop planning.

Peter is working with Joseph Ndungugu and Sally Miller to organize a short-term training event. The date is projected to be August 26, for 3-4 days. Peter will prepare a budget for the workshop and work with Sally to develop an agenda. They will also work up a list of participants to be invited. The workshop will be directed to Training of Trainers because it focuses on advanced diagnostic techniques. The goal is to get four participants from each of other countries. For Tanzania, need to invite participants from TAHA who will work with producers.

Fly to Morogoro in late afternoon.

## **August 5 2016**

### Meeting with SUA faculty in Morogoro engaged in IPM IL.

Participants:

Amon Marerere

Delphina Mamiro

Gracion Rwegasira the entomologist (Mwatawala may be going to Mandela Univ.)

Hossea Mtui

Hellen Kanyagha

This meeting focused on plans and progress in project implementation.

1 - Where to focus research and outreach efforts: We conveyed the interest of the mission to focus on Morogoro and Iringa regions. The SUA Hort Farm is a key location for research, demonstration, and practical training.

2 - Technologies to outscale: seedling establishment nurseries; scouting and IPM decision making; mulching; sodium hypochlorite for post-harvest protection of tomatoes.

3 – Seedling Workshop: Suggest 1<sup>st</sup> week of December as a good time. Will have to check with Matt Kleinhenz to confirm. Will seek participants from Ethiopia and Kenya. Also participation from TAHA, SEVIA, RealIPM.

SUA staff are available to discuss this over Skype from IAGRI or can use a modem; 9:00 Eastern time/4:00 TZ-time.

4 – Other possible training: Scouting, decision-making, identification, and safety. Suggest replicate the IPM training at Hort Tengera in Arusha. The audience should be extension

workers, lead farmers, farmer facilitators. Suggest doing this before the main tomato production season, perhaps April-May 017.

Pesticide use and safety: this information should be included as part of training on IPM.

Money for half of year one has been received. Reminder that “committed” funds are not considered spent. We reviewed the meeting in Kenya, the baseline survey, training, research. We reviewed the meeting with USAID in Dar es Salaam.

We discussed the baseline surveys. George Norton intends to bring two IPM Innovation labs together in his survey: the cereals IPM project is working on rice only in TZ. The baseline was to be the initial activity to get information on farmers we are going to work with. It is intended to give us a chance to contact the farmers. George is combining the focus crops for this project with rice (from the Grains IL). There is some rice and vegetables in Morogoro; maybe a small portion near Iringa.

George Norton must make contact with Amon and discuss USAID interest in Iringa (email sent to link the two), work with TAHA. We need to be sure there is appropriate sampling at Iringa and Morogoro. We need clarity on who is paying for what. This needs to get started right away. George needs to tell Amon what the profile is for supervisor and enumerators. We expect the “supervisor” will be a social scientist academic staff member. Amon knows many and could help connect with an appropriate individual.

The SUA/MARI group needs to decide if they want to do their own survey at a scale that makes sense. It should be a biological survey. Could also go back to Mlale (between Morogoro and Iringa) to study IPM adoption. Strong interest in knowing when the information will be available from GN. For the Biological assessment, see the workplan. This spells it out. Will develop an instrument. Can this start soon?

#### Short term training

Diagnostic Workshop plans and participation.

Planned for week of 26 August; 4-day workshop.

Who: Crop inspectors, extension personnel. How to get TAHA to identify participants? Plant health service people. We want people who have connection with the field and interaction with growers. Would be good to teach in what cases PCR is needed, how to sample, where to send. Also, about how to take images and where to send.

Farmer training: With grower groups. Also on-farm trials.

#### Seedling Production Workshop:

Include info on grafting, media prep, soil solarization, netting etc. Need to define what technologies, who is target audience. Do it at the SUA farm? Structures of plant nurseries. Invite people from TAHA, Tengeru. When is best time? Feb avoids the unreliable short rains during which farmers will be busy. First week of December? Need a commitment right now so we can start to plan. If not, we will work through Skype for planning.

Pesticide safety and application training. Tropical Pesticide Research Institute (TPRI) has some curriculum. This done by SUA participants.

#### Problem with registration of biopesticides:

It takes so long. Goes to technical committee, then through a testing. Trichoderma is approved. A few others have been tested. Need to work on those that have been approved.

Graiton will put together a list of those that have been approved. How to get these out into the hands of farmers? Suggest a demo, perhaps working with Real IPM?

Graiton: Most have been used in greenhouse, limited use in the field. This is where we come in, to demonstrate how to use in the field.

KIBAHA sugarcane research institute works on biocontrols. Graiton will send contact info.

#### Other training ideas:

Decision Tools in Pest Management: Type of pest, available management methods.

Scouting. Farmers knowing what is available to them. They go for pesticides because it is all they know and mostly all that works. Outscale: out to farmers. Upscale: up to extension workers.

Post-harvest: Government authorities complaining about using cartons to transport tomatoes. Cutting trees to do this. Tuta also is transported this way. Suggest plastic crates? Maybe design a disinfection place. Getting farmers to us it is difficult.

Hypochloride treatment needs to be scaled out. See if it also has effect on Tuta infection. Kill the larvae that can be attached to any part of the plant. Collection centers have been organized by TAHA for disinfection of tomatoes and crates. Farmers commonly pile the tomatoes for 2-3 days. Some zero-energy structures have been designed to cool the fruits.

#### Long-term training

SUA Degree training: no students in year one. Year two starts about same time as project year 2.

Opening at OSU. Hellen is planning to work with Sally Miller at OSU. Can place her in January. Need to be sure Plant Path will pick up the 4<sup>th</sup> year of funding. This needs to be in letter of offer.