

Feed the Future: Innovation Lab for Integrated Pest Management Trip Report

Country(s) Visited: Ethiopia, Niger

Dates of Travel: July 7-22, 2017

Travelers' Names and Affiliations: Rangaswamy "Muni" Muniappan,
Stephanie Parker

Purpose of Trip: To organize and attend the IPM Innovation Lab Technical Advisory Committee Meeting and participate in accompanying field trips; to organize and attend the Fall Armyworm awareness and management workshop; to visit Sorghum and Millet Innovation Lab project in Niger; to monitor Fall Armyworm damage in Niger.

Sites Visited:

Ethiopia: Addis Ababa, Wollenchiti, Hawassa

Niger: Niamey, Maradi

Description of Activities/Observations:

July 9, 2017: Landed in Addis Ababa and arrived at the Harmony Hotel.

July 10, 2017: First day of the IPM Innovation Lab joint meeting of the Technical Advisory Committee and Program Coordinating Committee. Muniappan began the meeting by welcome everyone to Addis Ababa and gave a presentation on the activities and achievements of the IPM IL since the last meeting in July 2016.

Next, AOR John Bowman then gave his welcoming remarks, thanking the meeting organizers and talking about the Fall Armyworm problem and workshop. He discussed the accomplishments of IPM IL projects as well as other projects, specifically in Ethiopia.

Then Faith Bartz Tarr introduced herself and explained her role and why she finds the IPM IL valuable in Ethiopia.

Next Guru Ghosh made remarks and discussed Virginia Tech as a global land grant.

After a coffee break, Daniel Sumner presented on the role of gender in IPM. He said that gender isn't just about women but about the relations between genders.

Next, Amer Fayad and Muniappan presented administrative information. They discussed the budget cut of 40% we got in FY 2017 and that we did not get out funding until January 2017, three months late. Bowman discussed the pipeline and said that if September projects still show a lot of money on their books, they will only get the remainder in FY 2018 funding. Currently the IPM IL is in its third year and October will start its fourth year.

After lunch, the PIs gave their project presentations. Each PI presented on what they have accomplished in the last year and highlighted the achievements and challenges. They then took questions from the other PIs.

After the PI presentations, Bowman made an AOR presentation. He explained the structure of Feed the Future and discussed the major challenge for the coming year, which is funding uncertainty.



July 11, 2017: When the meeting restarted in the morning, the Technical Advisory Committee and Program Coordinating Committee separated for their meetings. Afterwards, both groups came together to share their thoughts with one another. The Program Coordinating Committee noted that they were worried about funding and that they wish they had had more time at the meeting the day before to ask more questions about one another's presentations and hear about what they were doing well. The Technical Advisory Committee discussed each project and explained which they saw as weaker and stronger and gave suggestions to the PIs for improvements.

After Muniappan closed the meeting by thanking the participants and ICIPE organizers, everyone left Addis Ababa for Wollenchiti to see Wondi Mersie's parthenium rearing facility. At the facility, Mersie thanked his staff and made presentations to Muniappan, Ghosh, and Bowman. Then Mersie and his staff led everyone through the rearing process, showing them the different greenhouses and simple, affordable equipment used.

Then the group traveled together to Debere Zeyt to stay overnight at the Kuriftu resort.



July 12, 2017: The next morning, the group left early for the long drive to Hawassa. After lunch, the group attended a farmer field day with the Grains IPM in East Africa project near Hawassa. Tadele Tefera, the PI of the project, presented the farmers with certificates of achievement. Then the group went to the field where farmers gave short talks, with translation, on the success of push-pull on corn in the field..



July 13, 2017: The next morning, Muniappan and the group went to Hawassa University to hear a talk from the Vegetable IPM in East Africa project and meet some students. Parker went separately with Tadesse Desalegn to Halaba to film and photograph fall armyworm damage in the field. The farmer she spoke to, through translation, said he was experiencing almost 100% crop damage to his maize. The damage was very easy to find and there were larvae in almost every plant they checked. Parker reunited with the group for lunch and then the whole group went together back towards Addis Ababa. On the way, they stopped at a field site for the Vegetable IPM in East Africa project. Then the group returned to Addis Ababa and some members flew back to their countries of origin.

July 14, 2017: At 9am the IPM IL's Fall Armyworm Awareness and Management workshop began at the Harmony Hotel. The workshop started with opening remarks by Muniappan, Tefera, Stephen Morin, Bowman, and Guru Ghosh. Muniappan then invited all the participants to introduce themselves by organization. The morning session of the workshop included an overview by B.M. Prasanna from CIMMYT talked about the fall armyworm and challenges. Then there were country reports from Ethiopia, Kenya, Niger, and Tanzania.

After lunch, farmer case studies from Ethiopia and Kenya were presented. Fayad presented on the distribution and taxonomy of the fall armyworm. Tadele presented on the Grains IPM in East Africa project and monitoring pheromone traps. L.R.M. Bhanu presented on pheromone traps produced by her company. Muniappan presented on the biology and host plants. Abhijin Adiga presented on the spread of the fall armyworm and modeling opportunities. R. Srinivasan presented on host plant races and Prasanna presented on host plant resistance.

That evening, Muniappan joined Bowman and others for an invite-only dinner to further discuss the fall armyworm in East Africa.



July 15, 2017: The meeting continued. The Ethiopian Minister of Agriculture, H.E. Dr. Eyassu Abrha, attended the morning section of the second day. He addressed the participants on the danger the FAW poses to Ethiopia and how important it is to have workshops like this one to help address the problem. Next, Winfred Hammond from FAO presented on FAO programs for FAW in Africa. Then Muniappan presented on physical, cultural, and biological control, along with Malick Ba. Laouali Amadou presented on FAW in Niger and the potential of a local parasitoid that has parasitized FAW in the lab. Then two students presented on their FAW research and Menale Kassie presented on the economic impact of FAW.

After lunch, the workshop split into three groups to come up with recommendations on FAW. From the groups and following presentations, the IPM IL came up with a list of recommendations:

They are:

- Integrate cultural, physical, chemical, and biological controls with host plant resistance in management of FAW.
- Survey and document natural enemies of the FAW in East Africa.
- Evaluate the efficacy of the local larval parasitoid *Habrobracon hebetor* on FAW.
- Evaluate the efficacy of the local egg parasitoid, *Trichogrammatoidea armigera* on FAW.
- Evaluate the efficacy of other local natural enemies of FAW.
- Screen and identify the correct pheromone lure combination for attraction of FAW strains in East Africa.
- Screen insecticides included in the PERSUAP for efficacy and safety under local conditions.
- Governments should consider fast track registration of pesticides for control of FAW.
- Conduct FAW host preference and host range studies in East Africa.

- Collaboration within local governments, private companies, and international agencies.
- Integrate management technologies developed for FAW in the IPM package developed for maize and other crops in East Africa.

The workshop closed with thanks to everyone.

July 16, 2017: Muniappan and Parker flew from Addis Ababa, Ethiopia to Niamey, Niger.

July 17, 2017: Muniappan and Parker flew from Niamey to Maradi with Malick Ba. They visit INRAN in Maradi, met with students, saw the field work and lab work and how the lab was rearing parasites for the pests of millet, the millet head miner and stem borer.



July 18, 2017: The following day, Ba and Amadou took Muniappan and Parker to the field to see FAW damage on corn. Parker took photos and interviewed a farmer who said that the FAW was affected nearly 100 percent of his crop. Muniappan collected samples which he brought back to the lab.



July 19, 2017: Muniappan, Parker, and Ba flew back to Niamey.

July 20, 2017: Ba took Muniappan and Parker to the ICRISAT Niamey fields to see millet trials. While it was too early in the millet growth process to see the headminer and stemborer, Muniappan and Parker saw other millet pests, and Muniappan collected insects from light traps.



July 21-22, 2017: Muniappan and Parker returned to America.

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
			Men	Women		
Technical Advisory Committee Meeting	07/10- 07/13	25	20	5	IPM Innovation Lab	To present on IPM IL projects to the PIs and Technical Advisory Committee
Fall Armyworm management and awareness workshop	07/14- 07/15	75	60	15	The IPM Innovation Lab	To raise awareness of the fall armyworm in East Africa and encourage collaboration

Suggestions, Recommendations, and/or Follow-up Items:

1. Have more time for the TAC/PCC meeting. Some PIs members noted that they did not feel they had enough time to do their presentations and have discussion.
2. Following up on the recommendations from the FAW workshop.
3. Releasing Habrecon hebetor in the field to see if it will parasitize FAW in the field like it does in the lab and then write a note for a journal.

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