

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

Country Visited: Cambodia

Dates of Travel: March 2 – 12, 2019

Traveler's Names and Affiliations: Rangaswamy Muniappan, Director, IPM Innovation Lab.

Purpose of Trip: To participate in the review of the Cambodia Rice IPM project with Dr. John Bowman; present a CE-SAIN arranged talk on Fall Armyworm at the Royal University of Agriculture; and participate in the roundtable discussion with the private businesses that deal with IPM products in Cambodia organized by the value chain project Harvest II and the IPM IL sub-award project Vegetable Crops IPM in Cambodia.

Sites Visited: Phnom Penh, Takeo, Battambang,

Description of Activities/Observations:

March 2: Left Blacksburg at 6.30 am.

March 3: Landed in Phnom Penh at 10.30 pm and arrived at the Dara Hotel.

March 4: In the morning, Buyung Hadi, Rica Flor, Then Rathmuny, John Bowman and I traveled to Takeo to observe a demonstration plot of trap barrier system for rat control and application of *Trichoderma* and *Beauveria* on rice crop control of diseases.

2.00 – 3.00 pm: I gave a presentation for CE-SAIN at the Royal University of Agriculture (RUA) on Fall Armyworm.

3.00 – 4.00 pm: Met with IPM IL EPIC project-supported students at the Nagoya University satellite Campus at RUA.

4.00 – 5.00 pm: Visited CE-SAIN techno-park with Kim Hian Seng.

March 5: 6.30 am: Traveled to Battambang by road. Around noon, we visited CE-SAIN techno-park and observed the trap barrier system demonstration field set up by EPIC project for control of rats. The system did not work as the control and treatment plots were equally damaged by rats.

March 6: We visited collaborating farmers' fields wherein post-emergence herbicide for control of weeds; *Trichoderma* and *Beauveria* for control of diseases were used.

3.00 pm: Returned to Phnom Penh and met with Dr. Ngim Chai, Director General, GDA, Dr. Ker Monthivuth, Director, Department of Plant Protection at the Department of Agriculture. Dr. Chai recommended conducting an IPM conference in Phnom Penh either in August or September 2019. He identified mango, banana, longan, black pepper, and Cashew in fruit crops and crucifers and long bean in vegetable crops to be the target

crops for improvement in Cambodia. Also, he mentioned that Sri Lanka cassava mosaic virus disease is a serious problem in Cambodia. We informed them about the impending invasion of fall armyworm and *Tuta absoluta* in Cambodia.

March 7: In the morning, John Bowman, Buyung Hadi, and Rica Flor visited USAID mission and met with Laura Cizmo, Vuthy Theng and Sam Oeurn Ke. We explained our current activities and discussed our plan to organize an IPM conference in August or September 2019 in Phnom Penh. We also mentioned our planned roundtable meeting with the IPM product suppliers jointly organized with Harvest II on March 11.

In the afternoon, we traveled to CARDI and met with Dr. Makara and Dr. Kahy Sathiya. Dr. Maraka mentioned that weeds and golden apple snail are major problems in rice cultivation in Cambodia. Dr. Sathiya showed us his field experiments with resistant varieties and *Trichoderma* treatment. We also visited screen houses where he was culturing brown plant hopper and screening rice lines produced at IRRI for resistance.

March 9: Saturday: Attended to correspondence and prepared for the Monday roundtable meeting.

March 10: Sunday: Reviewed manuscripts received from our partner countries.

March 11: 8.00 am: Visited iDE and met with Dr. Kim Hian Seng.

2.00 pm: Participated in the roundtable meeting with input supply companies to introduce scalable and Marketable technologies organized by the Harvest II and IPM IL Vegetable Crops IPM in Cambodia project. I gave a presentation on IPM technologies and tools that are amenable for privatization.

11.45 pm: I left Phnom Penh and returned to Blacksburg on **March 12th** at 2.30 pm.

Training 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		
Fall Armyworm Workshop	March 4, 2019	CE-SAIN, GDA, IPM IL subawardees, RUA students	15	10	Virginia Tech	Creating awareness of Fall Armyworm invasion.
Roundtable meeting with bio- pesticide dealers	March 11, 2019	Harvest II, IPM IL subawardees, Pesticide	10	5	Virginia Tech, Harvest II, IPM IL subawardees in Cambodia	Bio-pesticide business promotion

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List of Contacts Made:

Name	Title/Organization	Contact Info (address, phone, email)
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