

IPM CRSP Trip Report – SE Asia Cambodia, Indonesia, Philippines

CAMBODIA

Countries Visited: Cambodia

Dates of Travel: July 8 – July 16, 2010

Travelers Names and Affiliations: Michael D. Hammig, Clemson University

Purpose of Trip: To develop collaborative agreements with Cambodia IPM Program.

Sites Visited:

Kbal Koh Vegetable Research Station

Dey Feath Horticulture Research Station

General Directorate of Agriculture, Ministry of Agriculture, Forestry, and Fishery

IDE Farm Business Advisor project

USAID/Cambodia Mission

Description of Activities/Observations:

The purpose of this trip was to discuss forming an official partnership with the Cambodian IPM Programme, housed in the General Directorate of Agriculture of the Ministry of Agriculture, Forestry and Fishery.

Sites visited:

Kbal Koh Vegetable Research Station

Ms. Mam Sitha trainer of the IPM Programme accompanied me to the station where we met with Mr. Nuth So Khom, station director. The station has 4 ha and is primarily involved with variety trials and seed production of selected varieties of tomato, eggplant, chilies, amaranth, corn, sweet corn, cucumber, mungbean, soybean, and crucifers. Some varieties are from AVRDC. Pest control problems include thrips on tomato which transmit spot wilt disease; a problem on both local and imported varieties. White flies and leafhoppers also transmit diseases. Eggplant has a problem of virus disease transmitted by white flies. They use botanicals for insect control but sometimes spray chemical insecticides for thrips.

Water management is a problem. The station is located near the river and they can access water from there, but sometimes local farmers divert the river water. They also have a well to provide water.

The station has 10 staff laborers and 4 professionals including Ny Samnang who works with IDE's Farm Business Advisors program.

We discussed IPM issues that could be worked on at the station as part of the IPM CRSP. Ken Sophea from the GDA Department of Horticulture is currently working on a PhD in Thailand. His research topic is *Trichoderma*. The staff at the station need training on raising/releasing parasitoids. Spider mites on papaya was mentioned as one pest for which natural enemies could help. NPV was introduced to the Cambodian IPM Program by Peter Ooi, but it is not used. One goal of the government is to reduce pesticide use, so IPM is considered very important.

Mr. Nuth agrees that the matrix of IPM tactics of the regional project is relevant to what they can do at Kbal Koh. He feels that Kbal Koh would be a good place to initiate activities under the project. The district where Kbal Koh is located – Keam Svay – is a major vegetable producing area, primarily for the Phnom Penh market.

Dey Feath Horticulture Research Station

This station is located about 10km from Kbal Koh. It has 13ha and includes some vegetable research, but most activity is on flowers. Some production is for market, but most for seed production. Mr. Ngi Sarith is a staff technician who showed me the facilities and field activities at the station. Vegetable activities include tomato production under canopies to protect from rain. Staked cherry tomatoes have serious disease problems in wet season. There is some chili production, but not much, and a small amount of cauliflower.

Mr. Neou Ratana is Director of the Department of Horticulture of the GDA. He has administrative authority over both Kbal Koh and Dey Feath.

General Directorate of Agriculture, Ministry of Agriculture, Forestry, and Fishery

I met with Dr. Ngin Chhay, Mr. Heng Chhun Hy, and Ms. Mam Sitha. Discussion was primarily with Dr. Ngin Chhay and Mr. Heng Chhun Hy. We discussed the IPM CRSP program and possible activities that the GDA could engage in as collaborators under the program. The existing IPM Program receives FAO support for activities in four provinces. They agree that training and demonstrations at Kbal Koh would be a good place to start and that developing a program to produce bioagents would be a good idea.

We discussed administrative procedures for initiating and implementing a collaborative project and agreed that they would discuss this and present their ideas for specific activities at the regional workshop in Indonesia. Mr. Heng Chhun Hy and Mr. Chou Cheythyryth would be the primary contacts for implementation. Both would be at the workshop. Ms. Mam Sitha will also be at the workshop. Her main emphasis will be on gender studies.

IDE Farm Business Advisor project

I met with Mr. Philip Charlesworth to discuss the FBA project and possible interactions with the IPM CRSP. In particular we agreed that there is a place for production and marketing of

bioagents by the FBA group. He is monitoring the progress of the anticipated USAID food security project that should be announced soon. IDE has contacted the competing groups and has some possibilities of integrating their program with some of them. However, until the implementing organization is known, no one can do anything concrete. We agreed to stay in touch and that there is good potential for collaboration in the future.

Philip recommends a book "Working in Cambodia" which is very instructive for foreigners working in Cambodia.

USAID/Cambodia Mission

I met with Mr. Samram Tuy and Mr. Roy Fenn, Team Leader for Economic Growth and Agriculture. I reported on meetings with the GDA and visits to research facilities. Mr. Fenn said that the food security project is in process, but the selection of the implementer is taking a long time because it has to go through Washington. The large size of the grant requires Washington approval. The Mission is not authorized to approve projects of that size. They expect that the announcement will be made in September and that the launching event for the project will be sometime in early 2011.

Some of the key Mission staff are either on leave or have not yet arrived. Angela Hogg is coming in mid-September. She will be involved with the Economic Growth office and work on the agriculture project. Ronit Gerard is expected to return in November.

They remind us to update the 2-page summary of our activities and to be sure to include information on the workplans and budget management. They do not need specifics, but a general overview is good.

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INDONESIA

Countries Visited: Indonesia

Dates of Travel: July 8 – July 25, 2010

Travelers Names and Affiliations: Merle Shepard, Gerry Carner, Eric Benson and Michael Hammig, Clemson University

Purpose of Trip: To develop collaborative agreements, make site visits and participate in training workshops with Indonesian IPM/CRSP Programs.

Description of Activities/Observations:

The purpose of this trip was to continue and enhance an official partnership with the Indonesian IPM/CRSP Programs.

Sites visited:

Sam Ratulangi University, Manado, North Sulawesi
Institut Pertanian Bogor (IPB) (workshops and laboratory visits), Bogor, West Java
Posyanti Agro Segar, West Java (composting, field trails)
Posyanti Pada Jaya, West Java (composting, farmer field visit, field trails)
Posyanti Capung, West Java (vegetable crop field collecting for diagnostic workshop)

July 10-16 Shepard, Carner, and Benson visited Sam Ratulangi University and field sites in North Sulawesi.

The team of Shepard, Carner, and Benson traveled to North Sulawesi to meet with colleagues at Sam Ratulangi University (UNSRAT). At UNSTRAT, Shepard presented a seminar entitled “IPM in S. E. Asia: Achievements and Challenges” to 41 attendees (15 of these were women) made up of faculty and students at UNSTRAT. Shepard discussed the various IPM tactics currently being used by different collaborators. The remaining time in North Sulawesi was spent discussing farmer participatory field experiments and surveying field sites where farmers were carrying out field studies.

In Rurukan, a group of farmers were carrying out activities whereby rabbits were the urine and pellets of rabbits were made into a slurry and used as fertilizer. The farmer had 80 caged rabbits which was sufficient to provide fertilizer to about two hectares. Plans were to expand this to 12 hectares and provide “organic” vegetables to local restaurants. Rabbits, which were reared on vegetable by products, were either consumed by the farmer or sold to other farmers.

Farmer Field School studies were being conducted on Chinese cabbage at Modounding . Although there were no serious insect pests of this crop, two species of slugs were causing significant damage.



Two species of slugs causing serious defoliation in Chinese cabbage at Modounding.

Various options for control were discussed. Currently farmers control the slugs by collecting them at night.

July 16-17 Pelabuhan Ratu, West Java. Mike Hammig joined the group from Cambodia. The Clemson team conducted marine ecosystem studies.

July 18 – Travel day from Pelabuhan Ratu to Bogor, Indonesia. With Russ Dilts, made some site visits to farmer fields of vegetables and fruit trees for photography and collecting.

July 19 – Visited USAID office at the US Embassy in Jakarta. We met with Dr. Sanath Reddy, Senior Economic Growth Advisor for USAID programs in Indonesia, and Anna Juliastuti, Project Management Specialist. We reviewed our current IPM CRSP program and invited Dr. Reddy to attend our IPM CRSP Workshop at Lembah Hijau in Cipanas. Dr. Reddy accepted our invitation. Later in the day, we traveled to Cipanas for the first workshop.

July 20 – 23: Workshops:

IPM CRSP Southeast Asia Regional Program, Annual Project Workshop, Cipanas, Indonesia, 20 – 21 July 2010. This two-day program brought together all the SE Asia Partners involved in the IPM CRSP Project. Special guests included. Sanath Reddy, from USAID in Indonesia; Ir. Arif Imam Suroso, Vice Rector of the Institut Pertanian Bogor (IPB) and the keynote speaker, Russ Dilts, from FIELD Indonesia. Mr. Dilts addressed the audience on an historical overview of farmer field schools in SE Asia with a challenge for continuing and enhanced partnerships for the future between IPM CRSP SE Asia partners. For a detailed agenda for the workshop, see Attachment 1. For a list of all participants, please see Attachment 2.

Other speakers on July 20 included Muni Muniappan from Virginia Tech who gave an overview of the Global IPM CRSP projects and Michael Hammig from Clemson University who introduced the audience to the workshop format. Maria Elisa Christie from Virginia Tech made a presentation on gender in IPM CRSP. Each cooperating partner in the IPM CRSP project provided an update on the work in their region. The update included training and research accomplishments in North Sumatra by Nugroho Wienarto and W. Cahyana, West Sumatra by

Nofrizal and North Sulawesi by Dan Sembel. Other training and research accomplishments were presented by Aunu Rauf for West Java, Candida Adalla for UPLB in the Philippines and Chou Cheythyrih in Cambodia.

On July 21, the entire group discussed the IPM Component Matrix for the 2010- 2011 workplan each region. This session was lead by Merle Shepard. In the final, formal session lead by Eric Benson, Global Theme Activities including Impact Assessment, Gender Global Theme, Internation Plat Virus Diseases were discussed. The formal session was followed by two field visits. The first visit was to Posyanti Capung where participants for the next workshop collected samples for diagnostic work and observed IPM strategies employed by local farmers under the direction of IPB scientists. The second visit was to Posyanti Pada Jaya to observe more IPM strategies, mainly on tomato plants and a village endeavor to produce trichoderma for commercial sale. A concurrent session with spouses of male farmers was conduct for IPM CRSP partners working on gender issues in the village of Posyanti Pada Jaya.

Plant Disease and Insect Pathogen Diagnostics Workshop, Institut Pertanian Bogor, Bogor, Indonesia, July 22 – 23. Following the IPM CRSP Annual Project Workshop in Cipanas, Indonesia, many of the participants returned to Bogor for an intensive two-day diagnostic workshop.

On Thursday, the workshop focused on viral, bacterial and nematode diseases of key vegetable crops. During the Thursday workshop, the core IPM CRSP team from the USA traveled to farmer field sites near Bogor to observe vegetable production, potato production and compost production. On Friday, the workshops focused on fungal diseases and insect vectored pathogens. Gerry Carner gave a lecture on the diagnosis of insect pathogens. For a detailed agenda for with diagnostic workshop, see Attachment 3.

July 24. We met with IPB scientist in the morning to discuss additional research plans. We traveled to Jakarta in the afternoon for a morning flight to Manila on July 25.

Attachment 1
AGENDA: IPM CRSP ANNUAL PROJECT WORKSHOP
Cipanas, 20-21 July 2010

Monday, 19 July		
15.00	Hotel Check-in and Registration	
19.00	Dinner	
Tuesday, 20 July		
08.00-08.30	Registration	
08.30-08.40	Welcoming remarks	Mike Hammig
08.40-08.50	Opening Remarks	Vice Rector of IPM
08.50-09.10	USAID and Indonesia	Sanath Reddy
09.10-09.30	Overview of IPM-CRSP	R. Muniappan
09.30-09.45	Introduction to Workshop	Mike Hammig
09.45-10.15	Coffee break & Group Picture	
	Session 1	Moderator: Merle Shepard
10.15-10.45	Keynote presentation: Farmer Field Schools in SC Asia	Russ Dilts
10.45-11.15	Southeast Asia Regional Program	Mike Hammig
11.15-11.45	Gender Global Theme	Maria Elisa
11.45-12.00	Discussion	
12.00-13.00	Lunch	
	Session 2 * (Accomplishments)	Moderator: Candida Adalla
13.00-13.30	North Sumatera	Nugroho Wienarto
13.30-14.00	West Sumatera	Djoni/Zamzami
14.00-14.30	West Java	Aunu Rauf
14.30-15.00	North Sulawesi	Dan Sembel
15.00-15.30	Coffee Break	
	Session 3 * (Accomplishments)	Moderator: Dan Sembel
15.30-16.00	Philippines-UPLB	Candida Adalla
16.00-16.30	Philippines-PhilRice	Hermie Rampusas
16.30-17.00	Cambodia	Chou Cheythyryth
19.00	Dinner	
Wednesday, 21 July		
	Session 4 * (Workplan for next year)	Moderator: Gery Carner
08.00-08.15	Phillipines-UPLB	Candida Adalla
08.15-08.30	Phillipines-PhilRice	Hermie Rampusas
08.30-08.45	Cambodia	Chou Cheythyryth
08.45-09.00	N. Sulawesi	Dan Sembel
09.00-09.15	W. Java	Aunu Rauf
09.15-09.30	N. Sumatera	Nugroho Wienarto
09.30-0.945	W. Sumatera	Djoni/Zamzami
09.45-10.00	Coffee Break	

10.00-11.00	Discussion on IPM Matrix ? (Leader: Merle Shepard)	
	Session 6 (Global Theme Activities in SE Asia)	Moderator: Eric Benson
11.10-11.20	Impact Assesment	Mike Hammig
11.20-11.40	Gender Knowledge and Application	Maria Elisa Christie et al.
11.40-12.00	Plant Virus Diseases	R. Muniappan
12.00-12.30	Summary, Closing Remarks, Presentation of Certificates	Mike Hammig, R. Muniappan
12.30-13.30	Lunch	
13.30-15.30	Check out and field visit	During field visit, each participant of diagnostic workshop is required to collect samples of diseased plants as well as insects infected by pathogens.
15.30	Depart to Bogor	
17.30	Arrive at IPB Guesthouse	

* Separate workshop for Gender Team (plus a field visit to meet women farmers on Wednesday afternoon and/or Thursday morning, following the annual project workshop).

Attachment 2

IPM CRSP Southeast Asia Regional Program

List of Participants: Annual Project Workshop, Cipanas 20-21 July 2010

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Attachment 3

**IPM CRSP Southeast Asia Regional Program
Plant Disease and Insect Pathogen Diagnostics Workshop**

Wednesday, 21 July

In the afternoon, after annual workshop and before returning to Bogor, participants will visit vegetable fields in Puncak and collect plant samples for diagnostics workshop.

Thursday, 22 July

- 08.00-09.00 Lecture: Use of serology and PCR in disease diagnostics (Dr. Fulya Gurel)
- 09.00-10.00 Lecture: Diagnosis of virus diseases (Dr. Asti Hidayat)
- 10.00-10.30 Coffee break
- 10.30-11.30 Lecture: Diagnosis of bacterial diseases (Dr. Fulya B. Gurel)
- 11.30-12.30 Lecture: Diagnosis of nematode disease (Dr. Supramana)
- 12.30-13.30 Lunch
- 13.30-15.00 Practicum: Virus disease diagnostics (Dr. Tri Asmira/Dr. Asti Hidayat)
- 15.00-15.30 Coffee break
- 15.30-17.00 Practicum: Bacterial disease diagnostics (Dr. Asih N./Dr. Fulya Gurel)

Friday, 23 July

- 08.00-09.00 Lecture: Diagnosis of fungal diseases (Dr. Fulya B. Gurel)
- 09.00-10.00 Lecture: Diagnosis of insect pathogens (Dr. Gery Carner)
- 10.00-10.30 Coffee break
- 10.30-12.00 Practicum: Fungal disease diagnostics (Dr. Meity S. Sinaga/Dr. Fulya B. Gurel)
- 12.00-13.00 Lunch
- 13.00-14.30 Practicum: Nematode disease diagnostics (Dr. Supramana)
- 14.30-16.00 Practicum: Insect pathogen diagnostics (Dr. Yayi/Dr. Ruly/Dr. Gery Carner)
- 16.00-16.30 Coffee break
- 16.30-17.00 Closing ceremony/presentation of certificates

Contacts: (other than those on the workshop list)

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PHILIPPINES

Countries Visited: Philippines

Dates of Travel: July 25 – July 30, 2010

Travelers Names and Affiliations: Merle Shepard, Gerry Carner, and Eric Benson, Clemson University

Purpose of Trip: To develop collaborative agreements, make site visits and participate in training workshops with the Philippine IPM/CRSP Programs.

Description of Activities/Observations:

The purpose of this trip was to continue and enhance an official partnership with the Philippine IPM/CRSP Programs.

Sites visited:

PhilRice, Munoz, Nueva Ecija

USAID, Manila

UPLB, Los Banos, Laguna

July 25-27: After meeting the Executive Director of PhilRice, Ronilo A. Beronio, we visited a large vegetable-growing area called Urdaneta in Pangasinan province. The team was warmly received by the personnel from the local agriculture office and by the mayor. We visited a farmer field school where ampalaya (bitter gourd) was being tended by a group farmers (44 men and 14 women) from San Jose, Urdaneta City. Mr. Jack Malicdem, President of the Urdaneta City Farmers Federation, hosted the group. IPM treatments included VAM, *Trichoderma* and plastic mulch. The group was very enthusiastic about their involvement in IPM activities and was anxious to expand this to other crops. Surveys of nearby fields of okra revealed defoliation by two species of noctuid caterpillars. One was identified as *Anomis flava*, and photographs of other are being sent to taxonomist for identification. In some areas of the field, defoliation reached 20% . Several of the *A. flava* larva had been parasitized by Braconid parasitoids.



Anomis flava (Lepidoptera: Noctuidae) (left) and an unidentified caterpillar defoliating okra. San Jose, Urdaneta City, Pangasinan, Philippines.

The beet armyworm, *Spodoptera exigua*, also was present but in low numbers. A nearby crop of eggplant had low populations of leaf hoppers (*Ambrasca* sp.) and some *Epilachna* sp. Interestingly, no eggplant fruit and shoot borers were present.

The Office of the Provincial Agriculture is located in Lingayen, Pangasinan province. This office/laboratory was established mainly for testing soil samples. Technicians there indicated that most farmers in the region had their soils tested at this laboratory. The laboratory also was producing *Trichoderma* with the intention of selling it a low cost to farmers. There was some indication, however, that the *Trichoderma* was contaminated. Clearly some quality control issues need to be addressed regarding *Trichoderma* production.

At the laboratories at PhilRice, Dr. Troung Hoai Xuan, a plant pathologist, was experimenting with *Paecilomyces*, and *Bacillus subtilis*. He also observed an outbreak of whiteflies that were infected by *Ascheronia* sp. but he was not able to culture this natural biocontrol agent. His observations were that *Bacillus* was much easier to culture and store than was *Pseudomonas*.

July 28: Oliver Agoncillo hosted our visit to the USAID mission in Manila. We were also joined by Tersita “Teret” Calabia. They informed us that the new ambassador to the Philippines was Harry Thomas and that the new USAID mission director in Manila was Gloria Steele, a Filipina married to an American.

The USAID mission requested that a copy of our annual reports be sent to them. Ms. Calabia told us that they were supporting activities with PhilRice, IRRI, University of Pangasinan and Central Luzon State University on Bt-transgenic eggplant with two on-going field trials at University of the Philippines at Mindanao and Vesaya State College of Agriculture. The Bt gene used in corn was also being explored in eggplant.

July 28-30: Meetings at UPLB included Dr. Helen Dayo, a gender specialist. She and Maria Elisa Christie had worked together before on gender issues under the SANRAM CRSP project. Dr. Dayo expressed a strong interest in working with us on gender issues with the IPM CRSP project. After our discussions with Dr. Jose M. “Chito” Yorobe, Jr., an Agricultural Economist at the University of the Philippines at Los Banos, he will be a part of our IPM team. He will be working closely with Rod Rejesus at North Carolina A&T University. We held fruitful discussions about his role in measuring the impact of our IPM CRSP project in the Philippines. Dr. Virginia “Gie” Cuevas, professor of plant pathology on the UPLB campus, has developed efficacious strains of *Trichoderma* and she was collaborating with a company that is producing it commercially. We visited her laboratory where she explained the process of identifying strains of *Trichoderma* and working to commercializing the formulation, called Biospark®. Dr. Cuevas indicated that *Trichoderma* also helps to decompose organic matter. Three strains are involved: *T. hersono*, *T. pseudoconenii* and *T. ghanase*. She had worked closely with Dr. Gary Harman at Cornell to develop the highly effective *Trichoderma* formulation. One of the diseases controlled by effectively

by *Trichoderma* is clubroot in crucifers. Farmers can apply the material to the soil and often mix it with organic fertilizers 2-3 days before planting and they coat seeds with it. Only 250 grams of *Trichoderma* is needed for ¼ hectare. Dr. Cuevas indicated that *Trichoderma* and VAM complimentary. She indicated that she would be very willing to work with us and our Filipino counterparts on the IPM CRSP project.

We made a field visit to IPM CRSP research plots, near the entrance to the International Rice Research Institute, with Drs. Auring Baltazar, Candida Adalla, Nineta Opina and technician Johanna Opena. The site had been seriously impacted by a recent typhoon and was severely waterlogged. The IPM activities included identification of a wild type tomato that was withstanding the waterlogged conditions very well. This will be used as a root stock for the popular 'Diamonte' type tomato that is preferred. The wild variety also has resistance to tomato leaf curl virus. In addition, mulch, *Trichoderma*, VAM and earwigs were tactics used in the IPM plots. Vermicompost also was added as a soil amendment in IPM plots. In eggplant, grafting the local favorite, 'Dumagete' to resistant rootstock (EG 204) improved yields, reduced bacterial wilt and improved resistance to waterlogged conditions. Sponge gourd or 'luffa' also was being grown in the plots and the bottom leaves were being removed to reduce the incidence of disease in the crop. The predatory earwigs and *Trichogramma* will be sold by National Crop Protection Center (NCPC) at a low price to farm families. Demonstrations involving fertilizer amendments, such as a vermicompost and fermented vegetable refuse, also were being conducted.

Dr. Adalla explained that the government-sponsored program of "Gawad Kalinga" was a target for farmer participatory IPM activities. This is a program whereby 40 families are given a 30 square meter piece of land to grow vegetables. The government is expanding this program to in 400 units or 16,000 families.

Other meetings at UPLB involved visits to the NCPC, which is under UPLB. Here we were hosted by a technician, Bonifascia Narasero, in charge of rearing the predatory earwig, under the auspices of Dr. Pio A. Javier. At the predatory earwig (*Euborellia annulata*) rearing facility we earwig rearing was discussed and we were provided with printed material on its mass rearing and utilization. Ground dog food was used as the media to rear the earwigs but fish meal can also be used. Because of the rapid reproduction potential, in 4 months, 12 males and 36 female earwigs can produce 5000 individuals. Adults live about 75 days. This earwig also is being reared in Mindora and in Isabela. The rate of release is 1 earwig per m², using 3rd instars to adults. Another predatory earwig, *Labidura riparia*, is being investigated. It is an excellent predator but tends to be cannibalistic in culture.

In another NCPC rearing program involved two species of *Trichogramma* parasitoids (*T. evanescens* and *T. chilonis*) that were being reared on eggs of the *Corcyra* moth. The rearing/production methods were presented to us by Pablito Ganzales. In addition, Dr. Perry "Chris" Escano described the process of VAM production. This was being mass produced in screen

houses but using VAM inoculated dry, chopped corn roots as the inoculum. Training has been conducted for VAM production and use. It also can be purchased for 35 pesos per bag.

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