IPM CRSP Trip Report

Country Visited: Philippines

Dates of Travel: December 21, 2008 – January 14, 2009

Travelers Names and Affiliations: B. Merle Shepard, Clemson University

Purpose of Trip: To visit IPM sites, discuss/plan with collaborators and observe training/field activities and make recommendations to improve IPM activities.

Sites Visited:
Victoria, Laguna – Farmer Cooperative (150 members) led by Mr. Emiliano Ferrer, Jr.
Los Banos, Laguna, the International Rice Research Institute and the University of the Philippines
Calauan, Laguna – Field site for rice-based participatory field activities
Ogoon – Field site for Gawad Kalinga. Philippine Department of Agriculture program using small garden plots.
Manila – Meetings with Dr. Peter Ooi (AVRDC – World Vegetable Center) and Dr. Madonna Casimera to work on IPM chapter for book.
La Trinidad, Benguet province – visit field sites, predatory mite rearing facility, personnel from the office of municipal government, office of provincial government, Benguet State University, the Department of Primary Industries, local farmers in 8 villages.

Description of Activities/Observations:

The major goals for this trip were to visit with collaborators, travel to field sites to observe IPM activities and discuss plans and progress by collaborating farmers, researchers, extensionists, LGUs, and NGOs. Another goal was to survey as many papaya trees as possible to determine if the papaya mealybug was present in the area. The first part of the visit was centered around Laguna province with collaborators from the International Rice Research Institute, the University of the Philippines at Los Banos and the Philippine Cocoa Foundation. Then field sites in Benguet Province (La Trinidad, Bagiuo, and eight barangays) were visited.

Emil Ferrer is a farmer/collaborator in the town of Victoria, Laguna. He chairs a farmer organization with 150 members. His farm consists of a mixed cropping system of vegetables, rice, and corn. One of the main pests on his farm is the giant African snail, *Achatina fulica*. ([see photo in appendix](#), which was causing extensive damage to longbean. The snail chews into the lower part of the stem thereby killing the plant. Mr. Ferrer had erected a plastic fence around the longbeans which prevented the snail from attacking the crop. This tactic could be useful in other areas where the giant African snail is a problem. The corn crop was severely infected with a fungal pathogen (yet to be determined) which was causing significant yield reduction. Eggplant had both leafhopper [*Amrasca biguttula biguttula* (Ishida)] and damage by the eggplant fruit and shoot borer (EFSB) (*Leucinodes orbonalis* Guenee). A farmer participatory experiment was set
up with Mr. Ferrer whereby tips infested by the EFSB are to be cut and removed. Data on marketable yields and percent fruit infested will be taken from plants with and without EFSB-infested fruits and from plots where the tips were cut and removed.

No papaya mealybugs were found on 200 papaya trees inspected from Manila, Cubuyoa, to Calamba, Los Banos, Calauan, and Victoria, Laguna during surveys carried out during Dec. 23, 2008 and January 7, 2009. Many did show symptoms of yellowing leaves and infection by virus. Discussions were carried out in Manila with Dr. Peter A. C. Ooi of the World Vegetable Center/AVRDC and with Dr. Madonna Casimera. She is currently on a project in South Sulawesi under contract with the International Rice Research Institute. Attention during December 26 – 28 also was devoted to writing a book chapter with Rangaswamy Muniappan, edited by Dr. Casimera, about practical IPM experiences in non-rice food crops in South East Asia.

After a conference call with Dr. Nollie Vera Cruz (IRRI), Dr. Karen Garrett of Kansas State University and Dr. Chris Mundt of Oregon State University, it was decided that it would be best to re-direct some of the IPM efforts from the Arakan Valley in Mindanao to the Lampung area of southern Sumatra. The reason for this is that in the Arakan Valley, after about seven years the rubber trees will produce too much shade for vegetable production. Meanwhile, our collaborators there, Drs. Rosa Hondrade and Edwin Hondrade from Southern Mindanao University, will continue to oversee IPM activities. It may be that rubber production will be expanded into new areas, which would allow expansion of vegetable production, particularly mungbean, the favorite vegetable crop at this time. Our main collaborator in Lampung will be Dr. Suwarno, a breeder who works at the Muara Field Station near Bogor in West Java. The Clemson group suggested that our former collaborators at the University of Lampung could play a major role in this effort.

Josephine Ramos, the director for research for the Philippine Cocoa Foundation, Nollie Vera Cruz and myself in Los Banos. Mrs. Ramos indicated that there is a large initiative to expand cocoa production in the country. The first phase of a program in cocoa call “SUCCESS” was funded by USAID (2002 – 2005). The second phase is 2.6 million dollar USDA –funded project which started in 2006 and will continue to June, 2009. The Philippine Department of Agriculture will continue to support this program.

Mrs. Ramos had received the degradable sleeves (used for pod sleeving against the cocoa pod borer that had been organized by the Clemson team). She distributed them to farmers in several sites which include: Palawan (Brooks Point), Apayao (Conner), Davao City (Calinan), and Davao Del Sur (near Sta. Maria). Number of participating farmers are as follows: Brooke's Point, Palawan: 10 farmers (there are over 200 cacao farmers in the area), Conner, Apayao: 2 farmers (there are about 300 farmers in the area but most of them have newly planted cocoa trees), Calinan, Davao City: 5 farmers (over 700 farmers around the area, mostly with existing/bearing trees), (Sta. Maria), Davao Sur: 9 farmers (over 600 farmers belonging to 6 cooperatives mostly agrarian reform beneficiaries). Each farmer will have 30 sleeves per tree with 30 trees per farmer. Farmers were asked to record their observations. At the end of the season–by September/October, we should have a comparison between damage from CPB when pods have been sleeved vs. those which were not sleeved, as well as those pods sleeved with synthetic plastic. The new cocoa initiative also includes making compost, including
Trichoderma, from cocoa pods. The degradable sleeves should fit well with this program because it is not necessary to remove the sleeves before shredding for compost. This work is being conducted from Clemson-leveraged support from Oxyplast, Inc. of Toronto, Canada. The field site at Calauan, (Laguna Province) organized by Drs. Ayds Adalla and Auring Baltazar was still planted to rice. Plans are to use all of the available IPM tactics in this rice-based system and compare yields and inputs to farmers’ usual practice for the area. At a nearby barangay, a government program called “Gawad Kalinga” (literally means “Care Giving”), had been initiated to aid homeless, poverty level families. The goal of the government is to have 1,500 communities with 30 families per community. Each family is provided with 10 m² of land and a 40 square meter house. A mixed cropping system of several vegetables and fruits were already planted and many had been harvested. Crops such as cabbage, eggplant, bitter guard, tomato, papaya, and malungay were present. This system provides an excellent opportunity to develop and test IPM tactics and to determine the “best mix” of crops. It was suggested that the community leaders identify and train a “pest management” scout who could first make base-line determinations as to which pests were present, then he/she could make recommendations and get key community leaders involved with identifying the most appropriate IPM tactics.

Surveys of papaya were continued from Laguna Province along the way to La Trinidad and Benguet Province. In all over 2000 papaya trees were examined but only one had mealybugs that were attacking the growing tips in La Trinidad, at a village called Alno. Mealybugs were collected and have been sent to Dr. Gillian Watson for identification.

We visited strawberry fields at Barangay, Betag, where 12 participating farmers were carrying out trials to learn about IPM and the production and use of the predatory mite (Neoseiulus longispinosus) against spider mites. The provincial (Benguet) governor, Hon. Nestor B. Fongwan and the mayor of La Trinidad, Artemio A. Galwan were both present at the site. Several other officials from LGU and Provincial Governments participated in a meeting held in Betag. Clearly, the farmers as well as government officials were supportive of the IPM efforts being undertaken. In addition, staff from, the Department of Agriculture, Benguet State University were present and were participating. In all, we visited 8 barangays (villages): 1. Betag, 2. Binang, 3. Ambiong, 4. Lubas, 5. Bahong, 6. Puguis, 7. Doblacion, and 8. Alno. Alno is the site where the mealbug was found on papaya. Only 8 barrios produce strawberries. Because of the climate at the high altitude site of Upper Wangal, strawberries were produced during the off season. Strawberries produced at this time fetched a higher price even though production was lower. Alex C. Tello, of the provincial agricultural office, indicated that a 1000 m² area could produce 1,800 kg of strawberries per year which was enough to support a small family. Prices for strawberries were far more stable than for vegetables and a strawberry grower could expect to receive from $15,000 to $20,000 per hectare, although most farms were much smaller than a hectare. Armyworms (Spodoptera litura) has become a recent problem on strawberries in Betag. I contacted Hermie Rapusas at PhilRice and she brought a virus (SINPV) that infects Spodoptera litura to Bagiuo. The virus, along with instructions on how to propagate it, were given to Bev Gerdeman to produce and field test with farmers against the armyworm. We visited the major vegetable outpost where farmers bring their vegetables to sell to “buyers” from Manila and other areas. The building where vegetables were brought to was financed by USAID. Photos of the different kinds of vegetables are shown in the appendix.

The imported cabbageworm, Pieris rapae, was clearly the most important pest on cabbage. An unidentified lymantrid also was feeding on the leaves of Brassica crops. The provincial and
municipal offices in the La Trinidad area provided facilities for rearing of the predatory mites used to control spider mites in strawberries. Facilities included rearing rooms, rearing of host plants (lima beans) for spider mites, and other equipment. A new experiment was being tried which washed the predatory mites for leaves. Field trials were being set up to test the predator against the spider mites. Already, reports were very favorable regarding the use of the predatory mite and farmers were very pleased.

Hermie Rapusas and PhilRice driver, Jon Jon, met me at the Camp John Hay Manor hotel on Jan. 11 and we proceeded to Munoz in Nueva Ecija province. After courtesy meetings with the Executive Director, Mr. Ronilo A. Beronio and the OIC Deputy Director and Scientist III, Mr. Eulito U. Bautista, we visited the IPM CRSP field sites in Bayanbang, Pangasinan, Guimba, Talavera and Nueva Ecija. Surveys of papaya trees were made along the way but no papaya mealybugs were found. At Bayanbang, Pangasinan about 30 farmers were participating in field trials with onions using Trichoderma and VAM. Although the crop was still young, there was a visible increase in the size of the onion plants that had been treated with Trichoderma and VAM compared to farmers’ usual practice. About half of the 30 participants were very enthusiastic women. They had written a song and made up a dance about IPM and several of them performed this for us. The farmers and their wives/husbands, had t-shirts made with the slogan “Oplan Sagip Sibuyas” which means “cooperative to save onions”. They were planning to make more Trichoderma in a day or so and the Provincial Governor had planned to join them.

The farmer/collaborator (Mr. Garcia) in Barangay Bunol (Guimba, Nueva Ecija) was a certified seed grower and an enthusiastic supporter of IPM in his onions. He mentioned that he would get from 16 – 27 Pesos per kg for his onions and expects to harvest about 20,000 kg per hectare. He also uses the pheromone of Spodoptera litura in order to time his spray applications, although he indicated that he rarely treats with insecticides.

At Barangay Pagasa, Mr. Leoncio was producing VAM on corn seedlings in a small greenhouse. He sold the VAM to other farmers in the area. He had a mixed cropping system of luffa, bitter gourd, and eggplant. There was damage by pickleworm on his bitter gourd. The simple practice of sleeving the bittergourds, as is done by some farmers in Indonesia, would prevent any insect damage. His eggplants were severely infested with leafhoppers, Amrasca bigulutta bigulutta which curled the leaves and make them look like they were attacked by a virus. The eggplant shoot and fruit borer also was attacking about 5% of the fruit examined. Several predators had begun to colonize the crop, the major one was ladybeetle, Micraspis crocea (Mulssant).

In St. Augustine, a small barangay near San Jose City (Nueva Ecija), 30 farmer collaborators (about 30% women) were preparing 50 kg of corn for use in making Trichoderma. They had already prepared 25 kg but had used this already on their onion crop. The group was very skilled in how to cook the corn. They then placed it into small plastic bags which were sterilized before inoculation with Trichoderma.
Training Activities Conducted

<table>
<thead>
<tr>
<th>Program type (workshop, seminar, field day, short course, etc.)</th>
<th>Date</th>
<th>Audience</th>
<th>Number of Participants</th>
<th>Training Provider (US university, host country institution, etc.)</th>
<th>Training Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predatory Mites, Stakeholders workshop</td>
<td>Jan. 8</td>
<td>Farmers, Univ. and Gov’t officials, extension workers</td>
<td>30 12</td>
<td>Washington State Univ., LGUs, Provencial Gov’t, Dept. of Agriculture</td>
<td>To acquaint farmers with IPM tactics especially rearing, releasing and evaluating predatory mites against spider mites</td>
</tr>
<tr>
<td>Field Day</td>
<td>Jan. 12</td>
<td>Farmers and their wives/husbands</td>
<td>15 15</td>
<td>PhilRice</td>
<td>Production, use and evaluation of Trichoderma</td>
</tr>
<tr>
<td>Workshop</td>
<td>Jan. 13</td>
<td>Farmers</td>
<td>20 15</td>
<td>PhilRice</td>
<td>Production of Trichoderma</td>
</tr>
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Suggestions, Recommendations, and/or Follow-up Items:

In depth discussions were held with collaborators from IRRI, Kansas State University and University of Oregon. The focus will shift from the Arakan Valley in Mindanao to Southern Sumatra (Lampung Province). The reason for this is that Drs. Rosa and Edwin Handrade will continue overseeing the work in the Arakan Valley. In addition, the sites at Lampung are more accessible and safe for outsiders. A telephone conference was held between Dr. Nollie Vera Cruz, Dr. Karen Garrett and Dr. Chris Mundt and the decision was unanimous to expand the activities by adding Lampung sites. We will follow-up on activities to be carried out at these sites.

It was suggested that the Gawad Kalinga sites would be ideal for developing a solid IPM program. With the Philippine government’s goal of putting Gawad Kalinga into 7,000 communities (30 families per community), this “peri-urban” setting could really expand IPM. Community leaders could identify a “pest observer” who could monitor crops for pests and work with the community to identify the most appropriate IPM tactics for suppressing pests. Workshops, field days and seminars could be held to increase community awareness.

Dr. Josephine Ramos, Field Operations Manager, will work with cocoa farmers to test the degradable sleeves for cocoa pod borer control in three major sites in the Philippines: Palawan, Davao and Davao del Sur.

Recommendations were made to be sure to compare populations of spider mites in strawberries from fields where predatory mites were released to those without predatory mites in order to measure the total impact. Strawberry yields and quality also should be compared.
List of Contacts:

Emiliano Ferrer, Jr. 049-559-0408 Chairman, Farmer Cooperative in Laguna Province
Hermie Rapusas: +63-919-835-2201, PhilRice
Beverly Gurdeman: Washington State Univ. +63-908-22-40159, Email: hermierapusas@yahoo.com
Auring Baltazar: 0917-500-7742, Univ. of Philippines
Candida Adalla, 0920-900-9104, UPLB
Gertrudo Arida 0919-321-3993, PhilRice
Oliver Agoncillo 632-552-9834, USAID
Donna Casimero 0917-509-6737, IRRI
Josephine Ramos: CocoaPhil Foundation
Peter A. C. Ooi
Josephine Ramos (CocoaPhil)
Madonna Casimero (PhilRice/IRRI)
Hon. Nestor B. Fongwan, Governor, Benguet
Ronilo A. Beronio, Executive Director/PhilRice
Eulito U. Bautista, OIC Deputy Director/PhilRice
Nollie Vera Cruz, IRRI

Email: mitehunter1@hotmail.com
Email: am_baltazar@yahoo.com
Email: aydsadalla@yahoo.com
Email: imus_arida@yahoo.com
Email: oagoncillo@usaid.gov
Email: donna.casimero@gmail.com
Email: jvr313@yahoo.com
Email: peter.ooi@worldveg.org
Email: jvr313@yahoo.com
Email: m.casimero@cgiar.org
Email: kabenguetan_nbf@yahoo.com
Email: raberonio@philrice.gov.ph
Email: eubautista@philrice.gov.ph
Email: c.veracruz@cgiar.org