

## IPM CRSP Trip Report

**Country Visited:** Guatemala

**Dates of Travel:** June 24-28, 2012

**Travelers Names and Affiliations:** J. Alwang, S. Tolin, R. Muniappan, L. Vaughan and G. Norton (VaTech); S. Weller (Purdue); B. Gugino (Penn State) V. Barrera, P. Gallegos and J. Ochoa (INIAP, Ecuador); J. Diaz, J. Melgar, H. Espinoza (FHIA, Honduras); Y. Valenzuela (Gender Global Theme, Zamorano, Honduras), Guatemala participants included M. Arevalo (Agroexportos), and M. Palmieri (UVG).

**Purpose of Trip:** To supervise ongoing research in Guatemala (Gt), to review research progress from the LAC Countries and participating universities, and to plan for following year activities.

**Sites Visited:** Solola and Guatemala City.

### Description of Activities/Observations:

Pre-meeting: (June 23-24). S. Tolin met with M. Palmieri at UVG offices to review collaborative work under the Plant Virus Diseases Global Theme and to prepare presentations and reports of activities, and plans for Year 4.

Day 1 (June 25): Traveled from Guatemala City to Universidad de Valle de Guatemala (UVG) Altiplano Campus in Sololá. Team was joined by Daniel Orellana, USDA/FAS. Planning meeting. (i) Overview of current activities and progress. Presentations by each country team (Ecuador, Honduras and Guatemala). This four-hour session involved feedback and discussions by participants. Substantial progress has been made toward developing IPM packages for Andean fruits and potatoes in Ecuador. Priority problems have been identified in Honduras and some progress has been made toward developing and testing IPM components. Work has begun in Guatemala. There is need to improve the focus of the research on developing and testing IPM packages for priority crops. Research in Honduras needs to focus on priority crops (not just any solanaceous crop) and needs to be oriented towards development of packages. The group's general reaction was that Honduras research moves from topic to topic without focusing on packages for specific crops. The Guatemala team needs to move toward experiments to validate individual IPM practices and incorporate them into IPM packages. While the team feels that the Gt team is working on the proper crops (potatoes, tomatoes and pepper), progress needs to be made for scientific evaluation of IPM techniques through randomized and replicated trials.

(ii) Presentations by global themes (viruses, disease diagnostic network, impact) and US universities. Several areas of collaboration across countries and universities were identified and discussed.

(iii) Planning for subsequent year activities. Individual country teams discussed plans and how they were affected by the morning debates. Teams were charged with preparing a presentation to the plenary on June 26.

Day 2 (June 26): Field trip to observe ongoing experiments. First, greenhouse experiment in UVG was observed. A demonstration was presented of the effectiveness of locally isolated *Trichoderma* spp. in managing soilborne fungal pathogens (primarily *Rhizoctonia* and *Fusarium* spp.) in peppers and tomatoes. Group noted that it is important to prepare properly designed experiments with randomized placement of treatments and replication in order to scientifically evaluate the effectiveness of the treatments for disease management. With a short time horizon for the CRSP and limited funds, it is important to get experiments set-up as quickly as possible. Visited farm in San Andres Semetabaj where demonstration plots of peppers, tomatoes and potatoes were established on a farmer's field. These plots were evaluating three options: (i) farmer practices; (ii) biological controls; and (iii) IPM in protected agriculture. The team commented that it will be difficult to make inferences because the scientific design is weak (no randomization, no replication) and the treatments are complex (too many variables). The second factor would inhibit learning anything about which practices would work and which would not.

Planning meeting was held in the afternoon at UVG. Each country team presented its tentative plans for work in the subsequent year. There was a consensus that it was not appropriate for any country to state that it will just continue doing what it had been doing in the prior year.

Recommendations:

- (i) Ecuador will continue to work toward refining its practices. Alwang and Norton will focus on ensuring that the work continues as planned. It is hoped that Penn State will use its resources to support IPM CRSP activities in Ecuador. Currently, the Penn State focus on quinoa does nothing to support the IPM CRSP, as quinoa is not and IPM CRSP focal crop. The consensus was that the Penn State team will begin to support research on potatoes and Andean fruits. Research on viral diseases on tree tomato should be pursued in collaboration with the Virus Global Theme. Next year's meeting will be held in Ecuador.
- (ii) Honduras will focus on priority pests and diseases in potatoes, peppers and tomatoes. Its main priorities are in addressing zebra chip disease, the life-cycle of the tomato-potato psyllid that vectors it, and viral (mostly insect-vectored) and soil-

borne diseases. Efforts will also be made to increase the presence of experiments on farmer fields. Weller and Brown will interact with the country team to ensure that the workplan is focused toward developing IPM packages by year 4.

- (iii) Guatemala will continue to develop its research plan, focusing on potatoes, peppers and tomatoes. The pest problems to focus on include *Candidatus liberibacter solanacearum* bacterium (causal agent of potato zebra chip), *Fusarium* spp., *Ralstonia solanacearum* (causal agent of bacterial wilt of tomato/potato), bacterial canker of tomato (caused by *Clavibacter michiganensis* subsp. *michiganensis*) and insect-vectored and mechanically-transmitted viruses. The team expressed a strong need to better understand the experimental treatments and to expand the experimental work beyond diagnosis (particularly of viruses) toward potential practices (hence the need to identify potential treatments). The team also expressed interest in seeing more work done on farmer fields. The team strongly urges the Gt country team to expand its participation to other disciplines. In particular, it is important to identify and incorporate a field entomologist to assist with experimental design and expand the focus of the research.

Day 3 (June 27): Orellana, Alwang, Norton, Gugino, Muniappan, Vaughn, Tolin, Palmieri, Arevalo and Sally Miller (Ohio State) visited Dr. Adam Silagyi, the agricultural policy advisor at the USAID mission. Dr. Silagyi was briefed on the IPM CRSP activities and gave an overview of USAID Feed the Future activities in the Altiplano. USAID is funding a \$42 million + project run by Agexport and Anacafe designed to develop market value chains in a number of crops which have not yet been identified. This project is working together with a Food for Peace project which is led by Catholic Relief Services and Save the Children. Both projects are working in a defined area in a program called the Western Highlands Integrated Program (WHIP). Both USAID and USDA saw potential for CRSP activities to support these critical initiatives, particularly in the area of training and delivery of IPM packages for focal crops.

Team participated in a workshop organized by FAS and IICA to build linkages between CRSP and local researchers. The workshop was a venue for the public to learn about IPM CRSP activities. It was attended by university researchers, USAID, and local public and private sector representatives.

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

- Draft workplans will be sent to Alwang by no later than July 15. These workplans will contain a clear prioritization of activities design to move the programs toward production of IPM packages by the end of the projects. They will also make clear that some of the experimental work in each country will be conducted on farmer fields.
- Workplans will clearly delineate expected contributions of US-University scientists to host-country research activities.
- Cost of production data will continue to be collected for all experiments on farmer fields.
- International travel requests will be submitted to Alwang along with the workplans.
- Guatemala team will identify a field entomologist and integrate this entomologist into its year 4 workplan.
- Guatemala will send survey data and questionnaires to Norton and Alwang.
- Penn State will show a clearer integration between thesis and other funded work and the IPM CRSP activities in each country.
- Penn State will identify an entomologist to support research in Ecuador.
- Virus global theme will include Ecuador in its annual workplan. This workplan will be integrated into ongoing IPM CRSP activities and IPM CRSP scientists in Ecuador.

### List of Contacts Made:

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