

IPM CRSP Trip Reports

Country(s) Visited: Guatemala

Dates of Travel: July 7-11, 2008

Travelers Names and Affiliations: Carrie Lapaire Harmon, University of Florida; Sue Tolin, Virginia Polytechnic and State University

Purpose of Trip: Augment plant disease and pest diagnostic capacity within the Central American and Caribbean laboratories.

Sites Visited: Universidad Del Vale, Guatemala City, Universidad Rafael Landivar, Guatemala City, AgroExpertos, Guatemala City

Description of Activities/Observations:

This trip was supported primarily by the IPM CRSP South and Central America regional program and Diagnostics Global Theme. Southern Plant Diagnostic Network and Universidades Landivar and DelVale provided additional support.

Diagnosing plant problems through training and participation in the International Plant Diagnostic Network (IPDN) is an IPM-CRSP global theme, funded in part by USAID. In support of this mission, Marco Arevalo organized a week-long training session (agenda included below) for more than two dozen diagnostic personnel (participant list included below; seven women, twenty-six men, exclusive of speakers/organizers) from Honduras, El Salvador, Jamaica, and Guatemala. Instructors from Universidad Del Valle (Guatemala), Universidad Rafael Landivar (Guatemala), FHIA (Honduras), Virginia Tech (USA), and the University of Florida offered training in

- fungal plant pathogens
- diagnostic networks
- plant nematodes
- plant viruses, bacteria such as *Ralstonia solanacearum*
- digital diagnostic and communication systems (DDIS, Skype)
- plant parasitic insects
- development of Standard Operating Protocols (SOPs) for plant diagnostics

Hands-on learning included

- field sampling and diagnosis
- laboratory sections in sample processing for fungi and other plant pests
- digital photography for distance diagnostics
- virus diagnostics (ELISA, Immunostrip, inclusion bodies, and PCR)

On-site learning included

- Tour and demonstrations at the Mediterranean Fruit Fly facility (Programma MoscaMed)
- Field visit to Escuela Nacional Central de Agricultura (ENCA) vegetable and fruit production fields

Translation for the English-language presentations was provided by Isabel Arias, Marco Arevalo, Cristina Bailey, and Margarita Palmieri. Participants were encouraged to interact with questions and exchange of diagnostic protocols and experiences. Productive discussions occurred regarding sample management, sample form completion, communications, and diagnosis and identification of fungi, bacteria, viruses, insects, and nematodes. Following the SOPs presentation, participants discussed the need for standardization of diagnostics across Central America and the Caribbean. Several participants indicated they would begin developing SOPs for Central American pests and diseases (one specific case included the possible development of a full SOP for all diseases and insect pests of coffee).

Observations/Recommendations: Following this introductory session, training is needed in specific identification of Central American diseases, insects, and nematodes. This specialized training, to include hands-on identification would be most productive in small groups, perhaps led by Central American and/or international experts. Distance education could be helpful for some introductory lessons, but full hands-on microscopic, immunologic, and molecular techniques would be preferable, especially with fresh samples. Funding for such training may need to come from a collective effort in Central America. Joining Caribbean and/or South American efforts may increase the likelihood of funding. For the current training in Guatemala, most of the travel for the participants was covered through IPM CRSP funding (see participant list, below, IPM CRSP funded participants marked with *).

Agenda

<u>Date</u>	<u>Activity</u>	<u>Speaker</u>
July 7, Monday	Welcome and introductions	<u>Marco Arevalo</u>
	IPM-CRSP Global Theme, IPDN	<u>Marco Arevalo</u>
	The Functions of NPDP in the US	<u>Carrie Harmon</u>
	Break	
	Diagnosis of Plant Pathogenic Fungi	<u>Carrie Harmon</u>
	Biology and ID of fungi of economic importance to Central America	<u>Marco Arevalo</u>
	Lunch	
	Biology and Identification of important bacterial diseases in Central America	<u>Marco Arevalo</u>
	Biology and ID of <i>Ralstonia solanacearum</i>	<u>Edin Orozco</u>
	Break	
	Biology and taxonomy of fruit flies	<u>Ronaldo Perez</u>
July 8, Tuesday	Board bus for field trips	
	Visit the facility for the Mediterranean Fruit Fly Eradication Program (MoscaMed)	<u>Ronaldo Perez</u>

	Field visit to ENCA (Central National School of Agriculture), collect samples	
July 9, Wednesday	Laboratory work with collected samples And digital photography of samples for distance diagnosis Break Plant nematode identification Lunch Use of Skype to consult on sample diagnosis Demonstration of IPDN-DDIS Standard operating Procedures (SOPs)	Marco and Carrie Javier Dias Carrie, Marco and Sally Miller, OSU Carrie Harmon Carrie Harmon
July 10, Thursday	Plant virus diagnostics, lecture and practice Including PCR, ELISA, etc	Sue Tolin and Margarita Palmieri
July 11, Friday	Laboratory work with collected and plated samples from Wednesday Importance of insect ID for phytosanitary diagnostics Discussion: diagnostic needs in each area Closing discussion, diplomas	Charles MacVean

Participant List

Name	Institution	Email address
(* indicates some or all travel/meeting costs covered through IPM CRSP project funding)		
1. *Emerson Herrera	ENCA, Guatemala	emerson_herrera@hotmail.com
2. *Patrice Pitter	Ministry of Ag. Jamaica	patricepitter@yahoo.com
3. Julio García	ANALAB, Guatemala	julio.rgm@anacafe.org
4. Marcos Oxom	ANALAB, Guatemala	marcos.oxom@gmail.com
5. *Javier Díaz	FHIA, Honduras	fjdiaz@fhia.org.hn
6. *Debora Casco	Zamorano, Honduras	dcasco@zamorano.edu
7. *Reina Flor de Serrano	CENTA, El Salvador	reinafserrano@hotmail.com
8. *Olga Estela Sandoval	CENTA, El Salvador	reinafserrano@hotmail.com
9. *Wilfredo López	UVG, Guatemala	wilfredo_LPZ01@yahoo.es
10. *Ofelia Paniagua	UVG, Guatemala	ofepaniagua@yahoo.com
11. *Leyda Hernández	UVG, Guatemala	leydandrea@yahoo.es
12. *Margarita Palmieri	UVG, Guatemala	palmieri@uvg.edu.gt
13. *Cristina Bailey	URL, Guatemala	acbailey@url.edu.gt
14. *Luis Calderón	URL, Guatemala	
15. *Charles MacVean	URL, Guatemala	
16. *Eduardo García	URL, Guatemala	megarcia@url.edu.gt
17. *Freddy Mejía	URL, Guatemala	
18. *Carrie Harmon	UFL, USA	clharmon@ufl.edu
19. *Sue Tolin	Virgina Tech, USA	stolin@vt.edu
20. *Nelson García Santos	MAGA, Guatemala	nelson.garcia@maga.gob.gt

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| 21. *Arturo García Salas | MAGA, Guatemala | arturingarciasalas@gmail.com |
| 22. *Bernardo Mendoza | MAGA, Guatemala | ber.mendoza@gmail.com |
| 23. *Héctor Solares | USAC, Guatemala | tecuaco@yahoo.es |
| 24. *Isabel Arias | AGROEXPERTOS | agroexp@intelnett.com |
| 25. *Marvin Morales | AGROEXPERTOS | moraleschang@yahoo.es |
| 26. *Mario Arévalo | AGROEXPERTOS | |
| 27. *Marco Arévalo | AGROEXPERTOS | agroexp@intelnett.com |
| 28. Julio del Cid | Soluciones Analíticas | delcidjr@solucionesanaliticas.com |
| 29. *Eduardo García | URL, Guatemala | |
| 30. *Edin Orozco | USAC, Guatemala | |



Observation of pupae screening, MoscaMed. Skype conversation and DDIS w/ S. Miller.



Virus sample preparation



Field observation and sampling

