IPM CRSP Trip Report

Country Visited: India

Dates of Travel: 7-5-2011 to 7-11-2011

Traveler's Name and Affiliation: Dr. Naidu A. Rayapati, Washington State University, USA

Purpose of Trip: To evaluate activities of the Global Theme Project "International Plant Virus Disease Network" at Tamil Nadu Agricultural University and develop work plans for year 3 of the project.

Sites Visited:

7-5-2011: Travelled from Hyderabad to Coimbatore

7-6-2011: TNAU campus visit at Coimbatore. Met with Dr. P. Murugesa Boopathi, Vice Chancellor, TNAU; Dr. G. Chandrasekar, Head of Plant Pathology; Dr. R. Samiyappan, Director, Center for Plant Molecular Biology; Dr. Udayasuryan, Head of Plant Molecular Biology; Dr. L. Pugalendhi, Head of Vegetable Crops; Dr. N. Kumar, Dean of Horticulture; Dr. K. S. Srinivasan, Head of Nano Technology. Review the project and data analysis and discussed about the possibility for organizing a virus workshop at TNAU in 2012 with Dr. G. Karthikeyan.

7-7-2011: Visited (i) Veerakeralam village (5 KM from Coimbatore) and (ii) Karadimadai village (12 KM from Coimbatore) to observe IPM field trials for management of bud necrosis disease in tomato. Visited two nurseries at (i) Thondamuthur village (15 KM from Coimbatore) - Naveen Nursery managed by Mr. Naveen and Ever Green Nursery managed by Mr. Subramani and (ii) one at Alandurai (Kumar Nursery managed by Mr. Kumar). Travelled to Annur (55 KM from Coimbaore) and visited with a farmer, Mr. Doraisamy and discussed about his IPM trials for okra.

7-8-2011: Traveled to Agricultural College and Research Institute, Tiruchirapally or Trichy (250 KM from Coimbatore). Met with Dr. Jayabal, Dean; Dr. Balamohan, Special Officer, New Horticulture College & Research

Institute for Women; Dr. G. Gajendran, Head of Crop Protection; Mr. Saravanan, Farm Officer, All India Radio, Trichy. Visited Raasi Seeds at Attur (120 KM from Trichy) and met with Dr. V. Subramanian, VP-Research, Dr. Poovannan, Dr. Ramesh, Dr. Selvakumar, Scientists at Raasi Seeds. Travelled to Salem (55 KM from Attur) for O/N stay.

7-9-2011: Travelled to Dharmapuri (65 KM from Salem) from Salem to observe IPM trial on management of viruses in tomato at Marappanaikkanpatti village. Mr. Mariappan is the farmer conducting this trial. Visited Mr. Chinnusamy at Somanahalli village to observe okra and brinjal fields. Returned to TNAU (250KM).

7-10-2011: Reviewed research, discussed about work plans for year 3 and conducted data analysis, and prepared draft trip report.

7-11-2011: Travelled from Coimbatore to Hyderabad.

Description of Activities/Observations:

- At Veerakeralam village, Ms. Papitha, a woman farmer, is conducting IPM trial for the management of PBNV. The field is 0.75 acres planted with tomato var. Vaishnavi. The crop is one month old. The field is divided into two equal parts. Half of the field is planted using IPM practices and the other half is planted as a control using farmer's practice of cultivation. IPM components included in this trial were: seed treatment with *Pseudomonas* plus *Trichoderma*, soil application of *Pseudomonas*, removal of infected seedlings at the time of planting, roguing until 45 days after transplanting, soil amendment of neem cake at the time of land preparation, yellow sticky traps and neem-based pesticide application, as necessary. A few tomato plants with PBNV symptoms were observed in non-IPM plot with farmer's practice of tomato cultivation. No symptomatic plants were observed in IPM trial at the time of this visit. Dr. Karthikeyan and his team will make visits at two-week intervals to record disease incidence. They will also record harvest data at the end of the crop.

- At Karadimadai village, Mr. Shanmugasundaram is growing tomato (var. Laxmi). The crop is 2 month old planted in 1.5 acre. The field is divided into two equal parts. Half of the field is planted using IPM practices and the other

half is planted as a control using farmer's practice of cultivation. IPM components included in this trail are mentioned above. The crop is in good condition and 10 women labors were carrying out stacking of tomatoes at the time of the visit. During discussions, the farmer said that he is satisfied with IPM management of pests and diseases in cauliflower and tomato conducted by TNAU scientists. He thinks that the IPM package for pest control in brinjal needs some improvement. The farmer also mentioned that he shares information on benefits of IPM practices with other farmers and encourages his neighbors to adopt similar practices for higher income.

- At Annur, we met with Mr. Doraisamy, a farmer who conducted IPM trials in okra in 2010 and 2011. He mentioned that, in 2011 season, a total of 33 harvests of okra were made during the season from IPM trial as opposed to only three harvests in non-IPM trial. By practicing IPM, he was able to harvest 1,640 kg of okra during the entire season and got Rs. 18,860 and harvested only 95 kgs and got Rs. 1,092 from non-IPM trial. He was excited to continue IPM practices for other crops and share this knowledge with other farmers in his community.

- Nurseries are growing tomato, pepper and cauliflower seedlings under shade houses. These nurseries are using seed-dressing with commercial organic formulations (contents are confidential) before sowing. In general, nurseries are growing healthy seedlings and no diseases and pests were observed in all three nurseries visited. It was mentioned during the discussions that seedlings raised during winter months show infections with PBNV than in summer and rainy seasons.

- Visited Trichy to participate in "Farm School on Vegetable IPM" organized by the All India Radio and TNAU. This program was initiated by the IPM CRSP in February 2011 to disseminate project outputs for a wide range of farming community. I gave a brief presentation in English on IPM CRSP and virus diseases and their management, including roguing. Dr. Karthikeyan translated into Tamil language. Drs. Karthikeyan, Gajendran, Pugalendi and Dr. Uma also spoke in Tamil about IMP CRSP activities in relation to vegetable production, management of pests and diseases and the role of gender. About 14 farmers (4 female and 10 male) attended these presentations. Some of these farmers asked questions about vegetable

cultivation and management of pests and diseases, and TNAU scientists answered these questions in Tamil. These presentations will be broadcasted via AIR-Tiruchirapalli and sister radio stations on every Tuesday under Agriculture program for the benefit of wider farming communities in Tamil Naidu State. Mr. Seravanan mentioned that these radio-talks are highly popular and effective in disseminating IPM technologies. During the Q&A session, a women farmer, Ms.Malarvizhi from Elangatupatti village, specifically mentioned about the advantages of IPM packages she adopted for the cultivation of seed onion. Under the direction of Dr. Gagendran, IPM CRSP project collaborator at TNAU-Trichy, she was able to harvest 6400 kg/acre and sold for an amount of Rs. 1,60,000 by adopting IPM tactics in contrast to 4,800KG/acre and sold for an amount of Rs. 1,20,000 with farmer practices.

- At Marappanaikkanpatti village, Mr. Mariappan is the farmer conducting IPM trial in 0.45 acres. The varaiet is Ruchi and the crop is 4 weeks old. We observed a few tomato plants with leaf curl symptoms and a few with PBNV from infected seedlings. No such symptoms were observed in the IPM trial. Dr. Karthikeyan and his team will monitor this trial for diseases, whiteflies and thrips and collect yield data at the time of harvest.

Training Activities 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		
Field visits	7-7-2011	Farmers and nurseries	12	15	WSU and TNAU	Field diagnosis of virus diseases in nurseries and farmers fields and management of virus diseases by IPM tactics.
Radio Talk	7-8-2011	Farmers	10	4	WSU, TNAU	To provide IPM tactics for the management of pests and diseases in vegetables.
Field visits	7-9-2011	Farmers	3	2	WSU, TNAU	Field diagnosis of virus diseases in farmers fields and management of virus diseases by IPM tactics

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

- Discussions with farmers clearly showed the benefits of adopting IPM strategies for the management of pests and diseases and production of quality vegetables like tomato, okra and onion. Farmers have clearly demonstrated the economic benefits of adopting IPM strategies. Thus, IPM strategies should be promoted more vigorously and expanded during the rest of the project period. The IPM packages should be demonstrated in more locations within Tamil Nadu and across other states benefitting farmers across the country.

- Linkages between TANU and TERI should be strengthened for maximizing knowledge from IPM trials by TNAU. Collaborators at TNAU and TERI should develop joint work plans for both South Asia regional program and global project on viruses to conduct activities at different locations in the country. This will help to promote IPM CRSP outputs for adoption by farmers across the country. Although TERI sent a few tomato samples to TNAU for virus testing, these linkages need to be strengthened further for maximizing resources provided to both institutions.

- Virus diseases continue to be a major constraint to vegetable production. The seriousness of virus diseases is prompting TNAU to create a new Department of Virology for addressing virus diseases affecting agriculture in TNAU. IPM CRSP scientists should help TNAU in establishing a strong Virology department for research, extension and teaching.

- Dr. Karthikeyan was advised to recruit a PhD student to work on virus diseases.

List of Contacts Made:

Name	Title/Organization	Contact Info (address, phone, email)
Dr. P. Murugesa Boopathi	Vice-Chancellor, TNAU	vc@tnau.ac.in
Dr. R. Samiyappan	Director, CPMB	directorcpmb@tnau.ac.in
Dr. G. Chandrasekar	Prof and Head (Plant Pathology)	pathology@tnau.ac.in
Dr. S. Udayasuryan	Prof and Head (Biotechnology)	biotechnology@tnau.ac.in
Dr. G. Karthikeyan	Assoc. Prof. (Plant Pathology)	agrikarthi2003@yahoo.com
Dr. S.K. Manoranjitham	Asst. Prof. (Plant Pathology)	manoranjithamk@hotmail.com
Dr. N. Balakrishnan	Asst. Prof. (Plant Pathology)	balakrishnanento@yahoo.co.uk
Dr. S. Mohankumar	Professor (Plant Pathology)	smktnau@gamil.com
Dr. K.S. Srinivasan	Prof & Head, Nano Technology	nanotechnology@tnau.ac.in
Dr. Jayabal	Dean, Agriculture College, Trichy	deantrichy@tnau.ac.in
Dr. N. Kumar	Dean, Horticulture College, Coimbatore	deanhorti@tnau.ac.in
Dr. T.N. Balamohan	Special Officer, Horticulture College, Trichy	-
Dr. G. Gajendran	Prof & Head, Crop Protection, Trichy	ggajendran@yahoo.com
Dr. Saravanan	Farm Officer, AIR, Trichy	-