

IPM CRSP Trip Report

Country Visited: USA (Hawaii)

Dates of Travel: 4th August to 13th August, 2011

Travelers Names and Affiliations: Dr .R. Samiyappan, Director (CPMB), Dr. E. I. Jonathan Director (CPPS), Dr. S. Mohankumar, Professor, TNAU, Coimbatore, India

Purpose of Trip: To attend the 16th International Plant Protection Congress held at Honolulu, Hawaii during 6-10, August, 2011 and present papers on on-going IPM work

Sites Visited: Convention center, Honolulu, Hawaii, USA

Description of Activities/Observations:

Attended the pre congress symposium on IPM for Feed the future organized by Dr R. Muniappan, Program Director, IPM CRSP, VT, USA, on 6th August, 2011 in which there were seven presentations which included the Role of IPM by John Bowman, USAID, Role of USDA Anita Regmi, Chief research Advisor, USA, Role of Bill and Melinda Gates foundation in IPM by Prem Warriar, Technology transfer approach by German point of view by Marlene Diekmann, CG Research center point of view by Robert Ziegler, DG, IRRI, Philippines, Need for IPM and technology transfer activities by S.K. De Datta were excellent. Impact of IPM program in agriculture and what has been done and what needs to be done were also presented by Dr Norton and by Richard Sikora, Chair CGIAR SP- IPM steering Committee. In all the presentations emphasis was given for strengthening the IPM activities further by way of net working. More emphasis was given to increase the IPM activities in African countries with India as a lead country with more funding by donors. Panel discussion on importance of IPM for feeding the future population was conducted. Dr .R. Samiyappan Director (CPMB) and Dr. E. I. Jonathan Director (CPPS) of TNAU expressed their views during discussion.

On 7th August, 2011 IAPPS opening General session and Award ceremony was organized by International Association of Plant Protection Society in which awards were given to six eminent Plant Protection Scientists for their achievement in the field of IPM in specific crop /field. The recipients were Dr Ziegler, DG, IRRI, Phillipines for food security and IPM in rice; Dr Way (posthumous) received by Dr. K.L. Heong, Entomologist, IRRI, Philippines for the biodiversity conservation work for the life time achievement. Dr Christian Borgemeister, Director general International center for Insect Physiology and Ecology (ICIPE), Nairobi, Kenya for his achievements in biological control. A team award also was given to AVRDC scientists for their achievement in Vegetable IPM. In the afternoon, attended three sessions viz., International movement of insects and

Pathogens in commercial trade, Management of insect transmitted Plant viruses in the Tropics Plant Protection and food security in a changing world. In addition there were three Technical sessions Viz., New & emerging pest and diseases, Plant disease Management chemical and biological control and Plant Fungal interactions.

Dr. E. I. Jonathan, Director (CPPS) moderated the session with Dr. Kerry Brittan, USDA Forest Service on invasive pests and presented the paper on management of papaya mealybug, *Paracoccus marginatus* through classical biological control. The chair of the session appreciated the role of biological control in suppression of invasive mealybug and stressed the need for global co-operation among nations to have successful biological control program. This was followed by presentation on Integrated Management of invasive mealybugs in Brinjal in which highlighted the damage caused by two mealybugs, *Phenacoccus solenopsis* and *Paracoccus marginatus*, and their management especially by using host plant resistance using wild Solanum varieties and biological control using coccinellid beetle, *Harmonia octomaculata* and encyrtid parastoid, *Acerophagus papayae* respectively for the above two mealybugs. There was good discussion on the occurrence, spread and management of mealybugs and the house appreciated the efforts taken by TNAU for the management of papaya mealybug in different crops. In the evening there was welcome reception with exhibition and Posters. Two posters on onion IPM from TNAU were displayed by us and explained to the participating scientists

On 8.8.11, (Monday), we attended four special sessions on the following topics: Invasive weeds as a special threat to Agriculture and human health; IPM and biological control of Pests and Pathogens, Weeds in the Pacific; Where we are leading; Laboratory methods for evaluation and characterizing fungicide resistance; and What else is there .New genes, metabolites and regulatory pathways involved in bio control by bacteria. In addition there were oral presentations on three technical sessions: Detection & Diagnosis of plant diseases; Epidemiology – biology of pathogens; and fungicide resistance and efficacy. In the afternoon session was allotted for viewing the poster session and there was a plenary session on four topics which were delivered by eminent speakers on different field.

In the Plenary session there were four presentations. First presentation was on Sustainable Production and Protection of Global Agriculture: Advancing Science and Technology Amidst Changes in Climate and Policy By Dr Roger Beachy, Former Director National Institute of Food and Agriculture, USDA and President Emeritus, Donald Danforth Plant Science Centre. He outlined the challenges due to global warming and increase in pest and disease incidence and reduction in production and productivity of many crops and suggested the possible ways to mitigate it. The presentation was on Educating America's future Educators by Dr. Richard Tapia, Director, Center for

Excellence and equity in Education, Rice University, USA. He mentioned that after twenty years there will be no English Teacher to teach science and it will be mostly by Asians in USA. The third presentation was on Communicating IPM for implementation in Farmer's field in South East Asia Past lessons, Future strategies by Dr.Else van de Fliert, Co -Director, center for communication and social change, University of Queensland, Australia. She outlined the benefits on the establishment of farm Field school and making the farmer as plant doctors and empowering them on IPM knowledge will definitely result in reduction in pesticide use in many crops by conserving more natural enemies. The last presentation was on Trends in Rice supply and demand and their implications from plant protection by Robert Ziegler, Director General, IRRI, Philippines. He outlined about 85 per cent of the rice produced by South East Asian countries were consumed by them. He suggested to work on emerging diseases, impact of climate change and measures to mitigate them and told that there are many more plant pathologists needed to work on new and emerging diseases. He also addressed the outbreak of planthoppers in many countries due to improper insecticide usage and suggested to go for ecological engineering methods for conservation of natural enemies. There was extended time for poster viewing. All the presentations were attended.

On 9.8.11(Tuesday) we attended selected paper presentations in six special sessions viz., Ag and food biosecurity: A decade of Progress and Reality, Challenges to production and distribution of quality planting materials, seed and seed systems for farmers in developing countries, Fungal comparative genomics and the impact of next generation sequencing, Innovative chemical and biological approaches to Plant Protection, New Product and services, Using Translational Biotechnology to deploy disease resistance traits in crop plants were the topics of special session.

We attended oral technical sessions: IPM -Microbial ecology and biological control, Molecular biology of plant viruses presentations. Director (CPMB) presented the paper on PGPR mediated IPM in tropical vegetables. The importance of *Pseudomonas* was highlighted by the chairman of the session. There was an interaction from the participants on the use of *Pseudomonas*.

On 10.8.11(Wednesday), there were three Special and technical sessions each. They were better use of entomopathogenic fungi in IPM, Crop health management in food safety and agro ecosystem health in developing countries, current advances of Plant Molecular pathology in china, Digital identification tools: their role in bio security and Pest Management. In this two presentations explained the utility of digital identification services PaDIL by Walker, Museum, Victoria, Australia and how it can be networked with other resources. New and emerging technologies in Turfgrass Disease management, Pesticide resistance in Agriculture – A Global issue, Tropical Forest Pathology. In the Oral technical sessions of three topics viz., Biology of Plant Pathogens:

Fungi, Diseases of horticultural crops and forests, Induced plant response and disease resistance were discussed.

In the afternoon there were five special sessions. We attended a special session on IPM program for vegetable crops in the Tropics and opportunities for IPM Graduates. This session was moderated by Dr. Muniappan and Dr. Merle Shepherd, Emeritus Professor of Entomology, Clemson University, USA. There were 11 presentations except two all the others given an overview on the progress made in IPM in vegetables of their region and indicated their success and difficulties in certain areas and suggestions were given to further improve the reporting. Presentaion by Dr. S. Mohankumar, TNAU was well received.

We also attended the oral Technical sessions on Entomology and Insect vectors, Molecular biology of bacteria and nematodes and Pathogen population Genetics. In vectors the papers were on management biotype whitefly , insecticide resistance in mites and banana bunchy top virus transmission and detection in aphid by immune flourescence were also very interesting and noteworthy to mention. On final day, the meeting was ended with a polynesian culture show.

Participation and presentation of a paper in the IPPC has given a confidence to face the International audience and to have a collaborative work. Few contacts in IPM and biocontrol and digital identification have been made to have either a collaborative research work or networking with the existing centers. With Dr. Muniappan and others we discussed on future collaboration and for preparation of Obama-Singh award proposal. Establishment of Diagnostic center has also been discussed.

Papers presented in the Congress

Oral presentations

Jonathan, E.I., S. Suresh, M. Kalyanasundaram, C. A. Mahalingam, P. Karuppuchamy, S. Venkatesan. Management of papaya mealybug, *Paracoccus marginatus*, through biological control. Paper presented in the Joint Meeting of American Phytopathological Society and International Association of Plant Protection at Honolulu, Hawaii, 6th to 10th August 2011. *Phytopathology*, 101: S 225.

Durairaj, C., Karthikeyan, G., Ramakrishnan, G., Gajendran, G., Dinakaran, D., Pugalendhi, L., Jonathan, E. I., Samiyappan, R., and **Mohankumar, S.** 2011. IPM Packages for vegetable crops in India. Paper presented in APS - IPPC Joint meeting organized by APS and IAPPS at Honolulu, Hawaii, USA, 6 -10, August 2011. *Phytopathology* 101: S 227.

Samiyappan, R., E. I. Jonathan, S. Mohankumar, T. Raguchander and G. Karthikeyan. 2011. PGPR mediated IPM for tropical vegetables in South India. Paper presented in the Joint Meeting of American Phytopathological Society and International Association of Plant Protection at Honolulu, Hawaii, 6th to 10th August 2011. *Phytopathology*, 101 (6):S159.

Poster Presentations

Gajendran, G., Dinakaran, D., Mohankumar, S., Karthikeyan, G. and Jayabal, V. 2011. Evaluation and Popularization of Integrated Pest Management Module in Onion. Poster presented in APS - IPPC Joint meeting organized by APS and IAPPS at Honolulu, Hawaii, USA, 6 -10, August 2011. *Phytopathology 101*: S 56.

Dinakaran, D., Gajendran, G., Mohankumar, S., Karthikeyan, G., Mathiyazhagan, S., Thiruvudainambi, S. and Jayabal, V. 2011. Management of onion purple blotch with bioformulations and fungicides. Poster presented in APS - IPPC Joint meeting organized by APS and IAPPS at Honolulu, Hawaii, USA, 6 -10, August 2011. *Phytopathology 101*: S 42.

Karthikeyan Gandhi, V. Pandian, S. K. Manoranjitham, G. Chandrasekar, R. Samiyappan, E. I. Jonathan and R.A. Naidu. 2011. Studies on *Peanut bud necrosis virus* affecting tomato in India. Poster presented in the Joint Meeting of American Phytopathological Society and International Association of Plant Protection at Honolulu, Hawaii, 6th to 10th August 2011. *Phytopathology*, 101 (6):S58.

List of Contacts Made:

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