

IPM CRSP Trip Report

Country Visited: Hyderabad, India

Dates of Travel: 1-6 June, 2014

Travelers Names and Affiliations: Mohammad Mahfuzur Rahman, Scientific officer, Plant Pathology Section, HRC, Bangladesh Agricultural Research Institute, Gazipur, Bangladesh

Purpose of Trip: To Attend the workshop on Seed and Seedling-borne Diseases of Vegetable Crops

Sites Visited: NIPHM (Rajendranagar, Hyderabad, Andhra Pradesh, India) and ICRISAT (Patancheru, Andhra Pradesh, India)

Description of Activities/Observations: The -workshop took place on 2-5 June 2014 at NIPHM in Hyderabad, India. The team arrived at the venue one day before, on 1 June 2014, in order to meet for fine-tuning of the agenda and coordination of facilitation.

Participants Team

The members of the training team were four from USA, four from Cambodia, two from Indonesia, one from Bangladesh and others were from different Indian Institutes and Seed companies.

DAY 1: JUNE, 2, 2014 at 9.00 am

Before opening the workshop the registration procedure have been done. Then Dr. Sathyanarayana, Director, NIPHM opened the session by welcoming the participants asking participants and trainers to introduce themselves and establishing the ground rules. She then went on the concept of Seed and Seedling borne Disease of vegetable crops.

The keynote speech was delivered by Dr. R Muniappan, Director, IPM IL. Dr. Muni Director, IPM CRSP presented an overview of IPM Innovation Lab. He briefly presented IPM activities in the world. Then NSAI President M Prabhakar Rao presented the situation in Seed Industry Its Perspective and future challenged and USAID official Dr. Srivali Krisnan briefed USAID activities in India. Dr. Korlapati Satyagopal, Director General, NIPHM presented the concept Ecological Engineering for pest Management and Inaugural the workshop.

SESSION –I: The session went on the concept overview of IPM Innovation Lab, Seed and Seedling borne diseases of vegetables and objective of the workshop. Dr. R Muniappan presented the topic. Then Dr. Robert Gilbertson went on the concept behalf of Dr. Sally Miller on seed- borne bacterial diseases identification, its causal agent, movement in the seed chain and its management. The session chaired by Dr. Naidu Rayapati and Rapporteur was Mrs. Latha. In the session the second speaker Dr. Barry Jacobson presented the overview of seed-borne fungal pathogens of vegetable crops, its causal agent,

movement the pathogen in seed chains and management of the diseases. He briefly discuss seed-borne vs transmitted organism, mode of action of seed infection, major fungal pathogens, management pathogen free seed production, treatment for freeing seed of bacterial and fungal infection, other physical methods, fungicides methods and finally environmental effect on seed-borne pathogens. There is many question came from the participants and the speaker answer briefly all the question. The first session end and all the participants went to the lunch.

SESSION-II: After lunch break, four speakers presented the overview of seed-borne virus and virus like diseases. DR. R Muniappan chaired this session and Rapporteur was Dr. K. Susheela. The first speaker Dr. Sue Tolin was presented seed borne virus and virus like diseases of vegetable crops: Description, detection and diagnosis of virus diseases. She discussed about description of virus and virus like agents, practical detection approaches(Immunoassays, Nucleic acid assays), different virus particle structure, different diagnostic methods and choices, biological properties, Rapid diagnosis Immunosrips test, major taxa of viruses found on vegetables, frequency of seed transmission and spread and its management. He also mentioned without any detection and diagnosis there is no management practice will follow. He answered many question raised from the participants. Then the topic dissemination of plant viruses presented the second speaker Dr. Naidu Rayapati. He briefly describe spread of plant viruses (contact, seed/pollen, mechanical, vector, vegetative propagates), pollen and seed transmission of plant viruses, mode of insect vector transmission (Persistent, nonresistant and semi-persistent). Many participants asked question to the speaker and he answered the entire question briefly. In this session the last speaker Dr. Robert Gilbertson presented the tropic Seed borne viruses: Disease development, impact and its management. He discussed how to know the disease caused by viruses (In the field, virus diseases are recognized by symptoms, symptom type can help identify vector), pollen and seed transmission mechanism of viruses, mode of pathogens to invade seed, how long pathogen remain in seed, some virus are seed associated but not seed transmitted and seed chain and Integrated pest management of plant viruses. The speaker also answered many question came from houses. Then the session is open for discussion and question. Many quarries came from participants and all speakers answered the entire question briefly.

Following the presentations and debrief, the training-workshop was closed for the day.

DAY 2: June 3, 2014

SESSION -III: The session began with country specific presentation on seed borne virus diseases. Dr. Sri Herdrastuti Hidayat from Indonesian presented their activities in their country to control virus diseases. She mentioned their main viral problem is Year long bean yellow mosaic diseases and Pepper yellow leaf curl begomovirus. Then I presented my country's virus disease status, our farmers practice and our management practices for controlling virus diseases. In Bangladesh, main virus problem is Cucumber mosaic virus, Year long bean yellow mosaic virus, Okra yellow vein clearing mosaic virus and TYLCV in tomato. I mentioned main virus problem in our country in Tomato, Okra, Cucurbits and Chili peppers. Dr. Naidu Rayapati presented the virus problem in central Asia, South Asia and Southeast Asia. He presented mainly diseases problem in Bangladesh, India, Cambodia and Indonesia, effective Integrated Pest management of Plant disease caused by Viruses in developing Countries, detection and diagnosis and capacity Building and

Training formulation of IPM Packages. The east Africa report presented By Dr. Sue Tolin. She presented survey of tomato viral diseases in Uganda and their detection process. Dr. Robert Gilbertson presented the Latin America and Caribbean report and he mainly focused on Jamaica, Honduras, Guatemala, Dominican Republic and Ecuador virus problem and capacity building of IPVDN.

The session then continued with Dr. Sathyanarayana on the seed health regulation procedure in India. He describe what type of procedure they apply in their country, what type of regulation they maintain and which type of quarantine system they follow. He described Seed certification history in India, Seed health aspects in national regulations, restriction on export and import of seeds of notified kinds or varieties and recognition of seed certification agencies of foreign countries.

After the lunch break round table discussion started on seed treatment, Seed and Seedling certification/Tolerance level and effectiveness of quarantine systems. All participants attended the discussion and they briefed their countries and Industries activities on these tropic.

Following the presentations, brief and discussion the training-workshop was closed for the day.

DAY 3: June 4, 2014

SESSION-IV: The session with the presentation on the speaker Dr. Sarath Babu, Principal Scientist, NBPGR who presented the tropic about national germplasm programme in India. He discussed what is plant genetic resources, centre of origin and centre of diversity of plant species, genetic resources management system, NBPGR management programme, management of germplasm resources, germplasm exchange and conservation and evaluation of germplasm. Participants from the house asked question and he answered entire question.

The session continued with Dr. Sue tolin who presented capacity building and other needs of IPM IL. He briefly described the capacity building initiatives and other needs of IPM IL. Then the speaker Dr. N. Sathyanarayana, Director, NIPHM presented the NIPHM capacity building initiatives and their activities in capacity building. What type of training, workshop they were gives farmer, Scientist and assist other countries for capacity building.

After lunch break seed transmitted pathogens of high value vegetable crops (Solanaceae, Cucurbitaceae, Malvaceae, Fabaceae and Others) were presented by four speakers Dr. Naidu Rayapati, Dr. Sue Tolin, Dr. Barry Jacobson and Dr. Robert Gilbertson. At first Dr. Barry Jacobson presented managing PVY in potato. Then the second speaker presented rouging for management of Peanut bud necrosis virus in tomato. Dr. Sue Tolin presented the tropic Cucurbit viruses and its management and the finally Dr. Robert Gilbertson presented the implementation and success of host free periods for managing tomato infecting whitefly transmitted geminiviruses (begomoviruses) in developing countries and virus infected Solanaceous crops.

After then discussion went on previous three day presentation and open for question.

Certificates of participation were then awarded to each of the participants by Dr. Korlapati Satyagopal, Director General, NIPHM and Dr. SueTtolin, Plant virus disease global theme leader and Dr. Robert L Gilbertson were presented the ceremony.

After the awarded, the workshop closed for the day.

DAY 4: June 5, 2014

The day began with visited NIPHM facilities and ICRISAT activities. In NIPHM I observed pesticide residue analysis laboratory, biological control laboratory and rodent laboratory. In ICRISAT I visited AVRDC and observed their activities on seed borne disease free seed production.

The workshop closed by 17.00 pm.

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		
Workshop	2-5 June, 2014	Participants from different countries	30	10	NIPHM, IPM IL	Management of Seed and Seedling borne Diseases of vegetable crops

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

- i) The workshop was very fruitful for me. I got enough knowledge especially in virus and virus like diseases of vegetable crops. I had many quarries about seed and seedling borne diseases before attending workshop but I have got all my answers from perspective speakers and it will help in my future research development. Visiting NIPHM facilitates and ICRISAT gave me ideas on institutional development.
- ii) It would have been more fruitful for me if practical was included in the workshop on virus detection and diagnosis.
- iii) I would have been more useful would I have gotten practical training on disease free seed production and visited seed companies

Finally, I am extending my thanks to **IPM IL** team that they gave me opportunity to attend this workshop. Virus diseases are a serious problem on most of the vegetable crops in Bangladesh. My Institution have well equipped laboratory but doesn't have skilled manpower in this area. So, my Institution has lack of virus research development on vegetable crops. So, the workshop was very fruitful for me as a young scientist to develop virus free seed production and virus research development in my Institute. I hope our farmers as well as our country would be benefited from my knowledge.

List of Contacts Made:

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