

Central Asia IPM CRSP Trip Report

Dr. Karim Maredia (PI), Michigan State University

Country Visited: Tajikistan

Dates of Travel: June 4 – 14, 2011.

Traveler's Name and Affiliation: Dr. Karim Maredia, Principal Investigator, Central Asia IPM CRSP Project, Michigan State University

Purpose of Trip: To conduct and coordinate the planning meeting, regional pest diagnostics workshop, and site visits to Wheat, Potato and Tomato IPM CRSP Research and Demonstration Sites in various parts of Tajikistan.

Sites Visited: Dushanbe, Hissor, Shahrinav, and Muminabad districts of Tajikistan.

Description of Activities/Observations:

I left the U.S. with a team of project personnel on Saturday, June 4, 2011 at 9:00 a.m. and reached Dushanbe on the early morning of Monday, June 6, 2011 at 3:30 a.m.

Monday, June 6: On the morning of June 6, a planning meeting of the Central Asia regional IPM CRSP project was conducted with the U.S. and host country coordinators/researchers working on IPM packages for wheat, Potato and tomato attended the workshop. The U.S. participants included: Dr. R. Muni Muniappan, IPM CRSP Director from Virginia Tech; Dr. Karim Maredia, Dr. George Bird, Dr. Walter Pett, Dr. Linda Racioppi, and Dr. Zahra Jamal from Michigan State University; Dr. Frank Zalom, UC-Davis; Dr. Naidu Rayapathi from Washington State University; Dr. Mustapha El-Bouhssini from ICARDA; Dr. Ravza Mavlyanova from AVRDC and host country representatives from Tajikistan (Dr. Nurali Saidov), Uzbekistan (Dr. Barno Tashpulatova) and Kyrgyzstan (Dr. Murat Aitmatov). IPM CRSP project activities in each of the

three countries were presented by the host country representatives from Tajikistan, Kyrgyzstan and Uzbekistan.

Dr. R. Muniappan provided an overview of the Global IPM CRSP project and gave his perspective about the Central Asia Regional project. Dr. Muniappan emphasized the importance of keeping track of the number of scientists, students and farmers trained (both male and female) by the project and also the potential net benefits and socio-economic impacts of the project in Central Asia.

Wheat IPM Presentation: The wheat IPM work is conducted in Tajikistan. Team members include: Dr. Nurali Saidov (IPM CRSP Coordinator in Tajikistan) Dr. Megan Kennelly (KSU), Dr. Mustapha El-Bouhssini (ICARDA-Syria), Dr. Anvar Jalilov (Institute of Farming in Tajikistan). Dr. Doug Landis from MSU could not travel to Tajikistan.

Nectar plants have been selected and integrated into the cropping systems in Tajikistan. Yellow rust of wheat is a serious fungal disease problem in Tajikistan. Recently the resistant variety “Ormon” developed by ICARDA has been introduced. Cereal leaf beetle (*Oulema melanopus* (L.) (Coleoptera: Chrysomelidae)) is also a problem in wheat. The egg parasitoid *Anaphes flavipes* (Förster) and the larval parasitoids *Tetrastichus julis* (Walker) and *Diaparsis carinifer* (Thomson) have been recorded. Another important pest of wheat is Sunn pest (*Eurygaster integriceps* (Hemiptera:Scutelleridae)), a native insect to Central Asia, which is managed through cultural control and planting flowering/nectar plants such as coriander (*Coriandrum sativum* L.), dill (*Anethum graveolens* L.), sweet basil (*Ocimum basilicum* L.), ziziphora (*Ziziphora interrupta* Juz.), marigold (*Calendula officinalis* L.) and winter cress (*Barbarea vulgaris*) that serve as food plants for the adult parasitoid *Trissolcus* sp. (Hymenoptera: Scelionidae).

Tomato IPM Presentation: The tomato team focuses their research work in Uzbekistan. Team members include: Barno Tashpulatova (IPM CRSP Coordinator for Uzbekistan, Frank Zalom (UC-Davis), and Ravza Mavlyanova (AVRDC).

Barno gave an overview of the tomato IPM research activities in Uzbekistan. She mentioned about several fungal diseases and tomato virus diseases that are problems in Uzbekistan. She mentioned the use of yellow sticky traps for whitefly and pheromone traps for *Helicoverpa* monitoring. The parasitoid, *Encarsia formosa* is used for control of the whitefly, *Trialeurodes vaporariorum*. *Trichoderma* sp., *Pseudomonas fluorescens* and *Bacillus subtilis* are used for control of fungal and bacterial diseases. Ravza Mavlyanova is screening tomato varieties resistant to *Fusarium* wilt disease and plans to use these varieties as rootstock to graft the scion of the desired variety.

Potato IPM Presentation: The potato IPM work is conducted in Kyrgyzstan. Team members include: Murat Aimatov (IPM CRSP Coordinator for Kyrgyzstan), George Bird (MSU), Walter Pett (MSU).

Murat presented Potato IPM research work conducted in Kyrgyzstan. He mentioned the use of several biopesticides for control of fungal diseases of potato. Colorado potato beetle is a serious pest of potato crop in Central Asia and only insecticides are currently used to control this pest.

In the afternoon, the IPM CRSP team visited, a few wheat, potato and tomato fields and collected field samples for pest diagnostic workshop to be conducted the following two days. In preparation for the hands on diagnostic workshop laboratory sessions, the group traveled to the fields near Dushanbe to collect samples of wheat, potato and tomato insects and diseases. Soil samples were also collected for nematode extractions.

Efforts were made to visit the USAID Mission in Dushanbe and meet with Mr. Charles Specht, Agriculture Development Specialist, but he was out of the office. The USAID Country Mission Director, Mr. Jeffrey Lehrer was also out of the country.

Tuesday, June 7 (Regional Pest Diagnostics Workshop): The Central Asia regional Pest Diagnostics workshop was conducted on the campus of Tajik National University. There were more than 100 participants from various institutions in the three host countries (Tajikistan, Uzbekistan and Kyrgyzstan),

and also included the students of Tajik National University. The inaugural session of the Pest Diagnostics Workshop was held at the Tajik National University. The Rector Saidov of Tajik National University, Dr. Nuruddin Saidov gave a welcoming address and Dr. Muniappan and I welcomed the participants on behalf of the IPM CRSP project. The Pest Diagnostics workshop started on the morning of June 7 with Entomology and Plant Pathology presentations given in separate lecture halls. Dr. Walter Pestt Gave a basic presentation on Entomology. Dr. George Bird gave a presentation on Nematology and Dr. Megan Kennally gave a presentation on the National Plant Diagnostic efforts in the U.S. and the IPDN Network of the IPM CRSP. The day ended with a presentation from Kyrgyzstan delegation on their crop protection programs. They are using a modified poker game to educate the local farmers on IPM.

Wednesday, June 8 (Regional Pest Diagnostics Workshop): The Regional Pest Diagnostics workshop was continued with presentations and hands-on diagnostic exercises. The day began with overview lectures by Dr. Megan Kennelly and Dr. Naidu Rayapathi on diagnostics of fungi and bacterial pathogens using potato, tomato and wheat as examples, and diagnosis of viruses. The afternoon sessions included hands-on diagnostic labs to train the participants in entomology, nematology, plant pathology and viruses using the samples that we had collected from the field visit on Monday. The workshop participants were split into four groups that rotated between each diagnostic area. I personally observed all the sessions and was impressed with Dr. Naidu Rayapati's session on virus diagnostics. We were all impressed by the enthusiasm of the students who attended these sessions.

Thursday, June 9 (Field Trip to Wheat and Tomato Sites): The entire IPM CRSP team and the participants of the Pest Diagnostics Workshop visited the IPM CRSP research and demonstration site of wheat at Turdi village in Hissor district. The event was hosted by the local farmers (both male and female farmers were present and actively interacted with the participants). Wheat was planted with strips of flowering plants including coriander (*Coriandrum sativum* L.), dill (*Anethum graveolens* L.), sweet basil (*Ocimum basilicum* L.), ziziphora (*Ziziphora interrupta* Juz.), and marigold (*Calendula officinalis* L.). During the planting of this site, the original procedures for plot design were not followed and

flowering nectar plant species were planted late contributing to the outcomes of the results. The alfalfa crop completely surrounded the wheat and could have also provided beneficial insects to the plots masking effect of the in-field insectary.

In the afternoon, the group visited a tomato field trial with four varieties planted in the field in the Kahramon village in Shahrinav district. It was mentioned that spider mites, fruit borer, top rot, *Phytophthora* and leaf curl virus are problems on tomato crop in this area. This field visit was hosted by the local farmers (both male and female farmers were present and actively interacted with the participants).

Friday, June 10: In the morning the IPM CRSP team met with officials of University of Central Asia's (UCA) Mountain Society Research Center. This meeting was conducted at the Ismaili Center in Dushanbe. Dr. Nasreen Dhanani (UCA Deputy Director) and Mr. Chad Dear (UCA Research Coordinator) hosted this meeting. The UCA is a new university with campuses in Tajikistan, Kyrgyzstan and Kazakhstan. The Aga Khan Development Network (AKDN) is a major partner of this project. Michigan State University has signed an memorandum of Understanding (MoU) with UCA. During the meeting with UCA, I also met with Mr. Sukhrob Tursunov from the USAID Mission in Dushanbe who attended this meeting. I briefed him about the IPM CRSP Team visit to Tajikistan.

In the afternoon, Dr. Naidu Rayapathi presented a lecture on Viruses and Virus disease management to more than 77 students and faculty members of Tajik National University. All the participants requested more in-depth training in viruses and requested assistance of the IPM CRSP project to develop a new course on Viruses. This sort of intensive training on plant viruses would be welcomed in all of the host countries in Central Asia. The institutional visit to the university was followed by dinner at the Dushanbe Teahouse offered by the Rector and the Senior Officials of the university.

Saturday, June 11 (Field Trip to Potato Site): The IPM CRSP group visited a potato farm in Muminabad district about 300 km from Dushanbe. This

field visit was hosted by the local farmers (both male and female farmers were present and actively interacted with the participants). There were four varieties of potatoes grown in unreplicated plots. Dr. Naidu Rayapati confirmed the presence of PVY using the test kit he brought. The Colorado Potato Beetle and late blight fungal disease are a serious pest of potato in Tajikistan and Central Asia region, but they were not observed at this site.

Sunday, June 12: Dr. R. Muniappan, Dr. Nurali Saidov and I met with a local media person and shared background information and activities of the Central Asia IPM CRSP project. He is planning to develop articles for a local newspaper and for an agricultural newsletter. On Sunday evening, we also met with Dr. Pierv Jalil, Agricultural Advisor to the President of Tajikistan and Dr. Tanzila Ergasheva, Agricultural Economist and had a general discussion on IPM CRSP Central Asia project and various agricultural development programs in Tajikistan.

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		
Program Planning Meeting	June 6, 2011	Scientists	12	5		Central Asia program planning
Pest Diagnostics Workshop	June 7 - 8	Scientists and students	77	36	IPM CRSP Team members from the U.S. and ICARDA	Pest Diagnostics capacity building

Workplan for next year	June 10, 2011	Scientists	10	5		Workplan preparation
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Suggestions, Recommendations, and/or Follow-up Items:

1. Central Asia regional project team should document the potential net benefits and impacts of project activities.
2. Presentations in the Virology session of the Pest diagnostics workshop were useful, more training in Viruses and Virus disease management is needed.
3. A survey to identify virus diseases of tomato, potato and wheat in Central Asia is needed.
4. Knowledge of nematodes is also lacking, and nematode diagnostics and research on control strategies that could be incorporated into packages for tomatoes and potatoes is needed.
5. Follow up with University of Central Asia for potential collaborations would be useful.
6. Establishment of Research and Demonstration sites require more attention, training, careful planning, and management.

List of the participants

No	Name	Position	Institute/organization	Address	Telephone and e-mail	Signature
Tajikistan						
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