

Feed the Future IPM Innovation Lab  
Trip Report

**Countries Visited:** Niger

**Dates of Travel:** July 20 to 29, 2019

**Travelers' Names and Affiliations:** Ajaya Shree Ratna Bajracharya, Senior Scientist Entomology Division, Nepal Agricultural Research Council.

**Purpose of Trip:** To participate in Training Workshop on "Biological control of the fall armyworm: Scouting for parasitoids, mass rearing of egg parasitoids, and augmentative release techniques." July 22-26, 2019.

**Itinerary:**

- July 20-21, 2019, Travel to Niamey Niger via Doha and Casablanca.
- July 22-26, 2019, Training Workshop.
- July 28-19, 2019, Return to Kathmandu via Casablanca and Doha.

**Training Location:** Sadore farm, ICRISAT, Niger.

**Participating countries:** Ghana, Togo, Senegal, Mali, Burkina Faso, Benin, DRC, Coted'Ivoire, Cameroun, Niger, Sudan, Vietnam, Cambodia, Bangladesh and Nepal.

**Participants from Nepal:**

- Ajaya Shree Ratna Bajracharya, Entomology Division, NARC.
- Rajiv Das Rajbhandari, Central Laboratory, Department of Agriculture.
- Ghanashyam Bhandari, National Maize Research Program, NARC.
- Lalit Sah, IDE-Nepal.

**Program:**

- July 22, 2019, Country reports on fall armyworm status and theoretical training presentations.
- July 23-36, Practical training in laboratory and field.

**Major leanings:**

- Mass rearing of *Corcyra cephalonica* on pearl millet.
- Mass rearing of *Spodoptera frugiperda* on maize leaves, castor leaves and artificial diet.
- Mass rearing of *Trichogramma spp.* on *Corcyra cephalonica* eggs.
- Mass rearing of *Telenomus remus* on *Spodoptera frugiperda* eggs.
- Mass rearing of *Habrobracon hebetor* on larvae of *Corcyra cephalonica*.
- Field release of egg parasitoids *Trichogramma spp.* and *Telenomus remus*.

- How farmers' co-operatives can be utilized for mass multiplication of parasitoids and release (Success story of parasitoid production for pearl millet head miner).
- Identification of male and female of *Corcyra cephalonica*, *Telenomus remus* and *Trichogramma spp.*
- Artificial diet preparation for *Spodoptera frugiperda*.
- Different cages and boxes for host insect and parasitoid production.
- Utilization of gelatin capsules for collecting *Trichogramma spp* and *Telenomus remus*.

**Resource persons:** Dr. R Muniappan (IPM- IL)  
 Dr. Mallick Ba (ICRISAT, Niger)  
 Dr. Ibrahim Baoua  
 Mr. Laouali Amadou  
 Mr. Laouali Karimoune  
 Mr. Mamane Sani  
 Mr. Amani Lamine

**Initiatives taken after training:**

- Entomology Division laboratories visited by Dr. R Muniappan.
- Guidance provided by Muniappan on collection and identification of *indigenous Trichogramma spp.* and *Telenomus spp.* in Nepal.
- Discussion between Muni and PN Sharma, Entomology Division Chief regarding future collaboration between IPM- IL and NARC.
- Initiated *Spodoptera litura* rearing on castor leaves for its egg production to collect *Telenomus remus* from field and rear it.
- *Corcyra cephalonica* rearing is continuous in Entomology Division since last 15 years will be utilized for *Trichogramma spp.* collection and rearing.
- Utilization of castor leaves for rearing of *Spodoptera frugiperda*, which was previously reared in maize leaves.

**Future plan:**

- Survey and collection of parasitoids, *Trichogramma pretiosum* and *Telenomus remus* within Nepal.
- Development of mass rearing protocols for the parasitoids and host insects.
- Technology transfer to Regional plant protection laboratories, farmers' cooperatives, private organizations and other stakeholders.
- Technical assistance and training on parasitoids and host insect production.
- Bio-ecology study of *Spodoptera frugiperda*.
- Development of management technology for *Spodoptera frugiperda*.