

Feed the Future: Innovation Lab for Integrated Pest Management Trip Report for the EPIC Project

Country Visited: Cambodia

Dates of Travel: 4 to 7 July 2016

Travel Request #: RICE-0076, RICE-0077, RICE-0078, RICE-0079

Travelers' Names and Affiliations:

Alexander Stuart, Postdoctoral Fellow, IRRI
Nancy P. Castilla, Senior Associate Scientist, IRRI
Jhoana L. Opeña, Associate Scientist, IRRI
Sylvia C. Villareal, Researcher, IRRI

Purpose of Trip:

1. Conduct training on rice health assessment in farmers' fields
2. Prepare work plans for rice health assessments in 2016 wet season.

Sites Visited:

Cambodian Agricultural Research and Development Institute
Farmer's field in Prateah Lang Commune

Description of Activities/Observations:

A. Conduct training on rice health assessment in farmers' fields

The objectives of training are to:

- enhance and evaluate the capacity of participants to identify the major pests, pest injuries (damage) and diseases of rice;
- develop and evaluate the capacity of participants to collect data on rice health problems, production situation and yield in farmers' fields using the survey portfolio developed by IRRI;
- discuss and demonstrate the use of modified blow-vac sampler for arthropod sampling; and
- prepare work plans for rice health assessment in farmers' fields for 2016 wet season.

The training was organized by the Plant Protection Division of CARDI and attended by 19 participants from CARDI, General Directorate of Agriculture, Royal University of Agriculture and CABI. Khay Sathya, head of the Plant Protection Division (PPD) of CARDI, served as the interpreter.

1. Identification of diseases, insect pest injuries (damage), weeds and rats
 - a. Lectures/presentations

The first day of the training was spent on lecture presentations on the identification of fungal and bacterial diseases of rice; viral and phytoplasma diseases of rice; major insect pests of rice and their injuries; and weeds in irrigated and rainfed rice.

b. Practical exercises

The training started with a posttest to evaluate the capacity of participants to identify major pests and diseases of rice. The test was based on photos because of difficulties in finding plants with diseases and insect injuries. Most of the fields in CARDI and nearby rice areas were in fallow at the time of the training. The scores were not computed because several participants wrote the answers in Khmer script or language.

Participants were asked to take a pretest on the identification of potted weed samples collected from CARDI campus. After the test, Jhoana Opeña discussed the identification and type of the weed samples. The participants were then given time to review and were asked to take the posttest.

Alexander Stuart demonstrated how to put rat baits and install rat traps. He also showed how to measure the length of the body, tail, ears and weight of rats; collect blood samples; and determine the gender of rats. He explained that the measurements and blood samples will be used as basis for identifying rats to species level.

2. Rice health assessment in farmers' fields using the survey portfolio developed by IRRI

a. Lectures

Nancy Castilla gave lectures on the assessment of crop growth, diseases, and insect pest injuries, and water status in a farmer's field. Jhoana Opeña explained the procedure for assessing weed cover above and below the rice canopy using the beaded string method and rank weeds according to type. Alexander Stuart gave a presentation on the assessment of rat injury.

b. Practical exercises

Nancy Castilla demonstrated how to measure the moisture content of grains using the grain moisture tester that IRRI donated to CARDI. Participants were then requested to measure the moisture content and compute the adjusted weight of grain samples.

Exercises on arthropod sampling and rat damage assessment were conducted in experimental fields in CARDI. Sylvia Villareal showed the

participants how to assemble and use the blow-vac brought from IRRI in sampling arthropods. She also demonstrated how to sample arthropods using sweep nets. Alexander Stuart demonstrated how to assess rat damage in the field. The participants were then divided into groups and asked to sample arthropods and collect data on rat damage.

On the last day of the training, participants travelled to a farmer's field about 10 km from CARDI to assess crop growth, diseases, insect pest injuries, weed cover and water status in the field.

c. Revision of data sheet on production situation.

The survey portfolio involves the characterization of production situation (physical, biological and socioeconomic attributes of an agroecosystem) which is based mainly on farmer interviews. The questionnaire on production situation was presented to the participants to ensure its validity. Dr. Khay Sathya gave several suggestions on how to improve the questionnaire, particularly on the quantification of the amount of pesticides applied by farmers.

Each participant was provided with a USB containing all the slides presented during the training; photos of diseases, weeds, and insect pest injuries; survey portfolio, data sheets, and related references.

3. Preparation of work plan for rice health assessment.

Khay Sathya, Chou Cheythyrih, and Soeur Somany prepared the workplan for rice health assessment in the four target provinces. The work plan is summarized in the Table.

Each participant was provided with a USB containing all the slides presented during the training; photos of diseases, weeds, and insect pest injuries; survey portfolio, data sheets, and related references.

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

Nancy Castilla will revise the slides on the survey portfolio and include a slide showing all the sampling areas in the field.

The questionnaire on production situation will be revised and submitted to Khay Sathya, Buyung Hadi, Virender Kumar, Alexander Stuart, Jhoan Opeña, and Sylvia Villareal for review. It will be sent to CARDI after all the suggested revisions have been incorporated.

IRRI Staff may assist PPD, CARDI during the rice health assessment in Prey Veng or Kampong Thom.

Table 1. Proposed schedule for site selection and rice health assessment in target provinces.

| Province | District | Village | Schedule of activities | | | | | |
|--------------|------------------------|--|---|----------------|----------------------------|-------------------|---------------------|-------------|
| | | | Age/growth stage of crop as of 21 to 25 June 2016 | Site selection | Asst. for active tillering | Asst. for booting | Asst for hard dough | Harvesting |
| Battambang | Banan Trana Koul | Otanon Bangpring | 7 DAS/land prep | Aug. 1-3 | Aug. 8-10 | Aug. 25-Sept. 15 | Oct. 25-Nov 5 | Nov 10-20 |
| | | | 7 DAS/land prep | Aug. 1-3 | Aug. 8-10 | Aug. 25-Sept. 15 | Oct. 25-Nov 5 | Nov 10-20 |
| Kampong Thom | Santouk Steung Sen | Pahnachi Pou Backor | Booting | July 14-15 | | July 21-22 | Sept. 1-10 | Sept. 15-25 |
| | | | Maximum tillering | July 14-15 | | July 21-22 | Sept. 1-10 | Sept. 15-25 |
| Takeo | Bati Trang | Makak (may still change but same district) Ro Veang | 7 DAS/land prep | Aug. 4-6 | Aug. 11-12 | Aug. 25-Sept. 15 | Oct. 25-Nov 5 | Nov 10-20 |
| | | | Seedling stage | Aug. 4-6 | Aug. 11-12 | Aug. 25-Sept. 15 | Oct. 25-Nov 5 | Nov 10-20 |
| Prey Veng | Paem Ror Paem sdach | Srou Tom | Booting | July 12-13 | | July 18 to 20 | Sept. 1-10 | Sept. 15-25 |
| | | | Booting | July 12-13 | | July 18 to 20 | Sept. 1-10 | Sept. 15-25 |



Figure 4. Rat assessment in the field.



Figure 6. Photo of training participants and IRRI staff.



List of Contacts Made:

| Name | Title/Organization | Contact Info (address, phone, email) |
|-----------------------|---|--|
| Khay Sathya | Head, Plant Protection Division (PPD), CARDI | P.O. Box 01 Phnom Penh Cambodia National Road No 3, Prateah Lang Commune Tel.: 017 39 14 78 Email: khaycardi@yahoo.com |
| Soeur Somany | Assistant Head, PPD, CARDI | Tel.: 015 25 68 97 Email: soeursomany168@gmail.com |
| Kong Sokvisal | Researcher, PPD, CARDI | Tel.: 096 32 84 661 Email: kongsokvisal@gmail.com |
| Heng Sovanroth | Research Assistant, PPD, CARDI | Tel.: 015 21 13 07 Email: hengsovanroth@gmail.com |
| Kong Parameas | Research Assistant, PPD, CARDI | Tel.: 010 37 03 64 Email: parameaskong@gmail.com |
| Oeurn Samoul | Research Assistant, PPD, CARDI | Tel.: 092 22 25 08 Email: oeurn.samoul@gmail.com |
| Pream Rady | Technician, PPD, CARDI | Tel.: 098 84 67 07 Email: radypream1@gmail.com |
| Pel Dora | Socioeconomic Division, CARDI | Tel.: 016 407 855 Email: dorapel17@gmail.com |
| Srom Sodany | Soil and Water Sciences Division, CARDI | Tel.: 010 694 981 Email: srom.sodany@gmail.com |
| Ngon Ngoy | Agricultural Engineering Division, CARDI | Tel.: 077 711 187 Email: ngonngoy@yahoo.com |
| Choem Touch | Station Management Office, CARDI | Email: touchcsuk@gmail.com |
| Chou Cheythyryth | Head, Office of Research and Training, Rice Crop General Directorate Office (GDA) | Tel.: 012 826 692 Email: thyryth72@gmail.com |
| Chhay Kry | GDA | Tel.: 012 324 360 Email: krychhay@yahoo.com |
| Nget Sovann | GDA | Email: ngetsovann@yahoo.com |
| Keo Makarakpakphea | GDA | |
| Yem Sokol | Royal University of Agriculture | Email: yem_sokol@yahoo.com |
| Koy Chakrrya | Royal University of Agriculture | Tel.: 012 324 360 Email: rryakoy@yahoo.com |
| Bun Chantony | CABI, Kandal province | |
| Mao Sith | CABI, Kandal province | |

