

## First season-long Training of Trainers (TOT) Course on IPM

The project organized the first four-month, season-long TOT on IPM from 11 June to 10 October 2011. 28 extension workers from seven Northern provinces of Afghanistan such as Balkh, Bamian, Baghlan, Takhar, Badakhshan, Fariab attended the training. Majority of them are from two directorates of the Ministry of Agriculture, Irrigation and Livestock (MAIL), i.e., the Directorate of Agriculture, and Plant Protection and Quarantine Directorate, but a few are from other directorates including research. They are all based in the provinces under the Directorate of Agriculture, Irrigation and Livestock (DAIL). The TOT was conducted at the Agriculture Research Farm in Dehdadi, 10 kilometers west of the Mazar city in Balkh province. The project renovated the training facilities of the farm to conduct the training.



The TOT was on rice, vegetables and melon which started by planting crops by the participants and completed by harvesting those crops. The project took 3 acres land from the Research Farm for the participants to grow crops and establish various concept specific studies to acquire necessary skills in successful crop production and pest management. The participants were divided into five small groups.

### *Studies on rice*

In Afghanistan, the conventional method of random transplanting of very old seedlings is the main problem of poor yields of rice, which is around 3 tons per hectare and much lower than the neighboring countries, such as Pakistan and Iran. Because of random transplanting, weeding becomes a more difficult job, thus most farmers leave the field unweeded. The poor growth of plants combined with weed problems then becomes more vulnerable to pest and disease infestation. To address the above problems, three methods of rice cultivation were studied side by side by the participants, such as IPM1, IPM2 and farmer's conventional methods.

**IPM-1**, mainly used the System of Rice Intensification principles, involving 19 days old seedlings, transplanted singly in 25 cm squares. **IPM-2** involved transplanting same seedlings but two per hill. Both the methods used rotary weeders two times to clean the weeds and cultivate the soil for aeration. When rice is planted in



rows it is very easy to clean the weed using manually operated rotary weeder. Water was maintained at saturated condition with alternate wetting and drying in IPM1, whereas there has been always two inches water in IPM2. These were compared with Farmers' traditional practice involving transplanting 40 days old seedlings, 8-10 per hill. There has been always 4-5 cm of water in Farmer's practice. Manure application was same in all the plots. However, fertilizer application, consisting of DAP and Urea top dressed in both the IPM practices, was just half the farmer's practice.



The field conditions of both the IPM practices were very attractive. Average number of panicles per hills was 35 in IPM-1 and 30 in IPM-2. The panicle size in both the plots was larger than in farmer's plot. The growth of rice plant in Farmer's practice was also good. However, at dough stage all the rice plants were lodged. With the same variety there was no lodging in IPM plots. This clearly shows an

advantage of IPM practices over Farmers' traditional practice. There have been no major insect or disease problems in any of the plots. Average rice yield in IPM1 was 6 tons per hectare, and in IPM2 5 tons per hectare as against 4 tons per hectare in farmers' practice with the double amount of chemical fertilizers. In addition, there have been many concept specific studies on rice to study various aspects of rice cultivation.

### ***Studies on Melon***

Melon is an important economic crop in the country. The recent infestation of Melon fly has caused serious attention to the Government of Afghanistan, especially the Ministry of Agriculture. Conducting appropriate action research and finding solution to melon fly was the main focus on the studies on melon crop.



Melon was planted in one acre area. Two important methods, such as bagging and plastic mulch were compared with farmer's usual practice, which involves heavy application of chemical pesticides. Covering melon with cloth bag was found most effective in controlling the melon fly as against regular application of insecticides in farmers' conventional methods. Although plastic mulch was not found to have any immediate effect in controlling melon

fly infestation, there has been tremendous performance in crop growth. It helped preserved soil moisture, and there was no weed at all in the area covered with plastic mulch, resulting better growth of plants. Participants and visitors were very encouraged by the result of plastic mulch, as it was found more cost effective than the conventional cultivation methods.

### ***Studies on Vegetable crops***

Vegetable field was three quarter of an acre, distributed equally to all five small groups of participants. Each group grew one different vegetable such as bean, okra, chili, tomato and carrot which are common in the country. In the vegetable field, mostly IPM practices were compared with farmer's practices. Besides, there were many small plots where participants studied various seedling production methods and techniques. Although vegetables are not the major crops in Afghanistan, the purpose was to make the participants familiar with various methods and techniques of vegetable cultivation in the TOT.



### ***Overall methodologies of the training***



The training design emphasized participants' learning from an actual situation which needed them to grow crops and monitor the growth of the crops on weekly basis, using an agroecosystem analysis format. The changes found in the weekly agroecosystem analysis provided them with an opportunity to understand the interactions among plant, soil, water, weeds, pests, etc, and their combined effect on the growth and management of the plants. Based on this understanding, they made decisions as to what measures were most effective to manage the crops. The continuous practice of this process helped them to gain confidence in management of those crops in a most effective and sustainable manner.



The overall methodology of the training focused on facilitation aspects of the participants, using the non-formal education approaches. Ultimately, field studies, debates, discussions, presentations, brainstorming, group-work, role-play, workshops, and seminars became the regular events in the training.

**Training team:** The training team was comprised of three International Master Trainers, two from Philippines and one from Bangladesh with technical backstopping from a short-term International FFS consultant from Philippines. There were 8 National Master Trainers from MAIL who worked closely with the International Master trainers to learn the overall process of training. They were supported by short-term resource persons and two senior plant protection specialists of the project. In addition, the project CTA provided overall supervision and further technical backstopping to the training team.

### Daily schedule

07: 30:	Recapitulation and briefing
0830:	Fieldwork, observation, monitoring & data collection
1000:	Processing data and preparing presentations
1030:	Presentation and discussion
1100:	Special Topics
1215:	Lunch and pray
1400:	Group dynamic, icebreakers
1430:	Regular Topics
1530:	Fieldwork and implementation of action plan
1700:	Preparation of action plan for the next day

### Field-day and graduation ceremony

To share the results of the TOT on 6 October a field day was organized. Around 200 farmers from neighboring villages and government officials and representative from various organizations including NGOs and other UN agencies attended the field day. The Field Day was officially opened by Mr. Saleem Khan Kunduzee, Deputy Minister (Finance), MAIL with a remark on “Water use efficiency”. He then invited everyone to observe all that was on the display during the field day, while emphasizing the use of System of Rice Intensification (SRI) that requires very little water and external inputs, especially chemical fertilizers. Among the senior government officials, Director of PPQD, Director of Research, and Director of Extension from Kabul attended the field day. From the provincial level, Director of DAIL, Mazar and seven Provincial Directors of PPQD from the project targeted provinces attended the field day. The project focal point from the Norwegian embassy, the funding agency of the project also attended the field day, which was followed by graduation ceremony with distribution of certificates to the graduated participants.

