



TECHNICAL REPORT

Training Course on

Climate-smart Rainfed Agriculture for Dry Areas

April 5-9, 2015, Amman, Jordan

Japan International Cooperation Agency (JICA)

and

International Center for Agricultural Research in the Dry Areas (ICARDA)



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EXECUTIVE SUMMARY

Name of the project

Capacity Development for Agriculture and Water management for Iraq and Regional countries

Partners

Japan International Cooperation Agency (JICA)

International Center for Agricultural Research in the Dry Areas (ICARDA)

National Center for Agricultural Research and extension (NCARE) - Hashemite Kingdom of Jordan

Purpose

To enhance capacity development of government officials and researchers who are engaged in irrigation projects and agricultural development mainly in Iraq

Specific objectives

Up-to-date knowledge and enhanced capacity in the design, implementation, management, analysis and reporting of agricultural research related to rainfed Agriculture within Dry Areas.

Specific outputs

9 professionally-trained NARS partners from Iraq, 2 from Jordan and 1 from other country: Algeria on Climate-smart Rainfed Agriculture for Dry Areas.

Specific outcomes

Trainees able to

- calculate the crop water requirements
- to design suitable supplemental irrigation systems
- to compute crop evapotranspiration and water productivity
- to decide when and how much to irrigate

PURPOSE

The course conducted by ICARDA focused on the different approaches towards rainfed agriculture, the different conditions that guide us towards solutions, and the interpretation of solutions on long-term sustainability of agricultural production.

Water scarcity is usually the biggest yield-limiting factor in the dry areas. Supplemental irrigation is an important technique to overcome water stress in rainfed croplands of West Asia and North Africa and become climate-smart. Supplemental irrigation – providing small quantities of water at crucial growth stages, to supplement rainfall – can increase both yield and water productivity, which is the quantity of grain produced per unit of water used.

The course was developed to introduce the framework, understand the impact of the "solutions" selected for rainfed agriculture (*see details Annex I*) with the expectation that the trainees will serve as trainers upon return to their respective countries and train another 20-25 technicians.

TARGETED AUDIENCE

Mid-level career managers of natural resources for agricultural production, involved in field scale, irrigation system scale, and regional scale water and land management.

A total of 12 participants from three countries (Iraq, Jordan and Algeria) took part of the training and were supported under JICA Capacity development for agriculture and water management for Iraq and regional countries program (*see details Annex IV*). Please note that amongst the 12 trainees, 50% were women.

COURSE ORGANIZATION

With financial support from the Japan International Cooperation Agency (JICA), through its overseas office in Jordan and in collaboration with the Jordan's National Center for Agricultural Research and Extension (NCARE), the International Center for Agricultural Research in the Dry Areas (ICARDA) conducted the course at ICARDA-Amman, Jordan.

The course included classroom lectures, handouts, user manuals, PowerPoint presentations and field visit.

The lectures were given in English, and all course material was provided as hardcopies as well as softcopies in the form of individual flash drives to the trainees.

A certificate of completion was awarded at the end of the course to each trainee.

ORGANIZING COMMITTEE

Mr. Charles Kleineremann, Head, ICARDA Capacity Development Unit (CDU)

Dr. Theib Oweis, Director, ICARDA Integrated Water & Land Management Program (IWLMP)

Dr. Vinay Nangia, Agricultural Hydrologist, ICARDA IWLMP, Course Coordinator

COURSE CONTENT

- Irrigated versus rainfed agriculture: the concept of supplemental irrigation
- The soil-water-plant relationships, soil texture and water retention
- Crop evapotranspiration and water needs
- Optimization of supplemental irrigation: supplemental irrigation comes at cost
- Field soil moisture measurement and monitoring: techniques and procedures
- Methods of water application and farm irrigation systems management
- Irrigation water measurement and improving crop water productivity: if you do not measure it, you cannot manage it
- Sprinkler irrigation (center pivot) system field tests, operation, and performance evaluation

ZERO and FINAL TEST ASSESSMENT

A zero assessment test was conducted on the first day of the training in which trainees were unprepared and were tested for their background knowledge on the topics to be covered during the training course. The test was out of a maximum 29 point and the highest score was 14 whereas the lowest score was 7 with 11.08 being the average.

The same test was taken by the trainees at the end of the course and the scores improved by on average 95.5% with the lowest now being 20 and the highest now being 26 with average improving to 21.66 (out of 29 maximum possible score). (See details in Annex III).

GENERAL COURSE EVALUATION by TRAINEES

Overall, the evaluation of the course by the participants was positive (*details in annex II*). The list of the three most interesting ideas/concepts that the trainees learned in the course actually includes all course topics. This shows on one hand the heterogeneity in the scientific and professional background of the trainees but also that all topics were relevant to trainees. They stressed that the main relevant topics were on methods/selection of water application for SI, deficit irrigation and defining water productivity/ efficiency.

The trainees also suggested that the course period should be longer in order to provide additional time for practical sessions on new technologies/ equipment for moisture measurement.

CONCLUSION

The participants nominated for the course were of high quality. The participants were eager to participate.

The mixture between lectures and discussions appeared to work well, and the enthusiasm of the participants over the five day course appeared to remain high.

The course evaluations support the approach taken, and the pre and post knowledge assessment tests show an overall improvement in understanding the material, trainees gained knowledge of difference between irrigated and rainfed agriculture – concepts of supplemental irrigation, Soil-

water-plant relationship, soil texture and water retention, Crop evapotranspiration and water needs, Optimization of supplemental irrigation, Field soil moisture measurement and monitoring techniques and procedures, Farm irrigation management, Crop water productivity Different irrigation systems.

This course should be seen as part of a capacity building approach of national governments towards water management.