



Technical Report

**TRAINING COURSE  
ON  
Seed Processing and Storage**

22 – 26 February, 2016

Terbol, Lebanon

**Japan International Cooperation Agency (JICA)  
and  
International Center for Agricultural Research in the Dry Areas (ICARDA)**



**[WWW.ICARDA.ORG](http://WWW.ICARDA.ORG)**



## Table of Contents

Executive Summary.....	1
General Overview .....	2
Purpose.....	2
Targeted Audience.....	2
Organizing Committee .....	2
Course Structure .....	2
Course Implementation .....	2
Group Assessment .....	4
General Course Evaluation By Trainees.....	4
Conclusion .....	4
Annex I: Course Program .....	5
Annex II: Trainers .....	6
Annex III: Trainees List Of Contacts.....	6
Annex IV: Zero And Final Assessment .....	7
Annex V: General Course Evaluation.....	8



## EXECUTIVE SUMMARY

### **Name of the project**

Capacity Development for Agriculture for Afghanistan and Regional countries

### **Partners**

Japan International Cooperation Agency (JICA)

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

Lebanese Agricultural Research Institute (LARI)

### **Purpose**

To enhance Capacity Development of government officials and researchers who are engaged in agricultural development in Afghanistan and other countries.

### **Specific objectives of the training course on Seed Processing and Storage**

Up-to-date knowledge and enhanced capacity on Seed Processing and Storage.

### **Specific outputs**

Nine professionally-trained NARS partners from Afghanistan, 2 from Lebanon and 8 from other countries: 2 from Syria, 1 from Iraq, 1 from Mauritania, 1 from Jordan, 1 from Palestine, 1 from Somalia, and 1 from Sudan on Improving Seed Processing and Storage with emphasis on dry land agriculture. While 9 Afghanis, 2 Lebanese, 1 Syrian and 1 Egyptian were funded by JICA, the others are sponsored by Arab Fund for Economic and Social Development (AFESD).

### **Specific outcomes**

Design, implement, manage, analyze and report on research and development in Seed Processing and Storage and acquire up-to-date information on research and practical activities in Seed Processing and Storage in each participating country.



## **GENERAL OVERVIEW**

The aim of seed processing and storage is to provide crop producers with quality seed to increase crop productivity and quality and achieve food security and poverty reduction. Seed processing is an integral part of seed production in all functional national seed supply systems. To improve crop productivity for greater food security, the Japanese International Cooperation Agency (JICA) funded a third-party training project for Afghanistan and selected countries in the West Asia and North Africa (WANA) region covering a wide range of agriculture research for development disciplines including seed. This course was one of three courses on the seed-related issues to be organized in 2016.

## **PURPOSE**

The course aimed at providing the seed processing operators from Afghanistan and the seed programs in the region with technical know-how on seed processing techniques and implications for seed production and use.

## **TARGETED AUDIENCE**

A total of 19 trainees (primarily seed specialists and researchers, details in Annex III) from 8 countries (Afghanistan, Sudan, Egypt, Iraq, Palestine, Jordan, Syria and Lebanon) participated in the course. While 9 Afghanis, 2 Lebanese, 1 Syrian and 1 Egyptian were funded by JICA, the others are sponsored by Arab Fund for Economic and Social Development (AFESD).

## **ORGANIZING COMMITTEE**

Mr. Charles Kleinermann, Head, Capacity Development Unit (CDU) - [c.kleinermann@cgiar.org](mailto:c.kleinermann@cgiar.org)

Dr. Zewdie Bishaw, Head, Biodiversity & Integrated Gene Management (BIGM) - [z.bishaw@cgiar.org](mailto:z.bishaw@cgiar.org)

Dr. Abdoul Aziz Niane, Scientist, BIGM - [a.niane@cgiar.org](mailto:a.niane@cgiar.org)

For list of trainers, please refer to Annex II.

## **COURSE STRUCTURE**

The course program consisted of class room lectures, technical visits and practical sessions on seed processing and storage (Annex I). A total of four training manuals on seed science and technology and soft copies and reference materials of power point presentations on seed processing and storage were distributed to the trainees. All the training materials were provided to the trainees at the end of the course.

## **COURSE IMPLEMENTATION**

The 5-day course was designed to cover seed processing, quality attributes and evaluation, and storage principles and application.

The first day: Prior to the course introduction, a zero assessment test was held to examine the background knowledge of the trainees in order to ensure that the level of lecturing, practical

sessions, and exercises were adapted to the level of knowledge of the group. Following the zero assessment, Dr. Bishaw and Dr. Niane introduced national seed program components and functions and also seed principles and application.

The second day included a visit to the Advancing Research Enabling Communities Center (AREC) in American University of Beirut, and the trainees explored a series of demonstration session on seed processing followed by lectures on seed storage principles and application by Dr. Bishaw and Dr. Niane.

The third day began with an introduction of seed quality attributes and evaluation followed by a visit of the seed processing and storage facilities in LARI.

The fourth day introduced seed health testing in quality seed production and trainees visited the ICARDA seed health testing facilities in Terbol accompanied by Dr. Safaa Kumari.

The last day was used for discussion and providing a final assessment to evaluate the trainees' improvement. The assessment indicated an average score of 62.6% and an average improvement of 19.1% (for more information about the zero assessment scores, please refer to Annex IV).



Group photo at the opening ceremony chaired by the ICARDA country manager in Lebanon, Dr. Hassan Machlab, second from right

Mrs Joelle Braidy, head of the LARI genebank and course participant explaining her work to the course trainees during the technical visit to LARI





## **GROUP ASSESSMENT**

A zero assessment was conducted on the first day of the training. The results showed that the knowledge of the trainees was basic: 6 trainees received a score under 40%; 5 Trainees received a score between 40 and 60%. For more information, please refer to Annex IV. The average percentage group score at the zero assessment reached a score of 43.5%.

In order to evaluate the knowledge the trainees gained after a week training a final assessment was conducted and the results showed a tangible improvement. The percentage group score increased by 62.6%, and a 19.1% of average gain in knowledge. Three trainees received a score between 70 and 80% while 3 trainees score more than 60% (See details in Annex IV).

## **GENERAL COURSE EVALUATION by TRAINEES**

Overall, the evaluation of the course by the trainees was positive (details in Annex V). The list of the three most interesting ideas/concepts that the trainees learned in the course included all course topics. This shows on the one hand the heterogeneity in the scientific and professional background of the trainees but also that all topics were relevant to the trainees. They stressed that the main relevant topics were on how to manage seed processing, seed health and storage.

## **CONCLUSION**

The trainees nominated for the course were of high quality and appeared eager to participate. The mixture between lectures and discussions appeared to work well, and the enthusiasm of the trainees 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. This course should be seen as part of a capacity building approach of national governments towards seed processing and storage.

The financial support of JICA and the logistic arrangements made by the ICARDA CDU, the ICARDA country office of Lebanon were crucial in the organization and success of the course. The technical visit to the Lebanese Agriculture Research Institute (LARI) and the demonstration of their seed processing and storage facilities and management practices were critical complements to the theoretical concepts presented during the course. The lectures and practical sessions from the Seed Health group were highly appreciated. Special thanks goes to Ms. Ghinwa Salhab for the exceptional logistic support provided throughout the course.

## Annex I: Course Program

Date / Time	Session	Trainer
<b>Monday, Feb 22</b>		
8:30 – 9:00	<b>Registration</b>	
9:00 – 9:15	<b>Opening session</b>	ICARDA
9:15 – 10:30	Discussions on course program and expectations	All
10:30 – 11:00	<b>Coffee break</b>	
11:00 – 13:00	Zero assessment	Niane
13:00 – 14:00	<b>Lunch break</b>	
14:00 – 15:30	Introduction to national seed program components and functions	Niane/Bishaw
15:30 – 16:00	<b>Coffee break</b>	
16:00 – 17:30	Seed processing principles and application	Niane/Bishaw
<b>Tuesday Feb 23</b>		
8:30 – 10:00	Demonstration session on seed processing (AREC)	Seed staff
10:00 – 10:30	<b>Coffee break</b>	
10:30 – 11:00	Demonstration session on seed processing (AREC)	Seed Staff
11:00 – 13:00	Demonstration session on seed processing (AREC)	Seed staff
13:00 – 14:00	<b>Lunch break</b>	
14:00 – 15:30	Seed storage principles and application (Khayal)	Niane/Bishaw
15:30 – 16:00	<b>Coffee break</b>	
16:00 – 17:00	Seed storage principles and application (Khayal)	Niane/Bishaw
<b>Wednesday Feb 24</b>		
8:30 – 10:00	Introduction to seed quality attributes and evaluation (Khayal)	Niane/Bishaw
10:00 – 10:30	<b>Coffee break</b>	
10:30 – 13:00	Introduction to seed quality attributes and evaluation (Khayal)	Niane/Bishaw
13:00 – 14:00	<b>Lunch break</b>	
14:00 – 15:30	Evaluation of processing impacts on seed quality attributes (AREC)	Seed staff
15:30 – 16:00	<b>Coffee break</b>	
16:00 – 17:00	Evaluation of processing impacts on seed quality attributes (AREC)	Seed staff
<b>Thursday Feb 25</b>		
09:00 – 11:00	Visit to the LARI seed processing, storage and quality control facilities	LARI staff
11:00 – 12:00	Introduction to seed health testing in quality seed production (Khayal)	Kumari
13:00 – 14:00	<b>Lunch break</b>	
14:00 – 16:00	Visit to the ICARDA seed health testing facilities in Terbol	Kumari
<b>Friday Feb 26</b>		
8:30 – 10:30	<b>Wrap-up discussion and zero assessment</b>	Niane/Bishaw
10:30 – 11:00	<b>Coffee break</b>	
11:00 – 12:00	<b>Evaluation</b>	CDU
12:00 – 13:00	<b>Closing session</b>	ICARDA and JICA (Mr. Ahmad al Tawam)
13:00 – 14:30	<b>Lunch break</b>	



## Annex II: Trainers

Trainers	Name & Surname	Institution	Email
1	Dr. Zewdie Bishaw	BIGM- ICARDA	Z.BISHAW@CGIAR.ORG
2	Dr. Abdoul Aziz Niane	BIGM- ICARDA	A.NIANE@CGIAR.ORG
3	Dr. Safaa Kumari	BIGM- ICARDA	S.KUMARI@CGIAR.ORG

## Annex III: Trainees List of Contacts

Trainees	Title	Institution	Phone	Email
MR. NAZEER GUL ADEEB/Afghanistan	field inspection manager	Irrigation and livestock department of seed certification, MOA	0093- 0787624090	<a href="mailto:nazeergul.adeeb@gmail.com">nazeergul.adeeb@gmail.com</a>
MR. M. NAQIB HAIDARI/Afghanistan	manager of technician laboratory	Herat agricultural department SCD lab	0093- 0700427258	<a href="mailto:nha_herat@yahoo.com">nha_herat@yahoo.com</a>
MR. ESMATULLAH HAIDARI/Afghanistan	seed diagnosis manager	Herat agricultural department SCD lab	0093- 0795716614	<a href="mailto:esmat.haidari268@gmail.com">esmat.haidari268@gmail.com</a>
MR. ABDUL KHALID WAHMANISH /Afghanistan	lab technical manager	Afghanistan seed certification department	0093- 0794164164	<a href="mailto:khalidwahmanish@gmail.com">khalidwahmanish@gmail.com</a>
MR. SHARIFULLAH DAWLATZAI/Afghanistan	public information manager	Nangarhar Seed certification department	0093- 0789636453	<a href="mailto:sharifullah408@gmail.com">sharifullah408@gmail.com</a>
MR. SAID RAFIQ HANIF/Afghanistan	seed testing laboratory manager	Seed certification Department	0093- 0729263504	<a href="mailto:saidrafiq.harnif@yahoo.com">saidrafiq.harnif@yahoo.com</a>
MR. KHALED ESHQZAI/Afghanistan	manager of lab- SCD	Herat agricultural department SCD lab	0093- 0799499085	<a href="mailto:khaled.eshqzai@gmail.com">khaled.eshqzai@gmail.com</a>
MR. BURHANUDIN ASADI/Afghanistan	general manager of field inspection	Seed certification Department	0093- 0700528302	<a href="mailto:burhanuddin786asadi@gmail.com">burhanuddin786asadi@gmail.com</a>
MR. RASHID ARYUBI/Afghanistan	general manager of central seed testing laboratory	Seed certification Department	0093- 0779522878	<a href="mailto:rashid.aryobi@yahoo.com">rashid.aryobi@yahoo.com</a>





MR. SAYED SAMIULLAH HAKIMI/Afghanistan	seed expert	ICARDA	0092-0793400016	<a href="mailto:shakimi.icarda@gmail.com">shakimi.icarda@gmail.com</a>
Ms. Hend Abou El-Fotouh Ghannam /Egypt	breeder	ARC	0020-1112078973	<a href="mailto:hendbreeder@gmail.com">hendbreeder@gmail.com</a>
Mr. Tarik Joseph Alazzam/ Syria	head of genetic resources	Daraa research center, Izraa research station	00963-933130494	<a href="mailto:tarikalazzam@hotmail.com">tarikalazzam@hotmail.com</a>
Mr. Michel El-Hayek/ Lebanon	agronomical engineer	LARI	00961-70163450	<a href="mailto:m999hayek@gmail.com">m999hayek@gmail.com</a>
Ms. Joelle Braidy/ Lebanon	agricultural engineer, seed bank manager	LARI	00961-71702595	<a href="mailto:jbreidy@lari.gov.lb">jbreidy@lari.gov.lb</a>

#### Annex IV: Zero - final Assessment

Name	Country	Zero assessment		
		Initial test (%)	Final test (%)	Gain in knowledge (%)
MR. BURHANUDIN ASADI	Afghanistan	34	44	10
MR. ABDUL K. WAHMANISH	Afghanistan	59.4	69	9.6
MR. KHALED ESHQZAI	Afghanistan	34.4	59.4	25
MR. SAID RAFIQ HANIF	Afghanistan	56.3	78.1	21.9
MR. SHARIFULLAH DAWLATZAI	Afghanistan	37.5	68.8	31.3
MR. M. NAQIB HAIDARI	Afghanistan	31.3	65.6	34.4
MR. ESMATULLAH HAIDARI	Afghanistan	56.3	78.1	21.9
MR. NAZEER GUL ADEEB	Afghanistan	37.5	40.6	3.1
MR. RASHID ARYUBI	Afghanistan	31.3	56.3	25
MS. HEND A. R. A. GHANNAM	Egypt	59.4	71.9	12.5
Mr. Tarik Joseph Alazzam	Syria	53.1	88	34.4
Mr. Michel El-Hayek	Lebanon	40.6	43.8	3.1
Ms. Joelle Braidy	Lebanon	34.4	50.0	15.6
<b>Averages</b>		<b>43.5</b>	<b>62.6</b>	<b>19.1</b>

## Annex V: General Course Evaluation

### I. Contents of the course:

Item/rating/percentage	OVERALL AVERAGE
<b>Relevance of the course to your job</b> 1=Not relevant; 5=Very relevant	4.2
<b>Accomplishment of subject matter</b> 1=Inadequate 5=Very comprehensive	4.6
<b>Clarity of course objectives</b> 1=Not clear; 5=Very clear	4.5
<b>Level of lectures</b> 1=Too basic 5=Too	3.8
<b>Time allocated for discussions</b> 1=Too short 5=Too long	3.8
<b>Interaction with participants enrolled in the course</b> 1=Very low 5=Very high	3.8
<b>Overall, how would you rate this course</b> 1=Poor 5=Excellent	4.1

### II. Schedule and time allocation:

Item/rating/percentage	OVERALL AVERAGE
<b>Percentage of Time allocated to lectures</b> 1=Too short 5=Too long	3.6
<b>Usefulness of Lectures</b> 1=not useful 5=useful	4.2

### III. Teaching aids:

Item/rating/percentage	OVERALL AVERAGE
<b>Effectiveness of teaching aids in general</b> 1=Not effective 5=Very effective	4.5
<b>Clarity of slides/overheads/Powerpoint</b> 1=Not clear 5=Very clear	4.1
<b>Handouts and material</b> 1=Not useful 5=Very useful	4.4

**IV. Administrative arrangements:**

Item/rating/percentage 1=NI 5=Excellent	OVERALL AVERAGE
Pre-course communication	4.2
Travel arrangements	4.0
Quality of the accommodation	3.8
Payment of allowance on time	3.8
Transportation	4.1
Lecture rooms	4.0

**V. Your comments and suggestions on the course:**

- Please state the three most important ideas/concepts that you learned from this course
  - New idea of seed management, seed testing, seed bank, and storage
  - Fumigation and seed processing machineries
  - Quality control in seed storage
  - Seed health testing/ importance of disease control and practice of identification in the laboratory
- Suggestions for future improvement of the courses
  - Need at least one month to cover the theme
  - More focus on standardization of Afghanistan seed certification department.
  - Need more practical work adding to the theoretical lectures
  - Need more time for seed analysis
  - Better to have the course program with announcement of the course because the title cannot give the concrete content of the course.
- Do you recommend this course to be repeated in the future?

Yes ☐

No ☐

100%

0%

End