



giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



Technical Report

TRAINING COURSE
ON

Seed Production and Quality Assurance

23 – 27 May, 2016

Terbol, Lebanon

Organized by

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

In cooperation with

Lebanese Agricultural Research Institute (LARI)

Under the support of

Japan International Cooperation Agency (JICA)

Arab Fund for Economic and Social Development (AFESD)

International Fund for Agricultural Development (IFAD)

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Afghani Ministry of Agriculture, Irrigation and Livestock (MAIL)



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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)
International Fund for Agricultural Development (IFAD)
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Afghani Ministry of Agriculture, Irrigation and Livestock (MAIL)

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 Production and Certification

To present up-to-date knowledge and enhanced capacity on best practice for Seed Production and certification.

Specific outputs

Eleven professionally-trained National Agricultural Research Systems (NARS) partners from Afghanistan, two from Lebanon and nine from other countries: two from Syria, one from Iraq, one from Egypt, three from Tunisia, and one from Jordan, and one from Palestine have improved skills in seed production and certification with emphasis on dry land agriculture. Ten Afghans, two Lebanese, one Jordanian, and one Iraqi are funded by JICA, while IFAD supported one Afghani whereas the GIZ supported two participants from Tunisia, and the remaining participants were sponsored by Arab Fund for Economic and Social Development (AFESD).

Specific outcomes

Design, implement, manage, analyze and report on research and development in seed production and quality assurance and acquire up-to-date information and knowledge on research and practical activities in seed production in each participating country.

GENERAL OVERVIEW

There is a lack of access to quality seed, which is attributed to seed shortages, substandard quality, affordability, willingness to pay or any combination of the four is widely considered a major constraint for adoption and impact from investments on agriculture research for development. Better access to quality seed may require change in policies and regulations or introduction of new methodologies and techniques. Successful seed delivery depends on the capacity of national seed programs to produce sufficient quantities of quality seed from appropriate varieties. The seed must be available at the right time in accessible locations at prices farmers can afford and are willing to pay. To achieve this, many technical, economic and managerial issues need to be considered and addressed.

ICARDA's training course on seed production and post-harvest seed operations is designed to improve the capabilities of scientists and technicians in NARS partner countries to foster the transfer of technology and address the issues of seed policies and regulations hindering effective and efficient seed production and delivery. The course covers a wide range of seed science and technology issues related to seed policies and regulations, variety evaluation, release and registration, variety maintenance, seed quality management in large scale seed multiplication systems, processing, storage, marketing and distribution, field and laboratory techniques in seed quality assurance, monitoring and control and seed business management.

The participants were provided with training manuals on seed science and technology and soft copies for all classroom lectures and practical sessions given during the course. The course also helped establish professional relationships among the participants and facilitated professional interaction and exchange of expertise among themselves and with the ICARDA scientists which will hopefully continue beyond the end of the course.

PURPOSE

The training course aims to provide the necessary skills and know how on seed science and technology disciplines to address the technology transfer issues related to policies and regulations as well as managerial, technical and business management pertaining to seed.

TARGETED AUDIENCE

A total of 22 participants from the agriculture research and dissemination institutions in seven countries attended the course. The participants were from Afghanistan (11), Jordan (1) Iraq (1), Palestine (1), Tunisia (3), Syria (2) and Lebanon (2) (See details in Annex I).

ORGANIZING COMMITTEE

Dr. Zewdie Bishaw, ICARDA – BIGM - z.bishaw@cgiar.org

Dr. Abdoul Aziz Niane, ICARDA – BIGM - a.niane@cgiar.org

Mr. Charles Kleinermann, Head, ICARDA Capacity Development Unit (CDU) - c.kleinermann@cgiar.org

Mr. Masafumi Tamura, Technical Training Officer, ICARDA CDU - m.tamura@cgiar.org

COURSE STRUCTURE

The one-week course covered a brief introduction on genetic resources and germplasm enhancement followed by detailed lectures and practical sessions in variety evaluation, maintenance, quality seed production and marketing, seed certification and post-harvest seed operations (See details in Annex II).

COURSE IMPLEMENTATION

The course was implemented through interactive class room lectures and practical field and laboratory sessions with fifteen minutes of discussions at the end of each session. The course started with detailed discussions on the course agenda during which the participants were given opportunities to suggest amendments based on their professional interests. Based on the discussions, a session on seed marketing and distribution was added. The participants were also asked to prepare a list of their expectations from the course. At the end of each day, the list was revised and the issues that were already known by the participants were removed.

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. Abdoul Aziz Niane and Dr. Zewdie Bihaw introduced national seed program components and functions. On the second day, Dr. Fouad Maalouf introduced plant breeding methodologies and applications followed by further lectures from Drs. Bishaw Niane for variety evaluation and release and variety maintenance in quality seed production. In the afternoon, the trainees went to the American University of Beirut (AUB) Advancing Research Enabling Communities Center (AREC) in the Beqa'a Valley for practical sessions on variety maintenance and seed production.

On the third day, Dr. Niane gave a lecture on quality assurance in crop management for seed production followed by a lecture on seed quality attributes and evaluation by Dr. Bishaw. In the afternoon, Dr. Safaa Kumari introduced seed health testing in quality seed production and the trainees visited seed health facilities at ICARDA's Terbol research station. On the fourth day, Dr. Bishaw delivered a lecture on seed certification methodologies and applications followed by practical session on field inspection. In the afternoon, Dr. Niane introduced seed processing and Dr. Bishaw explained seed storage principles and application.

The last day included a wrap-up discussions and final assessment to evaluate the trainees' improvement.



Practical session on seed packaging



Practical session on variety maintenance

ZERO - FINAL ASSESSMENT

The course evaluation was carried using a knowledge gain measurement method through which participants were subjected to a zero assessment test at the beginning and at the end of the course. The difference in scores of the participants between the two tests are reported in Annex IV. The results showed an average of 15% gain in knowledge from the course ranging from 0 to 33% which is significant for a 5 days of training. (See details in Annex IV).

GENERAL COURSE EVALUATION by TRAINEES

At the end of the training course, each participant provided their feedback on their perception of the effectiveness of the training course format and content. 84% of the participants qualified the course as excellent and the rest of participants qualified it as very good. Participants expressed their interest in giving more time for lectures by extending the course duration, which would also allow more time for discussion and group work.

With respect to the technical level of the topics covered in the training, 84% of the participants considered that the delivered material was useful. (See details in Annex V).

CONCLUSION

The lack of access to quality seed is widely considered a major constraint for adoption and impact from investments on agriculture research for development. The course exposed the participants to new concepts in quality seed production and certification to bring about greater efficiency and effectiveness in the national seed delivery systems. Some of those concepts include direct sowing of whole cereal spikes as a cheap and simple technic for variety maintenance and breeder seed production and the OECD field inspection methodology, which is much more cost-effective than the methods used in many developing countries.

The course also helped establish professional relationships among the participants and facilitated professional interaction and exchange of expertise among themselves and with the ICARDA scientists through the course and hopefully beyond the course.

ACKNOWLEDGEMENT

The contribution of the ICARDA Lebanon office team led by Dr. Hassan Machlab, particularly Ms. Ghinwa Salhab, Ms. Hiba Eimesh and Ms. Leila Zaghloul are commendable. The contributions of Mr. Rabee Kabalan from the Lebanese Agriculture Research Institute (LARI), Dr. Mariana Yazbek, Dr. Fouad Maalouf, Dr. Safaa Kumari and Dr. Abdul Rahman Moukahel from ICARDA in the training program are highly appreciated.

Annex I: Trainees List of Contacts

JICA

#	Country	Name of nominee	E-mail address	position	institution	phone
1	Afghanistan	Mr. Ahmad Seiar Yasser	ahmadseiar@yahoo.com	farm manager	ARIA	0093747563143
2	Afghanistan	Mr. Abdul Manan Amire	ab.manan.amire@gmail.com	Breeder	MAIL	n/a
3	Afghanistan	Ms. Nasima Yasin	nasima.yasin786@gmail.com	fruit research	ARIA	0093798028099
4	Afghanistan	Mr. Mohammad Shah Doost	mohammadshahdoost@gmail.com	organic agriculture staff	ARIA	0093799330743
5	Afghanistan	Mr. Ghullam Nabi	nabi.ziyo@gmail.com	industrial oil plant researcher	MAIL	0093798152388
6	Afghanistan	Mr. Ahmmad Jawad	ahmadjawad.frogh@yahoo.com	Breeder	MAIL	n/a
7	Afghanistan	Mr. Zamir Muradi	zamirth.67@gmail.com	potato specialist	MAIL	0093772412042
8	Afghanistan	Mr. Mohammad Zarif Najibi	zarifnajibi786@gmail.com	Agronomist	ARIA	0093798478577
9	Afghanistan	Mr. Habiburrahman Nikzad	hnikzad.icarda@gmail.com	field technician	ICARDA	0093796442271
10	Afghanistan	Mr. Saida Jan (ANSOR)	saidajanattiq.abdiani@gmail.com	horticulturist	Seed Certification Agency	0093700601824
11	Jordan	Majd Mohamed Allouzi	m_lozi2001@yahoo.com	Seed quality control	NCARE Jordan	00962798977176
12	Iraq Erbil	Noor Nazar Ramzi	noornazar2010@hotmail.com		MoA	
13	Lebanon	Hussein Ali Al Ozeir	hussein.ozeirW@hotmail.fr	Kfardan station manager	LARI	0096170788985
14	Lebanon	Hussein Ali Shouman	n/a	technician	LARI	009618900037

AFESD

#	Country	Name of nominee	E-mail address	position	institution	phone
15	Syria	Weaam Mohmood Soliman	weaaam1986@gmail.com	seed quality control	GOSM	00963947144963
16	Syria	Oula Kaso	lolita25lool@gmail.com	Breeder	GCSAR	00963937524712
17	Egypt	Mohamed Mareei Mohamed	mmareei@yahoo.com	researcher	ARC	00201068938333
18	Tunisia	Yosra Ellemsi	yosraellemsi@gmail.com	Agronomist	INRAT Tunisia	0021622923751
19	Palestine	Mohamed Abed	msabed@yahoo.com			00972599597575

IFAD and MAIL

#	Country	Name of nominee	E-mail address	position	institution	phone
20	Afghanistan	Mr. Abdul Qaher Rabati	parwan_pbisc@yahoo.com	Director	Parwan Seed Co.	009399386117

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#	Country	Name of nominee	E-mail address	position	institution	phone
21	Tunisia	Mr. Anis Zaiem	anis.zaiem@gmail.com	agricultural Engineer	OEP	0021671787813
22	Tunisia	Mr. Mohamed Romdhani	mohamed.romdhani1910@gmail.com	agricultural Engineer	OEP	0021697929077

Annex II: Course Program

Date / Time	Session	Trainer
Monday, May 23		
08:30 – 09:00	Registration	ICARDA Terbol/CDU
09:00 – 09:15	Opening session	Dignitaries
10:30 – 11:00	Coffee break	
09:15 – 10:30	Discussions on course program and expectations	All
11:00 – 13:00	Zero assessment	Dr. Aziz Naine
13:00 – 14:00	Lunch break	
14:00 – 15:30	Introduction to national seed program components & functions	Drs. Naine/Bishaw
15:30 – 16:00	Coffee break	
16:00 – 17:30	Genetic resources	Dr. Mariana Yazbek
Tuesday May 24		
08:30 – 10:00	Introduction to plant breeding methodologies and applications	Dr. Faud Maalouf
10:00 – 10:30	Coffee break	
10:30 – 11:30	Variety evaluation and release	Drs. Niane/Bishaw
11:30 – 13:00	Variety maintenance in quality seed production	Dr. Aziz Naine
13:00 – 14:00	Lunch break	
14:00 – 16:00	Practical session on variety maintenance and seed production	Drs. Naine/Bishaw
Wednesday May 25		
08:30 – 10:00	Quality assurance in crop management for seed production	Dr. Aziz Naine
10:00 – 10:30	Coffee break	
10:30 – 12:30	Introduction to seed quality attributes and evaluation	Dr. Niane/Bishaw
12:30 – 13:30	Lunch break	
13:30 – 14:30	Introduction to seed health testing in quality seed production	Dr. Safaa Kumari
14:30 – 16:00	Visit to the seed health facilities at Terbol	Dr. Safaa Kumari
Thursday May 26		
08:30 – 10:00	Seed certification methodologies and applications	Drs. Niane/Bishaw
10:00 – 10:30	Coffee break	
10:30 – 13:00	Practical session on field inspection	Drs. Naine/Bishaw
13:00 – 14:00	Lunch break	
14:00 – 15:00	Introduction to seed processing	Dr. Aziz Naine
15:00 – 16:00	Seed storage principles and application	Drs. Naine/Bishaw
Friday May 27		
08:30 – 10:00	Wrap-up discussions	All
10:00- 11:00	Zero assessment	Dr. Aziz Naine
11:00 – 12:00	Course evaluation	ICARDA Terbol/CDU
12:00 – 13:00	Closing session	Dignitaries
13:00 – 14:00	Lunch break and closing	
14:00	Departure to excursion trip and overnight in Beirut	

Annex III: Trainers

Trainers	Name & Surname	Institution	E-mail
1	Dr. Zewdie Bishaw	BIGM- ICARDA	Z.Bishaw@cgiar.org
2	Dr. Abdoul Aziz Niane	BIGM- ICARDA	A.Niane@cgiar.org
3	Dr. Faud Maalouf	BIGM- ICARDA	F.Maalouf@cgiar.org
4	Dr. Mariana Yazbek	BIGM- ICARDA	M.Yazbek@cgiar.org
5	Dr. Safaa Kumari	BIGM- ICARDA	S.Kumari@cgiar.org

Annex IV: Zero – Final Assessment

Gain in knowledge

#	Country	Name of nominee	Assessment results		Gain in knowledge
			Initial	final	
1	Afghanistan	Mr. Ahmad Seiar Yasser	45.2	54.8	9.6
2	Afghanistan	Mr. Abdul Manan Amire	54.8	54.8	0
3	Afghanistan	Ms. Nasima Yasin	50	61.9	11.9
4	Afghanistan	Mr. Mohammad Shah Doost	35.7	35.7	0
5	Afghanistan	Mr. Ghullam Nabi	28.6	66.7	38.1
6	Afghanistan	Mr. Ahmmad Jawad	23.8	38.1	14.3
7	Afghanistan	Mr. Zamir Muradi	35.7	50	14.3
8	Afghanistan	Mr. Mohammad Zarif Najibi	66.7	71.4	4.7
9	Afghanistan	Mr. Habiburrahman Nikzad	33.3	66.7	33.4
10	Afghanistan	Mr. Saida Jan	64.3	76.2	11.9
11	Afghanistan	Mr Abdul Qaher	40.5	71.4	30.9
12	Iraq Erbil	Noor Nazar Ramzi	42.9	66.7	23.8
13	Lebanon	Hussein Ali Al Ozeir	54.8	59.5	4.7
14	Lebanon	Hussein Ali Shouman	30	54.8	24.8
15	Tunisia	Yosra ellemsi	52.4	59.5	7.1
16	Tunisia	Zeiem Anis	64.3	76.2	11.9
17	Tunisia	Mohamed Ramdhani	50	54.8	4.8
18	Egypt	Mohamed Mareei Mohamed	26.2	57.1	30.9
19	Syria	Oula Kaso	54.8	61.9	7.1
20	Syria	Weam Suliman	42.9	59.5	16.6
21	Palestine	Mohamed Said Abed	42.9	66.7	23.8
22	Jordan	Majd Mohamed Allouzi	38.1	NA	NA
Average			44.5	60.2	15.5

NA: not available

Annex V: General Course Evaluation

I. Contents of the course:

Item/rating/percentage	OVERALL AVERAGE
Relevance of the course to your job 1=Not relevant; 5=Very relevant	4.5
Accomplishment of subject matter 1=Inadequate 5=Very comprehensive	4.3
Clarity of course objectives 1=Not clear; 5=Very clear	4.3
Level of lectures 1=Too basic 5=Too	4.4
Time allocated for discussions 1=Too short 5=Too long	4.2
Interaction with participants enrolled in the course 1=Very low 5=Very high	4.4
Overall, how would you rate this course 1=Poor 5=Excellent	4.8

II. Schedule and time allocation:

Item/rating/percentage	OVERALL AVERAGE
Percentage of Time allocated to lectures 1=Too short 5=Too long	3.9
Usefulness of Lectures 1=not useful 5=useful	4.2

III. Teaching aids:

Item/rating/percentage	OVERALL AVERAGE
Effectiveness of teaching aids in general 1=Not effective 5=Very effective	4.4
Clarity of slides/overheads/Powerpoint 1=Not clear 5=Very clear	4.2
Handouts and material 1=Not useful 5=Very useful	4.1

IV. Administrative arrangements:

Item/rating/percentage 1=NI 5=Excellent	OVERALL AVERAGE
Pre-course communication	4.2
Travel arrangements	4.7

Quality of the accommodation	4.2
Payment of allowance on time	4.3
Transportation	4.6
Lecture rooms	4.8

v. Your comments and suggestions on the course:

1. Please state the three most important ideas/concepts that you learned from this course

- Variety evaluation and release
- Variety maintenance in quality seed production
- Practical session on field inspection
- National program of seed production
- Seed certification
- Seed processing
- Seed health and quality
- Seed store and marketing
- System of quality assurance

2. Suggestions for future improvement of the courses

- More time for field inspection and laboratory experiment
- Start lectures from earlier morning and lunch time around 3pm after all lectures
- Seed health and genetic resource and breeding needs separate training course

3. Do you recommend this course to be repeated in the future?

Yes
100%

No