



# EX-POST EVALUATION OF ARIJ'S ENHANCING FOOD SECURITY CONDITIONS PROJECT IN THE WEST BANK

“There is a new Palestinian woman in our village. She grew things and made her garden green and helps her family.”  
-Focus Group Participant, Beit Ula

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Terminology:

- Project participants who grow grains are referred to within this document as “farmers”.
- Home garden participants are referred to as “gardeners”.
- For the purpose of this evaluation, “drought” is defined as a prolonged period (a season or more) of abnormally low rainfall. In focus groups discussions, farmers do not necessarily have this definition in mind.

# PART 1: EXECUTIVE SUMMARY:

## Background

This ex-post evaluation was conducted 2.5 years after the completion of Applied Research Institute of Jerusalem's (ARIJ) three-year food security project conducted across nine villages in southern West Bank. The project was designed to improve the level of food security of 1,200 participant households across marginalized rural communities. Main project activities included the provision of training and extension on improved production practices in field cropping and home gardening, the distribution of seeds and other agro-inputs, and the development of a community based seed bank system.

Data for this evaluation was collected by a multi-disciplinary team over a one month period in the winter of 2016. Information was gathered through household surveys with participants, key informant interviews, focus groups and field visits.

## Key findings

- There is evidence of a significant transformational impact on gender dynamics within participant households. These changes in intra-household dynamics have played a key role in generating increased and sustained household food security. Women generally reported feeling more empowered due to the increased resources (food and income) at their disposal. This was attributed by project participants to the successful adoption of home gardening activities, increased availability of food at the household level, and the sale of surplus produce. Intra-household dynamics between men, women and children appear to have been positively influenced by this development.
- A surprisingly high percent of farmers claim that project activities are continuing to positively impact their food production and consumption levels. For example, 98% of farmers claim they are still using and benefiting from the field cropping manual that was presented to them during the project.
- It was found that home gardening project activities (including host-harvest processing and preserving) have had a more sustained and positive impact on food security than field crop activities.
- The provision of inputs has had a limited sustained impact on food production levels and food security, with the provision of improved seeds being the most effective.
- Community seed bank activities were largely unsustainable due to continued poor rainfall, leading to seed loss in project communities, and likely other factors.

## Recommendations

- A thorough gender analysis should be conducted prior to further programming with these households to assess the most appropriate response given changing gender dynamics.
- Priority should be given to the promotion of home gardening in project communities.
- Future programming should continue to use the training and extension models that were introduced in the prior project, and could be enhanced by encouraging more farmer-to-farmer learning.
- In training and extension, more emphasis should be put on biological pest control and fertility management training and promotion.
- The provision of free inputs should be limited and more nuanced. Inputs, when provided, should be primarily improved and commercially available seed varieties.
- Field crop activities should focus on providing more training on drought adaptation strategies including soil and water conservation (e.g. conservation agriculture).
- Future programming should provide training and support related to water management for micro-irrigation.

## Conclusion

Twenty-seven months after the official end of the project, participant households continue to benefit from what they learned and experienced during the project. Home gardening activities had a profound and lasting impact on food security, and had a larger impact than cropping activities. This is likely due to the fact that gardening activities, which capitalized on the strengths of existing women's cooperatives, were accompanied by training in food processing and preservation, and were conducted close to the homestead which generally had on-site water catchment systems. In addition, home gardening activities transformed intra-household gender relations by putting more resources into the hands of women, resulting in the empowerment of women and higher levels of household food consumption and food security.

The provision of seeds to farmers had a positive but somewhat diminishing impact, while the distribution of other inputs had little or no discernible lasting impact. The promotion of seed banks and cooperatives had little or no discernible impact on the sustained access to good quality seed for farmers.

While the evidence is anecdotal, the sharing of information and gardening produce appears to continue to spread the benefits of project activities beyond the target population. **Overall, the evaluation team has concluded that the project was successful in improving the long term food security of project participants, and future programming could build upon project successes.**

## PART 2: INTRODUCTION

### 2.1 Background of project

From November 2011 to August 2014, Canadian Foodgrains Bank (CFGB) and Mennonite Central Committee (MCC) supported an agriculture and livelihoods project implemented by the Applied Research Institute of Jerusalem (ARIJ) in nine villages in the West Bank. The project was initiated due to increasing levels of food insecurity in the project area.

During this three year project, ARIJ worked to improve the food security of 1,200 marginalized households in southern West Bank through the promotion of improved farming practices as a means of increasing food production, the promotion of home gardening and food processing and preservation techniques to increase access to vegetables for home consumption and sale, and the development of community seed management systems to make appropriate seed commercially accessible to participant farmers.

This project was a continuation of a previous three-year project that had been supported in the project communities of Za'tara, Beit Fajjar, Tafuh, Al-r-Rehieh and Beit Ula. The plan was to work with new farmers in those communities, continue to follow and support previous project participants, and work through the agricultural cooperatives and women's clubs that had been created. Additionally, the project targeted new villages: Al-Khader, Beit ar-Roush at-Tahata, and Beit ar-Roush al-Fouqa and Beit Ummar. This extended the project activities to new villages and created new partnerships with other cooperatives and women's clubs.

In the fall of 2016, a plan was developed to conduct an ex-post evaluation to assess the longer term impact of the project on the promotion and adoption of specific agriculture practices, and their respective impact on food security. The timing of this evaluation meant that approximately two and a half years passed between project completion and evaluation. This ex-post evaluation was to provide the evaluation team with information related to the longer term impact of these programming methods.

### 2.2. Description of project

The intervention focused on the following general activities: (a) the provision of training workshops and on-farm extension in dryland field crop production and home gardening in drought prone areas, (b) the distribution of seeds, seedlings and tools to participant households, (c) the provision of technical training and support for the

development of agricultural cooperatives and women's groups, and (d) training in food hygiene, process and preservation.

ARIJ staff delivered each of these activities using what they termed as the 'whole family approach'. According to ARIJ staff, there was a need to target all members of the household for project activities due to high rates of unemployment and poverty in the project communities.

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*"Home gardening was done with all members of household. Youth and children working with parents. It starts the young people inheriting the act of getting food from the land from their parents. It makes the land mean something to them, more than soil and dirt."*

*-ARIJ team member, Key Informant Interview*

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**They made a point of having all project trainings open to all interested members of participating households. This approach was in response to the gendered realities of the project participants.**

In project communities, men who had been the primary breadwinners in the household were not earning enough to support their households due to political constraints on movement and a stagnating economy, and agriculture was a potential alternative source of income generation. Women who had been generally limited in their income generation opportunities due to local norms and customs which hampered movement away from the homestead, were ideally poised to engage in home gardening. Furthermore, children and youth could find meaning and see potential income generation opportunities in the various activities that were being promoted to their parents. In a key informant interview, ARIJ outlined the benefits of including children and youth in project activities, noting that the project would enable "young people to inherit the act of getting food from the land from their parents. It makes the land mean something to them, more than soil and dirt".

Technical training for improved agriculture practices included the following activities:

- 68 household level technical workshops
- 7,800 household extension visits
- Production and distribution of 3,000 technical booklets on agro-production

Cooperative development activities included:

- 13 cooperative development meetings
- 2 community field days

## 2.3 Background of evaluation

The main purposes of this ex-post evaluation are as follows:

1. **Network learning**

CFGB and its members (including MCC) invest over C\$10 million annually in agriculture and livelihoods programming. Drawing lessons from current and past programming to improve the quality of food security programs is an institutional priority.

2. **Accountability**

CFGB and MCC are accountable to implementing partners, personal donors and the Government of Canada (Global Affairs Canada). It is therefore important to provide a thorough assessment of the quality and appropriateness of this food security project.

3. **Looking forward**

ARIJ and MCC are considering future food security programming in the region and want to know how the programming approach used in this project could be sustained or modified to improve project impact. It is important to ask key questions about the effectiveness, sustainability and impact of past programming when considering the nature of any future programming.

The objectives of this evaluation were as follows:

1. **Effectiveness**

- a. Understand the effectiveness of selected agriculture practices promoted during the project implementation phase on improving food security.
- b. Understand the effectiveness of seed saving systems and seed management by agricultural cooperatives in providing a secure and reliable source of seeds to farmers.

2. **Sustainability**

- a. Determine the current adoption rate of selected agriculture practices (field crops, forages, and home gardening) promoted during the project implementation phase. Two main approaches were used to promote adoption—trainings/extension and provision of inputs.
- b. Assess whether there was spontaneous uptake of these selected agriculture practices by other members in the community.
- c. Understand the barriers and success factors which influenced adoption of these selected agriculture practices.
- d. Examine the gender implications of the adoption of these selected agriculture practices.

3. **Impact**

- a. Determine the impact of the selected agriculture practices on the food security of the community. This includes determining the level of consumption of food grown on the farms.
- b. Understand how men, women, boys and girls were impacted by the adoption of these selected agriculture practices.

## PART 3: METHODOLOGY

### 3.1 Evaluation design

The ex-post evaluation was carried out in accordance with the OECD-DAC Quality Standards for Development Evaluation, and was designed to have a utilization focus. It was conducted by a multi-disciplinary team comprised of six members with expertise in a variety of relevant subjects, including gender, agriculture, law, irrigation, development processes and best practices.

The evaluation team was comprised of the following individuals:

- Dan Wiens (MCC, Lead Evaluator)
- Milenko Andjelic (MCC)
- Laura Normand (CFGB)
- Eric Mattson (Foods Resource Bank)
- Maureen Anne Avenevoli (Foods Resource Bank)
- Lee Wheeler (Independent agriculture engineering irrigation consultant)

All team members were provided with key background documents for review prior to the evaluation. Background documents included the project's original plan, the project year 3 completion report and the evaluation Terms of Reference.

The evaluation used both qualitative and quantitative methods for data collection and drew information from multiple sources to build an evidence base for evaluation findings, including project documents; household surveys conducted with 150 households that participated in field crop activities and 50 households that participated in home gardening activities; key informant interviews with ARIJ staff; and focus groups with participants of both home gardening and field crop activities.

The evaluation consisted of four phases:

#### 1. *Preparation of evaluation framework*

ARIJ, MCC and CFGB staff collaborated to develop an evaluation framework. From this framework, household surveys and discussion guides were developed for each category of informants: ARIJ staff, field crop beneficiaries, and home gardening beneficiaries.

#### 2. *Data collection activities in the West Bank*

From November 16- 30, household surveys were conducted with randomly selected participant households. The evaluation team ensured that surveys were administered to a representative sample size, with 12% of field crop participant households (150 households, with a 4.9% margin of error and a confidence level of 80%) and 16% of home gardening participants (50 households, with an 8.3% margin of error and a

confidence level of 60%). Data collected through the household surveys was verified and then entered and analysed using SPSS.

Discussion guides were used by the evaluation team in semi-structured key informant interviews and focus groups conducted with representatives from each category of informants and each project community.

From December 7-10, the evaluation team travelled to project communities and ARIJ headquarters to conduct key informant interviews and focus groups. The entire team conducted two key informant interviews of ARIJ staff on December 7. On December 8 and 10, the team divided into two sub-teams and conducted a total of seven focus groups. Four focus groups were conducted with 58 field crop participant farmers from eight project communities, and three focus groups were conducted with 34 participant home gardeners from five project communities.

Discussion guides (Appendix 2 and 3) were used for all interviews and meetings. It should be noted that after the first round of focus group meetings, several questions in the guide were deleted because they were deemed to be redundant.

### 3. *Data analysis and reporting*

All key informant interviews and focus group meetings were electronically recorded and then transcribed by evaluation team members. Following an initial review and analysis of the collected data, the team developed a coding scheme which included 29 different major and sub-codes.

The transcripts were then coded by the team through a participatory exercise that occurred from December 9-12. The resulting transcripts were then analyzed with the occurrence of codes being tallied across focus groups to reveal trends and patterns. The team discussed the coded transcripts and data collected through household surveys, and collectively finalized findings.

### 4. *Draft evaluation report development and debriefing with ARIJ, MCC and CFGB*

MCC presented a draft evaluation report to ARIJ, MCC and CFGB for review prior to debriefing. Comments from the debriefing were then integrated into the final report.

## 3.2 Limitations of the evaluation

The evaluation methodology had a number of limitations, some were anticipated and others became apparent as the field process was carried out.

The evaluation sought to collect data on a large number of different impacts, while the time allotted and the budgeted number of translators for qualitative data collection in the field was very limited. As a result, focus groups discussions were longer and had more participants than was ideal; focus groups ran for two or two and half hours, and

had an average of 13 participants. In particular, the number of people who could respond to a discussion point during a focus group session had to be limited in order to ensure that all aspects of the discussion guide were touched upon in the time available.

The relatively short time that the evaluation team was together in the West Bank further limited the number of focus group meetings and field visits that the team could conduct and restricted the amount of time the team had to code and analyze data.

No applicable baseline or intermediate level outcome data was collected in the previously completed projects. This limited the amount of comparable data that the evaluation team could draw upon for their analysis. The most useful data that could be collected on the level of household food security was based on participant recall. This placed constraints on the evaluation team's ability to determine the impact of the programming on actual household food security.

## PART 4: FINDINGS

*The following discussion is based on a collected data and evaluation team observation.*

### 4.1 Effectiveness

To measure the effectiveness of project activities, the evaluation assessed effectiveness of each project activity.

#### *4.1 a) Promoted field cropping and gardening agriculture practices and their impact on food security*

Data collected through focus groups and household surveys suggests that home gardening activities had a more significant and long-term impact on food security than field cropping activities.

Overall, survey respondents and focus group participants agreed that they were still benefitting from project activities. However, the number of farmers reporting that their wheat crop fulfilled at least 50% of their households' food consumption needs dropped from 91% in 2014 to 69% in December 2016. This suggests that the impact of field activities on food security is diminishing over time. In focus groups, it became apparent that field crop farmers seemed equally interested in feeding their animals (mentioned 16 times) as compared to using the grain for home consumption (mentioned 18 times). This suggests a slight preference for increasing animal production over using grain solely for home consumption or sale. While animal production can play an important role in the provision of protein and soil fertility input (manure), **but the link between increased**

**animal production and food security is less clear than with increased year round human consumption of vegetables and grain.**

**The decreasing contribution that field crop production was making to household food security can also be attributed in part to the periodic drought conditions** that have occurred in some participant communities. In the key informant interview with ARIJ staff, it was noted that **“the main challenge was the weather, especially the fluctuation of the rain from season to season”**.

This sentiment was echoed in a focus groups with field crop farmers from the area around Beit Fajjar, where one farmer noted that due to drought in the prior farming season, they couldn't save seed for planting in the next season. In a focus group that was facilitated with participant farmers from both Al Khadr and Za'tara, one farmer outlined how “drought had affected production over the prior two years...because of the drought, farmers had changed from field crops to irrigated vegetables according to the economic situation of their households”. Across the four field crop focus groups, participant farmers mentioned increased household food consumption far less frequently than home gardening participants did.

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*“Drought has affected production over the prior two years...farmers are changing from field crops to irrigated vegetables.”*

*-Farmer, Al Khadr*

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The evaluation team found that throughout the targeted areas in the West Bank, there are restrictions on water access for farmers, especially during Summer. Staff from ARIJ described how drought and variable precipitation has been an ongoing challenge for farmers in the south, which has been necessitating shifts in planting techniques and seed varieties. In the summer, water shortages are endemic, and farmers lack access to water harvesting technologies for their fields, especially in geopolitical areas, classified as areas C and completely controlled by the Israeli occupation, where more than 62% of the Palestinian agricultural lands exist. When the evaluation team travelled throughout the area, they found that water harvesting technology (land water harvesting techniques) was largely based around the homestead instead, with water catchment areas being attached or adjacent to households. This had implications for the success rates of home gardens.

The impact of home gardening activities on household food security was more easily observed than field crop activities. One of the unexpected outcomes of this project was the extent of the impact that home gardens had on household food security. According to data collected through the household surveys, 82% of gardeners reported that their gardens were providing at least 50% of household food needs in 2014, a level that was sustained with 80% of gardeners reporting that their gardens were fulfilling at least 50% of their food needs in 2016.

In addition to increased consumption, home gardeners repeatedly reported both increased income (mentioned 29 times in the three focus groups) and increased

access to vegetables on year round basis (mentioned 37 times in three focus groups). Across all groups, focus group participants attributed their increased income to the sale of vegetables and products made through pickling and preservation (drying or freezing). A focus group participant from Al-Khader noted that, despite having 10 people in her family, her household food needs were being met by produce from her garden year-round and she was even selling excess to her neighbours. A focus group participant, translating for another participant in Beit Ula, commented, **“from ARIJ, she learned how to plant a garden. She started to make decision-making for herself. She now has money”**.

It was further found through the household surveys that 86% of home gardeners had shared their new knowledge of home gardening with their neighbours. This informal knowledge exchange is being further bolstered by a sense of friendly competition over gardening that has emerged among the participants and their neighbours. ARIJ staff noted, **“women are going house to house, looking at each other’s gardens and trying to top each other’s produce”**. This informal knowledge exchange and completion aspect will be discussed later in the report.

The preservation of vegetables has been particularly significant for participant food security as it makes vitamin and mineral rich food available to households during times of market scarcity and out of season. When talking about vegetable preservation, women consistently mentioned the improved health of their families. A focus group participant from Beit Ummar described how she was now able to feed her kids organic vegetables which she saw as critical due to the health benefits. The evaluation team observed a general consensus among the home gardening focus group participants that they believed the availability of vegetables throughout the majority of the year has had a significant impact on the health of their families, particularly their children. Improved health was not referenced in any of the field crop focus groups.

The evaluation team asserts that the differing success of field crop activities versus home gardening in improving household food security can largely be attributed to two important factors. First, due to the proximity of the home garden to the homestead and household water harvesting equipment, the home gardeners had a closer and more reliable source of water for their plants. Secondly, the teaching of processing and preservation techniques to the home gardeners provided a means of ensuring that the benefits from the activity could be easily and safely stored for future household use.

#### *4.1 b) Promotion of suitable fertilization and pest control techniques on improving production levels*

Household surveys suggest that training on fertility and pest management was highly valued by both farmers and gardeners (98% affirmation from both groups). This finding was confirmed in the focus groups, where most participants indicated that the trainings were highly valued, suggesting that fertility and pest management trainings made a difference. However, neither of these agronomic principles were specifically mentioned when focus group participants were asked about the main benefits of the project.

Instead, participants most often cited the provision of improved seed. It was further found that the provision of chemical fertilizer had a mixed reception with participant farmers.

According to household surveys, only 31% of farmers are still using chemical fertilizer in 2016. Focus group participants reported that the high price of fertilizer is the main reason for the reduced usage. Across the home garden focus groups, it became apparent that gardeners were placing a higher value on biological fertility practices over chemical fertilizer, mainly for health reasons. Across the focus groups, gardeners mentioned the value of healthy or organic food multiple times. As described by one

focus group participant, "feeding my children with organic food is a very good thing".

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*"Feeding my child with organic food is a very good thing" –*

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It seems apparent, especially with home gardeners, that biological fertility management has taken hold and is preferred over chemical fertilizer. Some field crop farmers

also mentioned the value of composted manure for drought adaptation. But in the farmer focus groups, participants did not mention that the fertility management practices that were promoted by ARIJ were having any lasting impact on production levels. Likewise, synthetic pest control (herbicides for weeds and pesticides for insects) were rarely mentioned in both field crop farmer and gardening focus groups. Similar to fertility management, gardeners seemed to have a strong preference for the use of biological pest control. It is worth mentioning the 53% of the field crops benefices are using composted animal manure to fertile their lands.

#### *4.1 c) Promotion of post-harvest preservation and processing of vegetables on food security*

Training and promotion of post-harvest preservation and processing appears to have had a significant impact on food security. Benefits related to processing were mentioned in the home gardening focus groups repeatedly. According to the household survey, 90% of surveyed participant gardeners are still preserving vegetables for household consumption and sale during the off-season. A focus group

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*"You look in the freezer and it is like a gift. Nobody in the market has it, but you do, and it tastes fresh. Nothing is off-season anymore."*

*-Home gardener from Al-Khader*

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participant from Al-Khadr described it as, "you look in the freezer, and it is like a gift. Nobody in the market has it, but you have it and it tastes fresh. Nothing is off-season anymore". Focus group participants referred to the preserved vegetables as having "better taste" and "health benefits", and noted that they had "increased satisfaction" due to the growing and preserving of their own food. A focus group participant from Taffuh reported, "food is now healthy...it doesn't make us ill and makes sure we have no problems from our bodies". Participants also mentioned that preserving food and

selling it during the off season was a good income generation activity, giving them more resources to purchase other needed food items. Another focus group participant from Al-khader said that she sells the preserved produce according to what is off-season and can get the highest price in the market. With the profit, she then buys meat and rice for the household.

#### 4.1 d) Adoption of agro practices to mitigate the impact of drought

The majority of surveyed field crop farmers indicated they had participated and benefited from drought adaptation trainings. In the farmer focus groups, participants repeatedly referenced climate change adaptation, drought and rainfall variability. However, in the focus groups there were few specific references as to how the drought adaptation trainings had impacted production. As an exception, a few farmers said using composted manure helped with soil water retention. Also, trainings on seeding density and timing as a response to rainfall variability were cited in one focus group as being somewhat useful in the face of reduced rainfall (These are direct impacts of project practices and provided training).

In the focus groups, multiple farmers suggested that there was a need for irrigation equipment to contend with reoccurring drought (especially for home gardening). However, a general pattern emerged across farmer focus groups with **participants expressing a sense of powerlessness in the face of variable rainfall patterns**. A few farmers suggested that the large amount of water needed to irrigate crops would not be available due to water access limitations imposed by the Israel Government. On the other hand, home gardening participants only mentioned drought once in the focus groups. When asked what they would like to see in any future programming, the provision of cisterns and micro irrigation equipment was mentioned by all focus groups.

#### 4.1 e) Seed saving systems and cooperatives on providing farmers with longer term access to appropriate seed

The formal seed saving systems that were promoted by ARIJ were largely ineffective. This was to some extent attributed by farmers and the project team to continuing variable rainfall. In a key informant interview, the project manager from ARIJ cited, “due to weather, production was no so much. Farmers preferred to keep the seeds for the next year and not return it to the seed bank”.

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*“Due to weather, production was not so much. Farmers preferred to keep the seed for the next year and not return it to the seed bank”*

*-ARIJ project manager*

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According to the household survey, only 11% of farmers were currently acquiring their seed from a formal seed bank. Straw polls that were conducted in most focus group meetings confirmed this, with no participants currently accessing their seed from community based seed banks or cooperatives. ARIJ had designed the project with the intention of creating a north-to-south seed exchange, where seed grown in northern

parts of the West Bank could be exchanged with the southern parts where drought is more recurrent. Instead, ARIJ staff found, “farmers shared with other farmers but weren’t sharing with seed banks or cooperatives”.

Despite challenges with the formalized seed banking system that was promoted by ARIJ, household seed saving and informal seed exchange systems are thriving across project communities. According to focus group participants, informal seed exchange and seed saving are long standing practices in participating communities, and most participants in farmer focus groups mentioned that they were sharing seeds with their neighbours and family. According to the household surveys, 30% of farmers had successfully multiplied seed and distributed to at least 92 neighbouring farmers.

Despite the informal and functional seed sharing system in place, when asked about what activity created the most benefits for their households, field crop farmers most often cited the provision of good quality seed as creating the most benefit. Household

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*In 2016, 74% of households are still planting with the seed that they received from ARIJ*

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surveys revealed that 74% of households are still planting with the seed that they received from ARIJ (from successive generations of ARIJ supplied seed). The farmers that had not saved seed cited drought and the

loss of seed as the primary reason. Interestingly, **when farmers were asked about what future programming should include, the provision of more seed was at the top of the list for most field crop farmers. This suggests that access to good quality seed continues to be an issue.**

In focus groups, farmers frequently noted that their saved seed is increasingly not as productive as the original certified seed provided by ARIJ. Arguably, this is because farmers are likely not being very selective when gathering grain for seed for saving. This would cause seed quality to drop with each successive generation. When asked about future programming, **farmers regularly requested more good quality certified seed.** Yet, 70% of farmers also indicated that the seed they are currently using is better than the seed they used prior to receiving seed from the project. Even with declining seed quality, farmers are still reporting that their production is better with the seed that they had received from the project.

Home gardeners largely did not report saving seed, but those who did save seed, reported that seed quality remained high between plantings. With intensive farming like gardening, gardeners are more likely to be selective when gathering and saving seeds. With this practice, successive generations of saved vegetable seed are likely to improve in quality. This bears out given the enthusiasm that the few gardens who saved their seed had toward the quality of their seed.

## 4.2 Sustainability

*What are the current adoption levels of the above practices by project participants? By others in the community as a result spontaneous adoption?*

Adoption levels among both crop farmers and gardeners remain high. 74% of surveyed field crops farmers said that they are still using successive generations of the seed that had been provided by the project ending in 2014. Most home gardening gardeners are not using the seed originally provided by the project, but 98% of them did report that they are still using and benefiting from the gardening practices that they learned through the project. As noted earlier, from the survey and focus groups it is apparent that most participant households continue to enjoy improved food security due to project activities.

Spontaneous adoption seems to be occurring on several levels. Seed sharing (discussed earlier) is happening with gardeners and likely also with farmers. In the focus groups, both gardeners and field crop farmers repeatedly made mention of how their neighbors were inspired to “compete” with them. One focus group participant from Beit Fajar described it as, “now my neighbors are jealous because of how well I am doing with my garden”. Across the focus groups, a trend emerged where both home gardeners and farmers reported that their neighbors were attempting to imitate various farming practices promoted by the project.

*What were the adoption barriers and/or success factors?*

For field crop farmers, the primary barrier to **seed saving and production was persistent drought conditions**. The main reason cited in the household surveys for not saving seed between seasons was drought. As observed by ARIJ, “**seasonality and drought has meant you lose seed every year**. If you lose it one year, you lose your bank”. With only 31% of field crop farmers still applying chemical fertilizers (the decrease was attributed to high prices) and only a minority of farmers using manure, a lack of soil fertility will likely become a significant barrier to long term success.

With home gardeners the main barrier to scaling up production is a **lack of water for micro-irrigation**. Cisterns and micro irrigation equipment were the most frequently mentioned addition that home gardeners thought should be included in future projects.

*Training and extension activities*

According to household surveys, **98% of surveyed participants stated that trainings and extension helped improve their production**. This was echoed in both farmer and home gardening focus groups, where references to **knowledge transfer were made by participants in all focus groups**. This is a notable achievement, as the **project also provided free inputs to the households**.

This knowledge transfer had a multiplier effect with home gardening beneficiaries, with 86% of home gardening participants reporting that they **had shared the knowledge they gained through the project with their neighbors**. This is a clear indication of the perceived value of training and extension. The written material distributed to field crop farmers was also meaningful, with 84% of participants reporting that they still reference the agro-production manual. When asked what future programming should include, the evaluation team noticed a virtual consensus that training and extension should be included in future programming.

### 4.3 Impact

*What were some of the unanticipated impacts/innovations resulting from this project on food security?*

The **high level of empowerment of women and children was the most significant unanticipated impact**. This will be discussed in detail in the next section. In addition, **the impact and the level of adoption of food (vegetable) processing is more significant than anticipated**. In particular, **the amount of sharing (both for sale and as gifts) of processed vegetables appears to be high and is spreading the food security impacts of the project beyond the intended population**. This sharing is likely disseminating food processing knowledge to unanticipated population groups as well. The same can be said, although to a lesser extent, for the sharing of field crop “seeds” (When farmers are referring to seeds they are referring to grain that can be used for human consumption, replanting or feed for livestock). In general, the reported level of “sharing” of both ideas and produce by project participants was notable across home gardening and field crop production.

*Have the adopted agriculture practices affected women, girls, men and boys, poor and non-poor differently? Where the differing needs, strengths and vulnerabilities of women, girls, men and boys adequately addressed?*

The evaluation team considers the **high degree to which women and children were positively impacted by project activities (mostly home gardening) to be the most significant unanticipated outcome**. There were strong indications that this project empowered female participants and transformed intra-household gender relations.

In rural Palestinian communities, males and females have different mobility patterns. Women traditionally stay closer to the homestead due to their reproductive tasks and responsibilities that are largely located in and

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*“For the women, the impact was due to her work. She became involved in improving the income of the household. She shared with husband about where to plant and sell. The role of women became more active.” - ARIJ staff*

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around the home, while men tend to go further afield and are the primary breadwinners working in the formal and informal sector. Due to increased restrictions on mobility caused by the occupation and stagnation within the economy, the role of men within the formal economy is becoming more and more constricted. One focus group participant from Beit Ula described how “formerly our husbands used to go Israel for work, but then Israel closed the door and there is now no money”.

ARIJ designed the project to accommodate these gendered realities by having the project's two main interventions implemented in different locales within the project communities. Specifically, **fields for cropping were located far from the house whereas home gardens were generally located on the homestead.**

ARIJ promoted field crop activities to men or women-headed households who were interested in engaging in crop production as a means of income generation, and targeted the home gardening activities at women, with an emphasis on **a ‘family approach’ where all household members were encouraged to contribute labour to the home garden.** ARIJ staff noticed that this family approach began to transform power relations within the households; “for the women, the impact was more due to her work. **She became involved with improving the income of the household.** She shared with her husband about where to plant and sell. The role of women became more active”.

This observed transformation of the role of women within the household was confirmed by findings from surveys and focus groups. According to household surveys, 86% of surveyed participants (this includes both men and women) said the project positively empowered women in decision making. In the home garden focus group meetings, women made multiple references to empowerment in each focus group (for this evaluation, empowerment was defined as increased esteem and control over resources). One focus group participant from Beit Ula made the observation, “**there is a new Palestinian woman in our village. We learned new things. She knows everything (about) how to help her family and make the garden green**”, she then added that she now has “money to give my husband and children”. Another participant in that focus group described how **after her first year of selling produce from her garden, she rented more land to expand it.** With the expansion, her profits increased. She then took her profits and purchased a horse which she rents out. She is now helping to pay for her children's school and is giving money to her husband. Stories of a transformed role within the household and increased control over resources and decision-making were repeated in all focus groups.

This shift in power and access to funds apparently did not negatively impact gender dynamics. **There were no references to conflict in the home in either of the farming or gardening.** Most women were almost giddy in their excitement level when describing their new found power and sense of purpose. One women in the Al-Khader focus group said, “**it’s unbelievable to me to have these [positive] feelings and emotions. My children also love gardening**”. She continued, “[gardening] was the number one excitement for the whole family, including my children”. This level of excitement seemed to be shared by most women in the gardening focus groups.

Overall, this project arguably benefitted females more than males, but did serve to increase food security for all members of the household. **It was not apparent to the evaluation team that these transitioning intra-household dynamics were resulting in increased conflict, but care must be taken to ensure that this is also the case in future programming.**

## PART 5: CONCLUSIONS

Twenty-seven months after the official end of the project, participant households continue to benefit from what they learned and experienced during the project. **Home gardening activities had a profound and lasting impact on food security, and had a larger impact than cropping activities.** This is likely due to the fact that gardening activities, which capitalized on the strengths of existing women's cooperatives, were accompanied by **training in food processing and preservation**, and were conducted close to the homestead which generally had on-site water catchment systems. In addition, home gardening activities transformed intra-household gender relations by putting more resources into the hands of women, **resulting in the empowerment of women and higher levels of household food consumption and food security.**

**The provision of seeds to farmers had a positive but somewhat diminishing impact**, while the distribution of other inputs had little or no discernible lasting impact. The promotion of seed banks and cooperatives had little or no discernible impact on the sustained access to good quality seed for farmers.

While the evidence is anecdotal, the **sharing of information** and gardening produce continues to spread the benefits of project activities **beyond the target population.** **Overall the evaluation team has concluded that the project was successful in improving the longer term food security of project participants, and future programming could build upon project successes.**

## PART 6: RECOMMENDATIONS

The findings and recommendations of this evaluation are context-specific and highlight key learnings that may or may not apply to other settings. Nevertheless, findings of this evaluation can serve to improve future programming in this context and may be relevant to the design and delivery of programming in contexts with similar dynamics.

The evaluation team makes the following recommendations:

1. **Continue to emphasize training and extension services and encourage more farmer-to-farmer learning**

While the usefulness of crop seed has diminished over time and the use of chemical fertilizer has almost disappeared, **the perceived value and benefit of training and extension services has persisted.**

**It is recommended that any future programming should continue to deliver training and extension services**, while also encouraging more **farmer-to-farmer learning** and experimentation. The evaluation findings suggest that farmers in these project communities are eager to share their new found knowledge and experience with their neighbors. **This social dynamic could be more systematically exploited by ARIJ through the promotion of methodologies such as Farmer Field schools (see <http://www.fao.org/nr/land/sustainable-land-management/farmer-field-school/en/>)** and other similar approaches.

## 2. **The provision of inputs should be limited and more nuanced**

The provision of fertilizer in particular should be eliminated (more on this in the next section). The provision of appropriate and innovative seed varieties seems appropriate, and should be considered where good quality seed is not accessible to farmers. However, **the evaluation findings suggest that simply providing seeds to farmers does not necessarily lead to long term access to improved seeds.** It seems clear that **community based seed banks do not work** in the project communities and in this particular cultural and biophysical context.

It is recommended that future program activities include the provision of training that is focused on increasing farmer capacity to access good quality seed from commercial sources. Where seed markets are not functioning to the extent that good quality and appropriate seed is accessible to farmers, **ARIJ should take steps to support the systematic improvement of the commercial seed distribution system. An example of this could be a project activity where farmers are made aware of locally available good quality seed varieties, and their initial purchase of these seeds is supported with a voucher.** This, of course, would be coordinated with the seed company. It seems clear that community based seed banks do not work in the project area, and that market solutions should be explored.

## 3. **Put more emphasis on biological pest control and fertility management in future trainings**

Findings from data collected from both field crop farmers and gardeners suggests that there **is a preference for using more biological (organic) approaches to crop protection and fertility management.** This preference seems to be related to both the financial and health benefits of biological methods. **It is recommended that ARIJ consider the inclusion of more biological agronomic practices in future training as extension activities.** This does not necessarily mean that trainings on the appropriate use of certain synthetic management practices should be eliminated.

## 4. **In future programming, build on home gardening successes**

The evaluation found that **home gardening activities have a more significant lasting impact** on household food security over field crop activities. This is likely at least partly related to the fact that home gardening has put more food, income and power into the hands of women. Home gardening and the empowerment of women has in turn

led to sustained increased vegetable consumption within the household. The project did not measure changes in nutritional status of participants, but it is fair to assume that increased vegetable production has led to improved nutrition in participant households. This is particularly evident in light of the fact that most households are preserving vegetables for off-season use.

It is therefore recommended that when resources are limited, ARIJ consider prioritizing home gardening over field crop activities and build on home gardening successes in future programming. **This is particularly relevant if ARIJ is applying for CFGB funding.** CFGB funding parameters increasingly require a strong link between project activities and increased food security. A focus on improvements in nutrition in the participant population would be helpful in this regard. Given that some grain is being fed to animals, there does not appear to be a shortage of cereal grain for human consumption. On the other hand, it seems apparent that without home gardens and the preserving of vegetables, participant families would be living with a shortage of vegetables (and vitamins and minerals) for home consumption.

5. **Ensure that findings from a thorough gender analysis inform future programming**

This program has created profound changes within the household of participant gardeners, and any future programming **should take into account how these changing gender dynamics may impact programming.** There was no sign that intra-household tensions had increased, but as benefits are being more rapidly accrued by females in the project, there is the possibility of an escalation of gender-based violence within participant households if men continue to experience marginal benefits compared to their spouses.

**It is recommended that a thorough participatory and community-based gender analysis be conducted in targeted communities prior to the design of the next phase of programming.** The findings of the **gender analysis should inform project design and implementation.**

6. **In future field crop programming, more training should be provided on drought adaptation strategies including conservation agriculture**

Participant farmers expressed a sense of powerlessness in the face of reduced and variable rainfall. Most participant farmers apparently continue to cultivate or plow their fields as they prepare seedbeds, which can lead to soil erosion and increased water loss.

**It is recommended that ARIJ consider including training on technologies such as reduced tillage, maintenance of ground cover, and other soil and water conserving practices.**

7. **Provide training and support related to water management for micro-irrigation of gardens**

A major limitation for the expansion of existing home gardens and the establishment of new gardens is the lack of sustainable and reliable access to water at the household level. **Training on the management and use of water for home gardens should increase.** This includes the development of low cost rainwater catchment systems and water conservation systems such as micro catchment basins around trees, mulching and other methods aimed at increasing soil water retention capacities.

It is recommended that ARIJ consider including this type of training and extension in any future programming.