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Integrating Nutrition in Farmer Field Schools – Lessons Learned in Eastern Africa

By Dr. Elizabeth Nafula-Kuria

MEAS Evaluation Study Summary, November 2014

1. Integration of Nutrition in Farmer Field Schools

Eastern and Central Africa continue to face acute and chronic food and nutrition insecurity[1]. Combined with a high incidence of HIV, food security continues to affect the nutrition and health status of poor households. Currently there are many global initiatives that seek to increase the link between agricultural development and human nutrition. In the past, strategies to combat malnutrition have tended to be largely health-based. However, there is growing recognition of the vital importance of an expanding agriculture's purview to include nutrition objectives, particularly in agricultural extension and training. The adoption of participatory extension approaches, such as the Farmer Field School (FFS), provides additional opportunities to move agricultural development beyond a customary focus on productivity and yields to an approach that can more effectively contribute to improved nutritional outcomes.

Photo 1. FFLS group in Bimbo, Bangui, Central Africa Republic

1.1 Farmer Field Schools

FFS is based on discovery and experiential learning principles and was developed as an alternative to the conventional top-down Training and Visit extension approach applied extensively in the past. The basis of FFS is a group of farmers with a common interest who together engage in a season-long study program, usually with weekly meetings. FFS provides an environment through which farmers can learn new agricultural and management skills in a practical manner and investigate and overcome a wider range of problems, including nutrition challenges. Farmers learn about production problems and ways to address them through their own observation, discussion and participation in practical learning-by-doing field exercises.

The FFS groups decide on their main topic of study, usually a crop or livestock-based enterprise, and set up simple experiments at a field-learning site. Aside from the main learning topic, the group curriculum also addresses many other topics of interest to farmers such as gender, conflict, business skills, etc. It is among these so-called "special topics" that human nutrition can sometimes be included. Groups are also encouraged to engage in income-generating activities. The FFS approach is now a widely applied approach in the sub-region[2].

While FFS usually includes some life skills issues, the so called Farmer Field and Life Schools (FFLS) put special emphasis on life skills. FFLS have been applied particularly among more vulnerable segments of farming population, e.g., those in post-conflict situations. Much emphasis is put on linking the study on agriculture to the study of the human ecosystem. The curricula of FFLS commonly include gender and gender-based violence, human health, HIV and AIDs, conflict management, and others as special life skills topics. It is in this context that the topic of human nutrition has been emphasized as a key area of learning. A regional program applying the FFLS approach provides the empirical frame for this study.

1.2 Linking Farmer Field Schools-and Nutrition

The practical, hands-on experimental nature of FFS complements practical nutrition strategies that aim to increase the diversity of food consumed, preparation standards, and food storage in households. In FFS learning sessions, traditional extension topics such as cropping and pest management are being used as an entry point to discuss related issues, including health and nutrition. For example, when learning about diversity in crop production, direct

[1] IFAD (2001). "Rural poverty report. The challenge of ending rural poverty."

[2] Braun, A., J. Jiggins, et al. (2005). A global survey and review of Farmer Field School experiences, International Livestock Research Institute.

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action can be taken by facilitators to stimulate debate among beneficiaries about the nutritional value of particular crops and preparation/cooking techniques to retain nutrients. By continuously drawing this link between the agricultural and other human spheres, nutrition education gets interwoven and integrated into agricultural extension. In many countries across the developing world, governments have invested heavily in agricultural extension systems. The resulting physical and human capital has great potential to address both agricultural development and nutrition through the same mechanism. By linking these two aspects, the potential for rural food and nutrition security can be greatly enhanced.

A study in Bangladesh showed how the FFS model was adapted to support food production with a goal of increasing the production and consumption of diversified micronutrient rich foods (SPRING, 2014[3]). However, within Eastern and Central Africa few studies, if any, have been done to assess the integration of nutrition into FFS, and there is limited documented evidence to suggest that the inclusion of nutrition in FFS is actually increasing the level of knowledge and good nutrition practices amongst farmers. Thus, this case study was aimed at assessing how this has been done in FFS practice, in view of providing recommendations on how to better improve nutrition integration in FFS.

1.3 Objectives of the study

The specific objectives of the study were to:

1. Document the processes that have been used by actors implementing FFS to mainstream nutrition in the FFS learning process.
2. Assess and document changes in nutrition knowledge and practice amongst FFS beneficiaries, including constraints/enabling factors that prevent/encourage the uptake of improved nutrition practices.
3. Identify good practices as well as opportunities and gaps in terms of integrating nutrition in FFS and propose recommendations for improving the effectiveness of nutrition education in FFS.

2. Methodology

2.1 Geographical location and sampling

The empirical framework for this study on integrating nutrition in FFS is a SIDA-funded[4] and FAO-implemented regional project[5] undertaken in Kenya, Uganda, Rwanda, the Democratic Republic of Congo, Burundi, and the Central Africa Republic from 2010 to 2013, to address gender and HIV through a food security and nutrition response. Following completion of the project, the final report made several recommendations and in particular highlighted the need for increased attention to the integration of nutrition in FFS and FFLS[6] processes. This study on integration of nutrition in FFS is a direct result of this recommendation.

The sample in this study includes FFLS that had operated in these countries under the project. The fieldwork focused on sampled FFS groups in Uganda (Kitgum and Lamwo districts) and Rwanda (Nyagatare and Gatsibo districts) initiated in 2011-2012 by the above-mentioned project. The desk review, however, covered experiences from FFS implementation in all six participating countries. The primary target group for the fieldwork included the participants of FFLS groups in seven groups from Uganda and six groups from Rwanda. Fieldwork data collection was undertaken from September to October 2013.

Purposive sampling was used for the case study to define respondents for in-depth interviews. Respondents sought were persons who had success stories to tell in regards to their participation in FFLS. Effort was made to include both genders. Three participants were interviewed in Uganda and three in Rwanda. Key informants interviews were also held with facilitators, FAO field staffs who worked in FFLS, as well as staff of the field implementing organizations (Lutheran World Federation in Uganda and Association of Volunteers in International Service, AVSI, in Rwanda). The key informants were selected based on their involvement in the FFLS. Focus group discussions with FFLS groups were not feasible due to the large numbers that turned up for meetings. However, focus group discussions were held with AVSI staff.

2.2 Data collection procedure

Methodologies employed included desk review of existing documentation and meetings with key stakeholders. In addition observations were made during field visits to a representative sample of FFS sites/beneficiaries in Rwanda and Uganda. Quantitative and qualitative data were collected. Briefing sessions were held with the FAO Sub-regional Emergencies Office in Nairobi, clarifying objectives of the assessment and agreeing on a timeframe and schedule.

Desk reviews

Desk reviews of project proposals and reports, FFLS reports from the participating countries, and other relevant documents were undertaken prior to the fieldwork. The desk review assisted in framing the appropriate fieldwork

[3] www.spring-nutrition.org/countries/bangladesh/activities/-farmer-nutrition-schools.

[4] SIDA: Swedish International Development Cooperation Agency

[5] OSRO/RAF/010/SWE "Addressing HIV and Gender inequities through a food security and nutrition response in Eastern and Central Africa". FAO, 2013.

[6] In this report the term FFLS is used when referring to the specific sampling frame of the study but FFS is used when referring more generally to the Field School approach (FFS & FFLS combined).

methodology. The review also enabled key findings to be determined in terms of the processes and achievements of FFLS in the six participating countries.

Assessment tools for fieldwork

The data collection in the field included both qualitative and quantitative approaches. Survey data was collected from 145 FFLS participants in the two countries based on a questionnaire format that included basic information about respondents and their FFLS training experience. Data from the questionnaire was analyzed through descriptive statistics.

Qualitative data was obtained using guides developed for the different categories of respondents. A key informant interview guide was used to obtain information from key partner organizations that undertook FFLS interventions in each country and from field facilitators. In-depth interview guides were used to attain information from primary beneficiaries sampled in the study from chosen FFLS sites. An FGD guide was used during the group meetings with participants of FFLS. Observation checklists were also in use throughout the data collection process in the field to provide an understanding of the context and activities of the FFLS in Rwanda and Uganda.

Preliminary findings were presented to key stakeholders in Kitgum, Uganda and in Nyagatare, Rwanda. This was in the form of feedback meetings where the key findings and recommendations were validated. Findings were also reviewed with FAO officers in Nairobi, Kampala and Kigali.

3. Results

The sections below highlight key findings from the study. Of the 145 household survey respondents, 73% were females and 27% were males. About 73% were married among which 17% were widowed. Head of household respondents were aged between 20-88 years with a majority of the FFLS participants aged above 30 years.

3.1 Uptake of improved farming and nutritional practices

Participants were found to have increased and diversified their food production as a result of their FFLS participation. The FFLS learning activities included planting agricultural crops on experimental fields. The majority of the crops were vegetables such as carrots, eggplant, cabbage, and beetroot because they take less time to grow and harvest, thereby bringing faster returns. Other crops selected were beans, sesame, groundnuts, maize, and cassava. A major contributor to the uptake of practices benefiting nutrition were the kitchen gardens promoted for production of vegetables for home consumption and for sale to earn income to purchase food that families did not grow or for non-food items. Good nutrition practices included thriving kitchen gardens with foods used for family food consumption that also provided income, preparation of nutritious foods using crops grown, plus some hygiene improvements and related practices for about half of the assessed participants.

3.2 Nutrition at household level

The findings show that crops promoted through FFLS are also consumed by the participating families to better their nutrition and health.

Although no nutrition indicators were assessed prior to the start of the FFLS, during the study the meals and types of foods consumed by households and nutrition assessment (using Mid-Upper Arm circumference – MUAC – for children aged 6-59 months and women in reproductive age) were determined. The sampled households were found to be consuming fewer meals per day than recommended; however, they were consuming more meals than they did before joining the FFLS project. Families were consuming a mean dietary diversity score of 6.4 food groups, with families in Uganda consuming fewer food groups than in Rwanda. Although the dietary diversity score was average, some families consumed as few as two types of foods in a day. Nutrition status of women assessed using Mid-Upper Arm Circumference was normal (MUAC ≥ 21.0cm) in both countries. Children aged below five years were found to be well-nourished (MUAC ≥13.5cm) in Rwanda while 22.3% were malnourished in Uganda, with 17.5% being at risk of malnutrition with MUAC 12.5-<13.5cm and 4.8% moderately malnourished with MAUC 11.5->12.5cm.

Box 1. "Before I was trained on good nutrition by consuming vegetables and making juice from them, I used to be very sick. In a year, I would be hospitalized twice for two months each time, hence 4 months in a year. I am HIV positive. Since I started to grow vegetables and consume them with my children, I have not been hospitalized since 2011. You can see I am now healthy".

Gatsibo FFLS member from Rwanda, Gatsibo)

Few participants thought their families were very healthy, with the majority assessing their families to be in good health despite the fact that 21% and 52% of the children assessed had been sick during the two weeks prior to this assessment in Rwanda and Uganda, respectively. This indicates that primary healthcare may be a gap that could undermine nutrition outcomes of increased consumption of nutrient dense foods. Families stated that they were consuming a greater variety of foods produced despite the fact that they sold much of the produce.

3.3 Integration of nutrition in FFLS

The learning on nutrition in FFLS was found to be closely linked to the food production component whereby members of the groups were encouraged to grow diversified and nutrient-dense crops using good agricultural practices. This

encouraged high yields and resulted in adequate food for the family with surplus sold to earn income for other household needs.

FFLS learning sessions were found to generally follow recommended FFS practices. The FFLS sessions studied generally ran weekly on a day the members had agreed upon with sessions starting at their learning field site as early as 7 am. The group divided themselves into sub-groups where each sub-group handled one experimental plot continuously from land preparation up to harvest time. Activities at the field experimentation plot on a typical day ran around two hours. After the field practice, members grouped together at their designated learning place. At this point, they discussed the findings from the field and developed an action plan for challenges experienced. At the end of this activity, a selected topic for the day was handled. This is generally where nutrition topics find an entry point into the learning schedule.

Generally, the study found that the nutrition component was inadequately included in a structural manner within the FFLS schedule. Group members felt they had gained knowledge on the composition of a balanced diet but felt that this knowledge had been acquired in a spontaneous manner rather than being a planned part of their curriculum. Nutrition related topics tended to be addressed only when individual members/facilitators felt a need or desire to handle a special topic in nutrition; thus they were not mainstreamed in all groups. Neither nutrition-specific curriculum nor nutrition-sensitive topics for FFLS was found in the targeted project; this made inclusion of nutrition a challenge. The need for a curriculum with the desired number of nutrition sessions was expressed. Mostly the facilitators were the ones who handled the nutrition component with support from the implementing organization. Thus, it is essential that facilitators be equipped with the necessary technical knowledge and skills to handle the nutrition component in FFLS.

Among the sampled groups there was only one practical food preparation session undertaken in Uganda and there were no resulting significant changes in the way the beneficiaries prepared their food, even though some of the food they produced was new to them. However, farmers prepared food for consumption based on knowledge they gained from each other.

3.4 Knowledge on nutrition

The study participants' knowledge on a balanced diet and sources of vitamins and proteins from the fieldwork showed that farmers had low knowledge of the composition of a balanced diet. This was attributed to the similarly weak knowledge base on the topic among facilitators. Participants indicated that they were encouraged to consume what they produced in their kitchen gardens, farms and households. However they lacked knowledge on the nutrients that these foods were contributing to in the diet.

3.5 Facilitators' selection and training

Facilitators in the sample program were selected from the community among the farmers, local persons, cooperatives, teachers, and staff from the partners according to certain guidelines but without clear procedure for their selection. The facilitators underwent a three weeks Training of Facilitators course on the FFLS methodology and certain subject matters. Topics related to vegetable production for household consumption and as an income generating activity were covered in the Training of Facilitators, but minimal nutrition subjects were included. Training on nutrition for facilitators was not sufficient for them to effectively handle all preventive nutrition challenges required by group members at the community level in terms of food preparation, preservation, and storage. Additionally, good nutrition for children in terms of complementary foods was not a focus in the activities undertaken. No nutrition modules or cooking recipes had been availed to facilitators during their training. The training on nutrition was found to be too brief to ensure good nutrition at the family and community levels.

3.6 Social cultural considerations

The FFS members who were HIV positive felt that they were more accepted in the communities they belonged to than before they joined the FFLS mainly because of their involvement with FFLS activities. Members were more confident and reported better methods of making decisions in relation to problems they faced and addressing gender based violence through dialogue. Thus, embracing the participatory approaches in integration of nutrition in the FFLS contributes positively to improved wellbeing of the participating families; participants are able to embrace change in making relevant food and nutrition choices for themselves and their families that take cultural diversity into consideration.

3.7 Challenges and gaps

Challenges and gaps found in relation to integration of nutrition education in FFS/FFLS relate to methodological as well as contextual issues, outlined below:

Methodological aspects

- The lack of nutrition materials for integration of nutrition in the FFLS and lack of local recipes that the facilitators and group members can use was found to hamper wider uptake of nutrition knowledge and practice.
- Nutrition topics did not receive adequate time and space in the FFLS learning sessions and the topics covered were not found to encompass the broader diversity of topics needed to address the issue in a comprehensive

manner (i.e., production linked to food utilization, preservation and storage, preparation and consumption). Complementary feeding practices for young children that greatly impact nutrition were not addressed. In addition, nutrition-sensitive topics that focus on underlying causes (i.e., health and care), and the role of household incomes and especially of women's empowerment in promoting nutrition were not addressed.

- The facilitator training included minimal nutrition content apart from production aspects and lacked information on food utilization, preservation, storage, consumption and preparation. The inadequate training of facilitators on nutrition was found to directly translate into minimal focus on a clear nutrition agenda in the FFLS process. Lack of training modules/materials made it difficult to exploit nutrition training in terms of content and practice.
- Multi-sectoral collaborations with community-level health centers, frontline health workers and relevant sectors are needed due to complexity of nutrition problems. However, facilitators did not have adequate technical support from specialists and resource persons on nutrition topics.
- Methods used to teach the minimal nutrition content were often more theoretical in nature as opposed to production topics covered in a more practical, hands-on manner. Few or no practical food preparation sessions were undertaken.
- The duration of field implementation was for one year in most participating countries, except for Rwanda, where it was 1½ years. This was rather limiting to encompass nutrition aspects related to food preservation and storage. There was also a weak follow-up mechanism in the FFLS program that would contribute to sustainability of the project beyond its lifespan.

Contextual aspects

- Poverty was cited as a key challenge for applying the nutrition knowledge gained through the FFLS as some households could not access the nutrient-dense foods that they did not produce. Drought also poses a challenge, as there are no vegetables and fruits during such a period.
- While FFLS was found to increase openness, stigma still exist, so some people hide and do not come out publically as HIV positive and thus cannot be targeted for specific nutritional assistance. Additionally, weak members who are HIV positive are unable to cultivate their plots to get sufficient food for themselves.
- While FFLS members increased their food production and diversity of food items available, this did not always contribute to a major increase in food consumption diversity. Households are not able to consume perishables all at once without processing and preservation technologies, There is also the pressure for income that often led households to sell their best produce, being left with the poorer produce for their own consumption. This was especially the case for highly perishable vegetables.
- The scarcity of water made it difficult for kitchen gardens, which are mainly rainfed, to thrive throughout the year. This resulted in poor crop harvests for the vegetables during the dry seasons and led fewer members to have active kitchen gardens near their homesteads.

Main gaps

- There is no specific nutrition curriculum for use in FFLS. Thus what to teach, who to do it, when to place it in the FFS schedule, and how to do it (theory, experimental) is missing; this makes nutrition integration through FFS challenging.
- Considering the rainfed nature of agriculture in the region, teaching on food preservation and storage is crucial; however, these topics were not addressed in the FFLS learning schedule
- Follow-up activities post-FFLS were not incorporated in the field programs, so there are problems with sustainability and continuity.
- While FFLS learning covered staple crops and vegetable production, fruits and other trees were neither to be part of the learning program nor a focus of the intervention - a lost opportunity. In addition, animal sources of foods which are of high quality proteins were lacking.
- Indicators for assessing and evaluating nutrition and health statuses of FFLS members were limited to establishing nutrition status of children aged 6-59 months and women in reproductive age using MUAC, household diet diversity, and the number of meals consumed. There is room to include more indicators focusing on food consumption, food access, food availability, and other anthropometric measurements such as BMI for women. Monitoring of nutrition sensitive outcomes that include aspects of foods, health and care that can eventually lead to nutrition impact could be investigated.

3.8 Opportunities

A number of opportunities were identified that could be taken advantage of in the FFLS program assessed.

- FFLS generally provides an excellent entry point and platform for learning about and practical improvement of nutrition among vulnerable, segmented populations and less than vulnerable populations (e.g., more commercially-oriented farmers), such as those that may participate in broader FFS programs. More awareness of

and work towards enhancing the potential role of FFLS for nutrition is needed.

- The FFLS process, with its experiential and practical learning nature, provides opportunities to also learn about nutrition in a practical manner, thus enhancing the effectiveness of nutrition training as opposed to conventional training techniques. The participatory nature of the FFS approach also has the potential to increase the sustainability of projects.
- FFS with its structured approach of training facilitators and the development of training manuals and curriculums widely applied offer great opportunity to mainstream nutrition within these processes and documentation, an area still inadequately explored.
- Due to the increased level of food production attained by FFLS participants, there is a wider scope to link and integrate knowledge and skills on food preparation to enhance nutrient retention and food preservation and storage. These important aspects were insufficiently paid attention to, at least in the programs assessed.
- Skills on food preparation are best acquired through practical food preparation demonstration events, linked to or in addition to FFS learning sessions – another underutilized opportunity.

3.9 Key lessons learned

- FFS and FFLS form an excellent entry point for learning new knowledge and skills related to nutrition in a sustainable and culturally appropriate manner that enhances local ownership by the participants.
- Kitchen gardening (when part of the FFS/FFLS) is a valuable means that contributes to improvement in food consumption patterns (which contributes to better nutrition), as well as income generation at the household level since foods grown in the gardens are used for family consumption and the surplus is sold to buy other food and non-food items.
- Practical nutrition education like food demonstrations contributes to members acquiring the new skills required to prepare new food products and properly store and preserve foods, while practical crop production practices/sessions led participants to gain appropriate agricultural practices.
- Life skills acquired during the FFLS process contributed to building members' self-esteem and enabled the majority of members to think outside the box and venture into new enterprises and nutrition practices within their means.

4. Conclusions

Overall, there is highly promising scope for linking agricultural development and education with nutrition through the FFS approach. However, while increased and diversified food production has been observed from FFLS members and found to be contributing to better nutrition, this impact could be more significant if nutrition were better mainstreamed and integrated in the FFS approach.

A major contributor to increased production and diversity of produce among members were the kitchen gardens promoted for production of vegetables for home consumption and for sale. Lack of water, however, was determined a key challenge for expansion and sustainability of kitchen gardens.

While FFLS and kitchen gardens in particular have led to increased diversity of food produced, diversity in consumption does not always follow suit. Due to competing priorities in the families, there is pressure to sell produce to generate income. Vegetables grown are sold and few consumed at the household level despite their importance. This highlights the need for nutrition education to farmers on nutrients from their diversified crops, importance of consuming the foods that farmers produce to improve their nutrition and health, as well as appropriate food preservation technologies.

Whereas nutrition is indirectly implied in FFLS activities focused on food production, there was generally poor or no specific or structured content or curriculums included for enhancing nutrition education in the FFLS program studied. Nutrition topics came in based on member/facilitator demand as opposed to being scheduled or mainstreamed in the FFLS groups' learning programs.

Facilitator training in nutrition was found to be insufficient for them to effectively handle the wide spectrum of nutrition related topics with the groups, especially in relation to topics of food preparation, preservation, and storage. The facilitators did not have access to (adequate) teaching materials, such as nutrition modules and recipes. Also, facilitators were generally unskilled in translating nutrition topics into practical and participatory exercises. In addition, there were no clear nutrition indicators put in place to monitor and assess the nutrition impact through the FFLS.

In Rwanda more participants had more kitchen gardens and consumed more meals with more variety of foods and their children were better nourished in comparison to those in Uganda.

5. Recommendations

The following section outlines some recommended actions arising from this study. While the study focused on FFLS in particular, most recommendations are considered valid for

FFS more generally, especially FFS programs that aim to contribute more directly to nutrition outcomes.

Field practice

- Already existing and ongoing FFS in the region need to be strengthened on topics related to food consumption, food preparation, preservation and storage at the household level in order to complement their production knowledge with adequate corresponding nutrition knowledge.
- The FFS learning schedule should include ample nutrition content on a regular basis and better link animal and plant health to their effect on human nutrition.
- Education on nutrition should follow the participatory and discovery-based training mechanisms and tools inherent in the FFS approach.
- The topic of infant and young child nutrition should be incorporated in the nutrition education in order to help families apply knowledge learned through FFS for the health and nutrition of their children. Strategy to include the youth and young parents in FFS is required for this to succeed.
- To the extent possible, locally available foods should be used in food demonstrations. Where new food items are introduced, as was the case with soybeans in Uganda, this should be accompanied with training on production aspects so as to encourage growing of the crops.
- FFS facilitators should be complemented by technical experts and resource persons for delivery of nutrition-related topics as the facilitators do not have adequate technical knowledge.
- There is need to include a component of fruit trees, useful herbs, and other trees in FFS activities. There is great potential for farmers to plant these along farm boundaries or as hedges around trial plots. The fruit trees and herbs will contribute to improve nutrition and food security in addition to providing environmental conservation and fuel wood benefits. Small livestock production could be enhanced as a source of high quality proteins.
- Aspects of food safety, hygiene and sanitation could be explored based on the context and incorporated in future programs as appropriate to avoid diminishing the positive effects of increased quality food production and consumption on nutrition and health and wellbeing of families.
- The role played by kitchen gardens on women's control of HH income and the effect of gardening activities on their time availability and energy levels were not investigated by this study and should be a focus in future studies.

Training and support of facilitators

- Where previous or existing FFS facilitators exist, they should undergo a refresher course training to strengthen the integration of nutrition in their field practice in terms of food consumption, preparation, preservation, and storage at the household level.
- Review the Training of Facilitators program in order to ensure adequate inclusion of most necessary nutrition related topics.
- The Training of Facilitators should be detailed and have a separate section on nutrition in the training. A separate training on nutrition for the facilitators in addition to the FFS facilitators training program that is already in place is recommended for nutrition to be effectively integrated in the FFS.
- Existing Master Trainers will require training on new nutrition modules in order to be able to support and mentor field staffs and facilitators on the topic.
- Improve on existing nutrition materials and develop new materials on missing aspects. In addition, materials on local recipes that can be adopted for each context for use by facilitators during the training and for members would be highly beneficial.
- Training to address the problem of insufficient income is required in handling food technologies, preservation and value addition to foods produced so that access to sufficient food can be assured in times of food scarcity through purchasing and for families to meet other household needs.

Program formulation and management

- FFS should be used as an entry point for integration of nutrition in agriculture and food security due to the structure of FFS that the community is able to learn from in a favorable manner and the strong food security component already in place in the FFS.
- FFS programs need better and clearer exit strategies to maintain momentum and adoption of practices post-FFS.
- Duration of FFS programs on the ground-implementation phase should be from 1½ to 2 years, hence a longer duration of 2½ to 3-year is recommended to allow adequate time for program start-up.
- A strong linkage with the health sector is necessary in order to rehabilitate the malnourished within the groups. Nutrition training for facilitators should include education on the local nutrition-related diseases and screening and create linkages with the local healthcare facilities to which referrals can be made.
- Training on innovations like energy saving stoves, sun drying of vegetables, and fireless cookers should be part of FFS programs. If this cannot be done by the project, efforts should be made to link up the groups with other organizations that are promoting this.

- Nutrition objectives and indicators should be included in FFS M&E frameworks and assessed at defined intervals to help ensure that significant nutrition impacts are achieved through the project. This could include household and individual diet diversity, meal frequency (for households and children 6-23 months), minimum acceptable diet (for children 6-23 months), breastfeeding, complementary feeding, growth monitoring for children, and Mid-Upper Arm Circumference, among others.

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Note that a full report version of this case study is also available and this report also includes a longer list of references than those noted in the footnotes.

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Prepared by Dr. Elizabeth Nafula Kuria

Evaluation Study Summary, November 2014

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