

Integration of nutrition education into the Ethiopia Urban Gardens Program: Results of recipe trials and focus group discussions

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Infant & Young Child Nutrition Project



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455 Massachusetts Ave. NW, Suite 1000
Washington, DC 20001 USA
Tel: (202) 822-0033
Fax: (202) 457-1466
Email: info@iycn.org
www.iycn.org

Introduction and Background

The Urban Gardens Program and nutrition

The US Agency for International Development's (USAID) Ethiopia Urban Gardens Program (UGP) managed by Development Alternatives, Inc., supports the creation of household, school, and community gardens by providing agriculture-related training, tools, and inputs. The overall objective of the garden activity is to increase the income and improve the nutrition of program beneficiaries, the majority of whom are affected by HIV. The UGP collaborates with local nongovernmental organizations, the Ethiopian government, and other partners to implement the project in poor urban settings. Orphans and vulnerable children (OVC) between the ages of 10 and 18 and their caregivers are brought together in groups on donated land in communities and schools to develop gardening skills, as well as to provide a platform for building health and nutrition knowledge and skills. The USAID-funded Infant & Young Child Nutrition (IYCN) Project is providing technical assistance in the development of nutrition education, including a training curriculum and related materials for agriculture extension agents and other community-level UGP staff and collaborators.

Achieving impact through nutrition education

Malnutrition remains one of the main public health problems in Ethiopia, contributing to 53 percent of infant and child mortality. According to the 2005 Ethiopian Demographic Health Survey, 47 percent of children are stunted, 11 percent are wasted, and 38 percent are underweight. The recent National Nutrition Survey shows that rates of malnutrition remain high in Ethiopia and that maternal and infant and young child feeding practices are inadequate. Half of children aged 0 to 5 months are exclusively breastfed, and only 29 percent of children aged 6 to 23 months of age receive a minimum acceptable diet—eating foods from at least four groups—in addition to breastmilk. For non-breastfed children, only 38 percent received a minimum acceptable diet.

In addition, within the population targeted by the UGP, food and nutrition is a key component of HIV/AIDS treatment, care, and support. Lack of nutritional support for people living with HIV/AIDS and who are on antiretroviral treatment has shown to accelerate the progression of the disease. Adequate nutritional support for persons living with HIV/AIDS is necessary to improve adherence to treatment and to improve quality of life.

Nutrition education is a catch-all term that can mean many things. In the context of the collaboration between IYCN and the UGP, nutrition education activities are aimed at influencing the change, or, promotion of specific household practices/behaviors that have the potential to improve the quality of the diet—and ultimately the nutrition status of household members. To achieve impact (i.e., change in behavior), nutrition education is ideally designed to: motivate individuals by appealing to feelings, while also equipping them with knowledge/skills; address resistances to changing practices, perhaps by drawing on the experience of similar individuals who are already—at least partially—implementing the practice; encourage small steps toward change that are feasible given current practices, rather than promoting the “ideal” practice; provide triggers for desired behaviors—reminders or reinforcements; and identify and draw on ways to provide peer support or reassurance.

Purpose of the qualitative research

This qualitative research was a first step in the process toward developing an effective approach to the integration of nutrition education with the UGP. It was designed to begin to learn about current nutrition and food practices directly from the UGP participants. The specific research objectives included the following:

- Learn about specific foods and food combinations used in the “family meal.”
- Explore the motivations and resistances to using the garden products and/or income generated from the UGP for quality foods.
- Examine the potential to change current practices to improve the quality of food in the household—with a particular focus on children under two years of age.
- Gather information on current food handling and preparation practices that affect food safety.

Qualitative research methods and the sample

Methodology

The qualitative research entailed the use of two research methods—Recipe Trials linked to focus group discussions (FGDs). Recipe Trials use group cooking sessions with individuals (typically, these have been done with mothers) to develop and test recipes for appropriateness and acceptability for household members. The method involves bringing a small group of individuals together in a setting, where different foods can be prepared, tasted, and discussed. It also provides the opportunity to observe what individuals actually do during a preparation, rather than just ask them in interviews or discussion groups. Each recipe trial is preceded by a focus group discussion designed to stimulate a discussion on norms, attitudes, and beliefs about current food preparation practices, and acceptability of different foods and combinations. The focus group discussions also discuss the motivations and barriers to using food produced in the gardens and/or using income generated through the gardens to purchase higher quality foods.

For this research, participants were provided with foods that were available from their gardens and asked to: choose three or more ingredients; decide if they would like to have the meal be one dish or more than one dish; and to make a meal that they would be able to do at home on a regular basis. All groups were provided with *shiro*¹ powder, *injera*² (staple food in this area), oil, bread, and a wide range of vegetables including spinach, eggplant, tomatoes, carrots, potatoes, kale, lettuce, cabbage, red pepper, and onions.

Sample characteristics

Two teams of researchers, including IYCN local staff and consultants, conducted the recipe trials and FGDs. The staff and researchers received training in these methodologies and the specific data collection and moderation tools developed for this research just prior to the field implementation. The qualitative research was conducted in two UGP areas—Debra Zeit and Adama—among gardeners who had “graduated” from the UGP—i.e., those who already had established gardens. Only beneficiaries of gardens considered “good quality” gardens were

¹ *Shiro*: cereals/pulses; roasted, dehusked, and husk removed; finally milled to produce shiro powder.

² *Injera* is an Amharic word for fermented thin flat bread. It is prepared from cereals (teff, sorghum, barley, wheat, maize, millet, etc.). Injera is served with different kinds of sauces, vegetable, shiro, or meat.

eligible for participation in the research. After the eligible gardeners were identified, the research participants were selected randomly to the greatest extent possible. The willingness and availability of participants to take part in the focus groups/recipe trials, as well as finding an adequate number of caretakers with children under two affected the pool and selection of participants.

Two types of groups were identified for the recipe trials and FGDs: general/adult/caretaker gardeners and OVC. A total of 12 recipe trials/FGDs were held—i.e., six in each of the two areas. Five of the groups comprised OVC and seven were adult/caretaker gardeners. The characteristics of the sample are summarized in Table 1.

Table 1: Characteristics of the sample

Group	Total # Groups	Total # Individuals	Male	Female
OVC	5	48	30	18
Adults	7	67	3	64
Total	12	115	33	82

Most of the adults were women, while two-thirds of the OVC were male/boys. 10 of the 48 children had no parents, and another eight had only one parent. 38 percent of the OVC participants had one or no parents. Among the groups of adults, the participants varied from those who were single parents, to couples, to one grandmother, to one adolescent living alone. Most households had several children of various ages, some under the age of two.

Results by Theme

Attitude toward gardens

The attitude of the UGP participants who participated in the recipe trials and FGDs was almost overwhelmingly positive. The benefits of having a garden cited by the participants ranged from increasing their knowledge of gardening, to changing the urban environment, to becoming more self-sufficient. One issue raised by participants was the need to purchase water for the gardens. A couple of other issues included the small size of the plots for gardening and the time needed to tend the garden. Some of the statements made during the focus group discussion included the following:

“It (the garden) is nice—we can eat vegetables and we can sell them too.”

“I was not able to buy vegetables for consumption but now I could consume my own vegetables.”

“Even when I am living with HIV, I am happy when I work in the garden.”

“This place has been empty; now it has changed.”

“Before the garden and living with HIV, we think about our illness; but now we think about our garden, our savings.”

“We used to buy plants to eat; now we are self sufficient and we also sell.”

“We used to get food from the market; now we grow ourselves and we use fresh foods and are very happy now.”

“There is a problem of water usage. Plants need more water and at the end of the month our water bills were high and we paid a lot of money. Otherwise, we benefited from the garden.”

Attitudes about vegetables

All of the participants were involved in the garden project. Within each group, participants had experience growing at least four or more vegetables. Some vegetables appeared to be more popular than others; for instance, participants who grew onions and/or spinach were found in all groups. Figure 1 shows the type of vegetable and the number of groups that had at least one participant mentioning (during the focus group discussion) experience growing it.

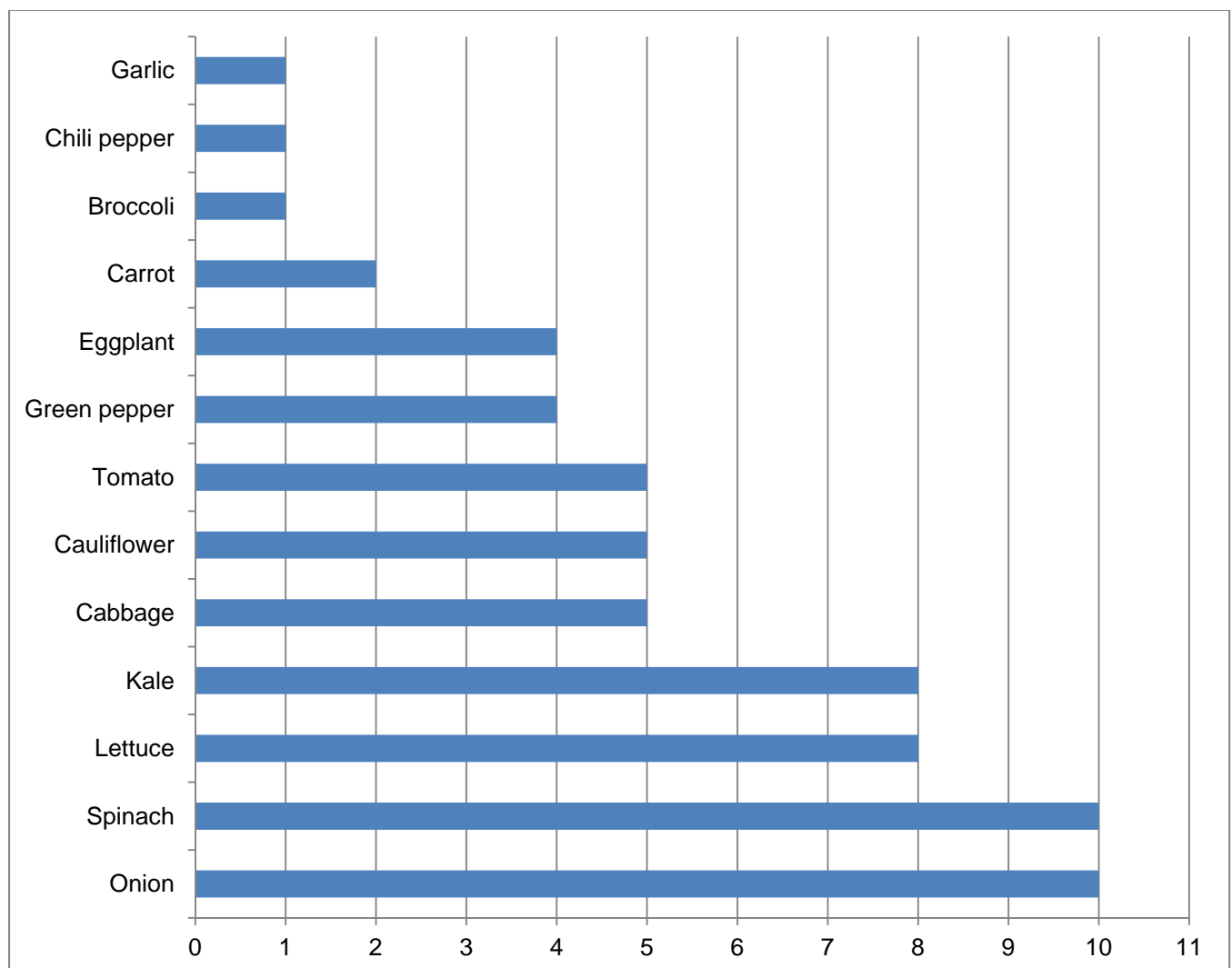


Figure 1: Vegetables grown by participant groups

Most participants reported that they were given the seedlings and told what to plant by those who are responsible for the UGP. Where participants had a choice, the following factors affected their choice of vegetables to plant: (1) short growing time and high yield; (2) high demand during fasting; (3) possibility of selling at a high price (also related to demand); (4) possibility to eat and sell; (5) possibility of having multiple harvests (Table 2).

Table 2: Reasons for growing particular vegetables

Vegetable	Number of groups growing	Reasons cited
Onion	12 (all)	Good market, grows slowly, need it to cook, good for income
Spinach	12 (all)	Grows fast, not affected by disease, beautiful, good for constipation, good for income, continuous harvest
Lettuce	10	Good to eat, long harvest
Kale	10	Grows fast, continuous harvest
Cabbage	9	Good to eat
Cauliflower	5	Grows easily, new crop
Green Pepper	4	Brings in money, long harvest
Eggplant	4	New crop, appreciated, valuable in market

An interesting anecdote from one group pertained to the recognition of the nutritional value of eggplant.³ One participant claimed that her CD4 count⁴ had increased from 200 to 703 as a result of consuming eggplant and the other vegetables.

Meal choices and preparation practices

When presented with the task to prepare a meal that they would prepare at home, all groups except one prepared *shiro* (dried ground chickpeas, the primary staple in this area) with oil, salt, spices, and onion as the main dish. The one OVC group that did not prepare *shiro* as the main dish prepared a combination of potatoes and carrots. One adult group prepared two *shiro* dishes, one with less spice/hot pepper. A majority of the adult groups added tomatoes and two groups also added green or red pepper to the *shiro*. The OVC groups were less likely to add vegetables to the *shiro* other than onions; only one group added tomatoes and green peppers (Table 3).

Table 3: Main dishes prepared in recipe trials by group

Type of main dish	OVC	Adults	Total
Shiro with onion and spices	3	1	4
Shiro with onion, tomato, spices	0	4	4
Shiro with onion, tomato, green or red peppers, spices	1	2	3
Potato and carrots	1	0	1
Total groups	5	7	12

In addition to the main dish, the OVC groups prepared one side dish, while the adult groups prepared at least two side dishes in addition to the *shiro*. One group prepared five side dishes.

³ Eggplants contain phytonutrients like flavonoids, caffeic acid, and chlorogenic acid. The flavonoid Nasunin in eggplants has high levels of antioxidant properties and is known to be a scavenger of free radicals, thus protecting the cells of the body. Chlorogenic acid is known to be the most potent antioxidant that displays antimicrobial, antiviral, and antitumor abilities and plays an important role in the prevention of many diseases.

⁴ CD4 cells are a type of white blood cell that fights infection. A normal CD4 count is from 500 to 1,500 cells.

The side dishes included both cooked and raw vegetables: seven of the groups prepared salads. The other side dishes all included various combinations of vegetables grown in the participants' gardens (Table 4 and Appendix 1).

Table 4: Side dishes prepared in recipe trials by group

Type of side dish	OVC	Adults	Total
Salad with lettuce, tomato, green pepper	1	6	7
Cabbage, carrot, onion, and potato	1	2	3
Potato, carrot, and onion	1	2	3
Cabbage, onion, and carrot	0	3	3
Spinach, green pepper, and onion	1	1	2
Spinach, carrot, and onion	0	2	2
Kale or spinach with onion	1	1	2
Kale, onion, and green pepper	0	1	1
Green pepper, tomato, and onion	0	1	1
Total groups	5	19	24

Motivations and resistances to using garden products and/or income for improved diet

During the recipe trials, both the OVC and the adult participants demonstrated the ability to prepare a wide variety of foods. The reasons given for the choice of foods prepared during the recipe trial included the following:

- Foods are available and easy to cook.
- Foods are the ones usually eaten at home.
- Vegetables are eaten, because they are now available from the garden.
- These foods are good for health.
- Vegetables (kale and spinach) add variety to the diet and are good for the stomach.
- *Shiro* is always cooked at home; it is good for health and easy to prepare.
- Since it is fasting time, vegetables are consumed.

The majority of the participants in all groups reported that the primary use of the vegetables in the garden was for home consumption, as well as for sale/income. Only one group of adults reported a preference for selling what they produced, rather than consuming the vegetables. In addition, several groups had participants who reported that they shared their produce with friends, neighbors, and families in need. Overall, participants appeared to support the notion that selling half and consuming half would be ideal. The size of the garden plot, most often relatively small, affected the participants' ability to sell produce.

The income received from the vegetables was used for a variety of small household purchases, including other foods, school supplies, paying water bills, and soap. Almost all participants reported that the income was relatively limited. Saving some of the income was also encouraged by the UGP.

Hygienic food preparation practices

All groups demonstrated excellent personal hygiene and food handling practices. All participants involved in food preparation washed their hands and the vegetables throughout the cooking

process. They also washed the utensils and most of them prepared foods on an elevated table. No detrimental food handling practices were observed during the food preparation.

Children under two: Feeding and care practices

The opinions of group participants on which foods were appropriate for children under two varied slightly within and across the groups (Figure 2). Among the OVC groups that prepared *shiro*, all but one thought *shiro* was appropriate for children under two. One OVC group felt that milk was the preferred food for young children. Some participants of the group that cooked potatoes and carrots as a main dish felt that it was not appropriate for young children. Another group that cooked potatoes and carrots as a side dish believed that if cooked well, this could be given to children under two. All OVC groups were resistant to the idea of giving children vegetables. Some of the comments included the following:

“Kale can’t be given to children under two.”

“Vegetables are not given to children because it makes them ill.”

“Vegetables give abdominal pain to children.”

Among the groups of adults (predominantly women), the same resistance to giving vegetables was a common belief. These groups also believed that kale and spinach cannot be given because they cause stomach illness. The resistance appears to apply to green vegetables, in particular. The participants of these groups felt that *shiro* was the most appropriate food for young children, but they also recommended mashed potatoes for this age group. Some participants of one group suggested that kale and spinach mashed in soup form would be appropriate; and in another group, some participants said that if washed and cut into small pieces, kale, spinach, potato, and carrot were acceptable.

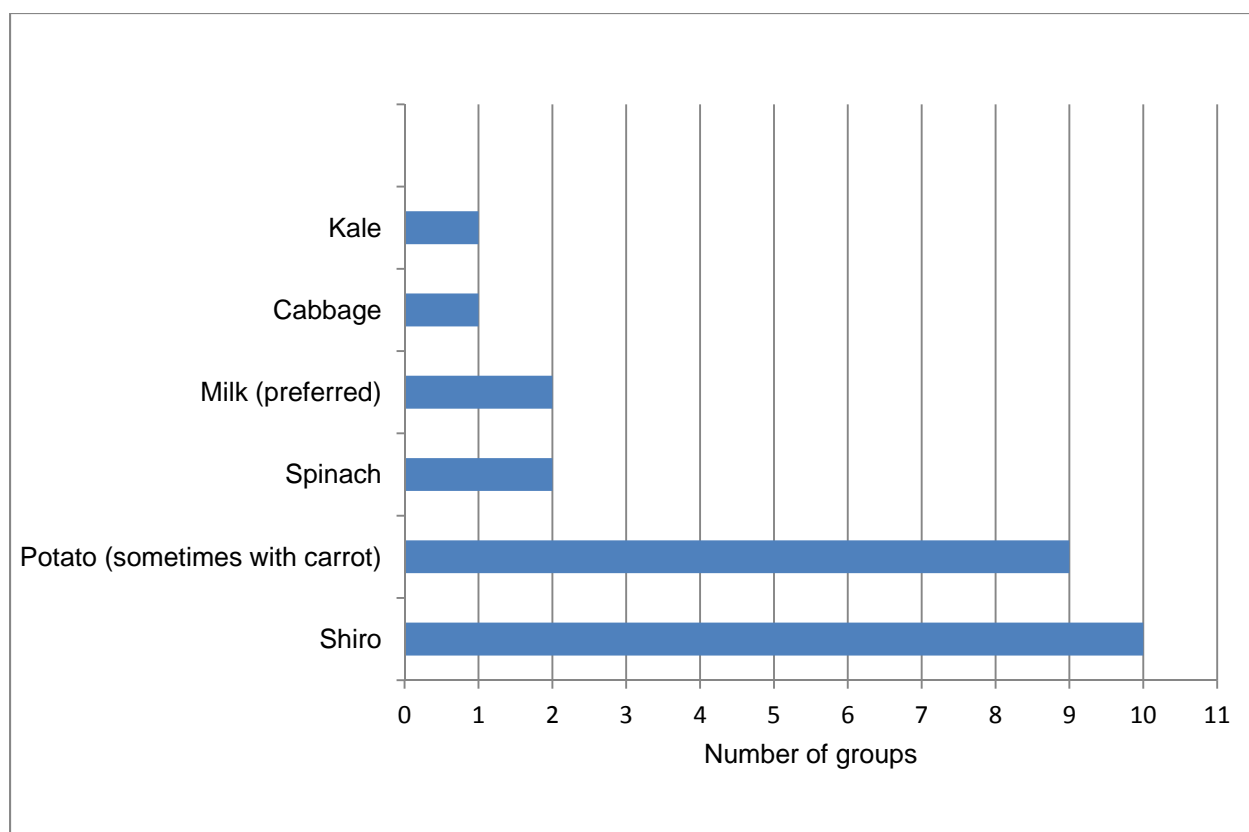


Figure 2: Foods preferred by groups for children under two

Opinions also varied on how and how much children should be fed. Most thought that children should receive a small amount—one small patch of *injera* with *shiro wat*, one small handful of mashed food, half-cup of mashed food, or two to three tablespoons. Hand feeding was acceptable, as was feeding with a plate and spoon.

Conclusions and Recommendations

Conclusions

Consumption of vegetables from garden

Most participants consumed some vegetables from their gardens and seemed to value both the economic and the nutrition benefits. The selection of vegetables to grow in the gardens appears to be primarily influenced by availability (i.e., what the program offers), the length of the growing season, and the value of the produce in the market place. Vegetables with the longest growing season and the highest market value were the most desired. Personal preference for some vegetables over others was also a factor in deciding which vegetables were grown; but this appeared to be based on taste rather than on nutritional value/considerations. The amount of vegetables consumed versus sold on the market also depended on the size of the plot and the overall harvest. The extent to which harvests or the variety of vegetables produced by individual households can be increased is uncertain.

Use of income to improve diet

The income/cash generated by the garden activity is greatly appreciated. The value of that benefit in terms of the increase in the proportion of household income generated via the sale of vegetables and the value of the vegetables consumed is unknown. Most of the participants suggest that the value is quite small—at least when describing the purchases that they have made with the cash generated from the gardens. It would be helpful to know the actual cash value of the garden activity to be able to assess whether it is sufficient to ensure adequate resources for a healthy diet. At this juncture, no effort has been made to encourage/promote the use of extra income generated by the gardens to improve the diet of household members.

Food preparation practices

All groups unanimously demonstrated awareness, understanding, and implementation of excellent personal hygiene and food handling practices during the group recipe trials. It would be useful to know if these practices are constrained in the typical household setting—for instance, the availability of adequate water and soap—and, if not, what might be done to address these constraints. However, it is clear that lack of knowledge and understanding are not barriers.

Improved food choices for family meals

Likewise, during the recipe trials, most groups demonstrated very high capacity for choosing and preparing healthy meal choices when given a variety of vegetables and the typical staple food for this area. Whether these practices are typical when households are purchasing their own foods and/or using foods from their gardens is uncertain. Nevertheless, a lack of knowledge of healthy food combinations and preparation is not a major impediment to improving the household diet. Although, cooking times (longer than ideal) for some vegetables might figure in a loss of nutrients, it is unlikely that this is a major factor in household nutrition status.

Focus on improving diets of children under two

The most remarkable and important conclusion drawn from this qualitative research relates to what was noted regarding dietary/feeding practices for children under the age of two. Children under the age of two are among the highest priority group for attention vis-à-vis diet and nutrition. Nutrition deficits during this period have long-term irrevocable impacts on stature (height) and learning capacity, as well as potential immediate effects on morbidity and mortality. Micronutrients such as vitamin A and iron—both found in certain vegetables—are most important for the immediate and long-term health of children under the age of two. The recipe trials and focus group discussion pointed to a number of significant barriers and resistances to providing children under two with a diverse diet including vegetables with critical micronutrients.

Among almost all participants, green leafy vegetables (readily available through the gardens) were not deemed appropriate to provide to children under two. Other highly desirable vegetables for children such as carrots were not frequently grown in the gardens and infrequently mentioned in the discussions as an appropriate food for young children. Additionally, while this research did not specifically focus on (or measure) the amount of food provided to children under two, the discussions suggested that beliefs about the quantity of food required for children under two may result in inadequate amounts of food given to such children. Finally, the practice of feeding

children by hand, which was deemed appropriate by most of the participants, has potential negative implications—both for monitoring the amount of food provided to the child and for hygiene.

Recommendations

Given the overwhelmingly positive attitude toward the garden activities, the success that participants are experiencing in growing vegetables, and the apparent capacity to prepare healthy meals, this project stands poised to make some significant gains in improving the diet of project beneficiaries—specifically the nutrition status of the most vulnerable household members. To build on these initial achievements the following preliminary recommendations are suggested for integrating nutrition education with the garden activities:

- Promote and encourage the continued use of the vegetables on a daily basis in as many family meals as possible.
- Reinforce the consumption of vegetables with the highest nutritional value—green leafy vegetables, carrots, tomatoes, eggplants and other brightly colored vegetables.
- Encourage the use of income generated by the garden activity (or perhaps by other garden activities—e.g., egg production from chickens) to improve the family diet. In particular, the education should focus on ways to further diversify the family meals—e.g., addition of animal products, fruits, etc. It might be also useful to determine whether the income generated is sufficient to encourage purchase of diversified foods.
- Identify and address any barriers to implementing proper food handling and hygiene practices, as demonstrated during the recipe trials. Knowledge-based materials or education are unnecessary, since all participants seem aware of proper/healthy practices.
- Promote and support a focus within the household on meeting the nutrition needs of the youngest family members (children under two), pregnant and lactating women, and people living with HIV/AIDS on antiretroviral treatment.
- Address the resistance to giving children green leafy vegetables, in particular; as well as other dietary components needed to diversify the diet of young children.
- Identify feasible, doable behavioral changes based on the availability of a more diverse diet via the gardens and extra income for adults with special needs—including those living with HIV/AIDS. Knowledge of the benefits of a diversified diet does not appear to be a limiting factor in achieving improvements.

Appendix 1: Photographs of foods prepared during recipe trials

