

## Horticulture CRSP Project Report

### Promoting Fruit and Vegetable Production to Improve Nutrition in Nkokonjeru, Uganda

*Improving community nutrition in Nkokonjeru, Uganda by promoting fruit and vegetable production through local university research and partnerships, demonstration gardens, Farmer Field Schools, and nursery expansion.*

#### Lead Project Investigators:

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- Edith Naggenda, Farmer Field School Trainer, Uganda
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#### Project Summary and Objectives

This project facilitates the organization and strengthening of small holder farmer groups in the Nkokonjeru region of Uganda by providing technical training in fruit and vegetable management and improving farmers' access to simple and innovative production technologies. The specific project objectives are: i) Increase vegetable and fruit production through farmer field schools and strengthen farmers' access to local and regional markets for vegetables and fruits; ii) Strengthen local farmer group structure and capacity of local partners to support farmer groups; iii) Increase participation of women in agricultural activities (research, education, outreach) in Nkokonjeru township and Mukono; and iv) Enhance institutional capacity in agriculture at Uganda Christian University (UCU) and promote research and education exchange among UC Davis, UCU and other collaborating institutions. Project activities are to: i) expand local nursery to serve as information center and source for fruit and vegetable production; ii) use farmer field schools to train farmers and strengthen farmer groups; iii) provide research experience and outreach training to UCU students; iv) engage in participatory research of disruptive technologies within the farmer group framework; v) build capacity of RASD to support farmers through improved communication and institutional organization.



Part of the Farmer Field School training included nursery production.

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#### Project Report Narrative

--Submitted by Kate Scow, Sean Kearney, Abraham Salomon, and Lauren Pincus

#### 1. Farmer Field Schools (FFS)

Farmer field schools were carried out as a core activity to address the following key problems identified from earlier site visits: 1) lack of access to training and extension, 2) limited land, capital and bargaining

power and high risk, 3) lack of access to technology and information and, 4) low involvement of women in agricultural extension and agricultural income generating activities.

After conducting an initial needs assessment survey and developing a curriculum, the FFS commenced in early May 2010. Tomatoes identified as the focus crop as nearly every group surveyed identified tomatoes as one of their top three crops of interest.

For many group members, this project was the first time they had access to many of the inputs provided, especially improved seed varieties and inorganic fertilizers. Additionally, many participants learned new management techniques such as sowing a nursery and transplanting seedlings, using supplemental irrigation to grow vegetables in the dry season or composting manure. Each farmer group was provided a chart to help identify common pests and diseases in tomatoes and provide control measures.

The techniques introduced in the FFS that were most adopted by individuals include:

- Market research and relationship strengthening with buyers
- Diversification of vegetable production (both indigenous and exotic)
- Budget and planning training
- Management of group savings and group accounts
- Use of fertilizer and/or manure as a soil amendment

Mid-way through the FFS season, four farmer group exchanges were held between the participating groups. The goal of the exchanges was to encourage flow of ideas and information between groups, build relationships among participating farmers, and encourage pride and recognition for the work done in the FFS. The four exchanges had different rates of success in achieving these objectives, but for the majority of participants, these goals were met. During interviews with farmers and focus groups at completion of the FFS, many farmers noted the exchanges as one of the best parts of the program.

At the end of October 2010, the FFS officially concluded with the “farmer field day.” This event was a culmination of the work done by the farmers and proved to be an important part of the FFS experience. The purpose of the event was to bring farmers from all the groups together to realize their

common experiences, share information and innovations discovered within their respective FFS groups, link to resources both within the community (such as input dealers) and from outside of it (such as extension agents), demonstrate the work they have done to the broader community, and build self-esteem/empowerment to continue their work in horticulture. The event included a broad mix of stakeholders beyond participating farmers.

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#### Key Outcomes (FFS):

- Formation of 8 new farmer groups
- Strengthening and formalization of new and existing farmer groups through development of a constitution, creation of group bank accounts and election of group leaders and officials
- Intensive agronomic training in various best management practices, principles of farming as a business, marketing and group development dynamics for over 350 farmers

- Distribution of fact-sheets for tomato pest management translating into the local language
- Strengthened relationships between farmer groups and local and regional agricultural extension agents – FFS facilitators report that farmer groups still frequently call upon them for continued agronomic advising.
- Eight farmer groups have gone on to develop collectively managed commercial plots
- Increased individual production of and income from vegetables
- Modest adoption of best management practices introduced by the FFS

## **2. Parish Nursery and Demonstration Farm**

The main goal of working with the existing Parish nursery and demonstration farm in Nkokonjeru was to expand their nursery production beyond banana and coffee seedlings to include more fruit tree and agroforestry seedling production and sales.

### Key Outcomes (Parish Nursery and Demonstration Farm)

- Access to reliable irrigation through the construction of a 10,000 liter water tank connected to a consistent water source
- Increased exposure and community awareness of the Parish Demonstration Farm through multiple farmer visits, new products and participation in the Farmer Field Day
- Expansion of saleable products and demonstrations to include vegetables, agroforestry seedlings, informational materials for use of agroforestry trees and grafted and improved fruit tree seedlings
- Training by MUZARDI staff for proper tomato seed saving techniques
- Awareness of and potentially long term access to a new wilt resistant tomato variety – MT56
- Planting of a mother garden of improved mango and citrus trees for future seedling grafting

## **3. Rural Agency for Sustainable Development (RASD) Capacity Building**

A small but important component of this IIP was to continue to build the capacity of the Rural Agency for Sustainable Development to support future agricultural and community development projects in and around Nkokonjeru. We contracted with Reach Your Destiny Consulting, a capacity building organization, to conduct workshops for RASD.

### Key Outcomes (RASD Capacity Building)

- Repair and subsequent reopening of an internet café, expanded to include printing and scanning services
- Submission of a business case to MTN to construct a new 3G internet tower for the Nkokonjeru community
- Specific training and development workshops for strategic planning for RASD staff and the creation of a detailed and updated Strategic Plan document
- Strengthened linkages and relationships between RASD and key agricultural stakeholders in the region including MUZARDI, Uganda Christian University, the Mukono and Buikwe district offices, individual farmers and farmer groups.

## **4. Internships for students of Uganda Christian University (UCU)**

Two female students from Uganda Christian University (UCU) in Mukono participated in a variety of hands-on learning activities as part of an internship program funded by the project. Funds covered the students' tuition as well as transportation and other costs related to the internship. Both students shadowed facilitators and attended FFS sessions 2-3 times per week to learn about participatory

agricultural extension and gain knowledge in agronomic production of vegetables. The students also received hands-on training in fruit tree grafting techniques from experts at the Kawanda National Agricultural Research Centre, MUZARDI and the nursery manager at the Parish Demonstration Farm in Nkokonjeru. The students also participated in the set-up of a soil fertility experiment practice plot at the Parish Demonstration Farm. This provided an introduction to experimental design and proper soil sampling techniques. The students conducted individual research assignments (one on fruit tree grafting and one on organic pest management) and carried out research through literature review and personal interviews with experts. Both students completed reports on what they learned through the internship as well on the special topics noted above.

### **5. Integrated Soil Fertility Management (ISFM) research**

UC Davis conducted an on-farm experiment located at the study plots of eight of the fourteen participating farmer groups. This experiment served to demonstrate the value of controlled experimentation to farmers, as well as develop insight into local soil response to different soil fertility treatments. The fieldwork largely adhered close to its design, and the research plots were harvested mid-November.

Results from the experiment were very encouraging. It was found that combining organic and inorganic nutrient inputs may be a more cost-effective strategy for managing soil fertility in vegetables by producing higher value products than either nutrient source on its own. The study also reinforced to farmers that some sort of fertilizer is required to grow vegetables on soils in the area.

### **6. Empowerment of Women through Project Activities**

Women were included at all levels of project implementation, from leadership to beneficiaries. As a result of these efforts, the majority of FFS facilitators were female, both interns from UCU were women and the majority of FFS farmer participants (about 75%) were also women. Two of the 14 farmer groups participating in the FFS were women's groups and were formed during project implementation.

We recognize that women's involvement does not necessarily translate directly into empowerment but we feel that the project did have an impact beyond participation. While evaluation efforts did not attempt to quantify empowerment of women, several anecdotal observations stand out to support that the project did more than just include mostly women: 1) the lead FFS facilitator and several other trainers and project leaders were female, 2) many of the farmer groups' elected officials were women (although chairpersons were often men) and 3) women were often selected as farmer group representatives for many of the farmer group exchange, farmer field day and participatory evaluation activities.

### **7. Project Evaluation and Impact Assessment**

An extensive project evaluation and impact assessment was conducted and is available from Horticulture CRSP. Below is a list of strategies we feel are essential to further success, as well as mistakes to avoid in future projects.

#### Important strategies (specific to FFS implementation)

- **Increased focus on markets and "farming as a business":** Nearly all farmers were interested in growing vegetables for markets. Farmers with a ready market in mind were more motivated to engage in the FFS process and future FFS projects should consider identifying and linking farmers with markets for the study crop from the outset of the FFS.

- **Consider reinforcing FFS concepts with participatory research:** The FFS approach can be a great tool for identifying farmers interested in experimentation and experiential learning. On-farm research can maintain rigor to answer specific questions or field-test technologies while complementing the topics explored by FFS participants.
- **Devote sufficient time and resources to FFS projects:** Achieving significant and lasting impact with the FFS approach in a one-year project may be overly ambitious. The participatory and group nature of this methodology requires patience and resources. It is critical to allow each group to move at its own pace and maintain control over the direction of their efforts. But while the approach may seem resource intensive compared to traditional extension, the ability to tailor lessons to needs, to cover topics of interest in depth, and potential for spillover to non-participants, help justify these costs.
- **Try to maximize opportunities for exchanges between farmer groups:** The group exchanges were extremely motivating for participants at both the group and individual level. This gives farmers a chance to learn from others, in addition to fostering pride in their work and the drive to continue experimenting and innovating beyond the FFS. Conversations with farmer groups from other projects around the region illustrated to individuals that success was possible and that they are not the only ones encountering difficulty.

#### Mistakes to avoid

- **Avoid providing inputs directly:** Most of the tools and inputs distributed to farmers by the project were purchased by project managers and then given to farmers. In retrospect, we realized that this undermined a potentially valuable opportunity to link farmers directly with input markets, increase their knowledge of prices, options and availability of supplies and promoted the “gift aid” mentality that has historically diluted farmer motivations to take risks and innovate.
- **Consider hiring independent translators and/or facilitators to minimize conflict of interest:** While not a major issue in the project, occasionally complications arose during translating activities. It is tempting to constantly rely on in-country partners for translating services, but when an outside partner needs to directly communicate a message to farmers, it can be useful to have an independent translator to avoid the temptation for partners to push alternate agendas (i.e. for other projects or political reasons).

#### **About Horticulture CRSP**

Horticulture CRSP (funded by USAID under Award EPP-A-00-09-00004) provides funding to realize the opportunities of horticultural development, improve food security, improve nutrition and human health, provide opportunities for diversification of income, and advance economic and social conditions of the rural poor, particularly women. Horticulture CRSP is managed by the University of California, Davis and has nearly 30 projects in over 20 countries. For more information, visit: <http://hortcrsp.ucdavis.edu/>.

## Project Performance Indicators

<b>4.5.1 Agriculture Enabling Environment</b>	<b>Project Achievements</b>
Number of individuals who have received USG supported short-term agricultural enabling environment training - Female	260
Number of individuals who have received USG supported short-term agricultural enabling environment training - Male	92
Number of individuals who have received USG supported long-term agricultural enabling environment training - Female	2
Number of individuals who have received USG supported long-term agricultural enabling environment training - Male	2
<b>4.5.2 Agriculture Sector Productivity</b>	<b>Project Achievements</b>
Number of new technologies or management practices under research as a result of USG assistance.	3
Number of new technologies or management practices made available for transfer as a result of USG assistance.	4
Number of new technologies or management practices being field tested as a result of USG assistance.	3
Number of additional hectares under improved technologies or management practices as a result of USG assistance.	4
Number of farmers, processors, and others who have adopted new technologies or management practices as a result of USG assistance - Female	120
Number of farmers, processors, and others who have adopted new technologies or management practices as a result of USG assistance - Male	40
Number of community-based organizations (CBOs) receiving USG assistance.	2
Number of producers organizations who have adopted new technologies or management practices as a result of USG assistance.	14
Number of women's organizations/associations assisted as a result of USG interventions.	2
<b>Capacity Building (Horticulture CRSP Indicators)</b>	<b>Project Achievements</b>
Number of host country institutions, agencies and organizations in direct cooperation or collaboration	5
Number of workshops conducted for host country institution, agency, and organization personnel	1
Number of host country professionals attending workshops, training conferences, or similar - Female	9
Number of host country professionals attending workshops, training conferences, or similar - Male	8
Number of certificate training programs conducted	2
Number of certificates earned by host country professionals - Female	2
Number of U.S. faculty providing training or instruction in host country - Female	1
Number of host country extension workers, university faculty or other host country professionals involved in providing training to other host country professionals - Female	3
Number of host country professionals directly involved in conducting research activities - Female	2
Number of host country professionals directly involved in conducting research activities - Male	3