Final Report

Promoting Growth and Development of Horticulture Farming for Nutrition and Income in Bunyala, Kenya

Academic Model Providing Access to Healthcare (AMPATH)
Seed Programs International (SPI)
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The generous funding from Corteva allowed Seed Programs International (SPI) to partner with Academic Model Providing Access to Healthcare (AMPATH) to run the project “Promoting Growth and Development of Horticulture Farming for Nutrition and Income in Bunyala, Kenya.” This project aimed to create a sustainable horticulture program for 600 farmers to improve their food and nutrition security and increase their income by growing vegetable crops in kitchen and sack gardens near their homes.

Training was first provided to 23 Trainer of Trainees (ToTs). The ToTs then selected and trained 585 farmers in agricultural practices. Extensive training was provided in classrooms and in the field about land preparation, nursery seed bed preparation and management, transplanting seedlings and spacing guidelines, pest and disease management, importance of vegetables in nutrition, organic farming, marketing strategies, and post-harvest handling of vegetables.

Farmers were then provided seeds and continued guidance in growing personal kitchen or sack gardens. Many of the participants indicated that this project changed their lives for the better and improved economic status and experienced positive changes at the individual, household, and community level. Households reported eating more nutritious food and more meals each day. They also reported increased income generated by the sale of produce. This project is planned to continue providing support to the selected farmers and expand the project to additional counties.

Pictured: Farmers growing kale in sack and kitchen gardens.
Project Description

Academic Model Providing Access to Healthcare (AMPATH) in collaboration with Seed Programs International (SPI) introduced a horticulture project to members of the Bunyala Group Integrated Savings and Health Empowerment (GISHE) group. This project is located in the Bunyala Sub County, which is located in the lower region of Busia County, in Kenya. The county covers a total area of 185 square kilometers. It has an approximate population of 85,977 individuals and 19,039 households. Bunyala borders Lake Victoria and is one of the most economically vibrant Sub Counties in Busia County where fishing is the most dominant economic activity. Other complementing economic activities in the Sub County include large scale irrigation farming, small scale agriculture, sand harvesting, and tourism and hospitality.

This project supported 585 farmers distributed evenly across 17 sub locations. The beneficiaries were selected by 23 Trainer of Trainees (ToTs) personnel that are from the community and completed rigorous training in agricultural practices. The selected farmers were mostly women, consisting of 468 women and 117 men. The ToTs were responsible for coordinating farming activities, teaching the farmers agricultural techniques, and visiting the farmers to provide in person support. Two Ministry of Agriculture officers also provided extension services to the farmers and ToTs throughout the project.

The goal of this project was to create a sustainable horticulture program for farmers in Bunyala, Kenya to improve their food security and nutrition and increase their income by providing classroom and field trainings.

Pictured: Farmer harvesting kale from kitchen garden.

Pictured: Farmer assessing onions in kitchen garden.
Several training sessions occurred throughout the project timeframe. First the 23 ToTs were trained, then the ToTs dispersed and trained the 585 farmers participating in the program. Participating farmers included 468 women and 117 men. Additional trainings were provided to the ToTs and farmers simultaneously.

**Training of ToTs**

**Project Rollout**: Training was provided to the 23 ToTs. The training was facilitated by AMPATH, Amiran, Ministry of Agriculture, and Ministry of Health. Trainings were conducted through PowerPoint presentations, graphic illustrations, interactive discussions, practical sessions, and field visits. The following topics were covered: land preparation using organic manure, nursery seed bed preparation and management, transplanting seedlings and spacing guidelines, pests and disease management, importance of vegetables in human nutrition, organic farming, marketing strategies, and post-harvest handling of vegetables.

**Sessions with Seed Savers Network Kenya**: Additional training sessions covered organic farming and encouraged the use of locally available materials to control pests and diseases. Physical and biological methods of pest management were discussed. Practical sessions were also included in the training.

Pictured: ToTs and AMPATH staff during a training session
**Project Training**

**ToTs Training Farmers**

**Practical Training:** ToTs then facilitated training for the 585 farmers participating in the program. Trainings were completed in collaboration with the Ministry of Agriculture officers. Farmers learned how to care for their vegetables from nursery bed preparation through harvest. Training was conducted in classrooms, at demonstration farms, and at the participants’ personal gardens.

**Shared ToTs and Farmers Trainings**

**Post-Harvest Handling of Vegetables:** A Ministry of Agriculture extension officer taught ToTs and Farmers how to reduce vegetable loss after harvest. ToTs and farmers learned about deterioration rates for each vegetable and learned how to reduce wilting to minimize losses and ensure vegetables are consumed and sold fresh.

**Importance of Vegetables on Nutrition:** ToTs and farmers were taught the importance of consuming a balanced diet and including vegetables in your diet. They also learned the nutritive value of vegetables and appropriate food proportions.
Implementation of Gardens

**Demonstration Plots:** Ten demonstration plots were used as training centers for the farmers. Nine of the plots were for ground gardens and one was a sack garden. Demonstration plots were spread throughout Bunyala Sub County. Each plot was equipped with a 1000 liter water tank, watering can, horse pipe, sprinkler, knapsack sprayer, fertilizers, and pesticides.

**Personal Gardens:** Four types of gardens were grown, depending on the amount of land available for the farmer to utilize. 474 Farmers made kitchen gardens with a total area of 58.72 acres. 111 farmers used sack gardens of small, medium, or large sizes to grow vegetables. Seeds were distributed for spinach, onions, tomatoes, watermelon, capsicum, kale, coriander, nightshade, spider plant, amaranth, and cowpea. Onions, spinach, kale, and coriander were suitable vegetables to grow in sack gardens. The Ministry of Agriculture officers guided all project beneficiaries on nursery bed preparation and transplanting of vegetables per the guidelines provided during trainings. The farmers then successfully managed their gardens.

Pictured: Farmer tending to kitchen garden of coriander.  
Pictured: Farmer tending to sack garden of spinach.
The following challenges were experienced during this project:

- Bunyala is a flood prone area. Some farms experienced flooding, which caused delays in planting during the planting season. Flooding also destroyed some of the nursery bed seedlings due to waterlogged soils.

- Most farms lacked fences and foot traffic by humans and animals destroyed some of the vegetables in the kitchen gardens.

- Some delays in the organizational procurement system caused the farmers to delay planting since they did not receive farm inputs on time.

- Pests and diseases infesting some vegetables, especially tomatoes and watermelons. The two vegetable varieties proved to be stubborn to organic pesticides. The project had no allocation for inorganic pesticides.
Lessons Learned

The following lessons were learned over the course of this project:

- Farmers should remain open minded to accommodate new farming techniques and vegetables. The vegetables used to supplement others, such as coriander and capsicum, generated more income.

- Engaging beneficiaries in decision making is very key to project success and helped ensure the right decisions were made.

- Seeds thrive differently in various regions. Experienced farmers should be consulted before purchasing seeds. This helps in reducing losses and maximizing yields.

- Using organic farming materials helps cut production costs and is effective in farming some vegetables like African leafy vegetables. However, inorganic pesticides are more effective in farming tomatoes and watermelon, which were more susceptible to pests and diseases during this project.

- Consistency is key in any project. Farmers should be trained on taking care of the seedlings right from the nursery bed preparation through the harvesting period. This ensures better outcomes of the project.

- Digging trenches around the farm can help mitigate the effects of flood in flood prone areas. This should be done through all stages of planting.

Pictured: Farmer with his sack garden.

Pictured: Farmer with her capsicum harvest.
The goals of the project were to improve food security and nutrition and increase income by creating a sustainable horticulture program among selected farmers and their households in Bunyala.

**Quantitative and Qualitative Findings:**

- Many farmers have indicated that the project has changed their lives for the better. Many of the participants indicated they experience positive changes at the individual, household, and community levels.

- This project benefited 600 farmers directly. On average, each household has five members, therefore this project benefited approximately 3,000 people with additional food and income for their household. The vegetables were sold to neighbors and small scale vendors in the region to benefit approximately 1000 more individuals.

- Most of the participants reported improved economic status. During the first growing season, the farmers used most of the vegetables for household consumption, but sold vegetables worth KES 77,060. In the following growing season, more vegetables were produced and sold for a total of KES 172,940.

- Project participants documented improved nutrition from this project, greater access to nutrition food, and indicated they consumed more meals per day compared to before this project. Nutritional diets around the lake region are largely dependent on fish and can now be supplemented with vegetables for a more balanced diet.

- They also have additional income, which they can use for household basic needs, healthcare, and children school fees. This income can also be used to create savings or pay borrowed loans.

- The farmers have improved their status in the community by becoming producers and suppliers of vegetables to family members and neighbors. This has improved their relationships with family and community members.
**Transportation:** Two Ministry of Agriculture extension officers were hired to help with training the ToTs and selected farmers. Cost includes their travel expenses.

**Training:** Classroom and field trainings were provided to cover everything from nursery bed preparation through harvest. Trainings in post-harvest vegetable handling, marketing, and nutrition were also provided.

**Farm Inputs:** Includes seeds, sacks for sack gardens, water tanks, watering cans, horse pipes, sprinklers, knapsack sprayers, and organic pesticides.

**Summary of Project Expenses:** See the table below for a summary of project expenses throughout the project timeline. If further information is desired, please do not hesitate to ask. We are happy to provide additional details or documentation.
AMPATH and Seed Programs International are thankful to have received the Corteva grant to support 600 farmers living in Bunyala, Kenya. This project has changed the lives of the participating farmers and their families. The project has made tremendous progress since its inception in January 2021. Growing horticultural crops, especially vegetables, served the dual function of contributing significantly to household income and nutrition security. The training provided helped the participating farmers to produce successful kitchen and sack gardens. The beneficiaries were also trained on seed harvesting and storage and most of the farmers have harvested seed for the next season.

This project is being continued another year. AMPATH is working with the farmers to support sustainable farming practices. Extension officers will continue providing technical support to the farmers. Farmers will be encouraged to make vegetable driers to preserve the vegetables. This project will be expand the reach additional counties.