

Implementation of school and home garden intervention in rural Tanzanian farming communities

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Summary

This factsheet presents and summarises the findings and recommendations of home and school garden interventions under the Scale-N project in Tanzania. It was found that involvement of communities and key individuals is crucial for success.

Objective

The home and school garden intervention aims to improve dietary diversity and micronutrient status among rural Tanzanian communities through diversified agriculture. This goal is achieved by implementing teaching modules regarding setting up of bag gardens/kitchen gardens/school gardens and by quality seed distribution.

Key Lessons Learned

Two major lessons were learned:

- Community involvement is essential for the implementation of the innovation and its long-term success. This includes aspects such as site selection and training processes, as well as the planting phase of vegetables.
- Contracting local staff to act as field officers was the optimal approach to facilitate management of the established gardens.

Constraints & Objectives Addressed

The following issues were observed:

- Provision of training on water saving vegetable gardening systems was challenging as the system was completely new.
- Logistics of sourcing high quality vegetable seeds and fruit seedling had to be organized.
- Vegetable diseases and pests had to be addressed.
- Water scarcity is a constant challenge in the region.
- During farming season and school holidays, school and home gardens were neglected.

Description of Innovation

The school and home garden intervention involved four key activities: 1) Site selection; 2) compost manure preparation; 3) establishment of vegetable nurseries; and 4) training on how to set up pocket, flat bed, and brick gardens for schools and households.

Representatives from case study villages, local schools, and selected individual households were involved in the process of site selection, compost manure preparation, and starting of vegetable nurseries. The nurseries, which included Swiss chard, Chinese cabbage and kale, were situated in school garden areas and managed by school and village authorities. The seedlings from these nurseries were used during the training sessions.

These areas selected for school gardens were used as demonstration plots for training on three gardening systems (pocket, flat bed, and brick gardens). Training was provided to school teachers, pupils, and house-

hold members who had already participated in the nutrition baseline survey of the Scale-N project. The suggested group model was used during training sessions for household members and village leaders where grouping by hamlets was done. The training sessions for school teachers and pupils were done separately from those for household members and village leaders. 15 pupils from each class (grades 4-7) were selected by their teachers to become peer trainers for their fellow pupils.

Bags and vegetable seeds for Swiss chard, Chinese cabbage, and kale were provided to households and schools upon completion of the training session. Each participating household received two bags and two kinds of seeds to plant in their pocket gardens. Hybrid mango and papaya seedlings were additionally distributed and planted at the respective schools.



Preparing a brick garden - Chinoje



Pocket garden - Tindiga school

Proven Success in TZ and Beyond

Involving children in school garden activities inspires them to practice gardening at home. Fast adoption was observed in households from Kitunduweta village and their primary school was the best example in managing the gardens. The school implemented a feeding program and used vegetables from their garden for school meals.

Households from other villages were also able to produce vegetables in their backyard, thus enhancing their dietary diversity. Some households in Kitunduweta and Mhenda villages decided to go an extra mile by extending their planting areas and produced more vegetables for sale.

The pro vitamin A rich fruits planted in respective schools are highly promising. The hybrid mango tree takes three years to start bearing fruits; beyond the project duration, hence serving as a legacy of the project.



Technical & Social Specifications

To set up the different garden types, a number of specific materials are needed, which differ depending on size and type.

- For pocket gardens: 6 buckets of good quality soil, 3 buckets of sand, 2 buckets of manure from animals (cow/sheep/goat), and 1.5 buckets of pebbles are necessary for an optimal mixture. Furthermore, 15-20 grams of quality seeds (Swiss chard, Chinese cabbage, and kale) and one polyethylene bag is essential. For stabilization, a rod (150 cm high, 8 cm diameter) is used as central axis.
- For flat-bed gardens: Good loamy soil and 2 buckets of manure from animals (cow/sheep/goat) needed, beside 15-20 grams of high quality seeds or seedlings (Swiss chard, Chinese cabbage, and kale). Small rods/sticks are used to stabilize individual plants.
- For setting up brick gardens: Bricks or stones are needed for stabilization and good loamy soil as well as 4 buckets of manure from animals (cow/sheep/goat) for the seed bed. For the plants, 15-20 grams of quality seeds or seedlings (Swiss chard, Chinese cabbage, and kale) are needed. Dried grass will help to keep moisture in the soil.



Fenced garden - Kitunduweta



Pupils and their teacher planting a brick garden - Chinoje

Considerations & Criteria for Outscaling

Four major criteria are essential for outscaling:

1. The availability of a permanent water source within walking distance to the gardens is a must for a successful gardening intervention – respective water access should, if possible, be free of charge.
2. Training on pest and plant diseases control should be integrated in interventions involving fruit and vegetable gardening, even under optimal conditions.
3. Placement of community gardens with a centralized water source to allow efficient vegetable production should be considered.
4. Embedding school gardens into extra curricula activities in schools should be considered.



A student planting mango seedling - Mzula



Planting papaya seedling - Mzula

Comment from the Field

We eat what we produce!

“Nowadays the vegetable vendors complain of reduced sales since most people consume vegetables from their backyards”.



Bushiri Myinga, Mhenda village in Kilosa District, Tanzania

Lessons Learned

The major lessons learned from the design and implementation process are as follows:

1. The home gardening intervention is successful because involved households can access vegetables from their own backyards. The project participants started planting vegetables at home immediately after the training sessions.
2. Brick gardens could theoretically be more sustainable than pocket gardens since the latter cannot last more than 6 months and wears out if not properly managed. Flat-bed gardens are more suitable in the presence of reliable water source(s).
3. Accurate timing of the season to plant fruit seedlings is important to realize timely outcomes. This could help in reporting the initial results of the intervention before the project comes to an end.
4. Availability of reliable water source(s) and sustainable means of addressing the problem of vegetable pests and diseases are of utmost importance for a successful school and home garden intervention.
5. The exotic vegetables (Chinese cabbage, Swiss chard, and Kale) planted in school and home gardens did not perform well during rainy season unlike the traditional leafy vegetable species commonly grown in study households, such as sweet potato leaves, cow pea leaves, pumpkin leaves, wild amaranth and spider flower.



Scientific References

- Food and Agriculture Organization of the United Nations (2014): Manual "A Vegetable Garden for All" 5th Edition. <http://www.fao.org/3/a-i3556e.pdf> (last access: 20.11.2018)
- World Vegetable Center (2017): Vegetables Go to School BURKINA FASO: School Vegetable Gardens - Linking Nutrition, Health and Communities. World Vegetable Center. Publication no. 17-819. pp. 5. <https://worldveg.tind.io/record/66192/files/29-VGtS-WorldVeg-15-VGtS-I-Implementation-Burkina-Faso.pdfm> (last access: 20.11.2018)
- Tannaz, J. Birdi & Shimoni, U. Shah (2016): Implementing Perennial Kitchen Garden Model to Improve Diet Diversity in Melghat, India. Global Journal of Health Science; Vol. 8, No. 4; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4873571/pdf/GJHS-8-10.pdf> (last access: 20.11.2018)

Further Reading & Websites

- The United Nations World Food Programme (2014): School Vegetable Gardens for Healthier Children in Tanzania. <https://www.wfp.org/stories/school-vegetable-gardens-healthier-children-tanzania-0>



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