

PROCEEDINGS OF A TRAINING WORKSHOP



Training workshop for Home Garden Leaders held in Siaya County, Kenya

Date: 6th-8th September 2021

This report provides a summary of the initial training of Garden Leaders in the Home Garden intervention of the Agro-biodiversification and Nutrition Intervention in Rural Sub-Saharan Africa Program. The project, funded by the DFG from 2019 to 2022 is a collaborative program between Heidelberg Institute of Global Health (HIGH-Germany), Kenya Medical Research Center (KEMRI, Kenya) and the Centre for African Bio-entrepreneurship (CABE, Kenya).

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List of acronyms

CABE	Centre for African Bio-Entrepreneurship
DFG	German Research Foundation
GL	Garden Leaders
HDSS	Health and Demographic Surveillance Systems
HG	Home Garden
HIGH	Heidelberg Institute of Global Health
KEMRI	Kenya Medical Research Institute
NM-AIST	Nelson Mandela Africa Institute of Science & Technology
ATC	Siaya Agricultural Training Centre

Introduction

The Home Garden Intervention of the *Agro-biodiversification and nutrition intervention in rural sub-Saharan Africa program* conducted an initial training of garden leaders on home gardening. The training, which was conducted in White House Hotel, Siaya County, Kenya from 6th - 8th September 2021 brought together 15 Garden Leaders (GL) comprised of 10 female and 5 male participants. The trainees were selected from Wagai, Ting' Wang'i, Karemo, Lwak and Akala project sites which are spread across 4 HDSS sites. Most of the selected GLs are experienced in home gardening, 2 are experts in compost-making while 1 is a reputable seed multiplier.

The *Agro-biodiversification and nutrition intervention in rural sub-Saharan Africa* is a collaborative program which is implemented in Siaya County in Kenya, and Nouna in Burkina Faso by Heidelberg Institute of Global Health (HIGH-Germany), Kenya Medical Research Center (KEMRI, Kenya) and the Centre for African Bio-Entrepreneurship (CABE, Kenya). The project which is funded by the German Research Foundation (DFG) runs from 2019 to 2022.

The *Home Garden Intervention* is important since it will bridge the nutrition gap arising from cultural beliefs which prevent some households from eating vegetables, preferring ugali (posho) and fish, which is easily available. The intervention will complement the existing number of programs which target nutrition and healthy-eating, and considering the declining availability of fish, most households are increasingly including vegetables in their diet. To the benefit of the households, the project team learnt that in the past, some vegetables such as spring onions, amaranth, cowpea, and spider plant (*Saget*) grew naturally in the household's home gardens without much care by the households.

Training facilitators

The training was facilitated by officials from two collaborating institutions HIGH-Germany, and CABE in partnership with the Siaya County Government, Siaya Agricultural Training Centre (ATC) and Nelson Mandela Africa Institute of Science and Technology (NM-AIST).

Contribution of training facilitators

1. Mr. Jackson Achuti - Assistant Agricultural Officer, Siaya County Government

Jackson was instrumental in the preparation of the training by organizing sites for practicals, mobilizing materials, and facilitating training on nursery establishment and composting.

2. Mrs. Herine Okoth - Deputy Principal, Siaya Agricultural Training Centre (ATC).

Herine provided a site at the ATC for practical training. She also gave the trainees an overview of cover crops, introduced vermi-composting and facilitated a session on harvesting, value addition and storage. Herine has promised to share with the garden leaders the seeds of different varieties of cover crops and vermi-juice to be used in the model home gardens.

3. Mr. Erick Agure - Project Assistant, HIGH

Erick co-organized the training with the CAFE team, facilitated a session on introduction to home gardening and seed multiplication, and led the participants in a practical training on HG construction.

4. Dr. Angela Mkindi - Researcher, Nelson Mandela Africa Institute of Science & Technology (NM-AIST)

Dr. Angela facilitated a session on botanical pest control in home gardens, sharing experiences, success, and lessons from a 5-year research program on botanical pesticides in Tanzania. She then facilitated a session on preparation and application of botanical pesticides.



Figure 1. Mr. Jackson Achuti addresses participants

Training approaches

Being an adult-learning program, the training design comprised of 80 percent practicals and 20 percent theory. The training encouraged active participation using group work, presentations, sharing of experiences and recap sessions which were facilitated by the participants.

PowerPoint presentations - These were used to show highlights of each topic. The presentations were used in combination with brain-storming sessions and plenary discussions drawing from the farmers' experiences.

YouTube videos - The videos showcased experiences, adoption, tips, and innovations by farmers from NM-AIST's research program on botanical pesticides in Tanzania. This enriched the training and gave the trainees an opportunity to hear from fellow farmers. These videos will be reference for the pesticide producers as they establish *T. Vogelii* nurseries.

Group work - Participants were split into 3 groups, each discussing a topic which were then presented to the rest of the team.

Practical training - Each topic was accompanied by practical sessions which were participatory, each guided by the facilitators. This gave the trainees an opportunity to practice what they learnt in the theory class and experience what would be expected of them as they establish and manage their home gardens.



Figure 2. Participants pay attention to a practical session on preparation of botanical pesticides.

Recap sessions - There were 2 a plenary session which were held on the second and third days of the training. These recapped the sessions under the leadership of a group representative.

Topics

Overview of Home Gardening Project

Facilitated by Dr. Hannington Odame

This session began by localizing the various terms which would be used repeatedly during the training program. This was done with the help of participants who translated the terms into Luo, the participants' local language as follows:

- Home garden, meaning *Sirundu*
- Seed multiplier, meaning *Jalos Kodhi*
- Pesticide producer, meaning *Jalos Yath*
- Alimus (Latin word for “We are feeding”), meaning *Wachiemo* in Luo.

Dr. Odame gave a brief overview of the *Agro-biodiversification and nutrition intervention* program. He noted that the HG intervention is a component of the program which aims to promote the production and consumption of highly nutritious foods among children under 5 years of age to enhance their health. Informing participants of the project's scope, Dr. Odame noted that the Home Gardening project targets 300 households which would be randomly selected by research teams from KEMRI and HIGH from the 5 project sites of Akala, Lwak, Wagai, Karemo and Ting' Wang'. Odame thanked the 15 farmers who had accepted to collaborate with the project then led a brainstorming session in which it was agreed that the garden leader should:

- i. Be a model farmer who leads by example.
- ii. Possess technical knowledge of the establishment and management of HGs, seed multiplication and botanical pest control.
- iii. Be able to host at least 20 farmers on his/her farm for training and learning sessions at the model gardens.
- iv. Be willing to avail at least 20 x 20m² for the establishment of model HGs.
- v. Have at least one child under the age of 5 in the household.
- vi. Be available during the entire project period.

Dr. Odame then introduced the project partners and briefly outlined the role of each partner as:

Heidelberg Institute of Global Health (HIGH) - In charge of Project coordination, research, and training.

Kenya Medical Research Institute (KEMRI) – Lead the Health and Demographic Surveillance Systems (HDSS) research in Kenya.

Centre for African Bio-Entrepreneurship - Lead the implementation of the HG intervention.

Odame also recognized the support that the HG intervention receives from:

Ministry of Agriculture, Livestock, Fisheries, and Irrigation (MoALF), Siaya County Government which trains GLs, avails sites for practical training and provides technical support during the implementation of the intervention.

Nelson Mandela Africa Institute of Science & Technology (NM-AIST) - Supports the training of GLs on botanical pest control and mobilizing seeds of *Tephrosia Vogelii* for multiplication and distribution to the 300 farmers.

Odame concluded by reaffirming the commitment of CAFE in leading the implementation of the HG intervention in Siaya County and called upon all the partners to embrace teamwork to ensure success.

Opening remarks

Facilitated by Dr. Ina Danquah, HIGH

Joining the workshop via a zoom, Dr. Ina met and welcomed the participants. She thanked the participants for accepting to be part of the HG intervention which complements the rest of the program. She also thanked the facilitators for their support and all the partner institutions which work to make the intervention a success. Dr. Ina concluded by wishing the participants a successful training, adding that she looks forward to a successful HG intervention.

Introduction to Home Gardens

Facilitated by Mr. Erick Agure, HIGH

Erick explained to the participants the concept of HG, its characteristics, types of HGs and their importance to household nutrition. He shared tips which would guide the farmers in selecting a HG site and provided a formula for choosing the right size of a HG.



Figure 3. Mr. Erick Agure guiding participants on HG construction.

Erick outlined the planned one-year HG intervention pathway as:

- Establishment of model gardens under the guidance of garden leaders.
- Training of farmers from the model gardens.
- Providing material support to the participating households.
- Establishment of individual farmer home gardens.
- Establishment of community seed system.

In conclusion, Erick informed the participants that the HG intervention would be complemented by nutritional counseling to households which participate in the program. He called upon GLs to collaborate with the project team in ensuring a successful intervention.

Nursery establishment

Facilitated by Mr. Jackson Achuti

Jackson led a participatory group exercise which covered the topics below:

Group 1: A nursery and factors to consider in nursery site selection.

Group 2. Types of nurseries

Group 3: How to establish a nursery.

Each group engaged in a theoretical and practical session which involved a 15-minutes' discussion, and a 5-minutes' presentation of their work. After the group presentations, Jackson went over each topic covered by the groups and emphasized on specific issues of concern.

He then introduced a new nursery technique called *Tray nurseries* which is an easier way of establishing a commercial nursery since it is easy to establish and manage. Jackson explained to the trainees how to adapt the *tray nurseries* to the local conditions.



Figure 4: An underway practical on tray nursery establishment

Composting

Facilitated by Mr. Jackson Achuti

Jackson conducted group discussions, presentations and gave remarks on the topic, *composting*, each group discussing the following components:

Group 1: Meaning of composting and its advantages.

Group 2. Requirements for making a compost.

Group 3: Procedures for making a compost.

Jackson then introduced the concept of vermi-composting using redworms (red wigglers), he highlighted the procedures for making vermi-compost and concluded by giving a comparison between vermi-composting and conventional composting.



Figure 2: An underway practical on vermi-composting

Jackson informed the participants that in another collaborating program, the department of agriculture was providing training and a starter pack of red wigglers for vermi-composting – which was an emerging agribusiness opportunity in the country. On the second day, Jackson also facilitated a practical session on compost heap preparation. The session ended with a visit to a Vermi-composting station at the ATC which. This practical session enhanced the principle of *‘seeing is believing’* in adult knowledge exchange and learning.



Figure 5: An underway practical on composting

Seed multiplication

Facilitated by Mr. Erick Agure

Erick introduced the concept of seed multiplication and its importance in the sustainability of the HG intervention. He then highlighted the formal stages of seed multiplication and explained that seed multiplication would enhance sustainability of the HG intervention.

Erick then led a plenary discussion on the sources of seed and seed varieties after which he shared a presentation on methods of seed multiplication. He informed the participants that this topic would be best done practically during and that he looked forward to working with the seed multipliers to make it a reality.



Botanicals for sustainable pest management

Facilitated by Dr. Angela Mkindi

This being the relatively new concept in the training, Dr. Angela started by sharing her experience in working with pest control companies after graduation and her passion for botanicals which led her to study and research on botanical pest control for over 5 years.

She then led the participants in sharing their experiences on botanical pesticides and knowledge of pesticidal plants. Thereafter, Dr. Mkindi explained the nature of botanicals and their importance to the economy, health, the environment, profitability, ecosystems, and access to premium markets for organically grown products.

She then shared her experiences, successes, and lessons from a 5-year research program on botanical pest management in Tanzania using 2 program videos which can be accessed through these links [Use of botanical pesticides to control insect pests - YouTube](#) and [FRN botanical farmers from Tanzania talking about their experiences of engaging with researchers - YouTube](#).

Dr. Mkindi then invited the participants to share their take-aways from the videos. The trainees learnt that:

- Using a lot of pesticides during spraying affects the spray service providers.
- Botanicals have high efficacy in pests' control.
- Arable crops are affected by pests.
- There is need to identify alternatives for pest control.
- It is important to increase plant diversity on the farms to create an environment for



beneficial insects to thrive.

- In most cases, the insect pests are fewer than the beneficial insects in the environment.
- The farmers were motivated to discover innovative ways of pest management.

Dr. Mkindi highlighted to the trainees the process of producing pesticidal plants and how to domesticate them. She then led a practical session on the preparation of botanical pesticides.



She also guided on shared on rules for spraying pesticidal plant extracts on field crops, safety, toxicity, challenges, and opportunities. She informed the team that the program was exploring potential for commercialization of both seeds and powder.

Dr. Mkindi encouraged the HG project team to continue providing opportunities for cross-learning since it increases the farmers' confidence and willingness to share knowledge with fellow farmers. She concluded by expressing her willingness to explore a learning and knowledge exchange platform between Kenya and Tanzania.

Overview of harvesting, value addition and storage

Facilitated by Mrs. Herine Okoth

Herine facilitated a topic on harvesting through an interactive question and answer session. The participants learnt the considerations to factor in before harvesting, timings for harvesting different vegetables for optimal nutrient availability and the length of harvesting periods. She then informed on the tools which are required for harvesting, how to harvest and post-harvest management of vegetables.

Herine then led the participants to reflect on the traditional methods of value addition which were fading away from the community. Herine then highlighted the new methods of value addition and storage which enhances preservation, nutrient retention, and palatability. She expressed her willingness to collaborate with the program for practical sessions with the 300 farmers.

Selection of crops

Facilitated by Mr. Erick Agure

In this session, participants from different study sites discussed in groups different crops as shown in table below.

Table 1: Crops selected per project site

HG Site	Spider plant (Akeyo/dek)	Black night shade (Osuga)	Amaranthus (Ododo)	Crotalaria (Mitoo)	Spring onion	Bulb onion	Kales	Cowpeas (boo)	Spinach	Coriander (Dhania)
Akala	✓	✓	✓	✓	✓		✓			
Karemo	✓	✓	✓	✓	✓		✓			
Lwak	✓	✓		✓				✓		
Ting' Wang'i				✓			✓	✓	✓	✓
Wagai	✓	✓		✓		✓	✓	✓		
Count (out of 5)	4	4	2	5	2	1	4	3	1	1

Next steps

Facilitated by Ms. Elsie Kangai

Role of garden leaders - Elsie reiterated the role of garden leaders, seed multipliers and botanical pesticide producers. She emphasized that each of the 15 GLs would establish model HGs which would serve as a learning centre for targeted households.

Composting - She informed the participants that this activity would start immediately, applying rapid composting technique to provide ready compost within one month. Erick and Jackson would offer technical advice as needed.

Selection of target households -Elsie informed that KEMRI is conducting the HDSS and would provide the list of households by early October, update the GL team and formally introduce the group members. Groups will be formed initially for purposes of training on the HG intervention but were free to pursue other endeavors like micro-savings if they wished. CABA would explore how best to support them if they chose to explore these endeavors.

Technical advisory services - Elsie noted that the project team appreciated the vastness of the county and the long distances between households and even within one project site. She informed that the project team would meet one week after the training to strategize on how best to offer technical advice using limited resources.

Distribution of starter-kits - Elsie appreciated the program for providing starter kits as below to the households that are participating in the program:

Category	Tool		Target beneficiary
A	Garden rakes	Category A	285 households
	Shovels		
	Watering can		
	Seed		
B	Gumboots	Category A+ B	15 GLs (Model GLs, seed multipliers and botanical pesticide producers)
	Gloves		
	Coveralls		
	Caps		
	T-Shirts		
C	Wheelbarrows	Category A+B+C	5 Model GLs

Elsie informed the participants that starter-kits would be distributed to the GLs within 2 weeks and to the targeted 285 households after receiving the list from KEMRI/HIGH and pairing them households with respective garden leaders.

Defining size of Home Gardens - After consultations with the project team, it was agreed that each GL should prepare a plot measuring 20 x 20m² for construction of the HGs. The type of HGs shall be informed by the selected crops and the local climatic conditions.

Networking platform - Since the participants had already formed a WhatsApp communication platform, Elsie requested the administrator, Nicholas to add the project team to the group. She also urged the members to maintain sanity in the group, using it solely to share news, insights and technologies on home gardening.

Closing remarks

1. Beatrice and Nicholas:

- Appreciated the training workshop noting that it complements the work of Community Health Volunteers.
- Appreciated the free interactions, good communication, knowledge sharing and a conducive learning environment which the trainers had accorded the farmers.
- Encouraged GLs to practice what they had learnt during the training.
- Appreciated the mobilizers for selecting the team.
- Appreciating Dr. Angela for sharing her expertise with the GLs.
- Concluded by emphasizing the sole use of the that the HG WhatsApp platform exchange knowledge and learn about Home Gardening.

2. In his closing remarks, **Dr. Hannington Odame** noted that:

- The project considers the GLs as very special people who should be the change agents in their communities.
- The partners have dreams for the GLs and believe that together, they would achieve more.
- Appreciated the support from Macknight project which catered for Angela's air ticket, the expertise of Dr. Angela and the insights from her project team during the training preparation.
- The training had been a success because of the cooperation of various partners.
- The farmers should give the project partners a reason to continue innovating, learning, and growing.
- It is important to document the project's activities.

- The participants should embrace praise, '*Tujisifu*' on the new interventions which they promised to take up including HGs, composting, vermicomposting, botanical pesticide preparation, nursery management and seed multiplication.

Dr. Odame concluded by thanking the team for taking up various tasks towards organizing the GL's training.