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Kenya Agricultural & Livestock Research Organization

MESPT
MICRO ENTERPRISES SUPPORT PROGRAMME TRUST

MINISTRY OF FOREIGN AFFAIRS OF DENMARK
Danida

Moringa Value Chain Training Guide

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Disclaimer

This training guide is for advisory use only. Users of this manual should verify details that relate to their agro-climatic zones from their area agricultural extension officers. It is also advised that this training manual should be used in conjunction with the respective value chain handbook and other relevant resource materials.

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FOREWORD

The Micro Enterprises Support Programme Trust (MESPT) is a local development organization founded in 2002 through a partnership between the Government of Kenya (GoK), the European Union (EU), and later, the Royal Danish Government. MESPT's main goal is to eradicate poverty by supporting the growth of micro-enterprises, including agricultural production, agribusiness, and afro-processing. This support aims to foster social, economic, and environmentally sustainable growth by increasing access to financial and business development services, creating jobs, and promoting sustainable micro-enterprises. Our vision is to build a more prosperous society, and our mission is to provide sustainable business development and financial services to smallholder farmers and agri-MSMEs in Kenya.

For over two decades, our team of professionals has been at the forefront of developing cost-effective and scalable solutions that promote financial inclusion and support the growth of sustainable agribusinesses. We accomplish this by providing tailored financial solutions that meet the specific needs of various agricultural value chains, delivered through a wholesale lending model to financial service providers such as SACCOs, MFIs, and Farmer Cooperatives. These providers, in turn, extend loans to smallholder farmers and micro agricultural enterprises.

Our approach emphasizes delivering integrated financial and business development services to smallholder farmers and MSMEs in Kenya, helping them access finance, boost agricultural productivity, improve afro-processing and connect to markets. Over the years, we have worked closely with county governments, development agencies, donors, and investors to strengthen business development capacities in the agricultural sector, using a unique tripartite model that connects farmers, SMEs, and financial institutions.

Moringa is among key value chains that have been supported by MESPT over the years through various interventions in order to enhance commercialization. MESPT appreciates the importance of documenting best practices for the value chain in facilitating effective delivery of training for farmers and Agri-preneurs. Therefore, MESPT has facilitated the development of this manual alongside the value chain trainers' guide and other resource materials through Green Employment in Agriculture Programme (GEAP) with support from DANIDA.

This guide is expected to enhance effectiveness in delivery of trainings on Good Agricultural Practices and commercialization of the value chain. I am optimistic that this manual will be helpful to partners in the value chain including county governments. I am grateful to DANIDA for the continued support to MESPT programmes. I am also thankful to the value chain experts who spearheaded compilation of this guide.

Rebecca Amukhoye,

Chief Executive Officer, Micro-Enterprises Support Programme Trust

PREFACE

The Green Employment in Agriculture Programme is a 5 years' programme (2021 to 2025) funded by DANIDA and implemented by Micro-Enterprises Support Programme Trust (MESPT). GEAP seeks to contribute directly to Kenya's vision 2030 and to one of Denmark-Kenya Strategic Framework on accelerated decent employment creation in MSMEs and improved competitiveness of targeted value chains in agriculture which will contribute to transforming the economy towards a greener and more inclusive growth.

GEAP programme targets 40,000 smallholder farmers and will be implemented in 12 counties namely, Kilifi, Kwale, Nakuru, Nyandarua, Siaya, Kisii, Kakamega, Bungoma, Trans Nzoia, Uasin Gishu, Makueni and Machakos. The programme facilitates increased commercialization, decent employment, and green transformation through targeted interventions in seven selected agriculture value chains that include, Dairy, Export Vegetables, Moringa, Indigenous Poultry, Moringa, and Aquaculture.

MESPT through GEAP tasked multidisciplinary teams to develop resource materials tailored for extension service providers and farmers. A moringa guide is one of the series of the materials that were developed. MESPT further tasked a moringa value chain experts to develop a Training guide for the moringa value chain. The guide is to be used as an instructional material on implementation of good agricultural practices, value addition and marketing for the moringa value chain. Relevance of the content is based on needs identified among value chain players, actors and aligned to GEAP project objectives. The training content is drawn from the moringa manual and other relevant resource materials.

This Training guide consists of two sections. Section I comprises information about the moringa value chain, guidelines and notes for facilitators while section II comprises of the training modules. The modules have a uniform outline that ensures every aspect of the manual is fully covered using approaches that the trainees can easily understand. The modules are progressively arranged to achieve a logical flow of the sessions. Recommended training durations are also provided.

A variety of delivery methods are outlined and where possible, demonstrations and practical work is incorporated. To maintain quality of training across various groups and settings, trainers' guidelines, program, training methods and training evaluation have been provided in the guide. It is advised that the training guide should be used in conjunction with the respective value chain manual and other relevant reference materials. It is also recommended that participant hand outs and facts sheets are provided to trainers.

MESPT is grateful to the value chain experts who spearheaded the development and production of this training guide. It is my hope that counties and other users will adopt and optimally use this resource for the Moringa value chain development so as to increase productivity and profitability while ensuring a greener and more inclusive growth.

Doreen Kinoti

Programme Manager, Green Employment in Agriculture Programme

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LIST OF ABBREVIATIONS

AEZ	Agro-ecological zone
AFA	Agricultural Food Authority
APVC	Agriculture Product Value Chain
ASAL	Arid and Semi-Arid Land
CA	Conservation Agriculture
CIG	Common Interest Group
CSA	Climate Smart Agriculture
CTT	Core Team of Trainers
DANIDA	Danish International Development Agency
GAP	Good Agricultural Practices
GEAP	Green Employment in Agriculture Programme
Ha	Hectare
IDM	Integrated Disease Management
INRM	Integrated Natural Resource Management
IPM	Integrated Pest Management
ISFM	Integrated Soil Fertility Management
IWM	Integrated Weed Management
KALRO	Kenya Agricultural and Livestock Research Organization
Kg	Kilogram
LF	Lead Farmer
MESPT	Micro-Enterprises Support Programme Trust
SPs	Service providers
VMG	Vulnerable and Marginalized Group

SECTION I

This section consists of six sub-sections which include an overview of the Moringa value chain in Kenya, Green growth opportunities in the moringa sub-sector, Objectives of the training, Content of the Training and Facilitators Guidelines.

1.0 Overview Of The Moringa Value Chain In Kenya

Moringa (*Moringa oleifera*), is a drought tolerant perennial tree which originated from India. Other common names include 'drumstick tree' and 'miracle tree'. Moringa is cultivated for multiple purposes - as medicinal plant, its antimicrobial activities, being a source of nutrition for human food and animal feed and other environmental, industrial uses – making it a very important crop. In Kenya, the major producing areas are Coastal and lower Eastern regions. Yields of Moringa vary considerably depending on the season, species/variety, soil moisture, fertility and management practices. Range of spacing depending on whether production is meant for leaf or seed. On average, pure stand moringa grown on a spacing of 1m by 1m produce yields ranging between 10 and 50 tons of fresh leaves per hectare annually. This translates to 1.3 – 6.5 tons of dry matter.

Moringa is easy to grow under low to moderate input systems in arid and semi-arid areas where majority of Kenya's resource poor farmers are found. Moringa has enormous potential to improve nutrition and incomes, provide employment opportunities for women, youth, vulnerable persons. Main marketable produce of moringa are leaves and seeds. There is high and increasing demand for moringa processed products. However, business opportunities within the moringa value chain largely remain untapped.

1.2 Green Growth Opportunities in the Moringa Value Chain

Moringa is an exceptionally suitable crop for upscaling green technologies and building resilience to climate change among the smallholder growers. It is a crop which is resilient to dry conditions. Moringa does not require intensive inputs and therefore chemical load can be drastically reduced or avoided completely. Moringa-based mixed cropping systems can also improve overall income per unit area of land while promoting environmental conservation.

Green technologies such as such as solar drying in moringa value addition can be implemented with ease even in rural areas. Moringa seed multiplication and marketing also offers business and employment opportunities for youth, women and the Vulnerable and Marginalized groups (VMGs).

1.3 Overall objectives of the training

The objective of this training is to equip farmer trainers with knowledge and skills necessary to increase productivity through adoption of Good Agricultural Practices (GAP) and principles. Specifically, the objectives of this training are to:

1. Provide farmers trainers with relevant attitude, knowledge and skills in Moringa farming as a business and market assessment techniques for market led production

2. Enhance farmer trainers' knowledge and skills in Moringa GAP, including on-farm

Moringa variety selection, establishment and management of fields

3. Equip farmers trainers' with knowledge and skills in post-harvest and value addition of Moringa

1.4 Organization of the training content

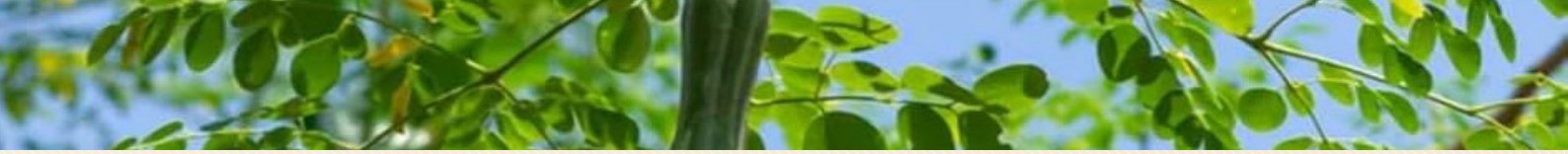
The training content is organized into eight modules**,** which are targeted and orientated to ensure the adoption and upscaling of best practices in the Moringa value chain for improved productivity and competitiveness in a market driven production system. The purpose of these modules is to enhance the knowledge and capacities of trainers in understanding and disseminating best practices in the moringa value chain to the intended beneficiaries, who are primarily farmers.

A summary of the modules is presented in **Table 1**.

Table 1: Summary of the eight training modules

No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
1. 1	Introduction	• Understanding the moringa plant • Suitable areas for moringa production in Kenya • Agro-climatic requirements for moringa production • Economic importance of moringa	• Better understanding of the moringa plant • Proper site selection for moringa production • Economic importance of moringa appreciated	2 hours 30 minutes
2. 3	Planting Materials and Propagation	• Moringa varieties and variety selection • Moringa propagation • Moringa nursery management	• Awareness on improved Moringa varieties • Knowledge on production of quality moringa planting materials enhanced • Knowledge on moringa nursery management enhanced	3.30 hours

No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
3. 5	Crop Management	• Land preparation • Planting • Care of young plants • Care of old plants • Good agronomic practices	• Improved understanding of suitable land preparation practices • Planting and spacing recommendations appreciated • Innovative climate smart agronomics practices for increased Moringa production appreciated	3 hours
4. 6	Pests and Disease Management	• Moringa pests and how to control them • Weed management in moringa • Moringa diseases and how to control them	• Enhanced capacity to identify and control important moringa pests • Enhanced knowledge on weed management in moringa • Enhanced capacity to identify and control important moringa disease	6 hours
5. 7	Green Technologies and Mechanization	• Integrated soil and water management practices for Moringa production • Organic moringa farming • Mechanization of moringa production	• Soil, water and fertility management techniques availed • Option of organic moringa farming appreciated • Mechanized moringa production techniques appreciated	6 hours 30 minutes



No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
6. 8	Post harvest and value addition	• Maturity determination for various products • Moringa harvesting techniques • Post – harvest handling of moringa • Value – added moringa products	• Proper maturity determination to reduce losses in quantity and quality of moringa appreciated • Knowledge on proper harvesting techniques and storage facilities, hygiene and monitoring enhanced • Knowledge on production of various value – added moringa products enhanced	2 hours 30 minutes
7. 13	Moringa business opportunities in the value chain	• Business opportunities in the Moringa value chain • Investment Profiling for the Moringa Value • Gross Margin Analysis	•Business opportunities in the moringa value chain explored •Investment options in moringa value chain profiled •Knowledge on gross margin analysis enhanced	3 hours 20 minutes
	Gender and Social Inclusion			
	Evaluation of the training	• Participants assessment of each training module	•Effectiveness of training established •Areas for improvement identified	30 minutes
Total Duration				**xxxxxx**

*Training duration is inclusive of relevant practical and demonstration sessions. This training duration does not include break hours of mid-morning, lunch and afternoon breaks.

1.5 Partners and their roles

The partners envisioned in this training include:

a) **Core Trainers** - The trainees drawn from KALRO, Universities, and Tertiary Institutions, State Department of Crop Development and Agricultural Research to facilitate initial Training and other stakeholders. They will also provide backstopping services for cascaded trainings.

b) **County Governments –** The County Governments will provide teams to be trained as Trainer of Trainers (ToTs). This will include County technical staff, Service providers (SPs), lead farmers and other experts who will further cascade the training to farmer groups and other value chain players.

c) **Lead Farmers** – These are early adopters or role models at the community level. They are supposed to allow their farms to be used as learning sites.

1.6 Facilitators guidelines

1.6.1 Preparation of Training Materials

- The facilitators should familiarize themselves and internalize the guidelines provided in this guide prior to the training.
- The training materials should be available before the actual training dates.
- The stationery required should be available within the training venue before the training. These include name tags and writing materials
- Visual aids like field equipment and tools should also be arranged in time before the sessions start.
- Flip charts and good quality felt pens could be used interchangeably with projections.
- There should be adequate copies of participants' handouts (one per participant) to be distributed at the end of each session or as may be suitable.
- Copies of the modules can be distributed at the end of each module.

1.6.2 Preparation of Training Venue and Sites

The training venue will include the training room, field demonstration sites and market areas.

a) **Training Room** – Should have adequate space for participants seated in an arrangement that ensures unobstructed view of the front. A group of 20 to 30 participants is ideal. There should also be adequate desks and space for the trainers, their training materials and projector, flip

charts holders.

b) **Demonstration Site** – Preferably should be within a walking distance.

c) **Market Sites** – these include retail outlets (kiosks, stalls, shops and supermarkets), whole sale and aggregation points and processing sites if any. The operators should be informed in advance about the visits. These should not be very far away, preferably less than 20 minutes' drive.

1.6.3 The Trainees and Trainers

The trainees will be drawn from public and private sector based on their roles in the value chain. The trainer should act more of a facilitator than a lecturer.

1.6.4 Training Program

The training program proposed consists of the actual training modules and the corresponding days and time allocation (Annex 1).

1.6.5 Training Methods

The training methods proposed for each session are suitable for adult learners and appropriate for addressing knowledge, skills and attitudes of the participants. The choice of the methods has been informed by the competency issues being addressed, time available and experiences of the author of this guide. Depending on time available, the facilitator can modify these training methods but as a golden rule no presentation by the facilitator should take more than 30 minutes continuously; but should be separated by the other participatory training methods. Table 2 presents a list of available training methods.

Table 2: Description of Training methods

Training Method	Description of Method
Plenary presentations	Use of PowerPoint or flip charts and plenary discussions in situations where knowledge and opinion or consensus is required
Group exercises, visits and brain-storming sessions	To be considered where skills are an issue requiring sharing and trying
Role plays and problem-solving exercises	Plenary discussions have been considered as training methods where attitude is an issue
On-farm practical demonstration and exchange visits	To be considered where hands-on practical skills are acquired through practicals and demonstrations

1.6.6 Managing the Training Sessions

The logic of design and flow of each module is that the facilitator, paying attention to the proposed methods and session guidelines shall: (i) Introduce the module; (ii) Draw out the participant's expectations; (iii) Relate participants' expectations with module objectives or learning outcomes; (iv) Explore the concept and content, switching to different methods of delivery of the content (group exercise, brainstorming, excursions, plenary discussions) (v) Review the module at the end using participatory approaches like one participant reads one summary message and its application;

and, (vi) Distribute the participants' handouts.

1.6.7 Evaluation of the Training

Half an hour has been allocated for planning for way forward and evaluation of the training on the last day of training. The individual trainees individually fill valuation forms. The evaluation forms are then collected and analyzed by the core facilitators.

Table 3: Sample Evaluation Form

1. Gender of respondent (Please tick): Male [ ] Female [ ] 2. Please provide feedback on the topics by filling the table below			
Aspect / Module	**Rating (Tick only one per topic)**		
	Very Useful (3 marks)	**Useful (2 marks)**	**Of Limited Use (1 marks)**
1) Introduction			
2) Planting Materials and Propagation			
3) Crop Management			
4) Pests and Disease Management			
5) Green Technologies and Mechanization			
6) Moringa Post Harvest and Value Addition			
7) Moringa Bussiness Opportunities			
8) Gender and Social Inclusion			

3. Were the training materials (power point, handouts) adequate? (Please tick) Yes [ ] No [ ]

Give reasons: ……
.

……. ……

4. How are you intending to apply what you have learnt from this training?

……..

……..……

5. Please suggest areas of improvement

……..

……...

1.6.8 Key references

Key references should be provided for each module plus a list of other relevant publications for reference.

Moringa reference material will consist of materials such as: Moringa production handbook/ manuals/ guides; Pamphlets/brochures and Factsheets on specific topics

SECTION II: TRAINING MODULES

This part presents the content of 8 modules of training namely: Introduction; Planting Materials and Propagation; Crop Management; Pests and Disease Management; Green Technologies and Mechanization; Moringa Post Harvest and Value Addition; Moringa Bussiness opportunitiesand Gender and Social Inclusion.

Outline of the modules

Each of the 8 modules consists of 4 parts. These are:

i) **Overview** – Context and background to training needs, knowledge and skills GAP being addressed

ii) **Module learning outcomes** – What trainees are expected to learn

iii) **Module summary** –sequence of sessions, training methods, materials and duration. The module duration indicated is an estimation of the recommended minimum length of time the trainee is exposed to the training content

iv) **Facilitators guideline** –detailed sessions, training methods, materials and session guides

Module 1: introduction

1.1 Overview

Most of moringa production is rain fed. With the unpredictable rainfall patterns, prolonged droughts and increasing demand for food supply, the need for knowledge on the production niches and climatic conditions for Moringa production is therefore crucial for improved productivity and commercialization of the crop.

This module build skills of the trainees to understand the different suitable agro-climatic zones prescribing ideal altitudes, soils, temperature, and rainfall levels among other characteristics for Moringa production. While these agro-climatic factors are critical for growth and yield performance of Moringa, they also provide favorable conditions for pests, diseases, weeds and beneficial soil-borne microbes. It is therefore important for farmers to be trained on the suitable agro-ecological zones and innovative management practices for better Moringa performance and yields.

1.2 Module learning outcomes

By the end of the module, the following outcomes should be achieved:

1. Importance of Moringa in Kenya's economy explained and appreciated
2. Knowledge of altitudes and soil types/characteristics for Moringa production enhanced
3. Climatic conditions (temperatures, rainfall and humidity) required for Moringa production understood and applied

4. Specific county agro-ecological zones for Moringa production. explained and understood

1.3 Module Summary

Module 1: Introduction			
Sessions	**Training methods**	**Training materials**	**Time**
1.3.1 Introductions and climate setting	• Preliminaries • Self-introduction • Setting Norms & rules • Plenary discussion • Group exercise	• Flips charts • Felt pens • Laptop • Projector	20 minutes
1.3.2 The moringa plant; Importance of Moringa in Kenya's economy	• Presentations • Plenary discussion	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	30 minutes
1.3.3 Moringa production ecological/climatic requirements for optimal yields	• Presentations • Plenary discussion	• Flips charts • Felt pens • Laptop • Participants' handouts • Projector	30 minutes
1.3.4 Moringa production Agro-ecological zones (AEZs)- average yields, and constraints in the target Counties	• Group exercise • Plenary Presentation • Plenary discussion	• Flips charts • Felt pens • Laptop • Projector	40 minutes
1.3.5 Gain practical knowledge on specific county AEZs for Moringa production	• Group exercise • Presentations • Plenary discussion • Video/photo show	• Flips charts • Felt pens • Laptop • Projector	20 minutes
1.3.6 Module review	• Discussions/conclusion and way forward	• Flip charts • Felt pens • Laptop	10 minutes
Total			**2 hours 30 minutes**

1.4 Facilitator Guidelines

1.4.1 Introductions and climate setting	Session guide
(The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations) **Levelling of expectations** The trainees to form groups (e.g. Sub-county based) and list their expectations, norms and rules. *The facilitator presents module objectives* **Objectives** By the end of the module, the trainee should be able to: • To state the importance of Moringa in Kenya's economy. • Indicate and describe altitudes and soil types/ characteristics for Moringa production. • Describe climatic conditions (temperatures, rainfall and humidity) required for Moringa production. • Gain practical knowledge on specific county agro-ecological zones for Moringa production. • Understand and be able to apply innovative Moringa production and management technologies in the suitable counties.	• Summarize the facilitator/trainees involvement in Moringa value chains • Power point presentation
1.4.2 Importance of Moringa in Kenya's economy	
Plenary Presentation • The Moringa plant • Moringa in Kenyan households • General Moringa production trends in Kenya • Moringa consumption and markets **Guided discussions by the Facilitator** Questions/answers/comments	• Power point presentation • Participants' handouts • Plenary discussion

1.4.3 Moringa production ecological/climatic requirements	Session guide
Plenary Presentation • Altitude and Agro-ecological zones for Moringa production • Climatic conditions (Rainfall, Temperatures and humidity) • Soils (soil types, pH, general fertility for Moringa) **Facilitator's guided discussion** Questions/answers/comments	• Power point presentation • Participants' handouts • Plenary discussion
1.4.4 Moringa production AEZs, average yields, and constraints in the target areas	**Session guide**
Plenary Presentation Facilitator guide in reviewing and discussing suitability map (County by County) **Group exercise** Trainees to bring out specific county or sub-county AEZs, land size, yields and constraints to Moringa production and present in the plenary: • Agro-ecological zones (AEZs) and % area suitable for Moringa • Average land/farm size under Moringa production in Kenya • Average yield of Moringa per unit farm area • Constraints to Moringa production • Opportunities to addressing the constraints **Discussions/presentations from the groups** Let the trainees/groups share the group exercise outcomes	• Power point presentation • Group work • Open discussions with the guidance of the facilitator • Plenary discussion

1.4.5 Practical knowledge on specific county agro-ecological zones for Moringa production	Session guide
Plenary presentation • Facilitator guide trainees on the practical knowledge applicable to specific county agro-ecological zones for Moringa production **Plenary discussions and Video/photo show**	• Power point presentation • Video/photo show • Plenary discussion • Plenary discussion
1.4.6 Module review	**Session guide**
(The facilitator leads the trainees in reviewing the module) Summary of the main points from the training • Objectives and expectations(review done on basis of the expectations listed earlier) • Trainees to recall the Moringa production ecological/climatic requirements, Moringa production AEZs average yields, and constraints in the target Counties • Trainees to indicate new sets of skills and knowledge acquired from the module. The results are recorded per county presented • Trainees to randomly identify the issues for the way forward. **Facilitator's guided discussion**	• The last participants' handouts/ training materials • Summarize the main points of the module on a flip chart and display • Plenary discussion

MODULE 2: PLANTING MATERIALS AND PROPAGATION

2.1. Introduction

This module is designed for training and exposing trainees to moringa varieties, propagation and nursery management. This module also exposes trainees to the improved Moringa varieties recommended for diverse uses and targeted production environments. Moringa can be propagated using seeds, seedlings or cuttings.

Selecting the best Moringa variety is the most important decision made by a farmer. Planting a variety that is not suited for the available market and the particular production situation leads to lower profits or possibly crop failure. In addition to market acceptability, a variety must have acceptable yield, be adapted to the production area and have the highest level of preferred attributes. In order to optimize Moringa yields variety evaluation in the changing climate and farming environments is an important component for the selection of high yielding commercial varieties. The improved high yielding varieties are key to achievement of increased incomes as well as food and nutrition security. While introducing the improved varieties good agricultural practices will be mainstreamed in the process to ensure the technologies are environmentally sustainable and safe to consumers.

2.2. Module Learning Outcomes

By the end of the module, the following outcomes should be achieved:

1. Various improved Moringa varieties, their ecological areas of cultivation and their uses identified and compared

2. Moringa propagation and nursery management described

2.3 Module Summary

Module 2. Planting Materials and propagation			
Sessions	**Training Methods**	**Training Materials**	**Time**
2.3.1 Introduction, objectives and levelling of expectations 1.	• Groups to bring out expectations • Plenary presentation	• Module objectives • Marker pens • Flip charts • Projector • Laptop	20 minutes

Module 2. Planting Materials and propagation			
Sessions	**Training Methods**	**Training Materials**	**Time**
2.3.2 Introduction to the various improved Moringa varieties, their ecological areas of cultivation and their attributes and uses.	• Group Exercises to identify local Moringa landraces and varieties • Plenary Presentations • Plenary discussion	• Flips charts • Felt pens • Laptop • Projector • Manila papers	30 minutes
2.3.3 Recommended varieties for specific regions	• Plenary Presentation • Group exercise • Field demonstration	• Flips charts • Felt pens • Laptop • Projector • Manila paper	20 minutes
2.3.4 Instructions on moringa propagation interpreted and applied	• Plenary Presentation • Group exercise • Plenary discussions • Practicals/demonstration	• Flips charts • Felt pens • Laptop • Projector • Manila papers • Propagation materials	1 Hour 30 minutes

Module 2. Planting Materials and propagation			
Sessions	**Training Methods**	**Training Materials**	**Time**
2.3.5 Certified seed sources for Moringa identified and adopted. • Information on seed understood and preferred variety identified. **Group exercise** *Circulate samples of certified Moringa cuttings* *Identify key information on Moringa cuttings provided*	• Distribute Participants' handouts • Group exercise • Plenary discussion	• Demonstration of cuttings samples	30 minutes
2.3.6 Module review	• Participants' questions and comments • Facilitator's summary	• Participants' hand outs • Module review	20 minutes
TOTAL			**3 hours 30 minutes**

2.4 Facilitator's Guidelines

2.4.1 Introduction and Levelling Expectations	Session guide
The facilitator welcomes trainees to the module and introduces him/herself, stating profile and experience of working with farmers. **Trainees' introductions and expectations** The facilitator invites the trainees to state their expectations after brain storming in their respective county groups **Module Objectives** *The facilitator presents module's objectives.* By the end of the module, the trainee should be able to: 1. Describe and explain Moringa seed systems in Kenya. 2. Describe Moringa seed production systems in public and private seed multipliers 3. Explain the role of private seed multipliers, community and public seed multipliers in the production of quality Moringas.	• Summarize trainees' Expectations on a flipchart • Power point presentation
2.4.2 Introduction to Moringa and the various improved Moringa varieties and their uses	**Session guide**
(The facilitator describes the Moringa crop and guides the trainees in identifying the various Moringa improved varieties and their uses). **Group exercise and discussion** Ask trainees highlight and describe some of the Moringa varieties they know. **Plenary Presentation** • Improved Moringa varieties. • Categories of Moringa varieties and comparison of various hybrid varieties. *Show trainees the photographs of each variety and the full description and its uses.*	• Distribute participants' handouts • Group exercise • Plenary discussion

2.4.3 Recommended Moringa varieties	Session guide
Plenary Presentation **Varieties for the target counties** • Moringa growing regions and the new regions which are being targeted for Moringa cultivation in Kenya. • Moringa varieties • Climate conditions (semi-arid, rain-fed and irrigated) **Group exercises** Trainees discuss and come up with Moringa varieties in their county **Field demonstration** *(Identify farmers' fields with various Moringa varieties).* • Visit the Moringa plots with the trainees and assist them identify and study the various varieties. • After the field visit facilitate them to recall what they learned and discuss on any issue that may arise. (can also use Moringa samples/pictures for the various varieties)	• Distribute participants' handouts. • Power point presentation • Group exercise • Field demonstration
2.4.4 .Instructions on seed package interpreted and applied	Session guide
Plenary Presentation • Certified seed sources for Moringa identified and adopted. • Information on seed and cuttings understood in preferred variety identified. *Circulate samples of certified Moringa cuttings* *Identify key information on Moringa cuttings provided*	• Distribute Participants' handouts • Group exercise • Plenary discussion

MODULE 3: CROP MANAGEMENT

3.1 Introduction

The low yields realized in Moringa production by farmers is as a result of inadequate adoption of the improved crop management practices. Some of the improved agronomic practices available for these farmers include, timely land preparation, use of recommended fertilizer types, correct plant spacing, knowledge of physiological maturity indices and how to improve on harvesting techniques to avoid losses

In order to optimize productivity of Moringa, farmers need to adopt specific agronomic packages, without which the yield potential of improved varieties cannot be achieved. In addition, the weather vagaries occasioned by climate change effects make it necessary to incorporate adaptation or mitigation measures which can enable Moringa farmers increase its productivity. In this respect, climate smart agronomic practices come to the fore. Therefore, there is need to equip farmer facilitators from the targeted counties with skills and knowledge that will enable them train farmers on innovative climate smart Moringa agronomic practices that include; seed selection techniques, and disease and pest management strategies for increased production.

3.2 Module learning outcomes

By the end of the module, the following should be achieved:

1. Agronomic practices for Moringa production described and explained.
2. Region specific agronomic practices for Moringa production optimization outlined.
3. Appropriate inputs and their correct application rates for Moringa production described.
4. Timing for operations or inputs application in Moringa production described and explained.

3.3 Module Summary

Module 3: Moringa agronomic practices			
Sessions	**Training methods**	**Training materials**	**Time**
3.3.1 Introductions and climate setting, objectives and expectations	• Self-introduction • Setting Norms & rules • Plenary Presentation • Plenary discussion • Group exercise	• Flips charts • Felt pens • Laptop • Projector	20 minutes
3.3.2 Agronomic practices for Moringa production	• Presentations • Group exercise (Groups tour nearby farm for layout demonstration) • Plenary discussions (From the farm visit)	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	1 hour
3.3.3. Site selection, Land Preparation, seed selection, planting, water requirement, pest management, weed management and crop rotation	• Practical exercise (groups tour nearby farm for layout demonstration) • Presentations	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	30 minutes
3.3.4 Appropriate inputs and their recommended application rates for optimum production of Moringa	• Presentations • Group exercise (trainees enlist inputs and application rates for different counties) • Plenary discussions (share group work results)	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	40 minutes
3.3.5 Module review and discussion	• Discussion/conclusion and way forward	• Flip charts • Felt pens • Laptop • Projector	30 minutes
Total			**3 hours**

3.4 Guidelines for Facilitators

Module 3: Agronomic Practices for Moringa		
3.4.1. Introductions, climate setting	**Session guide**	
Preliminaries *The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations* **Expectations** The trainees form groups (e.g., county based) and list expectations from the module *The facilitator presents the module objectives.* **Objectives** By the end of the training module, the trainee should be able to: • Explain and describe agronomic practices for Moringa production. • Describe appropriate inputs and their correct application rates for Moringa production. • Outline region specific Moringa production agronomic practices. • Specify the correct timing for all operations including application of inputs in Moringa production.	• Summarize the trainees expectations • Power point presentations • Group exercise (listing and presenting expectations). • Expectations lists kept for later reviewing compliancy	

3.4.2. Agronomic practices for Moringa production	
Plenary Presentation The facilitator presents critical factors on: • Factors for selecting Moringa production as an enterprise • Climate smart land preparation practices • Climate smart planting • Weed control • Pests and disease control • Cropping systems • Spacing (inter-and intra-row spacing) • Conservation agriculture principles/benefits **Practical exercise** Guided groups tours to model farms to observe various planting and management techniques **Plenary discussion** Questions/answers and comments	• Power point Presentation • Plenary discussion • Distribute participants' handouts/training materials • Practical exercise

3.4.3. Appropriate inputs for the optimal production of Moringa and their correct/recommended application rates	Session guide
Group exercise • The facilitator guides trainees to list or/and present the required inputs for use in Moringa production • The trainees get into groups to provide lists of Moringa inputs and their application rates as practiced by farmers. • The groups present their results in the plenary - opening up for questions, answers and discussion. **Plenary presentation and plenary discussion** **(**The recommended Moringa inputs (seed, cuttings, fertilizers, manures, among others), their application rates and appropriate time of application for optimal yields	• Power point Presentation • Distribute participants' handouts • Groups exercise • Plenary discussion

3.4.3. Appropriate inputs for the optimal production of Moringa and their correct/recommended application rates	Session guide
Group exercise • The facilitator guides trainees to list or/and present the required inputs for use in Moringa production • The trainees get into groups to provide lists of Moringa inputs and their application rates as practiced by farmers. • The groups present their results in the plenary - opening up for questions, answers and discussion. **Plenary presentation and plenary discussion** • The recommended Moringa farm inputs (seeds, cuttings, fertilizers, manures, among others), their rates and their time of application for optimal yields	• Power point Presentation • Distribute participants' handouts • Groups exercise • Plenary discussion
3.4.4. Module review	**Session guide**
(The facilitator leads the trainees in reviewing the module) Summary of the main points from the training • Objectives and expectations (review done on basis of the objectives and expectations listed earlier) • *Trainees to randomly indicate new sets of skills and knowledge learnt from the module. The results are recorded per county presented* • Randomly (average of 10 cases) trainees identify key issues for the way forward issues.	• Participants' handouts • Summarize the main points of the module on a flip chart and display

MODULE 4: PESTS AND DISEASE MANAGEMENT

4.1 Introduction

Although moringa is normally resilient to many pest and diseases common to other crops, pests and disease outbreaks that cause significant damage to moringa can occur under high density cultivation and under certain conditions. Further, shortage there is limited knowledge among Moringa farmers on the recommended crop health management options.

Weeds present competition for growth and development resources needed by the Moringa crop i.e. moisture, nutrients, light and space. This has significantly reduced productivity and profitability of Moringa over time. This module is therefore meant to help the trainees understand the ecology, impact and recommended management practices for diseases, pests and weeds to reduce production costs and improve Moringa yields.

4.2 Module Learning Outcomes

By the end of the module, the following outcomes should be achieved:

1. Major pests, diseases and weeds identified.
2. Integrated pest, disease and weed management in Moringa described and explained.
3. Knowledge on major diseases, their development, economic losses and their control.
4. Integrated Disease Management approaches and scouting for threshold determination.
5. Integrated weed management strategies for Moringa.
6. Safe use of agro-chemicals (pesticides, fungicides and herbicides) explained and appreciated.

4.3 Module Summary

Module 4: Pest and Disease Management			
Sessions	**Training methods**	**Training materials**	**Time**
4.3.1 Introduction, objectives and expectations	• Self-introductions • Group exercise • Plenary presentation • Plenary discussion	• Flips charts • Marker pens • Laptop • Projector	30 minutes

Module 4: Pest and Disease Management			
Sessions	**Training methods**	**Training materials**	**Time**
4.3.2 Major Moringa pests that cause economic losses and their control methods;	• Group work • Plenary presentation • Plenary discussion • Practical exercise	• Flips charts • Marker pens • Projector • Laptop • Participants' handouts	1 hour
4.3.3 Sustainable Integrated Pests Management practices and scouting for threshold determination in Moringa	• Plenary presentation • Plenary discussion	• Flip charts • Marker pens • Projector • Laptop • Participants' handouts	30 minutes
4.3.4 Major Moringa diseases that cause economic losses and conditions that favor their development including their control methods	• Group work • Plenary Presentation • Plenary discussion • Practical session	• Flip charts • Marker pens • Projector • Laptop • Participants' handouts	1 hour
4.3.5 Sustainable Integrated Management of Moringa diseases and scouting for threshold determination	• Presentations • Plenary discussion • Field demonstration	• Flip charts • Marker pens • Projector • Laptop • Participants' handouts	1 hour

Module 4: Pest and Disease Management			
Sessions	**Training methods**	**Training materials**	**Time**
4.3.6 Integrated weed management (Major weeds of Moringa)	• Plenary Presentation • Plenary discussion • Field demonstration	• Flip charts • Marker pens • Projector • Laptop • Participants' handouts	1 hour
4.3.7 Safe use of agro-chemicals and update source for registered agro-chemicals (PCPB registered products)	• Presentations • Practical exercise • Plenary discussion	• Projector • Laptop • Flip charts • Marker pens • Participants' handouts	30 minutes
4.3.8 Module Review	• Discussion/ Recap of the module • Take away messages	• Flip charts • Marker pens • Participants' handouts	30 minutes
Total			**6 hours**

4.4 Facilitator's Guidelines

Module 4: Pest and Disease Management	
4.4.1 Introduction and levelling of expectations and objectives	**Session guide**
Introduction *(The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations)* **Module Objectives** *(The facilitator presents modules objectives)* By the end of the module, the trainee should be able to: • Identify major pests, diseases and weeds. • Describe and explain integrated pest, disease and weed management in Moringa. • Explain safe use of agro-chemicals (pesticides, fungicides and herbicides).	• Summarize trainees' "Expectations" • Power point presentation • Participants' handouts

4.4.2 Major Moringa pests that cause economic losses and their control methods; emerging/ migratory pests	Session guide
(The facilitator makes a presentation on the common Moringa pests that are of economic importance) **Group work** • Trainees to share Moringa pest information from their respective Counties **Plenary Presentation** • Names of pests and their descriptions • Symptoms of their infestation/type of damage • Data on economic significance of the common Moringa pests **Practical exercise** • Identification of Moringa pests from provided specimens **Discussion** • Let the trainees recall what they learned and discuss any issue that may arise	• Power point presentation • Group exercise • Practical exercise • Participants' handouts

4.4.3. Sustainable Integrated Pest Management (IPM) practices in Moringa; scouting and threshold determination	Session guide
Plenary Presentation • IPM principles; how to implement them with a focus on cultural, physical, biological and chemical pest management options. • Critical considerations for proper scouting • Threshold determination and when to implement control measures • An overview on the safe use of agro-chemicals (demonstration on how to select most suitable pesticides, for the management of pests in Moringa). **Discussion** Let the trainees recall what they learned and seek clarification on the principles of sustainable IPM options	• Power point presentation • Participants' handouts
4.4.4 Major Moringa diseases that cause economic losses, conditions that favour their development and their control methods	**Session guide**
Group work • Determination of Moringa diseases **Plenary Presentation** • Presentations on Moringa diseases and conditions that favor their development **Practical Exercise** • Identification of major disease species causing economic damage based on samples presented	• Power point presentation • Participants' handouts • Disease identification guidelines • Practical exercise

4.4.5 Sustainable Integrated Diseases Management (IDM); scouting and threshold determination	Session guide
Plenary presentation • Critical considerations for scouting and when to implement Moringa disease control measures • Presentation on Integrated Disease Management (IDM) in Moringa • An overview on the safe use of recommended agro-chemicals (demonstration on how to select most suitable fungicides for the management of major Moringa diseases). **Field visit** - Visit to a nearby Moringa field for collection and identification of diseased Moringa samples	• Power point presentation • Participants' handouts • Disease management guidelines • Field demonstration
4.4.6 Integrated weed management (Major weeds of Moringa)	**Session guide**
Plenary presentation • Identification of weeds • Major types of weed in the Moringa field • Integrated Weed control measured **Plenary discussion** Integrated weed management	• Power point presentation • Participants' handouts • Plenary discussion

4.4.7 Safe Use of agro-chemicals and sources of registered chemicals (PCPB registered products)	Session guide
Practical Trainees go into their groups and discuss: • Ways used by farmers in mixing of pesticides/ Indigenous Technical Knowledge (ITK) products; and their consideration on safe use of pesticides • Representative group leaders give presentation on findings of the discussion **Plenary presentation** Facilitator makes presentation on: • Safe use of pesticides • Let the trainees ask questions on any of the covered topical issues and critical areas to share with farmers on safe use of pesticides	• Power point presentation by facilitator and representative group leaders • Demonstration of proper use of knap sack sprayer, protective gear and calibration of pesticides, sourcing for registered pesticide information online: on PCPB website • Distribute participants hand-outs (brochures, leaflets and manuals) • Pest, disease and weed management guidelines

4.4.8 Module review	Session guide
(The facilitator leads the trainees in reviewing the module) Summarize the main points of the training: The facilitator should review the following main points about climatic conditions suitable for Moringa production: • Major pests of Moringa and their economic impacts on Moringa production. • Integrated Pest Management (IPM) options for Moringa • Major diseases of Moringa and their economic impact on Moringa production. • Integrated Disease Management (IDM) options for Moringa • Major weeds of Moringa and their economic impacts on Moringa production. • Integrated Weed Management (IWM) options for Moringa *(Discuss with trainees about new things learnt from this Module. What are some of the issues that need clarification)?*	• The last participants' handouts • Summarize the main points from the module on a flip chart and display

MODULE 5: POST HARVEST AND VALUE ADDITION

5.1 Introduction

Moringa is an important cash crop in Kenya. Moringa processing creates cottage industries for income generation. This module introduces farmer trainers to the importance of moringa in addressing food and nutrition security at the household, community and industrial levels. The module also covers the various moringa value added products, constraints in value addition and their suggested solutions. It is expected that the processing and value addition methods provided will enhance production and consumption of this crop towards food and nutrition security.

5.2 Module Learning Outcomes

By the end of the module, the following outcomes should be achieved:

1. Role of moringa as a food security crop explained.
2. Nutritional composition of moringa, health benefits, food security and income described.
3. Constraints in value addition and utilization of moringa, and suggest solutions identified
4. Moringa-based value added products identified and explained.

5.3 Module Summary

Module 5. Post-harvest and value addition			
Sessions	**Training Methods**	**Training Materials**	**Time**
5.3.1. Introduction, Objectives Expectations	• Personal introduction • Group work • Plenary Presentation	• Flip charts • Projector • Laptop	30 minutes
5.3.2 Role of moringa as a food and nutrition security crop	• Powerpoint Presentation • Group exercise • Plenary Presentation	• Flip charts • Felt pens • Projector • laptop • Participants' handouts	30 minutes

5.3.3. Nutritional composition of moringa and its role in human health	• Powerpoint • Plenary presentation • Group exercise	• Powerpoint presentation • Flip charts • Felt pens • Participant handouts	45 min
5.3.4. Constraints in value addition and utilisation of moringa	• Group exercise • Plenary Presentation	• List of value added products • Checklist for prioritization • Pair wise ranking tool • Flip charts • Felt pens • Participants' handouts • Projector • Laptop	45 min
5.3.5 Moringa based value added products:	• Plenary Presentations • Plenary discussion • Practical demonstration • Sensory evaluation of value added moringa products • Field visit to processing firms / groups	• Projector • Laptop • Participant handouts • Assorted value addition equipment and ingredients • Sensory evaluation forms	3 hours 30 min
5.3.6. Module review	• Plenary discussion • Presentations	• Flip charts • Powerpoint presentations • Module evaluation forms	30 minutes
TOTAL			**6 hours 30 minutes**

5.4 Facilitator's Guidelines

Module 5. Post-harvest and value addition	
6.4.1 Introduction, expectations and objectives	**Session guide**
Introduction and expectations *(The facilitator welcomes trainees to the module on value addition of moringa. They are then invited to introduce themselves and state their expectations)* **Module Objectives** *(The facilitator presents modules objectives.)* By the end of the module, the trainee should be able to • Appreciate the role of moringa as a food and nutrition security crop. • Describe nutritional composition of moringa, health benefits, food security and income. • Identify constraints in value addition and utilisation of moringa, and suggest solutions. • Explain how to make moringa-based value added products.	• Participants' handouts • Power point Presentation • Summarize trainees' expectations and display on flip chart/board.
5.4.2 Role of moringa as a food and nutrition security crop	**SSession guide**
(The facilitator presents on malnutrition cases in Kenya and the importance of moringa in addressing food security and malnutrition challenges) **Plenary Presentation** Power point presentation highlighting the critical elements: • Micronutrient malnutrition cases in Kenya • Dietary nutrient requirements (focusing on VMGs) **Group Exercises** Trainees discuss in groups, the main malnutrition challenges in their respective counties / regions	• Power point presentation • Participants' handouts • Recipe books • Sample moringa and other processing ingredients • Group exercise

5.4.3 Moringa nutritional composition and impact of consumption on human health	
Plenary presentation • Overview of the documented moringa nutritional composition and their role in human health and nutrition	• Power point presentation • Participant handouts • Brochures, leaflets, manual, fact-sheets, posters
5.4.4. Constraints in value addition and consumption of moringa, and suggested solutions	**Session guide**
Group exercise Groups discuss the constraints in moringa value addition and utilization **Plenary presentation** Overview of constraints in value addition and utilization of moringa	• Power point presentation • Group Exercise
5.4.5 Moringa based value added products	**Session guide**
Plenary presentation • Overview of moringa based value added products • Meaning of value addition • Requirements for value addition of moringa • Moringa based value added products; sensory evaluation of the products **Practical exercise** • Demonstration on formulation of moringa based products • Practical on sensory evaluation of value added moringa products	• Participants handouts • Power point presentation • Recipes • Sensory evaluation forms • Assorted value addition equipment and ingredients
5.4.6 Training review	**Session guide**
(The facilitator leads the trainees in reviewing the module) Review the main points about moringa value addition together with the trainees. · What new things did you learn from this Module? · What are some of the problems and issues that you have become more aware of in moringa value addition? · What questions do you still have about moringa value addition?	Summary of the main points from the Module.

MODULE 6: GREEN TECHNOLOGIES AND MECHANIZATION

6.1 Introduction to the module

Agricultural mechanization enhances production, productivity and profitability in agriculture by achieving timeliness of farm operations. It comes along with precision in metering and placement of inputs, reducing susceptibility to input losses, increasing utilization efficiency of costly inputs (seed, chemical, fertilizer, irrigation, water. etc.), reducing unit cost of production, enhancing profitability and competitiveness in the cost of operation. It also benefits conservation of agricultural produce and by-products from qualitative and quantitative damages; enables value addition and establishment of agro processing enterprises for additional income and employment generation from farm produce. Agricultural mechanization is one of the important inputs that has potential to revolutionize Moringa farming in Kenya especially when applied to planting, weeding, pest control, harvesting and post-harvest activities.

6.2 Module learning outcomes

By the end of the module section the following outcomes should be achieved:

1. Climate smart tillage options identified and explained
2. Bush clearing machines demonstrated
3. Use of pest control implements and tools demonstrated
4. Processing machines and equipment demonstrated

6. 3 Module Summary

Module 6. Green Technologies and Mechanization			
Sessions	**Training methods**	**Training materials**	**Duration**
6.0.1 Introduction, objectives and expectations	• Personal introductions/know your audience • Presentations • Plenary discussions	• Flip charts • Power point Presentations	20 minutes
6.3.2 Bush clearing machines explained	• Presentations • Plenary discussions	• Flip chart • Power point presentation • Participants' handouts	10 minutes
1.1.3 Climate smart tillage options	• Presentations • Plenary discussions	• Flip chart • Power point presentation • Participants' handouts	30 minutes
1.1.4 Pest control equipment and tools usage demonstrated	• Presentations • Plenary discussions	• Flip chart • Power point presentation • Participants' handouts • Practical	1 hour
1.1.5 Processing machines and equipment demonstrated	• Presentations • Plenary discussions • Demonstrations	• Flip chart • Power point presentation • Participants. handouts • Practical	15 minutes
6.3.6 Module review	• Presentations	• Power point presentation	15 minutes
Total			**2 hours 30 minutes**

6.4 Facilitator's Guidelines

Module 6:Green Technologies and Mechanization	
11 12 12.7 **6.4.1 Introduction, Objectives and Expectations**	**Session guide**
(The facilitator welcomes trainees to the module on moringa mechanization tools and equipment that help reduce labour costs as well as the post-harvest losses. They are then invited to introduce themselves and state their expectations) **Module Objectives** The facilitator presents modules objectives By the end of the module the trainee should be able to: • Climate smart tillage options identified and explained • Bush clearing machines demonstrated • Use of pest control implements and tools demonstrated • Processing machines and equipment demonstrated *In each case stating approximate prices and availability of machines, tools and equipment required*	• Summarize trainees' "Expectations" and display. • Power point Presentation • Distribute Participants' Handouts on Module Objectives and Training Program
6.4.2. Moringa climate smart land preparation tools and equipment	**Session guide**
(The facilitator presents on the commonly known land preparation tools and equipment) **Plenary Presentation** Power point Presentation Highlighting: • Overview of the moringa mechanization activities • Climate smart tillage options **Discussion** Let the trainees recall what they learned and discuss any issue that may arise	• Power point presentation • Distribute participants' handouts • Brochures, leaflets and manual • All participants

6.4.3. Bush clearing machines	Session guide
Plenary Presentation Powerpoint Presentation Highlighting on: • Description and explanation of bush clearing machines **Discussion** Let the trainees recall what they learned and discuss any issue that may arise.	• Power point presentation • Distribute participants' handouts • Brochures, leaflets and manual
6.4.4. Demonstration of moringa processing tools and equipment	**Session guide**
Plenary Presentation Power point Presentation Highlighting on: • Description and explanation of moringa processing machines and equipment • **Discussion** Let the trainees recall what they learned and discuss any issue that may arise.	• Power point presentation • Distribute participants' handouts • Brochures, leaflets and manual
6.4.5 Module review	**Session guide**
The facilitator leads the trainees in reviewing the module) Summarize the main points of the training and together with the participants review the main points: • Demonstrate • Climate smart tillage options identified and explained • Bush clearing machines demonstrated • Use of pest control implements and tools demonstrated • Moringa processing machines demonstrated *(Discuss with trainees about new things learnt from this Module. What are some of the problems and issues that they have become more aware of in the module?)*	· The last participants' handouts · Summarize the main points from the module on a flip chart and display

MODULE 7: MORINGA BUSSINESS OPPORTUNITIES

7.1 Introduction

Moringa is mainly produced in Coastal and lower Eastern regions. Markets and marketing of Moringa is a major issue of concern to small scale farmers and other actors in the value chain in Kenya, particularly inconsistency in supplying sufficient volumes required for trade, seasonal supply and price fluctuations. The low production of the produce limit farmers to the local markets, where demand is low and hence prices. To strengthen the Moringa value chain, it is important to equip farmer facilitators with the skills and knowledge on Moringa farming business and marketing strategies. This module is designed to build skills of trainees in Moringa farming business and marketing in Kenya.

7.2 Module Learning Outcomes

By the end of this module, the following training outcomes should be achieved:

1. The business concept and emerging farming business models explained and appreciated.
2. Planning a farm business using SWOT Analysis, farm budgeting and business plan described.
3. Tools for implementing a farm business, record keeping, break-even, gross-margin and entrepreneurship explained and described.
4. Various marketing approaches of Moringa identified.
5. Determination of Profitability (Gross margin analysis) described

7.3 Module Summary

Module 7. Moringa Business Opportunities			
Sessions	**Training Methods**	**Training Materials**	**Time**
7.3.1. Models for market-oriented production of Moringa. (Levelling of participants' expectations about the module and objectives)	• Introduction • Plenary discussion	• Projector • Laptop • Flip charts • Marker pens • Masking tapes/flip chart holders	20 minutes
7.3.2. Developing a Business Plan for Moringa farm Business i) Business concept and emerging and farming business models) ii) Planning a farm business: SWOT Analysis, farm budgeting and business plan	• Plenary presentation • Plenary discussion • Group exercise	• Projector • Laptop • Flip charts • Marker pens • Masking tapes/flip chart holders	1 hour
7.3.3. Marketing as a group - collective marketing	• Presentation and • Plenary discussions • Role play exercise	• Projector • Laptop • Flip charts • Marker pens • Masking tapes/flip chart holders	30 minutes

MODULE 11. GENDER EQUALITY, HUMAN RIGHTS AND SOCIAL INCLUSION

11.0 Introduction

Gender equality, human rights, and social inclusion are essential for achieving peaceful societies, full human potential, and sustainable development. Empowering women leads to productivity and economic growth. Advancing gender equality is critical for reducing poverty and promoting health, education, and well-being. Human rights, including freedom from violence and socio-economic equality, should be enjoyed by all people. Studies have shown that many right holders especially those in rural areas are not aware of their rights and the need to demand the same from duty bearers who include the state and non-state actors and even within households.

The achievement of the 17 UN Sustainable Development Goals (SDG) is dependent on the operationalization and implementation of gender equality and women empowerment strategies, Human Rights Based Approaches (HRBA) and social inclusion is guided om the principle of Leave no one Behind. Restrictive gender roles and social norms a lived reality in most of the rural smallholder farms continue to drag development behind. While men and women continue to perform these roles as is, many of them lack awareness of how some of these community sanctioned roles continue to limit their progress in live especially among in creating wealth out of the agricultural value chains.

Intentionality in creating awareness among right holders to claim their rights, capacity building the duty bearers to meet the claims and ensuring those likely to be left behind like people living with disabilities (PWDs), the marginalized and the minorities among others are included would greatly contribute to common good, dignified lives and sustainable development.

This facilitator guide provides a lay out on how to train on the issues gender equality, human rights and social inclusion.

11.1 Module Summary

Module 11.0: Gender equality, human Rights and social inclusion			
Sessions	**Training methods**	**Training materials**	**Time**
11.1 Introductions and climate setting, objectives and expectations	• Self-introduction • Setting Norms & rules • Plenary Presentation • Plenary discussion • Group exercise	• Flips charts • Felt pens • Laptop • Projector	20 minutes
11.2 Gender equality Definition of concepts	• Presentations • Individual reflections • Group exercise • Plenary discussions	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	30 minutes

Module 11.0: Gender equality, human Rights and social inclusion			
Sessions	**Training methods**	**Training materials**	**Time**
11.3 The business case for gender mainstreaming	• Practical exercise (groups tour nearby successful Agri- business where both a model couple) • Presentations	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	40 minutes
11.4 Steps to mainstream gender	• Group exercise -same sex groups (trainees identify roles) • challenge these roles • Plenary discussions (share group work results) • Individual reflections • Presentations	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts	40minutes
11.5 Human rights	• Individual reflections • Buzz groups • Plenary Presentations • PowerPoint presentations	• Flip charts • Felt pens • Laptop • Projector • handouts	30 minutes
11.6 HRBA-PANT Principles	• Group work • Presentations • PowerPoint presentations	• Flip charts • Felt pens • Laptop • Projector • handouts	30 minutes
11.7 Social inclusion	• Buzz groups • Plenary discussions • Group discussions on who is likely to be left behind in the value chain	• Flip charts • Felt pens • Laptop • Projector • handouts	30minutes

Module 11.0: Gender equality, human Rights and social inclusion			
Sessions	**Training methods**	**Training materials**	**Time**
Chapter review and discussion	• Discussion/conclusion Action plan	• Flip charts • Felt pens • Laptop • Projector	30 minutes
Total			**4, hrs**

11.2 Guidelines for Facilitators

Module 11: Gender Equality, Human Rights and social inclusion	
11.0. Introductions, climate setting	**Session guide**
Preliminaries *The facilitator welcomes trainees to the Chapter and thereafter invites them to introduce themselves and state their expectations* **Expectations** The trainees form groups (e.g., county based) and list expectations from the module *The facilitator presents the chapter objectives.* **Objectives** By the end of the training Chapter, the trainee should be able to: • Explain and describe what gender and gender mainstreaming is with practical examples • Describe appropriate steps to take in operationalizing the PANT principles • Describe and list those likely to be excluded from the value chains. • Specify the correct actions to take to address the root causes of exclusion and how they will be monitored.	• Summarize the trainees expectations • PowerPoint presentations • Group exercise (listing and presenting expectations). • Expectations lists kept for later reviewing compliance

Module 11: Gender Equality, Human Rights and social inclusion	
11.0. Introductions, climate setting	**Session guide**
11.1 Gender equality definition of concepts	
Plenary Presentation The facilitator introduces the topic of background information and gender equality • Individuals reflect on their understanding of various concept sex, gender, equity, equality, diversity, gender mainstreaming among others • Presentations are made to dispel biases and stereotypes • Plenary discussions **Plenary discussion** Questions/answers and comments	• Plenary discussion • Distribute participants' handouts/training materials • PowerPoint Presentation • Practical exercise
11.2 The business case for gender mainstreaming	**Session guide**
Group exercise • The facilitator guides trainees to visit successful Agri- business where both a model couple) • The group reflects on their findings • A PowerPoint presentation.	• PowerPoint Presentation • Distribute participants' handouts • Groups exercise • Plenary discussion

Module 11: Gender Equality, Human Rights and social inclusion	
11.0. Introductions, climate setting	**Session guide**
11.3 Steps to mainstream gender	**Session guide**
Group exercise : the facilitator conducts • Practical session on gender roles(daily calendar)- Women and men separately then present in plenary for further reflection • Practical session on Access, control, and ownership-separately then present in plenary • Social norms in the community about men and women-separate norms then present in plenary • Barriers and enablers to women and youth participation in the agri-cultural value chains and how they will be addressed by the group. • Presentations Plenary presentation and plenary discussion • PowerPoint presentation The facilitator leads the trainees into 1. Individual visioning for a certain period future then in pairs share, prioritize and work on one priority area identify op-portunities, challenges and targets and activities 2. Plan on next steps	• PowerPoint Presentation • Distribute participants' handouts • Groups exercise • Plenary discussion
11.4 Human rights	
The facilitator leads the trainees into; • Individual reflections on their human rights, those who have duty to address these rights • Buzz groups to identify issues of human rights • Plenary Presentations • PowerPoint presentations	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts
11.4.1 HRBA-PANT Principles	
The facilitator lead the team on the PANT principles 1. Group work 2. Presentations 3. •PowerPoint presentations	• Flips charts • Felt pens • Laptop • Projector • Participants' handouts

Module 11: Gender Equality, Human Rights and social inclusion	
11.0. Introductions, climate setting	**Session guide**
1.5 **social inclusions**	
The faclilitator leads the trainee into group discussions on who is likely to be left behind in the value chain • Identification a. Who is excluded? Are some groups less likely to benefit from a Program/project because of their identity? • Analysis a. How and why is the particular group (or groups) excluded? What drives the exclusion? • **Actions** a) What actions can the groups/ farmers take to ensure there is social inclusion • **Monitoring** b) How would they know if they have made progress in ensuring social inclusion? • Action plan for mainstreaming Gender Youth and social inclusion	• Flips charts • Felt pens • Laptop • Projector • Participants' • handouts
Review and Close out	**Session guide**
(The facilitator leads the trainees in reviewing the chapter) Summary of the main points from the training • Objectives and expectations (review done on basis of the objectives and expectations listed earlier) • *Trainees to randomly indicate new sets of skills and knowledge learnt from the module. The results are recorded per county presented* • Randomly (average of 10 cases) trainees identify key issues for the way forward issues.	• Participants' handouts • Summarize the main points of the module on a flip chart and display

ANNEX I

MESPT
MICRO ENTERPRISES SUPPORT PROGRAMME TRUST

MORINGA VALUE CHAIN TRAINING WORKSHOP FOR XXXX

TRAINING VENUE: XXX **DATES: XXX**

SAMPLE PROGRAMME

Date and Time	Activity	Duration	Responsible

ANNEX 11.: List of participants who validated this value chain Guide

S/NO	NAME	INSTITUTION
1	Joseph Kairu	County Government of Siaya
2	Winston Motanya	County Government of KISII
3	Nicholas Manyinsa	County Government of KISII
4	Cecilia Mutuku	County Government of MACHAKOS
5	Paul Busienei	County Government of NAKURU
6	David Kimera	Youth Agri-Preneur
7	Lawrence Swanya	County Government of MACHAKOS
8	Kenneth Kagai	County Government of TRANS-Nzoia
9	Benedict Khanyifu	County Government of TRANS-Nzoia
10	Mwalimu Menza	Kenya Agricultural and Livestock Research Organization
11	George Kamami	County Government of MAKUENI
12	Moses Munialo	County Government of BUGOMA
13	Agesa Eric	County Government of KAKAMEGA
14	Benard Mainga	County Government of KWALE
15	Jane M Kamamu	County Government of KILIFI
16	Teresia Ndungu	County Government of NYANDARUA
17	Wilbur Mutai	County Government of UASIN-GISHU
18	Stephen Odipo	Kenya Agricultural and Livestock Research Organization
19	Solomon Mbivya	PAPA FARMERS Limited
20	William Mwangi	County Government of MAKUENI
21	Doreen Kinoti	Micro-Enterprises Support Programme Trust
22	Serah Nzau	Micro-Enterprises Support Programme Trust
23	Margaret Kikuvi	Micro-Enterprises Support Programme Trust

KALRO
Kenya Agricultural & Livestock Research Organization

MESPT
MICRO ENTERPRISES SUPPORT PROGRAMME TRUST

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