



**MINISTRY OF  
FOREIGN AFFAIRS  
OF DENMARK**  
*Danida*

# Export Vegetable Training Guide





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### **Disclaimer**

This guide is for advisory use only. Users should verify details that relate to their agro-climatic zones from their area agricultural extension officers. It is also advised that this trainers' guide should be used in conjunction with the respective value chain manual 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.

Vegetable 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 Agripreneurs. 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 manual.

**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 selected agriculture value chains that include, Cassava, Coconut, Dairy, Export Vegetables, Pineapple, Indigenous Poultry, Moringa, Pineapple, and Aquaculture.

MESPT through GEAP tasked multidisciplinary teams to develop resource materials tailored for extension service providers and farmers. This export vegetables value chain trainers' guide is one of the series of the materials that were developed. MESPT further tasked value chain experts to develop a value chain manual for export vegetables. This guide is to be used as an instructional tool for training on implementation of good agricultural practices, value addition and marketing for the 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 value chain manual and other relevant resource materials.

This trainers' guide consists of two sections. Section I comprises information about the 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 trainers' 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 trainers' guide. It is my hope that counties and other users will adopt and optimally use this resource so as to increase productivity and profitability while ensuring a greener and more inclusive growth.

**Doreen Kinoti**

**Programme Manager, Green Employment in Agriculture Programme**

# Acknowledgements

The Green Employment in Agriculture Programme (GEAP) participating counties (Kilifi, Kwale, Nakuru, Nyandarua, Siaya, Kisii, Kakamega, Bungoma, Trans Nzoia, Uasin Gishu, Makueni and Machakos) are acknowledged for providing resource persons in compilation of the document. The technical support and expertise provided by Kenya Agricultural and Livestock Research Organisation in development of the document is appreciated. Thanks to the Royal Danish Government's Danish International Development Agency (DANIDA) for facilitating the development of this resource material. Micro Enterprises Support Programme Trust (MESPT) is appreciated for co-ordinating the process of development and production of this document.



# Table of contents

<b>FOREWORD</b>	ii
<b>PREFACE</b>	iii
<b>ACKNOWLEDGEMENTS</b>	iv
<b>LIST OF ABBREVIATIONS</b>	i
<b>SECTION I</b>	2
<b>1.0 OVERVIEW OF THE EXPORT VEGETABLES VALUE CHAIN IN KENYA</b>	2
<b>1.2 GREEN GROWTH OPPORTUNITIES IN THE EXPORT VEGETABLES VALUE CHAIN</b>	2
<b>1.3 OVERALL OBJECTIVES OF THE TRAINING</b>	2
<b>1.4 ORGANIZATION OF THE TRAINING CONTENT</b>	2
<b>1.5 PARTNERS AND THEIR ROLES</b>	6
<b>1.6 FACILITATORS GUIDELINES</b>	6
<b>SECTION II: TRAINING MODULES</b>	9
Outline of the modules	9
<b>MODULE 1: INTRODUCTION</b>	9
1.1 Overview	9
1.2 Module learning outcomes	9
1.3 Module Summary	10
1.4 Facilitator Guidelines	12
<b>MODULE 2: PLANTING MATERIALS AND PROPAGATION</b>	15
2.1. Introduction	15
2.2. Module Learning Outcomes	15
2.3 Module Summary	15
2.4 Facilitator's Guidelines	17
<b>MODULE 3: CROP MANAGEMENT</b>	19
3.1 Introduction	19
3.2 Module learning outcomes	19
3.3 Module Summary	19
3.4 Guidelines for Facilitators	21



<b>MODULE 4: INTEGRATED SOIL AND WATER MANAGEMENT PRACTICES FOR EXPORT VEGETABLES PRODUCTION.....</b>	<b>24</b>
4.1 Introduction.....	24
4.2 Module learning outcomes.....	24
4.3 Module Summary.....	25
4.4 Facilitator's Guidelines.....	27
<b>MODULE 5: EXPORT VEGETABLES CROP HEALTH - PESTS AND DISEASE MAN- AGEMENT.....</b>	<b>31</b>
5.1 Introduction.....	31
5.2 Module Learning Outcomes.....	31
5.3 Module Summary.....	31
5.4 Facilitator's Guidelines.....	33
<b>MODULE 6: EXPORT VEGETABLES VALUE ADDITION.....</b>	<b>39</b>
6.1 Introduction.....	39
6.2 Module Learning Outcome.....	39
6.3 Module Summary.....	39
6.4 Facilitator's Guidelines.....	41
<b>MODULE 7: GREEN TECHNOLOGIES AND MECHANIZATION.....</b>	<b>43</b>
7.1 Introduction to the module.....	43
7.2 Module learning outcomes.....	43
7.3 Module Summary.....	43
<b>MODULE 8: EXPORT VEGETABLES BUSINESS AND MARKETING.....</b>	<b>47</b>
8.1 Introduction.....	47
8.2 Module Learning Outcomes.....	47
8.3 Module Summary.....	47
8.4 Facilitators Guidelines.....	50

**MODULE 9: GENDER EQUALITY, HUMAN RIGHTS AND SOCIAL INCLUSION.....53**

9.1 Introduction.....53

9.1 Module Summary.....53

9.2Guidelines for Facilitators.....56

**ANNEX I.....59**

**ANNEX 2. List of participants who validated this document.....60**

## 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 Export Vegetables value chain in Kenya, Green growth opportunities in the Export Vegetables sub-sector, Objectives of the training, Content of the Training and Facilitators Guidelines.

## **1.0 Overview of the export vegetables value chain in Kenya**

In Kenya Export Vegetables are grown by large- and small-scale producers. Kenyan Exports offer a wide range of produce from the five types of vegetables. The root crops i.e. beet root, carrots and turnip. The leguminous bunch are also available, these include ground nuts, beans, soya beans and the peas. Various other vegetables include, but are not limited to winged beans, tindori, papri, Siragwa, turia, french beans and cauliflower. We also have the common place vegetables e.g. chili, tomatoes, mushroom and onions.

In the year 2019-2020 the value of vegetables exports decreased by 4.6 from Kshs25.39 billion in 2019 to Kshs24.23 billion in 2020. (Source: AFA-Horticulture Crops Directorate)

## **1.2 Green growth opportunities in the export vegetables value chain**

Export Vegetables are suitable crop for upscaling green technologies and building resilience to climate change among the smallholder growers. Export Vegetables shows good response to green technologies including organic manure, mulching and cover cropping which reduce extra chemical load. Export Vegetables-based mixed cropping systems can also improve overall income per unit area of land while promoting environmental conservation.

Export Vegetables seedling nurseries, planting, management and harvesting 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:

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

Enhance farmer trainers' knowledge and skills in Export Vegetables GAP, including on-farm Export Vegetables variety selection, establishment and management of fields

Equip farmers trainers' with knowledge and skills in post-harvest and value addition of Export Vegetables

## **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 up-scaling of best practices in the Export Vegetables 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 Export Vegetables 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	<ul style="list-style-type: none"> <li>• Understanding the Export Vegetables plant</li> <li>• Suitable areas for Export Vegetables production in Kenya</li> <li>• Agro-climatic requirements for Export Vegetables production</li> <li>• Economic importance of Export Vegetables</li> </ul>	<ul style="list-style-type: none"> <li>• Better understanding of the Export Vegetables plant</li> <li>• Proper site selection for Export Vegetables production</li> <li>• Economic importance of Export Vegetables appreciated</li> </ul>	4 hours 30 minutes
2. 3	Planting Materials and Propagation	<ul style="list-style-type: none"> <li>• Export Vegetables varieties and variety selection</li> <li>• Export Vegetables propagation</li> <li>• Export Vegetables nursery management</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness on improved Export Vegetables varieties</li> <li>• Knowledge on production of quality Export Vegetables planting materials enhanced</li> <li>• Knowledge on Export Vegetables nursery management enhanced</li> </ul>	3 hours 30 minutes
3. 5	Crop Management	<ul style="list-style-type: none"> <li>• Land preparation</li> <li>• Planting</li> <li>• Care of young plants</li> <li>• Care of old plants</li> <li>• Good agronomic practices</li> </ul>	<ul style="list-style-type: none"> <li>• Improved understanding of suitable land preparation practices</li> <li>• Planting and spacing recommendations appreciated</li> <li>• Innovative climate smart agronomic practices for increased Export Vegetables production appreciated</li> </ul>	4 hours:30 Minutes

No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
	Integrated Soil and Water Management Practices for Export Vegetables Production	<ul style="list-style-type: none"> <li>• Export Vegetables production and productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Improved understanding and adoption of ISWM in Export Vegetables production</li> </ul>	4 hours 30 minutes
4. 6	Pests and Disease Management	<ul style="list-style-type: none"> <li>• Export Vegetables pests and how to control them</li> <li>• Weed management in Export Vegetables</li> <li>• Export Vegetables diseases and how to control them</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced capacity to identify and control important Export Vegetables pests</li> <li>• Enhanced knowledge on weed management in Export Vegetables</li> <li>• Enhanced capacity to identify and control important Export Vegetables disease</li> </ul>	8 hours
5. 7	Green Technologies and Mechanization	<ul style="list-style-type: none"> <li>• Integrated soil and water management practices for Export Vegetables production</li> <li>• Organic Export Vegetables farming</li> <li>• Mechanization of Export Vegetables production</li> </ul>	<ul style="list-style-type: none"> <li>• Soil, water and fertility management techniques availed</li> <li>• Option of organic Export Vegetables farming appreciated</li> <li>• Mechanized Export Vegetables production techniques appreciated</li> </ul>	3 hours 30 minutes

No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
6. 8	Export Vegetables Value Addition	<ul style="list-style-type: none"> <li>• Maturity determination for various products</li> <li>• Export Vegetables harvesting techniques</li> <li>• Post – harvest handling of Export Vegetables</li> <li>• Value – added Export Vegetables products</li> </ul>	<ul style="list-style-type: none"> <li>• Proper maturity determination to reduce losses in quantity and quality of Export Vegetables appreciated</li> <li>• Knowledge on proper harvesting techniques and storage facilities, hygiene and monitoring enhanced</li> <li>• Knowledge on production of various value – added Export Vegetables products enhanced</li> </ul>	4 hours 30 minutes
	Export Vegetables business and marketing	<ul style="list-style-type: none"> <li>• Business opportunities in the Export Vegetables value chain</li> <li>• Investment Profiling for the Export Vegetables Value</li> <li>• Gross Margin Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Business opportunities in the Export Vegetables value chain explored</li> <li>• Investment options in Export Vegetables value chain profiled</li> <li>• Knowledge on gross margin analysis enhanced</li> </ul>	3 hours 30 minutes
	Evaluation of the training	<ul style="list-style-type: none"> <li>• Participants assessment of each training module</li> </ul>	<ul style="list-style-type: none"> <li>• Effectiveness of training established</li> <li>• Areas for improvement identified</li> </ul>	30 minutes
				<b>37 hours</b>

\*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:

**Core Trainers** - Master trainers 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.

**County Government** – The county Government through will provide a team to be trained as 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.

**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 manual 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.

**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.

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



**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*

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 I**).

#### *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 manual. 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**

<b>Training Method</b>	<b>Description of Method</b>
Plenary presentations	Use of PowerPoint or flip charts and plenary discussions in situations where knowledge and opinion or consensus is required
Group exercises, buzz groups, visits and brainstorming 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 Use-ful (3 marks)	Useful (2 marks)	Of Limited Use (1 marks)
1) Introduction			
2) Planting Materials and Propagation			
3) Crop Man-agement			
4) Pests and Disease Manage-ment			
5) Integrated Soil and Water Man-agement Practices for Moringa Production			
6) Green Tech-nologies and Mechanization			
7) Export Veg-etables Value Addition			
8) Business and marketing			

**1.6.8 Key references**

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

Export Vegetables reference material will consist of materials such as: Export Vegetables 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; Integrated Soil and Water Management Practices; Green Technologies and Mechanization; Export Vegetables Value Addition; and Business and marketing.

### Outline of the modules

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

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

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

**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

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

## Module I: Introduction

### I.1 Overview

Most of the 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 Export Vegetables 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 Export Vegetables production. While these agro-climatic factors are critical for growth and yield performance of Export Vegetables, 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 Export Vegetables performance and yields.

### I.2 Module learning outcomes

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

Importance of Export Vegetables in Kenya's economy explained and appreciated

Knowledge of altitudes and soil types/characteristics for Export Vegetables production enhanced

Climatic conditions (temperatures, rainfall and humidity) required for Export Vegetables production

understood and applied

Specific county agro-ecological zones for Export Vegetables production. explained and understood

### 1.3 Module Summary

Module 1: Introduction			
Sessions	Training methods	Training materials	Time
I.3.1 Introductions and climate setting	<ul style="list-style-type: none"><li>• Preliminaries</li><li>• Self-introduction</li><li>• Setting Norms &amp; rules</li><li>• Plenary discussion</li><li>• Group exercise</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li></ul>	20 minutes
I.3.2 The Export Vegetables plant; Importance of Export Vegetables in Kenya's economy	<ul style="list-style-type: none"><li>• Presentations</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li><li>• Participants' handouts</li></ul>	30 minutes
I.3.3 Export Vegetables production ecological/climatic requirements for optimal yields	<ul style="list-style-type: none"><li>• Presentations</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Participants' handouts</li><li>• Projector</li></ul>	30 minutes
I.3.4 Export Vegetables production Agro-ecological zones (AEZs)- average yields, and constraints in the target Counties	<ul style="list-style-type: none"><li>• Group exercise</li><li>• Plenary Presentation</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li></ul>	40 minutes
I.3.5 Gain practical knowledge on specific county AEZs for Export Vegetables production	<ul style="list-style-type: none"><li>• Group exercise</li><li>• Presentations</li><li>• Plenary discussion</li><li>• Video/photo show</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li></ul>	20 minutes



I.3.6 Module review	<ul style="list-style-type: none"> <li>• Discussions/conclusion and way forward</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> </ul>	10 minutes
<b>Total</b>			<b>2 hours 30 minutes</b>



## 1.4 Facilitator Guidelines

1.4.1 Introductions and climate setting	Session guide
<p><i>(The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations)</i></p> <p><b>Levelling of expectations</b></p> <p>The trainees to form groups (e.g. Sub-county based) and list their expectations, norms and rules.</p> <p><i>The facilitator presents module objectives</i></p> <p><b>Objectives</b></p> <p>By the end of the module, the trainee should be able to:</p> <ul style="list-style-type: none"> <li>• To define the importance of Export Vegetables in Kenya's economy.</li> <li>• Indicate and describe altitudes and soil types/ characteristics for Export Vegetables production.</li> <li>• Describe climatic conditions (temperatures, rainfall and humidity) required for Export Vegetables production.</li> <li>• Gain practical knowledge on specific county agro-ecological zones for Export Vegetables production.</li> <li>• Understand and be able to apply innovative Export Vegetables production and management technologies in the suitable counties.</li> </ul>	<ul style="list-style-type: none"> <li>• Summarize the facilitator/ trainees involvement in Export Vegetables value chains</li> <li>• Powerpoint presentation</li> </ul>
1.4.2 Importance of Export Vegetables in Kenya's economy	
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• The Export Vegetables plant</li> <li>• Export Vegetables in Kenyan households</li> <li>• General Export Vegetables production trends in Kenya</li> <li>• Export Vegetables consumption and markets</li> </ul> <p><b>Guided discussions by the Facilitator</b></p> <p>Questions/answers/comments</p>	<ul style="list-style-type: none"> <li>• Power point presentation</li> <li>• Participants' handouts</li> <li>• Plenary discussion</li> </ul>

1.4.3 Export Vegetables production ecological/climatic requirements	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Altitude and Agro-ecological zones for Export Vegetables production</li> <li>• Climatic conditions (Rainfall, Temperatures and humidity)</li> <li>• Soils (soil types, pH, general fertility for Export Vegetables)</li> </ul> <p><b>Facilitator's guided discussion</b></p> <p>Questions/answers/comments</p>	<ul style="list-style-type: none"> <li>• Power point presentation</li> <li>• Participants' handouts</li> <li>• Plenary discussion</li> </ul>
1.4.4 Export Vegetables production AEZs, average yields, and constraints in the target areas	Session guide
<p><b>Plenary Presentation</b></p> <p>Facilitator guide in reviewing and discussing suitability map (County by County)</p> <p><b>Group exercise</b></p> <p>Trainees to bring out specific county or sub-county AEZs, land size, yields and constraints to Export Vegetables production and present in the plenary:</p> <ul style="list-style-type: none"> <li>• Agro-ecological zones (AEZs) and % area suitable for Export Vegetables</li> <li>• Average land/farm size under Export Vegetables production in Kenya</li> <li>• Average yield of Export Vegetables per unit farm area</li> <li>• Constraints to Export Vegetables production</li> <li>• Opportunities to addressing the constraints</li> </ul> <p><b>Discussions/presentations from the groups</b></p> <p>Let the trainees/groups share the group exercise outcomes</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Group work</li> <li>• Open discussions with the guidance of the facilitator</li> <li>• Plenary discussion</li> </ul>

1.4.5 Practical knowledge on specific county agro-ecological zones for Export Vegetables production	Session guide
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>Facilitator guide trainees on the practical knowledge applicable to specific county agro-ecological zones for Export Vegetables production</li> </ul> <p><b>Plenary discussions and Video/photo show</b></p>	<ul style="list-style-type: none"> <li>Power-point presentation</li> <li>Video/photo show</li> <li>Plenary discussion</li> <li>Plenary discussion</li> </ul>
1.4.6 Module review	Session guide
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <p>Summary of the main points from the training</p> <ul style="list-style-type: none"> <li>Objectives and expectations (review done on basis of the expectations listed earlier)</li> <li>Trainees to recall the Export Vegetables production ecological/climatic requirements, Export Vegetables production AEZs average yields, and constraints in the target Counties</li> <li>Trainees to indicate new sets of skills and knowledge acquired from the module. The results are recorded per county presented</li> <li>Trainees to randomly identify the issues for the way forward.</li> </ul> <p><b>Facilitator's guided discussion</b></p>	<ul style="list-style-type: none"> <li>The last participants' hand-outs/training materials</li> <li>Summarize the main points of the module on a flip chart and display</li> <li>Plenary discussion</li> </ul>



# Module 2: Planting Materials And Propagation

## 2.1. Introduction

This module is designed for training and exposing trainees to Export Vegetables varieties, propagation and nursery management. This module also exposes trainees to the improved Export Vegetables varieties recommended for diverse uses and targeted production environments. Major varieties of Export Vegetables cultivated in Kenya are: *sweet peas, runner beans, snow peas, okra, Asian vegetables, snap peas among others*. Selecting the best Export Vegetables 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 Export Vegetables 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:

- Various improved Export Vegetables varieties, their ecological areas of cultivation and their uses identified and compared
- Export Vegetables 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 leveling of expectations 1.	<ul style="list-style-type: none"><li>• Groups to bring out expectations</li><li>• Plenary presentation</li></ul>	<ul style="list-style-type: none"><li>• Module objectives</li><li>• Marker pens</li><li>• Flip charts</li><li>• Projector</li><li>• Laptop</li></ul>	20 minutes
2.3.2 Introduction to the various improved Export Vegetables varieties, their ecological areas of cultivation and their attributes and uses.	<ul style="list-style-type: none"><li>• Group Exercises to identify local Export Vegetables land-races and varieties</li><li>• Plenary Presentations</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li><li>• Manila papers</li></ul>	30 minutes

2.3.3 Recommended varieties for specific regions	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Group exercise</li> <li>• Field demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Manila paper</li> </ul>	20 minutes
2.3.4 Instructions on Export Vegetables propagation interpreted and applied	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Group exercise</li> <li>• Plenary discussions</li> <li>• Practicals/demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Manila papers</li> <li>• Propagation materials</li> </ul>	1 hour 30 Minutes
<p>2.3.5 Certified planting materials sources for Export Vegetables identified and adopted.</p> <ul style="list-style-type: none"> <li>• Information on planting materials understood in preferred variety identified.</li> </ul> <p><b>Group exercise</b></p> <p><i>Circulate samples of certified Export Vegetables planting materials</i></p> <p><i>Identify key information on Export Vegetables planting materials provided</i></p>	<ul style="list-style-type: none"> <li>• Distribute Participants' handouts</li> <li>• Group exercise</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration of Planting materials seedlings sample</li> </ul>	30 minutes
2.3.6 Module review	<ul style="list-style-type: none"> <li>• Participants' questions and comments</li> <li>• Facilitator's summary</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' handouts</li> <li>• Module review</li> </ul>	20 minutes
<b>TOTAL</b>			<b>3 hours</b>

## 2.4 Facilitator's Guidelines

2.4.1 Introduction and Leveling Expectations	Session guide
<p><i>The facilitator welcomes trainees to the module and introduces him/herself, stating profile and experience of working with farmers.</i></p> <p><b>Trainees' introductions and expectations</b></p> <p>The facilitator invites the trainees to state their expectations after brain storming in their respective county groups</p> <p><b>Module Objectives</b></p> <p><i>The facilitator presents module's objectives.</i></p> <p>By the end of the module, the trainee should be able to:</p> <ol style="list-style-type: none"> <li>1. Describe and explain Export Vegetables seed systems in Kenya.</li> <li>2. Describe Export Vegetables planting materials production systems in public and private nurseries</li> <li>3. Explain the role of private nurseries, community and public nurseries in the production of quality Export Vegetables.</li> </ol>	<ul style="list-style-type: none"> <li>• Summarize trainees' Expectations on a flip-chart</li> <li>• Power point presentation</li> </ul>
2.4.2 Introduction to Export Vegetables and the various improved Export Vegetables varieties and their uses	Session guide
<p><i>(The facilitator describes the Export Vegetables crop and guides the trainees in identifying the various Export Vegetables improved varieties and their uses).</i></p> <p><b>Group exercise and discussion</b></p> <p>Ask trainees highlight and describe some of the Export Vegetables varieties they know.</p> <p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Improved Export Vegetables varieties.</li> <li>• Categories of Export Vegetables varieties and comparison of various hybrid varieties.</li> </ul> <p><i>Show trainees the photographs of each variety and the full description and its uses.</i></p>	<ul style="list-style-type: none"> <li>• Distribute participants' hand-outs</li> <li>• Group exercise</li> <li>• Plenary discussion</li> </ul>

2.4.3 Recommended Export Vegetables varieties for the target counties	Session guide
<p><b>Plenary Presentation</b></p> <p><b>Varieties for the target counties</b></p> <ul style="list-style-type: none"> <li>• Export Vegetables growing regions and the new regions which are being targeted for Export Vegetables cultivation in Kenya.</li> <li>• Export Vegetables varieties suited for each county</li> <li>• Climate conditions for target county (semi-arid, rain-fed and irrigated)</li> </ul> <p><b>Group exercises</b></p> <p>Trainees discuss and come up with Export Vegetables varieties in their county</p> <p><b>Field demonstration</b></p> <p><i>(Identify farmers' fields with various Export Vegetables varieties).</i></p> <ul style="list-style-type: none"> <li>• Visit the Export Vegetables plots with the trainees and assist them identify and study the various varieties.</li> <li>• After the field visit facilitate them to recall what they learned and discuss on any issue that may arise. (can also use Export Vegetables vegetables samples/pictures for the various varieties)</li> </ul>	<ul style="list-style-type: none"> <li>• Distribute participants' handouts.</li> <li>• Power-point presentation</li> <li>• Group exercise</li> <li>• Field demonstration</li> </ul>
2.4.4. Instructions on planting materials package interpreted and applied	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Certified planting materials sources for Export Vegetables identified and adopted.</li> <li>• Information on planting materials understood in preferred variety identified.</li> </ul> <p><i>Circulate samples of certified Export Vegetables planting materials</i></p> <p><i>Identify key information on planting materials provided</i></p>	<ul style="list-style-type: none"> <li>• Distribute Participants' handouts</li> <li>• Group exercise</li> <li>• Plenary discussion</li> </ul>



# Module 3: Crop Management

## 3.1 Introduction

The low yields realized in Export Vegetables production by farmers is as a result of non-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 Export Vegetables, 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 Export Vegetables 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 Export Vegetables agronomic practices that include; planting materials 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:

- Agronomic practices for Export Vegetables production described and explained.
- Region specific agronomic practices for Export Vegetables production optimization outlined.
- Appropriate inputs and their correct application rates for Export Vegetables production described.
- Timing for operations or inputs application in Export Vegetables production described and explained.

## 3.3 Module Summary

Module 3: Export Vegetables agronomic practices			
Sessions	Training methods	Training materials	Time
3.3.1 Introductions and climate setting, objectives and expectations	<ul style="list-style-type: none"><li>• Self-introduction</li><li>• Setting Norms &amp; rules</li><li>• Plenary Presentation</li><li>• Plenary discussion</li><li>• Group exercise</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li></ul>	20 minutes

Module 3: Export Vegetables agronomic practices			
Sessions	Training methods	Training materials	Time
3.3.2 Agronomic practices for Export Vegetables production	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Group exercise (Groups tour nearby farm for layout demonstration)</li> <li>• Plenary discussions (From the farm visit)</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	1 hour
3.3.3. Site selection, Land Preparation, planting materials selection, planting, water requirement, pest management, weed management and crop rotation	<ul style="list-style-type: none"> <li>• Practical exercise (groups tour nearby farm for layout demonstration)</li> <li>• Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	30 minutes
3.3.4 Appropriate inputs and their recommended application rates for optimum production of Export Vegetables	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Group exercise (trainees enlist inputs and application rates for different counties)</li> <li>• Plenary discussions (share group work results)</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	40 minutes
3.3.5 Module review and discussion	<ul style="list-style-type: none"> <li>• Discussion/conclusion and way forward</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> </ul>	30 minutes
<b>Total</b>			<b>3 hours</b>

### 3.4 Guidelines for Facilitators

Module 3: Agronomic Practices for Export Vegetables		
3.4.1. Introductions, climate setting	Session guide	
<p><b>Preliminaries</b></p> <p><i>The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations</i></p> <p><b>Expectations</b></p> <p>The trainees form groups (e.g., county based) and list expectations from the module</p> <p><i>The facilitator presents the module objectives.</i></p> <p><b>Objectives</b></p> <p>By the end of the training module, the trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Explain and describe agronomic practices for Export Vegetables production.</li> <li>• Describe appropriate inputs and their correct application rates for Export Vegetables production.</li> <li>• Outline region specific Export Vegetables production agronomic practices.</li> <li>• Specify the correct timing for all operations including application of inputs in Export Vegetables production.</li> </ul>	<ul style="list-style-type: none"> <li>• Summarize the trainees expectations</li> <li>• Power-point presentations</li> <li>• Group exercise (listing and presenting expectations).</li> <li>• Expectations lists kept for later reviewing compliance</li> </ul>	

<b>3.4.2. Agronomic practices for Export Vegetables production</b>	
<p><b>Plenary Presentation</b></p> <p>The facilitator presents critical factors on:</p> <ul style="list-style-type: none"> <li>• Factors for selecting Export Vegetables production as an enterprise</li> <li>• Climate smart land preparation practices</li> <li>• Climate smart planting</li> <li>• Weed control</li> <li>• Pests and disease control</li> <li>• Cropping systems</li> <li>• Spacing (inter-and intra-row spacing)</li> <li>• Conservation agriculture principles/benefits</li> </ul> <p><b>Practical exercise</b></p> <p>Guided groups tours to model farms to observe various planting and management techniques</p> <p><b>Plenary discussion</b></p> <p>Questions/answers and comments</p>	<ul style="list-style-type: none"> <li>• Power-point Presentation</li> <li>• Plenary discussion</li> <li>• Distribute participants' handouts/ training materials</li> <li>• Practical exercise</li> </ul>
<b>3.4.3. Appropriate inputs for the optimal production of Export Vegetables and their correct/ recommended application rates</b>	<b>Session guide</b>
<p><b>Group exercise</b></p> <ul style="list-style-type: none"> <li>• The facilitator guides trainees to list or/and present the required inputs for use in Export Vegetables production</li> <li>• The trainees get into county groups to provide lists of Export Vegetables inputs and their application rates as practiced by farmers.</li> <li>• The groups present their results in the plenary - opening up for questions, answers and discussion.</li> </ul> <p><b>Plenary presentation and plenary discussion</b></p> <p>(The recommended Export Vegetables inputs (planting materials, fertilizers, manures, among others), their application rates and appropriate time of application for optimal yields</p>	<ul style="list-style-type: none"> <li>• Power-point Presentation</li> <li>• Distribute participants' handouts</li> <li>• Groups exercise</li> <li>• Plenary discussion</li> </ul>



3.4.3. Appropriate inputs for the optimal production of Export Vegetables and their correct/recommended application rates	Session guide
<p><b>Group exercise</b></p> <ul style="list-style-type: none"> <li>• The facilitator guides trainees to list or/and present the required inputs for use in Export Vegetables production</li> <li>• The trainees get into county groups to provide lists of Export Vegetables inputs and their application rates as practiced by farmers.</li> <li>• The groups present their results in the plenary - opening up for questions, answers and discussion.</li> </ul> <p><b>Plenary presentation and plenary discussion</b></p> <ul style="list-style-type: none"> <li>• The recommended Export Vegetables inputs (planting materials, fertilizers, manures, among others.), their rates and their time of application for optimal yields</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point Presentation</li> <li>• Distribute participants' handouts</li> <li>• Groups exercise</li> <li>• Plenary discussion</li> </ul>
3.4.4. Module review	Session guide
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <p>Summary of the main points from the training</p> <ul style="list-style-type: none"> <li>• Objectives and expectations (review done on basis of the objectives and expectations listed earlier)</li> <li>• <i>Trainees to randomly indicate new sets of skills and knowledge learnt from the module. The results are recorded per county presented</i></li> <li>• Randomly (average of 10 cases) trainees identify key issues for the way forward issues.</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' handouts</li> <li>• Summarize the main points of the module on a flip chart and display</li> </ul>

# Module 4: Integrated Soil And Water Management Practices For Export Vegetables Production

## 4.1 Introduction

Increasing pressure on soil and water resources and soil nutrients depletion has called into question, the changing strategies and approaches of soil fertility management and plant nutrition. Decline in soil fertility is the major constraint limiting the productivity of vegetables. In addition climate change has accelerated the decline of the agricultural sector performance through limited and unpredictable moisture availability for the vegetables production.

Globally, following the idea of sustainable development, ISFM is a holistic approach which carries a variety of overlapping components including use of certified cultivars, inorganic and organic fertilizers, cropping systems that mitigate climatic and soil stress factors within the context of social and economic practicability. Integrated Soil Fertility Management (ISFM), through one of its component of conservation agriculture offers the best option for improving soil fertility in the advent of climate change adaptation and increased demand for food for the growing population.

There is need to integrate existing technologies of Integrated Natural Resource Management (INRM), Integrated Soil Fertility Management (ISFM), Integrated Water Management (IWM) and sustainable intensification practices in small holder production systems in addressing Export Vegetables nutrient requirements. The encouraged use of organic manure and green manures in Export Vegetables production is aimed reducing production costs incurred from costly commercial fertilizers. This module exposes public and private extension agents, service providers, lead farmers and facilitators to the integrated soil and water management practices for enhanced Export Vegetables production.

## 4.2 Module learning outcomes

By the end of the module, the following training outcomes should be achieved by the TOT facilitators:

- Enhanced understanding on soil composition, the various physical, chemical and biological properties and what constitutes a healthy soil, including soil classification explained and appreciated
- Gain knowledge in soil and plant tissue sampling for laboratory analysis, interpretation and utilization of results from accredited laboratories in Kenya
- Understand soil health and Integrated Soil Fertility Management (ISFM) for climate resilient cropping systems
- Gain knowledge in water harvesting technologies, soil and water management
- Have ability to identify temporary or permanent decline of land productive capacity and use available management solutions to amend soil degradation
- Identify and describe problematic soils and their management strategies

### 4.3 Module Summary

Module 4: Integrated soil and water management practices for Export Vegetables production			
Sessions	Training methods	Training materials	Duration
<b>4.3.1</b> Introduction, objectives and expectations	<ul style="list-style-type: none"> <li>• Self-introduction</li> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector for Power-point presentation</li> <li>• Laptop</li> </ul>	20 minutes
<b>4.3.2</b> Soil composition, properties and health	<ul style="list-style-type: none"> <li>• Plenary Presentations</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector for Power-point presentation</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>4.3.3</b> Soil and plant tissue sampling and analysis	<ul style="list-style-type: none"> <li>• Plenary Presentations</li> <li>• Field demonstrations (Conduct soil and plant tissue sampling and analysis)</li> </ul>	<ul style="list-style-type: none"> <li>• Projector for Power-point presentation</li> <li>• Participants' handouts</li> <li>• Soil and plant tissue sampling tools</li> </ul>	1 hour
<b>4.3.4.</b> Soil fertility and plant nutrition	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector for Power-point presentation</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	30 minutes

<b>Module 4: Integrated soil and water management practices for Export Vegetables production</b>			
<b>Sessions</b>	<b>Training methods</b>	<b>Training materials</b>	<b>Duration</b>
<b>4.3.5</b> Soil health and (ISFM) for climate resilient cropping systems	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>4.3.6</b> Soil and water management and water harvesting technologies	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>4.3.7</b> Soil degradation and reclamation	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>4.3.8</b> Problematic soils and their management	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>4.3.9</b> Module review and discussion	<ul style="list-style-type: none"> <li>• Discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> </ul>	10 minutes
<b>Total</b>			<b>4 hours 30 minutes</b>



## 4.4 Facilitator's Guidelines

4.4.1. Introduction, Objectives and Expectations	Session guide
<p><i>(The facilitator welcomes trainees to the module on sustainable water and soil fertility management practices for optimal production of Export Vegetables in moisture stressed conditions. The trainees are then invited to introduce themselves and state their expectations)</i></p> <p><b>Module Objectives</b></p> <p><i>(The facilitator presents modules objectives)</i></p> <p>By the end of the module, the trainee should be able to:</p> <ul style="list-style-type: none"><li>• Appreciate soil composition and what constitutes a healthy soil, including soil classification.</li><li>• Describe soil and plant tissue sampling for laboratory analysis, interpretation and utilization of results from accredited laboratories in Kenya.</li><li>• Explain soil health and Integrated Soil Fertility Management (ISFM) for climate resilient cropping systems.</li><li>• Explain water harvesting technologies, soil and water management.</li><li>• Identify temporary or permanent decline of land productive capacity and provide various solutions to soil degradation.</li><li>• Identify and describe problematic soils and their management.</li></ul>	<ul style="list-style-type: none"><li>• Summarize trainees' "Expectations" and display.</li><li>• Power-point presentation</li><li>• Distribute participants' handouts on Module</li><li>• Objectives and Training Program</li></ul>

4.4.2. Soil composition, properties and health	Session guide
<p><i>(The facilitator presents on soil composition, properties and health)</i></p> <p><b>Plenary presentation</b></p> <p>(Soil composition, properties and health)</p> <ul style="list-style-type: none"> <li>• Description of soil composition</li> <li>• Description of soil properties</li> <li>• Describe what soil health is all about</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Plenary discussion</li> </ul>
4.4.3. Soil and plant tissue sampling and analysis	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Overview of the soil sampling methods</li> <li>• Soil analysis results and interpretation</li> <li>• Overview of soil analysis results using available examples</li> <li>• Soil sampling guidelines</li> </ul> <p><b>Practical exercise and demonstration on soil sampling</b></p> <ul style="list-style-type: none"> <li>• soil sampling methods</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Practical exercise and demonstration</li> </ul>
4.4.4. Soil fertility and plant nutrition	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Potential role of different soil management techniques in addressing soil fertility challenges in Export Vegetables smallholder farming systems</li> <li>• Integrated Soil Fertility Management techniques</li> <li>• Soil management guidelines</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Plenary discussion</li> <li>• Distribute participants' handouts</li> </ul>

4.4.5 Soil health and (ISFM) for climate resilient cropping systems	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Soil health</li> <li>• Introduce integrated soil fertility management (ISFM)</li> <li>• Soil health and ISFM for a climate resilient cropping system</li> <li>• Manure management, mulching, organic amendments and composting for increased use of organic manure for improving agricultural production</li> <li>• Conservation agriculture as a climate smart agriculture practice</li> <li>• Export Vegetables as an agroforestry plant in climate resilient cropping systems</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Brochures, leaflets and manual</li> </ul>
4.4.6 Soil and water management and water harvesting technologies	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Principles of soil management for Export Vegetables production</li> <li>• Methods of tillage systems that conserve water in Export Vegetables farming</li> <li>• Principles of soil fertility management Export Vegetables farming</li> <li>• Methods of soil fertility management for increased Export Vegetables productivity</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' Handouts</li> <li>• Plenary discussion</li> </ul>

4.4.7 Soil degradation and reclamation	Session guide
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Overview of soil degradation and reclamation.</li> <li>• Reclamation measures of degraded soil</li> <li>• Identification of the causes of soil degradation</li> <li>• Identification of reclamation measures of degraded soil</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Plenary discussion</li> </ul>
4.4.8 Problematic soils and their management	Session guide
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>• Problematic soils and their management</li> <li>• Soils with unsuitable biological properties</li> <li>• Soils with unsuitable chemical properties</li> <li>• Soils with unsuitable physical properties</li> </ul> <p><b>Plenary discussion</b></p> <p>Let the trainees recall what they learnt and discuss any issues that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' Handouts</li> <li>• Brochures, leaflets and manual</li> </ul>
4.4.9. Module review	Session guide
<p><i>The facilitator leads the trainees in reviewing the module)</i></p> <p>Summarize the main points of the training review the main points together with the trainees.</p> <p>Discuss with trainees about new things learnt from this Module. Let them identify some of the problems and any other issues arising from the module.</p>	<ul style="list-style-type: none"> <li>• The last participants' handouts</li> <li>• Summary of the main points from the module on a flip chart and display</li> </ul>



# Module 5: Export Vegetables Crop Health - Pests And Disease Management

## 5.1 Introduction

Export Vegetables production is often constrained by several pests and diseases known to damage and reduce the yield and quality of Export Vegetables. Diverse pests and diseases depending on the vegetable type are of economic importance in export vegetable production. Further, an acute shortage of knowledge among Export Vegetables farmers on the recommended crop health management options gets farmers frustrated and most of them may abandon the crop if timely interventions are not prioritized.

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

## 5.2 Module Learning Outcomes

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

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

## 5.3 Module Summary

Module 5: Crop Health			
Sessions	Training methods	Training materials	Time
5.3.1 Introduction, objectives and expectations	<ul style="list-style-type: none"><li>• Self-introductions</li><li>• Group exercise</li><li>• Plenary presentation</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Marker pens</li><li>• Laptop</li><li>• Projector</li></ul>	30 minutes
5.3.2 Major Export Vegetables pests that cause economic losses and their control methods;	<ul style="list-style-type: none"><li>• Group work</li><li>• Plenary presentation</li><li>• Plenary discussion</li><li>• Practical exercise</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Marker pens</li><li>• Projector</li><li>• Laptop</li><li>• Participants' handouts</li></ul>	1 hour

Module 5: Crop Health			
Sessions	Training methods	Training materials	Time
5.3.3 Sustainable Integrated Pests Management practices and scouting for threshold determination in Export Vegetables	<ul style="list-style-type: none"> <li>• Plenary presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	30 minutes
5.3.4 Major Export Vegetables diseases that cause economic losses and conditions that favor their development including their control methods	<ul style="list-style-type: none"> <li>• Group work</li> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> <li>• Practical session</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	1 hour
5.3.5 Sustainable Integrated Management of Export Vegetables diseases and scouting for threshold determination	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Plenary discussion</li> <li>• Field demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	1 hour
5.3.6 Integrated weed management (Major weeds of Export Vegetables)	<ul style="list-style-type: none"> <li>• Plenary Presentation</li> <li>• Plenary discussion</li> <li>• Field demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Projector</li> <li>• Laptop</li> <li>• Participants' handouts</li> </ul>	1 hour

Module 5: Crop Health			
Sessions	Training methods	Training materials	Time
5.3.7 Safe use of agro-chemical and update source for registered agrochemical (PCPB registered products)	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Practical exercise</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Projector</li> <li>• Laptop</li> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Participants' handouts</li> </ul>	30minutes
5.3.8 Module Review	<ul style="list-style-type: none"> <li>• Discussion/ Recap of the module</li> <li>• Take away messages</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Participants' handouts</li> </ul>	30 minutes
<b>Total</b>			<b>6hours</b>

## 5.4 Facilitator's Guidelines

Module 5: Export Vegetables Crop Health	
5.4.1 Introduction and leveling of expectations and objectives	Session guide
<p><b>Introduction</b></p> <p><i>(The facilitator welcomes trainees to the module and thereafter invites them to introduce themselves and state their expectations)</i></p> <p><b>Module Objectives</b></p> <p><i>(The facilitator presents modules objectives)</i></p> <p>By the end of the module, the trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Identify major pests, diseases and weeds.</li> <li>• Describe and explain integrated pest, disease and weed management in Export Vegetables.</li> <li>• Explain safe use of agro-chemicals (pesticides, fungicides and herbicides).</li> </ul>	<ul style="list-style-type: none"> <li>• Summarize trainees' "Expectations"</li> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>

<b>5.4.2 Major Export Vegetables pests that cause economic losses and their control methods; emerging/migratory pests</b>	<b>Session guide</b>
<p><i>(The facilitator makes a presentation on the common Export Vegetables pests that are of economic importance)</i></p> <p><b>Group work</b></p> <ul style="list-style-type: none"> <li>• Trainees to share Export Vegetables pest information from their respective Counties</li> </ul> <p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Names of pests and their descriptions</li> <li>• Symptoms of their infestation/type of damage</li> <li>• Data on economic significance of the common Export Vegetables pests</li> </ul> <p><b>Practical exercise</b></p> <ul style="list-style-type: none"> <li>• Identification of Export Vegetables pests from provided specimens</li> </ul> <p><b>Discussion</b></p> <ul style="list-style-type: none"> <li>• Let the trainees recall what they learned and discuss any issue that may arise</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Group exercise</li> <li>• Practical exercise</li> <li>• Participants' handouts</li> </ul>



<b>5.4.3. Sustainable Integrated Pest Management (IPM) practices in Export Vegetables; scouting and threshold determination</b>	<b>Session guide</b>
<p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• IPM principles; how to implement them with a focus on cultural, physical, biological and chemical pest management options.</li> <li>• Critical considerations for proper scouting</li> <li>• Threshold determination and when to implement control measures</li> <li>• An overview on the safe use of agro-chemicals (demonstration on how to select most suitable pesticides, for the management of pests in Export Vegetables).</li> </ul> <p><b>Discussion</b></p> <p>Let the trainees recall what they learned and seek clarification on the principles of sustainable IPM options</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>
<b>5.4.4 Major Export Vegetables diseases that cause economic losses, conditions that favour their development and their control methods</b>	<b>Session guide</b>
<p><b>Group work</b></p> <ul style="list-style-type: none"> <li>• Determination of Export Vegetables diseases in specific Counties</li> </ul> <p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Presentations on Export Vegetables diseases and conditions that favor their development</li> </ul> <p><b>Practical Exercise</b></p> <ul style="list-style-type: none"> <li>• Identification of major disease species causing economic damage based on samples presented</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Disease identification guidelines</li> <li>• Practical exercise</li> </ul>

5.4.5 Sustainable Integrated Diseases Management (IDM); scouting and threshold determination	Session guide
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>• Critical considerations for scouting and when to implement Export Vegetables disease control measures</li> <li>• Presentation on Integrated Disease Management (IDM) in Export Vegetables</li> <li>• An overview on the safe use of recommended agro-chemicals (demonstration on how to select most suitable fungicides for the management of major Export Vegetables diseases).</li> </ul> <p><b>Field visit</b></p> <ul style="list-style-type: none"> <li>- Visit to a nearby Export Vegetables field for collection and identification of diseased Export Vegetables samples</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Disease management guidelines</li> <li>• Field demonstration</li> </ul>
5.4.6 Integrated weed management (Major weeds of Export Vegetables)	Session guide
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>• Identification of weeds</li> <li>• Major types of weed in the Export Vegetables field</li> <li>• Integrated Weed control measures</li> </ul> <p><b>Plenary discussion</b></p> <p>Integrated weed management</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Plenary discussion</li> </ul>

5.4.7 Safe Use of agro-chemicals and sources of registered chemicals (PCPB registered products)	Session guide
<p><b>Practical</b></p> <p>Trainees go into their groups and discuss:</p> <ul style="list-style-type: none"> <li>• Ways used by farmers in mixing of pesticides/ ITK products; and their consideration on safe use of pesticides</li> <li>• Representative group leaders give presentation on findings of the discussion</li> </ul> <p><b>Plenary presentation</b></p> <p>Facilitator makes presentation on:</p> <ul style="list-style-type: none"> <li>• Safe use of pesticides</li> <li>• Let the trainees ask questions on any of the covered topical issues and critical areas to share with farmers on safe use of pesticides</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation by facilitator and representative group leaders</li> <li>• Demonstration of proper use of knap sack sprayer, protective gear and calibration of pesticides, sourcing for registered pesticide information online: on PCPB website</li> <li>• Distribute participants hand-outs (brochures, leaflets and manuals)</li> <li>• Pest, disease and weed management guidelines</li> </ul>

5.4.8 Module review	Session guide
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <p>Summarize the main points of the training: The facilitator should review the following main points about climatic conditions suitable for Export Vegetables production:</p> <ul style="list-style-type: none"> <li>• Major pests of Export Vegetables and their economic impacts on Export Vegetables production.</li> <li>• Integrated Pest Management (IPM) options for Export Vegetables</li> <li>• Major diseases of Export Vegetables and their economic impact on Export Vegetables production.</li> <li>• Integrated Disease Management (IDM) options for Export Vegetables</li> <li>• Major weeds of Export Vegetables and their economic impacts on Export Vegetables production.</li> <li>• Integrated Weed Management (IWM) options for Export Vegetables</li> </ul> <p><i>(Discuss with trainees about new things learnt from this Module. What are some of the issues that need clarification)?</i></p>	<ul style="list-style-type: none"> <li>• The last participants' handouts</li> <li>• Summarize the main points from the module on a flip chart and display</li> </ul>



# Module 6: export vegetables value addition

## 6.1 Introduction

ExportVegetables is an important cash crop in Kenya. ExportVegetables production and value addition offers employment opportunities. This module introduces farmer trainers to the importance of Export Vegetables in addressing food and nutrition security at the household, community and industrial levels. The module also covers the various Export Vegetables 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.

## 6.2 Module Learning Outcomes

1. By the end of the module, the following outcomes should be achieved:
2. Role of Export Vegetables as a food security crop explained.
3. Nutritional composition of Export Vegetables, health benefits, food security and income described.
4. Constraints in value addition and utilization of Export Vegetables, and suggest solutions identified
5. Export Vegetables-based value added products identified and explained.

## 6.3 Module Summary

Module 6. Export Vegetables value addition			
Sessions	Training Methods	Training Materials	Time
6.3.1. Introduction, Objectives Expectations	<ul style="list-style-type: none"><li>• Personal introduction</li><li>• Group work</li><li>• Plenary Presentation</li></ul>	<ul style="list-style-type: none"><li>• Flip charts</li><li>• Projector</li><li>• Laptop</li></ul>	30 minutes
6.3.2 Role of Export Vegetables as a food and nutrition security crop	<ul style="list-style-type: none"><li>• Powerpoint Presentation</li><li>• Group exercise</li><li>• Plenary Presentation</li></ul>	<ul style="list-style-type: none"><li>• Flip charts</li><li>• Felt pens</li><li>• Projector</li><li>• laptop</li><li>• Participants' handouts</li></ul>	30 minutes
6.3.3. Nutritional composition of Export Vegetables and its role in human health	<ul style="list-style-type: none"><li>• Powerpoint</li><li>• Plenary presentation</li><li>• Group exercise</li></ul>	<ul style="list-style-type: none"><li>• Powerpoint presentation</li><li>• Flip charts</li><li>• Felt pens</li><li>• Participant handouts</li></ul>	45 min

6.3.4. Constraints in value addition and utilization of Export Vegetables	<ul style="list-style-type: none"> <li>• Group exercise</li> <li>• Plenary Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• List of value added products</li> <li>• Checklist for prioritization</li> <li>• Pair wise ranking tool</li> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Participants' handouts</li> <li>• Projector</li> <li>• Laptop</li> </ul>	45 min
6.3.5 Export Vegetables based value added products:	<ul style="list-style-type: none"> <li>• Plenary Presentations</li> <li>• Plenary discussion</li> <li>• Practical demonstration</li> <li>• Sensory evaluation of value added Export Vegetables products</li> <li>• Field visit to processing firms / groups</li> </ul>	<ul style="list-style-type: none"> <li>• Projector</li> <li>• Laptop</li> <li>• Participant handouts</li> <li>• Assorted value addition equipment and ingredients</li> <li>• Sensory evaluation forms</li> </ul>	3 hours 30 min
6.3.6. Module review	<ul style="list-style-type: none"> <li>• Plenary discussion</li> <li>• Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Power-point presentations</li> <li>• Module evaluation forms</li> </ul>	30 minutes
<b>TOTAL</b>			<b>6hours 30 minutes</b>

## 6.4 Facilitator's Guidelines

Module 6. Export Vegetables value addition	
6.4.1 Introduction, expectations and objectives	Session guide
<p><b>Introduction and expectations</b></p> <p><i>(The facilitator welcomes trainees to the module on value addition of Export Vegetables. They are then invited to introduce themselves and state their expectations)</i></p> <p><b>Module Objectives</b></p> <p><i>(The facilitator presents modules objectives.)</i></p> <p>By the end of the module, the trainee should be able to</p> <ul style="list-style-type: none"> <li>• Appreciate the role of Export Vegetables as a food and nutrition security crop.</li> <li>• Describe nutritional composition of Export Vegetables, health benefits, food security and income.</li> <li>• Identify constraints in value addition and utilization of Export Vegetables, and suggest solutions.</li> <li>• Explain how to make Export Vegetables-based value added products.</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' handouts</li> <li>• Power-point Presentation</li> <li>• Summarize trainees' expectations and display on flip chart/board.</li> </ul>
6.4.2 Role of Export Vegetables as a food and nutrition security crop	Session guide
<p><i>(The facilitator presents on malnutrition cases in Kenya and the importance of Export Vegetables in addressing food security and malnutrition challenges)</i></p> <p><b>Plenary Presentation</b></p> <p>Power-point presentation highlighting the critical elements:</p> <ul style="list-style-type: none"> <li>• Micro-nutrient malnutrition cases in Kenya</li> <li>• Dietary nutrient requirements (focusing on VMGs)</li> </ul> <p><b>Group Exercises</b></p> <p>Trainees discuss in groups, the main malnutrition challenges in their respective counties / regions</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Recipe books</li> <li>• Sample Export Vegetables and other processing ingredients</li> <li>• Group exercise</li> </ul>

<b>6.4.3 Export Vegetables nutritional composition and impact of consumption on human health</b>	
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>• Overview of the documented Export Vegetables nutritional composition and their role in human health and nutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Powerpoint presentation</li> <li>• Participant handouts</li> <li>• Brochures, leaflets, manual, factsheets, posters</li> </ul>
<b>6.4.4. Constraints in value addition and consumption of Export Vegetables, and suggested solutions</b>	<b>Session guide</b>
<p><b>Group exercise</b></p> <p>Groups discuss the constraints in Export Vegetables value addition and utilization</p> <p><b>Plenary presentation</b></p> <p>Overview of constraints in value addition and utilization of Export Vegetables</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Group Exercise</li> </ul>
<b>6.4.5 Export Vegetables based value added products</b>	<b>Session guide</b>
<p><b>Plenary presentation</b></p> <ul style="list-style-type: none"> <li>• Overview of Export Vegetables based value added products</li> <li>• Meaning of value addition</li> <li>• Requirements for value addition of Export Vegetables</li> <li>• Export Vegetables based value added products; sensory evaluation of the products</li> </ul> <p><b>Practical exercise</b></p> <ul style="list-style-type: none"> <li>• Demonstration on formulation of Export Vegetables based products</li> <li>• Practical on sensory evaluation of value-added Export Vegetables products</li> </ul>	<ul style="list-style-type: none"> <li>• Participants handouts</li> <li>• Power-point presentation</li> <li>• Recipes</li> <li>• Sensory evaluation forms</li> <li>• Assorted value addition equipment and ingredients</li> </ul>
<b>6.4.6 Training review</b>	<b>Session guide</b>
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <p>Review the main points about Export Vegetables value addition together with the trainees.</p> <ul style="list-style-type: none"> <li>• What new things did you learn from this Module?</li> <li>• What are some of the problems and issues that you have become more aware of in Export Vegetables value addition?</li> <li>• What questions do you still have about Export Vegetables value addition?</li> </ul>	<p>Summary of the main points from the Module.</p>



# Module 7: Green Technologies And Mechanization

## 7.1 Introduction to the module

Agricultural mechanization supports through enhancing 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 (planting materials, 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 Export Vegetables farming in Kenya especially when applied to planting, weeding, pest control, harvesting and post-harvest activities.

## 7.2 Module learning outcomes

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

- Climate smart tillage options identified and explained
- Bush clearing machines demonstrated
- Tractor mounted hole auger described and explained
- Use of pest control implements and tools demonstrated
- Processing machines and equipment demonstrated

## 7.3 Module Summary

Module 7. Green Technologies and Mechanization			
Sessions	Training methods	Training materials	Duration
1.1.1 Introduction, objectives and expectations	<ul style="list-style-type: none"><li>• Personal introductions/ know your audience</li><li>• Presentations</li><li>• Plenary discussions</li></ul>	<ul style="list-style-type: none"><li>• Flip charts</li><li>• P o w e r - point Pre-sentations</li></ul>	20 minutes
1.1.2 Bush clearing machines explained	<ul style="list-style-type: none"><li>• Presentations</li><li>• Plenary discussions</li></ul>	<ul style="list-style-type: none"><li>• Flip chart</li><li>• P o w e r - point pre-sentation</li><li>• P a r t i c i - pants' hand-outs</li></ul>	10 minutes

1.1.3 Climate smart tillage options	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Plenary discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Flip chart</li> <li>• P o w e r - point presentation</li> <li>• P a r t i c i - pants' hand-outs</li> </ul>	30 minutes
1.1.4 Pest control equipment and tools usage demonstrated	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Plenary discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Flip chart</li> <li>• P o w e r - point presentation</li> <li>• P a r t i c i - pants' hand-outs</li> <li>• Practical</li> </ul>	1 hour
7.3.5 Module review	<ul style="list-style-type: none"> <li>• Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• P o w e r - point presentation</li> </ul>	15 minutes
<b>Total</b>			<b>2 hours 15 minutes</b>

## 7.4 Facilitator's Guidelines

Module 7: Green Technologies and Mechanization	
11 12 12.7 <b>7.4.1 Introduction, Objectives and Expectations</b>	<b>Session guide</b>
<p><i>(The facilitator welcomes trainees to the module on Export Vegetables 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)</i></p> <p><b>Module Objectives</b></p> <p>The facilitator presents modules objectives</p> <p>By the end of the module the trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Climate smart tillage options identified and explained</li> <li>• Bush clearing machines demonstrated</li> <li>• Tractor mounted hole auger described and explained</li> <li>• Use of pest control implements and tools demonstrated</li> <li>• Processing machines and equipment demonstrated</li> </ul> <p>*In each case stating approximate prices and availability of machines, tools and equipment required*</p>	<ul style="list-style-type: none"> <li>• Summarize trainees' "Expectations" and display.</li> <li>• Power-point Presentation</li> <li>• Distribute Participants' Handouts on Module Objectives and Training Program</li> </ul>
<b>7.4.2. Export Vegetables climate smart land preparation tools and equipment</b>	<b>Session guide</b>
<p><i>(The facilitator presents on the commonly known land preparation tools and equipment)</i></p> <p><b>Plenary Presentation</b></p> <p>Power-point Presentation Highlighting:</p> <ul style="list-style-type: none"> <li>• Overview of the Export Vegetables mechanization activities</li> <li>• Climate smart tillage options</li> </ul> <p><b>Discussion</b></p> <p>Let the trainees recall what they learned and discuss any issue that may arise</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Brochures, leaflets and manual</li> <li>• All participants</li> </ul>

7.4.3. Bush clearing machines	Session guide
<p><b>Plenary Presentation</b></p> <p>Power-point Presentation Highlighting on:</p> <ul style="list-style-type: none"> <li>• Description and explanation of bush clearing machines</li> </ul> <p><b>Discussion</b></p> <p>Let the trainees recall what they learned and discuss any issue that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Brochures, leaflets and manual</li> </ul>
7.4.4. Demonstration of Export Vegetables processing tools and equipment	Session guide
<p><b>Plenary Presentation</b></p> <p>Power-point Presentation Highlighting on:</p> <ul style="list-style-type: none"> <li>• Description and explanation of Export Vegetables processing machines and equipment</li> <li>• <b>Discussion</b></li> </ul> <p>Let the trainees recall what they learned and discuss any issue that may arise.</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Distribute participants' handouts</li> <li>• Brochures, leaflets and manual</li> </ul>
7.4.5 Module review	Session guide
<p><i>The facilitator leads the trainees in reviewing the module)</i></p> <p>Summarize the main points of the training and together with the participants review the main points:</p> <ul style="list-style-type: none"> <li>• Demonstrate</li> <li>• Climate smart tillage options identified and explained</li> <li>• Bush clearing machines demonstrated</li> <li>• Tractor mounted hole auger described and explained</li> <li>• Use of pest control implements and tools demonstrated</li> </ul> <p><i>(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?)</i></p>	<ul style="list-style-type: none"> <li>• The last participants' handouts</li> <li>• Summarize the main points from the module on a flip chart and display</li> </ul>



# Module 8: Export Vegetables Business And Marketing

## 8.1 Introduction

In Kenya Export Vegetables is grown by small and large scale producers. Large-scale production is concentrated in Central Kenya, while the small scale production is concentrated at the Coast, Central and Western Regions of the country. Markets and marketing of Export Vegetables 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/volumes and bulkiness of the produce also limit farmers to the local markets, where demand is low and hence prices. To strengthen the Export Vegetables value chain, it is important to equip farmer facilitators with the skills and knowledge on Export Vegetables farming business and marketing strategies. This module is designed to build skills of trainees in Export Vegetables farming business and marketing in Kenya.

## 8.2 Module Learning Outcomes

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

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

## 8.3 Module Summary

Module 8. Export Vegetables Business and Marketing			
Sessions	Training Methods	Training Materials	Time
8.3.1. Models for market-oriented production of Export Vegetables. (Leveling of participants' expectations about the module and objectives)	<ul style="list-style-type: none"><li>• Introduction</li><li>• Plenary discussion</li></ul>	<ul style="list-style-type: none"><li>• Projector</li><li>• Laptop</li><li>• Flip charts</li><li>• Marker pens</li><li>• Masking tapes/ flip chart holders</li></ul>	20 minutes

Module 8. Export Vegetables Business and Marketing			
Sessions	Training Methods	Training Materials	Time
<p>8.3.2. Developing a Business Plan for Export Vegetables farm Business</p> <p>i. (Business concept and emerging and farming business models)</p> <p>ii) Planning a farm business: SWOT Analysis, farm budgeting and business plan</p>	<ul style="list-style-type: none"> <li>• Plenary presentation</li> <li>• Plenary discussion</li> <li>• Group exercise</li> </ul>	<ul style="list-style-type: none"> <li>• Projector</li> <li>• Laptop</li> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Masking tapes/ flip chart holders</li> </ul>	1 hour
8.3.3. Marketing as a group - collective marketing	<ul style="list-style-type: none"> <li>• Presentation and</li> <li>• Plenary discussions</li> <li>• Role play exercise</li> </ul>	<ul style="list-style-type: none"> <li>• Projector</li> <li>• Laptop</li> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Masking tapes/ flip chart holders</li> </ul>	30 minutes
8.3.4 Profitability analysis - Reviewing performance of Export Vegetables agro enterprise (Implementing a farm business: Record keeping, Break-even, Gross margin analysis, entrepreneurship)	<ul style="list-style-type: none"> <li>• Plenary presentation</li> <li>• Plenary discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Projector</li> <li>• Laptop</li> <li>• Flip charts</li> <li>• Marker pens</li> <li>• Masking tapes/ flip chart holders</li> </ul>	20 minutes

Module 8. Export Vegetables Business and Marketing			
Sessions	Training Methods	Training Materials	Time
8.3.5 Scaling up plan of Export Vegetables agro-enterprise development approach	<ul style="list-style-type: none"> <li>Group work</li> <li>Plenary discussions</li> </ul>	<ul style="list-style-type: none"> <li>Projector</li> <li>Laptop</li> <li>Flip charts</li> <li>Marker pens</li> <li>Masking tapes/ flip chart holders</li> </ul>	30 minutes
8.3.6 Marketing Approaches (Contracted Export Vegetables production model, Export Vegetables marketing entrepreneurship model and Internet/online/mobile marketing)	<ul style="list-style-type: none"> <li>Plenary presentation</li> <li>Plenary Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Projector</li> <li>Laptop</li> <li>Flip charts</li> <li>Marker pens</li> <li>Masking tapes/ flip chart holders</li> </ul>	20 minutes
8.3.7. Module review	<ul style="list-style-type: none"> <li>Facilitator's summary</li> <li>Plenary presentation</li> <li>Plenary Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Module review</li> <li>Participants handouts</li> </ul>	20 minutes
<b>TOTAL</b>			<b>3 hours 20 minutes</b>

## 8.4 Facilitators Guidelines

<b>Module 8. Export Vegetables Business and Marketing</b>	
<b>8.4.1 Levelling participants' expectations about the module</b>	<b>Session guide</b>
<p><i>(The facilitator welcomes trainees to the module and thereafter invites them to state their expectations)</i></p> <p><i>(The facilitator presents module objectives)</i></p> <p>By the end of this module, the trainee is expected to:</p> <ul style="list-style-type: none"> <li>• Appreciate business concept and appreciate emerging and inclusive farmer-market linking models.</li> <li>• Describe how to plan a farm business using SWOT Analysis, farm budgeting and business plan.</li> <li>• Describe and explain the tools for implementing a farm business: cost of production, Record keeping, Break-even, Gross margin and entrepreneurship.</li> <li>• Identify the marketing approaches of Export Vegetables.</li> </ul>	<ul style="list-style-type: none"> <li>• Summarize trainees' "Expectations" and display on flip chart/board.</li> <li>• Participants handouts</li> <li>• Power-point presentation</li> </ul>
<b>8.4.2 Developing a business plan for Export Vegetables farm business</b>	<b>Session guide</b>
<p><i>(The facilitator to highlight elements of business concept and emerging farming business models)</i></p> <p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• Business concept and emerging farming business models</li> </ul> <p><b>Group Exercise</b></p> <ul style="list-style-type: none"> <li>• Discuss areas of adjustments in the models</li> </ul> <p><b>Planning a farm business using SWOT Analysis, farm budgeting and business plan</b></p> <p><i>The facilitator highlights the components of SWOT matrix and their interactions to generate opportunities based on the other components)</i></p> <p><b>Plenary Presentation</b></p> <ul style="list-style-type: none"> <li>• SWOT analysis</li> <li>• Budgeting</li> <li>• Business planning</li> </ul> <p><b>Group Exercise</b></p> <p>List the strengths, weaknesses, opportunities and threats in Export Vegetables farming as a business and marketing</p>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Group exercise</li> </ul>



<b>8.4.3 Marketing as a group - collective marketing</b> <i>(The facilitator highlights the importance and benefits of collective and group marketing)</i>  <b>Presentation and discussions</b> <ul style="list-style-type: none"> <li>• Collective Marketing</li> </ul> <b>Role play exercise</b> <ul style="list-style-type: none"> <li>• In groups of two, the trainees will do a role play, where they sell individually and where sell as a group.</li> </ul>	<b>Session guide</b> <ul style="list-style-type: none"> <li>• Participants 'handouts</li> <li>• Group exercise</li> </ul>
<b>8.4.4 Profitability analysis - Reviewing performance of Export Vegetables agro enterprise</b> <i>(The facilitator highlights the importance of the tools in managing Export Vegetables production as a farm business)</i>  <b>Plenary Presentation</b> <ul style="list-style-type: none"> <li>• The farmer as an entrepreneur</li> <li>• Record keeping</li> <li>• Profitability assessment (cost of production, break-even &amp; gross margin)</li> </ul> <b>Plenary Discussion</b> <ul style="list-style-type: none"> <li>• Profitability analysis</li> </ul>	<b>Session guide</b> <ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> <li>• Plenary discussion</li> </ul>
<b>8.4.4 Scaling up plan of Export Vegetables agro-enterprise development approach</b>  <b>Group and Plenary discussions</b> <ul style="list-style-type: none"> <li>• In groups three groups the participants discuss how to scale up Export Vegetables agro-enterprise</li> </ul> <i>The group leaders in each group present back to the whole plenary and discuss the outcomes.</i>	<b>Session guide</b> <ul style="list-style-type: none"> <li>• Plenary discussion</li> <li>• Group exercise</li> </ul>

<b>1.1.5 Marketing strategies</b>	<b>Session guide</b>
<b>Plenary Presentation</b> <i>(The facilitator highlights the marketing strategies for the Export Vegetables farm business)</i> <ul style="list-style-type: none"> <li>• Market research</li> <li>• Producer organizations</li> <li>• Contract farming</li> <li>• Online/internet marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Power-point presentation</li> <li>• Participants' handouts</li> </ul>
<b>Plenary Discussion</b>	
<b>1.1.5 Training review</b>	<b>Session guide</b>
<i>(The facilitator leads the trainees in reviewing the module. Conclude by thanking the trainees)</i> <b>Plenary Presentation</b> <i>Summarize the main points of the training</i>	<ul style="list-style-type: none"> <li>• Plenary presentation</li> <li>• Summary of the main points from the Module.</li> </ul>

# Module 9: Gender Equality, Human Rights And Social Inclusion

## 9.1 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<sup>th</sup> UN 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 on 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 life 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.

## 9.1 Module Summary

Module 9.0: Gender equality, human Rights and social inclusion			
Sessions	Training methods	Training materials	Time
9.1 Introductions and climate setting, objectives and expectations	<ul style="list-style-type: none"><li>• Self-introduction</li><li>• Setting Norms &amp; rules</li><li>• Plenary Presentation</li><li>• Plenary discussion</li><li>• Group exercise</li></ul>	<ul style="list-style-type: none"><li>• Flips charts</li><li>• Felt pens</li><li>• Laptop</li><li>• Projector</li></ul>	20 minutes

Module 9.0: Gender equality, human Rights and social inclusion			
Sessions	Training methods	Training materials	Time
9.1.1 Gender equality Definition of concepts	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Individual reflections</li> <li>• Group exercise</li> <li>• Plenary discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	30 minutes
9.1.2 The business case for gender mainstreaming	<ul style="list-style-type: none"> <li>• Practical exercise (groups tour nearby successful Agri- business where both the a model couple )</li> <li>• Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	40 minutes
9.1.3 Steps to mainstream gender	<ul style="list-style-type: none"> <li>• Group exercise -same sex groups (trainees identify roles)</li> <li>• challenge these roles</li> <li>• Plenary discussions (share group work results)</li> <li>• Individual reflections</li> <li>• Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>	40minutes
9.2 Human rights	<ul style="list-style-type: none"> <li>• Individual reflections</li> <li>• Buzz groups</li> <li>• Plenary Presentations</li> <li>• PowerPoint presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• handouts</li> </ul>	30 minutes

<b>Module 9.0: Gender equality, human Rights and social inclusion</b>			
<b>Sessions</b>	<b>Training methods</b>	<b>Training materials</b>	<b>Time</b>
9.2.1 HRBA-PANT Principles	<ul style="list-style-type: none"> <li>• Group work</li> <li>• Presentations</li> <li>• PowerPoint presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• handouts</li> </ul>	30 minutes
9.3 Social inclusion	<ul style="list-style-type: none"> <li>• Buzz groups</li> <li>• Plenary discussions</li> <li>• Group discussions on who is likely to be left behind in the value chain</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• handouts</li> </ul>	30minutes
Chapter review and discussion	<ul style="list-style-type: none"> <li>• Discussion/conclusion Action plan</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> </ul>	30 minutes
<b>Total</b>			<b>4, hrs</b>



## 9.2 Guidelines for Facilitators

Module 9: Gender Equality, Human Rights and social inclusion	
9.1. Introductions, climate setting	Session guide
<p><b>Preliminaries</b></p> <p><i>The facilitator welcomes trainees to the Chapter and thereafter invites them to introduce themselves and state their expectations</i></p> <p><b>Expectations</b></p> <p>The trainees form groups (e.g., county based) and list expectations from the module</p> <p><i>The facilitator presents the chapter objectives.</i></p> <p><b>Objectives</b></p> <p>By the end of the training Chapter, the trainee should be able to:</p> <ul style="list-style-type: none"> <li>• Explain and describe what gender and gender mainstreaming is with practical examples</li> <li>• Describe appropriate steps to take in operationalizing the PANT principles</li> <li>• Describe and list those likely to be excluded from the value chains.</li> <li>• Specify the correct actions to take to address the root causes of exclusion and how they will be monitored.</li> </ul>	<ul style="list-style-type: none"> <li>• Summarize the trainees expectations</li> <li>• PowerPoint presentations</li> <li>• Group exercise (listing and presenting expectations).</li> <li>• Expectations lists kept for later reviewing compliance</li> </ul>
9.1.1 Gender equality definition of concepts	
<p><b>Plenary Presentation</b></p> <p>The facilitator introduces the topic of background information and gender equality</p> <ul style="list-style-type: none"> <li>• Individuals reflect on their understanding of various concept sex, gender, equity, equality, diversity, gender mainstreaming among others</li> <li>• Presentations are made to dispel biases and stereotypes</li> <li>• Plenary discussions</li> </ul> <p><b>Plenary discussion</b></p> <p>Questions/answers and comments</p>	<ul style="list-style-type: none"> <li>• Plenary discussion</li> <li>• Distribute participants' hand-outs/training materials</li> <li>• PowerPoint Presentation</li> <li>• Practical exercise</li> </ul>

9.1.2 The business case for gender mainstreaming	Session guide
<p><b>Group exercise</b></p> <ul style="list-style-type: none"> <li>• The facilitator guides trainees to visit successful Agri-business where both a model couple )</li> <li>• The group reflects on their findings</li> <li>• A PowerPoint presentation.</li> </ul>	<ul style="list-style-type: none"> <li>• PowerPoint Presentation</li> <li>• Distribute participants' hand-outs</li> <li>• Groups exercise</li> <li>• Plenary discussion</li> </ul>
9.1.3 Steps to mainstream gender	Session guide
<p><b>Group exercise : the facilitator conducts</b></p> <ol style="list-style-type: none"> <li>1. Practical session on gender roles(daily calendar)- Women and men separately then present in plenary for further reflection</li> <li>2. Practical session on Access, control, and ownership-separately then present in plenary</li> <li>3. Social norms in the community about men and women-separate norms then present in plenary</li> <li>4. Barriers and enablers to women and youth participation in the agricultural value chains and how they will be addressed by the group.</li> <li>5. Presentations Plenary presentation and plenary discussion</li> <li>6. PowerPoint presentation</li> </ol> <p>The facilitator leads the trainees into</p> <ol style="list-style-type: none"> <li>1. Individual visioning for a certain period future then in pairs share, prioritize and work on one priority area identify opportunities ,challenges and targets and activities</li> <li>2. Plan on next steps</li> </ol>	<ul style="list-style-type: none"> <li>• PowerPoint Presentation</li> <li>• Distribute participants' hand-outs</li> <li>• Groups exercise</li> <li>• Plenary discussion</li> </ul>
9.2 Human rights	
<p><b>The facilitator leads the trainees into;</b></p> <ul style="list-style-type: none"> <li>• Individual reflections on their human rights, those who have duty to address these rights</li> <li>• Buzz groups to identify issues of human rights</li> <li>• Plenary Presentations</li> <li>• PowerPoint presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>

<b>9.2.1 HRBA-PANT Principles</b>	
<p>The facilitator lead the team on the PANT principles</p> <ol style="list-style-type: none"> <li>1. Group work</li> <li>2. Presentations</li> <li>3. •PowerPoint presentations</li> </ol>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants' handouts</li> </ul>
<b>1.3 social inclusions</b>	
<p>The facilitator leads the trainee into group discussions on who is likely to be left behind in the value chain</p> <ul style="list-style-type: none"> <li>• Identification               <ol style="list-style-type: none"> <li>a. Who is excluded? Are some groups less likely to benefit from a Program/project because of their identity?</li> </ol> </li> <li>• Analysis               <ol style="list-style-type: none"> <li>a. How and why is the particular group (or groups) excluded? What drives the exclusion?</li> </ol> </li> <li>• <b>Actions</b> <ol style="list-style-type: none"> <li>a) What actions can the groups/ farmers take to ensure there is social inclusion</li> </ol> </li> <li>• <b>Monitoring</b> <ol style="list-style-type: none"> <li>b) How would they know if they have made progress in ensuring social inclusion?</li> </ol> </li> <li>• Action plan for mainstreaming Gender Youth and social inclusion</li> </ul>	<ul style="list-style-type: none"> <li>• Flips charts</li> <li>• Felt pens</li> <li>• Laptop</li> <li>• Projector</li> <li>• Participants'</li> <li>• handouts</li> </ul>
<b>Review and Close out</b>	<b>Session guide</b>
<p><i>(The facilitator leads the trainees in reviewing the chapter)</i></p> <p>Summary of the main points from the training</p> <ul style="list-style-type: none"> <li>• Objectives and expectations (review done on basis of the objectives and expectations listed earlier)</li> <li>• <i>Trainees to randomly indicate new sets of skills and knowledge learnt from the module. The results are recorded per county presented</i></li> <li>• Randomly (average of 10 cases) trainees identify key issues for the way forward issues.</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' handouts</li> <li>• Summarize the main points of the module on a flip chart and display</li> </ul>

## ANNEX I: Sample training programme



# EXPORT VEGETABLE 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 training guide**

<b>S/NO</b>	<b>NAME</b>	<b>INSTITUTION</b>
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









**MINISTRY OF  
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