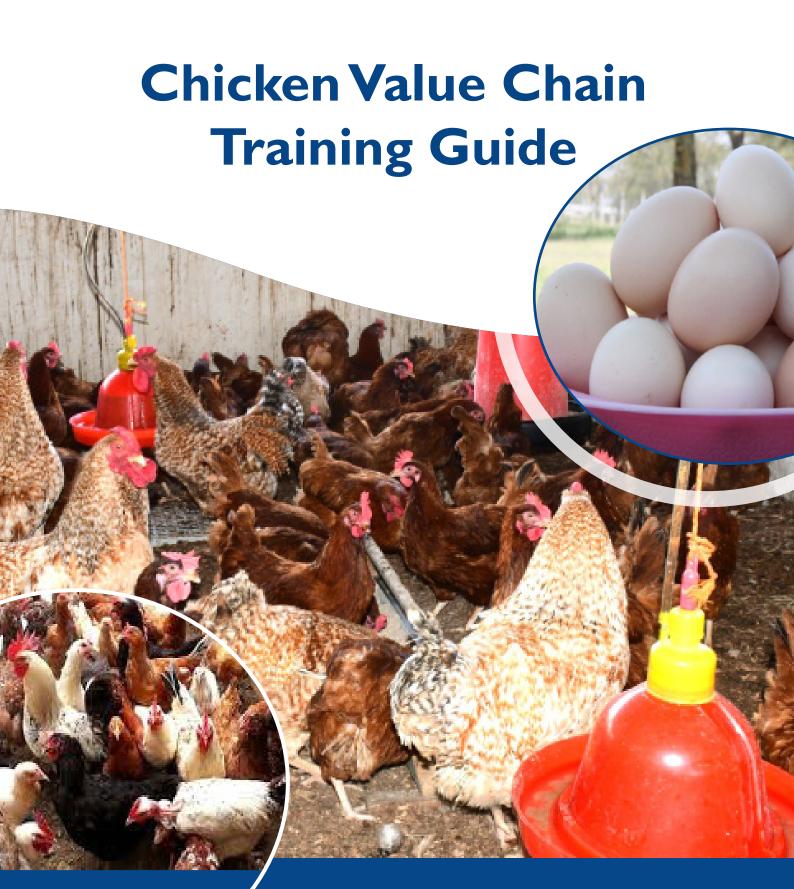








MINISTRY OF FOREIGN AFFAIRS OF DENMARK Danida



Chicken Value Chain 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 afroprocessing. 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 small-holder 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.

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

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

Rebecca Amukhoye,

Chief Executive Officer, Micro-Enterprises Support Programme Trust

Preface

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

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

MESPT through GEAP has worked with the 12 County Governments Agriculture and Livestock technical staff, Kenya Agricultural and Livestock Research Organization (KALRO), MESPT technical staff and Private sector players to constitute a multidisciplinary team that developed resource materials tailored for extension service providers and smallholder farmers. The Indigenous Chicken value chain Manual and Training Guide are among the materials that were developed. The materials are to be used as an instructional guide for training on the implementation of good agricultural practices, value addition and marketing for the Indigenous Chicken value chain. Other cross cutting topics in the materials are Climate adaptation practices and technologies, Food safety and Gender and Social inclusion aspects. 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 Indigenous Chicken value chain manual and other relevant resource materials.

MESPT is grateful to the value chain experts and subject matter specialists who spearheaded the development and production of this Moringa manual. It is our as MESPT that counties and other users will adopt and optimally use this resource for the Moringa value chain development so as to increase productivity and profitability while ensuring focus on climate adaptation and sustainability.

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.

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List of abbreviations

BSF Black Soldier Fly

CCP Critical Control Point

FCR Feed Conversion Ratio

GAP Good Agricultural Practices

GEAP Green Employment In Agriculture Programme

GHO Good Hygienic Practices

GMP Good Manufacturing Practices

HACCP Hazard Analysis and Critical Control Point

IIC Improved Indigenous Chicken

KALRO Kenya Agriculture And Livestock Research Organization

MESPT Micro-Enterprise Support Programme Trust

Q&A Question and Answer

TOT Trainer Of Trainers

Defination of terms

Improved indigenous chicken

Is a type of chicken that originates from traditional indigenous breeds but has been selectively breed for better productivity and resilience.

Feed conversion ratio

Is a measure of an animal's efficiency in converting feed into body mass. The ratio of the amount of feed given to an animal relative to the amount of meat and eggs produced

Hazard analysis and critical control point

It is a systematic preventive approach to food safety that identifies evaluates and control hazards in food production processes

Good agricultural practices

It refers to a set of principles, regulations and technical recommendations that are applied to farming and agricultural processes to ensure safe, sustainable and high quality production of food and non food agricultural products.

Good manufacturing practices

It is a system of guidelines and regulations to ensure that products are consistently produced and controlled according to quality standards.

Good hygienic practices

These are the fundamental procedures and guidelines that ensure cleanliness safety and sanitation in food production, handling and processing environments.

SECTION I

This section consists of I sub-section which includes an overview of the IIC value chain map in Kenya, Green growth opportunities in IIC, Objectives of the training, Content of the Training and Facilitators Guidelines.

1.0 Introduction

1.1 Overview of the improved indigenous poultry production in kenya

Poultry production and in particular improved indigenous chicken (IIC) production has been recognized as an avenue to improve livelihoods of the rural households. Previous attempts to improve their productivity have had little success due to, among others, lack of a holistic approach in solving the constraints and dissemination of inappropriate technologies given the production circumstances and market dynamics. Marketing as a constraint is often blamed for the failure of interventions to improve livelihoods, despite lack of saturation for IIC products at local and national levels and the increasing demand for the same. In this training guide attempts and suggested strategies to improve IIC productivity and thereby improve the livelihood of the rural households who are the custodians of these genetic resources. It is concluded that there is potential for improvement of IIC production in Kenya given the available genetic and physical resources. However, a holistic strategy that increases productivity without increasing production costs or leading to loss of biodiversity must be impressed. Such a strategy must take into account the various uses of the IIC in a rural household. Indigenous chicken farming has been described variously as backyard poultry rearing, rural poultry production or scavenging. For our purpose, any flock of chicken that are kept under free-range management and on which no selection of breeds or improvement by crossbreeding has been done is considered as a flock of indigenous chicken. Indigenous chicken lay between 8 and 15 eggs per clutch depending on availability of feed. They are broody and hatch about 80% of the eggs they sit on. They attain 2-3 clutches in a year. The few chicks that attain 20-30% maturity form most of the replacement stock. These birds, though under poor management, live within the families for many years. They form an important part of family life playing important cultural roles besides being a valuable source of protein and income. Constraints to production include diseases, predators and poor nutrition.

IIC can be profitable if managed well. Control of common diseases in the free-range system could improve survival rate of chicks by at least 30% while improved feeding, housing and disease control could increase survival rate to 80%. Families could improve their income and supply of poultry products (meat and eggs) by practicing a combination of recommendations given in this training guide. The aim of this training guide is to create awareness and interest in Improved indigenous chicken production. The reader is encouraged to consult the Ministry of Livestock and Fisheries Development and the Kenya Agricultural and Livestock Research Organization(KALRO) for further information.

The value chain map

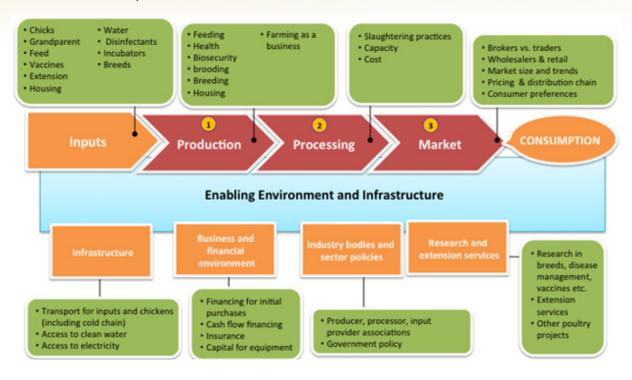


Figure 1: Indigenous poultry value chain map

1.2 Green technologies in iic value chain

Green technologies in the value chain refer to sustainable practices and innovations that reduce environmental impact while maintaining or improving productivity.

Below are some green technologies applied at different stages of the value chain.

- Use of solar powered incubators or poultry houses
- Incorporate alternative feed ingredients protein such as Black Soldier Fly.
- Biogas to power poultry houses by utilization of poultry waste.
- Composting to reduce need of chemical fertilizer.

Green technologies in the value chain not only contribute to environmental sustainability but also offer economic benefits by enhancing efficiency and reducing operational costs.

1.3 Overall objectives of the training guide

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 IIC farming as a business and market assessment techniques for market led production
- Enhance farmer trainers' knowledge and skills in IIC
- 3. Equip farmers trainers' with knowledge and skills in post-harvest and value addition of IIC.
- 4. Promote decent jobs for women and youth through innovative technologies.
- 5. Enhance environmental conservation by practicing regenerative agriculture.

1.4 Organization of the training content

The training content is organized into 15 modules, which designed improved productivity and competitiveness in a market driven production system of IIC. The purpose of these modules is to enhance the knowledge and capacities of trainers in understanding and disseminating best practices in the IIC value chain to the intended beneficiaries, who are primarily farmers.

Table 1: Summary of the 11 training modules

No.	Module Name	Areas addressed	Expected Training Outcomes	*Duration
_	INTRODUTION	General introduction of IIC enterprise in kenya	Understand the general population trends	30mis
		Population of chicken and improved indigenous chicken	I ne nutrition value of chicken	
		Importance as food and source of income		
2	Improved indigenous	Different production system	Understand types of Production systems	4HRS
	chicken Production	 Characteristics of production systems 	 Identify Characteristics of production sys- 	
	STEPS	 Merits and demerits of each production 	tems	
		system	 Identify Merits and demerits of each produc- 	
		 Ability to select Suitability of different 	tion system	
		breeds for the various production Systems	Simulation exercises using different criteria	
			and resource levels to determine suitable	
			production systems	
			 Ability to select Suitability of different breeds for the various production Systems 	

o Z	Module Name	Areas addressed	EX	Expected Training Outcomes	*Duration
m	Breeding and selection	 Desirable meat and egg production traits in improved indigenous chicken. 	•	Identify desirable meat and egg production traits in improved indigenous chicken.	I.5 HRS
		 Selection based on traits of economic importance. 	• Se	Selection of males and females based on traits of economic importance.	
			•	identified features to use in the selection of cocks, growers and hens	
		described	•	Describe selection methods for use in IC breeding	
			• S	Select correct Male to female ratio	
4	Incubation and Brooding manage-	 Knowledge of incubation methods and identifying the appropriate method 	pi •	identifying the appropriate method of incubation	21HRS
	ment	 Handling chicken eggs for hatching 	•	Handle eggs for hatching	
		 Selection of quality eggs for hatching 	• S	Selection of quality eggs for hatching	
		 Knowledge and requirements for Incubation 	•	Production of quality day-old chicks	
		 Production of quality day-old chicks 	•	Knowledge of brooding methods/types	
		 Knowledge of brooding methods/types 	•	Understand the Brooding process: Prepare	
		Understanding the Brooding process: Pre-		the chick brooder	
		paring the chick brooder	•	Manage brooder nouse micro-ciimate	
		 Acquiring day-old chicks 	•	Maintain brooder hygiene	
		 Feeding of brooding chicks 			
		 Manage brooder house micro-climate 			
		Maintain brooder hygiene			

Ö	Module Name	Areas addressed	Expected Training Outcomes	*Duration
rv.	IIC management	 Knowledge and Skills in Proper IC housing Knowledge and skills in recommended IC equipment Understand chicken nutritional and feed requirements Chicken water requirements 	 Skilled on Proper IIC housing skills on recommended IC equipment Understand chicken nutritional and feed requirements Understand water requirements for IIC. 	25HRS
99	IIC health manage- ment	 Management of chicken bio-security, equipment and materials chicken vaccination and Control chicken parasites chicken health records 	 Develop bio-security measures Identify chicken health equipment and materials Carryout chicken vaccination Control chicken parasites Manage chicken diseases and vices Maintain chicken health records 	26 hours

Module Name	Areas addressed	Expected Training Outcomes	*Duration
		 Understanding of the design and equipment 	
	 Design and equipment requirements of a 	requirements of a chicken feed milling unit	
	chicken feed milling unit	Be able to plan, prepare and formulate chick-	
Feed formulation	Plan, prepare and formulate chicken feed	en feed	22 HRS
	Feed formulation process	Evaluate a feed formulation process	
	Feed safety	Enforce Feed safety and quality standards	

2		7		*
Z	Module Name	Areas addressed	Expected Iraining Outcomes	*Duration
		 Types of food hazards that require stan- dardisation: Physical hazards 		
		Chemical hazards		
		 Biological hazards 		
		 Hazard Analysis Critical Control Point (HACCP) 		
		 Identifying hazards and determining the severity of the hazards and risks. 	 Understand food safety standards 	
∞	Food safety	The determination of critical control points (CCP) required to control the hazard	Product traceability	I6HRS
		 Establish monitoring procedures to determine that each CCP is under control. 		
		 Poultry meat quality assurance 		
		 GAP, GMP & amp; GHP at Farm level 		
		 GHP during slaughter and de-feathering 		
		 Traceability 		

Module Name /	Areas addressed	Expected Training Outcomes	utcomes	*Duration
	Type of innovations (Alternative pro-	Alternative proteir	Alternative protein sources and brood-	IIHRS
ţ	tein sources and brooding)	ing		
A o	Attributes of innovations and Developmental needs they will address	innovations and Dothey will address	innovations and Developmental needs they will address	
Po an	Potential impact of the innovations and Sustainability	Acknowledge the impact vations and Sustainability	Acknowledge the impact of the innovations and Sustainability	
00 00	concept of green transformation social, Institutional and economic as-	Understand the concept of transformation	concept of green	
þe	pects of green transformation	Understand socia economic aspects	Understand social, Institutional and economic aspects of green transfor-	
		mation		

o Z	Module Name	Areas addressed	Expected Training Outcomes	*Duration
		market trends	 Analyze market trends 	
		costs components	 Identify costs components 	
		 Assess profitability 	 Assess profitability 	
		 Evaluate risks 	 Identify risks 	
9	Agribusiness and	 mitigation strategies 	 Develop mitigation strategies 	9.00
2	marketing	Make informed decisions to ontimize and	 Make informed decisions to optimize pro- 	STRS
			duction	
		 strategic planning abilities 	 Enhanced strategic planning abilities 	
		 Opportunities in poultry 	 Appreciate the existing opportunities in poultry 	
=	Gender inclusion and			7 7 7
=	cross cutting issues			2
	Evaluation of the			30 min. 1426
	training			oo IIIIInnee

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

1.5 Partners and their roles

The partners envisioned in this training include:

- a) Trainers The trainees drawn from KALRO, Service providers (SPs), lead farmers and other experts who will further cascade the training to farmer groups and other value chain players.
- b) County Government—The county Government will provide a team as ToTs.
- c) Lead Farmers These are early adopters or role models at the community level. They are supposed to allow their farms to be used as learning sites.

1.6 Facilitators guidelines

1.6.1 Preparation of Training Materials

- The facilitators should familiarize themselves and internalize the guidelines provided in this 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.

- a) Training Room Should have adequate space for participants seated in an arrangement that ensures unobstructed view of the front. A group of 20 to 30 participants is ideal. There should also be adequate desks and space for the trainers, their training materials and projector, flip charts holders.
- b) Demonstration Site Preferably should be within a walking distance.

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

1.6.3 The Trainees

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

1.6.5Training 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

Training Method	Description of Method
Plenary presentations	Use of PowerPoint or flip charts and plenary discussions in situations where knowledge and opinion or consensus is required
Group exercises, buzz groups, visits and	To be considered where skills are an issue requiring
brainstorming sessions	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 ex-	To be considered where hands-on practical skills
change visits	are acquired through practicalsand 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

		Rating			
Acres / Madula	(Т	(Tick only one per topic)			
Aspect / Module	Very Useful (3 marks)	Useful (2 marks)	Of Limited Use (I marks)		
I) Introduction					
2) Planting Materials and					
Propagation					
3) Poultry Management					
4) Regenerative farming					
5) Bio safety Pests and Disease Management					
Green Technologies and Mechanization					
7) Value Addition					
8) Business and marketing					
9) Group dynamics					
10) Food safety					

3. Were the t	raining materials (PowerPoint , handouts) adequate? (Please tick) Yes []
No []	
_	
Give reasons:	
••••••	
2.11	
	ou intending to apply what you have learnt from this train-
ing?	
4DI	
4Please sugges	st areas of improvement
• • • • • • • • • • • • • • • • •	•••••••••••••

1.6.8 Key references

Key references should be provided for each module plus a list of other relevant publications for IIC reference material will consist of materials such as: IIC production handbook/manuals/ guides; Pamphlets/brochures and Factsheets on specific topics

SECTION II: TRAINING MODULES

This part presents the content of 15 modules of training modules

Outline of the modules

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

- i) Content— Context and background to training needs, knowledge and skills GAP being addressed; sequence of sessions, training methods, materials.
- ii) The module duration indicated is an estimation of the recommended minimum length of time the trainee is exposed to the training content
- iii) Module learning outcomes What trainees are expected to learn
- iv) Facilitators guideline -detailed sessions, training methods, materials and session guides.

Module I: introduction

I.I Overview

1.2Module learning outcomes

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

- 1. The importance of IIC in Kenya's economy is explained and appreciated.
- 2. Knowledge of suitable sites for IIC production enhanced.
- 3. Conditions required for IIC production are understood and applied.

1.3 Module Summary

Module I: Introduction				
Sessions	Training methods	Training materials	Time	
1.3.1 Introductions and Climate Setting	 Preliminaries Self-introduction Setting Norms & rules Plenary discussion Group exercise 	Flips chartsFelt pens.LaptopProjector	20 minutes	

Module I: Introduction				
Sessions	Training methods	Training materials	Time	
I.3.2 Importance of IIC in Kenya's economy	PresentationsPlenary discussion	 Flips charts Felt pens. Laptop Projector Participants' handouts 	30minutes	
I.3.3 IIC production - requirements for optimal productivity	PresentationsPlenary discussion	 Flips charts Felt pens. Laptop Participants' handouts Projector 	30 minutes	
1.3.5 Module review	Discussions/conclusion and the way forward	Flip chartsFelt pens.Laptop	10 minutes	
Total			2 hours	

1.4 Facilitator Guidelines

I.4.I Introductions and Climate Setting	Session guide
(The facilitator welcomes trainees to the module and, after that, invites them to introduce themselves and state their expectations)	J
Levelling of expectations	
The trainees form groups (e.g., sub-county-based) and list their expectations, norms, and rules.	
The facilitator presents module objectives.	
Objectives	 Summarize the facilitator/trainee's involvement in the IIC Value chain. PowerPoint presentation
By the end of the module, the trainee should be able to:	
 To define the importance of IIC in Kenya's economy. 	
Describe requirements for IIC production.	
 Understand and be able to apply innovative IIC production and management technologies in the target counties. 	

I.4.2 Importance of IIC in Kenya's economy	
Plenary Presentation IIC overview IIC in Kenyan households General IIC production trends in Kenya IIC consumption and markets Guided discussions by the Facilitator	 PowerPoint presentation Participants' handouts Plenary discussion
Questions/answers/comments	
I.4.3 IIC Production Requirements	Session guide
 Plenary Presentation Sites for IIC production Requirements for Aquaculture production Facilitator's guided discussion Questions/answers/comments 	PowerPoint presentationParticipants' handoutsPlenary discussion

MODULE 2.0.0 IMPROVED INDIGENOUS CHICKEN PRODUCTION SYSTEMS

2.1.0 Introduction

Indigenous chicken farming can be practiced using different production systems. These include the overall objective of keeping indigenous chicken for commercial or subsistence purposes and, more importantly, the level of resources at the farmer's disposal.

2.2.0 Learning Outcomes

The expected learning outcomes are as follows:

- I. Types of Production systems
- 2. Characteristics of production systems
- 3. Merits and demerits
- 4. Simulation exercises using different criteria and resource levels to determine suitable production systems
- 5. Suitability of different breeds for the various production Systems

MODULE 3.0.0 BREEDING AND SELECTION

3.1.0 Introduction

It is important to plan ways to increase the flock size, especially in a commercial production system. Knowledge of different breeds of chicken, their merits, demerits, and their use in cross-breeding is also required. Farmers must be equipped with knowledge and skills on breeding and selection and the best approach to use. Breeding and selection are also crucial to maintaining a vibrant, high-performance flock that provides a good pool of birds to select from while avoiding inbreeding.

Selection involves separating the well-performing growers and productive hens and the well-sized, active cocks, from the flock. A set of criteria illustrating the features to assess is used to distinguish the best performers from the rest of the birds for the hens, cocks, and growers. Selection is further facilitated by the presence of performance records kept on the farm. This module demonstrates the process and approach to the breeding and selection of indigenous chickens.

3.2.0 Learning outcomes

The participants will be expected to understand key components in the following areas:

- 1. The desirable meat and egg production traits in improved indigenous chicken.
- 2. Selection of males and females based on traits of economic importance.
- 3. Features to use in the selection of cocks, growers and hens identified
- 4. Selection methods for use in IC breeding described
- 5. Male to female ratio.

MODULE 4.0.0 INCUBATION AND BROODING MANAGEMENT

4.1.0 Introduction

This module seeks to impart knowledge and skills to trainees on egg incubation and hatching requirements, types of incubation, handling of eggs for hatching, selection of quality eggs and production of quality day-old chicks. This involves preparing a chick brooder, acquiring day-old chicks, feeding brooding chicks, managing the brooder house microclimate, maintaining brooder hygiene, performing chick vaccination, controlling chicken vermin, controlling chicken predators, and monitoring chick performance.

4.2.0 Learning Outcomes

At the end of the module, the participants are expected to comprehend the following:

- 1. Knowledge of incubation methods and identifying the appropriate method
- 2. Handling chicken eggs for hatching
- 3. Selection of quality eggs for hatching
- 4. Knowledge and requirements for Incubation
- 5. Production of quality day-old chicks
- 6. Knowledge of brooding methods/types
- 7. Understanding the Brooding process: Preparing the chick brooder
- 8. Acquiring day-old chicks
- 9. Feeding of brooding chicks
- 10. Manage brooder house micro-climate
- 11. Maintain brooder hygiene

MODULE 5.0.0 IMPROVED INDIGENOUS MANAGEMENT

5.1.0 Introduction

This unit will guide the trainees through the competencies required to construct, equip chicken houses, nutrition and feeding. This involves designing chicken structures, determining the properties of a good chicken structure, acquiring construction materials, and general management of chicken house construction and stocking density. This section will help the trainees understand different levels of nutrients and feed requirements at different stages of production.

5.2.0 Learning Outcomes

The participants will be expected to understand key components in the following areas:

- 1. Knowledge and Skills in Proper IC housing
- 2. Knowledge and skills in recommended IC equipment
- 3. Understand chicken nutritional and feed requirements
- 4. Chicken water requirements

MODULE 6.0.0 IMPROVED INDIGENOUS CHICKEN HEALTH MAN-AGEMENT

6.1.0 Introduction

This unit will take the trainees through the competencies required to manage chicken health and welfare. It involves farm bio-security, acquisition of health control equipment and supplies, parasite control, vaccination programs, disease control and record-keeping

6.2.0 Learning Outcomes

At the end of the module, the participants are expected to:

- 1. Management ofchicken bio-security
- 2. Acquire chicken health equipment and materials
- 3. Manage chicken vaccination
- 4. Control chicken parasites
- 5. Manage chicken diseases and vices
- 6. Maintain chicken health records

MODULE7.0. FEEDS FORMULATION

7.1.0 Introduction

This module will teach the trainees the knowledge and skills required to produce quality chicken feed. It involves designing and equipping a feed milling unit, acquiring feed ingredients, assessing ingredient quality, formulating feed rations, processing and mixing ingredients, assessing ration quality, costing, packaging and storage.

7.2.0 Learning Outcomes

The learning outcomes expected of the participants of the training module include:

- 1) Understanding of the design and equipment requirements of achicken feed milling unit
- 2) Plan, prepare and formulate chicken feed
- 3) Evaluate a feed formulation process
- 4) Feed safety and quality control

MODULES 8.0.0 FOOD SAFETY

8.1.0 Introduction

This unit will introduce the trainees to the knowledge and skills required to produce quality poultry products. The participants will also learn about national and international food safety standards and product traceability.

8.2.0 Learning Outcomes

At the end of the module, the participants are expected to:

- 1. Understand food safety standards
- 2. Product traceability

MODULE 9.0.0 INNOVATIONS AND GREEN TRANSFORMATION IN CHICKEN PRODUCTION

9.1.0 Introduction

Innovations are technologies or practices that have not been used by value chain actors in that specific value chain area and have the potential to increase the chain's productivity or efficiency. They are used to address identified needs in a value chain. The innovations must be strategic to address the needs effectively in nodes/functions.

The ability to convert many types of feed, such as residuals from agricultural activities, households and food processing industries, into animal products and protein sources is more efficient than most other animal species. Their contribution to food security, protein supply, and peoples' livelihood makes them valuable animals on a global level. In many ways, the notion of 'sustainability' and 'sustainable development' is contested. It is challenging to deal with all aspects of it in connection with a single sector within agriculture because it is interlinked with so many other sectors and developments, including the global food system. This core principle of sustainable development aims to balance economic, social, and environmental interests.

9.2.0 Learning Outcomes

At the end of the module, the participants are expected to:

- 1. Type of innovations (Alternative protein sources and brooding)
- 2. Attributes of innovations and Developmental needs they will address
- 3. Potential impact of the innovations and Sustainability
- 4. Understand the concept of green transformation
- 5. Understand social, Institutional and economic aspects of green transformation

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MODULE 9.1.2 INNOVATIONS AND GREEN TRANSFOR	TRANSFORMATION IN CHICKEN PRODUCTION	ODUCTION	
Sessions	Training Methods	Training Materials	Time
Black solder flies			
· Red wriggler worm	· Demonstration	 Stationery 	
Hydroponics	· Farmer field schools		000
· Hay box brooder	• Direct instructions	Containers for laying Parent stock	CALL
No charcoal brooder	• Exchange visits		
1. Solar-powered incubators and brooders			
· Job creation		 Stationery 	
• Income growth	• Direct instruction	 Rearing media 	
		 Containers for laying 	30min
• Capacity to benefit all value chain nodes/functions	• Exchange visits	 Parent stock 	
2. Enhance commercialisation			
Reduce cost of production			
• Provision of manure to improve kitchen gardens (Agri	 Direct instruction 	,	
nutrition)	• Exchange visits	Stationery	os min
3. Improve on greening of the environment		• Rearing media	
· Improved;	Stationery		
• economic status	 Rearing media 	• Farent stock	
• social aspects	 Containers for laying 		
Food security	 Parent stock 	2HRS	
4. Contribute to environmental resilience			

		• Stationer y • Rearing media	
Embrace social inclusion		 Containers for laying 	ing 30 min
		Parent stock	
E nvironmental cost	Interactive discus-		
Biodiversity loss	sions,		
	Demos, PowerPoint-		
Greenhouse gas emissions	presentations and		
Use of alternative protein sources in feeds	nandouts,	I5 min	nin
Agricultural forestry	 Field excursions, picto- rials, Group work, Q&A, projects and assign- ments, case study 		
Feed conversion ratio			
Feed composition	 Interactive discus- 	: <u>:</u>	
Ingredient origin	sions,	2	
Resource management	• Domos PowerPoint		
Manure waste	presentations and		
Medicines residuals	handouts,		
By products Odour/smell/dead animals (Proper disposal	Field excursions	I5 min	nin
Growth promoters in feeds	pictorials. Group		
Antibiotics Antibiotic resistance (Use/misuse)	work, Q&A, proj-	I5 min	nin
Genotypes Immune competences	ects and assign-	I5 min	nin
Solar Brooders	ments, case study		
Solar lighting	_	I5 min	nin
Solar incubators			
Solar Lighting			
Heating Solutions		H	
Alternative feed Waste Recycling			
TOTAL DURATION			IIhrs

MODULE 10.0 AGRIBUSINESS AND MARKETING

10.1.0 Module background

Economics of IIC will analyze economic aspects related to the enterprise, which includes the production, processing, distribution, and consumption of poultry products. This will examine the financial and economic factors that influence the enterprise i.e costs of production, market prices, supply, and demand dynamics, and profitability. Understanding the factors influencing your enterprise is vital to the farmers since it help in making informed decisions regarding production practices, pricing strategies to ensure sustainability and profitability of your enterprise.

10.2.0 Learning Outcomes

The expected learning outcomes are as follows:

- 1. Analyze market trends
- 2. Identify costs components
- 3. Assess profitability
- 4. Evaluate risks
- 5. Develop mitigation strategies
- 6. Make informed decisions to optimize production
- 7. Enhanced strategic planning abilities
- 8. Appreciate the existing opportunities in poultry

MODULE 11: GENDER EQUALITY, HUMAN RIGHTS AND SOCIAL IN-CLUSION

II.I 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 I7 UN Sustainable Development Goals(SDG) is dependent on the operationalization and implementation of gender equality and women empowerment strategies, Human Rights Based Approaches(HRBA) and social inclusion is guided om the principle of Leave no one Behind. Restrictive gender roles and social norms a lived reality in most of the rural smallholder farms continue to drag development behind. While men and women continue to perform these roles as is, may of them lack awareness of how some of these community sanctioned roles continue to limit their progress in live especially among in creating wealth out of the agricultural value chains.

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

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

11.2 Module Summary

Module 11.2.1: Gender equality, human Rights and social inclusion			
Sessions	Training methods	Training materials	Time
I I.2, I Introductions and climate setting, objectives and expectations	 Self-introduction Setting Norms & rules Plenary Presentation Plenary discussion Group exercise 	Flips chartsFelt pensLaptopProjector	20 minutes

Module 11.2.1: Gender equality, human Rights and social inclusion			
Sessions	Training methods	Training materials	Time
11.12.2 Gender equality Definition of concepts	 Presentations Individual reflections Group exercise Plenary discussions 	 Flips charts Felt pens Laptop Projector Participants' handouts 	30 minutes
11.12.3 The business case for gender mainstreaming	 Practical exercise (groups tour nearby successful Agri- business where both the a model couple) Presentations 	 Flips charts Felt pens Laptop Projector Participants' handouts 	40 minutes
11.12.4 Steps to main- stream gender	 Group exercise -same sex groups (trainees identify roles) challenge these roles Plenary discussions (share group work results) Individual reflections Presentations 	 Flips charts Felt pens Laptop Projector Participants' handouts 	40minutes

Module 11.2.1: Gender equality, human Rights and social inclusion			
Sessions	Training methods	Training materials	Time
11.12.5 Human rights	 Individual reflections Buzz groups Plenary Presentations PowerPoint presentations 	 Flip charts Felt pens Laptop Projector handouts 	30 minutes
II.I2.6 HRBA-PANT Principles	 Group work Presentations PowerPoint presentations	 Flip charts Felt pens Laptop Projector handouts 	30 minutes
11.12.7 Social inclusion	 Buzz groups Plenary discussions Group discussions on who is likely to be left behind in the value chain 	 Flip charts Felt pens Laptop Projector handouts 	30minutes
Chapter review and discussion	Discussion/conclusion Action plan	Flip chartsFelt pensLaptopProjector	30 minutes
Total			4, hrs

11.2 Guidelines for Facilitators

Module 11.2.0: Gender Equality, Human Rights and social inclusion		
11.2.1. Introductions, climate setting	Session guide	
Preliminaries		
The facilitator welcomes trainees to the Chapter and thereafter invites them to introduce themselves and state their expectations		
Expectations		
The trainees form groups (e.g., county based) and list expectations from the module		
The facilitator presents the chapter objectives. Objectives	 Summarize the trainees expectations PowerPoint presentations Group exercise (listing and presenting expectations). Expectations lists kept for later reviewing compliance 	
By the end of the training Chapter, the trainee should be able to:		
 Explain and describe what gender and gender mainstreaming is with practical examples Describe appropriate steps to take in operationalizing the PANT principles Describe and list those likely to be excluded from the value chains. Specify the correct actions to take to address the root causes of exclusion and how they will be monitored. 		

11.2.2 Gender equality definition of concepts	
Plenary Presentation	
The facilitator introduces the topic of background information and gender equality	
 Individuals reflect on their under- standing of various concept sex, gender, eq- uity, equality, diversity, gender mainstream- ing among others 	 Plenary discussion Distribute participants' handouts/training materials
 Presentations are made to dispel bi- ases and stereotypes 	PowerPoint PresentationPractical exercise
Plenary discussions	
Plenary discussion Questions/answers and comments	
11.2.3 The business case for gender main- streaming	Session guide
Group exercise	
 The facilitator guides trainees to visit successful Agri- business where both a model couple) The group reflects on their findings A PowerPoint presentation. 	 PowerPoint Presentation Distribute participants' handouts Groups exercise Plenary discussion

11.2.4 Steps to mainstream gender	Session guide
Group exercise : the facilitator conducts	3
 Practical session on gender roles(daily calendar)- Women and men separately then present in plenary for further reflection Practical session on Access, control, and ownership-separately then present in plenary Social norms in the community about men and women-separate norms then present in plenary Barriers and enablers to women and youth participation in the agricultural value chains and how they will be addressed by the group. Presentations Plenary presentation and plenary discussion PowerPoint presentation 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 Plan on next steps 	 PowerPoint Presentation Distribute participants' handouts Groups exercise Plenary discussion
11.2.5 Human rights	
The facilitator leads the trainees into;	
 Individual reflections on their human rights, those who have duty to address these rights Buzz groups to identify issues of human rights 	 Flips charts Felt pens Laptop Projector Participants' handouts
Plenary Presentations	
PowerPoint presentations	

11.2.6 HRBA-PANT Principles	
The facilitator lead the team on the PANT principles	Flips chartsFelt pensLaptop
I. Group work	Projector
2. Presentations	Participants' handouts
3. •PowerPoint presentations	
1.1.7 social inclusions	
The facilitator leads the trainee into group discussions on who is likely to be left behind in the value chain	
Identification	
a. Who is excluded? Are some groups less likely to benefit from a Program/project be- cause of their identity?	
 Analysis 	
a. How and why is the particular group (or groups) excluded? What drives the exclusion?	Flips chartsFelt pens
• Actions	LaptopProjector
a) What actions can the groups/ farmers take to ensure there is social inclusion	Participants'handouts
Monitoring	
b) How would they know if they have made progress in ensuring social inclusion?	
 Action plan for mainstreaming Gen- der Youth and social inclusion 	

Session guide

Review and Close out

(The facilitator leads the trainees in reviewing the chapter)

Summary of the main points from the training

- Objectives and expectations (review done on basis of the objectives and expectations listed earlier)
- Trainees to randomly indicate new sets of skills and knowledge learnt from the module. The results are recorded per county presented
- Randomly (average of 10 cases) trainees identify key issues for the way forward issues.
- Participants' handouts
- Summarize the main points of the module on a flip chart and display

References

- Chicken Farming Manual, Second Edition, KALRO;
- Empowering Novel Agribusiness-Led Employment (Enable) Youth Kenya Program; Training Manual (2020-2023)

ANNEX I: Sample training programme



CHICKEN VALUE CHAINTRAINING WORKSHOP FOR XXXX

TRAINING VENUE: XXX
SAMPLE PROGRAMME
DATES: XXX

Date and Time	Activity	Duration	Responsible

ANNEX II.: List of participants who validated this value chain manual

S/NO	NAME	INSTITUTION
I	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
П	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









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