



Kenya Climate Smart
Agriculture Project



Climate Smart Agricultural Technologies, Innovations and Management Practices for Camel Value Chain

TRAINING OF TRAINERS' MANUAL



MARCH 2020

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Foreword

Kenya Climate-Smart Agriculture Project (KCSAP) tasked the Kenya Agricultural & Livestock Research Organization (KALRO) with the implementation of the project Component 2, on ‘Strengthening Climate-Smart Agricultural Research and Seed Systems’. The component activities are geared towards the development, validation, adoption and delivery of context specific climate smart agriculture (CSA) technologies, innovation and management practices (TIMPS). The other responsibility was development of sustainable seed production and distribution systems for priority value chains to enhance availability and access to seed, breeds and fingerlings by target beneficiaries under Components 1 (Up scaling Climate-Smart Agricultural Practices). Against this background, KALRO and her NARS partners have developed, validated and availed CSA TIMPS for dissemination and adoption. The TIMPS have further been unpacked during the development of Training of Trainers (ToT) Manuals for use in training public and private extension service providers and lead farmers.

The ToT Manuals are instructional guides to be used for teaching and learning step-by-step procedures of implementing CSA innovations for each of the 13 value chains being addressed. The training content is drawn from the CSA TIMPS that support respective value chains. The content are arranged in progressive modules supported by extensive information from research information and background data drawn from the TIMPS. Their relevance are based on the needs teased out of the value chains and the project objectives. The ToT Manuals training design takes into consideration the delivery system, the partners and their roles, the duration of training and logical flow of the sessions. Similar content requiring similar delivery systems are grouped together while the roles of the partners are tapped in the training and planning of the training sessions.

The Manual is divided into modules, which have a uniform outline that ensures every aspect of the TIMPs are fully covered in way that the trainees can absorb and relate to. Various delivery methods are deployed and where possible demonstrations and practical work are incorporated to enable the trainees learn by participating in the actual field activities. Furthermore, to ensure that the training across various groups is standardized, trainers guidelines, detailed descriptions of the trainees, program, training methods and a training evaluation have been provided in the manual. Adhering to these guidelines, therefore, enables possibility to replicate the training in several locations without loss of details regardless of whether conducted by different trainers.

It is highly advised that the ToT Manuals should be used in conjunction with the respective value chains’ TIMPs documents and facts sheets in order to provide valuable resource for both public and private extension service providers. The use of this Manual is expected to spur increased productivity and resilience by farmers, while mitigating climate change impacts in the value chains to deliver the envisaged ‘Triple Wins’.

I am greatly indebted to the value chain leaders and all those who participated in the preparation of the Manual, which is expected to herald a new way of delivering training content in a changing agricultural environment.

Eliud K Kireger, PhD, OGW

Director General, KALRO

Preface

The Kenya Climate-Smart Agriculture Project (KCSAP) is a Government of Kenya project with support from both the World Bank and the government. It is a five-year project implemented in 24 counties, mainly in the arid and semi-arid lands (ASALs), at a cost of Ksh. 25B. The project development objective (PDO) is “*to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response.*” This objective is to be achieved through the implementation of five key components, which are 1) Up scaling Climate-Smart Agricultural Practices, 2) Strengthening Climate-Smart Agricultural Research and Seed Systems, 3) Supporting Agro-weather, Market, Climate, and Advisory Services, 4) Project Coordination and Management and 5) Contingency Emergency Response.

Component 1 involves facilitating the empowering of farmers and communities to adopt technologies, innovations and management practices (TIMPs) to achieve the Climate Smart Agriculture (CSA) triple-wins of; increased productivity, enhanced resilience (adaptation), and reduced Greenhouse gas (GHG) emissions (mitigation). Component 2 is charged with the responsibility of providing the TIMPs. Therefore, it supports the development, validation, and adoption of context specific CSA TIMPS to target beneficiaries under Components 1 and 3 as well as development of sustainable seed production and distribution systems.

To catalyze uptake of TIMPs, Kenya Agricultural & Livestock Research Organization (KALRO) in conjunction with partners in the National Agricultural Research Systems (NARS) and Consultative Group for International Agricultural Research (CGIAR) compiled inventories of TIMPs for each of the 13 prioritized value chains (cassava, green grams, sorghum, millet, pigeon peas, bananas, tomatoes, potatoes, apiculture, indigenous chicken (meat and eggs), dairy (cattle and camel), red meat (cattle, sheep and goats) and aquaculture and 3 cross cutting value chains (natural resource management, pastures and fodder and animal health). The TIMPs were categorized into those ready for upscaling, those that needed validation and gaps that required further research. Training of Trainers’ (ToT) manuals focusing on TIMPs that are ready upscaling for each of the value chains were subsequently developed and form the basis of training county extension staff, service providers and lead farmers. They are in turn expected to cascade this training to beneficiaries in the targeted smallholder farming, agro-pastoral and pastoral communities in the 24 project counties of Marsabit, Isiolo, Tana River, Garissa, Wajir, Mandera, West Pokot, Baringo, Laikipia, Machakos, Nyeri, Tharaka Nithi, Lamu, Taita Taveta, Kajiado, Busia, Siaya, Nyandarua, Bomet, Kericho, Kakamega, Uasin Gishu, Elgeyo Marakwet and Kisumu.

KALRO having the mandate of implementing of activities under Component 2, has been instrumental in using its information resources and those of partners and collaborators to come up with the inventories of TIMPs and corresponding ToT Manuals. The use of these information resources coupled with the accompanying training and the contribution

of the other project components, will go a long way in enabling the KCSAP to meet its development objective.

The National Project Coordination Unit is grateful to all who participated in the development and production of this *Climate Smart Agricultural Technologies, Innovations and Management Practices for Camel Value Chain Training of Trainers' Manual*. It is my hope that counties and other users will put this resource to good use as they transform and reorient their agricultural systems to make them more productive and resilient while minimizing GHG emissions under the new realities of a changing climate.

Francis Muthami

National Project Coordinator

Kenya Climate-Smart Agriculture Project

List of Abbreviations and Acronyms

BMPs	Best Management Practices
CCT	Core Team of Trainers
FAO	Food and Agriculture Organization
GHG	Greenhouse Gases
PFBS	Pastoralist Field and Business School
KALRO	Kenya Agriculture and Livestock Research Organization
LP	Lead Pastoralist
PAPFBS's	Pastoralists and Agro-pastoralists Field and Business School
ToT	Training of Trainers'
KCSAP	Kenya Climate-Smart Agriculture Project
CSA	Climate Smart Agriculture
TIMPs	Technologies, Innovation and Management Practices
NARS	National Agricultural Research Systems

PART I

This part consists of four sections including the background, module training content, training design and facilitator guidelines.

SECTION 1: BACKGROUND

1.1 The Role of Camel in the Kenyan Economy

The world's camel population was estimated to be 19 million in 2001, 15 million of which are found in the pastoral production systems of Africa. They are mainly kept for their reliable milk production. In Kenya, over three-quarters of the land mass is classified as arid and semi-arid where livestock production is the predominant agricultural activity. There are approximately 900,000 camels in Kenya, about 6% of the continental camel population. They make up 25% of the domestic herbivore biomass in the Kenyan arid lowlands with a density of 3.1 camels per km² in the arid and semi-arid northeastern areas of Kenya, a density only exceeded in Somalia. The importance of the Camel to the residents of the former North Eastern Province, Isiolo and Marsabit Counties cannot be overstated.

Camel farming is changing from traditional extensive forms to modern semi-intensive or even intensive forms. Camel keeping is being done at higher altitudes and by people who rarely kept them before as a means to improve climate resilience. Peri-urban camel production in Isiolo County in Kenya began early in 1990s and evolved to the present market-oriented production system. Camel milk production in Kenya in 2009 was 553 million litres. Studies have found that camel milk sales were more important amongst camel keepers in peri-urban than in the pastoral system. Daily milk yield of camel varies from 3.5 litres under desert conditions to 40 litres under intensive management.

1.2 The Role of Camel in Food and Nutrition Security

Since studies show that camel milk sales were more important amongst camel keepers in peri-urban than in the pastoral system, it follows that most of the milk produced under the pastoral system is consumed locally. Daily milk yield of camel varies from 3.5 litres under desert conditions to 40 litres under intensive management. During the dry season, camels continue producing milk long after cows and goats have stopped. Home-based lactating herds of camel provide sustaining nutritional security to families during the dry season when the rest of the herd has been moved away in search of feed.

1.3 Camel as a Climate Smart Innovation

Camel is one of the best animals for adaptation in agriculture to achieve food security under a changing climate while delivering co-benefits for environmental sustainability, nutrition and livelihoods. The anatomy and physiology of the camel makes it the most suitable animal for food production in the arid and semi-arid parts of Kenya. As climate change continues to negatively impact on feed resource availability, the importance of the camel will increase within the incrementally fragile ecosystems.

This Manual looks at the Climate-Smart Agriculture (CSA) concept from the camel perspective. The Kenya Climate Smart Agriculture Project (KCSAP) aims to validate and upscale Camel Technologies, Innovations and Management Practices (TIMPs)

through (1) use of improved camel breeds (2) maintaining the resilience of camels and the dependent communities; and (3) gaining an understanding on how to reduce the vulnerability of communities negatively impacted by climate change in Kenya.

1.3 Objectives of the training

The purpose of this training is to provide the farmers trainers/pastoralists with knowledge and skills to empower farmers for increased productivity through adoption of GAP.

The specific objectives are to:

- Provide pastoralists and agro-pastoralists trainers with relevant attitude, knowledge and skills in farming business and market assessment techniques for market led production.
- Refresh pastoralists and agro-pastoralists trainer's knowledge and skills on improved camel breeds.
- Provide pastoralists and agro-pastoralists trainers with knowledge and skills on maintaining the resilience of camels through improved management.
- Provide pastoralists and agro-pastoralists trainers with knowledge and skills in participatory techniques for effective facilitation of adult learning processes through PPFBS's and developing inclusive stakeholder partnership development for sustainable up scaling of PPFBSs.

SECTION 2: TRAINING CONTENT

2.1 Orientation of the Module

This section of the training manual deals with training content. It outlines the orientation and outline of **8 modules** which have a total of **58 sessions** spread over a period of **64 hours**. The 8 modules are orientated to ensure adoption and upscaling of Good Camel Practices to improve productivity, resilience and mitigation of harmful greenhouse gases through the application of content specific climate smart TIMPs.

The purpose of these modules is to enhance the knowledge and capacities of trainers in understanding and applying the climate-smart camel practices in their training activities.

2.2 Module Outline

Each of the 10 modules has a similar outline consisting of 8 parts. These parts are:

- **Introduction to the module** – context and background to training needs, knowledge and skill gaps being addressed
- **Module learning outcomes** – what trainees are expected to learn
- **Module target group**–trainee categories
- **Module users** –facilitators
- **Module duration** –The minimum number of hours of exposure to materials
- **Module summary** –The sequence of sessions, training methods, materials and duration
- **Facilitators guideline** –detailed sessions, training methods, materials and session guides
- **Participant’s handouts** – detailed training notes and reference materials for trainees.

The outline for each of the 10 modules is presented in Table 1:

Table 1: Summary of outline for 10 modules of the camel value chain

No.	Module name	Need addressed	Expected training outcomes [Summarized from module learning outcomes]	Duration
1.	Climate Smart Agriculture Practices	<ul style="list-style-type: none"> • Growth in food demand caused by the effects of climate change on agricultural systems, including crops, livestock and forestry • Low adoption of best management practices and innovations in the face of extreme weather events and climate variability. 	<ul style="list-style-type: none"> • Basics of climate science, the impacts of climate change and the linkages among climate, agriculture and food security Climate change adaptation and resilience measures identified • Best Camel management practices and innovations outlined. 	8 hours
2.	Camel Breeds and Breeding	<ul style="list-style-type: none"> • Low milk production • Inbreeding 	<p>Basics in identifying camel breeds of Kenya understood</p> <p>Best breeding management explained</p>	8 hours
3.	Feeds and Feeding	<ul style="list-style-type: none"> • Inadequate quantity and quality camel feeds. 	Available feeds and combinations for optimum feeding explained	8 hours
4.	Health Management	<ul style="list-style-type: none"> • High calf mortality • Low production • Poor milk hygiene • Morbidity 	Understanding causes of mortalities and morbidities. Understanding available cost-effective interventions	8 hours
5.	Post-harvest and Value Addition	<ul style="list-style-type: none"> • High losses along the chain due to lack of value addition • Poor sanitation and waste management 	<p>Value addition options available</p> <p>Cost-effective waste management best practices understood</p>	8 hours

6.	Market Linkages and Distribution	<ul style="list-style-type: none"> • Absence of organized marketing system • Poor market access 	Marketing options and market information as well as linkages explored	8 hours
7.	Camel Business	<ul style="list-style-type: none"> • Lack of business skills to commercialize camel 	<p>Various camel enterprises and commercialization skills appreciated by learners</p> <p>Business plans developed</p>	8 hours
8.	<p>Cross cutting issues (Gender, Youth, Vulnerable and Marginalized Groups</p> <p>Social and Environmental Performance</p> <p>Group Dynamics and Cohesion</p>	<ul style="list-style-type: none"> • Low gender and youth participation in projects • Limited information of quantitative information on camel sector performance • Limited group networks and cohesion among pastoralists 	<ul style="list-style-type: none"> • Gender, youth and VMG inclusion strategies learnt and disseminated • Quantitative indicators on camel sector performance learnt and developed • Strong and effective group networks developed and appreciated 	8 hours
Total duration				64 hours

SECTION 3: TRAINING DESIGN

3.1 Delivery System

The delivery system designed for this training consists of two stages:

1. Establishment of a team of facilitators

- ⇒ A Core Team of Trainers (CTT) trains Pastoralist trainers (service providers) as facilitators of a ToT course. This is done using this manual and modules contained therein.
- ⇒ Each of the Master trainers will facilitate Pastoralists to acquire knowledge and skills in facilitating Pastoralist-led Field and Business Schools through practical demonstrations.

2. Upscaling –This will be done by selecting Lead Pastoralist (LP) to be trained in facilitation skills.

3.2 Partners and Their Roles

The partners envisioned in this training plan are:

- 1. Core Team of Trainers** – Master trainers drawn from KALRO, Universities, Tertiary Institutions offering camel courses (GRIFTU, ATCs) and the State Department of Livestock will facilitate initial training of Pastoralist trainers. They also provide mentorship to Pastoralists’ trainers during the first year of LP training. They should also be available in the evaluation of the first round of LP training.
- 2. County Government Department of Livestock**–Master trainers and their supervisors referred to as County Coordination Teams (CCT) to take the role of LP trainers, mentors and coordinators at sub-county level. They assist PFBS’s form of partnership with stakeholders for sustainability. They should also support LPs form their network.
- 3. Lead Pastoralist Networks-** Association of LPs in the target counties to take up Pastoralist training and upscaling in the future. Lead Pastoralist networks and groups will conduct exchange visits to learn best practices in other project implementing counties.
- 4. Private Sector Service Providers** – Input suppliers, financial and business development service providers, market players and processors to partner and support growth of individual or camel pastoralist groups.

3.3 Training Duration

The proposed initial ToT course for Master trainers for 10 modules in the camel value chain shall take a total of **80 hours** of the training period. This does not include break hours of mid-morning, afternoon and lunch breaks.

3.4 Logic of Design and Flow of Session

The logic of design and flow of each module is that the facilitator, paying attention to the proposed methods and sessions guidelines shall: (1) Introduce the module; (2) Draw out the trainees' expectations; (3) Relate trainees' expectations with module objectives or learning outcomes; (4) Explore the concept and content, switching to different methods of delivery of the content (group exercise, brainstorming, excursions, plenary discussions, role plays) as the session progresses; (5) Review the module at the end using participatory approaches; and, (6) Distribute handouts to the participants.

SECTION 4: FACILITATOR GUIDELINES

4.1 Preparation of Training Materials

The training materials suggested require adequate preparations and should be available before the actual training dates. In addition;

1. The facilitators should familiarize themselves and internalize the guidelines provided by this manual prior to the training;
2. The stationery required should be available within the training institution 3 days before the training. These include name tags, writing materials, a paper punch and medium size box files for trainees' handouts filing;
3. Flip charts and good quality felt pens could be used interchangeably with LCD projections. Each trainee will require one felt pen while the trainers will require two sets of felt pens;
4. Visual aids such as field equipment and tools should also be arranged in time before the sessions start;
5. 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; and
6. Copies of the modules shall be distributed at the end of each module.

4.2 Preparation of Training Venue and Sites

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

1. **Training Room** – should have adequate space for 25 trainees seated in a semi-circle or U shape arrangement ensuring access and unobstructed view of the front. There should be adequate space for a desk and seats for 3 trainers preferably at the sides or at the back of the training room. There should also be a desk for the trainer, their training materials and LCD projector, a flip charts holder and white wall to act as a projector screen.
2. **Demonstration Site** – Should be within walking distance
3. **Market Sites** – these include camel products retail outlets (Kiosks, stalls, shops and supermarkets), wholesale and aggregation points and processing sites if any. These should not be very far away preferably less than 10 minutes' drive distance. The operators should be informed in advance about the visits.

4.3 The Trainees

The trainees who will participate are extension officers, LP, educators, and researchers with an elaborate training background in extension and advisory services. They will be drawn from public and private sector based on considerable experience in training Pastoralists but with minimal facilitative advisory or technology transfer approaches. The trainer should, therefore, act more of a facilitator than a lecturer and draw out and build on their knowledge, skills and experience that they shall bring in. As a golden rule, facilitators should not lecture the trainees but facilitate and listen and let them feel like equals to each other and the CTT team members.

4.4 Training Program

The training program proposed consists of the actual training modules. Health breaks should be considered when drawing the training program. The training program should preferably be based on the outline presented in **Annex 1** to allow the flow of ideas and topics. However, should the situation demand, the sequence and day of coverage for whole or parts of the modules can be modified to suit emerging requirements. The training program assumes that the trainees report on Sunday evening as the first day and leave ten days later on Friday afternoon or Saturday morning.

4.5 Training Methods

The training methods proposed for each session are suitable for adult learners and appropriate for addressing knowledge, skills and attitudes of the trainees. The choice of the methods has been informed by the competency issues being addressed, available time 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. The list of available training methods is presented in Table 2.

Table 2: Description of training methods during ToT training

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 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 sharing and demonstration

4.6 Planning Schedule and Guidance for ToT preparation

While planning for this training, the CTT leader will ensure the following activities before the training as outlined in Table 3.

Table 3: Duration of activities to be done before training

Duration to Training	Activities to be Done
Six weeks	Recruit master trainers, compose CTT, identify the practical demonstration sites
Four weeks	Send out invitation letters to trainees and special guests detailing purpose, venue and program. Follow up on demonstration sites. Brief CTT members
Two weeks	Confirm names of trainees; reproduce training materials for facilitators and package, confirm preparedness of the field sites to be visited. Hold briefing of CTT members to finalize training plan. Confirm special guests if any
Four days	Confirm training sites preparedness, prepare sitting arrangements, and brief assistants
One day	Arrange training room furniture, place materials, equipment and stationery on the tables. Arrange for the reception of trainees at residence proposed
On the first day	Arrange for the reception of trainees at the training venue. Ensure climate setting is done before the course is officially opened. This includes: (i) registration, (ii) welcome to the venue by host; (iii) elaborate introduction of CTT and trainees; setting of ground rules; and (iv) formation of groups.

4.7 Evaluation of Training

A whole half day has been allocated for planning for way forward and evaluation of the ToT on the last day of the training. The evaluation strategy should take two directions. The first being the individual trainees evaluate through evaluation forms without conferring to each other (Table 4). The evaluation forms are then collected and analyzed by the CTT members.

Table 4: Individual Sample Evaluation Form Template

Aspect / Module	Rating		
	Very useful (3 marks)	Useful (2 marks)	Least useful (1 mark)
1. Climate smart agriculture practices			
2. Camel breeds and breeding			
3. Feeds and feeding			
4. Health management			
5. Post-harvest and value addition			
6. Market linkages and distribution			
7. Camel Business			
8. Cross cutting issues (Gender, youth, vulnerable and marginalized groups, social and environmental performance, group dynamics and cohesion)			

The second direction for evaluation is trainee’s **group evaluation**. They retreat to one room and elect a chair and a secretary. Ask them to objectively and constructively evaluate the training in about 45 minutes in the absence of the CTT members. They then present their evaluation to the CTT members and as they present, the CTT members should only give points of clarifications if any misunderstanding occurred but not try to be defensive. The CTT members then use the two evaluation results to write a report highlighting aspects that went on well and can be replicated, challenges that were encountered, and opportunities for future ToT’s improvement.

4.8 Participant’s Training Notes and Reference Materials

4.8.1. List of camel publications

The list of camel publications are divided into two. The detailed list of all publications is summarized in Annex 2:

1. Publications for potential new entrants and new camel pastoralists who have just started in the last 5 years (to be **Labelled A** in Table format)
2. More advanced level publications which can be understood and used by more established camel pastoralists.(to be **Labelled B** in Table format)

4.8.2 Guide on the use of the information

The trainers will be advised to issue pastoralists with at most 2 publications for each of the training sessions. This is because if they go away with many publications, they may be overwhelmed with the material load and thus limit knowledge uptake. Also, some will just take away as many as they can if allowed.

The list of all individual publications will be stored and made available as electronic copies – mainly PDFs. The service providers are strongly advised to keep these electronic copies on a memory stick, or portable hard drive to enable Pastoralists easily access and if necessary, print any of them out at a local internet café.

Trainers will be advised to issue a General Camel management Manual to be accompanied by 2 other publications e.g. information sheets, brochures, factsheets, posters etc. With subsequent training modules, they can develop their collection of publications.

PART II

This part consists of 8 modules namely: Climate smart agriculture practices, Camel breeds and breeding, Feeds and feeding, health management, Post-harvest and value addition, Market linkages and distribution, Camel business, Cross cutting issues. All modules will be divided into the following:

- 1.1. Introduction to the Module
- 1.2. Module Learning Outcomes
- 1.3. Module Target Group and Categories
- 1.4. Module Users
- 1.5. Module Duration
- 1.6. Module Summary
- 1.7. Facilitator Guidelines
- 1.8. Participant's Handouts

MODULE 1

CLIMATE-SMART AGRICULTURE PRACTICES

This module outlines the learning outcomes, the category of trainees targeted, module duration, module users and summary, facilitator's guidelines and participants' handouts.

1.1 Introduction to the Module

This module on climate-smart agriculture aims to take the learner from the basics of climate science to the impacts of climate change and the linkages among climate, agriculture and food security. Specifically, this module intends to answer the following questions:

- What is climate change and what are its causes?
- How will climate change affect agriculture and pastoral practices?
- What is climate smart agriculture?
- What are practical solutions that agricultural and pastoral producers can put into practice to deal with climate change effects?

1.2 Module Learning Outcomes

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

- Climate change defined
- Causes of climate change explained and understood
- Principles of climate-smart agriculture outlined
- Climate change impacts on agriculture and food security appreciated
- Need to prioritize climate smart practices such as soil management, crop management, post-harvest management and value addition, irrigation systems, crop-livestock (camel) integration and renewable energy explained and understood.

1.3 Module Target Groups

This module targets service providers who include county extension staff, private service providers and lead pastoralists.

1.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

1.5 Module duration

The Module is estimated to take 8 hours

1.6 Module Summary

Climate Smart Agriculture Practices			
Sessions	Training methods	Training materials	Time
1.6.1 Introduction, objectives and expectations	<ul style="list-style-type: none"> • Personal introductions • Plenary Presentation • Group formation 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector 	1 hour
1.6.2 Understanding climate change	<ul style="list-style-type: none"> • Plenary • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour 30 minutes
1.6.3 Climate change impacts on agriculture and food security	<ul style="list-style-type: none"> • Plenary • Presentations • Plenary discussions • Practical demonstration 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Handouts • Projector • Laptop 	2 hours 30 minutes
1.6.4 Climate smart agriculture and context specific practices	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Practical demonstration 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Handouts • Projector • Laptop 	2 hours
1.6.5 Module review	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Handouts • Projector • Laptop 	1 hour
Total duration			8 hours

1.7 Facilitator’s Guidelines

Climate Smart Agriculture Practices	
1.7.1. Introduction, objectives and expectations (1 hours)	Session Guide
<p>Introduction</p> <p><i>(The facilitator welcomes trainees to the module and introduces themselves by stating their profile and experience. The facilitator invites the trainees to introduce themselves and state their expectations).</i></p> <p><i>The facilitator then presents the module objectives.</i></p> <p>Module Objectives</p> <p>By the end of the module trainee should be able to:</p> <ul style="list-style-type: none"> • Define climate change and relate its impacts on food security. • Explain causes of climate change. • Outline principles of climate-smart agriculture. • Appreciate climate change impacts on agriculture and food security • Explain the need to prioritize climate smart practices such as soil management, crop management, post-harvest management and value addition, irrigation systems, crop-livestock (camel) integration and renewable energy. • Propose climate smart agriculture solutions for each of the target counties (refer to climate risk profiles for each value chains) 	<p>Summarize trainees “expectations” and display</p> <p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Module objectives • Training Program
1.7.2 Understanding climate change (1 hour, 30 minutes)	Session guide
<p><i>(The facilitator explains to the trainees what climate change is, what causes it, its effects, and how they can be addressed).</i></p> <p>Plenary Presentation(30 minutes)</p> <ul style="list-style-type: none"> • What climate is change • Causes of climate change and its effects • Addressing effects of climate change <p>Discussion (1 Hour)</p> <p>Let the trainees recall what they learned and discuss on any issues that may arise.</p>	<p>Distribute handouts to trainees</p> <p>Climate smart brochures, information sheets/leaflets and manuals</p>

1.7.3 Climate changes impacts on agriculture and food security (2 hours, 30 minutes)	Session guide
<p><i>(The facilitator guides the trainees on how climate change is likely to affect agriculture: its effects on different types of farms, on men and women, and on food security).</i></p> <p>Plenary Presentation (1 hour 30 minutes)</p> <ul style="list-style-type: none"> • Relationship between climate change and food security • Effects of climate change on agriculture • How does agriculture contribute to climate change? • The link between climate change and food security <p>Discussion (1 hour)</p> <p>Let the trainees recall what they learned and discuss on any issues that may arise</p>	<p>Distribute handouts to trainees</p> <p>Climate smart brochures, information sheets/leaflets and manuals</p> <p>Q & A sessions</p>
1.7.4 Climate smart agriculture (2 hours)	Session guide
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • What is climate-smart agriculture? • Definitions and characteristics • Why climate smart agriculture • Principles of climate smart agriculture (Triple wins) <p>Practical Demonstration (1 hour)</p> <p>Demonstrate how climate smart agriculture context specific practices work</p> <p><i>Present PowerPoint slides highlighting some of the practices to ameliorate climate change e.g.</i></p> <ul style="list-style-type: none"> • Agro-forestry • Soil and Water management • Irrigation systems • Crop Livestock and camel integration • Post-harvest Management and Value addition • Renewable energy and Energy management <p>Discussion (30 minutes)</p> <p>After the presentations allow trainees to raise any issues and discuss them.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> ▪ Climate smart brochures, information sheets/leaflets and manuals

1.7.5 Module review (1 hour)	Session guide
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <p>Plenary Presentation (30 Minutes)</p> <ul style="list-style-type: none"> <li>• Summarize the main points of the training. <li>• Together with the trainees review the main points about climate-smart camel systems and best management practices <p>Group Discussion</p> <ul style="list-style-type: none"> <li>• What new things did you learn from this module? <li>• What are some of the problems and issues that you have become more aware of in the module? 	<p>Group discussions</p> <p>Q& A session</p> <ul style="list-style-type: none"> <li>• Recap the main points <li>• Test understanding <li>• Link to the way forward <li>• Participatory evaluation of the session

1.8 Participants' Handouts

1. FAO-climate Smart Agriculture Sourcebook, FAO 2013
2. FAO. 2018. Climate-smart agriculture training manual – A reference manual for agricultural extension agents. Rome. 106 pp.
3. FAO. 2019. Climate smart agriculture curriculum/module for training of trainers in Myanmar. Yangon. 28 pp

MODULE 2

CAMEL BREEDS AND BREEDING

2.1 Introduction to the Module

This module exposes service providers, lead Pastoralists and facilitators to the different types of camel breeds and their breeding practices. There are four types of camel breeds in Kenya namely Turkana, Rendille/Gabra, Somali and Pakistan breeds. Milk production per animal is on the decline despite improvement in heath management and reduced watering intervals from the previous 10-14 day to 6-8 days. These declining production trends call for training on management practices for improved breeds of camel . A better understanding of the improved camel breeds will help in guiding on the choice of camel breed to keep and its needs depending on environment and the intention of keeping camels.

2.2 Learning Outcomes

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

- Different camel breeds in Kenya discussed and explained.
- Need for best breeding practices to ensure high productivity and resilience explained

2.3 Module Target Group

This module targets Service providers who include County extension staff and private service providers.

2.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

2.5 Module Duration

The module is estimated to take **8 hours**

2.6 Module Summary

Camel Breeds and Breeding			
Sessions	Training methods	Training materials	Time
2.6.1 Introduction, objectives and expectations	<ul style="list-style-type: none">• Personal introductions• Presentations	<ul style="list-style-type: none">• Laptop• Projector• Training program	30 minutes

2.6.2 Importance of camels	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Handouts • Laptop • Projector 	30 minutes
2.6.3 Camel breeds and characteristics	<ul style="list-style-type: none"> • Plenary Presentations • Field demonstration 	<ul style="list-style-type: none"> • Brochures, banners/poster • live animals (breeds) • Manual • Flips charts • Felt pens • Projector • Laptop • Handouts 	3 hours
2.6.4 Selection of suitable camel breeds for different environment	<ul style="list-style-type: none"> • Plenary Presentations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour, 30 minutes
2.6.5 Breeding practices	<ul style="list-style-type: none"> • Plenary Presentations • Plenary Discussion 	<ul style="list-style-type: none"> • Posters • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour, 30 minutes
2.6.6 Module review	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Projector • Laptop • Handouts 	1 hour
Total duration			8 hours

2.7 Facilitator’s Guidelines

Camel Breeds and Breeding in Kenya	
2.7.1 Introduction and levelling of expectations and objectives	Session Guide
<p>Introduction (15 minutes) <i>(The facilitator welcomes trainees to the module and invites them to introduce themselves by stating their expectations).</i></p> <p>Module Objectives (15 minutes) <i>(The facilitator presents module objectives)</i></p> <p>By the end of the module the trainee should be able to :</p> <ul style="list-style-type: none"> • Identify different camel breeds in Kenya • Explain breeding practices that ensure high productivity and resilience. 	<p>Summarize trainees’ “expectations” and display.</p> <p>Distribute Handouts to trainees on module Objectives, training program</p>
2.7.2 Importance of camels (30 minutes)	Session Guide
<p><i>(The facilitator describes the importance of camels)</i></p> <p>Plenary Presentation</p> <ul style="list-style-type: none"> • Explain the importance of the different camel breeds in Kenya • Identify and explain best breeding practices that ensure high productivity and resilience in camels. 	<p>Distribute handouts to trainees, PowerPoint handout</p>
2.7.3 Camel breeds and characteristics (3 hours)	Session Guide
<p><i>(The facilitator guides the trainees to distinguish the different camel breeds)</i></p> <p>Plenary Presentation on general guidelines (30 minutes)</p> <p>Take the trainees through the characteristics of the different camel breeds</p> <p><i>(Ensure there are different live breeds near the training sites).</i></p> <p>Visit the sites where different breeds are kept and help them identify the different breeds. (1 hour 30 minutes)</p> <p>Plenary Discussion (1 hour)</p> <p>Immediately after the practical ask the trainees to recall what they have learned. Discuss any arising issues related to camel breeds and their characteristics.</p>	<ul style="list-style-type: none"> • Distribute handouts to trainees • Brochures • Leaflets • Live animals

2.7.4 Selection of suitable camel breeds for different environments (1 hour 30 minutes)	Session Guide
<p>Plenary Presentation (1 hour)</p> <ul style="list-style-type: none"> • Suitability of breeds to different environments and uses • Different attributes of environments (for example topography, feed) suitable for each breed (1 hour) <p>Plenary Discussion (30 minutes)</p> <p>After the presentations allow trainees to raise any issues and discuss them</p>	<ul style="list-style-type: none"> • Distribute handouts to trainees • Brochures • Leaflets
2.7.5 Breeding practices (1 hour 30 minutes)	
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Importance of natural mating (selection of breeding bulls) • Culling management, age at first mating • Calving and calving management. • Preventing Inbreeding in flocks <p>Plenary Discussion (1 hour)</p> <p>Guide the trainees on a discussion on Good Breeding practices for camels</p>	<ul style="list-style-type: none"> • Distribute handouts to trainees • Brochures • Leaflets
2.7.6 Module review (1 hour)	Session Guide
<p><i>(The facilitator leads the trainees to review the module)</i></p> <p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about camel breeds and breeding in Kenya. <p>Group Discussion (30 minutes)</p> <ul style="list-style-type: none"> • What new things did you learn from this Module? • What are some of the problems and issues that you have become more aware of in the module? 	<p>The last Participants' Handouts</p> <p>Summary of the main points from the module on a flip chart and display</p>

2.8 Training Notes and Reference Materials

1. Camel Manual for service providers (2009).
2. Camel Breeds of Kenya (Brochure)
3. Any other Relevant website materials on camel breeds and breeding
4. Other Relevant Publications

MODULE 3

CAMEL FEEDS AND FEEDING

3.1 Introduction to the Module

In this module, trainees will learn the feeding habits of camels and how to identify, conserve and efficiently manage camel feed. Such feed includes browse of different kinds, minerals and water . The module also highlights the design of *in situ* forage conservation and their associated challenges. In addition, the module focus on best management practices (BMPs) and why they are important. Finally, it shall discuss the roles of Pastoralists and other stakeholders in implementing (BMPs).

3.2 Module Learning Outcomes

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

- Camel feeds available within their regions/counties mapped and identified
- Mineral and water requirements explained
- Body measurements method to estimate the weight of a camel introduced and applied
- Use of dentition of a camel in age estimation outlined.

3.3 Module Target Group

This module targets Service providers who include county extension staff and private service providers and Lead pastoralists.

3.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

3.5 Module Duration

The module is estimated to take **8 hours**.

3.6 Module Summary

Camel feeds and feeding			
Sessions	Training methods	Training materials	Time
3.6.1 Introduction, objectives and expectations	<ul style="list-style-type: none"> • Personal introductions • Plenary Presentations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector 	30 minutes
3.6.2 Management of the suckling camel calf	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Practical demo 	<ul style="list-style-type: none"> • Flips charts/ Felt pens • Laptop • Projector • Handouts 	3 hours
3.6.3 Suitable camel feeds	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector • Feed samples 	1 hour 30 minutes
3.6.4 Mineral requirements	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector • Chumvi Kuria 	30 minutes
3.6.5 Water requirement	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Visit to watering point 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector 	30 minutes
3.6.6 Supplementary feeding of camels	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Demonstration 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector 	1 hour

3.6.7 Camel body weight and age	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Demonstration 	<ul style="list-style-type: none"> • Tape measure • Live animal • Flips charts • Felt pens • Laptop • Projector • Handouts • Manual 	30 minutes
3.6.8 Module review	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Projector • Laptop • Handouts 	30 minutes
Total duration			8 hours

3.7 Facilitators Guidelines

Camel feeds and feeding	
3.7.1 Introduction, objectives and expectations	Session Guide
<p>Introduction(15 minutes)</p> <p><i>(The facilitator welcomes trainees to the module and asks them to introduce themselves and state their expectations).</i></p> <p>Module Objectives (15 minutes)</p> <p><i>(The facilitator presents modules objectives).</i></p> <p>By the end of the module training the trainee should be able to:</p> <ul style="list-style-type: none"> • Identify camel feeds available within their regions/counties. • Explain mineral and water requirements. • Use body measurements method to estimate the weight of a camel • Explain the use of dentition of a camel in age estimation. 	<p>Summarize trainees “expectations” and display</p> <p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Module objectives • Training Program

3.7.2 Management of the suckling camel calf: (3 hours)	Session guide
<p><i>(The facilitator explains camel calf management practices) 2 hours.</i></p> <p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Explain Colostrum feeding, • Explain camel calf diarrhea management, • Explain calf management in the first year • Explain weaning of calf <p>Practical Demonstration (2 hours)</p> <ul style="list-style-type: none"> • Trainees visit a camel boma for demo on colostrum feeding, and calf management <p>Plenary Discussion (30 minutes)</p> <p>After the practical demonstration, let the trainees recall what they learned and discuss any issue that may arise.</p>	<p>Distribute handouts to trainees</p> <p>Brochures</p> <p>Posters</p> <p>Take trainees to the established camel boma/ demonstration unit.</p>
3.7.3 Suitable camel feeds (1 hour 30 minutes)	Session guide
<p>Plenary Presentation (1 hour).</p> <ul style="list-style-type: none"> • Importance of proper nutrition in camels • Role of common local preferred camel forages • Some of the poisonous forage plants (Display and identify) • Factors affecting quality of camel forages • Where applicable, demonstrate any feed ration for home-based lactating camels <p>Discussion (30 minutes)</p> <p>After the presentation, guide the trainees to recall what they learned and discuss issues that may arise.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Brochures • Posters • Leaflets <p>Q & A sessions</p>
3.7.4 Mineral requirements (30 minutes)	Session guide
<p>Plenary Presentation (15 minutes)</p> <ul style="list-style-type: none"> • Importance of minerals in camels • Identify sources of mineral • Daily mineral requirements • Demonstration use of Chumvi Kuria <p>Discussion (15 minutes)</p> <p>After the presentations allow trainees to raise any issues and discuss them.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Brochures • Posters • Leaflets • Chumvi Kuria

3.7.5 Water requirements (30 minutes)	Session guide
Plenary Presentation and Discussion <ul style="list-style-type: none"> • Importance of regular watering in camel production • Explain watering regimes in different seasons for different categories of camels 	Discuss the task in groups and come with a presentation for plenary discussions/ inputs
3.7.6 Supplementary feeding of camels (1 hour)	
Plenary Presentation <ul style="list-style-type: none"> • Timing of forage harvesting • Forage preservation (hay), • Feed Formulation from local feed materials Practical Demo and Discussion <ul style="list-style-type: none"> • Timing of forage harvesting • Forage preservation (hay), • How to formulate feed from local feed materials 	Distribute handouts to trainees <ul style="list-style-type: none"> • Brochures • Posters • Leaflets
3.7.7 Camel body weight and age (30 minutes)	
Practical Demonstration and Discussion <ul style="list-style-type: none"> • Explain to trainees the importance of knowing age and weight of camels. • Demonstrate how to use of dentition on age estimation. • Demonstrate how to use a tape measure to estimate live weights of camels. • Discuss any issues the trainees raise on camel weight and age 	Tape measure, poster, manual, handouts
3.7.8 Module review (30 minutes)	Session guide
(<i>The facilitator leads the trainees in reviewing the module</i>) Plenary Presentation and Discussion <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about climate-smart camel systems and best management practices • What new things did you learn from this module? • What are some of the problems and issues that you have become more aware of in the module? 	Group discussions Q& A session <ul style="list-style-type: none"> ▪ Recap the main points ▪ Test understanding ▪ Link to the way forward ▪ Participatory evaluation of the session

3.8 Participant's Handouts

1. Trainers notes and Camel Training Manuals for service providers (2012)
2. Brochures on camel mineral formulation (Chumvi Kuria)

MODULE 4

CAMEL HEALTH MANAGEMENT

4.1 Introduction to the Module

This module specifies the training competencies required to understand camel health and biosecurity which involves the practices, procedures and policies used to prevent the introduction of disease-causing organisms. The occurrence of disease outbreaks in camel farming is due to bad husbandry since the disease-causing organisms are always in the environment. They cause few problems until the camel are stressed through inadequate dietary or environmental conditions. Since camel consumers would want to have an assurance that camel products are of desirable quality and safe for human consumption. It is therefore imperative that farm management needs to ensure that biosecurity principles are observed in all farm operations.

4.2 Module Learning Outcomes

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

- Common diseases and predators in camel are identified and solutions offered
- Control measures regarding camel diseases, parasites, predator and pest control identified and discussed.
- Important steps in biosecurity within a camel farm explained
- Comprehensive biosecurity plan within a camel facility developed and applied.

4.3 Module Target Group

This module targets service providers who include county extension staff, Lead pastoralists and private service providers.

4.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

4.5 Module Duration

The module is estimated to take **8 hours**.

4.6 Module Summary

Camel Health Management			
Sessions	Training methods	Training materials	Time
4.6.1 Introduction, learning outcomes and expectations	<ul style="list-style-type: none"> • Personal introduction 	<ul style="list-style-type: none"> • Projector • Laptop 	30 minutes
4.6.2 Common camel diseases and their control	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Practical demonstrations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	3 hours 30 minutes
4.6.3 Camel predators and their control in camel	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions • Practical demonstrations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours 30 minutes
4.6.4 Module review	<ul style="list-style-type: none"> • Plenary Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Projector • Laptop • Handouts 	1 hour 30 minutes
Total duration			8 hours

4.7 Facilitator's Guidelines

Camel Health Management	
4.7.1 Introduction, objectives and expectations (30 minutes)	Session Guide
<p>Introduction (15 minutes)</p> <p><i>(The facilitator welcomes trainees to the module and asks them to introduce themselves and state their expectations).</i></p> <p>Module Learning Outcomes (15 minutes)</p> <p><i>(The facilitator presents the modules learning outcomes)</i></p> <p>By the end of the module trainee should be able to train on:</p> <ul style="list-style-type: none"> • Identify common diseases and predators in camel and offer solutions • Identify and discuss control measures regarding camel diseases, parasites, predator and pests. • Explain important steps in biosecurity within a camel farm • Develop and apply comprehensive biosecurity plan within a camel facility. 	<p>Summarize trainees “expectations” and display</p> <p>Distribute handouts to trainees highlighting:</p> <ul style="list-style-type: none"> • Module outcomes • Training Program
4.7.2 Common camel diseases and their prevention (2 hours, 30 minutes)	Session guide
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Some common camel diseases and their prevention • Control of diseases and parasites <p>Practical Demonstrations and Discussion (2 hours)</p> <p>Demonstrate:</p> <ul style="list-style-type: none"> • Common camel diseases and their prevention • Control of diseases and parasites • Common diseases and parasites <p>Let the trainees discuss any issues raised.</p>	<p>Distribute handouts to trainers</p> <ul style="list-style-type: none"> • Camel Diseases Predators Factsheet and Information Sheet

4.7.3 Camel predators and their control in camel (2 hour 30 minutes)	Session guide
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Common types of camel predators and their control • Effects of predators in health • Predator control methods <p>Practical Demonstration and Discussion</p> <ul style="list-style-type: none"> • Common types of camel predators and their control • Effects of predators in health • Predator control methods 	Distribute handouts to trainees on: Predators (factsheet and information sheet)
4.7.4 Module review (1 hour, 30 minutes)	Session guide
<p>Plenary Presentation and Discussion</p> <p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about camel breeding and genetic techniques to increase camel production. • What new things did you learn from this module? • What are some of the problems and issues that you have become more aware of in the module? 	<p>Group discussions</p> <p>Q& A session</p> <ul style="list-style-type: none"> • Recap the main points • Test understanding • Participatory evaluation of the session

4.8. Facilitator’s Handouts Training and Reference Materials

Camel manual for service providers

1. Guidelines for the training of veterinary professionals on camel health and diseases
2. Fact sheets
3. Brochures
4. Field manual of camel diseases, traditional and modern care

MODULE 5

CAMEL POST-HARVEST HANDLING AND VALUE ADDITION

5.1 Introduction to the Module

This module specifies the training competencies required for improving products with the intention of increasing the quality of the product and in return raise the income generated from its sale for operators in the value chain. Value addition aims at seizing opportunities offered by markets. Specifically, post-harvest handling and value addition involves several processes including transportation and handling camel milk hygienically; processing camel milk using different value addition techniques; preparation of camel meat using different recipes; maintenance of good quality camel products; packaging, branding and certifying camel and camel products and preparation and storage of camel products safely for longer shelf life. There are two possibilities to add value: (1) value capturing: through the improvement of current production, storage, processing, trading processes to increase productivity, reduce wastage and reduce costs, and by entering new markets with existing products. (2) value creation: through product innovation (e.g. new processed products).

5.2 Module Learning Outcomes

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

- Knowledge on post-harvest handling of camel products enhanced
- Personal hygiene in camel product handling enhanced
- Methods of camel products value addition identified
- Camel products value addition, products, packaging and branding identified and imparted
- Monitoring the quality and safety of camel value-added products discussed and understood.

5.3 Module Target Group

This module targets service providers who include county extension staff and private service providers.

5.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

5.5 Module Duration

The module is estimated to take **8 hours**.

5.6 Module Summary

Postharvest Handling and value addition			
Sessions	Training methods	Training materials	Time
5.6.1 Introduction, learning outcomes and expectations	<ul style="list-style-type: none"> • Personal introductions • Presentation 	<ul style="list-style-type: none"> • Flips charts • Felt pens • PowerPoint 	30 minutes
5.6.2 Camel products handling and hygiene requirements	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour
5.6.3 Types of camel milk and meat value addition methods	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical demonstrations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
5.6.4 Camel value-added production methods and recipes	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical demonstrations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	3 hours
5.6.5 Benefits and factors to consider in camel products value addition and marketing	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour
5.6.6 Module review	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • flips charts • Laptop • Projector • Handouts 	30 minutes
Total duration			8 hours

5.7 Facilitator's Guidelines

Post-harvest and value addition	
5.7.1 Introduction, objectives and expectations (30 minutes)	Session Guide
<p>Introduction (15 minutes)</p> <p><i>(The facilitator welcomes trainees to the module and invites them to introduce themselves and state their expectations).</i></p> <p>Module Learning Outcomes (15 minutes)</p> <p><i>(The facilitator presents the modules learning outcomes)</i></p> <p>By the end of the module the trainees should be able to train on:</p> <ul style="list-style-type: none"> • Enhance knowledge on post-harvest handling of camel products • Enhance personal hygiene in camel product handling • Identify methods of camel products value addition • Identify and impart skills in camel products value addition, products, packaging and branding • Discuss and understand monitoring the quality and safety of camel value-added products. 	<p>Summarize trainees “expectations” and display</p> <p>Distribute handouts to trainees highlighting:</p> <ul style="list-style-type: none"> • Module outcomes • Training Program
5.7.2 Camel products handling and hygiene requirements (1 hour)	Session guide
<p>Plenary Presentation</p> <p><i>(The facilitator explains how to prevent camel products contamination).</i></p> <ul style="list-style-type: none"> • Washing hands before handling camel products • Wearing clean overalls, hats, aprons and gumboots • Cleaning the working space, equipment and utensils to be used • Keeping your working tables and benches clean • What camel milk and meat quality is and its importance • Factors affecting camel milk and meat quality in pastoral and sedentary production systems • Apply the Standard operating procedures (SOPs) or good product handling practices in their farms to reduce camel milk and meat contamination. 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Fresh camel milk, meat • Demo kit for processing <i>nyirinyiri</i>, milk products (sorted items) • Practices Manual

5.7.3 Types of camel products and preservation methods (30 minutes)	Session guide
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Why it is good to consume camel products • How to assess camel products for freshness • Types of camel products preservation methods e.g. sun drying, smoking, gutting, chilling and freezing, salting, and canning <p>Practical Demonstration and Discussion (1 hour 30 minutes)</p> <ul style="list-style-type: none"> • Assessing camel products for freshness • Camel products preservation methods e.g. sun drying, smoking, gutting, chilling and freezing, salting, and canning • Discuss why each of the methods outline is a suitable method in relation to product. 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Manual and Brochures • Hemp brochure • Solar milk cooler • Mastitis test kit • Rapid platform milk test kits
5.7.4 Camel value-added production methods and recipes (3 hours)	Session guide
<p>Presentation and Practical Demonstration</p> <p><i>(Facilitator presents and conducts practical demonstrations)</i></p> <ul style="list-style-type: none"> • Improved handling (sanitation): Washing the product, Clean package, use metal cans/ plastic <i>mazzi</i> cans buckets in cleaning, transporting dried camel in plastic bags/ cooler boxes • Examples of value-added products and their recipes e.g. processed <i>nyirinyiri</i>, fresh pasteurized milk, fermented milk products • Improved quality/safety standardization: Reduce use of smoke, Grading, Proper selection of top-grade milk in terms of freshness etc., Standardization, Develop price policy according to grades • Improved marketing: Advertising product with an emphasis on its values, branding to transcend across all market chains, Proper marketing strategies, Be honest and reliable to customers, Advertisement, Neat packaging, • Use clear labels/Eco-labeling, Use colourful packaging materials 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Demonstrate application of the various value addition recipes Camel Recipe • Brochures <p>Q& A session</p>

5.7.5 Benefits and factors to consider in camel value addition (1 hour)	Session guide
<p>Plenary Presentation (30 minutes).</p> <p><i>(The facilitator guides trainees on factors to consider in camel products value addition).</i></p> <ul style="list-style-type: none"> • Quality standards • Cost-benefit analysis • Increased product shelf life • Better product prices • The increased product mix in the market • Product quality assurance • Product traceability • Easy and safe commodity handling <p>Plenary Discussion (30 minutes)</p> <p>Lead the trainers to discuss why the above factors are important for camel products value addition</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Camel products recipe brochures and manuals <p>Q&A Session</p>
5.7.6. Module review (30 minutes)	Session guide
<p>Plenary Presentation and Discussion</p> <p><i>(The facilitator leads the trainees in reviewing the module).</i></p> <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about camel breeding and genetic techniques to increase camel production • What new things did you learn from this module? • What are some of the problems and issues that you have become more aware of in the module? 	<p>Group discussions</p> <p>Q& A session</p> <ul style="list-style-type: none"> • Recap the main points • Test understanding • Participatory evaluation of the session

5.8 Facilitator's Handouts Training and Reference Materials:

1. Camel Manual for Service Providers (Chapter IV)
2. *Nyirinyiri* Processing Manual (KEBS)
3. Cheese processing manual with Indian recipes by Anne Bruntse, 2015
4. Brochures on Milk Processing
5. Brochures on product development
6. Food safety management systems (FSMS) KEBS
7. Relevant publications

MODULE 6

MARKET LINKAGES AND DISTRIBUTION

6.1 Introduction to the Module

This module specifies the training competencies required to learn how to establish market linkages and develop a marketing plan. The module further focuses on educating on the advantages of adopting collective marketing through the cluster approach. The module will guide Pastoralists on how to effectively market camel and camel products; formulate costing and pricing charts; prepare marketing tools; project supply and demand curve in the market; advertise and promote camel and camel products; maximize profit margin from camel sales and market camel in clusters.

6.2 Module Learning Outcomes

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

- Camel and camel products marketing explained
- Maximizing profit margins by branding outlined
- Cluster formation in camel and camel products marketing explained
- Marketing tools in the camel value chain explained and understood
- Costing and pricing of camel and camel products demonstrated
- Camel and camel products supply, demand and set market targets projected
- Advertising and promoting camel and camel products explained

6.3 Module Target Group

This module targets service providers who include county extension staff, lead pastoralists and private service providers.

6.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

6.5 Module Duration

The module is estimated to take **8 hours**.

6.6 Module Summary

Camel Marketing and Supply Chains			
Sessions	Training methods	Training materials	Time
6.6.1 Introduction, learning outcomes and expectations	<ul style="list-style-type: none"> • Personal introduction • Presentation 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop 	30 minutes
6.6.2 Types of camel/ products markets, supply and demand patterns	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
6.6.3 Marketing Strategies, Functions and market planning	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
6.6.4 Camel/product Market Channels, Value Chain and Distribution Networks	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • PowerPoint • Handouts 	2 hours
6.6.5 The 4 P of Marketing	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour
6.6.6 Module review	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • flips charts • Projector • Laptop • Handouts 	30 minutes
Total duration			8 hours

6.7 Facilitator’s Guidelines

Camel Marketing and Supply Chains	
6.7.1 Introduction, objectives and expectations (30 minutes)	Session Guide
<p>Introduction (15 minutes)</p> <p><i>(The facilitator welcomes trainees to the module to introduce themselves and state their expectations).</i></p> <p>Module objectives (15 minutes)</p> <p><i>(The facilitator presents the modules learning objectives)</i></p> <p>By the end of the module the trainee should be able to:</p> <ul style="list-style-type: none"> • Explain camel and camel products marketing • Appreciate maximizing profit margins by branding • Explain cluster formation in camel and camel products marketing • Explain and understand marketing tools in the camel value chain • Demonstrate costing and pricing of camel and camel products • Project camel and camel products supply, demand and set market targets • Explain advertising and promoting of camel and camel products. 	<p>Summarize trainees “expectations” and display</p> <p>Distribute handouts to trainees highlighting:</p> <ul style="list-style-type: none"> • Module outcomes • Training Program
6.7.2 Types of camel markets, supply and demand patterns (2 hours)	Session guide
<p>Plenary Presentation</p> <p><i>(The facilitator to present on PowerPoint slides and flip charts camel marketing)</i></p> <ul style="list-style-type: none"> • Define market and marketing • Explain how supply and demand and how they affect prices • Camel costs, incomes, prices and profits 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Good Camel Practices Manual

6.7.3 Marketing strategies, functions and marketing plan (2 hours)	Session guide
<p>Plenary Presentation (30 minutes)</p> <p>Developing a marketing strategy involves three elements:</p> <ul style="list-style-type: none"> • Analyzing the present market situation. • Formulating final marketing goals. • Evaluating and selecting suitable marketing alternatives <p>Discussion (1hour 30 minutes)</p> <p>Trainees to consider all reasonable marketing alternatives. Consider the costs involved and other advantages and disadvantages of each alternative. Then select a specific or a combination of marketing alternatives suitable for their particular case.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Marketing Basics Factsheet
6.7.4 Camel Market Channels, Value chain and Distribution Networks (2 hours)	Session guide
<p>Plenary Presentation (30 minutes)</p> <ul style="list-style-type: none"> • Different marketing channels and distribution networks • Choosing the right marketing channel is essential to successful marketing. • The price variations at each stage in accordance with the value added to the product. • Price margin; reflecting the percentage level of services provided at each stage through which the product passes, and the levels of demand and supply at different times of the year. • Market functions classified broadly into three groups: Exchange functions; Physical functions and Facilitating functions <p>Plenary Discussions (1 hour 30 minutes)</p> <p>Ask groups of trainees to explain in turn what they would do to enhance distribution channels of fast moving farm products.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Marketing Basics Factsheet <p>Q& A session</p>

6.7.5 The 4 P of Marketing (1 hour)	Session guide
<p>The facilitator should be able to guide trainees on an easy way to organize a marketing plan:</p> <ul style="list-style-type: none"> • Product • Price • Place • Promotion 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Camel Business Training Notes <p>Q&A Session</p>
6.7.6 Module review (30 minutes)	Session guide
<p>Plenary Presentation (30 minutes)</p> <p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about camel breeding and genetic techniques to increase camel production • What new things did you learn from this module? • What are some of the problems and issues that you have become more aware of in the module? 	<p>Group discussions</p> <p>Q& A session</p> <ul style="list-style-type: none"> • Recap the main points • Test understanding • Participatory evaluation of the session

6.8 Facilitator’s Handouts Training and Reference Materials:

1. Camel Manual for Service Providers (Chapter IV)
2. Relevant publications in agricultural information and communication management

MODULE 7

CAMEL BUSINESS

7.1 Introduction to the Module

The new business approach to camel is based on the paradigm shift that focuses on commercial operations of the camel as a viable business. This understanding represents a significant shift in technical assistance requirements. Whereas early limiting factors were biological (i.e., identifying and disseminating the best technologies), it is now understood that biotechnology must be accompanied by effective capacity building in business and market planning.

7.2 Module Learning Objectives

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

- Camel business and its importance explained
- Production skills and make profits in the camel farming business enhanced
- Business records and simple records necessary for camel business developed
- Business skills, planning tips, record formats in camel smallholder farms enhanced
- Successful operation of camel business demonstrated
- Making high profits margins in camel investments demonstrated

7.3 Module Target Group

This module targets service providers who include county extension staff, private service providers and lead pastoralists.

7.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). The trainers using this module should thoroughly familiarize themselves with the participant's handouts.

7.5 Module Duration

The module is estimated to take **8 hours**

7.6. Module Summary

Camel Business			
Sessions	Training methods	Training materials	Time
7.6.1 Introduction, learning outcomes and expectations	<ul style="list-style-type: none"> • Personal introductions • Presentation 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop 	30 minutes
7.6.2 Camel keeping business	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	1 hour
7.6.3 The basics of developing a business plan	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical exercises 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
7.6.4 The techniques of business planning	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical exercises 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
7.6.5 Recordkeeping and analysis for camel farms	<ul style="list-style-type: none"> • Presentations • Practical exercises 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Projector • Laptop • Handouts 	2 hours
7.6.6 Module review	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Projector • Laptop • Handouts 	30 minutes
Total duration			8 hours

7.7 Facilitator's Guidelines

Camel Business	
7.7.1 Introduction, objectives and expectations (30 minutes)	Session Guide
<p>Introduction (15 minutes)</p> <p><i>(The facilitator welcomes trainees to the module and invites them to introduce themselves and state their expectations).</i></p> <p>Module Objectives (15 minutes)</p> <p><i>(The facilitator presents the modules learning outcomes)</i></p> <p>By the end of the module the trainee should be able to:</p> <ul style="list-style-type: none"> • Explain camel business and its importance • Enhance production skills and make profits in the camel farming business • Develop business records and simple records necessary for camel business • Enhance business skills, planning tips, record formats in camel smallholder farms • Demonstrate successful operation of camel business • Demonstrate how to make high profits margins in camel investments. 	<p>Summarize trainees' "expectations" and display</p> <p>Distribute handouts to trainees highlighting:</p> <ul style="list-style-type: none"> • Module outcomes • Training Program
7.7.2 Camel keeping as a business (1 hour)	Session guide
<p>Plenary Presentation</p> <p><i>(The facilitator to present on PowerPoint slides and flip charts on camel farming business)</i></p> <ul style="list-style-type: none"> • Factors considered in camel keeping business • Facilities needed by pastoralists to practice camel farming as a business • Advantages of practising camel farming as a profitable enterprise • The short- and long-term goals in camel farming 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Good Camel Practices Manual

7.7.3 The basics of developing a business plan (2 hours)	Session guide
<p>Plenary Presentation</p> <p><i>Present the following on PowerPoint slides and flip charts:</i></p> <ul style="list-style-type: none"> • What is a business plan? • Why is a business plan important? • How long does it take to develop a complete business plan? • Fundamental questions addressed with a business plan? • Evaluating and selecting suitable marketing alternatives <p>Practical exercises and Discussion</p> <p>Develop components of a business plan.</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Livestock-Business Training Notes • Marketing Basics Factsheet
7.7.4 The techniques of business planning (2 hours)	Session guide
<p>Plenary Presentation (1 hour)</p> <p><i>(The facilitator guides trainees through PowerPoint presentations and practical exercises).</i></p> <ul style="list-style-type: none"> • Elements of an enterprise budget • Uses of an enterprise budget • The basic structure of an enterprise budget • Principle and steps in partial budgeting • Investment capital analysis e.g. payback period, net present value, internal rate of return • Financial analysis in camel e.g. profit income statement, solvency and liquidity • Cash flow budget in a camel enterprise <p>Practical exercises and Discussion (1 hour)</p> <ul style="list-style-type: none"> • Basic structure of an enterprise budget • Principle and steps in partial budgeting • Investment capital analysis 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Marketing Basics Factsheet <p>Q& A session</p>

7.7.5 Recordkeeping and risk analysis for camel herd (2 hours)	Session guide
Plenary Presentation <ul style="list-style-type: none"> • Types of farm records (input records, output record, annual (seasonal) records) • Examples of record tables and sheets • Sensitivity analysis in camel • Types of risks in camel (social, economic, political etc.) • Risk management • Practical exercises 	Distribute handouts to trainees <ul style="list-style-type: none"> • Training Notes Q&A Session
7.7.6 Module review (30 minutes)	Session guide
Plenary Presentation <i>(The facilitator leads the trainees in reviewing the module)</i> <ul style="list-style-type: none"> • Summarize the main points of the training • Together with the trainees review the main points about camel breeding and genetic techniques to increase camel production • What new things did you learn from this module? • What are some of the problems and issues that you have become more aware of in the module? 	Group discussions Q&A session <ul style="list-style-type: none"> • Recap the main points • Test understanding • Participatory evaluation of the session

7.8 Participants' Handouts and Reference Materials

1. Marketing Basics: A SMART Skills Manual

MODULE 8

CROSS-CUTTING ISSUES

8.1 Introduction to the Module

This module incorporates gender and youth, vulnerable and marginalized groups, social and environmental performance assessments as well as group dynamics and cohesion in to the camel dairy value chain. In so doing, it opens a window of assessing the implications of the gender and youth issues in the value chain and makes suggestions on increased inclusivity.

8.2 Module Learning Objectives

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

- Inclusion of gender, youth and Vulnerable and Marginalized groups (VMG) in camel value chain for their empowerment evaluated
- Indicators for conducting a social and environmental performance of camel operations mapped
- Management of groups while taking into account group dynamics and behavior entrenched
- Role of camel in Kenya's economy appreciated

8.3 Module Target Group

This module targets service providers who include county extension staff, lead pastoralists and private service providers.

8.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT). This module outlines the learning outcomes, the category of trainees targeted, module summary, and participants' handouts. The trainers using this module should thoroughly familiarize themselves with the participants' handouts.

8.5 Module Duration

The module is estimated to take **8 hours**

8.6 Module Summary

Cross-cutting Issues			
Sessions	Training methods	Training materials	Time
8.6.1 Introduction, learning outcomes and expectations	<ul style="list-style-type: none"> • Personal introductions • Presentations 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector 	30 minutes
8.6.2 Gender, Youth and VMG Inclusion in Camel	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • Flips charts • Felt pens • PowerPoint • Laptop • Projector 	2 hours
8.6.3 Socioeconomic Impacts of Camel	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical exercises 	<ul style="list-style-type: none"> • Flips charts • Laptop • Projector Handouts 	1 hour 30 minutes
8.6.4 Environmental impacts of camel	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical exercises 	<ul style="list-style-type: none"> • Flips charts • Felt pens • Laptop • Projector Handouts 	1 hour 30 minutes
8.6.5 Group dynamics and cohesion	<ul style="list-style-type: none"> • Presentations • Plenary discussions • Practical exercises 		2 hours
8.6.6 Module review	<ul style="list-style-type: none"> • Presentations • Plenary discussions 	<ul style="list-style-type: none"> • flips charts • Laptop • Projector Handouts 	30 minutes

8.7 Facilitator’s Guidelines

Cross-cutting Issues	
8.7.1 Introduction, objectives and expectations (30 minutes)	Session Guide
<p>Introduction (15 minutes)</p> <p>The facilitator welcomes trainees to the module and asks them to introduce themselves and state their expectations).</p> <p>Module Objectives (15 minutes)</p> <p><i>(The facilitator presents the modules learning outcomes)</i></p> <p>By the end of the module the trainee should be able to:</p> <ul style="list-style-type: none"> • Evaluate inclusion of gender, youth and VMG in camel value chain for their empowerment • Map indicators for conducting a social and environmental performance of camel operations • Entrench management of groups while taking into account group dynamics and behavior • Appreciate role of camel in Kenya’s economy. 	<p>Summarize trainees’ “expectations” and display</p> <p>Distribute handouts to trainees highlighting:</p> <ul style="list-style-type: none"> • Module outcomes • Training Program
8.7.2 Gender, Youth and VMG Inclusion in Camel (2 hours)	Session guide
<p>Plenary Presentation (30 minutes)</p> <p><i>(The facilitator to present on PowerPoint slides and flip charts).</i></p> <ul style="list-style-type: none"> • Gender mainstreaming and inclusion • Strategies for Inclusion of Vulnerable and Marginalized groups • Youth empowerment in the camel value chain • Women empowerment in the camel value chain <p>Plenary Discussion (1 hour 30 minutes)</p> <p>Can the inclusion of gender, youth and VMGs in the camel dairy value chain be considered adequate?</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • Good Camel Practices Manual

8.7.3 Socioeconomic Impacts of Camel (1 hour 30 minutes)	Session guide
<p>Plenary Presentation</p> <p><i>(Present the following on PowerPoint slides and flip charts)</i></p> <ul style="list-style-type: none"> • Roles of camel in food and nutrition security • Role of camel in poverty reduction and livelihoods • Role of camel in county and national economy • Socio-cultural and economic limitations to gender mainstreaming in camel <p>Practical exercises</p> <p>Group discussions to determine the role of camel in the local economy and food security</p>	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • SMART Camel Manual • Gender Fact sheets
8.7.4 Environmental impacts of camel (1 hour 30 minutes)	Session guide
<p>Plenary Presentation</p> <p><i>(The facilitator guides trainees through PowerPoint presentations and practical exercises).</i></p> <ul style="list-style-type: none"> • Water pollution control • Environmental risk assessment • Environmental performance of camel • Environmental impact assessment and audit of camel farms 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • SMART Pastoralists Manual • Q& A session
8.7.5 Group dynamics and cohesion (2 hours)	Session guide
<p>Plenary Presentation and Discussion</p> <ul style="list-style-type: none"> • Group dynamics and behavioural change • Role plays and cooperation • Social networks in camel • Cultural roles and dynamics 	<p>Distribute handouts to trainees</p> <ul style="list-style-type: none"> • SMART Pastoralists Manual • Q & A Session

8.7.6 Module review (30 minutes)	Session guide
<p><i>(The facilitator leads the trainees in reviewing the module)</i></p> <ul style="list-style-type: none"> <li>• Summarize the main points of the training <li>• Together with the trainees review the main points about camel breeding and genetic techniques to increase camel production <li>• What new things did you learn from this module? <li>• What are some of the problems and issues that you have become more aware of in the module? 	<p>Group discussions</p> <p>Q & A session</p> <ul style="list-style-type: none"> <li>• Recap the main points <li>• Test understanding <li>• Participatory evaluation of the session

8.8 Facilitator’s Handouts Training and Reference Materials

ANNEX 1: TRAINING PROGRAM

The training program presented here assumes that the trainees report on Sunday evening as the first day and leave 10 days later on Friday afternoon or Saturday morning.

Time	Day 0 (Sunday)	Duration	Remarks / Facilitator
Late Evening	<ul style="list-style-type: none"> • Arrival of trainees and registration – Host • Setting up and prepare training venue and materials – CTT 	2 hours	The training venue and materials are ready for use
Close of Day 0			
Time	Day 1 (Monday)	Duration	Remarks / Facilitator
	Session 1: Introduction and Climate Setting		The trainees relax and
8.00-9.30am	<ul style="list-style-type: none"> ▪ Welcome by host and prayers ▪ Self-introductions –(CTT) ▪ Introduction to KCSAP project ▪ Official opening ceremony (CDF) ▪ Introduction to the training program (CTT) ▪ Formation of groups and setting norms (CTT) 	10 minutes 10 minutes 20 minutes 10 minutes 20 minutes 20 minutes	climate set for the ten-day training
9.30-10.45am	Session 2: Understanding climate change		
	<ul style="list-style-type: none"> ▪ What is climate change ▪ What causes climate change ▪ What are the effects ▪ How to address climate change 	10 minutes 15 minutes 15 minutes 35 minutes	

10.45-11.00am	Tea Break (Group Photo)	30 minutes	Health Break
11.00am-1.00pm	Session 3: Climate change impacts on agriculture and food security <ul style="list-style-type: none"> ▪ Effects of climate change on agriculture ▪ How does agriculture contribute to climate change? ▪ The link between climate change and food security ▪ Plenary Discussions and Group Work 	<p>1 hour</p>	
1.00-2.00pm	Lunch Break	<p>1 hour</p>	
2.00-4.30pm	Session 4: Climate smart agriculture <ul style="list-style-type: none"> ▪ Definitions and characteristics ▪ Why climate smart agriculture ▪ Principles of climate smart agriculture ▪ Context specific practices ▪ Plenary discussions 	<p>20 minutes 20 minutes 30 minutes 35 minutes 30 minutes</p>	
4.30-5.00pm	Session 5: Module review <ul style="list-style-type: none"> ▪ Conclusions and review of Module 1 	<p>30minutes</p>	

5.00-5.30pm	Coffee Break	30 minutes	
Close of Day 1			
Camel Breeds and Breeding in Kenya			
Time	Day 2 (Tuesday)	Duration	Remarks / Facilitator
	Session 1: Introduction and Climate Setting		The trainees relax and
8.00-8.20am	<ul style="list-style-type: none"> ▪ Welcome by host and Prayers ▪ Recap of activities of day 1 	10 minutes	climate set for the
8.30-9.00am	Session 2: Introducing the module on camel breeds and breeding in Kenya <ul style="list-style-type: none"> ▪ Objectives of the module 	10 minutes 15 minutes 15 minutes	Day's training
9.00 – 9.30am	Importance of camels	30mins	
9.30-10.00am	Tea Break	30 minutes	Health Break
10.00am-1.00pm	Session 3: Camel breeds and characteristics <ul style="list-style-type: none"> ▪ General guidelines ▪ Site visit to view and identify breeds ▪ Plenary Discussions and Group Work 	30 minutes 1 hour 30 minutes 1 hour	
1.00-2.00pm	Lunch Break	1 hour	

2.00-3.30pm	Session 4: Selection of suitable camel breeds for different environment <ul style="list-style-type: none"> General guidelines Plenary discussions 	1 hour 30 minutes	
3.30- 5.00pm	Breeding practices	1 hour 30 minutes	
5.00-6.00pm	Session 5: Module review <ul style="list-style-type: none"> Conclusions and review of Module 2 	1 hour	
6.00-6.30pm	Coffee Break	30 minutes	
Close of Day 2			
Camel feeds and feeding			
Time	Day 3 (Wednesday)	Duration	Remarks / Facilitator
	Session 1: Introduction, objectives and expectations <ul style="list-style-type: none"> Welcome by host and Prayers Introduction to the training module objectives and expectations 	10 minutes 20 minutes	The trainees relax and climate set for the Day's training
8.00-8.30am			
8.30 – 10am	Session 2: Suitable camel feeds	1 hour 30 minutes	
10.00-10.30am	Mineral requirements	30 minutes	
10.30-11.00am	Tea Break	30 minutes	Health Break
11.00-11.30am	Water requirements	30 minutes	

11.30am-2.30pm	Supplementary feeding of camels	1 hour	
12.30-1.00pm	Camel body weight and age	30 minutes	
1.00-2.00pm	Lunch Break	1 hour	
2.00-5.00pm	Management of the suckling camel calf <ul style="list-style-type: none"> ▪ General guidelines ▪ Discussion 	2 hour 30 minutes 30 minutes	
5.00-5.30pm	Session 5: Module review <ul style="list-style-type: none"> ▪ Conclusions and review of Module 3 	30 minutes	
5.30-6.00pm	Coffee Break	30 minutes	
Close of Day 3			
Camel Health Management			
Time	Day 4 (Thursday)	Duration	Remarks / Facilitator
	Session 1: Introduction and Climate Setting		The trainees relax and climate set for the
8.00-8.30am	<ul style="list-style-type: none"> ▪ Welcome by host and Prayers ▪ Introduction to the training module, objectives and expectations 	10 minutes 20 minutes	Day's training
8.30-11.00am	<ul style="list-style-type: none"> ▪ Session 2: Common camel diseases and their prevention <ul style="list-style-type: none"> ▪ Some common camel diseases and their prevention ▪ Control of diseases and parasites 	1 hour 30 minutes 1 hour	
11.00-11.30am	Tea Break	30 minutes	Health Break

11.30am-2.00pm	Session 3: Camel predators and their control <ul style="list-style-type: none"> ▪ Camel predators ▪ Predator control ▪ Plenary Discussions 	1 hour 30 minutes 1 hour	
2.00-3.00pm	Lunch Break	1 hour	
3.00-4.30pm	Session 4: Module 4 review and general discussions <ul style="list-style-type: none"> ▪ Module review ▪ General discussions 	1 hour 30 minutes	
4.30-5.00pm	Coffee Break	30 minutes	
Close of Day 4			
Post-Harvest handling of Camel products			
Time	Day 5 (Friday)	Duration	Remarks / Facilitator
	Session 1: Introduction, objectives and expectations	30 minutes	The trainees relax and climate set for the
	<ul style="list-style-type: none"> ▪ Welcome by host and Prayers ▪ Introduction to the training modules 		Day's training
8.00-8.30am	<ul style="list-style-type: none"> ▪ Session 2: Types of camel products & preservation methods 	2 hours	
8.30-10.30am	Tea Break	30 minutes	Health Break
10.30-11.00am	Session 3: Camel products handling and hygiene requirements	1 hour	
11.30am-2.30pm	Benefits and factors to consider in camel value addition	1 hour	
12.30-1.30pm			
1.30-2.30pm	Lunch Break	1 hour	

2.30-5.30pm	Session 4: Camel value-added production methods and recipes	3 hours	
5.30-6.00pm	Session 5: Module review		
	<ul style="list-style-type: none"> Conclusions and review of Module 5 	30 minutes	
6.00-6.30pm	Coffee Break	30 minutes	
Close of Day 5			
Camel Marketing and Supply Chains			
Time	Day 6 (Saturday)	Duration	Remarks / Facilitator
	Session 1: Introduction, objectives and expectations		The trainees relax and
8.00-8.30am	<ul style="list-style-type: none"> Welcome by host and Prayers Introduction to the training module, objectives and expectations 	10 minutes	climate set for the
8.30-10.30am	Session 2: Types of camel markets, supply and demand patterns	2 hours	Day's training
10.30-11.00am	Tea Break	30 minutes	Health Break
11.00am-1.00pm	Session 3: Marketing strategies, functions and marketing plan General discussion	1 hour 30 minutes	
1.00-2.00pm	Lunch Break	30 minutes	
2.00-4.00pm	Session 4: Camel Market Channels, Value chain and Distribution Networks	1 hour	
4.00-5.00pm	The 4 P of Marketing	2 hours	
		1 hour	

5.00-5.30pm	Session 5: Module review		
	<ul style="list-style-type: none"> Conclusions and review of Module 6 	30 minutes	
5.30-6.00pm	Coffee Break	30 minutes	
Close of Day 6			
Day 7: Sunday			
Camel Business			
Time	Day 8 (Monday)	Duration	Remarks / Facilitator
	Session 1: Introduction, objectives and expectations		The trainees relax and climate set for the Day's training
8.00-8.30am	<ul style="list-style-type: none"> Welcome by host and Prayers Introduction to the training module, objectives and expectations 	10 minutes 20 minutes	
8.30-9.30am	Session 2: Camel keeping business	1 hour	
9.30-10.30am	The basics of developing a business plan	1 hour	
10.30-11.00am	Tea Break	30 minutes	Health Break
11.00am-1.00pm	<ul style="list-style-type: none"> Session 3: Recordkeeping and risk analysis for camel herd 	2 hours	
1.00-2.00pm	Lunch Break	1 hour	
2.00- 3.00pm	Session 4: Module review		
	<ul style="list-style-type: none"> Conclusions and review of Module 7 	1 hour	
3.00-5.00pm	Session 4: Group presentations	2 hours	
5.00-5.30pm	Coffee Break	30 minutes	

Close of Day 8			
Cross cutting issues			
Time	Day 9 (Tuesday)	Duration	Remarks / Facilitator
8.00-8.30am	Session 1: Introduction, objectives and expectations <ul style="list-style-type: none"> ▪ Welcome by host and Prayers ▪ Introduction to the training module, objectives and expectations 	10 minutes 20 minutes	The trainees relax and climate set for the Day's training
8.30-10.30am	Session 2: Gender, Youth and VMG Inclusion in Camel	2 hours	
10.30-11.00am	Tea Break	30 minutes	Health Break
11.00am-2.30pm	Session 3: Socioeconomic Impacts of Camel	1 hour 30 minutes	
12.30-1.30pm	Lunch Break	1 hour	
1.30-3.00pm	Session 4: Environmental impacts of camel	1 hour 30 minutes	
3.00- 5.00pm	Session 5: Group dynamics and cohesion	2 hours	
5.00-5.30pm	Session 5: Module review <ul style="list-style-type: none"> ▪ Conclusions and review of Module 8 	30 minutes	

5.30-6.00pm	Coffee Break	30 minutes	
Close of Day 9			
Departure Day 10			

ANNEX 2: GENERAL REFERENCE MATERIALS

Category / Modules	Publication title	Reference type
Climate-smart agriculture practices	FAO-climate smart agriculture sourcebook, FAO 2013	Book
	FAO. 2018. Climate-smart agriculture training manual – A reference manual for agricultural extension agents. Rome. 106 pp.	Training manual
	FAO. 2019. Climate smart agriculture curriculum/module for training of trainers in Myanmar. Yangon. 28 pp	Training manual
	FAO-climate Smart Agriculture Sourcebook, FAO 2013	Book
Camel Breeds and Breeding	Camel Manual for service providers (2009).	Manual
	Camel Breeds of Kenya (Brochure)	Brochure
	Any other Relevant website materials on camel breeds and breeding	Google
	Other Relevant Publications	Journals
Camel Feeds and Feeding	Trainers notes and Camel Training Manuals for service providers (2012)	Training manual
	Brochures on camel mineral formulation (Chumvi Kuria)	Brochures
	Brochure on home-based feed formulations	Brochures
Camel health management	Camel manual for service providers	Manual
	Guidelines for the training of veterinary professionals on camel health and diseases	Manual
	Other relevant publications	Journals, Brochures, Leaflets
Camel Post-harvest Handling & Value Addition	Camel manual for service providers (Chapter IV)	Manual
	Nyirinyiri processing manual (KEBS)	Manual
	Cheese processing manual with Indian recipes by Anne Bruntse, 2015	Manual
	Brochures on milk processing	Brochure
	Brochures on product development	Brochure
	Food safety management systems (FSMS) KEBS	Manual
	Relevant publications	Journals

Market Linkages and Distribution	Camel Manual for Service Providers (Chapter IV)	
	Relevant publications in agricultural information and communication management	
Camel business	Marketing basics: a smart skills manual	Manual



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