Disclaimer
The information presented in this manual is for advisory use only. Manual users should verify site specific appropriateness with regard to agro-climatic zones, farming system and the value chain.

© Kenya Agricultural and Livestock Research Organization 2020
All rights reserved. No part of this book may be reproduced, stored in database systems, transcribed in any form or by any means, electronic, mechanical photocopying, recording or otherwise without prior written permission of the publisher.

Published by
Kenya Agricultural and Livestock Research Organization
KALRO Secretariat
P O Box 57811-00200
Nairobi, KENYA
Email: directorgeneral@kalro.org Tel. No(s): +254-722206986/73333223

Compiled by: Mungube E.O., Kipronoh A.K. and Mugambi J.M.
Design and layout: Nyaola E. and Mnene N.
Editing and publication coordinated by: Wamuongo J.W., Kirigua V.O., Lung’aho C. and Ikitoo E.C.

ISBN
# TABLE OF CONTENTS

Forward............................................................................................................................v  
Preface............................................................................................................................vii  
LIST OF ABBREVIATIONS..........................................................................................ix

## PART I.............................................................................................................................1

### SECTION 1: BACKGROUND .................................................................1

1.1 Importance of livestock in the Kenyan economy.........................................................2  
1.2 Role of livestock in food and nutrition security..........................................................2  
1.3 Climate smart perspective in livestock diseases........................................................3

### SECTION 2: MODULE TRAINING CONTENT.................................................5

2.1 Orientation of the Module....................................................................................5  
2.2 Module Outline........................................................................................................5

### SECTION 3: TRAINING DESIGN.............................................................8

3.1 Delivery System.......................................................................................................8  
3.2 Partners and Their Roles.........................................................................................8  
3.3 Training Duration.....................................................................................................8  
3.4 Logic of Design and Flow of Session........................................................................9

### SECTION 4: FACILITATOR GUIDELINES....................................................10

4.1 Preparation of Training Materials ........................................................................10  
4.2 Preparation of Training Venue and Sites...............................................................10  
4.3 The Trainees..........................................................................................................10  
4.4 Training Program.....................................................................................................11  
4.5 Training Methods.....................................................................................................11  
4.6 Planning Schedule and Guidance for ToT preparation...........................................11  
4.7 Evaluation of Training............................................................................................12  
4.8 Facilitator reference materials................................................................................13

## PART II.........................................................................................................................14

### MODULE 1: PRINCIPLES OF ANIMAL HEALTH MANAGEMENT............15

### MODULE 2: DAIRY ANIMAL HEALTH MANAGEMENT..........................19
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 enable achievement of the envisaged ‘Triple Wins’ of increased productivity, enhanced resilience and reduction of greenhouse gases emission.

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 *Training of Trainers’ (ToTs) Manual for Animal Health Value Chain*. 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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFB</td>
<td>American Foul Brood</td>
</tr>
<tr>
<td>ASALs</td>
<td>Arid and Semi-Arid Lands</td>
</tr>
<tr>
<td>BQCD</td>
<td>Black Queen Cell Disease</td>
</tr>
<tr>
<td>CBPP</td>
<td>Contagious Bovine Pleuro-Pneumonia</td>
</tr>
<tr>
<td>CCPP</td>
<td>Contagious Caprine Pleuro-Pneumonia</td>
</tr>
<tr>
<td>CCT</td>
<td>County Coordination Team</td>
</tr>
<tr>
<td>CD</td>
<td>Compact Discs</td>
</tr>
<tr>
<td>CDL</td>
<td>County Director of Livestock</td>
</tr>
<tr>
<td>CDVS</td>
<td>County Director of Veterinary Services</td>
</tr>
<tr>
<td>CSA</td>
<td>Climate Smart Agriculture</td>
</tr>
<tr>
<td>CTT</td>
<td>Core Team of Trainers</td>
</tr>
<tr>
<td>ECF</td>
<td>East Coast Fever</td>
</tr>
<tr>
<td>EFB</td>
<td>European Foul Brood</td>
</tr>
<tr>
<td>ENSO</td>
<td>El Niño–Southern Oscillation</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>FFS</td>
<td>Farmer Field School</td>
</tr>
<tr>
<td>FMD</td>
<td>Food and Mouth Disease</td>
</tr>
<tr>
<td>GALS</td>
<td>Gender Action Learning for Sustainability</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>KALRO</td>
<td>Kenya Agriculture and Livestock Research Organization</td>
</tr>
<tr>
<td>KES</td>
<td>Kenya Shilling</td>
</tr>
<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
</tr>
<tr>
<td>LCD</td>
<td>Liquid Crystal Display</td>
</tr>
<tr>
<td>LFs</td>
<td>Lead Farmers</td>
</tr>
<tr>
<td>LSD</td>
<td>Lumpy Skin Disease</td>
</tr>
<tr>
<td>MT</td>
<td>Metric Ton</td>
</tr>
<tr>
<td>ND</td>
<td>Newcastle Disease</td>
</tr>
<tr>
<td>OIE</td>
<td>International Office of Epizootics</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Document Format</td>
</tr>
<tr>
<td>PPR</td>
<td>Peste de Petits Ruminants</td>
</tr>
<tr>
<td>PPR</td>
<td>Peste des Petits Ruminants</td>
</tr>
<tr>
<td>RELO</td>
<td>Research Extension and Liaison Officer</td>
</tr>
<tr>
<td>RVF</td>
<td>Rift Valley Fever</td>
</tr>
<tr>
<td>SGP</td>
<td>Sheep and Goat Pox</td>
</tr>
<tr>
<td>TADs</td>
<td>Trans boundary Animal Diseases</td>
</tr>
<tr>
<td>TIMPs</td>
<td>Technologies, Innovations and Management Practices</td>
</tr>
<tr>
<td>TOT</td>
<td>Training of Trainers</td>
</tr>
<tr>
<td>VMG</td>
<td>Vulnerable and Marginalized Groups</td>
</tr>
</tbody>
</table>
PART 1

This part consists of four sections including the background, module training content, training design and facilitator guidelines. PART II
SECTION 1: BACKGROUND

1.1 Importance of livestock in the Kenyan economy

Livestock contributes 10% of Kenya’s GDP and 45% of the Agricultural GDP. The arid and semi-arid lands (ASALs) host about 70% of the national livestock herd with an estimated value of KES 70 billion. Livestock accounts for about 90% of employment in the ASALs and over 95% of family income and contributes an average of KES 10 billion a year from 23.2 million animals. Despite this, the ASALs have a fragile ecosystem which negatively affects livestock productivity. The Kenya National Bureau of Statistics (KNBS) estimates that Kenya has an animal resource base comprised of 4.6 million dairy cattle, 13.8 million beef cattle, 25.2 million meat goats, 0.5 million dairy goats, 17.8 million hair sheep, about 1 million wool sheep, 3.3 million camels, 40.1 million indigenous chickens, 3.8 million broilers and 4.2 million layers. Other animals include 2.2 million donkeys among draught, companion, game and aquatic animals. The sector provides employment and income through beef, dairy, poultry and pig production. The latest economic survey shows that the value of marketed livestock in 2018 increased by 8.3% over 2017 to KES 146.8 billion.

1.2 Role of livestock in food and nutrition security

The livestock sector in Kenya is organized into different value chains of dairy, meat, chicken and honey. The industry is aligned to the “Big 4 Agenda” and contributes significantly to household food security by feeding directly to the ‘Food and Nutritional Security Pillar’.

Dairying is predominantly practiced by smallholders who produce over 80% of the milk. Annual milk production is estimated at 5.2 billion liters. It is projected that milk production will continually grow by between 4.5 and 5% annually for several years in Kenya and by the year 2030, annual production is expected to hit 12 billion liters.

The meat industry is one of the fastest growing within the agricultural sector driven by growth of meat exports and the increases in population, urbanization and household incomes. Kenya’s average beef production is estimated at 4.8 million MT per annum of which 75% is mainly based on the Zebu cattle population found in ASALs while the rest (25%) is from culls from the dairy herds. Camel meat production is estimated at about 20,000 MT per year. In 2018, 10,247,600 sheep and goats were delivered for slaughter. The bulk of the sheep and goats are reared in the ASALs under pastoralism, and to a limited extent, ranching systems.

The annual chicken meat production is about 110,000MT with an estimated value of KES 48.1 billion. The sub-sector is highly heterogeneous, comprising of a large number of small scale free range and backyard indigenous chicken producers and a handful of commercial broiler and layer producers. The rising demand of organically produced
meat is a good opportunity to rear indigenous chickens. Other poultry species reared include ostrich, quail, ducks, geese, doves, turkey and guinea fowl. Beekeeping is well established in Kenya and can be carried out successfully in about 80% of the country including the semi-arid areas where rain-fed agriculture is impractical. Beekeeping contributes to incomes as well as food security through provision of apicultural services and hives products including honey, beeswax and propolis. Bees are also useful as crop pollinators. Kenya ranks third in honey production in the East African region, producing 12,000 MT and 140MT of beeswax annually. The country’s production potential is estimated at over 100,000 and 10,000 MT of honey and beeswax respectively. Demand for honey is far above the supply worldwide and Kenya has the opportunity of benefitting from that shortfall.

1.3 Climate smart perspective in livestock diseases

Climate change manifested as extreme droughts or floods has negatively impacted on livestock productivity in the ASALs. Although feed and water shortages are cited as the major challenges to livestock productivity in the ASALs, outbreaks of infectious animal diseases also impact on livestock productivity and trade. Studies indicate a correlation between climate factors and increasing incidence of livestock diseases. For instance, outbreaks of Rift Valley fever (RVF), are associated with the occurrence of the warm phase of the El Niño/Southern Oscillation (ENSO) phenomenon causing floods, increased greenness of vegetation index, and emergence of mosquito vectors that infect susceptible ruminant hosts. In Eastern Africa RVF epidemics in livestock have been reported every 4 to 10 years and are closely linked with the phenomenon.

The World Organization for Animal Health (OIE) identifies RVF as an important trans-boundary and notifiable disease because of its potential to spread across borders, resulting in devastating economic losses through mortalities, morbidities and foregone trade in animals and animal products associated with animal quarantines and trade restrictions. The disease epidemics are characterized by massive abortions and deaths. Outbreaks of other diseases like foot and mouth (FMD) and contagious bovine pleuropneumonia (CBPP) in beef cattle, Peste des petits ruminants (PPR) and contagious caprine pleuropneumonia (CCPP) coincide with prolonged droughts. This is because animals are moved over long distances in search of water and pastures exposing them to stress and infection.

Indigenous chicken productivity is also affected by infectious diseases some of which have a correlation with climate variability. Newcastle disease (ND) is a major disease which accounts for 60-100% annual losses of poultry in rural Africa. The disease outbreaks are associated with: stress-inducing factors like confinement, seasons, windy conditions, and rainfall and temperature changes.

Honeybees are attacked by parasitic mites (Varroa destructor, Acarapis woodi, Tropilaelaps spp.), fungi (Nosema spp., Ascosphaera apis), bacteria (Paenibacillus larvae, Melissococcus plutonius), numerous viruses, and scavengers (from beetles and
mice to bears) during any life stage. These parasites, pathogens and predators contribute to colony collapse in many apiaries.

Knowledge and skills gaps on animal diseases, pests/parasites among farmers were identified through reports by the Research Extension and Liaison Officers (RELOs) in the 24 counties that are implementing the Kenya Climate Smart Agriculture Project (KCSAP) to inform the content of this trainers’ manual and the corresponding modules. The manual outlines animal health management practices for diseases, pests and parasites for the dairy, meat, indigenous chicken and honey bee value chains in the context of Climate-Smart Agriculture (CSA).

1.4 Objectives of the Trainings

The objectives of the training are to:

• Provide farmer trainers/facilitators with relevant knowledge and skills to identify and manage livestock diseases, pests/parasites for improved productivity and marketing of livestock and livestock products.
• Refresh trainers’ knowledge and skills to diagnose and manage important animal diseases, pests/parasites affecting livestock productivity.
• Provide trainers with knowledge and skills on safe handling and use of veterinary drugs and pesticides to ensure food safety and environment conservation.
• Provide trainers with knowledge and skills in participatory techniques such as FFSs for effective facilitation of adult learning processes, understanding of the relevant TIMPs and developing inclusive stakeholder partnerships for sustainable up scaling of TIMPs.
SECTION 2: TRAINING MODULE CONTENT

2.1 Orientation of the Modules

This section of the training manual deals with the training content or modules. It provides the orientation and outline of the 7 modules comprising 19 sessions. The 7 modules are oriented to ensure animal disease, pest/parasite control options are adopted and utilized to improve livestock productivity, increase resilience and mitigate harmful greenhouse gases through application of content specific climate smart TIMPs.

2.2 Module Outline

Each of the 7 modules has basically the same outline consisting of 8 parts. These parts are:

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

The outline of the 7 modules is presented in Table 1 below.
<table>
<thead>
<tr>
<th>No.</th>
<th>Module name</th>
<th>Need addressed</th>
<th>Expected training outcomes</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Principles of Animal Health Management</td>
<td>Lack of knowledge in disease detection and prevention</td>
<td>• General disease prevention and control methods shared</td>
<td>2 hr 30 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Trainer knowledge and skills to identify healthy and sick animals in a herd/flock enhanced</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dairy Animal Health Management</td>
<td>Inadequate knowledge and skills on common diseases, pests and parasites of dairy cattle, camels and dairy goats</td>
<td>• Common diseases, pests and parasites of dairy cattle, camels and dairy goats identified</td>
<td>4 hrs 20 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Basic prevention and control measures specific to the diseases, pests and parasites explained</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Meat Animal Health Management</td>
<td>Inadequate knowledge and skills on common diseases, pests and parasites of beef cattle, sheep and meat goats</td>
<td>• Common diseases, pests and parasites of beef cattle, sheep and meat goats identified</td>
<td>4 hrs 05 Minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Basic prevention and control measures specific to the diseases, pests and parasites explained</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Indigenous Chicken Health Management</td>
<td>Inadequate knowledge and skills on common diseases, pests and parasites affecting indigenous chicken</td>
<td>• Common diseases, pests and parasites affecting production of indigenous chicken identified</td>
<td>4 hrs 05 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Basic prevention and control measures specific to the diseases, pests and parasites explained</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Honey Bee Health</td>
<td>Inadequate knowledge and skills on common diseases, pests ,parasites and predators affecting honey bees</td>
<td>• Common diseases, pests and parasites affecting honey bees identified</td>
<td>5 hrs 05 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Basic prevention and control measures explained</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Topic</td>
<td>Description</td>
<td>Duration</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Diffusion and adoption of animal health TIMPs</td>
<td>Lack of knowledge on factors influencing diffusion and adoption of animal health TIMPs</td>
<td>2 hrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Constraints limiting adoption, intervention strategies and potential collaborators for enhanced diffusion and adoption of animal health TIMPs identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Gender and Youth-Inclusive strategies in scaling up animal health TIMPs</td>
<td>Lack of understanding of the role of gender in influencing scaling of animal health TIMPs</td>
<td>2 hrs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender, youth and VMG inclusion strategies disseminated for better adoption and utilization of TIMPs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL DURATION</td>
<td></td>
<td>24 HRS 05 MINS</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: TRAINING DESIGN

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

a) Establishment of a team of facilitators

- A Core Team of Trainers (CTT) trains farmer trainers (service providers) as facilitators of a TOT course using the modules contained in this manual.

- Each Master trainer will facilitate farmers to acquire knowledge and skills in facilitating Farmer-led Field and Business Schools (FFBS) through practical demonstrations.

b) Up scaling – This will be done by selecting lead farmers (LF) 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 and State Department of Livestock will facilitate initial training of farmer trainers. They will also provide mentorship to farmers’ trainers during the first year of LF trainings. They should be available in the evaluation of the first round of LF trainings.

2. County Government Department of Livestock – Master trainers and their supervisors referred to as County Coordination Teams (CCT) take the role of LF trainers, mentors and coordinators at sub-County level. They assist FFBSs to form partnerships with stakeholders for sustainability. They should also support LFs to form their network.

3. Lead Farmer Networks – association of LFs in the counties to take up farmer trainings and up scaling in the future. Lead farmer networks and groups will conduct exchange visits to learn best practices in other project implementing counties.

4. Private Sector Service Providers – Inputs suppliers, financial and business development service providers, market players and processors to partner and support growth of individual or livestock farmer groups.

3.3 Training Duration
The proposed initial TOT course for Master trainers for 7 modules shall take a total of 23 hours and 05 minutes of training. This does not include mid-morning, afternoon and lunch breaks.
3.4 Logic of Design and Flow of Sessions

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 participant’s expectations; (3) Relate participants’ expectations with module objectives or learning outcomes; (4) Explore the concept and content, switching to different methods of delivery of the content (group exercises, brainstorming, excursions, plenary discussions, role plays) as the session progresses; (5) Review the module at the end using participatory approaches e.g. one participant reads one summary message and its application; and (6) Distribute handouts to 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. Additionally:

a) The facilitators should familiarize themselves and internalize the guidelines provided by this manual prior to the training.

b) The stationery required should be available within the training institution three days before the training. These include name tags, writing materials, paper punch and medium size box files in which participants will file handouts.

c) Flip charts and quality felt pens could be used interchangeably with LCD projections. Enough felt pens should be provided for the anticipated use.

d) Visual aids such as field equipment and tools should also be arranged in time before the sessions start.

e) 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.

f) Copies of the module notes are distributed at the end of each module.

g) Module notes may also be shared electronically.

4.2 Preparation of Training Venue and Sites

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

a) Training Room – should have adequate space for 25 participants seated in a semi-circular 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 training materials and LCD projector, a white wall to act as a projector screen, and a flip charts holder.

b) Demonstration Site – should be within walking distance with at least 2 farms for practical training.

c) Market Sites – these include agro vet shops and stores that sell livestock inputs. The operators should be informed in advance about the visits. These should be near; preferably less than 10 minutes’ drive distance.

4.3 The Trainees

The trainees who will participate are extension officers, lead farmers, educators, and researchers with elaborate training and facilitation background in extension and advisory services. They will be drawn from public and private sector based on considerable experience in training farmers 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 the trainees’ knowledge, skills and experience that they shall
bring in. As a golden rule, do not lecture them but facilitate and listen and let them feel like equals to each other and to 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 flow of ideas and topics. However, should the situation so demand, the sequence and day of coverage for whole or parts of the modules can be modified to suit emerging requirements.

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 participants. The choice of the methods has been informed by the competency of issues being addressed, time available and experiences of the authors of this manual. Depending on the 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 tables below present a list of available training methods.

Table 2: Description of training methods during ToT trainings

<table>
<thead>
<tr>
<th>Training Method</th>
<th>Description of Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plenary presentations</td>
<td>Use of power point or flip charts and plenary discussions in situations where knowledge and opinion or consensus is required</td>
</tr>
<tr>
<td>Group exercises, buzz groups, visits and demonstrations</td>
<td>To be considered where skills are an issue requiring sharing and trying</td>
</tr>
<tr>
<td>Role plays and problem-solving exercises</td>
<td>Plenary discussions have been considered as training methods where attitude is an issue</td>
</tr>
<tr>
<td>On-farm practical demonstration</td>
<td>To be considered where hands-on practical skills are acquired through sharing and demonstration</td>
</tr>
</tbody>
</table>

4.6 Planning Schedule and Guidance for ToT Preparation

While planning for this training, the CTT leader should ensure the following before the training as in Table 3.
Table 3: Duration of activities to be done before training

<table>
<thead>
<tr>
<th>Duration to Training</th>
<th>Activities to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six weeks</td>
<td>Recruit master trainers, compose CTT, identify the practical demonstration sites</td>
</tr>
<tr>
<td>Four weeks</td>
<td>Send out invitation letters to participants and special guests detailing purpose, venue and program. Follow up on demonstration sites. Brief CTT members</td>
</tr>
<tr>
<td>Two weeks</td>
<td>Confirm names of participants; 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</td>
</tr>
<tr>
<td>Four days</td>
<td>Confirm training sites preparedness, prepare sitting arrangements, and brief assistants</td>
</tr>
<tr>
<td>One day</td>
<td>Arrange training room furniture, place materials, equipment and stationery on the tables. Arrange for reception of trainees at the residence proposed</td>
</tr>
</tbody>
</table>
| On first day         | Arrange for reception of trainees at the training venue. Ensure climate setting is done before the course is officially opened. This includes: 
  - Registration 
  - Welcome to venue by host 
  - Elaborate introduction of CTT and participants 
  - Ground rules 
  - Group formation |

4.7 Evaluation of the Training

A half of the last day of training has been allocated for planning a way forward and evaluating the TOT. The evaluation strategy is twofold. First, the individual trainees provide their evaluations through forms without conferring or referring to each other. The forms are then collected and analyzed by the CTT members.

Table 4: Individual sample evaluation form (evaluate the applicable module)

<table>
<thead>
<tr>
<th>Aspect / Module</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very useful (3 marks)</td>
</tr>
<tr>
<td>Principles of Animal Health Management</td>
<td></td>
</tr>
<tr>
<td>Dairy Animal Health Management</td>
<td></td>
</tr>
<tr>
<td>Meat Animal Health Management</td>
<td></td>
</tr>
<tr>
<td>Indigenous Chicken Health Management</td>
<td></td>
</tr>
<tr>
<td>Honey Bee Health</td>
<td></td>
</tr>
<tr>
<td>Diffusion and Adoption of Animal Health TIMPs</td>
<td></td>
</tr>
<tr>
<td>Gender and Youth-Inclusive Strategies for Scaling Animal Health TIMPs</td>
<td></td>
</tr>
</tbody>
</table>
The second is an evaluation as a group. The trainees retreat to one room and elect a chair and a secretary. They are asked 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, without being 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 Facilitator reference materials

4.8.1 List of Publications

Key reference materials are provided in Annex 2.

4.8.2 Guide on use of the information

The trainers will be advised to issue to farmers at most 2 publications for each of the training sessions. This is because if they go away with several publications in one visit they are unlikely to read each of them properly to benefit from them.

All individual publications will be stored and availed as electronic copies – mainly PDFs. The service providers are strongly advised to keep these electronic copies on a memory stick, CD or portable hard drive – so that beneficiaries can easily access and if necessary print any of them out at a local internet café.

The trainers will be advised to issue one Animal Health Manual to be accompanied by 2 other publications. With subsequent training modules, they can then develop their collection of publications.
PART II

This part consists of 7 modules namely; principles of animal health management, dairy animal health management, meat animal health management, indigenous chicken health management, honey bee health, diffusion and adoption of animal health TIMPs, and gender and youth-inclusive strategies in scaling up animal health TIMPs.

All the modules are divided into the following:
1. Introduction to the module
2. Module learning outcomes
3. Module target group
4. Module users
5. Module duration
6. Module summary
7. Facilitators’ guidelines
8. Participants’ handouts
1.1 Introduction to the module

This module is designed for use in training facilitators on general principles of animal health management. This is necessary in order to improve their knowledge and skills to enable livestock production become market oriented, competitive and profitable. Poor animal health impacts negatively on animal productivity and welfare. There are many causes of poor health in animals including presence of disease and pests/parasites, and poor feeding. Knowledge of what causes the diseases and infestation of pests/parasites, number of animals affected/infected helps to design prevention and control strategies.

1.2 Module Learning Outcomes

By the end of the module, participants should be able to:
• Understand the basic principles of animal health management
• Differentiate diseased and healthy animals in the herd/flock
• Recognize animals infested with parasites/pests in the farm
• Explain the benefits of keeping healthy animals in the farm.

1.3 Module Target Group

The target users of this module are trainers, educators, county extension officers and private service providers.

1.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT).

1.5 Module Duration

The module is estimated to take 2 hours 30 minutes.
## 1.6 Module Summary

### Principles Of Animal Health Management

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
</table>
| 1. Introduction to the module and leveling the expectations | • Buzz groups  
• Sharing                                      | • Handout on Module Objectives  
• Felt pens, masking tape or sticker glue, note books and pens  
• PowerPoint presentations                                     | 15             |
| 2. Concept of health and disease in farm animals   | • Plenary presentation  
• Group exercises                                      | • Flip charts, felt pens, participants’ handouts                                                      | 20 30          |
| 3. Requirements for keeping healthy farm animals   | • Plenary presentation  
• Group exercises                                      | • Flip charts felt pens, participants’ handouts                                                      | 30 25          |
| 4. Farm biosecurity                                | • Plenary presentation                  | • Power point presentation                                                                              | 30             |
| **TOTAL**                                          |                                    |                                                                                                          | **2 hrs 30 mins** |
### 1.7 Facilitators’ Guidelines

#### 1.7.1 Welcome and Levelling Expectations (15 minutes)

*Facilitator welcomes participants to the module principles of animal health management and introduces him/herself by stating his/her profile and experience of working with farmers.*

**Introduction**
The facilitator invites the participants to state their expectations.

*(The facilitator presents modules objectives)*

**Module Objectives**

By the end of the module participants should be able to guide farmers in;

- Understand the basic principles of animal health management
- Differentiate diseased and healthy animals in the herd/flock
- Recognize animals infested with parasites/pests in the farm
- Explain the benefits of keeping healthy animals in the farm

#### 1.7.2 Concept of health and disease in farm animals (50 minutes)

*The facilitator should introduce the concept of health and disease in farm animals by outlining the signs associated with health and disease.)*

**Buzz Groups**
Start a discussion about the concept of health and disease in farm animals by asking participants “What is your understanding of the concept of health and disease in farm animals?”

**Plenary Presentation**
Summarize the definition by stating that health is the state of being free from illness or injury while disease is an abnormal condition that negatively affects the structure or function of part or whole of an organism (animal).

**Signs of health**
Highlight signs of health which include: Alertness, mobility, smooth hair coat, life parameters (e.g. feeding, breathing, excretion, temperature, production/performance)

**Signs of disease (poor health)**
Dullness/depression, general weakness, rough hair coat, life parameters (e.g. loss of appetite, impaired breathing, watery or hard faeces, abnormal temperature, reduced production/performance)

*List the responses on flip chart*

*Distribute participants’ handout on: Signs of health and disease in farm animals.*
### 1.7.3 Requirements for keeping healthy farm animals (60 minutes)

*(The facilitator should be able to explain to the participants the essential requirements for keeping healthy farm animals.)*

**Group Exercises**

After outlining the signs of health and disease in farm animals, a discussion on essential requirements for keeping healthy animals will be initiated by the facilitator.

**Plenary Presentation**

After the discussion, the facilitator will give a presentation on the essential requirements which include: feeding and nutrition, breeding, housing, hygiene (cleanliness, farm bio-security, waste management, de-contamination), disease diagnostics (e.g. mastitis), disease, pests/parasite prevention and control (vaccination, movement control, tick control, deworming).

*(The facilitator should then let the participants to share experiences on the application and benefits of the above requirements in their farms)*

### 1.7.4 Farm biosecurity (35 minutes)

*(The facilitator will guide the participants in identifying farm biosecurity measures for preventing introduction and spread of infectious agents within and between farms and apiaries.)*

**Plenary Presentation**

Present in PowerPoint notes on farm biosecurity measures necessary for keeping healthy animals. Inform participants that the following issues will be covered in this session; housing, clear demarcation of clean and dirty areas within the farm, disinfection points at farm gates, waste disposal, security fencing, signage for restricted areas within the farm, disinfectants

*(In plenary discussion ask them to share their experience with farmer practices in on-farm biosecurity)*

### 1.8 Participants Handouts

2.1 Introduction to the Module

This module is designed for training on economically important climate related diseases, pests/parasites which affect the productivity of dairy animals (cattle, camels and goats). Disease occurrence in animals can be influenced both by extreme events (for example high or low temperatures) and by emergence and re-emergence of infectious diseases, some of which are transmitted by vectors that are highly dependent on climatic conditions. This calls for the understanding of the diseases and types of pests/parasites for effective control.

2.2 Module Learning Outcomes

By the end of the module facilitators should be able to:

- Identify important diseases of dairy animals and their causes, signs, and economic importance.
- Identify important pests/parasites of dairy animals and their economic importance.
- Recommend appropriate disease and pest/parasite management practices for increased productivity
- Appreciate the effect of climate on occurrence and spread of diseases
- Appreciate that the welfare of dairy animals is an important factor in productivity

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).

2.5 Module Duration

The module is estimated to take a minimum of 4 hours and 30 minutes.
### Dairy Animal Health Management

#### Sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to the module and leveling the expectations</td>
<td>Buzz groups, Sharing</td>
<td>Handout on Module Objectives, Felt pens, masking tape or sticker glue, note books and pens, PowerPoint presentations</td>
<td>15</td>
</tr>
<tr>
<td>2. Causes of disease in dairy cattle, camels and goats</td>
<td>Plenary presentation, Group exercises</td>
<td>Flip charts felt pens, participants’ handouts</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>3. Climate related diseases and pests/parasites in dairy cattle, goats and camels</td>
<td>Plenary presentation</td>
<td>Power point presentation</td>
<td>50</td>
</tr>
<tr>
<td>4. Safe and effective use of veterinary drugs, vaccines and pesticides</td>
<td>Plenary Presentation, Brainstorming sessions</td>
<td>Sample drugs and pesticides and containers, Note books, handouts, Flip charts and PowerPoint presentations</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>5. Animal welfare</td>
<td>Plenary presentation, Sharing experiences</td>
<td>· Power point, · Flip charts</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>6. Integrated disease control</td>
<td>Plenary presentation</td>
<td>Power point</td>
<td>30</td>
</tr>
<tr>
<td>7. Module review</td>
<td>Problem-solving exercises, Facilitator’s summary</td>
<td>Participants’ Handouts module review</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>4 hrs 30 mins</td>
</tr>
</tbody>
</table>
### 2.7 Facilitator Guidelines

#### 2.7.1 Welcome and Levelling Expectations (15 minutes)

*(Facilitator welcomes participants to the module principles of animal health management and introduces him/herself by stating his/her profile and experience of working with farmers).*

**Introduction**
The facilitator invites the participants to state their expectations.

*(The facilitator presents modules objectives)*

**Module Objectives**
By the end of the module participants should be able to guide farmers in;
- Understand the basic principles of animal health management
- Differentiate diseased and healthy animals in the herd/flock
- Recognize animals infested with parasites/pests in the farm
- Explain the benefits of keeping healthy animals in the farm

**Session Guide**
**Distribute participants’ handout on: Module Objectives and Session guide**

#### 2.7.2 Causes of disease in animals (85 minutes)

*(The facilitator should be able to help the participants to understand the causes of disease/poor health in farm animals).*

**Group Exercises**
A discussion on the causes of disease in animals will be initiated by the facilitator.

**Plenary Presentation**
After the discussion, the facilitator gives a presentation to describe the different causes which include; bacteria, viruses, fungi, protozoa, pests/parasites, metabolic disorders, poisoning (phyto- and zoo-toxins), environmental problems (hardware, plastic bags), mineral/vitamin deficiencies, allergies (photosensitivity, insect bites), congenital conditions (hydrocephalus, freemartins), mastitis

*(The facilitator should then let the participants to share experiences on the above causes of disease/poor health in their farms)*

**Session guide**
**Distribute participants’ handouts on: Causes of disease (poor health) in farm animals**

#### 2.7.3 Climate related diseases (50 minutes)

**Session guide**
Plenary presentation
(The facilitator should be able to show how climate change can and indeed influences the epidemiology of diseases and the occurrence of pests and diseases.)

What climate change is and causes, climate change and health, influence of climate change on disease pathogens, pests, parasites, vectors of diseases and hosts, countering climate change related diseases

1.7.4 Safe and effective use of veterinary drugs, vaccines and pesticides (Presentation and Discussion: (40 minutes)
(The facilitator should seek opinions of participants on safe use of veterinary drugs and pesticides and outline key issues on safety and impacts on the environment).

1.7.6 Plenary Discussion (20 minutes)
(The facilitator should lead in a candid and honest evaluation of the safe use of veterinary drugs and pesticides training. He/she should also facilitate on how safe and effective use of drugs and pesticides can be taken up by dairy farmers).

A discussion should take place first since most of the staff have some knowledge on safe and effective use of veterinary drugs and pesticides. Ask the participants:
1. What they know about safe use of veterinary drugs and pesticides
2. Ask those with knowledge on the above what they know but do not practice (as farmers) and why they do not practice?
3. What opportunities exist in ensuring practice of safe use of veterinary drugs and pesticides?

Ask the participants to mention types of veterinary drugs and pesticides commonly used in dairy animals. They should also mention examples of their respective brands.

1. Veterinary drugs used in dairy animals include; antimicrobials, de-wormers, trypanocides, anti-protozoals, anaesthetics
2. Pesticides include; acaricides and insecticides
3. Vaccines include; live vaccines, killed vaccines and sub-unit vaccines. Blood vaccines can also be mentioned.

1.7.7 Plenary Presentation (20 minutes)
Present in PowerPoint an overview of safe and effective use of veterinary drugs and pesticides.

(In plenary discussion ask them to list the precautions for safe and effective use of drugs and pesticides in animals.)
### 1.7.5 Animal welfare (35 minutes)

*(Facilitator should clearly articulate the importance of animal welfare and refer participants to the relevant law)*

**Plenary**
Definition of animal welfare, explain about the five freedoms of animals, give provisions of the animal welfare Act, elaborate the relationship between welfare and animal productivity

### 1.7.6 Integrated disease control (30 minutes)

*(The facilitator should be able to show how different approaches to disease control can be used synergistically for best results and the advantages therein)*

**Plenary presentation**
Definition of Integrated disease control, principles of the approach, expected outcomes

### 1.7.7 Module Review (20 minutes)

*(The facilitator should be able to lead the participants in reviewing the module)*

**Group Exercises**
Review together the main points about dairy animal health and management and:
- What new things did you learn from this module?
- What are some of the issues that you have become more aware of in principles of animal health and management?
- What questions do you still have about principles of animal health and management?

**Distribute evaluation forms**

### 1.8 Participants’ Handouts

1. Dairy Cattle Health Management: Training Package For Dairy Extension Workers
2. Effects of climate change on the occurrence and distribution of livestock diseases [http://dx.doi.org/10.1016/j.prevetmed.2016.11.019](http://dx.doi.org/10.1016/j.prevetmed.2016.11.019)
MODULE 3

MEAT ANIMAL HEALTH MANAGEMENT

3.1. Introduction to the Module

This module is designed for use in training on economically important climate related diseases, pests/parasites which affect the productivity of meat animals (cattle, sheep and goats). Meat animals are mainly found in the ASALs which are vulnerable to climate shocks. They also are vulnerable to outbreaks of diseases including trade sensitive Transboundary Animal Diseases (TADs) such as Food and Mouth Disease (FMD), Contagious Bovine Pleuro-pneumonia (CBPP), Contagious Caprine Pleuro-pneumonia (CCPP), Peste des Petits Ruminants (PPR), sheep and goat pox (SGP), Rift Valley fever (RVF) and Lumpy Skin Disease (LSD).

3.2 Module Learning Outcomes

By the end of the module facilitators should be able to:
- Identify important diseases of meat animals and their causes, signs, and economic importance.
- Identify important pests/parasites of meat animals and their economic importance.
- Recommend appropriate disease and pest/parasite management practices for increased productivity.
- Recommend safe use and handling practices of animal drugs and pesticides.

3.3 Module Target

The module targets agricultural extension service providers based at sub county and ward levels. It will also be used by private extension service providers.

3.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT).

3.5 Module Duration

The module is estimated to take 4 hours and 10 minutes.
### 3.6 Module Summary

**Meat Animal Health Management**

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
</table>
| 1. Introduction to the module and leveling of expectations | • Buzz groups  
• Group Exercises | • Handout of Module Objectives  
• Felt pens, masking tape or sticker glue, note books and pens  
• PowerPoint presentations | 15 |
| 2. Overview on climate variability and occurrence of diseases and pests/parasites in meat animals | • Brainstorming  
• Plenary Presentation | • Flip charts and felt pens  
• PowerPoint presentations  
• Participants’ handouts | 20  
40 |
| 3. Climate related beef cattle diseases and pests/parasites | • Brainstorming  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint presentations, colored pictures  
• participants’ handouts | 20  
40 |
| 4. Climate related meat goats’ diseases and pests/parasites | • Group Exercises  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint, colored pictures, handouts | 20  
40 |
| 5. Climate related sheep diseases and pests/parasites | • Brainstorming  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint, colored pictures, handouts | 15  
20 |
| 6. Module review | • Group Exercises  
• Facilitator’s summary | • Participants’ Handouts  
• Module review | 20 |
| **TOTAL** |                                       |                                                                                     | **4 hours 10 minutes** |
### 3.7 Facilitator Guidelines

#### 3.7.1 Introduction and Levelling Expectations (15 minutes)

*The facilitator welcomes participants to the meat animal health management module and introduces him/herself by stating his/her profile and experience of working with farmers.*

**Introduction**

The facilitator invites the participants to state their expectation for the module.

*(The facilitator introduces the module objectives)*

**Module Objectives**

By the end of the module TOTs should be able to:

- Explain the effect of climate variability on occurrence of diseases and pests/parasites in meat animals
- Describe the different climate related diseases and pests/parasites affecting productivity of meat animals
- Recommend appropriate management practices for controlling diseases and pests/parasites for increased meat animal productivity
- Recommend safe use and handling practices of drugs and pesticides in meat animals

**Session guide**

List the participants’ expectations on a flip chart and pin at a strategic place for reference during module review session.

Distribute and discuss Participants’ Handouts on: module objectives.

#### 3.7.2 Overview on climate variability and occurrence of diseases and pests/parasites in meat animals (60 minutes)

**Brainstorming**

The facilitator will guide the participants in relating climate variability and occurrence of diseases and pests/parasites in meat animals. Participants will share their experiences on disease incidences and abundance of pests/parasites in different seasons of the year.

**Plenary Presentation**

Present in PowerPoint evidence about climate variability (floods and drought periods) and their relationship with disease incidences and pests/parasites abundance.

*(In plenary discussion ask the participants to relate climate variability and animal disease and pest/parasites patterns)*

**Session guide**

List the names of diseases and pests/parasites as they are mentioned and their occurrence in relation to seasons.
3.7.3 Climate related beef cattle diseases and pests/parasites
(60 minutes)

**Brainstorming**
(The facilitator will guide the participants in identifying climate related beef cattle diseases and pests/parasites affecting and their management options)

**Plenary Presentation**
Present in PowerPoint notes and images to describe and explain the diseases, pests/parasites and their management options.

Inform the participants that the issues to be covered in this session are:

1. Description of the economically important climate related beef cattle diseases and pests/parasites;
   a) Diseases (CBPP, ECF, RVF, FMD, LSD)
   b) Pests (ticks, Mosquitoes/culicoides, biting flies)
   c) Gastro-intestinal parasites
2. Recognition of the diseases (based on symptoms) and pests/parasites
3. Treatment, prevention and control options for the diseases and pests/parasites described.

In plenary discussion ask them to share the farmers’ experience in managing these diseases and pests/parasites

<table>
<thead>
<tr>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the names of diseases and pests/parasites and how to treat, prevent and control them</td>
</tr>
</tbody>
</table>

3.7.4 Climate related diseases and pests/parasites of sheep for mutton (60 minutes)

**Group Exercises**
(The facilitator will guide the participants in identifying climate related sheep diseases and pests/parasites affecting sheep and their management options).

**Plenary Presentation**
Present in PowerPoint notes and images to describe and explain the diseases, pests/parasites and their management options.

<table>
<thead>
<tr>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the names of diseases and pests/parasites and how to treat, prevent and control them</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the names of diseases and pests/parasites and how to treat, prevent and control them</td>
</tr>
</tbody>
</table>
Inform the participants that the issues to be covered in this session are:

1. Description of economically important climate related sheep diseases and pests/parasites;
   a) Diseases (PPR, RVF, sheep pox, blue tongue, trypanosomosis)
   b) Pests (ticks, mites, sheep ked, tsetse flies and other biting flies)
   c) Gastro-intestinal parasites (Haemonchus, Trichostrongylus, Oesophagostomum, Stronygloides)
2. Recognition of the diseases (based on symptoms) and pests/parasites
3. Treatment, prevention and control options for the diseases and pests/parasites described.

In plenary discussion ask them to share the farmers’ experience in managing these diseases and pests/parasites

3.7.5 Climate related meat goat diseases and pests/parasite (60 minutes)

**Session guide**

**Brainstorming**

The facilitator will guide the participants in identifying climate related meat goat diseases and pests/parasites and their management options.

**Plenary Presentation**

Present in PowerPoint notes and images to describe and explain the diseases, pests/parasites and their management options.

Inform the participants that the issues to be covered in this session are:

1. Description of economically important climate related dairy goat diseases and pests/parasites;
   a) Diseases (CCPP, PPR, RVF, goat pox, trypanosomosis)
   b) Pests (ticks, biting flies, mites)
   d) Gastro-intestinal parasites (Haemonchus, Trichostrongylus, Oesophagostomum, Stronygloides)
2. Recognition of the diseases (based on symptoms) and pests/parasites
3. Treatment, prevention and control options for the diseases and pests/parasites described.

(In plenary discussion ask them to share the farmers’ experience in managing these diseases and pests/parasites)
### 3.7.6 Module Review: Presentation and Discussion (20 minutes)

*The facilitator should let the participants present their views on each of the sessions covered under the meat animal health management module. On flip chart list and summarize the key points they should emphasize when training farmers*

#### Group Exercise
Review together the main points about meat animal health management:
- What new things did you learn from this module?
- What are some of the issues that you have become more aware of in dairy animal health management?
- What questions do you still have about meat animal health management?
- Who can explain the first point—the message and its application? The second message? The third message? And so on.

### 3.8 Participants’ Handouts

1. Best hygiene practices in meat inspection and prevention
MODULE 4

INDIGENOUS CHICKEN HEALTH MANAGEMENT

4.1. Introduction to the Module

This module is intended for use in training facilitators of FFS on economically important climate related diseases, pests/parasites which lead to illness, reduced productivity and even death of chicken.

Indigenous chicken are raised under a low input, low output system characterized by poor hygiene and improper practices where birds are left to freely scavenge for feed. Under these conditions, the birds are at risk of infestation by external blood sucking pests such as soft ticks, mites, fleas, lice and internal parasites such as worms and coccidia. Periodic outbreaks of diseases like Newcastle Disease (ND), fowl typhoid, fowl pox and Gumboro are common under this system and they result in huge losses due to high mortalities. Predation is another contributor to losses in indigenous chicken flocks reared under free range system. Majority of the losses due to disease outbreaks and pest/parasite attacks in chicken follow a seasonal pattern. Cases of increased infestation by pests/parasites are common during the wet season while high disease incidences are recorded during the drought periods. The level of biosecurity measures to prevent spread of disease-causing agents in flocks is low, due to limitations in knowledge and skills.

This calls for an understanding of the diseases and pests/parasites as well as the pattern of occurrence for effective control and marketing of indigenous chicken and their products. Knowledge of the clinical signs of a disease and the characteristics of lesions found at post-mortem will help in its diagnosis and subsequent institution of preventative and flock treatment measures.

4.2 Module Learning Outcomes

By the end of the module facilitators should be able to:

- Identify important diseases of indigenous chicken and their causes, modes of spread, signs and economic importance on chicken productivity.
- Identify important pests/parasites of indigenous chicken and management options.
- Recommend appropriate disease and pest/parasite management practices for increased productivity.
- Explain the biosecurity measures for infectious disease prevention and control in indigenous chicken.
- Recommend safe use and handling practices of veterinary drugs and pesticides.
4.3 Module Target group

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

4.4 Module Users

This module is for use by master trainers who are members of the Core Trainers Team (CTT).

4.5 Module Duration

The Module is estimated to take 5 hours and 10 minutes.
### 4.6 Module Summary

<table>
<thead>
<tr>
<th>Indigenous Chicken Health Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sessions</strong></td>
</tr>
</tbody>
</table>
| 1. Introduction to the module and leveling of expectations | • Buzz groups  
• Sharing | • Handout of Module Objectives  
• Felt pens, masking tape or sticker glue, note books and pens  
• PowerPoint presentations | 15 |
| 2. Overview of causes and spread of diseases of indigenous chicken | • Group Exercises  
• Plenary Presentation | • Flip charts and felt pens  
• PowerPoint presentations  
• Participants’ handouts | 20  
10 |
| 3. Major bacterial diseases of indigenous chicken | • Group Exercises  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint presentations, colored pictures  
• participants’ handouts | 30  
30 |
| 4. Major viral diseases of indigenous chicken | • Group Exercises  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint, colored pictures, handouts | 30  
60 |
| 5. Pests/parasites of indigenous chicken | • Group Exercises  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint, colored pictures, handouts | 30  
30 |
| 6. Vaccines and vaccination schedules against diseases of indigenous chicken | • Group Exercises  
• Plenary Presentation | • Flip charts, flash cards, felt pens  
• PowerPoint, colored pictures, handouts | 15  
30 |
| 7. Module review | • Group Exercises  
• Facilitator’s summary | • Participants’ Handouts  
• Module review | 20 |
| **TOTAL** | | | **5 hours 10 minutes** |
4.7. Facilitator Guidelines

<table>
<thead>
<tr>
<th>$7.1$ Introduction and Levelling Expectations (15 minutes)</th>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator welcomes participants to the indigenous chicken health management module and introduces him/herself by stating his/her profile and experience of working with farmers).</em></td>
<td>List the participants’ expectations on a flip chart and pin at a strategic place for reference during module review session</td>
</tr>
</tbody>
</table>

**Introduction**
The facilitator invites the participants to state their expectations for the module.

**Module Objectives**
The facilitator introduces the module objectives. By the end of the module facilitators should be able to:

- Identify important diseases of indigenous chicken and their causes, modes of spread, signs and economic importance on chicken productivity.
- Identify important pests/parasites of indigenous chicken and management options.
- Recommend appropriate disease and pest/parasite management practices for increased productivity.
- Explain the indigenous chicken biosecurity measures for disease prevention and control of important diseases chicken.
- Recommend safe use and handling practices of veterinary drugs and pesticides.

Distribute and discuss Participants’ Handouts on: Module objectives.
### 4.7.2 Overview of causes and spread of diseases of indigenous chicken (30 minutes)

*The facilitator will guide the participants in understanding the causes and spread of diseases in indigenous chicken flocks*

**Plenary Presentation**
Present in PowerPoint causes of diseases and their modes of spread in indigenous chicken.

**Group Exercises**
In plenary discussion ask the participants to share their experiences on causes of diseases in indigenous chicken and their mode of spread.

### 4.7.3 Major bacterial diseases of indigenous chicken (60 minutes)

*The facilitator will guide the participants in identifying major bacterial diseases, transmission, clinical signs, prevention and control options*

**Plenary Presentation**
Present in PowerPoint notes and images to describe the diseases and their management options.

Inform the participants that major diseases to be covered in this session are:
1. Fowl typhoid
2. Avian salmonellosis
3. Infectious Coryza
4. Avian colibacillosis

*In plenary discussion ask them to share the farmers’ experience on recognition and management of these diseases and any influence on their occurrence from climate change*

**Session guide**
List the causes of diseases in indigenous chicken and their mode of spread.

### 4.7.4 Major viral diseases of indigenous chicken (90 minutes)

*The facilitator will guide the participants in identifying major viral diseases, transmission, clinical signs, prevention and control options*

**Plenary Presentation**
Present in PowerPoint notes and images to describe the diseases and their management options.

Inform the participants that major diseases to be covered in this session are:
1. Newcastle Disease
2. Fowl pox
3. Gumboro
4. Infectious bronchitis

**Session guide**
List the names of diseases and how to treat, prevent and control them.

Distribute participants’ handouts: (notes and images of disease signs)
### Group Exercises

*In plenary discussion ask them to share the farmers’ experience on recognition and coping strategies during outbreaks*

### 4.7.5 Pests/parasites of indigenous chicken (60 minutes)

<table>
<thead>
<tr>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will guide the participants in identifying common pests/parasites affecting productivity of indigenous chicken and their management options)</em></td>
</tr>
</tbody>
</table>

**Plenary Presentation**

Present in PowerPoint notes and images to describe and explain the pests/parasites and their management options.

Inform the participants that the issues to be covered in this session are:

1. External parasites (soft ticks, mites, fleas and lice)
2. Internal parasites (worms and coccidia)
3. Prevention and control methods

**Group Exercises**

*In plenary discussion ask them to share the farmers’ experience in managing pests/parasites in farmer flocks*

**Session guide**

List the names of pests/parasites and how to prevent and control them.

### 4.7.6 Vaccination against diseases of indigenous chicken (45 minutes)

<table>
<thead>
<tr>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will guide the participants on use of vaccines for preventing and controlling infectious diseases in indigenous chicken)</em></td>
</tr>
</tbody>
</table>

**Plenary Presentation**

Present in PowerPoint notes and images to describe and explain the pests/parasites and their management options.

Inform the participants that the issues to be covered in this session are:

1. Vaccine handling
2. Vaccine administration
3. Schedule of vaccinations for different diseases affecting indigenous chicken

**Plenary Discussion**

*In plenary discussion ask them to give their experiences on the effectiveness of vaccination in controlling diseases in indigenous chicken*

**Session guide**

Distribute hand out: Vaccines and vaccination program for indigenous chicken.
4.7.7 Module Review: Plenary Presentation and Group Exercises (20 minutes)

(The facilitator should let the participants present their views on each of the sessions covered under indigenous chicken health management module. On the flip chart, list and summarize the key points they should emphasize when training farmers. Finally, conclude by thanking the participants)

Review together the main points about health management of indigenous chicken

- What new things did you learn from this module?
- What are some of the issues that you have become more aware of in indigenous chicken health management?
- What questions do you still have about indigenous chicken health management?
- Who can explain the first point—the message and its application? The second message? The third message? And so on.

4.8 Participants’ Handouts

1. Family poultry training course

MODULE 5

HONEY BEE HEALTH MANAGEMENT

5.1. Introduction to the Module

Honey bee health management module is intended for use in training facilitators of FFS on economically important honey bee diseases, pests/parasites which can reduce productivity. Honey bee (Apis mellifera) is the most domesticated bee species due to its ability to produce honey of commercial value, wax, pollen, royal jelly and propolis. The honey bee also facilitates pollination of flowering plants. However, there has been an increase in reported incidences of hive and colony infection by honey bee parasites and pathogens, contributing to colony collapse.

This calls for the understanding of the diseases and pests/parasites and their pattern of occurrence in apiaries for effective control in order to improve honey bee productivity. Knowledge of the diseases, pests and parasites will help in diagnosis and in instituting preventative measures.

5.2 Module Learning Outcomes

By the end of the module facilitators should be able to:
- Identify important diseases of honey bees and their causes, modes of spread, signs of infection and economic importance on productivity.
- Identify important pests and parasites of honey bees and management options.
- Recommend appropriate disease and pest/parasite management practices for increased productivity.

5.3 Module Target

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

5.4 Module Users

This module is for use by master trainers who are members of the Core Trainers Team (CTT).

5.5 Module Duration

The module is estimated to take 5 hours and 10 minutes
### Honey Bee Health Management

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to the module and leveling of expectations</td>
<td>• Buzz groups • Groups</td>
<td>• Handout of Module Objectives • Felt pens, masking tape or sticker glue, note books and pens • PowerPoint presentations</td>
<td>15</td>
</tr>
<tr>
<td>2. Overview of causes and spread of diseases of honey bee</td>
<td>• Groups Exercises • Plenary Presentation</td>
<td>• Flip charts and felt pens • PowerPoint presentations • Participants’ handouts</td>
<td>20 10</td>
</tr>
<tr>
<td>3. Bacterial diseases of honey bee</td>
<td>• Group Exercises • Plenary Presentation</td>
<td>• Flip charts, flash cards, felt pens • PowerPoint presentations, colored pictures • participants’ handouts</td>
<td>30 30</td>
</tr>
<tr>
<td>4. Viral diseases of honey bee</td>
<td>• Problem-solving exercises • Plenary Presentation</td>
<td>• Flip charts, flash cards, felt pens • PowerPoint, colored pictures, handouts</td>
<td>30 60</td>
</tr>
<tr>
<td>5. Fungal diseases of honey bee</td>
<td>• Problem-solving exercises • Plenary Presentation</td>
<td>• Flip charts, flash cards, felt pens • PowerPoint, colored pictures, handouts</td>
<td>30 60</td>
</tr>
<tr>
<td>6. Pests and parasites of honey bee</td>
<td>• Problem-solving exercises • Plenary Presentation</td>
<td>• Flip charts, flash cards, felt pens • PowerPoint, colored pictures, handouts</td>
<td>30 30</td>
</tr>
<tr>
<td>7. General apiary management practices for honey bee health and increased honey production</td>
<td>• Problem-solving exercises • Plenary Presentation</td>
<td>• Flip charts, flash cards, felt pens • PowerPoint, colored pictures, handouts</td>
<td>15 30</td>
</tr>
</tbody>
</table>
8. Module review
- Group Exercises
- Facilitator’s summary
- Participants’ Handouts
- Module review
- 20

5.7. Facilitator Guidelines

<table>
<thead>
<tr>
<th>5.7.1 Introduction and Leveling Expectations (15 minutes)</th>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator welcomes participants to the module honey bee health management and introduces him/herself by stating his/her profile and experience of working with farmers)</em></td>
<td>List the participants’ expectations on a flip chart and pin at a strategic place for reference during module review session</td>
</tr>
</tbody>
</table>

**Introduction**
The facilitator invites the participants to state their expectations for the module.

**Module Objectives**
The facilitator introduces the module objectives. By the end of the module facilitators should be able to:
- Identify important diseases of honey bees, their causes, modes of spread, signs and economic importance on bee productivity
- Identify important pests/parasites of bees and management options
- Recommend appropriate disease and pest/parasite management practices for increased productivity
- Explain the bee biosecurity measures for disease prevention and control
- Recommend safe use and handling practices of veterinary drugs and pesticides where applicable

<table>
<thead>
<tr>
<th>5.7.2 Overview of causes and spread of diseases of honey bees (30 minutes)</th>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will guide the participants in understanding the causes and spread of diseases of honey bees)</em></td>
<td>List the causes of diseases in honey bees and their mode of spread</td>
</tr>
</tbody>
</table>

**Plenary Presentation**
Present in PowerPoint on causes of disease and their modes of spread in honey bees

**Group Exercises**
In plenary discussion ask the participants to share their experiences on causes of diseases in honey bees and the mode of spread
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Duration</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.7. 3</td>
<td>Bacterial diseases of honey bees (60 minutes)</td>
<td>(The facilitator will guide the participants in identifying bacterial diseases of honey bee, transmission, signs, prevention and control options)</td>
<td>List the major bacterial diseases of honey bee, how they are transmitted and ways of managing infected honey bee colonies. Distribute participants’ handouts: (notes and images of the diseases).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plenary Presentation</td>
<td>Present in PowerPoint notes and images to describe the diseases and their management options.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inform the participants that the diseases to be covered in this session are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. American foulbrood disease (AFB)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. European foulbrood disease (EFB)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group Exercises</td>
<td>In plenary discussion ask them to share the farmers’ experience on recognition and management of these diseases in their apiaries.</td>
<td></td>
</tr>
<tr>
<td>5.7. 4</td>
<td>Viral diseases of honey bees (90 minutes)</td>
<td>(The facilitator will guide the participants in identifying viral diseases of honey bees, transmission, signs, prevention and control options)</td>
<td>List common viral diseases of honey bee, how they are transmitted and ways of managing infected honey bee colonies. Distribute participants’ handouts: (notes and images of the diseases).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plenary Presentation</td>
<td>Present in PowerPoint notes and images to describe the following diseases;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Sac brood disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Black Queen Cell Disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Acute bee paralysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Problem-solving exercises</td>
<td>In plenary discussion ask them to share the farmers’ experience on recognition of the diseases and their coping strategies.</td>
<td></td>
</tr>
<tr>
<td>5.7.5</td>
<td>Fungal diseases of honey bee (90 minutes)</td>
<td>(The facilitator will guide the participants in identifying fungal diseases of honey bee and their management options)</td>
<td>Give a presentation on the diseases, how they are transmitted and ways of managing infected honey bee colonies. Distribute hand out: (notes and images of the diseases).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plenary Presentation</td>
<td>Present in PowerPoint notes and images to describe the following diseases;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Chalkbrood disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Nosema disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Problem-solving exercises</td>
<td>In plenary discussion ask them to share the farmers’ experience on recognition of the disease and their coping strategies.</td>
<td></td>
</tr>
</tbody>
</table>
### 5.7.6 Pests/parasites of honey bee (60 minutes)

**(The facilitator will guide the participants in identifying pests and parasites of honey bee and their management options)**

#### Plenary Presentation

Present in PowerPoint notes and images to describe the following:

a) **Parasites** (Varroa mite, Tropilaelaps mite and Tracheal mite)
   
b) **Pests**
   
   - Insects (beetle, Ants, Wasps and Wax moths)
   
   - Predator vertebrates (Amphibians, Reptile, Birds, and Mammals)

#### Problem-solving exercises

In plenary discussion ask them to share the farmers’ experience on recognition of the pests and parasites in their apiaries and their coping strategies.

#### Session guide

List the pests/parasites and ways of preventing damage to honey bee colonies.

Distribute hand out: (notes and images of the pests/parasites).

---

### 5.7.7 Apiary management practices for honey bee health and increased honey production (45 minutes)

**(The facilitator will guide the participants on apiary management practices for honey bee health and increased honey production)**

#### Plenary Presentation

Present in PowerPoint notes to describe the general apiary management practices for honey bee health and increased honey production.

Inform the participants that the issues to be covered in this session are:

1. Siting of apiaries
2. Selection of hives and placement
3. Apiary inspection
4. Bee colony inspection
5. Honey bee biosecurity

#### Group Exercises

In plenary discussion ask them to give their experience on the effectiveness of apiary management practices in controlling honey bee diseases; and pests/parasites for increased honey production.

#### Session guide

Distribute hand out: General apiary management practices.
5.7.8 Module Review (20 minutes)  

(The facilitator should let the participants present their views on each of the sessions covered under honey bee health management module. On a flip chart, list and summarize the key points they should emphasize when training farmers. Conclude by thanking the participants.)

5.8 Participants’ Handouts

1. Draft National Livestock Policy, Kenya  
2. Diseases of honey bee
3. Honey bee diseases and pests: A practical guide
6.1 Introduction to the Module

This module is designed for training on factors likely to enhance or impede diffusion and adoption of animal health technologies, innovations and management practices. While providing information plays a major role in diffusion of TIMPs, other complementary factors determine whether smallholder farmers will adopt technologies. Smallholder farmers are rational and risk averse and will only adopt technologies that address multiple concerns. This therefore calls for an understanding of factors likely to constrain or enhance adoption.

6.2 Module Learning Outcomes

By the end of the module participants should:
- Describe the process of technology diffusion and adoption.
- Identify factors that constrain or enhance adoption of TIMPs in their areas of operation.
- Identify gaps in their areas of operation, propose intervention strategies and identify potential collaborators (actors providing complementary services).

6.3 Module Target Group

This module targets service providers who include County extension staff 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).

6.5 Module Duration

The module is estimated to take a minimum of 1 hour and 45 minutes.
### 6.6 Module Summary

#### Diffusion And Adoption Of Animal Health Timps

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to the module and leveling of expectations</td>
<td>• Buzz groups</td>
<td>• Handout Module Objectives&lt;br&gt;• Felt pens, masking tape, manila cards, note books and pens&lt;br&gt;• PowerPoint presentations</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Innovation diffusion and adoption concepts</td>
<td>• Plenary Presentation&lt;br&gt;• Group Exercises</td>
<td>• PowerPoint presentation</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Factors likely to enhance or impede diffusion and adoption of TIMPs</td>
<td>• Brainstorming&lt;br&gt;• Plenary Presentation</td>
<td>• Flip charts and felt pens&lt;br&gt;• PowerPoint presentation</td>
<td>10&lt;br&gt;20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Identifying gaps, intervention areas and actors</td>
<td>• Brainstorming&lt;br&gt;• Plenary Presentation</td>
<td>• PowerPoint presentation&lt;br&gt;• Flip charts and felt pens</td>
<td>15&lt;br&gt;15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Module review</td>
<td>• Group Exercise&lt;br&gt;• Facilitator’s summary</td>
<td>• Participants’ Handouts&lt;br&gt;• Module review</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>1 hours 45 minutes</strong></td>
</tr>
</tbody>
</table>
### 6.7 Facilitator Guidelines

<table>
<thead>
<tr>
<th>6.7.1 Introduction and Levelling Expectations (15 minutes)</th>
<th>Session Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator welcomes participants to the module</em>&lt;br&gt;<em>factors influencing adoption of animal health TIMPs and</em>&lt;br&gt;<em>introduces him/herself by stating his/her profile</em>&lt;br&gt;<em>and experience of working with farmers).</em></td>
<td><em>Stick the participants’ expectations on the wall at a</em>&lt;br&gt;<em>strategic place for reference during the module review</em>&lt;br&gt;<em>session</em></td>
</tr>
<tr>
<td><strong>Introduction</strong>&lt;br&gt;The facilitator invites the participants to state their expectation for the module.</td>
<td></td>
</tr>
<tr>
<td><strong>Module Objectives</strong>&lt;br&gt;The facilitator introduces the module objectives.&lt;br&gt;By the end of the module participants should:&lt;br&gt;• Understand the process of technology diffusion and adoption&lt;br&gt;• Understand factors that constrain or enhance adoption of TIMPs in their areas of operation&lt;br&gt;• Identify gaps in their areas of operation and recommend actors providing complementary services</td>
<td><em>Distribute handout and discuss the module objectives.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.7.2 Overview on innovation diffusion and adoption concepts and the process (15 minutes)</th>
<th>Session guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will guide the participants in defining innovation diffusion and adoption concepts and the process of innovation diffusion and adoption)</em></td>
<td><em>Distribute handouts to participants (notes and graphs explaining the concepts and the innovation diffusion process)</em></td>
</tr>
<tr>
<td><strong>Concepts of innovation diffusion and adoption</strong>&lt;br&gt;Use a Power point presentation to define concepts of innovation diffusion and adoption</td>
<td></td>
</tr>
<tr>
<td><strong>Innovation diffusion and adoption process</strong>&lt;br&gt;Use a Power point presentation to discuss the process of innovation diffusion and adoption.</td>
<td><em>Experience sharing</em></td>
</tr>
<tr>
<td><em>(In a discussion, ask the participants to relate the diffusion and adoption process to their experiences in promoting innovations and technologies)</em></td>
<td></td>
</tr>
</tbody>
</table>
### 6.7.3 Factors likely to enhance or constrain diffusion and adoption of TIMPs (30 minutes)

(The facilitator will discuss factors likely to enhance or constrain diffusion and adoption of TIMPs).

**Plenary Presentation**
Use a Power point presentation to discuss factors likely to enhance or constrain diffusion and adoption of TIMPs.

Inform participants that the issues to be covered in this session are:
- 4. Factors that enhance or constrain adoption of TIMPs by smallholder farmers;
  - a. Socioeconomic factors
  - b. Demographic factors
  - c. Institutional factors

**Brainstorming**
In a plenary discussion ask them to share their experiences on how some of the discussed factors influenced adoption of innovations.

### 6.7.4 Identifying gaps, intervention areas and actors providing complementary services (30 minutes)

(The facilitator will discuss the assignment and facilitate grouping of participants for the discussions)

**Brainstorming**
Use a power point presentation to discuss the assignment which will comprise:
- a. Identifying gaps in participants’ areas of operation
- b. Brainstorming on intervention strategies
- c. Proposing actors who would provide complementary services.

Participants break into small groups and work on the assignment.

**Plenary presentations**
Each group makes a plenary presentation of the group work. After all groups present their work, have discussions on aspects that may have been omitted.
### 6.7. 5 Module review (15 minutes)

(The facilitator should let the participants seek clarification or present their views on each of the sessions covered under the innovation diffusion and adoption module. On a flip chart list and summarize the key aspects they should address during promotion of TIMPs. Conclude by thanking the participants.)

<table>
<thead>
<tr>
<th>Group Exercises</th>
<th>Distribute the handout summarizing the main points from the module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review together the main points about factors likely to enhance or constrain diffusion and adoption of TIMPs.</td>
<td></td>
</tr>
<tr>
<td>• What new knowledge did you gain from this module?</td>
<td></td>
</tr>
<tr>
<td>• What are some of the issues you have become more aware of in innovation diffusion and adoption?</td>
<td></td>
</tr>
<tr>
<td>• What questions do you still have about innovation diffusion and adoption?</td>
<td></td>
</tr>
<tr>
<td>• What will you do differently as a result of the new knowledge gained?</td>
<td></td>
</tr>
<tr>
<td>6.8 Participants’ Handout</td>
<td>oundation summarizing the main points from the module</td>
</tr>
</tbody>
</table>

7.1. Introduction to the Module

This module is designed for training on strategies for including women, men, the youth and other vulnerable and marginalized groups such as those living with disabilities aiming towards gender equality. Women, men, the youth and people with disabilities have the potential to achieve food, nutrition and income security through adoption of animal health TIMPs but there are barriers that hold back women, the youth and those living with disabilities. This therefore calls for strategies that promote gender equality.

7.2 Module Learning Outcomes

By the end of the module participants should:

- Understand why gender equality is important in scaling up animal health TIMPs
- Identify gender gaps in scaling up animal health TIMPs
- Understand strategies that promote gender equality in scaling up animal health TIMPs
- Appreciate how to use a gender equality methodology Gender Action Learning for Sustainability (GALS) in scaling animal health TIMPs

7.3 Module Target Group

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

7.4 Module Users

This module is intended for use by master trainers who are members of the Core Team of Trainers (CTT).

7.5 Module Duration

The module is estimated to take a minimum of 2 hours and 45 minutes.
## 7.6 Module Summary

**Gender And Youth-Inclusive Strategies For Scaling Up Animal Health Timps**

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Training Methods</th>
<th>Training Materials</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to the module and leveling of expectations</td>
<td>Buzz groups</td>
<td>Handout Module Objectives</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Sharing</td>
<td>Felt pens, masking tape, manila cards, note books and pens</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PowerPoint presentations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender concepts</td>
<td>Plenary Presentation</td>
<td>PowerPoint presentation</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Group Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gender equality in scaling animal health TIMPs</td>
<td>Plenary Presentation</td>
<td>PowerPoint presentation</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Group Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Identifying gender gaps in scaling animal health TIMPs</td>
<td>Brainstorming in groups</td>
<td>PowerPoint presentation</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Plenary Presentation</td>
<td>Flip charts and felt pens</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Group Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Gender and youth-inclusive strategies in scaling animal health TIMPs</td>
<td>Plenary Presentation</td>
<td>PowerPoint presentation</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Group Exercise</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gender Action Learning for Sustainability (GALS) in scaling animal</td>
<td>Plenary Presentation</td>
<td>PowerPoint presentation</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Group Exercises</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Module review</td>
<td>Group Exercises Facilitator’s summary</td>
<td>Participants’ Handouts</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Module review</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>2 hours 45 minutes</td>
</tr>
</tbody>
</table>
### 7.7 Facilitator Guidelines

#### 7.7.1 Introduction and Leveling Expectations (15 minutes)

*The facilitator welcomes participants to the module on gender and youth-inclusive strategies in scaling animal health TIMPs and introduces him/herself by stating his/her profile and experience of working with farmers.*

**Introduction**
The facilitator invites the participants to state their expectation for the module.

**Module Objectives**
The facilitator introduces the module objectives. By the end of the module participants should:

- Understand why gender equality is important
- Identify gender gaps in scaling animal health TIMPs
- Understand strategies that promote gender equality
- Understand how to use a gender equality methodology Gender Action Learning for Sustainability (GALS).

**Session Guide**
Stick the participants’ expectations on the wall at a strategic place for reference during the module review session.

Distribute handout and discuss the module objectives.

#### 7.7.2 Overview on why gender is important in scaling animal health TIMPs (30 minutes)

*The facilitator will guide the participants in defining gender concepts and understanding the importance of gender in animal health TIMPs.*

**Gender concepts**
Use a Power point presentation to define gender concepts

**Why gender equality is important in scaling animal health TIMPs**
Use a Power point presentation to discuss the relevance of gender equality in scaling animal health TIMPs.

*(In a discussion, ask the participants to relate gender equality / inequality to their experiences in promoting animal health innovations and technologies)*

**Session guide**
Distribute handouts to participants defining gender concepts and explaining why gender equality is important in scaling animal health TIMPs.

Experience sharing
<table>
<thead>
<tr>
<th><strong>7.7.3 Identifying gender gaps in scaling animal health TIMPs (30 minutes)</strong></th>
<th><strong>Session guide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will discuss gender gaps in agricultural TIMPs generally to help participants understand what gender gaps are. The facilitator will then discuss the assignment and facilitate grouping of participants for the discussions)</em></td>
<td>Distribute handouts to participants (notes and examples) of gender gaps in agricultural TIMPS</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Participants work out the assignment through group discussions and record on flipcharts or power point</td>
</tr>
<tr>
<td>Use a Power point presentation to discuss gender gaps in agricultural TIMPs and the assignment on identifying gender gaps.</td>
<td></td>
</tr>
<tr>
<td><strong>Discussion</strong></td>
<td></td>
</tr>
<tr>
<td>Participants will break into smaller groups and discuss gender gaps in animal health TIMPs based on their experience and present their work in the plenary</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>7.7.4 Gender and youth-inclusive strategies in scaling animal health TIMPs (15 minutes)</strong></th>
<th><strong>Session guide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will make a presentation on strategies for gender and youth inclusion in scaling animal health TIMPs)</em></td>
<td>Distribute handouts to participants explaining a step-by-step inclusion strategy for each category</td>
</tr>
<tr>
<td><strong>Gender and youth-inclusive strategies</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Use a Power point presentation to discuss strategies for inclusion of the following categories of persons in scaling animal health TIMPs:  
   a. Men and women  
   b. The youth  
   c. The disabled | |

<table>
<thead>
<tr>
<th><strong>7.7.5 Gender Action Learning for Sustainability (GALS) in scaling animal health TIMPs (60 minutes)</strong></th>
<th><strong>Session guide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(The facilitator will make a presentation on Gender Action Learning for Sustainability (GALS)</em></td>
<td>Distribute handouts to participants (notes) on GALS and examples of a vision journey and a gender balance tree</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Participants work out the assignment through group discussions and record on flipcharts or power point</td>
</tr>
</tbody>
</table>
| Use a Power point presentation to discuss what Gender Action Learning for Sustainability (GALS) is and how it works for male and female livestock keepers. Discuss two tools in GALS that will be used in scaling animal health TIMPs:  
   a. Vision journey  
   b. Gender balance tree | |
| **Group discussions** | |
| Participants will break into smaller groups and develop a vision journey and gender balance tree based on their experience in promoting animal health TIMPs followed by a plenary session for presentation and discussion of each group’s work | |
7.7.6 Module review (15 minutes)

(The facilitator should let the participants seek clarification or present their views on each of the sessions covered under the gender and youth-inclusive strategies for scaling animal health TIMPs)

Questions and answers session
Let’s review together the main points about gender and youth-inclusive strategies for scaling animal health TIMPs

- What new knowledge did you gain from this module?
- What are some of the issues you have become more aware of on gender in animal health TIMPs?
- What questions do you still have about gender in animal health TIMPs?
- What will you do differently as a result of the new knowledge gained?

Distribute the handout summarizing the main points from the module
Distribute the evaluation form

7.6 Participants’ Handouts


### ANNEX 1

#### TRAINING PROGRAM

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 0</th>
<th>Duration</th>
<th>Remarks / Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Evening</td>
<td><strong>Arrival</strong></td>
<td>2 hours</td>
<td>The training venue and materials are ready for use</td>
</tr>
<tr>
<td></td>
<td>· Set up and prepare training venue and materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Arrival of participants and registration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Close of Day 0**

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1</th>
<th>Duration</th>
<th>Remarks / Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30am-10.30am</td>
<td><strong>Climate Setting</strong></td>
<td></td>
<td>The trainees relax and set climate for the -day training</td>
</tr>
<tr>
<td></td>
<td>· Welcome by host and Prayers</td>
<td>10 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Self-introductions – (CTT)</td>
<td>30 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Introduction to training on Animal Health Management (KALRO)</td>
<td>15 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Official opening ceremony (CDL/CDVS)</td>
<td>15 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Introduction to the training program (CTT)</td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Formation of groups and setting norms (CTT)</td>
<td>30 minutes</td>
<td></td>
</tr>
<tr>
<td>10.30-11.00am</td>
<td>Tea Break (Group Photo)</td>
<td>30 minutes</td>
<td>Health Break</td>
</tr>
<tr>
<td>11.00am-12.05pm</td>
<td><strong>Module 1. Principles of Animal Health Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Levelling expectations and module objectives</td>
<td>15 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Presentation on concept of health and disease in farm animals</td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Group Exercise</td>
<td>30 minutes</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Duration</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------</td>
<td>-----------</td>
<td></td>
</tr>
</tbody>
</table>
| 12.05pm-1.00pm | • Requirements for keeping healthy farm animals  
• Group Exercises | 30 minutes  
25 minutes |
<p>| 1.00 -2.00pm | Lunch Break                                                   | 1 hour    |
| 2.00 -2.30pm | • Farm biosecurity                                            | 30 minutes |
|            | • Module 2 or 3 or 4 or 5 (will depend on the value chain)    |           |
|            | <strong>Module 6. Diffusion and Adoption Of Animal Health TIMPs</strong>     |           |
|            | • Introduction to the module and leveling of expectations     | 15 minutes |
|            | • Innovation diffusion and adoption concepts Module review/facilitator summary | 30 minutes |
|            | • Factors likely to enhance or impede (constrain) diffusion and adoption of TIMPs | 30 minutes |
|            | • Identifying gaps, intervention areas and actors             | 30 minutes |
|            | • Module review                                               | 15 minutes |
|            | <strong>Module 7. Gender and Youth-Inclusive Strategies for Scaling Animal Health TIMPs</strong> |           |
|            | • Introduction to the module and leveling of expectations     | 10 minutes |
|            | • Gender concepts and gender equality in scaling animal health TIMPs | 10 minutes |
|            | • Identifying gender gaps in scaling animal health TIMPs      | 30 minutes |
|            | • Gender and youth-inclusive strategies in scaling animal health TIMPs | 30 minutes |
|            | • Gender Action Learning for Sustainability (GALS) in scaling animal health TIMPs | 30 minutes |
|            | • Module review                                               | 10 minutes |</p>
<table>
<thead>
<tr>
<th><strong>Review of the training course</strong></th>
<th>30 minutes</th>
<th>CTT / CDA / NPCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Way forward</td>
<td>30 minutes</td>
<td></td>
</tr>
<tr>
<td>Course evaluation</td>
<td>25 minutes</td>
<td></td>
</tr>
<tr>
<td>(individual and group evaluation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Official closing remarks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Logistics</strong></td>
<td>40 minutes</td>
<td>CTT / NPCK</td>
</tr>
<tr>
<td>Departure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Departure**
## ANNEX 2

### GENERAL REFERENCE MATERIALS

<table>
<thead>
<tr>
<th>Category / Modules</th>
<th>Publication title</th>
<th>Reference type</th>
<th>No Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section</td>
<td>Description</td>
<td>Source</td>
<td>Type</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Diseases of honey bee</td>
<td>Seminar Proceedings</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Honey bee diseases and pests: a practical guide</td>
<td>Manual</td>
<td>33</td>
</tr>
<tr>
<td>Title</td>
<td>Author(s)</td>
<td>Medium</td>
<td>Pages</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
</tbody>
</table>
Kenya Climate Smart Agriculture Project (KCSAP)
P.O. Box 57811, City Square, Nairobi, 00200, Kenya