

FORM THREE

17.0.0 LIVESTOCK PRODUCTION III (SELECTION AND BREEDING) (12 Lessons)

17.1.0 Specific objectives

By the end of the topic the learner should be able to:

- a) describe reproduction and
- b) reproductive systems,
- c) select breeding stock
- d) describe breeding systems
- e) identify signs of heat in livestock
- f) describe methods used in serving livestock
- g) demonstrate a caring attitude towards livestock

17.2.0 Content

17.2.1 Reproduction and reproductive systems.

- Cattle
- Poultry

17.2.2 Selection:

- meaning
- Factors to consider in selecting a breeding stock
 - Cattle
 - Sheep
 - Goats
 - Pigs
 - Camels
- Methods of selection
 - mass selection
 - contemporary comparison
 - progeny testing

17.2.3 Breeding

- Meaning
- Terms used in breeding
 - Dominant and recessive genes
 - Heterosis(hybrid vigour)
 - Epistasis
- Breeding systems

- Cross-breeding
- Up-grading
- Inbreeding
- Line breeding
- Out-crossing

Note: Discuss under the headings:

- Definition
- Advantages
- Disadvantages

17.2.4 Signs of heat in:

- Cattle
- Pigs
- Rabbits

Note: Study the oestrus cycle of each of the above

17.2.5 Methods of service in livestock

- Natural mating
- Artificial insemination
- Embryo transplant

Note: Discuss advantages and disadvantages of each.

17.2.6 Signs of parturition

- Cattle
- Pigs
- Rabbits

Note: Learners to handle livestock in appropriate caring manner.

18.0.0 LIVESTOCK PRODUCTION IV (LIVESTOCK REARING PRACTICES) (10 Lessons)

18.1.0 Specific Objectives

By the end of the topic the learner should be able to:

- a) describe livestock rearing practices
- b) carry out livestock rearing practices
- c) demonstrate a caring attitude towards livestock.

18.2.0 Content

18.2.1 Routine livestock rearing practices

- Feeding practices
 - Flushing
 - Steaming up
 - Creep feeding
- Parasites and disease control practices
 - Vaccination
 - Deworming
 - Hoof trimming
 - Docking
 - Dipping/spraying
 - Dusting
- Breeding practices
 - Crutching
 - Topping and serving
 - Raddling
 - Ringing
- Identification
- Debeaking
- Tooth clipping
- Culling: Describe general methods and carry out practicals on:
 - Cattle
 - Poultry
- Dehorning
- Shearing
- Castration
 - open
 - closed
 - caponization
- Management during parturition:-
 - Pigs
 - Cattle
 - Sheep
 - Goats
 - Rabbits

18.2.2 Bee Keeping (Apiculture)

- Importance
- Colony
- Siting of the apiary and hive
- Stocking the bee hive
- Management:
 - Feeding
 - Predator and pest control

- Honey harvesting and processing

18.2.3 Fish Farming (aquaculture)

- Importance
- Types of fish kept in farm ponds
 - Management
 - Harvesting
 - Processing and preservation

18.2.4 Appropriate handling of livestock during routine management

19.0.0 FARM STRUCTURES (18 Lessons)

19.1.0 Specific Objectives

By the end of this topic, the learner should be able to:

- a) describe parts of a building
- b) identify materials for construction
- c) describe various farm structures and their uses
- d) describe siting of various structures
- e) construct and maintain farm structures.

19.2.0 Content

19.2.1 Farm buildings and structures

- Siting
- Parts of a building
 - Foundation
 - Wall
 - Floor
 - Roof

19.2.2 Livestock buildings and structures

- Crushes
- Dips
- Spray race
- Dairy shed/parlour
- Calf pens
- Poultry houses and structures
 - Deep litter
 - Coops
 - Folds/Arks
 - Runs
 - Battery cages
- Rabbit hutches/Rabbitry
- Piggery/pig sty

- Fish ponds
- Silos (for silage)
- Zero grazing unit
- Bee hives

19.2.3 Farm stores

- Feed
- Farm produce
- Chemical
- Machinery
- Tools

19.2.4 Green house

- Meaning
- Construction materials
- uses

19.2.5 Fences in the farm

- Types of fences and materials used
- Uses - advantages and disadvantages
- Gates and passes in fences
- Fence reinforcements

Note

- Construct either of the following structures:
 - a crush
 - a beehive
 - a hutch
- Visit nearby construction sites for observation.

20.0.0 AGRICULTURAL ECONOMICS II (LAND TENURE AND LAND REFORM) (8 Lessons)

20.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- define the term tenure
- describe tenure systems
- describe land reforms.

20.2.0 Content

20.2.1 Land tenure

- definition
- tenure systems
 - individual
 - Types

- Advantages and disadvantages

(ii) collective

- Description
- Advantages
- Disadvantages

20.2.2 Land reforms

- Definition
- Types of reform and reasons for each
 - Fragmentation
 - Consolidation
 - Adjudication
 - Registration (Emphasize the importance of a title deed)
 - Settlement and resettlement

21.0.0 SOIL AND WATER CONSERVATION (19 Lessons)

21.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- define soil erosion
- explain the various factors that influence erosion
- list the agents of erosion
- describe the various types of erosion
- describe various methods of erosion control
- demonstrate a caring attitude towards soil and water
- carry out soil erosion control measures
- describe water harvesting and conservation techniques
- describe micro-catchments and their uses.
- Design and construct a micro-catchment.

21.2.0 Content

21.2.1 Soil erosion

- Definition
- Factors influencing erosion -
 - Land use and ground cover
 - Topography - gradient and length of slope (horizontal and vertical intervals)

- Soil type and condition (Erodability)
- Rainfall intensity (Erosivity)
- Agents of erosion
 - Water
 - Wind
 - Human beings
 - Animals
- Types of erosion
 - i) Splash/rain drop
 - ii) Sheet
 - iii) Rill
 - iv) Gully
 - gully formation
 - types of gullies
 - v) River bank
 - vi) Solifluction
 - vii) Landslides
- Soil erosion control
 - (i) Biological/cultural control
 - Grass strips
 - Cover crops
 - Grassed waterways
 - Contour farming and strip cropping
 - Mulching
 - Afforestation/reafforestation
 - (ii) Physical/structural controls
 - Stone lines
 - Filters /strip
 - Trashlines
 - Terraces - level, graded, broad, based, narrow-based, bench, fanya juu, fanya chini.
 - Bunds
 - Cut-off - drains/Diversion ditches
 - Gabions/porous dams
 - Ridging

21.2.2 Water harvesting

- Roof catchment
- Rock catchment
- Weirs and dams
- Ponds
- Retention ditches/Level terraces

21.2.3 Micro-catchments

- Types
- Laying out and construction methods
- Uses

Note

- A local soil conservation officer to be contacted for necessary tools and demonstration of skills in establishing level and graded terraces
- Learners to practice using levelling boards, line and spirit level to develop conservation structures.
- Learners to carry out soil and water conservation work in and or out of school wherever appropriate

22.0.0 WEEDS AND WEED CONTROL (15 Lessons)

22.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- a) define a weed
- b) identify weeds
- c) classify weeds
- d) explain the characteristics which make the weeds competitive
- e) describe ways of controlling weeds
- f) state harmful effects of weeds
- g) control weeds
- h) exercise safety measures to oneself, to crops and to the environment while controlling weeds.

22.2.0 Contents

22.2.1 Weeds

- Definition of weed
- Weed identification and classification competitive ability of weeds (Appropriate examples for each ability)

- Harmful effects of weeds (appropriate examples for each effect) (See Appendix II for weeds to be studied)

22.2.2 Weed control methods

- Chemical weed control:
 - Classes of herbicides
 - Methods of application
 - Safety measures in use of chemicals
- Mechanical weed control
- Cultural weed control
- Biological weed control
- Legislative control

23.0.0 CROP PESTS AND DISEASES (14 Lessons)

23.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- define pest and disease
- state the main causes of crop diseases
- describe the harmful effects of crop pests and diseases
- identify and classify some of the common pests and diseases
- carry out general disease and pest control measures
- demonstrate a caring attitude towards the environment while controlling pests and diseases.

23.2.0 Content

23.2.1 Pests

- Definition
- Classification of pests:
 - Mode of feeding
 - Crops attacked
 - Stage of growth of crop attacked
 - Field and storage pests
- Identification of common pests
- Harmful effects of pests
- Pest control measures.

23.2.2 Diseases:

- Definition

- Classification of diseases according to cause
- Identification of common diseases
- Disease control
- Harmful effects of diseases
- Disease control measures (see appendices III and IV for pests and diseases to be studied)

Note: Remind learners of safety in mixing, using and storing of chemicals including container disposal as in unit 22.00)

24.0.0 CROP PRODUCTION VI (FIELD PRACTICES II) (17 Lessons)

24.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- describe management practices in crop production
- carry out management practices for a given crop
- demonstrate an appreciation of agriculture as an economically lucrative activity.

24.2.0 Content

24.2.1 Production of :

- Maize/millet/sorghum
- Beans

Discuss under the following:-

- Meaning of hybrids, composites and cultivars
- Selecting best hybrids, composites or cultivars for a given climatic region.
- Raising of a maize/sorghum /millet and bean crop from seed bed preparation to harvesting
- Keeping records in production of maize/sorghum/millet and beans

24.2.2 Rice production

- Land preparation
- Water control
- Use of flooding in ricefield
- Fertilizer application
- Weed control

24.2.3 Harvesting of the following crops

- Cotton
- Pyrethrum
- Sugarcane
- Tea
- Coffee

Under the following

- Stage of harvesting
- Method and procedure of harvesting
- Precautions in harvesting

Note:

Compare cost of production with value of product for maize/sorghum/millet and beans

Discuss why there is a loss or a profit and improvement needed.

25.0.0 FORAGE CROPS (9 Lessons)

25.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- a) define and classify pastures
- b) identify forage crops
- c) describe the ecological requirements of forage crops
- d) describe the establishment and management of pastures and fodder
- e) describe forage utilization and conservation.

25.2.0 Content

25.2.1 Pastures

- Definition
- Classification
- Establishment
- Management

25.2.2 Utilization

- Grazing systems
 - Rotational
 - Herding
- Zero grazing

25.2.3 Fodder crops

- Napier/bana grass
- Guatemala grass
- Sorghum
- Kale
- Edible cana
- Lucerne
- Clovers
- Desmodium
- Manigolds
- Agroforestry trees/bushes used as fodder

Under the following:

- Ecological requirements
- Establishment and management
- Production per unit area
- Utilization

25.2.4 Forage conservation

- Hay making
- Silage making
- Standing hay

26.0.0 LIVESTOCK HEALTH III (DISEASES) (20 Lessons)

26.1.0 Specific objectives

By the end of the topic, the learner should be able to:

- a) describe causes and vectors of main livestock diseases
- b) state the incubation period of the livestock diseases
- c) describe the signs of each disease
- d) state the predisposing factors where applicable
- e) carry out simple control measures of livestock diseases
- f) demonstrate a caring attitude towards livestock.

26.2.0 Content

26.2.1 Protozoan diseases

- East coast fever
- Anaplasmosis
- Coccidiosis
- Trypanosomiasis(Nagana)

26.2.2 Bacterial diseases

- Fowl typhoid
- Foot rot
- Contagious abortion(Brucellosis)
- Scours
- Black-quarter
- Mastitis
- Anthrax
- Pneumonia

26.2.3 Viral diseases

- Rinderpest
- Foot and mouth
- Newcastle
- Fowl pox
- Gumboro
- African Swine fever

26.2.4 Nutritional diseases

- Milk fever
- Bloat

The above diseases should be studied under the following:

- Animal species attacked
- Cause/causal organism/agent and or vector
- Predisposing factors(where applicable)
- Incubation period (where applicable)
- Signs and symptoms of disease
- Simple control measures of the diseases

Note

- Learners to exercise care and use appropriate livestock handling practices
- Exercise care not to pollute the environment with chemicals