AGRICULTURE

FOR

STANDARD 5

BY ZIKOMO MASESE BANDA **0999246769**

STANDARD 5 AGRICULTURE

Written by Zikomo Masese Banda

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MEANING OF THE TERM 'AGRICULTURE'

Agriculture is the practice of growing crops and rearing animals on or farm for people's use.

Substitution table for defining the term 'agriculture'

Agriculture is	the task the job the practice the art the science the study	of growing crops and rearing animals	on land on farm	for people's use. for people's enjoyment. for profit.

Some farming activities

- Rearing poultry
- Fish farming
- Rearing rabbits
- Growing tobacco
- Growing flowers
- Vegetable farming
- Fruit farming
- Rearing goats
- Rearing sheep
- Rearing cattle
- Raising pigs
- Growing trees

UNIT 2 BRANCHES OF AGRICULTURE

BRANCHES OF AGRICULTURE

- crop production
- animal production

SUB-BRANCHES OF AGRICULTURE UNDER CROP PRODUCTION

- agronomy
- arboriculture
- Silviculture
- Agroforestry
- Horticulture

- Pomoculture
- Floriculture
- Olericulture

SUB-BRANCHES OF AGRICULTURE UNDER ANIMAL PRODUCTION

- Cattle farming
- Goat farming
- Pig farming
- Sheep farming
- Poultry
- Fish farming
- Rabbitry
- Apiculture

SUB-BRANCHES OF AGRICULTURE UNDER CROP PRODUCTION, THEIR MEANINGS AND EXAMPLES

SUB-BRANCH	**MEANING**	**EXAMPLES**
Agronomy	Production of field crops	Maize, cassava, tobacco, cotton
Arboriculture	Production of ornamental plants (shrubs and flowers)	Hibiscus, rose flowers
Silviculture	Production of trees	Jacaranda, bloodwood (mlombwa), bluegum, gmelina, msangu
Agroforestry	Growing of field crops and trees together	Maize and msangu, sorghum and leucaena, millet and gliricidia
Horticulture	Production of fruits, vegetables and flowers	Mangoes, mustard, flamboyant
Pomoculture	Production of fruits only	Oranges, tamarind (bwemba), granadillas
Floriculture	Production of flowers only	Periwinkle, marigold, night queen
Olericulture	Production of vegetables	African spinach (bononGwe), nkhwani, lettuce, rape, kamganje

SUB-BRANCHES OF AGRICULTURE UNDER ANIMAL PRODUCTION, THEIR MEANINGS AND EXAMPLES

SUB-BRANCH	**MEANING**	**EXAMPLES**
Cattle farming	Keeping of cattle	Zebu, Brahman
Goat farming	Keeping of goats	Malawian goat, Boer goat
Pig farming	Keeping of pigs	Landrace, large white
Sheep farming	Keeping of sheep	Dorper
Poultry	Keeping of domesticated birds	Chickens, ducks, guinea fowl
Fish farming	Raising of fish in ponds	Makumba, chambo
Rabbitry	Keeping of rabbits	California, Chinchilla
Apiculture	Keeping of bees	Honey bees

Some farm animals

a goat

a turkey

a sheep

a rabbit

UNIT 3 IMPORTANCE OF AGRICULTURE

IMPORTANCE OF AGRICULTURE AT INDIVIDUAL LEVEL

- Source of food
- Source of income
- Source of employment

IMPORTANCE OF AGRICULTURE AT FAMILY LEVEL

- Source of food
- Source of income
- Source of employment

IMPORTANCE OF AGRICULTURE AT NATIONAL LEVEL

- Source of food
- Source of income
- Source of foreign exchange
- Source of raw materials

UNIT 4 AGRICULTURE AS A BUSINESS

TYPES OF FARMING METHODS

- Subsistence farming
- Commercial farming

Subsistence farming

This is the growing of crops and raising of animals mainly for food.

Crops grown by subsistence farmers

- Maize
- Millet
- Sorghum
- Pigeon peas
- Rice
- Cassava
- Pumpkins

Animals raised mainly for food

- Ducks
- Pigeons
- Rabbits
- Chickens
- Guinea fowls

Main characteristics of subsistence farming

- Production of food to feed the family
- Production of crops and animals which are sold at low price
- Production of crops on a very small area, or keeping of very few animals
- Dependency mainly on rainfall
- Low levels of inputs
- Uses mainly family labour and hand tools
- There is rarely a surplus for sale

Commercial farming

This is the growing of crops and raising of animals mainly for sale.

Animals raised for sale

- Cattle
- Fish
- Bees
- Pigs

Crops grown mainly for sale

- Cotton
- Coffee
- Tea
- Tobacco

Main characteristics of commercial farming

- Production is mainly for cash
- Crops and animals produced are sold for profit
- Crops are grown on a large area and many animals are raised
- It involves high levels of inputs

MEANING OF THE TERM BUSINESS

A business is any activity that people do with the aim of making profits.

Farming as a business

Agricultural activities which can be done with the aim of making profits include keeping of bees, chickens, cattle, and goats for sale, and growing of flowers, vegetables, fruits and maize for sale.

Farmers can also sell manure and grass for feeding animals to increase profits from agricultural activities.

Aims of agriculture as a business

- Increasing yield per unit area
- Reducing cost per unit area
- Maximizing profits

UNIT 5 FARM BUSINESS ACTIVITIES

FARM BUSINESS ACTIVITIES

- Decision making
- Farm financing
- Record keeping
- Marketing

Decision making

This involves making decisions.

The farmer has to decide on the following:

- What to produce
- How to produce
- How much to produce
- Where to buy or sell
- When to produce, buy or sell

Farm financing
This involves finding money for running farm business.

Sources of the money can be personal savings or borrowing from money lending organisations.

Record keeping
This involves the keeping of the records of all activities at the farm.

These written records help the farmer to know whether the business is making profits or not.

Marketing
This involves selling the right products to the right customers at the right time, place and price.

UNIT 6 MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

THE MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

Agricultural production involves production of crops and raising of farm animals.

The production of these depends on the surroundings which include living things, non-living things and conditions such as weather.

Agricultural environment means everything around crop plants and farm animals.

THE MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

- Soil
- Water
- Plants
- Animals
- Sunlight
- Wind

IMPORTANCE OF THE AGRICULTURAL ENVIRONMENT

Importance of soil

- Soil holds crop plants
- Soil is a source of nutrients, water and air for crop plants
- Soil is used for making animal houses and storage rooms for farm produce

Importance of water

- Water is used by crop plants to make their own food
- Water dissolves nutrients in the soil to be used by crop plants
- Water cools the crop plants and farm animals
- Water is used for drinking by farm animals
- Water cools the soil where plants grow

Importance of plants

- Plants conserve water for crops and farm animals
- Plants protect the soil from losing nutrients
- Plants rot and form manure for the growth of other plants
- Plants are a source of feed to farm animals
- Plants are used for making animal houses

Importance of animals

- Animals provide manure for plant growth
- Animals control pests in crop fields by eating them
- Animals are used for making holes in the soil, allowing air to go in
- Animals are a source of food for other animals

Importance of sunlight

- Sunlight is used by crop plants to make their food
- Sunlight makes farm animals to produce eggs
- Sunlight dries farm produce

Importance of wind

- Wind is used for cooling plants and animals
- Wind is used for drying agricultural products
- Wind is used for removing light useless matter in farm produce
- Wind is used for pollination

UNIT 7 HARMFUL EFFECTS OF THE MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

The major elements of the agricultural environment may provide favourable conditions for agricultural production.

However these same elements may be harmful to agricultural production.

UNFAVOURABLE CONDITIONS OF SOME OF THE HARMFUL EFFECTS OF THE MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

Elements of agricultural environment	**Unfavourable conditions**	**Harmful effects on crops and farm animals**
Soil	• Low nutrient content • Hard soil	• Leads to poor plant growth, fruiting and seed formation • Results in poor root growth, poor entry of water in soil resulting into drying of wells
Water	• Too much water in the soil • Too little water in the soil • Fast moving water	• Results in poor root growth and a lack of air in the soil • Leads to wilting of plants and a lack of water for animals to drink • Carries away fertile top soil, crops and farm animals
Plants	• Poisonous plants • Parasitic plants	• Kill farm animals • Slow the growth of other plants
Animals	• Stray farm animals • Parasitic animals • Pests • Vectors	• Destroy crops • Cause farm animals to be weak, grow slowly and die • Destroy crops • Transmit diseases
Sunlight	• Too much sunshine	• Burns seedlings
Wind	• Strong winds	• Fells crops • Destroys farm buildings

UNIT 8 MANAGEMENT OF THE MAJOR ELEMENTS OF THE AGRICULTURAL ENVIRONMENT

The major elements of the agricultural environment can be managed in order to minimise their harmful effects on agricultural production.

Management of the major elements of the agricultural environment

Element of the agricultural environment	**Ways of managing them**
Soil	• Apply fertilizers • Grow legumes • Plant crops which need little nutrient • Till the land • Apply manure
Water	• Plant crops that need a lot of water • Dig drains • Irrigate crops • Mulch the crops • Make box ridges

Plants	• Weed the garden • Remove the diseased plants • Spray chemicals
Animals	• Destroy parasites and pests
Sunlight	• Mulch plants
Wind	• Plant trees as a windbreak • Make a brick or grass fence

UNIT 9 COMMON FARM TOOLS

Common farm tools are simple machines used by farmers when carrying out different operations on a farm.

Some common farm tools and their uses

Tools		**Uses**
A hoe		• Digging the soil • Making ridges • Tilling the soil • Weeding
An axe		• Cutting down trees • Chopping wood
A slasher		• Clearing the land • Weeding in woodlots
A sickle		• Harvesting rice • Grass cutting for feeding animals • Thatching farm buildings
A watering can		• Watering crops • Used during sowing of young seeds
A rake		• Collecting trash • Levelling seed beds
A hand trowel		• Lifting seedlings
A hand fork		• Loosening soil in the garden
A panga knife		• Cutting maize stalks • Clearing bushes

UNIT 10 SAFE WAYS OF USING FARM TOOLS

There are correct ways to be followed when handling and using farm tools to ensure safety.

Handling

- Ensure that blades point away from the body
- Ensure that blades are properly fixed to their handles
- All tools with sharp blades should be hanged on the wall to avoid injury

Use

- Ensure that tools are firmly fixed to their handles
- Be sure that farm tools are in good conditions
- Be sure that the tools are used for their intended purpose
- Make sure that there is enough space between people working

UNIT 11 MAINTENANCE OF FARM TOOLS

Maintaining farm tools means putting the farm tools in good conditions for use.

MAINTENANCE OF SOME FARM TOOLS

Tool	**Ways of maintaining farm tools**
Hoe, axe, slasher, panga, sickle	• Sharpening • Replacing broken handle • Removing soil off the blade • Oiling the blade • Putting it in dry place
Rake, hand fork, hand trowel	• Removing soil • Replacing broken handles • Oiling • Putting in dry place
Watering can	• Mending any holes or broken parts • Painting inside • Cleaning

UNIT 12 CROPS GROWN IN MALAWI

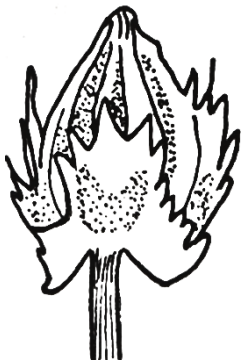
Various crops are grown in Malawi.

Such crops include:

- Maize
- Tobacco
- Groundnuts
- Millet
- Peas
- Soya beans
- Tomatoes
- Cassava
- Rice
- Cabbage
- Cotton
- Sugarcane
- Sorghum
- Sunflower
- Beans
- Mangoes
- Oranges
- Pineapples
- Pawpaws
- Irish Potatoes
- Sweet potatoes
- Tea
- Coffee
- Pumpkins
- Melons
- Cucumbers
- Bananas

Some crops grown in Malawi

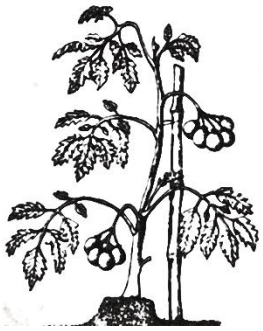
tobacco



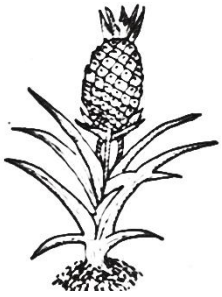
cotton

sunflower

Bananas



tomatoes



pineapples

These crops can be classified into food and cash crops depending on whether they are produced for food or cash.

Some food crops can be considered as cash crops if they are grown for sale.

FOOD AND CASH CROPS GROWN IN MALAWI

Food crops	**Cash crops**
Maize	Tobacco
Millet	Tea
Sorghum	Coffee
Cassava	Sunflower
Rice	Cotton
Beans	Sugarcane
Peas	Water melon
Potatoes	Tangerines
Tomato	Oranges
Cabbage	
Pawpaws	
Mangoes	
Cucumbers	
Groundnuts	

CROPS GROWN IN SPECIFIC AREAS IN MALAWI

Crop	Growing areas
Maize	All districts in Malawi
Tobacco	Kasungu, Mchinji, Lilongwe, Dowa, Ntchisi, Rumphi, Machinga, Mzimba, and Mangochi
Cotton	Karonga, Salima, Nsanje, Chikwawa, Bwanje Valley, Mwanza, and Mangochi
Groundnuts	Almost all districts in Malawi
Millet and sorghum	Chikwawa, Nsanje, Karonga, Mzimba and Chitipa
Sugarcane	Chikwawa and Nkhotakota
Beans	Dedza, Ntcheu and Nkhotakota
Tomatoes	Dedza, Ntcheu and Salima
Cassava	Nkhotakota, Karonga, Salima, Zomba, Dedza, Kasungu and Rumphi
Cabbage	Ntcheu, Dedza, Thyolo and Mzimba
Sunflower	Chitipa, Mzimba, Kasungu, Lilongwe, Mchinji, Phalombe and Balaka
Sweet potatoes	Almost all districts in Malawi
Irish potatoes	Ntcheu, Dedza, Ntchisi, Chitipa and Rumphi
Bananas	Thyolo, Mulanje, Nkhatabay, Karonga and Chitipa
Oranges	Mwanza, Thyolo and Neno
Pineapples	Mulanje, Thyolo, Nkhatabay, Karonga and Rumphi
Mangoes	Almost in all districts in Malawi
Pawpaws	Almost in all districts in Malawi

UNIT 13 INPORTANCE OF CROPS

Crops are important in many ways.

These importance are:

- Sources of food
- Sources of animal feed
- Sources of employment
- Sources of foreign exchange
- Sources of raw materials
- Sources of income

RAW MATERIALS AND THEIR PRODUCTS

Raw materials	**Industry**	**Products**
Sugarcane	Sugar industry	Sugar, molasses
Soya beans	Hatchery and food industry	Poultry feed
Groundnuts	Oil processing industry	Cooking oil and margarine
Tobacco	Tobacco processing industry	Cigarettes
Cotton	Clothing industry	Clothes
Maize	Milling company	Maize flour, breakfast cereal
Millet	Breweries	Opaque beer, breakfast cereal

UNIT 14 CROP HUSBANDRY PRACTICES

MEANING OF 'CROP HUSBANDRY PRACTICES'

Crop husbandry practices are the activities that are carried out when growing crops.

CROP HUSBANDRY PRACTICES AND THEIR RELATED ACTIVITIES

Crop husbandry practice	**Related activity**
Land preparation	• Clearing • Tilling • Ridging • Stumping • Making seed beds
Planting	• Sowing seeds • Transplanting seedlings • Supplying
Weeding	• Removing unwanted plants through burying • Slashing and uprooting

Fertilizer application	• Application of manure and inorganic fertilizer
Disease and pest control	• Protecting the crops from harmful living things
Harvesting	• Gathering of crops after maturing
Storage	• Keeping harvested crops safely for future use

These crop husbandry practices have to be carried out properly to obtain high crop yield.

UNIT 15 LAND PREPARATION AND PLANTING IN MAIZE

LAND PREPARATION ACTIVITIES

Activity	**Description of the activity**
Site selection	Select fertile land
Marking ridge spacing	Mark ridges at 75cm apart for sasakawa, 90cm apart for other methods of planting using string and pegs
Land clearing	Cover lightly organic matter along the marked lines using a hoe
Ridging	Make ridges 20cm high by covering the organic matter properly
Marking planting stations	Mark planting stations at 25cm apart for sasakawa or 75cm apart for planting three seeds per station using a plant frame or a small hoe
Manure application	Apply a double handful of well decayed manure per planting station

Land preparation

Land for maize should be prepared early because:

- It is easier to work when the soil is still moist
- It gives enough time for buried plant residues to rot
- It leads to early planting

Maize varieties

There are several varieties of maize that have been recommended in Malawi.

Seed selection

The following characteristics should be considered when selecting seed for planting:

- Large in size
- Not broken (whole)
- Free from disease and pest attack
- Not shrivelled

Plant spacing

The spacing between maize plants varies depending on the variety.

Tall varieties need wider spacing.

Short varieties need closer spacing.

Recommended spacing and number of plants per station

Planting spacing	Number of seeds per station
90cm	3
75cm	3
60cm	2
50cm	2
40cm	1
30cm	1
25cm	1

Planting maize

Maize planting involves:

- Marking out planting stations at a recommended spacing
- Planting the correct number of seeds per station
- Covering the planting hole (burying seed) at 7 to 10 centimetres deep

Planting should be done early because:

- the crop makes full use of soil nutrients before they are leached
- the crop uses most of the rains in the growing season
- the crop matures before some pests and diseases become serious

UNIT 16 WEEDING AND FERTILIZER APPLICATION IN MAIZE CROP

WEEDING

Weeding is the removal of unwanted plants in the garden

IMPORTANCE OF WEEDING

- weeding helps to reduce competition between crops and weeds for food, sunlight, air, water and space
- weeding helps to reduce pests and diseases in the garden

COMMON WEEDS IN MALAWI

- black jack (chisoso)
- Bengal commelina (khovani) also known as wandering Jew
- Amaranthus (bonongwe)
- Witch weed (kaufiti)
- Msonthi

Some common weeds

black jack

witch weed

stargrass

amaranthus

commelina

chilungumwamba

kapanthi

Weeds should be removed as soon as they appear for the following reasons:

- To ensure that they use as little food as possible
- To ensure that their removal does not damage roots of the growing crop plants

WEEDING METHODS

Methods	**Description**
Uprooting	Removing weeds by hand
Light hoeing	Removing weeds using a hoe
Banking	Burying weeds along the edge
Applying herbicides	Spraying chemicals that kill weeds

FERTILIZER APPLICATION

Fertilizer or manure should be applied to provide the required nutrients for maize.

Fertilizer application

Timing	Fertilizer	Rates per station (at 25cm apart and 1 seed per station)
At planting	23:21:0 +4s	1 coke bottle top without a liner inside
4 weeks after	Urea	1 coke bottle top with a liner inside
Emergence	CAN	1 coke bottle top without a liner inside

UNIT 17 PEST AND DISEASE CONTROL IN MAIZE CROP

PESTS

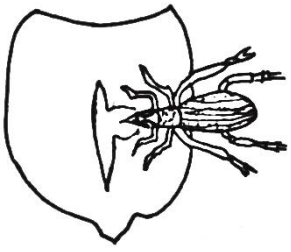
Pests are living organisms which attack crop plants.

SOME MAIZE PESTS

Pest	Damage caused	Control
Stalk borer	Makes holes on leaves Burrows into the stem of a fresh cob	Apply dipterex (trichlorfon) into the funnel of maize plant Spray Endosulfan
Maize weevil	Drills holes into the grain	Apply a suitable antipest dust
Army worm	Eat young plants	Trap-dig to the ground trenches around a garden Spray carbaryl or sumithion or sumicidin
Red locust	Eats leaves from the margin inwards	Hand pick Spraying carbaryl or sumithion or sumicidin
Large short honed grasshopper	Eats leaves	Spray carbaryl or sumithion or sumicidin Hand pick
Rodents (rats)	Eat grain	Use rat guards on nkhokwes or traps Place rat poison in the storage structure Use cats

Some pests of maize

stalk borer



maize weevil

army worms

red locusts

a rat

Maize diseases

COMMON MAIZE DISEASES AND THEIR CONTROL

Disease	Symptoms	Control
Head smut	Black powdery substance covering tassels and cobs	Uprooting or burning infected parts
Maize streak	Loss of green colour along parallel veins on leaves	Planting early Using resistant varieties Applying a pesticide, for example, Gaucho
Leaf bright	Long spots on leaves	Growing resistant varieties

Head smut disease

The head smut disease

UNIT 18 HARVESTING AND STORAGE OF MAIZE

MAIZE HARVESTING

Harvesting should be done as soon as maize is fully dry.

At this stage, the cobs droop (bend downwards).

Maize can be harvested by:

- Picking the cobs directly from plants still standing in the garden
- Picking cobs from stalks of maize in a stook (a standing heap of cut maize stalks)

Methods of harvesting maize

stooking

direct stripping

Importance of stooking

- It facilitates further (complete) drying of the crop
- It simplifies harvesting
- It enables the farmer to plough the cleared area while the soil is still moist

Maize storage

Maize should be stored in dry and ventilated structures.

This controls diseases and pests which cause damage.

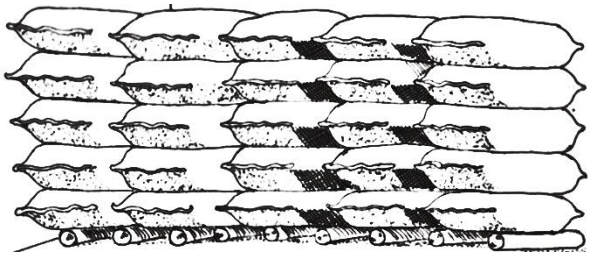
Maize can be stored in granaries (cribs or nkhokwes) and sacks.

Granaries should be made rat-proof by using rat guards.

They should be properly thatched to prevent leaking.

Some ways of storing maize

a maize granary



maize sacks

UNIT 19 FARM ANIMALS RAISED IN MALAWI

In Malawi, there are several types of animals, but not all of them are kept as farm animals.

COMMON FARM ANIMALS

- Cattle
- Goats
- Sheep
- Rabbits

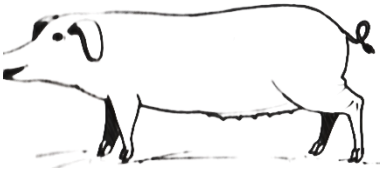
- Chickens
- Ducks
- Fish
- Bees
- Turkeys
- Pigeons
- Guinea fowls
- Pigs

Farm animals differ in many characteristics

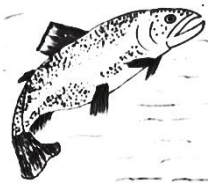
These characteristics include:

- Body size
- Number of legs
- Shape
- Size of eyes
- Colour of fur or feathers
- Skin cover
- Presence or absence of scales
- Beards
- Fins
- Horns

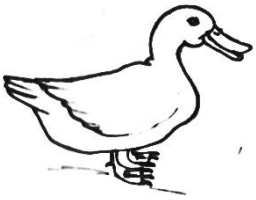
Some farm animals



a pig

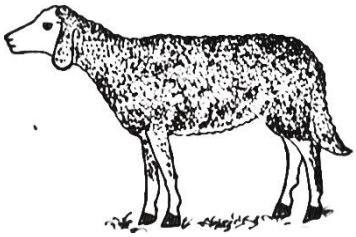


a fish

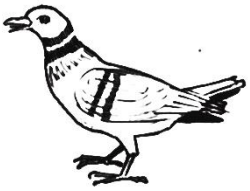


a duck

a horse



a sheep



a pigeon

UNIT 20 IMPORTANCE OF FARM ANIMALS

REASONS FOR KEEPING FARM ANIMALS

- Source of food
- Source of manure

- Source of income
- Source of raw materials
- Source of employment
- Source of power
- Source of employment
- Cultural reasons
- Social reasons (prestige)

UNIT 21 ANIMAL HUSBANDRY PRACTICES

Animal husbandry practices are the activities of caring for farm animals.

Animal husbandry practices are done to obtain high production.

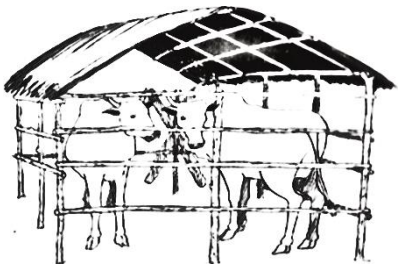
FOUR MAIN TYPES OF ANIMAL HUSBANDRY PRACTICES

- Housing
- Feeding
- Breeding
- Disease and pest control

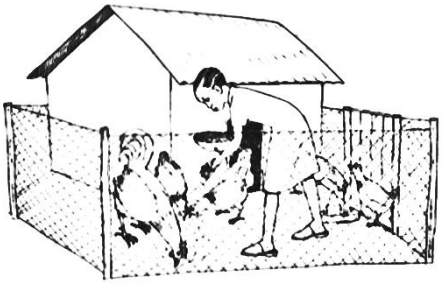
If these practices are not properly carried out, production may be low.

Some animal husbandry practices

castrating a goat



cattle in a khola



feeding chickens

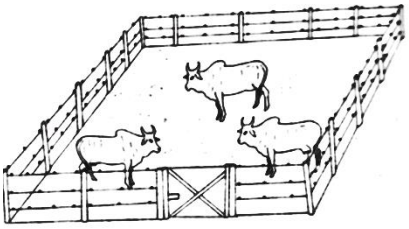
UNIT 22 HOUSING AND FEEDING FARM ANIMALS

TYPES OF FARM ANIMAL HOUSES

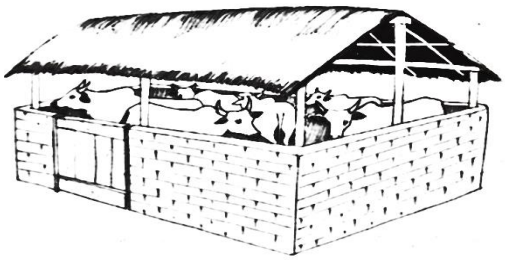
There are different animal houses depending on the type of animals kept.

A good animal house should serve its purpose.

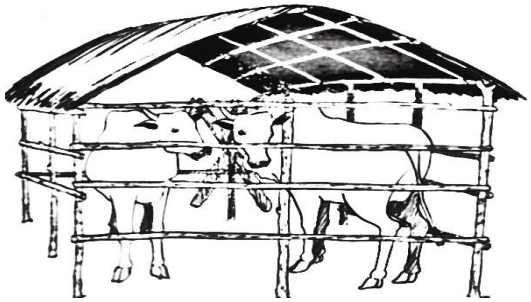
Cattle houses



a barbed wire cattle house



a brick cattle house



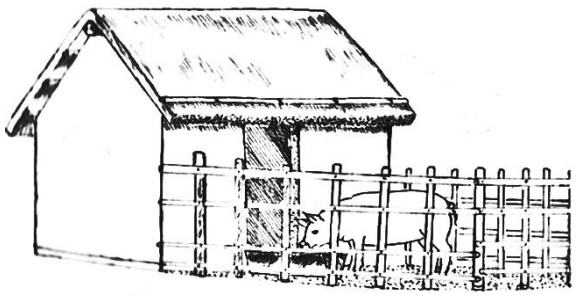
a pole and thatch cattle house

Goat houses

a raised goat house

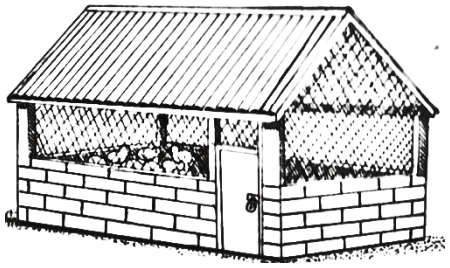
an unraised goat house

A pig house

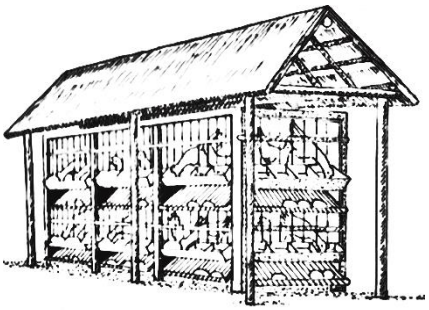


A pig house

Chicken houses



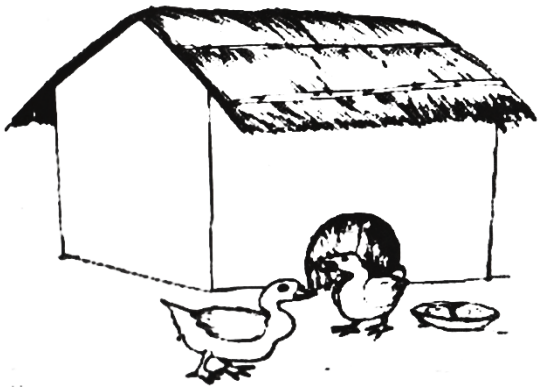
a deep litter chicken house



a battery cage chicken house

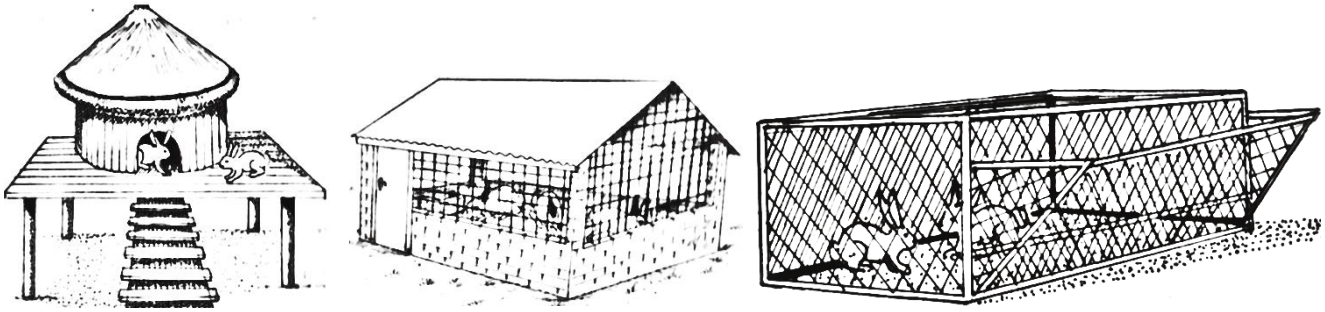
a traditional chicken house

A duck house



a duck house

Rabbit houses



a traditional raised rabbit house / a deep litter rabbit house / a wire cage rabbit house

CHARACTERISTICS OF ANIMAL HOUSES

- Have strong walls
- Be roomy, well-lit and well-ventilated
- Be well-drained and easy to clean
- Be well-thatched
- Be of a solid floor
- Be warm in winter and cool in summer

IMPORTANCE OF HOUSING FARM ANIMALS PROPERLY

- Animals are protected from diseases, parasites and predators
- Animals are protected from bad weather like wind, rains and direct sunshine
- It provides easy control of animals
- It is easy to collect products like eggs, milk and manure

IMPORTANCE OF FEEDING FARM ANIMALS PROPERLY

- Maintenance of life such as walking and breathing
- Production of meat, milk, eggs and power
- Protecting the animals from diseases

UNIT 23 DISEASE AND PARASITE CONTROL AND BREEDING OF FARM ANIMALS

EFFECTS OF DISEASES ON ANIMAL PRODUCTION

- Loss of production
- Loss of animals
- Transmission of diseases to human beings

EFFECTS OF PARASITES ON ANIMAL PRODUCTION

- The attacked part becomes unfit for people to eat
- Loss of income to the farmer
- Transmission of diseases to the host animal
- Sucking food nutrients from the host animal
- Causing discomfort to animals

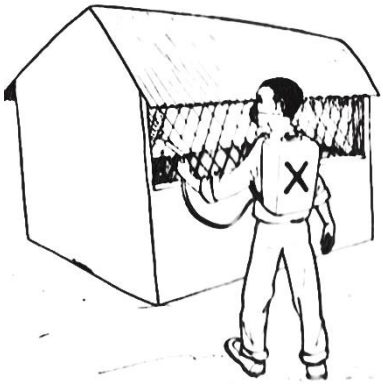
METHODS OF CONTROLLING DISEASES

- Quarantine
- Disinfection
- Use of resistant breeds
- Control of vectors
- Vaccination

METHODS OF CONTROLLING PARASITES

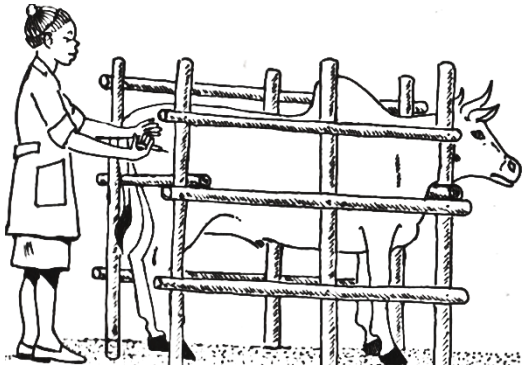
- Spraying chemicals to animals and animal houses
- Killing the parasites by hand
- Dipping
- Drenching

Some methods of controlling diseases and parasites

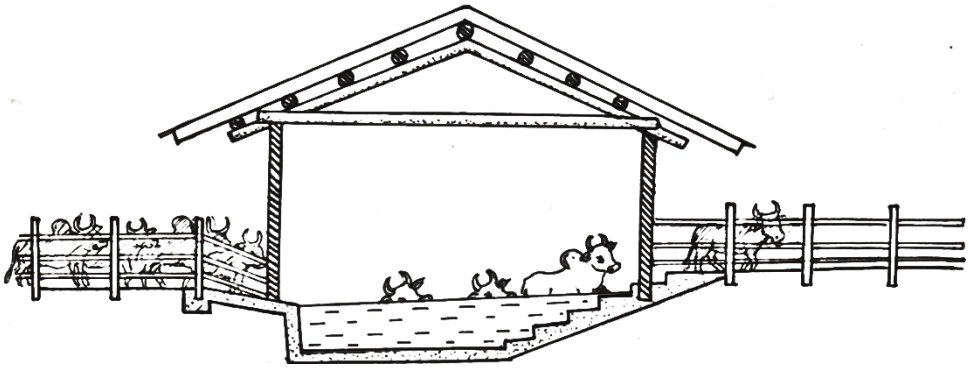


disinfecting a chicken house

drenching a cow



vaccinating a bull



cattle dipping

WHAT BREEDING FARM ANIMALS INVOLVES

Breeding means increasing the number of animals or improving the characteristics of the animal.

This generally involves selecting or choosing animals with good characteristics to be parents.

Some of the characteristics are large size, high milk production, those that fight diseases and parasites properly and quick growth.

CHARACTERISTICS OF LOCAL BREEDS OF FARM ANIMALS

- Withstand conditions like poor feeding and high temperatures
- Resist disease and parasite attack
- Are able to walk long distances in search of food and water without getting very tired and losing condition
- Are small in size
- Give low production
- Grow slowly

CHARACTERISTICS OF IMPROVED BREEDS

- High yield production
- Grow big in size
- Grow fast
- Have low resistance to diseases and parasites
- Do not do well under poor feeding and high temperatures
- Get tired easily

IMPORTANCE OF IMPROVING THE LOCAL BREEDS

- The improved local breed will produce more than the local breed
- The improved local breed will be larger in size than the local breed
- The improved local breed will grow faster than the local breed

UNIT 24 TREES GROWN IN MALAWI

Some trees grown in Malawi

The baobab

the bluegum

the palm tree (mgwalangwa)

NAMES OF SOME TREES GROWN IN MALAWI

- Msangu
- Gmelina
- Cinderella
- Bluegum

CLASSIFICATION OF TREES

Trees are classified into two main groups.

These are:

- Indigenous trees
- Exotic trees

Indigenous trees

Indigenous trees are trees that originally grow in Malawi.

These include msangu, the baobab, msambamfumu, thundu, mkuyu, bwemba, msuku, mtondo, muwanga, chitimbe, tsanya, mlombwa and mombo.

Exotic trees

Exotic trees are trees that are brought into Malawi from other distant countries.

These include bluegum, gmelina, pine, neem, India, jacaranda, Cinderella and leucaena.

CHARACTERISTICS OF INDIGENOUS TREES

- They are hard and tough
- They withstand drought
- They resist disease and pest attack
- They grow well with little care
- They grow slowly and take a long time to mature

CHARACTERISTICS OF EXOTIC TREES

- They grow fast
- They are soft
- They cannot withstand drought
- They are easily attacked by diseases and pests
- They demand more care

WAYS OF IMPROVING INDIGENOUS TREES

- By raising seedlings properly
- By applying manure
- By transplanting the seedlings at the appropriate spacing
- By weeding
- By pruning them
- By constructing firebreaks around them

UNIT 25 IMPORTANCE OF TREES GROWN IN MALAWI

IMPORTANCE OF TREES

- Source of medicine
- Source of furniture
- Source of firewood
- Source of food
- Improvement of soil fertility
- Provision of shelter
- Source of raw materials
- Source of income
- Source of employment
- Reduction of soil erosion
- Conservation of water
- Supply of oxygen
- Some trees provide wind breaks

UNIT 26 TYPES OF FORESTS

MEANING OF THE TERM 'FOREST'

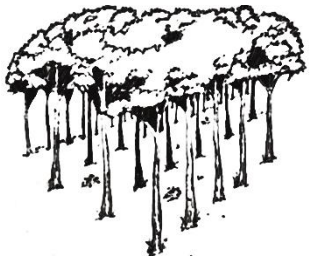
A forest is a large area of land covered by trees and grass.

TYPES OF FORESTS

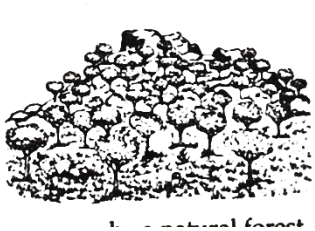
There are two types of forests.

These are:

- Natural forests
- Planted forests



planted forest



natural forest

Natural forests

Natural forest is a forest made up of trees growing on their own.

Natural forests in Malawi include Karwe in Nkhatabay, Chimaliro in Kasungu, Perekezi in Mzimba, Khurubvi in Nsanje, Ntchisi and Michiru in Blantyre.

Planted forests

Planted forest is a forest made up of planted trees.

They can be either indigenous or exotic trees.

Planted forests in Malawi include Chikangawa in Mzimba, Chongoni in Dedza and Zomba mountains.

DIFFERENCES BETWEEN NATURAL AND PLANTED FORESTS

Planted	**Natural**
Usually trees of one type are grown	Usually different types of trees grow
Trees are properly spaced and forming a pattern	Trees are scattered without a pattern
Trees grow uniformly	Trees grow without uniformity
Trees are grown for a purpose	They grow on their own for different purpose
Trees are cared for by, for example, watering and weeding	Trees are not cared for

REFERENCE

MIE (2007), Agriculture Teachers' Guide for Standard 5, Domasi; MIE

WRITTEN BY ZIKOMO MASESE BANDA