SUBJECT: AGRICULTURAL SCIENCE

CLASS: JSS 2

INSTRUCTION: copy inside your Agric note

Scheme of work

2. Farm Structures and Building

3. Siting of Farm and layout of farm structures

4. Cultural Practices: Pre-planting operations

5. Cultural/ practices: Planting Operations

6. Cultural Practices: Post planting Operations

7.Farming System

8.Cropping Systems

9.Field Work

10.Revision

11Examination

WEEK ONE

TOPIC: REVISION AND GENERAL CLEANING

CROP

DEFINITION

A crop is a plant that is grown by man in order to harvest it at some point. The crops grown by the farmer can be classified as follows;

1.According to their uses

2.According to life cycle

3. According to the number of cotyledon

CLASSIFICATION OF CROPS ACCORDING TO THEIR USES

Crops in this category are classified or grouped according to the main food substances existing in them, they are as follows. (i)legumes(ii) cereal (iii) roots and tubers (iv)vegetables (v) fruits (vi) beverages (vi) oil (viii)latex (ix) fibres(x) spices (xi) drugs (xii) forage Crops (xiii) nuts

CLASSIFICATION OF CROPS ACCORDING TO THEIR LIFECYCLE

On the bases of life cycle, crops are grouped into three. These are:

\* Annual Crops

\*Biennial Crops

\*Perennial Crops

(a)Annual Crops: These are crops that complete their life cycle in one year or planting season. The crops are planted, grow and are harvested or will die within one year. This group of crops are Maize, Rice, Millet, Yam, Tomato, Millet and Guinea Corn

(b) Biennial Crops: These are crops that complete their life cycle in two years. They use the first year to grow and store food. Reproduction and maturity take place in the second year. Examples are pineapple, cocoyam, plantain, banana and sugar beet.

(c) Perennial Crops: This group of crop takes more than two years to their life cycle. They are mainly tree crops. They include Rubber, Cocoa, Oil Palm and Orange.

ACCORDING TO THE NUMBER OF SEED-LEAF OR COTYLEDON

Crops can be classified according to the number of seed leaf or cotyledon. They are: \*Monocotyledonous crops

\*Dicotyledonous crops

(a) Mono-cot crops: These are crops that have only one seed leaf or cotyledon. Examples are millet, rice, maize and oil palm.

(b) Di-cot crops: These are crops that have two seed leaves or cotyledon Examples are cowpea, melon, mango, pumpkin and soyabeans.

TOPIC: WEED

Weed is any plant which is not cultivated and grows where it is not wanted. Such a plant is therefore a nuisance to the farmer. Examples are camelina, goat weed or the common water leaf (Talinumtriangulare) growing in a cassava field.

TYPES OF WEEDS

1.Annual weed They grow and complete their life cycle in one year.

2. Perennial Weeds: They grow for more than one year.

PEST

A pest is any living organism, plant or animal, which can cause damage to cultivated crops, farm animals and humans.

CLASSIFICATION OF PESTS

Pest can be classified as

1.Insect Pest-Insect pests are animals without back bones, and they belong to the group of animals called arthropods. Arthropod is a very large group of animals which, in addlition to insects, includes craps, shrimps’ millipedes, spiders, centipedes and scorpions.

2. Non-insect pest-These are animals such as vertebrates like nematodes, mites, snails, slugs etc.. and vertebrates like rats, squirrels, monkeys, grasscutters, birds, jackals that can cause damage to crop.

CLASSIFICATION OF INSECT PESTS

Insect can be classified based or their mouth parts which are in different insect groups.

1.Biting and chewing Pests.

2. Piercing and sucking Pests.

3. Boring insects.

NATURE OF DAMAGE

1. Destruction of crop tissues

2. Stunted growth

3. Weakened crop plant

4. Pierced holes can be infested with harmful organism like fungi, bacteria and viruses

5. Transfer of harmful organism from infected crop to the healthy one.

6.It causes ill-health to man and livestock.

CONTROL MEASURES

\*Physical Control

\*Chemical Control

\*Biological Control

Factors of Production

1. Land: refers to where productive activities such as growing of crops, rearing of animals and establishment of farmstead, etc. are carried out.

2. Labour: includes all forms of productive human efforts put into or utilized in production. It also refers to man's mental and physical exertions generated in the process of production.

3. Capital: includes all man-made productive assets which are used in production.

4. Farm Management: refers to the person or group of persons who co-ordinate, organize and control the use of other factors of production to produce goods and services.

Functions of Farm Manager

The functions of a farm manager can be grouped into five major headings;

\*Organization

\*Administration

\*Production

\*Marketing

\*Evaluation

TOPIC: FARM STRUCTURES AND BUILDINGS

FARM STRUCTURES

A farm structure can be defined as any construction on the farm site constructed to make certain farming operations easier. It can also be said to be constructions made on a farm site to increase the efficient operation of the farm. The type of farm structure on any farm depends on the type of farm operated, the scope of operations, the condition prevailing on the site and the amount of money available for the farming operations.

TYPES OF FARM STRUCTURES AND THEIR USES

The structures which may be found on any farm include:

1. Silos: A silo is a tall circular or rectangular farm structure made of concrete, mud or stainless steel. It is called elevators. Silos are structures preplanned mainly for the storage of grains and silage. The humidity in modern silos is controlled and grains put in them can be stored in good condition for a long time. They are expensive and difficult to maintain.

2. Cribs: Cribs are simple grain storage structures made of wood and wire gauze on the sides and floor with a thatch or zinc roof. Cribs are used for drying maize which is still on the cob. The floor of the crib is raised well above the ground on wooden legs, which have rodent guards, to prevent rats from eating the grains.

3. Rhumbus: These are round struures made from mud with a grass or thatch root. They are used for storing grain such as maize, sorghum, millet, cowpeas and groundnuts etc., they are very common in the drier northern parts of Nigeria, especially Sokoto and Kano States.

4. Feed mill: This is a structure constructed for the purpose of making animal feed. It is economical for a large scale animal farmer to have a feed mill where the feed of his animals is produced.

5. Barns: These are temporary structures made on the farm for storing yam, cassava, grass or hay. A barn can cheaply be constructed with sticks, mud and thatch.

6.Abattoirs: These are special structures constructed for slaughtering and butchering of animals (goats, sheep, pigs, cattle etc.). They are also called slaughter houses. An abattoir is made up of a passageway through which an animal passes to the slab where it is held down and slaughtered (slaughter slab).

7. Animal Dips and Sprays: Dips and concrete bath or plastic vessels set on to the ground it is filled with water, then disinfectants are added e.g. acaricides for destroying ecto parasites as the animals are made to pass through it. While a spyay is an overhead tank containing disinfectant and a sprinkler through which the disinfectant drips onto the animals and performs the same function as the dip.

8. Weighbridge: this is constructed for determining the weight of farm animals.

9. Crushes: These are made of 2 wooden or metal narrow passageway found on animal farms, used for restricting animals, for check-up or vaccination by veterinary officer.

10. Water supply structures: These include dams, water tanks and irrigation channels or canals.

11. Dams: These ae concrete or wooden barriers constructed across a river or stream so that the flow of water is reduced. This accumulated water can be used to irrigate the farm or for domestic water supply.

12. Water tanks: These are constructed from galvanized metals, plastic materials or reinforced concrete and are mostly raised on concrete or steel pillars. Water tanks are used for storing water for domestic use and watering farm animals.

13. Canals: These are used to carry water from rivers to the field for growing crops. This is an irrigation canal while a drainage canal is constructed to remove excess water from the farm.

14. Compost manure pits: They are pits dug for the collection of plant and animal remains or waste which are allowed to decompose and turned to manure for soil fertilizer.

15. Electricity supply structures These are electric poles, wires and connections for Supplying electric power to the farm.

16. Waste/Disposal pits: These are large pits dug on the outskirts of a farm for dumping all waste and useless products of the farm. They are usually covered to prevent flies from carrying germs to human food(vectors).

17.Fences: Fences are physical barriers specifically constructed around an area for the following purposes.

18. Prevention of unwanted person or animals into the farm

19. Prevents animals from leaving the farm site

20.Controls grazing in the pasture

21. To protect crops from being damaged by animals.

TOPIC: FARM BUILDINGS

Farm buildings are all the buildings on the farm. The types, number, and size depend on the type and scope of operations on the farm.

USES/IMPORTANCE OF FARM BUILDINGS

Farm buildings are useful in the following ways:

1. They protect animals and farm workers from the weather

2. They protect farm supplies, products, animals and farm workers from thieves and harmful animals.

3.They are convenient means for caring for the farm animals.

4 They provide hygienic system for processing and storing farm products.

5. They are needed for efficient administrative and farm progress purpose

TYPES OF FARM BUILDINGS

There are mainly two types of farm buildings on the farm. They are

1. Temporary farm building.

2.Permanent farm building.

TEMPORARY FARM BUILDINGS

These are simple buildings constructed from cheap or locally available materials such as bamboo, sorghum, stalks, wood (timber) or palm fronds, mud and corrugated iron sheet or asbestos. They are usually inexpensive, and farmers find it easy to leave or destroy. They are abandoned immediately the farmer has completed using them. They are also called “make shift" buildings and those commonly constructed on farms include storage shed for keeping machines and equipment, nurseries for raising seedlings, animal pens construction sheds and garages for machines. Due to the nature of the materials used to construct temporary buildings, they need frequent care.

PERMANENT FARM BUILDINGS: These are solid buildings normally constructed to last for a very long time. The walls and floors are usually constructed with cement, sand and gravel, wood, corrugated iron sheets, aluminum or asbestos are used for the roof. Permanent buildings are expensive to construct but they do not require frequent maintenance like the temporary buildings. Roof should however be constantly examined and mended when in bad shape. Examples of permanent buildings are:

1. Farm office

2. Stores for farm supplies and harvests

3. Workshops, generator house and water storage tanks

4. Living quarters for farm workers

5. Animal houses e.g. cattle, sheep, goat

poultry

6.Processing e.g. milking house.

MAINTENANCE OF FARM STRUCTURES AND BUILDINGS

Maintenance of farm structures and buildings refers to keeping the structures on the farm in a good condition for continuous use. Farm structures and buildings are subject to wear and tear due to usage and exposure to adverse weather conditions. Damage of wood by termites and of practically all forms of fabric by agro-chemicals like fertilizers also makes their own contribution to wear and tear.

MAINTENANCE OF FARM STRUCTURES

1.Silos should be cleaned and kept air tight; any leaks should be blocked immediately.

2.Abattoirs should be cleaned and disinfected after each operation.

3. Dips should be drained regularly

4. Nozzles of sprayers should be cleaned to ensure even distribution of chemicals

during spraying.

5. Water tanks should be cleaned regularly.

6.Soak away and manure pits should be emptied when they are full.

7.Drainage should be cleaned regularly with chemicals.

8. Electric poles must be checked for breaks or damage arid replaced immediately.

9.Fences should be checked regularly and all broken parts should be repaired.

MAINTENANCE OF FARM BUILDINGS

1. Painting is a maintenance operation desirable for wooden and metal parts of farm buildings. Parts exposed to rains should be treated with oil paint.

2. Damaged roofing sheets must be promptly replaced.

3.Cracks on walls should be patched

4. Badly pitted cement floors should be resurfaced again.

5. Insect damage preventive chemicals e.g. Solignum should be applied on wooden parts.

WEEK THREE

TOPIC: SITING OF FARM AND LAYOUT OF FARM STRUCTURES

A farm is a piece of land on which crops are grown and animals are raised. The school farm is the practical site for students of Agricultural Science.

FACTORS GUIDING THE SITING OF FARMS

1.Availability of land: There can't be a farm without a land, this is the first factor that must be considered.

2.Good soil: A land with fertile soil should be selected, in order to reduce cost of applying manure. Water logged soil should be avoided, so also, stony and over-used soils. Well drained soils such as loamy, sandy-loam or clay-loam are preferable.

3.Water supply: The farm must be located close to good source of water supply. Water is needed for irrigation, processing, drinking and cleaning of farm tools.

4. Nearness to school: This is closeness of the farm; it must be close enough in order to make movement to and from the farm easy for both teachers and students to aid monitoring against thieves and plots.

5. Accessibility: This will ease movement; the farm should have good roads and paths. This aids movements of inputs and outputs.

6 Security: The farm must be secure enough, to prevent thieves from stealing farm produce and tools.

7. Slope of the land: A flat level land should be used, in order to reduce erosion and cost of operation. The slope of the land will determine:

(a)The direction of beds or ridges

(b) Type of erosion control to adapt.

8. Aspect: The farm must not be surrounded by shades or tall trees, because they will hinder photosynthesis. The farm should be fully exposed to solar radiation.

FACTORS GUILDING LAYOUT OF FARM STRUCTURE AND BUILDING

The following factors must be considered before constructing farm structures and

building

1.Fertility of the soil: structures should not be erected on fertile soil; this can rather be used for planting. Farm buildings or structures should be located on the least fertile parts of the farm.

2. Topography: Flat land should be used for construction to prevent erosion.

3.Accessibility. farm buildings or structures should be linked with good roads for easy access, should be constructed on easily accessible parts.

4.Construction Materials: materials available for construction must also be considered during farm layout, this is largely dependent on the financial status of the farmer e.g. cement blocks, bamboo or sawn planks.

5 Protection: Structures or buildings should be considered in areas where they will be protected from excessive winds, erosion or fire hazards.

WEEK FOUR

TOPIC: CULTURAL PRACTICES

PRE-PLANTING OPERATION

·Land Preparation

·Stumnping

·Farmkay-out

·Tillage

·Ridging

Cultural Practices: Cultural practices are the various ways of ensuring the good growth and establishment of crops. Cultural practices are classified into pre-planting, planting, post-planting, harvesting and storage operations

PRE-PLANTING OPERATIONS

These are the operations carried out before planting, while planting is the sowing of seeds. Post-planting operation include thinning, supplying, irrigation, manuring, mulching and weeding.

(a)Land Preparation: It is carried out by cutting the vegetation and grasses with cutlass or hoes and felling of trees with axes. It can also be done mechanically.

Burning of thrash (grasses) cut down is not a good habit since it destroys the organic matter content of the soil including soil microbes.

(b)Stumping: This is the removal of stumps by digging them out manually using cutlasses and axes. It can also be done mechanically by using bulldozer. Stumps are the leftover of already cut trees on the farm and on the soil surface.

(C)Farm layout: Farm layout is a judicious way of using the farmland where the plots are divided into sections and each section is used to give maximum yield

(d)Tillage: This is the breaking or turning of the soil with a simple tool or arm machine after the land has been cleared in preparation for planting crops it can be done manually with a hoe or mechanically with a Tractor-driven- disc-plough. Ploughing: is cutting through the soil and making it into lumps or clods of soil called primary tillage. While secondary tillage(harrowing) is the use of harrow to break down the large clods of soil into fine particle and making it ready for ridging.

IMPORTANCE OF TILLAGE

1. It loses the soil and allows air and water to reach the roots of plants

2. It allows easy penetration of roots into the soil.

3. Plant nutrients are brought to the reach of the plant root.

4. Tillage helps to destroy pest by exposing them to the sun.

5. it ensures proper mixture of manure and fertilizer with the soil.

(e)Ridging: This involves the making of ridges on the farm, sometimes heaps are also made to serve the purpose of ridges on slopes. Ridges are made across, with the ridges made at intervals to check erosion. Ridges also help to provide water for plant use and aid root penetration and establishment of crops.

WEEK FIVE

TOPIC: PLANTING OPERATION-DISTANCE, DATE, SEED RATE, NURSERY AND

NURSERY PRACTICE

PLANTING OPERATION: These are the operations carried out when sowing the planting materials (seeds). When seeds are sown in the soil, they develop root and shoots, this is called GERMINATION and the young plant that emerge are called SEEDLINGS.

METHODS OF SOWING

1. In-situ (directly into the field/farm land)

2.Nursery

1. In-situ (direedly sowing in the field) This is sowing directly in the field on flats (plain land) ridges or garden beds e.g. of crops sown in-situ are maize, okra, cowpea, milled etc.

PLANTING METHODS

· Drilling: -sowing a seed by drilling with stick or knife, followed by dropping seeds and covering them.

·Broadcasting: -Sowing of seeds by casting (spreading) it broadly on prepared seed bed

·Dibbling: -sowing of seeds up the bed at the planting point only and placing the seeds at the correct depth.

BASIC CONSIDERATIONS IN PLANTING OPERATIONS

·Spacing (Planting, space/distance)

·Time (planting date)

·Depth

·Number of seeds

·Viability of seed

(A) SPACING (Flanting space): This is the space between a sown or planted seed and the next or it's the distance between two

plants. Planting is usually in rows and the distance between plants on the same row is called within row spacing while the distance between plants in two adjacent rows is called between row spacing.

(B) PLANTING TIME: This is the time of planting or sowing seeds in which the crop can thrive or perform well.

(C) PLANTING DEPTH: This is the distance of the sown seed in the soil from the soil surface.

(D) NUMBER OF SEEDS: This is the amount of seeds sown per hole, per planting (position).

(E) SEED VIABILITY: This is the life in the seed or deadness of the seed.

WEEK SIX

TOPIC: POST-PLANTING OPERATION

POST PLANTING OPERATIONS

Post planting operations are the operations carried out after planting. It creates a good condition and proper maintenance for plants growth.

Post planting operations include the following:

(a)Thinning.

(b)Supplying.

(c)Irrigation/watering.

(d)Use of manure and fertilizer

(e)Mulching

THINNING

This is the removal of excess, weak or not well positioned seedlings from a seedbed after the viable seeds have germinated.

ADVANTAGES OF THINNING

1. It helps to avoid overcrowding.

2. Proper aeration is ensured leading to high yield

SUPPLYING

This is the replanting of propagative materials where they fail to germinate, especially when no germination trial was carried out before planting. Replanting should be done as soon as possible.

ADVANTAGES OF SUPPLYING

1. Correct plant population can be maintained.

2. The crop plant attains uniform maturity.

IRRIGATION OR WATERING

Irrigation Is the artificial watering of farmland especially during dry season.

ADVANTAGES OF IRRIGATION

1. It makes the soil temperature moderate for plant growth.

2. It enables a good nutrient supply to plant.

USE OF MANURE & FERTILIZER

This is the application of organic manure such as poultry droppings, cow dung and green manure or inorganic manure (made from chemicals) to the soil to maintain soil fertility.

ADVANTAGE OFMANURE/FERTILIZER

\* It supplies the plants with essential nutrients.

MULCHING

This is the covering of the surface of the soil with a layer of clean dry vegetative part of plant such as grasses or leaves.

ADVANTAGES OF MULCHING

1.It conserves soil moisture.

2. It regulates the soil temperature.

3. It reduces weed and prevent erosion.

4. It adds humus to the soil.

WEEDING

This is the removal of unwanted plants(weed) from the farm. It is done for the following

reasons:

1. To avoid competition for nutrients moisture and sunlight between crops and weed.

2.To avoid overcrowding in order to create enough space for the crop

3.To prevent the build-up of pest and pathogens which may destroy the crops.

HARVESTING OPERATION

Harvesting: The removal of ripe or matured useful part of a crop is known as harvesting. Commonly harvested parts of a plant are tubers, leaves, fruits, seeds, roots etc. Harvesting tools like cutlass, hoe, knife, sickle, etc. are usually used for harvesting and in mechanized farms, harvesters are used.

EFFECTS OF TIMELY VERSUS LATE HARVESTING

Delayed harvesting can lead to a total loss of products, although some crops like maize can be left on the field to get dry before harvesting, others like tomatoes and other perishables must be harvested immediately they are due for harvest. Delayed harvesting can lead to pest attack on crops or rotten of products.

POST-HARVESTING OPERATIONS

After harvesting, processing of the produce is required in order to make the produce more acceptable and to prevent spoilage. In some farm products, processing starts from the farm site, e.g. melon, groundnut, cassava etc.

FARM LEVEL PROCESSING

Melon is usually extracted from its pod and pulp on the farm, also groundnuts is detached on the farm, at times, peeling of cassava starts from the farm. Extraction of cocoa beans from its pods, fermentation and drying of beans in most cases take place on the farm. Other forms of processing like milling, de-husking etc. which cannot be done on the farm are done in factories where machines have been installed for that purpose.

STORAGE

After crops have been processed to usage forms, storage which is the keeping of farm products for future use is done. Methods of storage are usage of barns, cribs, silos, refrigerators, baskets, sacks etc.

WEEK SEVEN

TOPIC: FARMING SYSTEM: TYPES OF FARMING SYSTEM

FARMING SYSTEM

Farming system is a given method for the production of crops and animals. Soil,

climate and availability of land can influence the choice of any system.

A) MIXED FARMING

This is a farming system where the farmer grows crops and rears animals on the same farm.

ADVANTAGES OF MIXED FARMING

1.Animal droppings and dungs can be used as manure to improve soil fertility, and invariably increase crop yield.

2.Crop residue from crop production can serve as feeding materials for ruminant animals (i.e. corn cobs and rice bran etc.)

3.Large animals like cattle can be used to till the ground for crop production.

4.If either crop or animal sector of the farm fails, the farmer has the other to fall back on.

DISADVANTAGES OF MIXED FARMING

1. The farmer has a divided attention, and he may not function well.

2.If the animals are not properly managed, they can graze on the planted crops and destroy them.

B) BUSH FALLOWING OR SHIFTING CULTIVATION

Bush fallowing is system of farming whereby a farmer abandons unproductive land for a productive one and allows the unproductive land to fallow or rest for some period of years (i.e. 3-5 years) before returning to it. This type of farming system is also known as land rotation. In shifting cultivation, the farmer never returns to the previous land.

ADVANTAGES OF BUSH FALLOWING

1.It is very cheap and simple to practice.

2. If the fallowing years are long enough, it is less injurious to the soil.

DISADVANTAGES OF BUSH FALLOWING

1.A very large piece of land is needed for an effective practice of bush fallowing.

2.Bush fallowing is the main practice for land clearing, in bush fallowing the land clearing results in reduced organic matter of the soil.

3.If the fallow period is not enough the soil quickly loses its fertility and becomes useless for further crop production.

C) PASTORAL FARMING: This is an extensive system of livestock production where the animals are unrestricted left to roam and graze in the fields.

TYPES OF PASTORAL FARMING

There are three types of pastoral farming, these are:

1. Nomadic farming

2.Ley farming.

3.Ranching

Nomadic Farming: The farmer moves his animals from one place to another in search of food and water.

Ley Farming: This is the system of combining pasture with crop production in alternation. The planting of pasture can follow the harvest of arable crops e.g. cereal. The planted pasture is usually a mixture of grasses and legumes with different grazing characteristics. It is also known as rotation pasture.

Ranching: It's the semi-intensive system of animal production. The animals are kept on a large but enclosed expanse of land.

ADVANTAGES OF PASTORAL FARMING

1.Livestock kept on pasture are more comfortable and sanitary than those kept indoors in feed lots.

2.The livestock harvest the pasture crops by grazing thereby saving labour cost.

3. It does not require large financial investment for building and equipment.

4. The soil fertility is improved on through the manure they drop.

5. Animals raised on pasture tend to produce more milk than those kept indoors in

feed lots.

DISADVANTAGES OF PASTORAL FARMING

1. It requires a large piece of land to be successfully practiced.

2. Animals in the open as well as their herdsmen are exposed to various hazards.

3.Unplanned breeding which leads to the production of poor quality animals.

4.Irregular supply of feed to animals and this result in slow weight gain.

5. High incidence of disease, pest and death of both young and old animals.

WEEK EIGHT

TOPIC: TYPES OF CROPPING SYSTEM

CROPPING SYSTEM

The different patterns of growing crops and mixtures of crops is known as cropping system.

A. MONOCROPPING

Monocropping is a cropping system that involves the growing planting of only one type of crop on a farm at any given time e.g. oil palm plantation.

ADVANTAGES OF MONOCROPPING

1. Easy mechanization of the farm.

2. Application of fertilizer at proper level is made easy.

3. Control of weeds pests and diseases are easily carried put.

DISADVANTAGES OF MONOCROPPING

1.There is the possibility of exposing the land to erosion after harvest.

2.The farmer may lose heavily if the sole crop is attacked by pest or diseases.

3.Reduced selling price, if the demand for the crop is low in market due to much supply.

B. MULTIPLE CROPPING

Multiple cropping is the practice of growing two or more crops on the same farm in the

same year. There are two types of multiple cropping, these are;

1.Relay cropping

2.Inter cropping

Relay Cropping is the act of growing two or more crops one after the other on the same farm in the same year.

Inter Cropping entails the growing of two or more different crops on the same farm at the same time.

ADVANTAGES OF MULTIPLE CROPPING

1. Maximum use of farm land is achieved.

2. Mixture of crops provides cover for the soil, and it helps reduce soil erosion as well as the growth of weeds.

3.Mixture of crops discourages the buildup of insects and diseases known with a particular crop

4.Mixture of crops serves as a form of insurance for the farmer.

DISADVANTAGES OF MULTIPLE CROPPING

1.Competition between crop plants is very high and less competitive plants suffer with low yield.

2.It is difficult to use machine to carry farm operations under this system.

3. Chemicals especially herbicides are difficult to apply to a mixture of crops.

C. CONTINUOUS CROPPING

This involves the growing of the same crop or mixture of crops of the same piece of land every year for five or more years.

ADVANTAGES OF CONTINUOUS CROPPING

1. It is highly useful where there is shortage of land, and the environmental condition limits the types of crops to be grown.

DISADVANTAGES OF CONTINUOUS CROPPING

1.The soil nutrients are depleted fast and there is the need for fertilizer application.

2.There is rapid buildup of weeds, insect pests and diseases every cropping year.