

**COVENANT UNIVERSITY
NIGERIA**

*TUTORIAL KIT
OMEGA SEMESTER*

**PROGRAMME: ESTATE
MANAGEMENT**

COURSE: ESM 227

DISCLAIMER

The contents of this document are intended for practice and leaning purposes at the undergraduate level. The materials are from different sources including the internet and the contributors do not in any way claim authorship or ownership of them. The materials are also not to be used for any commercial purpose.

ESM 227: PRINCIPLES OF AGRICULTURAL PRODUCTION II.

CONTRIBUTOR: EMEGHE, IJEOMA JANE

QUESTION 1

In accordance with/to the definition of Agriculture as the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool and other product; explain in details the importance of Agriculture to man.

QUESTION 2

Explain in your own words and to the best of your understanding, Trends in the Development of Agriculture. That is from the primitive time (stone age) till the modern time (mechanization).

QUESTION 3

List and write short notes on the importance of Agriculture to the Economic development of any nation with particular regards to Nigeria.

QUESTION 4

It is a known fact that Agriculture can help to alleviate poverty through EMPLOYMENT. Write short notes on five (5) different areas of Agriculture that can gainfully provide employment both to the skilled, semi-skilled and the unskilled populace of any nation.

QUESTION 5

It is known also that Climate is one of the environmental factors required for production, and these are said to be the atmospheric weather variables required for crop production. List all of these variables and explain any three (3).

QUESTION 6

Differentiate between the Subsistence and Commercialized farming stating each of their advantages and disadvantages known to you.

QUESTION 7

Explain climate change as it affects crop production.

QUESTION 8

Enumerate the uses and importance of water as an environmental factor required for production in Agriculture.

QUESTION 9

Write short notes on the classification of crops.

QUESTION 10

Give reasons and explain why rural-urban migration may affect food supply thereby leading to food shortage in a developing economy such as Nigeria.

QUESTION 11

List and explain five (5) ways food production can be increased.

QUESTION 12

In clear terms or in the use of your own words, differentiate between

- i. Farm power
- ii. Farm machinery and implements

QUESTION 13

Agricultural farm power is an essential input in Agriculture for timely field operation and for increasing the productivity of land; and these include

- i. Human power
- ii. Animal power
- iii. Mechanical power
- iv. Electrical power and
- v. Renewable power

Write short notes on these.

QUESTION 14

What are two (2) advantages and two (2) disadvantages each of all the sources of farm power listed in number 13 above.

QUESTION 15

Tractor is the most common farm machinery and implements known in Agriculture. Succinctly discuss 'The Tractor' and the functions of same.

QUESTION 16

What are the uses of Bulldozer as a farm equipment/implement and state its disadvantages.

QUESTION 17

Mechanization is the process of using machines, improved seed, fertilizers, agro-chemicals and improved farming techniques for obtaining crop and animal products in large quantities and better quality. However, there are known merits and demerits of mechanization. List these.

QUESTION 18

Discuss the limitations of Agricultural mechanization as it concerns:

- i. Size of farm holding
- ii. Capital

- iii. Skill
- iv. Infrastructure
- v. Cropping system and livestock management.

QUESTION 19

Livestock can be classified into,

- i. Ruminants
- ii. Non-ruminants and
- iii. Poultry

Discuss these above.

QUESTION 20

Domesticated animals include but not exhaustive; the following,

- i. Cattle
- ii. Poultry
- iii. Pigs
- iv. Goats
- v. Sheep
- vi. Camels
- vii. Asses and mules
- viii. Water buffalo

Discuss any five (5) of these.

ANSWERS

QUESTION 1

Students should be able to write short notes on the following and add more to the list provided.

1. Provision of food;
2. Provision of materials for shelter;
3. Provision of materials for clothing;
4. It creates avenue for employment;
5. It generates income for farmers;
6. It serves primitively as a source of transportation e.g. the use of donkeys, horses, camels.

QUESTION 3

1. It provides revenue for the government through exportation;
2. It provides raw materials for industries;
3. It serves as a source of foreign exchange earnings;
4. It provides job opportunities for the working population of man;
5. It provides drugs for medical purposes;
6. It serves also as a natural source of game reserves for recreation and tourism.

Students should be able to write short notes on the following and add to the list provided.

QUESTION 5

- Precipitation
- Temperature
- Atmospheric humidity
- Solar radiation
- Wind velocity
- Atmospheric gases
- Climate change

Temperature: This is a measure of intensity of heat energy and the range of temperature for maximum growth of most of the agricultural plants and it is between 15°C and 40°C. It is required for agricultural production because it influences germination, growth and development of crops. Physical and chemical processes including the solubility of different substances in plant is dependent on temperature.

Atmospheric humidity: Water is present in the atmosphere in the form of vapour, normally known as humidity. Relative humidity influences the water requirement of crops. If relative humidity is at 100% it means that the entire space is filled with water and there is no room for soil evaporation and plant transpiration.

Wind velocity: The basic function of wind is to carry moisture (precipitation) and heat and also supplies fresh CO₂ for the photosynthesis. However when wind speed is enormous then there is said to be mechanical damage of the crops e.g. removing of plant's leaves and damaging crops like banana, sugarcane. Also it can cause soil erosion. It increases evaporation and spread of pest and diseases.

QUESTION 7

Climate change: In light of the above, it is important to note that Climate change is one of the key factors affecting food production worldwide. Temperature changes and increased-extreme events such as flooding and drought are likely to have profound negative consequences in agricultural production.

However, this is relative as some areas are extremely very dry while some areas are low lying and can be easily affected through excessive rainfall which can cause flooding. Any change in climatic conditions will enhance or affect adversely agricultural production. It also goes for the fact that excess/scarce rainfall or sunlight would affect agricultural production too.

QUESTION 9

Crops are generally classified into

1. Annuals- one (1) season;
2. Biennials- two (2) seasons;
3. Perennials- two (2) or more seasons.

ANNUALS are crops that germinate and grow to maturity within one (1) season. Examples are food crops like legumes, vegetables, cereals, oil, fibres and some spices.

BIENNIALS are crops that require two seasons to grow and reach maturity. In the first year, the crop grows vegetatively while it produces food, flower and fruits in the second year. Examples are cassava.

PERENNIALS are plants which live beyond two seasons. Examples are most tree crops and they live for up to sixty (60) or more years.

QUESTION 11

Students are expected to explain any five (5) of the following listed.

1. Use of agricultural machineries for mechanized farming;
2. Use of agro-chemicals such as fertilizers, pesticides, herbicides, fungicides;
3. Improving the quality of the soil;
4. Massive reallocation of agricultural land use;
5. Provision of infrastructure;
6. Agricultural related policies and programmes, so that farming can become more attractive and profitable for all who are involved in it particularly also for the hundreds of millions of small-scale farmers and small to medium-size entrepreneurs;
7. Agricultural growth, particularly in staple crops.

QUESTION 13

Human Power: This has to do with using manual power or human input to work in the farm using man as the source of available power to operate small implements and tools e.g. cutting, nursery transfer, weeding, lifting etc.

Animal Power: This has to do with using animals to work in the farm. Animals are still widely used as the major power source in many countries for land preparation. e.g. camels, horses, donkeys are being used as a source of animal power in the farm.

Mechanical Power: This has to do with using internal combustion engine for converting liquid fuel into useful work (mechanical work). In modern days, almost all tractors are operated by diesel engines. E.g. irrigation pumps, flour mills, chaff cutter, sugarcane crusher, etc.

Electrical Power: Electrical power is used mostly in the form of electrical motors on the farms. Electrical power is used for water pumping, farm product processing, and fruit industry etc.

Renewable Power: This is the type of energy that is inexhaustible in nature. It is energy mainly obtained from renewable sources of energy like sun and wind to produce solar energy and wind energy. It can be used for lighting, cooking, water heating, space heating, food processing, water pumping, and electric generation.

QUESTION 15

The tractor is a powerful and expensive multi-purpose motor vehicle used for lifting or pulling of farm implements. It has a power-take off shaft used in drawing farm implements like ploughs, harrows, harvesters, planters etc. It has an hydraulic control system which lifts mounted implements under the control of an operator.

Functions of a Tractor

1. The tractor provides the pull needed at the rear to move implements used for farm work. For instance, ploughs and harrows cannot perform their functions unless they are pulled along the field by a tractor.
2. It provides the force needed to push equipments such as the bulldozer blade during land clearing.
3. It is used to carry farm inputs like chemicals, fertilizers and seeds from one section of the farm to another.
4. It contributes to improved profitability by reducing labour costs and thereby improving quantity of farm produce.

QUESTION 17

Advantages of Mechanization

1. It allows for cultivation of large hectares of land;
2. It enhances high productivity in crop production;
3. It enables the farmer to carry out difficult jobs that cannot be done manually e.g. clearing, stumping and ploughing;
4. It prevents bad agricultural practices like bush burning;
5. it eases and speeds up many farm operations;
6. It helps to preserve agricultural products through the use of storage facilities;

7. It encourages specialization;
8. It enables increase in farm income (profit) due to high production;
9. It is time saving.

Disadvantages of Mechanization

1. Farm machineries compact the soil leading to a reduction in the amount of air and water available in the soil thereby destroying the soil structure;
2. Mechanisation often creates unemployment situation through the displacement of labourers on the farm;
3. Chemicals used on the farm can lead to environmental pollution;
4. Indiscriminate and continuous use of farm machineries and implements leads to soil erosion;
5. Mechanisation is too expensive for peasant farmers;
6. Mechanisation encourages deforestation;
7. Mechanisation requires skill, equipment and technical know-how which are quite expensive.

QUESTION 19

Support with relevant diagrams.

Ruminants:

Ruminants are mainly cattle, sheep and goats and have a complicated stomach structure. The Rumen is mainly used for storage of newly eaten but un-chewed food or it is not masticated. The food passes to a smaller compartment called the RETICULUM and becomes regurgitated by the process of ANTIPERISTALYSIS into the mouth where it is properly masticated (chewed) into pulp form. At this stage, the food which is now in pulp form is again swallowed and moved into the third (3rd) section called OMASUM before it passes into the fourth (4th) section which is the true stomach or ABOMASUM for normal digestive processes.

Non-ruminants:

The non-ruminants have a stomach similar to that of man without compartments and the oesophagus leads straight into a single stomach. They are also called MONO-GASTRIC animals such as the pig.

Poultry:

Poultry, on the other hand also have a very simple stomach compared with the ruminants. With poultry, food is stored in a thin-walled crop and moves through a second (2nd) thin-walled glandular stomach called the PROVENTICULUS and finally into the GIZZARD which is thick-walled and muscular. In the gizzard, food is churned in pulp by series of contractions assisted by small sharp stones which are normally swallowed by the birds.

