SUBJECT: AGRICULTURAL SCIENCE

TOPIC: ENVIRONMENTAL FACTORS AFFECTING AGRICULTURAL PRODUCTION

WEEK: WEEK TEN (10)

CLASS: SS1

TERM: 1ST TERM

The environmental factors affecting production in Nigeria can be grouped into three namely:

i. Climatic factors
ii. Edaphic factor
iii. Biotic factor

CLIMATIC FACTORS

Climate is the average weather condition of a place over a period of time. its elements are temperature, pressure ,wind and rainfall. Each of these factors has its own influence on agricultural production .the most important factor of climate is rainfall.

TEMPERATURE

Temperature is one of the most important factors influencing physiological functioning of plants. Variation in temperature affects agricultural practice in different part of Nigeria. The average monthly temperature varies between 21 degree and 35 degree.

RELATIVE HUMIDITY

This can be defined as the amount of moisture content in the atmosphere the effect of low humidity can cause heat stress while high humidity do have effect on crops and animals.in Nigeria, evaporation takes place rapidly and plants and animals .similarly, in high humid areas, evaporation takes place slowly, thus the rate of water loss in plants and animals is reduced.

RAINFALL

Rainfall has the highest effect on agricultural production in Nigeria. The types of crops grown in different ecological zones of the country are directly dependent on the amount of rainfall or rainfall pattern in each zone. The amount of rainfall decreases from southern parts have two period peaks separated have a short period of insufficient rainfall usually august .this interval demarcates the early and late season.

WIND

This is the air in motion. Its rate affects evaporation and transpiration evaporation and transpiration droplet from the plants leaf stomata.at a normal temperature, there will be more rapid air movement and this will reduce heat stress on animals and plants. While at a high temperature, the evaporation and

transpiration rate will be very high.to achieves adequate air movement through tree crop plantations, cultural practices like weeding, suitable spacing, pruning and others should be adopted for each crop.

SUNLIGHT

Sunlight radiation is very important in agriculture .it is the source of energy used by plants during photosynthesis. The amount of this energy received on the intensity of radiation, amount of cloud cover and length of the day. Excessive solar radiation will cause over evaporation while little sunlight energy will lead to etiolating (plants becoming yellow and thin).

EDAPHIC FACTORS (soil factors)

The soil is the anchorage or home of the crops. Crops get their food of the soil in form of solution. Crops pick up the dissolved nutrients in the soil is the major factor that encourages agricultural practices. The type of soil, the richness or poorness and the types of minerals present in it determines the crops that will be planted on it .the soil has different qualities namely: soil texture, soil structure, nutrient content and soil.

SOIL PH

Soil PH is the degree of acidity and alkalinity of the aoil.in general, the soil may be acidic (PH>7),neutral (PH=7),or alkaline (PH>).poor growth occurs in acidic soils due to aluminum toxicity ,calcium and magnesium deficiency or manganese toxicity .liming of such soil reduces its toxic effects.

SOIL TEXTURE

Soil texture can be as the coarseness of a soil and the size of minerals particles within the soil sample .the determination of the soil texture helps in selecting the crops type to be cultivated on a particular soil .classification of the soil can also be carried out base on their texture and the soil with a very rough texture might not be favorable for some crops.

SOIL STRUCTURE

This refers to the ways with which soil particles are being arranged or flayed. this factor greatly affects agricultural production in some areas where there is only sandy soil which has poor water retention or poor water holding capacity, also the nutrient content of sandy is very low compared to loamy and clayey soil .the soil structure that is present in a particular area determine the production in that area.

TOPOGRAPHY

This can be defined as the physical l features of an area of land ,especially the position of its rivers, lakes ,mountains etc.it also involves the gradient or slope of the land .a slight slope land will surely produce well, compared to that of deep slope.in a steep slope land, erosion rate is very high and this is a means of losing the soil nutrient to run off water.

BIOTIC FACTORS

The carnivores that hunt living organism for food (prey) are called predators. The number or population of predators in a farm land determines the reduction rate in the population of the reared animals on the farm, on a farm where predators exist, animals production tends to decrease drastically. The farm animals may go into series of relationship among themselves. the association may be classified as:

-parasitism

-symbiosis(mutualism)

-saprophytism

-carnivorous plants

PARASITISM

Parasites are organisms that live on others organisms usually called host. These organisms obtain their food from the body of these organisms (host) parasites maybe classified ecto parasites and endo parasites.

MUTUALISM (SYMBIOSIS)

Mutualism means advantageous relationship between species.it is a relationship between two organisms of different species that benefit both and harms neither .this kind of association brings about mutual benefit to the organisms involved .the two organisms perform different function.one may provide accommodation while the second may provide the nutrients for the other.

SAPROPHYTISM

Saprophytes are organisms that obtain their own food by feeding on dead or non-living organic matter. They feed on decaying organic matter or remains of plants and animals and other excretory products.

CARNIVOROUS PLANT

They are called insectivorous plant. The plants with green leaves (photosynthetic) and use root for absorption of nutrients, minerals salts and water from the soil. These plants have specific features used for trapping or capturing and digesting insects and some other small organisms .these kind of plants usually affects pollination by insect, since the insect pollinating plant remains pollinated due to the absence of the pollinating agent which have been trapped by the carnivores.

ASSIGNMENT

1. Define climate
2. List and discuss three edaphic and four climatic factors that affect crops productivity.