

## ➤ FACTORS AFFECTING PLANT COMPOSITION

Various factors can influence the composition of a plant which in turn affect its nutritive quality some of these factors are

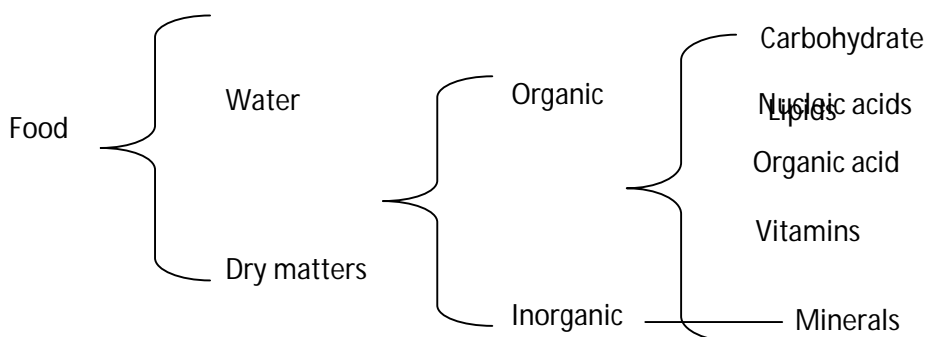
1. Plant species
2. Seasonal and phenological effects
3. Site effects
  - Temperature
  - Moisture
  - Precipitation
  - Insolation
  - Soil

### 1. PLANT SPECIES

The factors having the greatest influences on plant composition has been found to be plant spp, numerous studies have migrated the manual composition of various plant spp. Different plant spp have different manual composition.

## ➤ NUTRITION

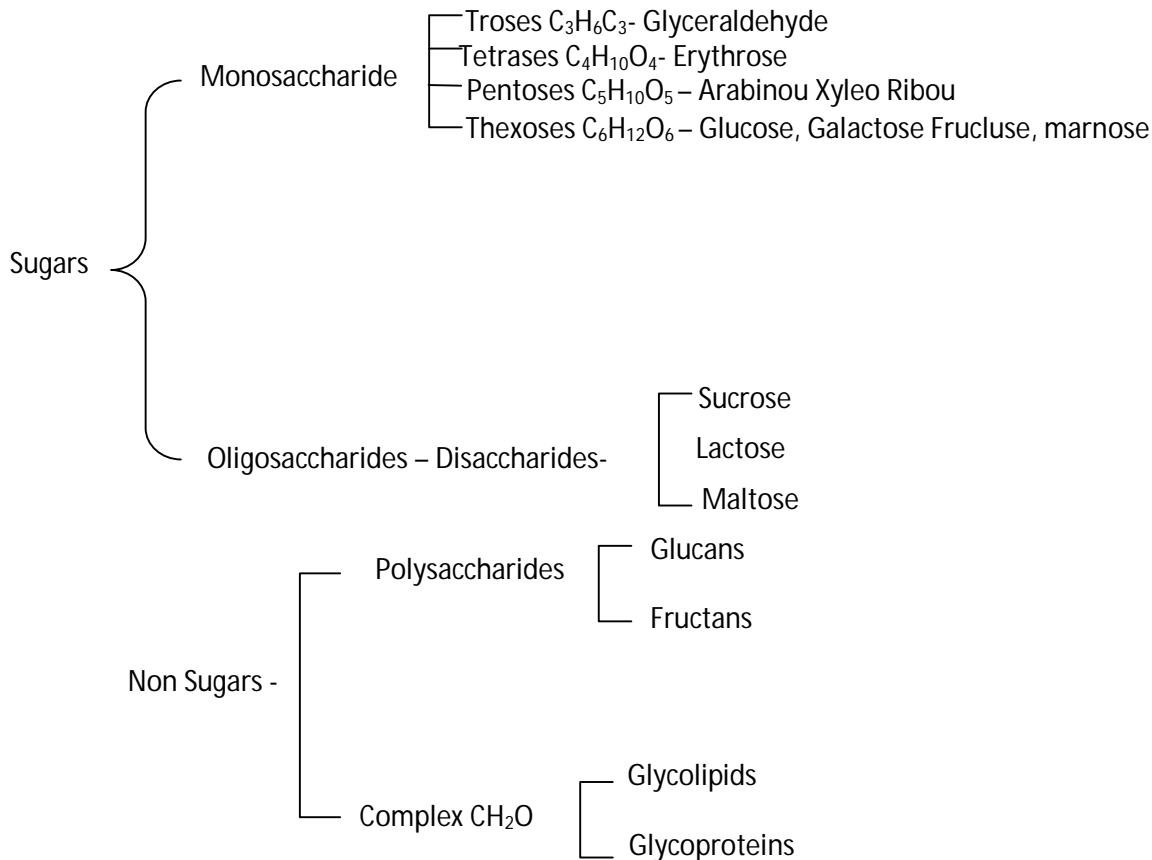
Food is material which after ingestion by animals is capable of being digested, absorbed and utilized. The diet of animal consists of plants and plant products animals depend upon plants for their existence and consequently a study of wildlife nutrition must begin with plant itself. Plants are able to synthesize composition material from simple substances such as CO<sub>2</sub> from air and water and inorganic elements from the soil by means of photosynthesis, energy from the sun light is trapped and used for this synthesis. This energy is stored as meal energy in the plant and it is used by animals for the maintenance of life and synthesis for its own body tissues



## ➤ CARBOHYDRATE

It comes from the French Word "hydrate carbone" they have the compared formula of  $(CH_2O)_n$  in where n can be 3 or more CHO contain the element carbones, hydrogen (H)S oxygen adehydes, ketonus and any compounds that may be hydrolyzed.

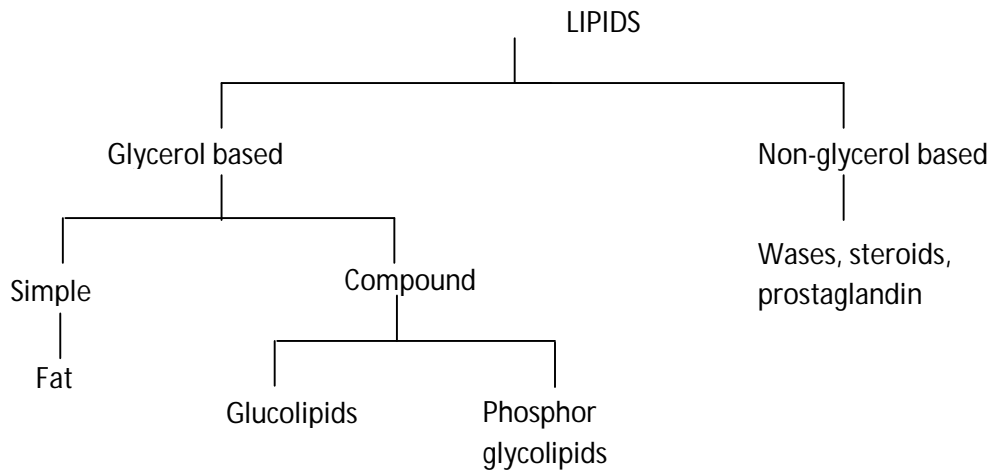
Classification of CHO



## ➤ LIPIDS

This groups of substance are found in plant and animal tissues, they are insoluble in water but soluble in organic solvent such as benzene, ether and chloroform. They act in body as electron carriers as substrate carrier in enzymes reactions and sources of energy in the body.

## ➤ CLASSIFICATION OF LIPIDS



## ➤ PROTEIN

These are complex organic compound; they contain C, H, D,. But in addition that all contain nitrogen and sometime sulphuric. The simplest form of protein are amino acid and these are about 200 amino acid isolated which include Arginine, isoleucine, Leucine, flastine, cystine etc.

## ➤ VITAMINS

These are derived from the word "Vital amines" and they are required/ministry in very small quantities in animal it is divided into 2 groups, were have fat soluble vitamin and water soluble vitamins.

1. Fat soluble;. A – retinal, D<sub>2</sub>- ergocalcipro, D<sub>3</sub> – Cholecalciferol, E – Focopherol, K – Phylloquinone, Q – Ubiquomonu.
2. Water soluble vitamin:
  - B<sub>1</sub> – thiamin
  - B<sub>2</sub> – Riboflavin
  - B<sub>3</sub> – Biotic, Folicacid,
  - B<sub>12</sub> – Cyanolobalamin
  - C – Ascorbic

## ➤ DIAFSTION

Many of the organic components of food are in the form of large insoluble substances which has to be broom down into singular form between passing through mucous membrane of the alimentary cannal into the blood and utilized for tissues growth. The baking down process is termed Diatstion. The passage of the digested nutrient the mucous membrane of the alimentary canal is called absorption.

### ➤ **PROCESS INVOLVED IN DIGESTION**

1. Mechanical: This includes mastication and muscle contraction of the alimentary canal.
2. Chemical action: it include enzyme secreted by the animal coming from the various digestive juices.
3. Microbial action: These are the action of bacteria, protozoa and fungi and it takes place in ruminant animals.

### ➤ **SEASONAL AND PHONOLOGICAL EFFECT**

Plant vary seasonally in chemical composition seasonally various are 1<sup>0</sup>ly caused by deference in plant phenology, crude protein is highest. During the growing season. Phosphorus levels also are highest during the rainy season being with plant maturity. Ash content is highest in late spinning and summer as a plant matures its cellulose content increases. Crude fibres also have with plant maturity so also the lignin content with plant maturity. The increases in these constituents' decreases in digestibility corresponding to there increase have been reported by researchers.

### ➤ **SITE EFFECT**

Minor variations in plant composition are accounted for by site effect various researchers have examined the effect of specific site factor on plant composition. It should be noted however that the study of site effect is a very complex subject and all changes in plant chemical composites are usually of result of many factor dieting together so at single factor effect an hand to determine or explain;

Temperature: crude protein level of climate herbage spp bases with temperature. Temperature also was found to D<sub>2</sub> ash content of a plant. Phosphorus levels and cell wall constituent also Disease with temperature. Theroux cellulose and lignin content of grasses were found to be greater at lower temperature plant digestibility have been found to decrease with temperature. The discreprinicies in these finding on probability and result of temperature interacting

with other site factors therefore additional research is needed on the influence of temperature and other chemical composition before conclusion can be drawn.

**Moisture:** moisture can influence plant composition in as soil moisture or soil precipitation which these are closely related the effect of each can be described separately. The influence of SM in plant composition is difficult to determine but its effect is altering growth rate or phenological stages; soil moisture level will influence the MC of plant tissue in SIM level have been reported to both and crude protein level. Precipitation in addition to altering soil moisture level will influence plant composition by leaching plant nutrient. Leaching of dried herbaceous plant can reduce level of proteins phosphorus, ash and carotene.

**Insolation:** It appears to influence plant composition although the effect are often indirect but shaded areas generally have higher levels of soil moisture e.g. shaded plant appeared to be more succulent but this may be due to higher soil moisture it was also found that was also higher in protein but this also may be influenced by soil moisture and by somewhat retarded growth caused by reduced solar radiation shaded plant were shown to be lower in Nitrogen free extract and sugar the plants growing in sunlight.

Plant digestibility was also reported to be kindly influenced by increased amount of sunlight.

### ➤ **Soil**

The type of soil and levels of nutrient in the soil influenced plant composition as a matter of fact, soil nutrients have a greater effect on plant composition than other site factors crude protein levels were influenced by soil nutrient level. More specially protein content in plant have been found to be influenced by soil nitrogen level phosphorus level in plant were correlated with soil phosphorus level.