LESSON ONE

Ss2

RANGELAND

## Definition of Rangeland

## A rangeland is a piece of land, usually large, on which the local or native vegetation mainly grass, or shrubs grow. A range is an extensive area of land which contains forage grasses and legumes and other herbage plants where animals like sheep, goats, cattle can graze.



## Characteristics of Rangeland

1. It contains high quality grasses and legumes.
2. It has a high regenerative ability after being fed on by animals
3. Selected grasses and legumes are grown in adequate proportion.
4. It can withstand trampling by farm animals.
5. It is properly managed for high production of the forage crops
6. It contains no weed except some plants for shade**.**
7. Burning actively stimulates growth
8. It contains plant shades and dew needs
9. Vegetation is usually uncultivated

**Importance of Rangeland**

1. Provision of vegetables and grasses for animals.
2. Enabling animals to exercise their body.
3. Prevention of erosion.
4. Reduces cost of feeding animals.
5. Provision of silage or hay, etc.

Factors affecting production

There are various factors that affect the level of production of herbage in West Africa. Some of these factors are climatic factors, edaphic factors, physiographic factor, burning, land clearing, grazing and other human activities.

i. **Climatic factors are wind, rainfall, temperature and humidity**  
Climate is one of the most important factors which determine the type of rangeland and its botanical composition.



**ii. Day length:**The length of the day determines whether flowering occurs in grasses. Many tropical plants flower in response to shortening days. It is therefore an important factor in selecting pastures e.g guinea grass, elephant grass, gamba grass for grasses and centrosema, calopogonium, stylosanthes for legumes.



**iii. Edaphic or soil factors:**The [type of soil](https://itsmyschoollibrary.wordpress.com/2022/02/12/soil-definition-composition-types-and-properties-agricultural-science-lesson-note/) found in a place determines the type of pastures found there. Some pastures do well on acidic soils and some on alkaline soils. Stylosanthes for example thrives well on acidic soils.



**iv. Fire (Burning):**Fire induced grassland types are common throughout the tropics. Many woody plants in Africa are killed by fire, and repeated burning leads to a herbaceous cover. The tall rhizomatous grass Imperata cylindrica has become the dominant species on many sloping humid and sub-humid, low fertility lands.

**v. Land clearing:**Similarly, clearing of land of trees and shrubs also affect the composition of grassland.

**vi. Grazing:** The increased grazing pressure caused by the introduction of domestic animals has caused very great changes in grassland communities. Some have been destroyed absolutely and others have been improved by skilled manipulation of livestock.

LESSON TWO

FORMULATION OF LIVESTOCK RATIONS

## Meaning of Ration Formulation

**Ration formulation is the art and science of developing diets that are most economical by taking advantage of various feed ingredients available at cheap prices.**

## Rules of Ration Formulation

**1. The total percentage of a formulated feed should be 100%.**

**2. Ration formulation manual is prepared in percentages.**

**3. There are two types of ingredients in a ration:**

* **Fixed ingredients: These are the micro-ingredients i.e. their percentages are very small in ration i.e. fish meal, bone meal, oyster shell etc.**
* **Variable ingredients: These are macro-ingredients i.e.**

Animal Nutrition (Malnutrition)



Malnutrition in farm animals

Malnutrition is said to occur when a ration (amount of feed provided to an animal per day) does not provide all

The food nutrients (carbohydrate, protein, fats and oils, vitamins, minerals, water and other feed additives) in adequate quantities

Those nutrients wanting are said to be deficient which eventually results in nutritional disease.

Nutritional deficiency is therefore defined as a disease condition which emanates from inadequate nutrition. It is indicated by specific symptoms when particular nutrients are absent or unavailable in the diet.

The table below shows some nutritional disease, their causes, symptoms and how they can be corrected.

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| **Malnutrition diseases of animals** | | | **CAUSES** | **SYMPTOMS** | **CORRECTION** |
| **Rickets (Osteomalacia)** | | | Lack of Ca, P and Vitamin D | Flexible and curve bones, soft eggshell | Add fish meal, bone meal or Oyster shell |
| **Perosis or Slipped tendon.** | | | Lack of choline, folic acid, CA, P in the diet. | Chicken lie down on their Kneel. | Add Vitamin B Co and bone meal. |
| **Ketosis** | | | Lack of sufficient energy intake by farm animals | Loss of appetite | Feed CHO to animals. |
| **Milk Fever** | | | Low blood sugar. | Loss of appetite, constipation and nervousness. | Feed Oyster Shell, bone meal and Carbohydrate. |
| **Baby pig Anemia** | | | Low iron in the blood. | Loss of appetite and nervousness. | Inject iron dextrin into the body. |
| **Night Blindness** | | | Lack of Vitamin A | Inability to see clearly in dim light. | Feed yellow maize. |
| **Scurvy** | | | Lack of vitamin C | Lesions around the connective tissue. | Feed vegetable and fruits to animals. |
| **Beriberi** | | | Lack of VitaminB1 | Lack of appetite, fatigue and loss of weight. | Feed yeast, cereals and vegetables. |

**Rickets (osteomalacia):** A disease caused by a lack of Vitamin D and disappearance of calcium salts which prevent the body from using Calcium. Rickets causes softening and sometimes bending of the bones.

**Tendon:** A tough, strong band or cord of tissue that joins a muscle to a bone or some part and transmits the force of the muscle to the part

**Scurvy:** A disease caused by lack of Vitamin C in the diet. It’s characterized by swollen and bleeding gums, extreme weakness and livid spots on the skin.

**Tetany:** A disease characterized by sudden abnormal involuntary contraction of the muscle.

**Beriberi:** Disease affecting the nervous system accompanied by muscular paralysis, weakness, extreme loss of weight, pain and swelling. It is caused by lack of vitamin B in the diet.



**Ration/Diet**

A ration is defined as the feed that is regularly offered to or consumed by the animal. Diets are formulated to meet specific metabolic or physiological functions which include growth, lactation, reproduction, maintenance of pregnancy, egg-laying, weaning, fattening etc.

**Balanced ration:**

A balanced ration is a feed containing all essential nutrients in the right or correct and adequate proportion for feeding animals. Components or compositions of a balanced ration include carbohydrate, protein, fats and oil, minerals, vitamins and water.

In balancing ration, the nutrients values of the feed components are known. The nutrient requirement or

Standards are also known.

**Imbalanced ration:**

An imbalanced ration is a feed that does not contain all essential nutrients in the correct and adequate proportion for feeding livestock.

**Categories of a balanced ration**

There are two categories of balanced ration.

**Maintenance ration:** This is the type of ration that supplies the animal with just the quantity of nutrients that are enough to enable the animal to carry on with vital body activities without losing or gaining another substance. In other words, a maintenance ration is the amount of feed needed to prevent an increase or decrease in the weight of the animal. The ration will just be enough to maintain the supplies of energy and protein for all metabolic activities such as respiration, blood circulation, digestion, locomotion, maintenance of body temperature.

**Production ration:** is the quantity of ration that can supply the required nutrients above the maintenance to enable the animal to produce the form of animal product for which the livestock is kept. The production ration can be for meat, growth, milk wool and egg production. The food is supplied in excess of maintenance requirements.

**Categories of farm animals that require production ratio**

Lactating animals for milk production.

Weaning animals to increase growth.

Pregnant animals for maintenance of the foetus.

Fattening or finishing animals for extra meat or flesh.

Broilers for rapid growth.

Layers for egg production.

Steaming up or flushing for the animal before making to produce more ova.

**Factors to consider when deciding type of ration to feed an animal**

Age of the animal

Palatability of feedstuff

The familiarity of feed to animal

Cost of feed

Physiological status of the animal

Availability of feedstuff

Composition of feed nutrient