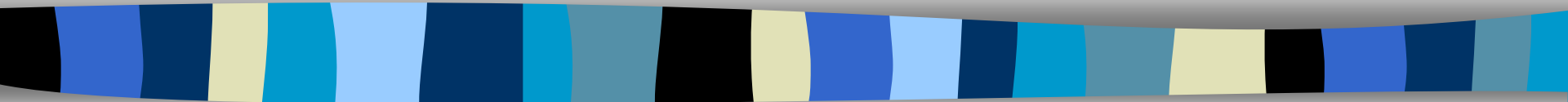
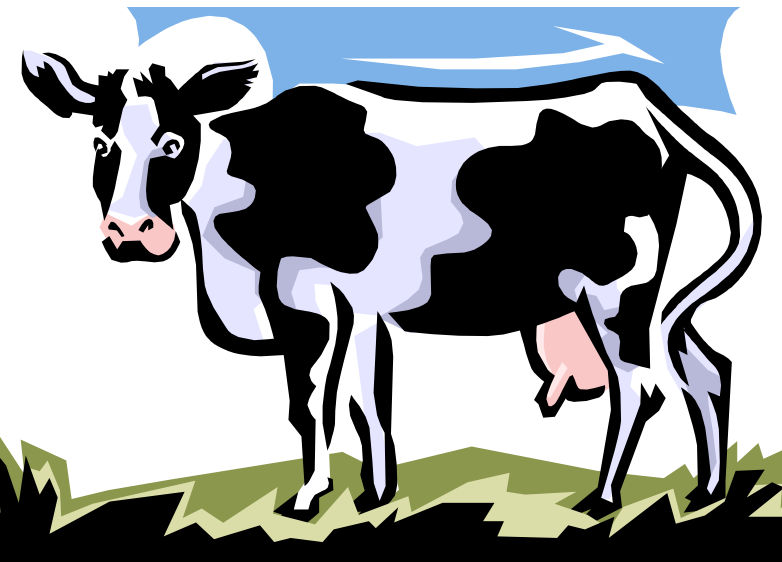


# ANIMAL NUTRITION AND FEEDS



## Unit 5: Feed, Nutrition and Digestion

### Lesson 2: Ration Components and Calculating Calories





# What is Nutrition?

**Nutrition is the science of dealing with the utilization of food by the body processes which transform food into body tissues and energy.**

# Why is Nutrition Important?

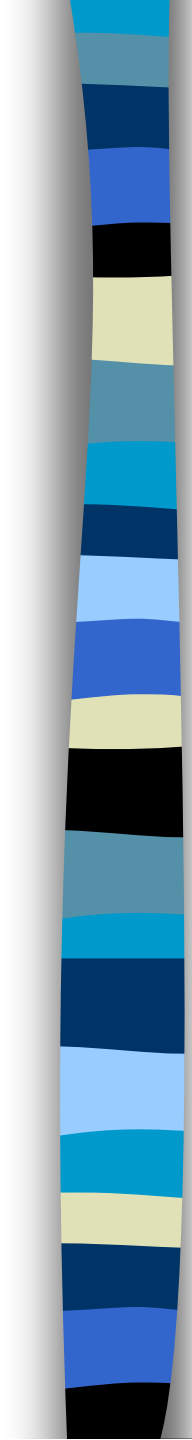
To obtain and utilize surplus or unusable feed stuffs and convert them to desirable products such as meat, milk, eggs, fiber and work.





# What is a Nutrient?

A single class of food or group of like foods that aids in the support of life and makes it possible for animals to grow or provide energy for physiological processes.



# Digestible Nutrient

The portion of the nutrient which may be broken down (digested) and absorbed and used by the body.

# The Six Nutrients Needed



- Protein
- Carbohydrates
- Fats
- Minerals
- Vitamins
- Water



# PROTEINS

- ❖ Needed for growth and repair
- ❖ Helps form muscles, internal organs, skin, hair, wool, feathers, hoofs and horns
- ❖ Contain carbon, hydrogen, oxygen and nitrogen



# EXAMPLES OF PROTEINS

- 1. MEAT AND BONE MEAL**
- 2. FISH MEAL**
- 3. SOYBEAN MEAL**
- 4. COTTONSEED MEAL**
- 5. DRIED SKIM MILK**
- 6. AMINO ACIDS**





# CARBOHYDRATES

- Furnish energy for body functions, growth and reproduction
- The largest part of the animal's food supply and usually the fibrous part of the diet
- Include sugars, starch and cellulose
- Are made of carbon, oxygen and hydrogen



# FATS

- Furnish a concentrated source of energy, up to 2.25 times as much energy as carbohydrates do
- Form cholesterol, steroids and other body compounds
- Found in every cell in the body
- Affect the condition of skin and hair
- Are made of carbon, oxygen and hydrogen, but contain much larger proportions of carbon and hydrogen than carbohydrates do
- They also provide energy reserves, protection for vital organs, and they insulate the body

# MINERALS

- Primarily found in bones and teeth
- Important in blood for the carrying of oxygen
- Regulates heartbeat with potassium, sodium and calcium

Example: Calcium Formation  
Found in rocks





# VITAMINS

- Are only needed in small amounts
- Are essential for life and health
- Provide a defense against disease, promote growth and reproduction
- Contribute to the general health of the animal

# WATER

- Accounts for 70% or more of the composition of most plants and animals





# **FEED CLASSIFICATIONS**

1. Roughages
2. Concentrates
3. Supplements

# ROUGHAGES

- High in fiber and relatively low in digestible nutrients

## Examples of roughages:

1. Alfalfa
2. Clover
3. Soybean
4. Oat hay
5. Corn Silage



# CONCENTRATES

- Are low in fiber and high in digestible nutrients

## Examples of concentrates:

1. Corn
2. Cottonseed
3. Barley
4. Oats
5. Sorghum





# SUPPLEMENTS

- Supplements are extras that supply the body with additional nutrients.
- Some supplements are minerals, salt, copper, iodine and iron
- Vitamin A and D are also very important to ruminant animals



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Salt



Copper



Iron