

SARAWATI VIDYA NIKETAN

Vyasa Purnima Term 2020

Agricultural Science – Avinash Ji

Topic: Manures

Class: Form 2 D, L & S

SPECIFIC OBJECTIVES

Students should be able to state the following:

Week One:

- ✓ What is a manure?
- ✓ The two (2) categories of nutrients needed by plants.
- ✓ The classification of manures.
- ✓ What is organic manure?
- ✓ Examples of organic manure.

CONTENT

Week 1 (30th -03rd/03-04/2020)

MANURES

Any substance(s) added to the soil to increase its supply of plant nutrients are called manures.

Plants obtain nutrients for their growth and development from the soil.

Plant nutrients are categorized as:

- 1) **Primary nutrients**, and
- 2) **Secondary nutrients**

Nutrients needed by plants in large quantities are:

- Primary nutrients:
 - Nitrogen (N)
 - Phosphorous (P)
 - Potassium (K)

- Secondary nutrients: (small quantities are needed)
 - Calcium (Ca)
 - Sulphur (S)
 - Magnesium (Mg)

Activity One: List ten (10) other secondary plant nutrients.

When crops are grown continuously on one piece of land and nutrients are not replaced then succeeding crop will give poor yields (production).

Manures can be classified either as:

- 1) **Organic**, and
- 2) **Inorganic**.

Organic Manures

Organic manures consist of the dead remains of plants and animals.

Examples of organic manures:

- ✓ Green manure
- ✓ Wood ash
- ✓ Compost manure
- ✓ Animal manure
- ✓ Night soil (sewerage)

SPECIFIC OBJECTIVES

Students should be able to list/ explain the following:

Week Two:

- ✓ Types of organic manure.
- ✓ Advantages and disadvantages of using organic manure.
- ✓ How organic manures must be stored.

CONTENT

Types of Organic Manures

1) Green manures

Green plants or tree branches with green leaves which are ploughed into the soil and are allowed to decay or rot are called green manures.

Legumes have been more popularly used as green manure because they release more nitrogen to the soil when they rot e.g. cow peas, pigeon peas, Bora, red beans and black eye.

2) Wood Ash

On farms where wood is the main source of fuel, wood ash can be collected easily and mixed into the soil. Wood is a good source of potassium (K).

3) Compost Manure

Compost manure is completely rotted remains of crops and animals.

Depending on the types of organic material used to make the compost, the compost manure will supply nearly all the plant nutrients to the soil.

4) Animal Manure

Animal manure includes animal dung, urine and animal by-products of meat and fish from factories e.g. bone meal and dried blood.

- A well-rotted mixture of dung, urine and litter from the livestock pen is called **Farm Yard Manure (FYM)**. FYM contains all the nutrients needed by plants.
- **Poultry manure** (high nitrogen content)
- **Fish meal/ remains** (good supply of nitrogen and phosphorus)
- **Liquid manure** (rich source of nitrogen)
- **Bone meal** (good source of phosphorus)

5) Night Soil

Night soil is the faeces and urine of humans. It is an excellent source of nitrogen and organic matter.

Note: Night soils can contaminate fruits and vegetables since they contain high levels of harmful micro-organisms which can affect human.

Advantages and Disadvantages of Using Organic Manures

Advantages of using organic manures:

- Organic manures are cheap.
- Organic manures enrich the soil with organic matter.
- Improves the soil structure.
- Prevent leaching of nutrients from the soil.
- Increases bacteria and soil organism population which aid in the decomposition process to produce humus.
- Improves the water holding capacity.

Disadvantages of using organic manures:

- Large quantities are needed.
- Cost of transportation to the field is high.
- They are bulky (takes up space).
- Releases the nutrients needed by plants slowly
- If not allowed to decompose properly, pathogen (disease causing organism) can affect your crop.

Storage of Manures

Generally organic manure should be protected from moisture and sunlight. This is because they are made up of compounds which contain plant nutrients. These compounds (nutrients), if dissolved in water can be washed away from the manure.

Other types of organic manure are the remains from plant industries e.g.

- Filter press and bagasse from the sugar factories.
- Coffee and cocoa husks.
- Sawdust.
- What is organic manure?

EXERCISE

- 1) What is organic manure?
- 2) List the three (3) primary and three (3) secondary nutrients.
- 3) List (4) advantages and (4) disadvantages of using organic manures.
- 4) List the types of organic manures and state the plant nutrients they supply to the soil.
- 5) What is the difference between compost manure and farm yard manure?
- 6) Explain how you store organic manures.

- 7) List three (3) by- products from plant industries that can be used as organic manures.

Teaching material:

Agricultural Science for Secondary Schools in Guyana. (Book 2)

(Pg.81)