

Facilitating and Learning Materials

NATIONAL PROFICIENCY LEVEL I

TRADE AREA:

CASHEW

UNIT 3:

**FERTILIZER APPLICATION IN CASHEW
PLANTATION**

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Introduction and preliminary notes

Cashew production can be increased by improving productivity in the existing and new grounds by nutrient management. This can be achieved by using fertilizers which enhance the growth of these plants based on the nutritional sources from the fertilizers. Some of these nutrients can also be found naturally in soil.

On completion of this unit, you will be able to demonstrate knowledge of different fertilizers in a cashew plantation, skills for preparing compost, skills for preparing manure, and skills for applying compost in a cashew plantation.

LO 1: Different fertilizers in a cashew plantation

PC a) Explain the use of fertilizer in a cashew plantation

Fertilizers are simply plant nutrients applied to agricultural fields to supplement required elements found naturally in the soil. Fertilizers have been used since the start of agriculture.

Fertilizers play a role of vitamin supplements for plants. When used correctly, they can treat plant “malnutrition” and promote growth and blooming.

Nitrogen, phosphate, potassium and sulphur, are the four most important nutrients for high crop yields and sustainable food production. These are all needed to keep the crops growing and healthy.

PC b) State importance of using fertilizers

- Adding organic material to the soil increases its ability to hold water
- Reduces erosion from water and wind
- Decreases compaction and crusting of the soil
- Raises soil pH.

PC c) State types of fertilizers used

– Organic fertilizers





Organic fertilizers are fertilizers derived from animal matter and vegetable matter (e.g. compost and crop residues)

– Inorganic fertilizers

Inorganic fertilizers also known as synthetic or chemical fertilizers are factory made products which are added in soil to feed plants. These types of fertilizers provide plant nutrients in a readymade form and release the nutrients quickly so that the plants are able to get the nutrients as soon as possible.



PC (d) State the sources of organic fertilizers

<p>Manure</p>			
<p>Compost</p>			
<p>Peat</p>			
<p>Cottonseed meal</p>			

<p>Bone meal</p>			
<p>Packaged fertilizers</p>			

LO 2: Preparing compost in cashew plantation



PC a) State the importance of compost in a cashew plantation

- Enriches soil, helping retain moisture and suppress plant diseases and pests.
- Reduces the need for chemical fertilizers.
- Encourages the production of beneficial bacteria and fungi that break down organic matter to create humus, a rich nutrient-filled material.

PC b) State the properties of a well matured compost

- Compost should be dark brown in colour with profuse fine fangs.
- Compost should have moisture percentage of about 68-70 percent.
- pH of the compost should be in the range of 7.2-7.8.
- There should not be any smell of ammonia.
- It should not be sticky or greasy.
- It should be free from insects and nematodes.

PC c) Demonstrate the safe use of materials for compost preparation



Situation: You are a co-worker on a new established cashew plantation. You need to use the right equipment to prepare your compost that you want to work with. You have been asked by your employer to demonstrate the safe use of materials for compost preparation

Instructions:

1. Select the equipment to prepare compost.
2. Demonstrate the safe use of materials for compost preparation

3. Clean tools after use
4. You have **1 hour**

Performance criteria:

1. Correct equipment is selected according to the task
2. The safe use of materials was demonstrated
3. Tools were cleaned and stored away after use
4. Time limit was adhered to

Use the checklist to follow the stated steps demonstrating the safe use of materials for compost preparation. Rate your own performance critically and honestly after you have completed each activity.



Excellent



Okay



Try Again

Daily PM Activities	Rate
1. Correct equipment is selected according to the task	
2. The safe use of materials was demonstrated	
3. Tools were cleaned and stored away after use	
4. Time limit was adhered to	


PC d) State steps involved in compost preparation

1. Choose the area / location or type of compost bin. (You can use either an open pile or a compost bin).
2. Clear a corner of the allocated area for your compost pile or bin.
3. Construct your area out of a variety of materials, such as untreated wood pallets, wire mesh, snow-fencing or concrete blocks to make a simple structure for your compost
4. Add "browns" and the "greens."
 - Browns are fallen leaves, evergreen needles, woody matter, including bark, twigs and branches, sawdust, wood chips and other materials that contain carbon, such as shredded cardboard and paper.

- Greens are grass clippings, green garden waste, vegetable scraps, coffee grounds, eggshells, fruits and other kitchen waste. These items release nitrogen as they break down
5. Add safe animal manures to the compost heap,
 6. Moisten the pile periodically,
 7. Watch for the pile to settle,
 8. Alternate Layers,
 9. Add kitchen and yard waste as they accumulate,
 10. Continue to add layers until your pile or bin is full,
 11. Maintain your compost,
 12. Harvest your compost.



PC (e) Prepare compost for a cashew plantation

	Learning Activity: Prepare compost for cashew plantation
2 Hrs.	<p>You have been tasked by your employer to use the organic compound recipe and step by step process to create and prepare compost for a cashew plantation.</p> <p>Explain the recipe and state the steps below</p>

LO 3: Demonstrate skills for preparing manure for cashew plantation

PC (a) Explain manure for a cashew plantation



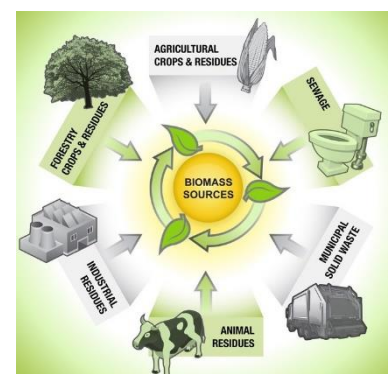
Manure is organic material used as fertilizer in agriculture farming. Manures improve the fertility of the soil by adding organic matter and lots of nutrients, such as nitrogen that is trapped by bacteria in the soil. Higher organisms then feed on the fungi and bacteria in a chain of life

Livestock manure and manure composted with byproducts, such as spent bedding, make excellent fertilizers and soil amendments.

Using manure more efficiently and in various new ways like protecting air quality and water and reducing greenhouse gases. When managed correctly manure can serve a valuable renewable source, utilizing manure to meet crop nutrient need is beneficial for many reasons.

PC b) State the importance of manure

- Good source of macronutrients
- Complete nutrient package
- Improved soil quality
- Reduces soil erosion risk
- Saves money



PC (c) State the properties of a well decomposed manure

Well decomposed manure is usually either classified as liquid, slurry, semi-solid, or solid depending on the total solids content of the manure.

PC d) Demonstrate the safe use of materials and tools for manure preparation



Situation: You are the co-owner on a new small cashew plantation. You need to use the right equipment to prepare your manure that you want to work with. Your job is to present a list of tools and equipment to your instructor.

Instructions:

1. Select the equipment to prepare manure.
2. Explain their importance.
3. Present this.
4. You have **1 hour**

Performance Criteria:

1. Correct equipment was selected to prepare manure.
2. The importance of safely using these materials and tools is clearly understood
3. The time limit is adhered to.

Use the checklist to follow the stated steps in mechanical land clearing. Rate your own performance critically and honestly after you have completed each activity.



Excellent



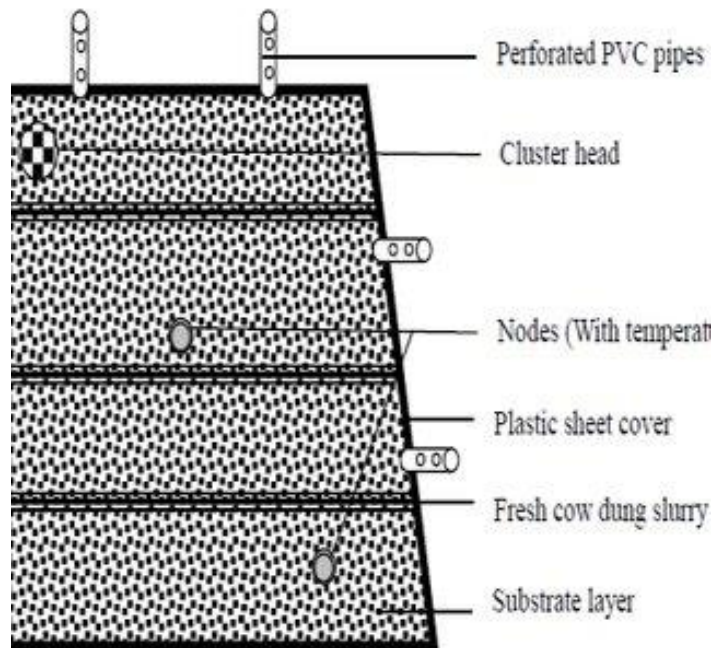
Okay



Try Again

Daily PM Activities	Rate
1. Correct equipment was selected to prepare manure.	
2. The importance of safely using these materials and tools is clearly understood	
3. The time limit is adhered to.	

PC (e) State steps involved in manure preparation



- Select an area that is protected from strong wind and sun, for instance, under the shade of a tree.
- Mark the area you intend to locate the compost (the minimum area is 1.25m x 1.25m).
- Dig a shallow trench, same size as the compost heap 20cm deep.
- Smear the sides of the trench with water or a mixture of water and cow dung to prevent moisture and nutrients from leaking from the compost heap. The shallow trench will become the foundation of the compost heap. The trench also helps to hold moisture especially during the dry season

PC (f) Prepare manure for a cashew plantation



Situation: You are the co-owner on a new small cashew plantation and you have been tasked by your employer to prepare manure for the cashew plantation

Instructions:

1. Select the equipment to prepare manure.
2. Set out the steps involved in preparing manure for a cashew plantation

Performance Criteria:

1. Correct equipment was selected to prepare manure.
2. The correct procedure is followed in preparing manure
3. Tools are cleaned and stored after use

Use the checklist to follow the stated steps in mechanical land clearing. Rate your own performance critically and honestly after you have completed each activity.



Excellent



Okay



Try Again

Daily PM Activities	Rate
1. Correct equipment was selected to prepare manure.	
2. The correct procedure is followed in preparing manure	
3. Tools are cleaned and stored after use	

Self-assessment:

PC (a)

What is manure?

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PC (b)

How do you use manure in a cashew plantation?

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PC (c)

List 5 characteristics that manure contains.

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PC (d)

List 3 benefits of using manure in a cashew plantation.

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LO 4: Demonstrate skills for applying fertilizer in a cashew plantation

PC (a) Explain application of fertilizer in a cashew plantation

Fertilization application is the supplemental application of plant nutrients to crop plants to augment the supply from natural sources. This consists of applying nutrient-containing materials

PC (b) Explain methods of applying fertilizer

There are two methods of applying fertilizer:

- Manual
- Mechanical

Manual:

A hand-compression sprayer basically consists of a tank for holding a liquid insecticide formulation, which can be pressurized by means of a hand pump attached to it.

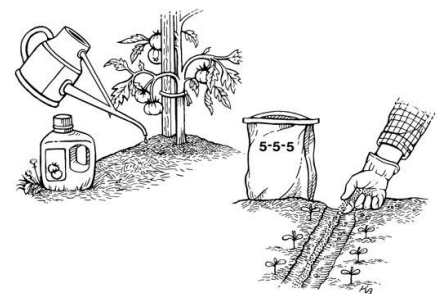
Mechanical:

Mechanical sprayers are commonly used on farms to spray pesticides, herbicides, fungicides, and defoliants as a means of crop quality control. There are many kinds of machine-operated sprayers, the most common of which are low-pressure, high-pressure, air-carrier, and fogger types.

Straight fertilizers are recommended for cashew plantations instead of complex fertilizers as the recommended dose of NPK (nitrogen, phosphorus, and potassium) for cashew is not available in any form among the complex fertilizers which are available at present in the market






PC (c) Outline the procedure for applying fertilizer

For the first fertilizer application of the season, apply granular fertilizers by broadcasting them either by hand or with a spreader onto the soil surface of the target plants. Using a hoe or spade fork, work the fertilizers into the top 10 to 15 cm of soil.



1. Open the furrow with the help of plough.
2. Count the number of furrows and measure the total area of operation.
3. Calculate and weigh the required dose of fertilizer for each furrow and place the fertilizer in the furrow.
4. Cover the furrow with the soil.
5. Apply irrigation if required

PC d) State the tools used for applying fertilizer

<p>Pitchfork</p>	
<p>Wheelbarrow</p>	
<p>Spade</p>	
<p>Manure Spreader</p>	
<p>Protective clothing gear</p>	

PC e) Apply fertilizer in a cashew plantation



Situation: You are the co-owner on a new small cashew plantation. You have to now apply fertilizer in your plantation to the cashew plantation.

Instructions:

1. Select the equipment apply fertilizer.
2. Select the method used to apply fertilizer.
3. Apply the fertilizer.
4. You have **1 hour**.

Performance Criteria:

1. Correct equipment is selected
2. Method is selected based on specific outcome required
3. Fertilizer is applied
4. Time limit is adhered to

Use the checklist to follow the stated steps applying fertilizer in a cashew plantation. Rate your own performance critically and honestly after you have completed each activity.



Excellent



Okay



Try Again

Daily PM Activities	Rate
1. Correct equipment is selected	
2. Method is selected based on specific outcome required	
3. Fertilizer is applied	
4. Time limit is adhered to	

Self-assessment:

PC (a)

Explain application of fertilizer in a cashew plantation

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PC (b)

Explain methods of applying fertilizer

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PC (c)

Briefly outline the procedure for applying fertilizer

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PC (d)

State the tools used for applying fertilizer

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