



UNIT
8



Harvesting & Handling



LEARNING / FACILITATING MATERIALS

PINEAPPLE PRODUCTION
NATIONAL CERTIFICATE I





Introduction

Welcome to the start of your career in land and soil preparation in pineapple production

A career in land and soil preparation for pineapple production has never been as popular as it is now; competition is strong and the standards are getting high. So you must aim higher, particularly if you see pineapple industry as opportunity to build up your lifelong career.

Many career options are also available within the land and soil preparation for pineapple production. This unit will also look at the, methods of land preparation, farm land demarcation and understanding of soil preparation for planting

While training, you should make an effort on improving your personal habits, skills and knowledge to get along well with the working industry. All these aspects are essential to achieving success in the world of work.

Congratulations for making the decision to study land and soil preparation for pineapple production. You have taken the first step towards a very interesting and satisfying career.

This learning material covers all the Learning Outcomes for land and soil preparation requirements for the Certificate I programme.

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Demonstrate knowledge in de-greening of fruit before harvesting

On completion of this LO, the learner will be able to:

- a) Explain the importance of de-greening.
 - b) Use maturity indices in sampling of fruits for harvesting,
 - c) Identify different types of de-greening agents,
 - d) Test for the brix level of pineapple fruits
 - e) Apply different methods of de-greening
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PC (a) Importance of de-greening

De-greening is a process of inducing pineapple fruit colour from its green state to yellowish–orange to attain ripening.

There are two main methods of de-greening, that is pre and post-harvest de-greening. Ethephon and ascorbic acid are the main agent used in de-greening process.

Some importance of de-greening are:

- Improves the flavour of the fruit,
- Increases the brix level of the fruit by reducing the acid,
- It increases the juice content and makes the fruit attractive.
- It speeds up maturity of fruit for market.
- Use maturity indices in sampling of fruit for harvesting

PC (b) Maturity Indices of pineapple:

Pineapples are non-climacteric fruits and should be harvested when ready to eat. Minimum soluble solids content of 12% and a maximum acidity of 1% will assure minimum flavour acceptability by most consumers. Maturity indices for pineapple fruits ready for harvesting are:

- Colour change at the base of fruit
- Brix level,
- Spaces in the eyes and Less firmness of the fruit.

Activity

Learner will be taken to a pineapple farm to use maturity indices of fruits to sample pineapples ready for harvesting.

PC (c) Identify types of de-greening agent:

The following are common types of de-greening agents used in pineapple production:

- Ethephon,
- Ethylene and
- Ascorbic acid.

Activity

Learner will be resourced to identify de-greening agents from a variety of chemicals.

PC (d) Test for brix level:

The instrument use in testing brix level in pineapple fruit is a Refractometer (Brix Meter).

Refractometers measure on a "Brix" scale and measuring the Brix level of fruits and vegetables is very important because it is a great indicator of flavour and quality.



Picture 1: Pictures of two types of refractometers (a) and (b)

Refractometers are a standard piece of equipment for many Agronomists and are a standard tool used in the pineapple industries. Juice factories and vineyards especially use refractometers so they can measure the level of flavors in the juices and blend them to consistent brix level every time. Many companies are also now offering big bonuses to farmers who can produce high brix fruits because it means they have to add less artificial sweetener to the juices which are devoid of any nutritional value (unlike natural sugars)

Activity

Learner to be given under listed equipment and follow the procedure to conduct brix test.

A. Equipment

- i. Refractometer
- ii. Fresh pineapple juice

B. Procedure

- i. Collect a refractometer from your teacher (these should be handled carefully as they are expensive!)
- ii. Ensure the refractometer prism surface is clean and dry.
- iii. Place a small amount of fresh juice (a couple of drops is sufficient) onto the prism of the refractometer.
- iv. Look through the eyepiece while pointing the prism in the direction of good light (not directly at the sun).
- v. Focus and take the reading of where the base of the blue colour sits on the scale and record the percentage sugar (°Brix).
- vi. Clean the refractometer immediately with a damp tissue, and dry thoroughly.

PC (e) Applying different Methods of de-greening

There are two methods of de-greening; pre and post-harvest de-greening.

Activity

The learner will be given de-greening agents and assisted to carry out pre-harvest de-greening and post-harvest de-greening methods in a pineapple farm.



Self-assessment

1. Explain the term de-greening in pineapple production.

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2. List any three (3) importance of de-greening in pineapple production.

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3. State two (2) de-greening agents in pineapple production.

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4. State any three (3) maturity indices in pineapple production.

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Demonstrate knowledge in harvesting

On completion of this LO, the learner will be able to:

- a) Describe methods of harvesting.
 - b) Explain the importance of harvesting fruits at the right maturity
 - c) Explain the importance of harvesting at the right time of the day
 - d) Explain the importance of proper handling of pineapple fruits.
 - e) Explain reasons for selecting appropriate transport for harvested pineapples.
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PC (a) Methods of harvesting:

Harvesting is the procedure in removing mature fruit from the stalk.

The two common methods of harvesting are: manual and mechanized harvesting.

Manual harvesting: It is the use of human effort to harvest pineapple with the use of knives and hands to cut the peduncle/stalk.

Mechanized harvesting: It is the use of machines in harvesting the ripe mature fruit from the stalk.



Picture 2: A mechanical harvester

PC (b) Importance of harvesting at right maturity

The time at which a fruit is harvested depends on its final use i.e., fruit for cannery, export or for local market. Fruit meant for cannery are harvested at full ripe stage; those for export and those meant for local market can be harvested at half ripe stage.

Pineapples are to be harvested at the right maturity period for the following reasons:

- Meet market demand
- Maintain fruit quality
- Prevent post-harvest loss

PC (c) Importance of harvesting at the right time of the day

Harvest at the right time of the day, preferably in the morning from 6am-9am or late in a day 4:30pm-6:30pm, this is to:

- Enhance fruit quality for export,
- Reduce sunburn prior to pre-cooling
- Avoid evapo-transpiration.

PC (d) Importance of proper handling of pineapple fruit.

It is important to handle pineapple fruit properly from harvesting to the final consumer state, among the importance are:

- Maintain market value
- Ensure demand remains high
- Increase shelf life
- Reduce postharvest losses.

Reasons for selecting appropriate transport for harvested pineapple

Better transport is important for the movement of pineapple from farm gate to its final destination for quality assurance and reduction in post-harvest losses. Without this, fruits may:

- Suffer from sun burn
- Rot due to high temperature
- Suffer reduction in flavour
- Suffer bruises
- Reduce fruit quality.

Some of the means that pineapples are transported are, freezer vans, paper and plastic crates in cargo trucks and tractor trailers.



Self-assessment

1. Outline two (2) methods of harvesting pineapples
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2. State two (2) reasons of proper handling of pineapple fruits
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3. Explain two (2) reasons why pineapple is harvested in the morning.
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4. State two (2) reasons why pineapple should be harvested at the right maturity time.
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5. State two (2) reasons why quality assurance and post-harvest loss is important during pineapple transportation.
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