

**Ministry of Education**  
**Curriculum Planning & Development Division**

**Level: Forms 4 & 5**

***CSEC Agricultural Science Syllabus***

**SECTION B: CROP PRODUCTION**

**1. Anatomy and Physiology**

***Specific objective(s):***

1.4 Distinguish between sexual and asexual reproduction in plants;

Artificial (propagation techniques) – **layering**, root cuttings, stem cuttings, budding, grafting, tissue culture.

1.5 Demonstrate the techniques used in plant propagation;

***SBA Skill # 8: Demonstrate plant propagation techniques;***

8 (a) Budding (done in a separate lesson)

8 (b) Grafting (done in a separate lesson)

**8 (c) Layering (Simple)**

Air Layering ( done as a separate lesson)

8 (d) Cuttings (done in a separate lesson)

# Artificial Plant Propagation Techniques : Simple Layering

# What is Simple Layering ?



- ▶ Simple Layering is a propagation method that encourages new roots to form on BRANCHES that are STILL ATTACHED TO THE PARENT PLANT.
- ▶ The parent supplies the layer – the new plant – with water and nutrients during the rooting process.

# Some plants that can be propagated by simple layering

Ficus



Hibiscus



Rose



# Some plants that can be propagated by simple layering

Croton



Ixora



Broad-leaf thyme  
(Spanish Thyme)



# Tools and Materials needed for Simple Layering

Parent plant with shoots close to the ground



Sharp knife or budding knife



Hand trowel



# Tools and Materials needed for Simple Layering

<p>Rooting hormone</p>	
<p>Small brush</p>	
<p>Gloves</p>	

# Tools and Materials needed for Simple Layering

<p>Wire</p>	
<p>Compost</p>	
<p>Watering Can</p>	

# Safety Precautions

- ▶ Ensure budding knife is handled properly and held in the correct manner to prevent injury to self and others.
- ▶ Ensure rooting hormone is **NOT** ingested by yourself or others or comes into contact with skin and it is properly secured after use.
- ▶ Wear protective wear at **ALL** times.
- ▶ Ensure all materials used are stored in a safe place after use.



## Step 1

- Select a young pliable shoot on the parent plant that is low to the ground to be layered.



## Step 2

- Using a hand trowel, loosen the soil and add compost where the shoot will be buried.



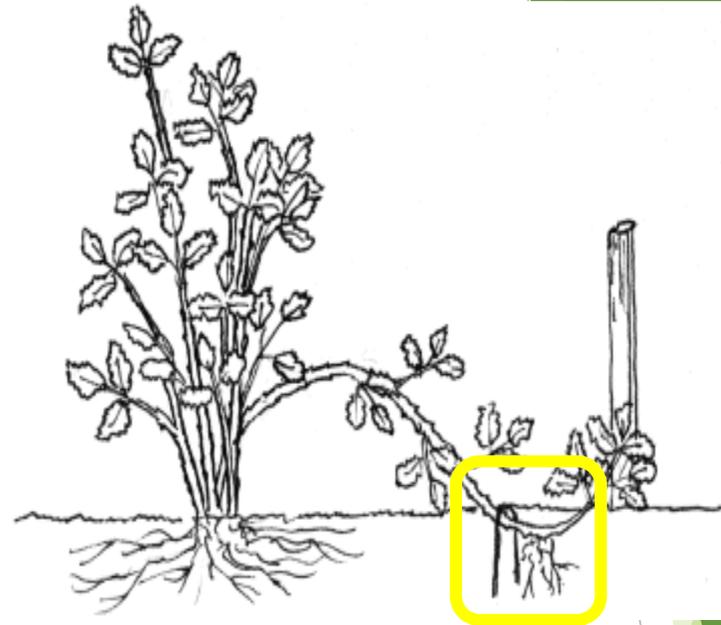
## Step 3

- Make a cut with a sharp knife where the shoot will touch the soil.



## Step 4

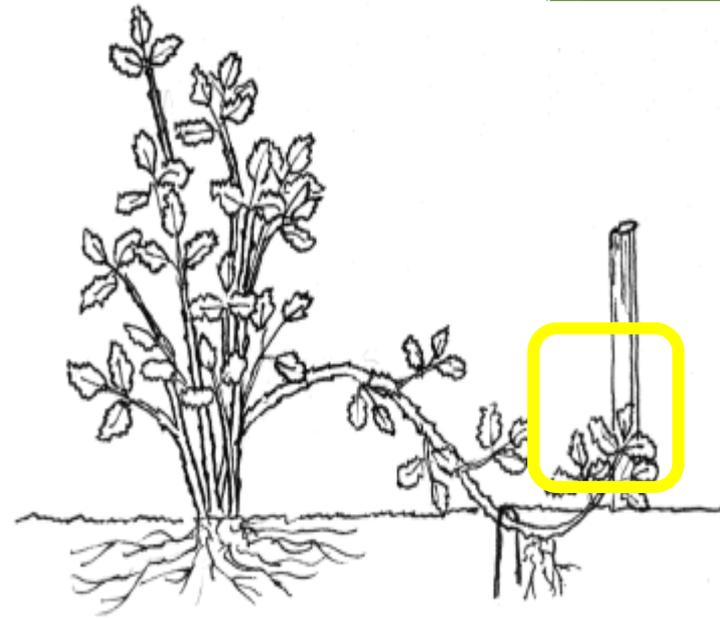
- Dust the cut area with rooting hormone powder.



<https://onf.coop/propagating-berry-bushes/>

## Step 5

- Lay the shoot (the layer ) in the hole prepared.
- Fasten the shoot/ layer with a piece of wire or a forked stick.



<https://onf.coop/propagating-berry-bushes/>

## Step 6

- Tie the shoot/ layer's tip to a stake to help it grow upwards.



## Step 7

- Fill in the hole covering in the shoot/ layer.
- And firm the soil around the layered shoot.
- A rock (stone) may be placed on top to help hold the layer shoot in place.



## Step 8

- Water the soil around the layered shoot to keep it moist and encourage root development



## Step 9

- Apply mulch to the area of the shoot to keep the shoot/ layer moist.

# Post Operation

- ▶ 3 to 4 weeks afterwards, Check for root development
- ▶ Cut new plant free from the parent plant.
- ▶ Dig up the new plant, keeping plenty soil around the roots.
- ▶ Move new plant to its intended location.

# Some benefits of Simple Layering

- ▶ It is a relatively simple process to perform.
- ▶ It can be done without any special equipment or structures.
- ▶ It is a method of propagating new plants when seeding, cutting, grafting and other methods are impractical or ineffective.
- ▶ Through this propagation method you obtain all the positive qualities of the parent plant.

# Some limitations of Simple Layering

- ▶ Requires shoots low to the ground which do not always occur. Therefore it is not practicable to be done on a large scale.
- ▶ Labour intensive.
- ▶ Through this propagation method all the negative qualities of the parent plant is obtained.

# EVALUATION

1. What is Simple Layering?
2. Explain the purpose of the following items used in Simple Layering
  - Budding knife
  - Rooting hormone
  - Water
3. Explain the steps needed to prepare the planting area for Simple Layering?
4. State TWO benefits and TWO limitations of Simple Layering
5. Outline the steps required to produce a croton plant by simple layering

# ANSWERS

## 1. What is Simple Layering?

Simple Layering is a propagation method that encourages new roots to form on BRANCHES that are STILL ATTACHED TO THE PARENT PLANT.

## 1. Explain the purpose of the following items used in Simple Layering

- Budding knife - Used to make an incision on the shoot where the shoot will touch the soil
- Rooting hormone -Used to stimulate root formation on buried part of the layered shoot
- Water -provides a moist environment for optimum root development on the layered shoot.

# ANSWERS

3. Explain the steps needed to prepare the planting area for Simple Layering?

Using a hand trowel, loosen the soil and add compost where the shoot will be buried.

4. State TWO benefits and TWO limitations of Simple Layering

Benefits:

It is a simple process to perform.

It can be done without any special equipment or structures.

Limitations

Requires shoots low to the ground which do not always occur.

Therefore it is not practicable to be done on a large scale.

Labour intensive.

# ANSWERS

## 5. Outline the steps required to produce a croton plant by simple layering

1. Select a young pliable shoot on the parent plant that is low to the ground to be layered.
2. Using a hand trowel, loosen the soil and add compost where the shoot will be buried.
3. Make a cut with a sharp knife where the shoot will touch the soil.
4. Dust the cut area with rooting hormone powder.
5. Lay the shoot (the layer ) in the hole prepared. Fasten the shoot/ layer with a piece of wire or a forked stick.
6. Tie the shoot/ layer's tip to a stake to help it grow upwards.
7. Fill in the hole covering in the shoot/ layer, firm the soil around the layered shoot. A rock (stone) may be placed on top to help hold the layer shoot in place.
8. Water the soil around the layered shoot to keep it moist and encourage root development
9. Apply mulch to the area of the shoot to keep the shoot/ layer moist.