Panel on Cashew Grafting (Grafting Techniques)

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Introduction

1. Regeneration of New Plant Cells

- **The roots** – can generate a system of new growth, i.e. the stem and the leaves

- **The stem** – can regenerate a root system, i.e. the roots, a new growth part and the leaves.

Introduction

- **The leaf** – can regenerate a root system and a new growth part, i.e. the roots and shoots

2. The rootstock and the **new growth** can be merged to form **a single plant**

Why vegetative propagation by means of grafting ?

To produce **a uniform plant** with the same properties as the **mother-plant**:

- High Yield
- Good-sized nut
- Disease-resistant
- Uniform tree

A Grafted Plant

The main components of a grafted plant are the:

- **Rootstock** and
- **Scion**

1. Seed for the rootstock

- Viable seed (stored at a low temperature, and with low moisture content – 10%)

- Seeds to be used – clean, healthy and uniform-sized

1. Seed for the rootstock (Cont'd)

- **Flotation Test** to test the best seeds to be planted.

- **Seedlings of nuts** – direct or pre-germinated in polythene plastic bags

Floatation Test for the Selection of Seeds

To achieve this:

- The seeds are poured into a bucket of water filled half-way;
- The seeds that get to the bottom of the bucket are collected and nursed in a nursery;
- Whereas the floating ones go into the stock meant for sale.

Floatation Test

Floatation Test for the Selection of Seeds

- The selected seeds are planted (in polythene plastic bags containing the substrate) with:
  - The scar at the point of attachment of the apple pointing upwards, and
  - The nut slightly pushed to a depth of **2-3 cm** into the substrate and covered again with substrate.

1. Semence pour le porte-greffe
(suite)

The plants in nurseries must be properly arranged:

- One plot should contain **200 seedlings** with
- A **path** in between two plots and
- Placed in **polythene plastic bags** to prevent the roots from penetrating into the soil.

2. Scions

- **Medium hard new sprouts:**
  - Greenish brown cuttings,
  - With dormant terminal buds,
  - Swollen and standing in upright position.

- Must be prepared on the tree 4-5 days before their harvests

2. Scions (Cont'd)

- Must be harvested **early in the morning** or **late in the evening** in order to avoid dehydration.
- The graft must be kept in a **wet paper** or **wool** or in a **clean cotton material** and kept in a cool place, in an ice box or a carton.
- Label the graft to facilitate its identification

Harvesting of Scions and Storage

Harvested scions

Harvesting of scions and storage

Stored in a newspaper

Harvesting of scions and storage

Soaked in water

Preparation of the Rootstock

- Age of the new plants developed on the rootstock – **45-60 days with** 2-4 mature lower leaves;

- **Size** of the rootstock must be the same as the diameter of a pencil

- Rootstock– must be of the same **thickness as the graft**.

Preparation of the rootstock

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d & e selected rootstocks on stools for the grafting

Preparation of the rootstock

Cut the three leaves below with a knife or with a blade

Preparation of the rootstock

Make a vertical incision of about of 3 – 5 cm

Preparation of the scion

a. The length of the scion must be **13-15 cm**

b. Use a sharp knife to make **two very smooth and sharp wedge-shaped vertical incisions** (3-5 cm) on opposite sides,

Preparation of the Scion

Preparation of the Scion

- Protect the scion from **drying out**

- Prepare the scion (for grafting) when **the opening on the rootstock** is ready in order to avoid dehydration

Joining the scion and the rootstock

- **Fix the cut scion with its wedge-shaped edge** in a rootstock by ensuring that they are in close contact (on both edges or on only one edge)

- **Tie** the joined piece with grafting tape measuring **1.5 cm** wide and **25 cm** long

Joining the scion and the rootstock

- Cover the whole joined piece with a transparent plastic cap measuring **3 cm x 15 cm.**

- Note that vapor development inside the cap indicates that the scion has been properly attached – ensuring protection against drying out and infection

Joining the scion and the rootstock

- Scions introduced into the sliced rootstock must ensure that the cambiums of the scion and rootstock are in contact or at least on one side (This is relevant in the event where the scion is either bigger or smaller than the rootstock).

Joining the scion and the rootstock

Joining the scion and the rootstock

Tying scion to rootstock

Tying scion to rootstock

Covering the graft with a polythene cap

- Crumple one side of the cap to open up the end;

- Cover the joined graft with the cap all the way till below the point where the tape ends.

Cover the graft with a polythene cap

Cover the graft with a polythene cap

Maintaining the grafted seedlings

- Always clean the nursery and the shade must be at 50%
- Water it once or twice daily according to the weather (avoid excessive watering)
- Sign of germination – after 2-3 weeks check for the opening of the apical bud

Maintaining the grafted seedlings

- Inspect for any signs of disease or harmful insects and spray it where necessary

- If the growth is seen – remove the plastic cap when the new leaves begin to touch the top of the cap

Maintaining the grafted seedlings

- After 6-8 weeks, remove the tape to ensure that the scar is completely healed.

- The side spouts developing on the joined piece of the grafted seedling must be continuously removed until they stop developing.

Maintaining the grafted seedlings – Cont'd

- Assess the grafted seedling – according to the strength of the graft

Grafted seedlings under 50% shade

Grafted Plants in a nursery

THANK YOU