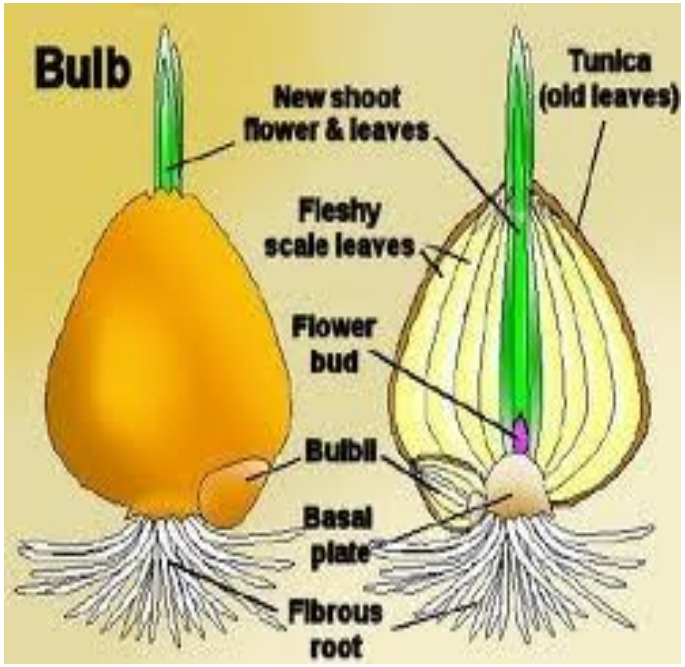
Division & Separation

- Cutting or pulling apart of….
  - Bulbs
  - Corms
  - Rhizomes
  - Tubers
  - Runners
  - Stolens
  - Suckers

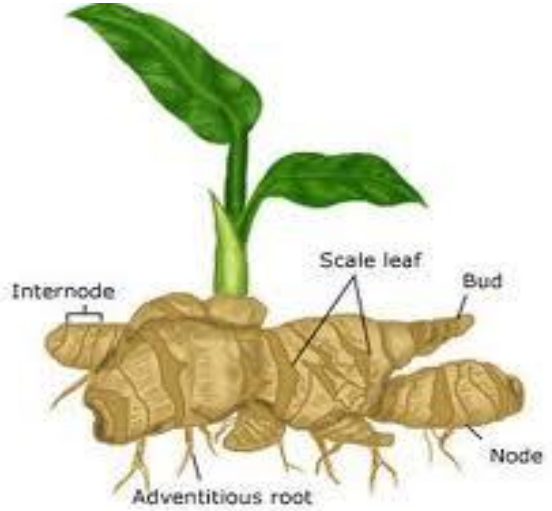
Separation


Bulb
New shoot
flower & leaves
Tunica
(old leaves)
Fleshy
scale leaves
Flower
bud
Bulbil
Basal
plate
Fibrous
root


Lily bulb
bulb scales

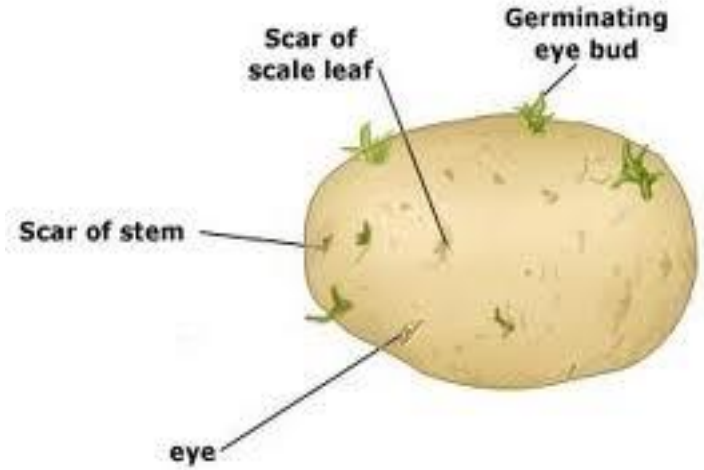
Corm

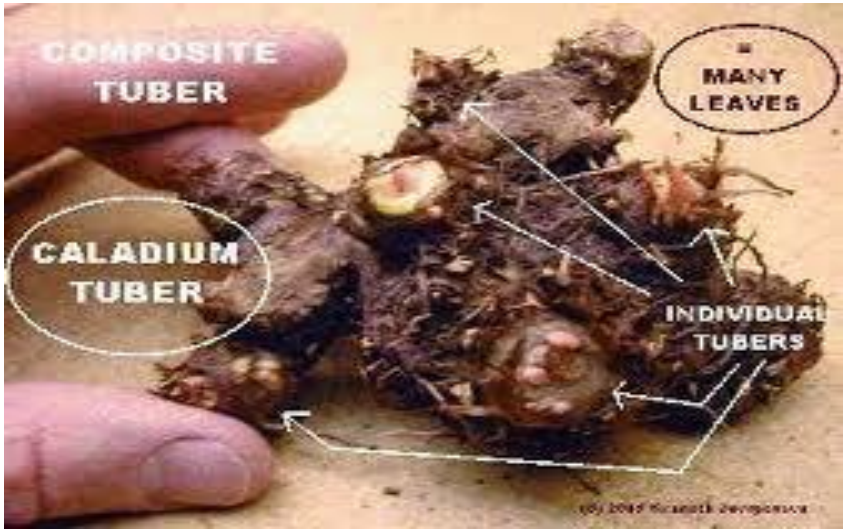
Rhizome



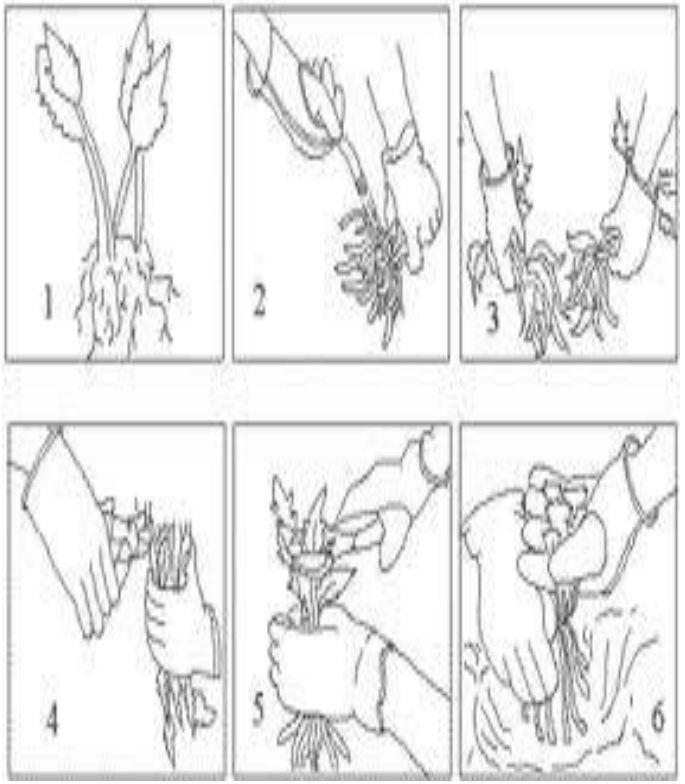
Offset (Offshoot)

Tuber


Scar of scale leaf
Germinating eye bud
Scar of stem
eye


COMPOSITE TUBER
MANY LEAVES
CALADIUM TUBER
INDIVIDUAL TUBERS

Crown



Rooting from Cuttings

- Rooting media should be about 4 inches deep.
- Best time of day to take cuttings is early morning because plants have more moisture.

Rooting from Cuttings

- The three main types of cuttings are….
  - Stem
  - Leaf
  - Root

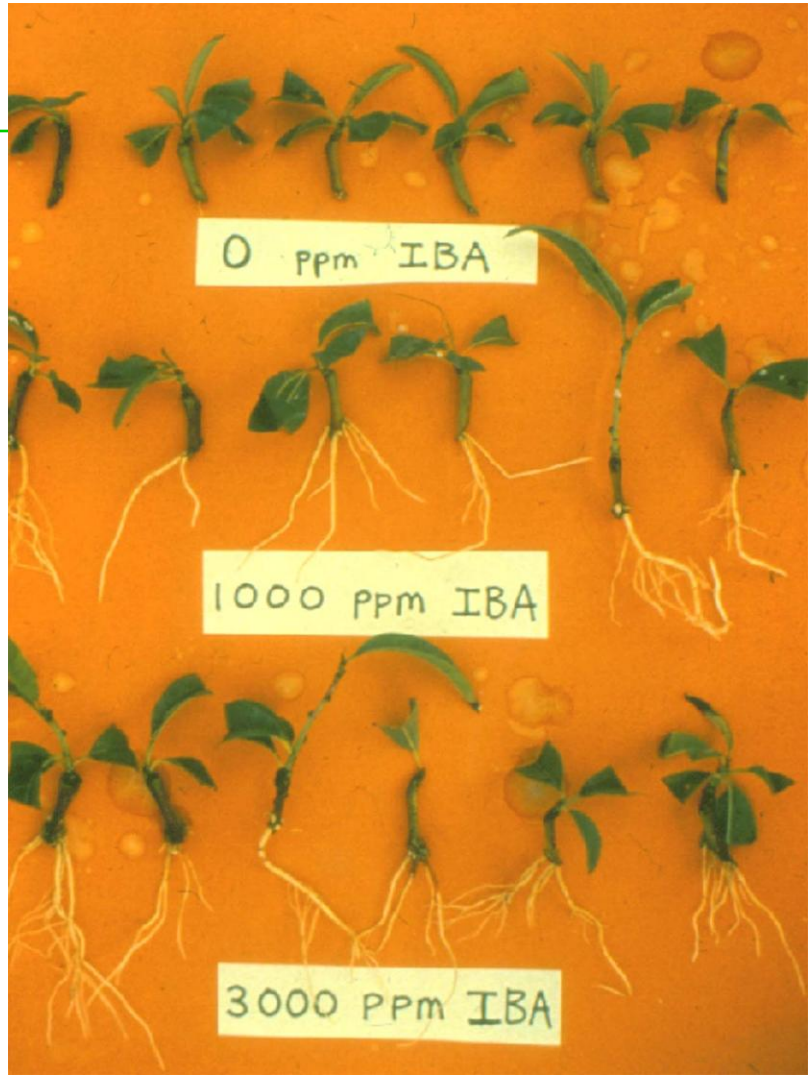
Stem Cuttings

- The taking of a piece of stem to reproduce plants.
- Use a rooting hormone with fungicide to….
  - Speed up root development.
  - Prevent root rot.

Softwood Cuttings-Peach

- **Actively growing shoots are used**

- **Softwood cuttings are taken during spring and summer**



Leaf Cuttings

- The use of leaves and sections of leaves to reproduce plants.
- Done from herbaceous plants.
- Veins must be cut!!!

Single Node Cuttings

Double-Eye Single Node Cutting (DE)

- **Healthier than SE**
- **Less disease attacks**

Single-Eye Single Node Cutting (SE)

- **Largest no. cuttings/plant**
- **Slower development**
- **Higher mortality**

Root Cuttings

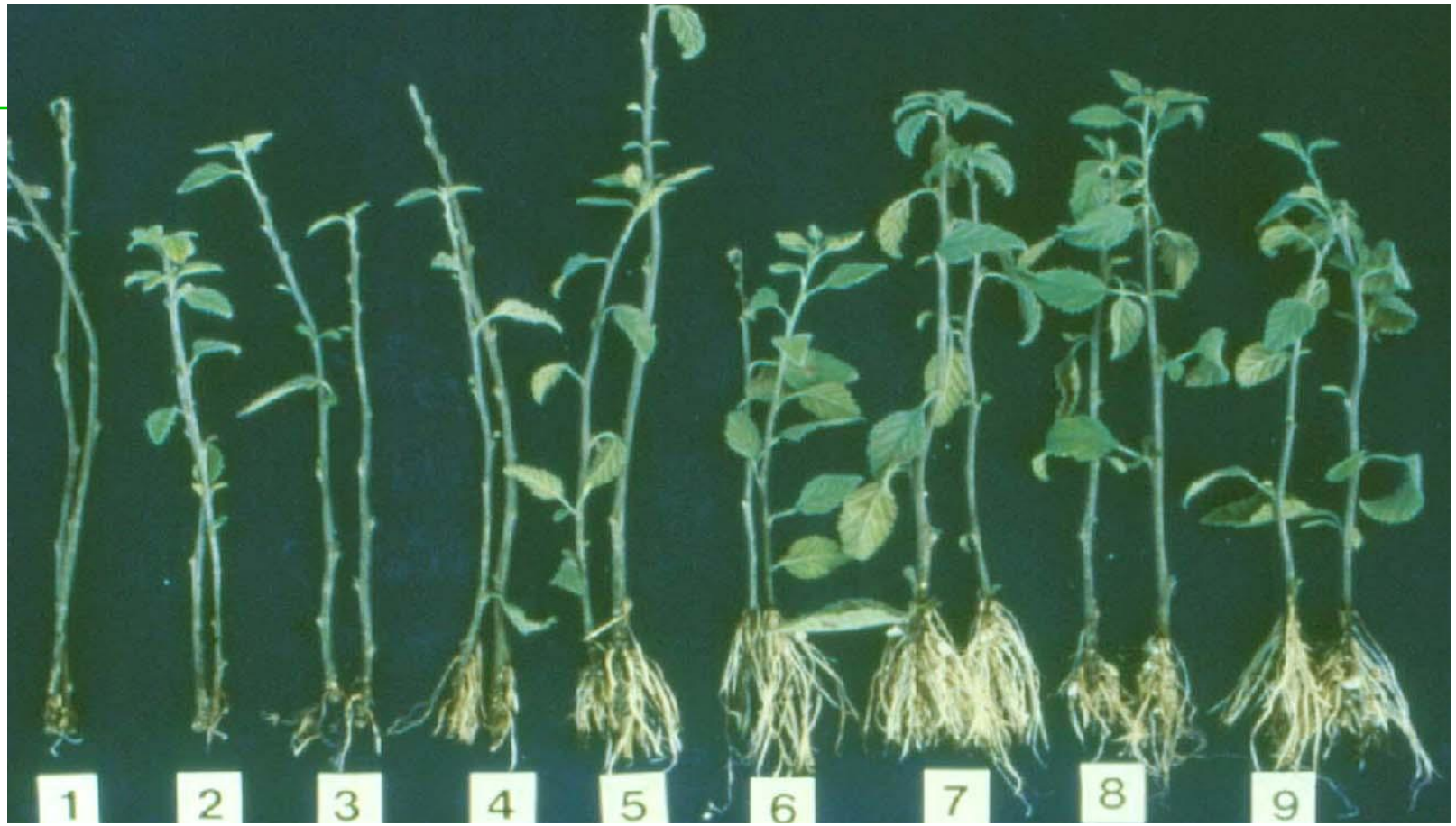
- The use of roots to reproduce plants.
- Should be spaced 3 inches apart in the rooting area.

Semi-Hardwood Cuttings - Jojoba

Treating cuttings in IBA Solution (top)

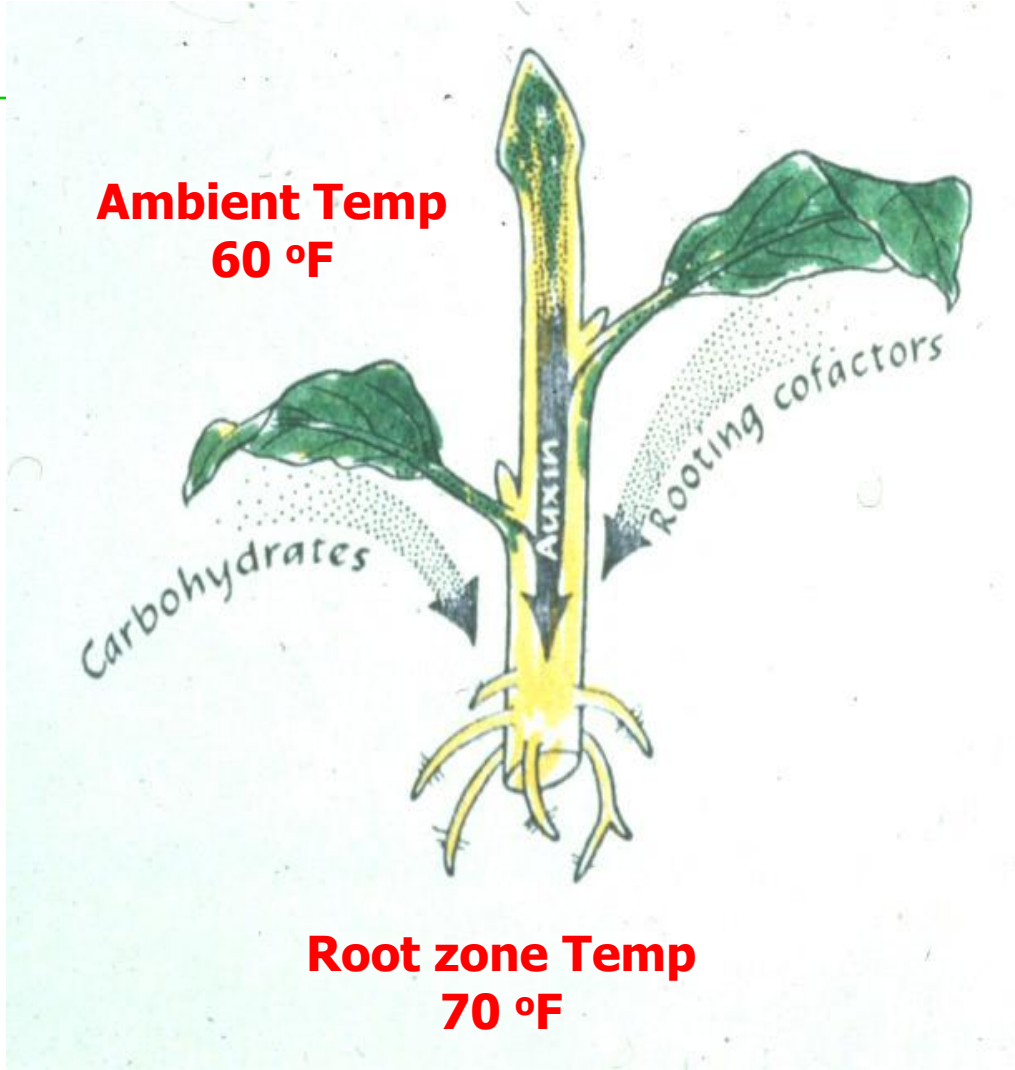
Sticking IBA-treated cuttings in root substrate (bottom)

Influence of IBA on Semi-Hardwood Cuttings - Cordia



1-Control, *2*-50% ethanol, *3*-100 ppm, *4*-1000 ppm, *5*-2000 ppm, *6*-4000 ppm, *7*-6000 ppm, *8*-8000 ppm, *9*-10000 ppm IBA

Temperature Differential Helpful for Root Formation



- Rooting requires carbohydrates (energy), auxin (growth hormone), and rooting cofactors (enzymes)

- Temperature differential (10 °F) between the ambient air and root zone is helpful for faster rooting

Good sanitation is important

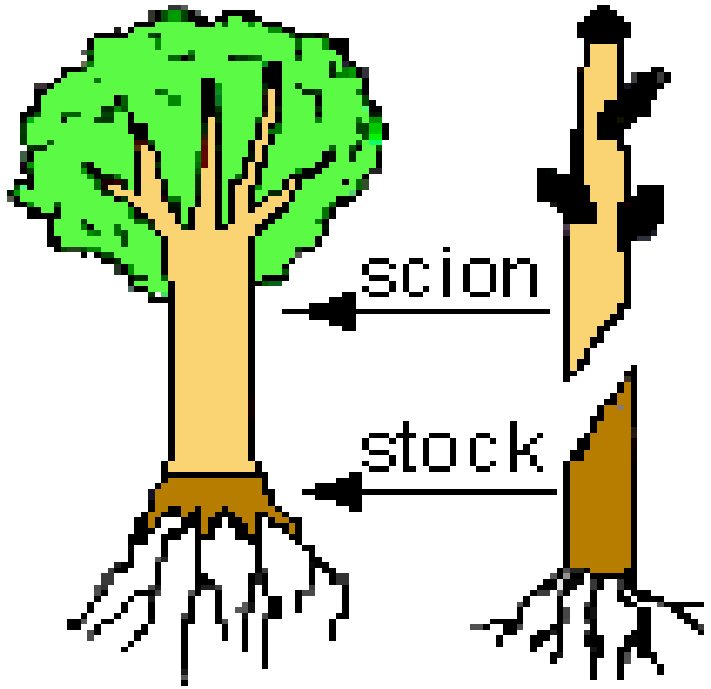
Cutting on the left was infected with Alternaria and did not root

Cutting on the right was healthy and rooted well

Bottom Heat System for Cutting Benches

Grafting

- Joining separate plant parts together so that they form a union and grow together to make one plant.
- Scion
  - Piece of plant at the top of the graft.
- Rootstock
  - The piece of the plant at the root or bottom of the graft.



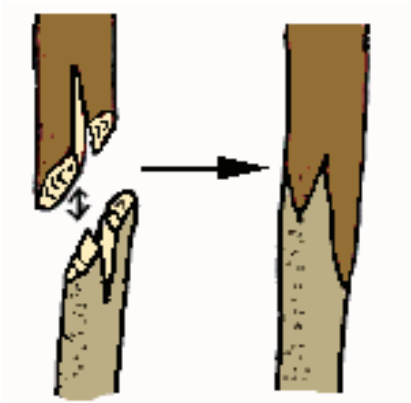
Grafting Methods

- Scion & rootstock are the same size:
  - Wedge
  - Splice
  - Whip & tongue
  - Approach

Grafting Methods

- Scion is smaller than the rootstock:
  - Cleft.
  - Side.
  - Notch.
  - Bark inlay.

Grafting Methods



whip & tongue graft

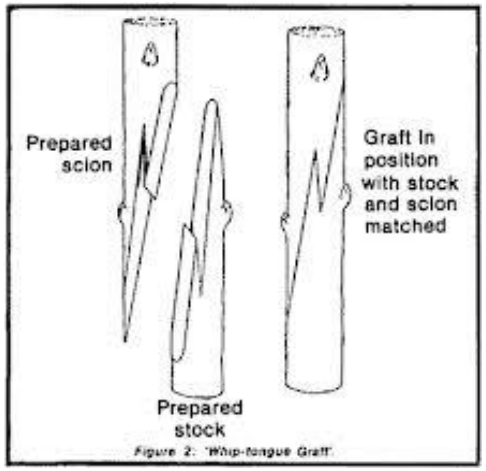
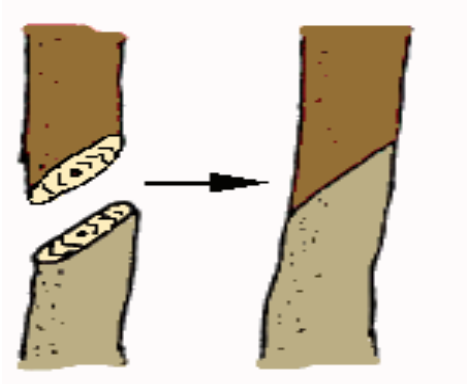
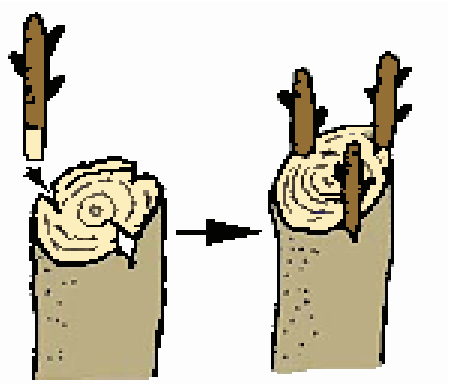


Figure 2: 'Whip-tongue Graft'

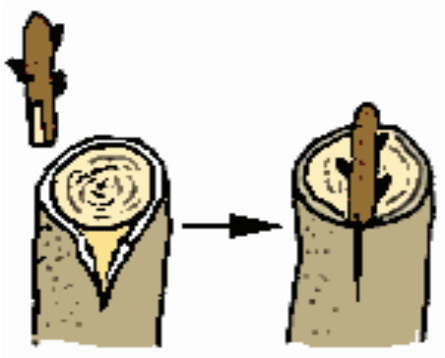


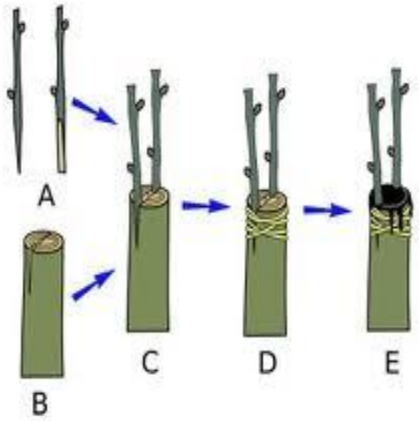
splice graft



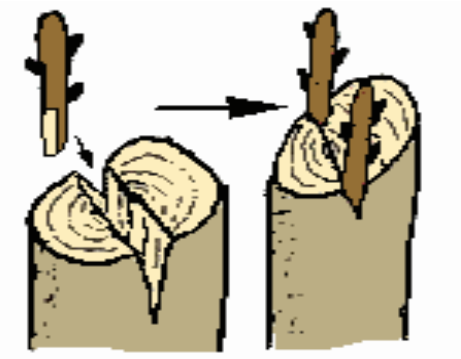
notch graft

Fig. 2.—Triangular Notch-grafting.

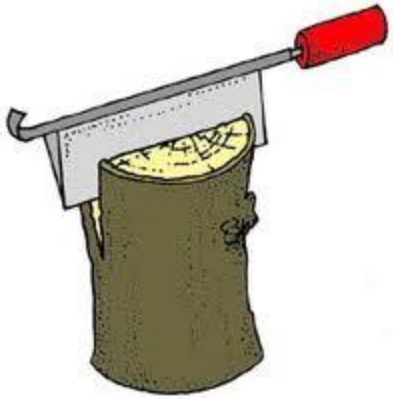


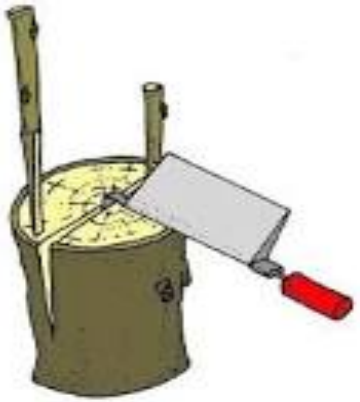


bark inlay graft

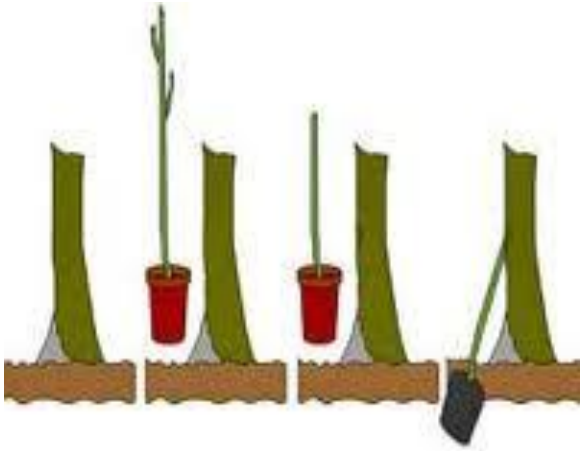


cleft graft

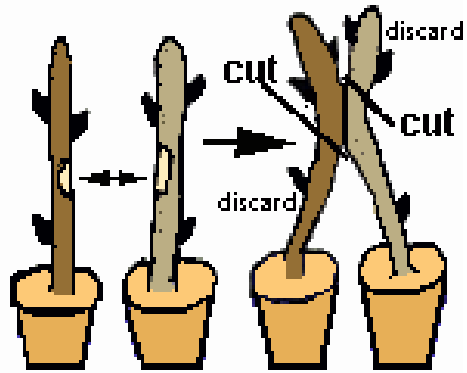




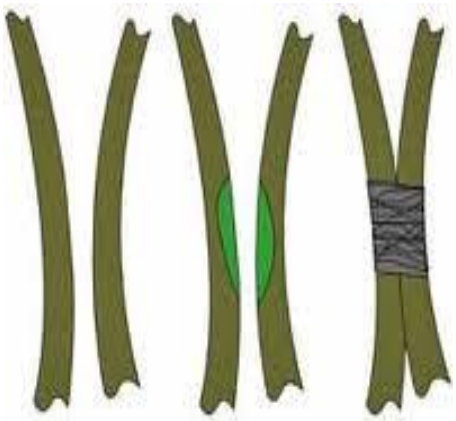
Bridge graft



Inarching graft



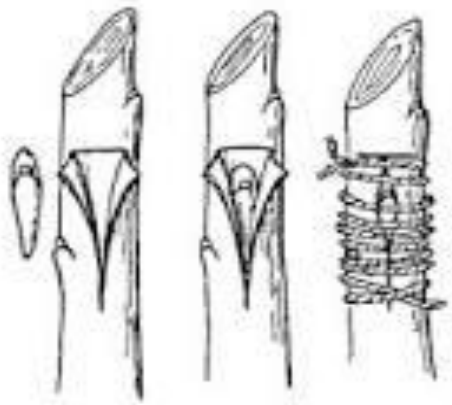
approach graft



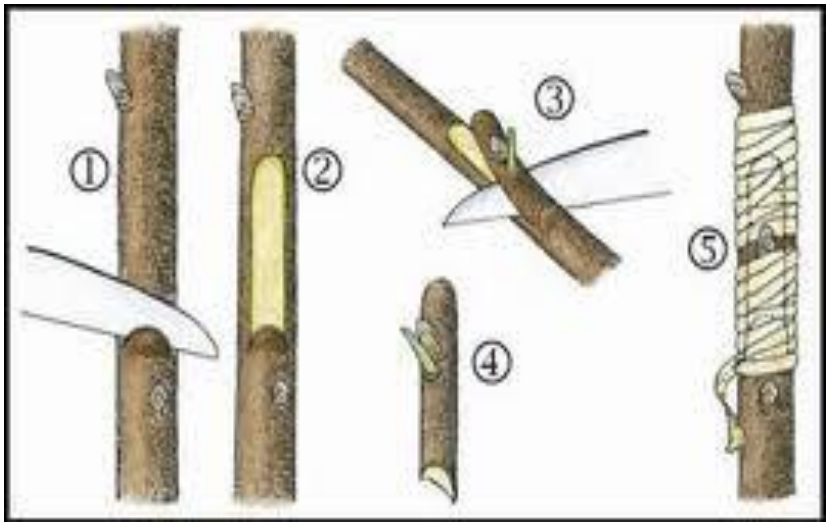
Budding

- A form of grafting when a bud is used.
- Faster or quicker than grafting.
- The 3 main methods are….
  - Patch budding.
  - T-budding.
  - Chip budding.

T-Budding



Chip Budding



Patch Budding