
Grafting
And Budding

Agenda

- Introduction, Purpose & Timing
- Grafting Terms
- How a graft works
- Tools used
- Type of Grafts & Techniques
- Types of Budding & Techniques
- Fun with Grafting

What Is a Graft?

Grafting and budding are methods of asexual plant propagation that join parts from two different plants so they will grow as one plant.

Why do we Graft?

- Propagate where other methods will not work
- Obtain benefits of the stock material

M-9	40%	10ft
EMLA-7	60%	15ft
EMLA-111	80%	20ft

- Change cultivar on established plant
- Repair damage tree parts
- Faster production of new fruit 2/3 vs 5/7 years
- Novelties – more than one cultivar on one tree

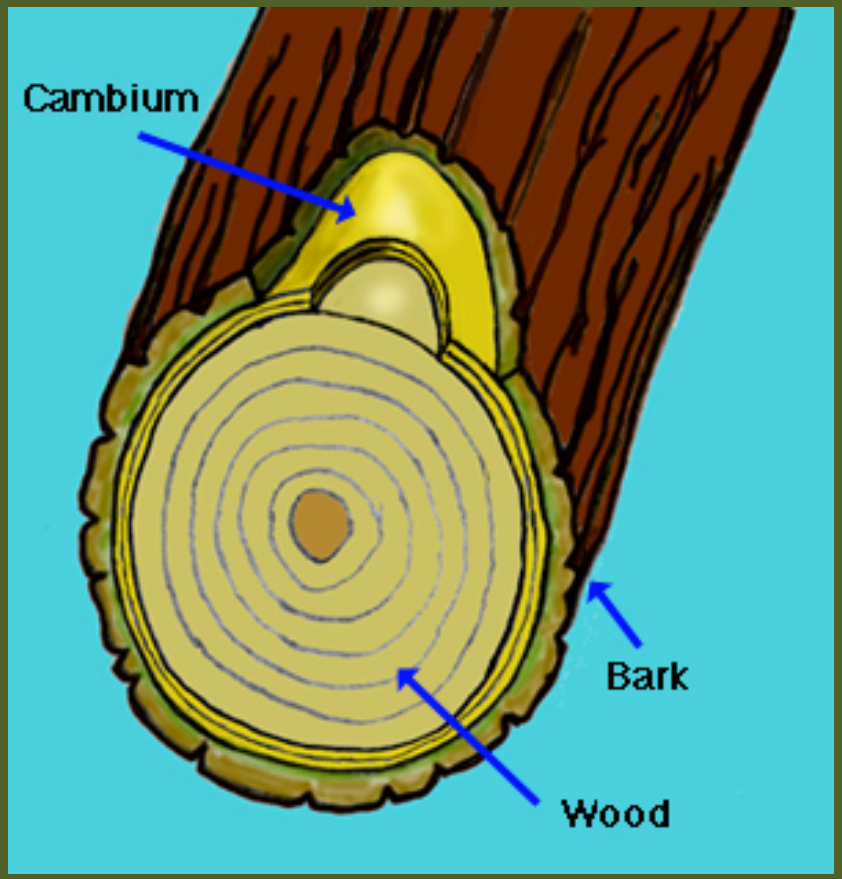
Grafting Terms

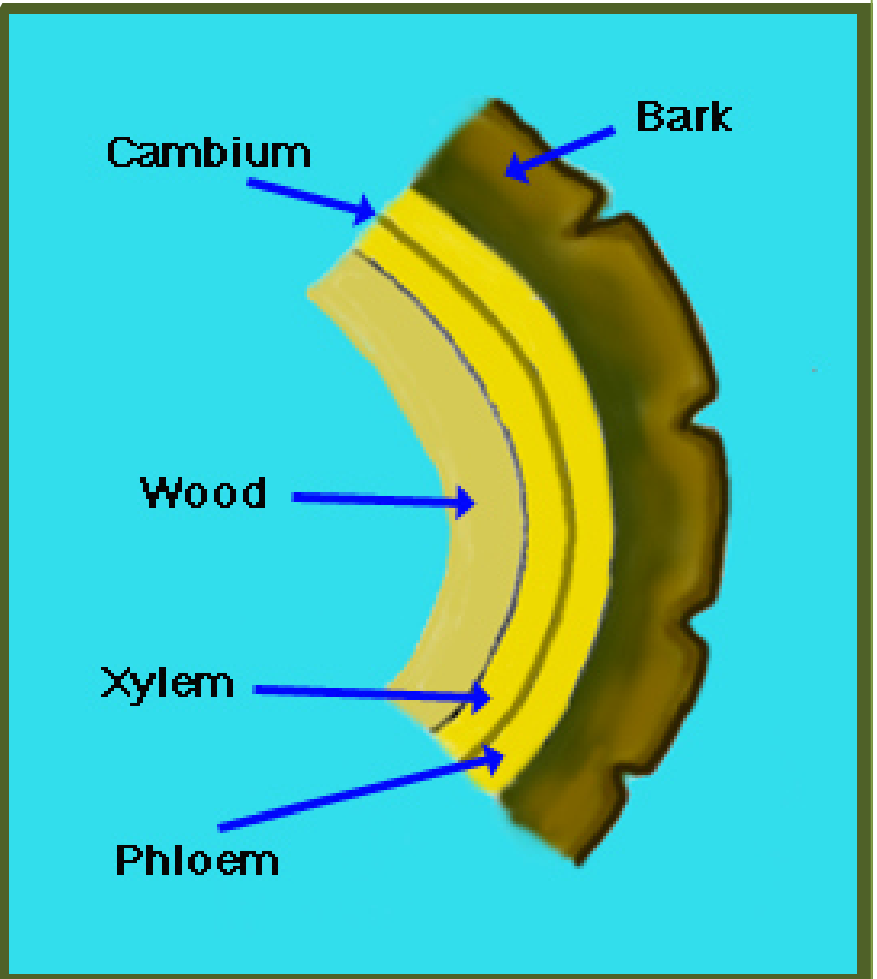
- Grafting: Joining two plant pieces to make one plant
- Scion: Detached shoot from last year's growth with dormant buds, upper graft part.
- Stock: Basal part of the graft (understock or rootstock)
- Interstock: Stem pieces added between stock & scion
- Cambium: This is a single layer of cells between the wood and bark. It must be lined up for a good graft union.

Steps in Healing

- Tissues involved are the Xylem, Phloem and Cambium
- Callus from stock & scion fill the space and interlock to form “callusbridge”
- Callus cells in line between stock & scion cambium change into cambium cells
- New cambium produce Xylem & Phloem in wound to establish a vascular connection.

Tissues involved in graft union





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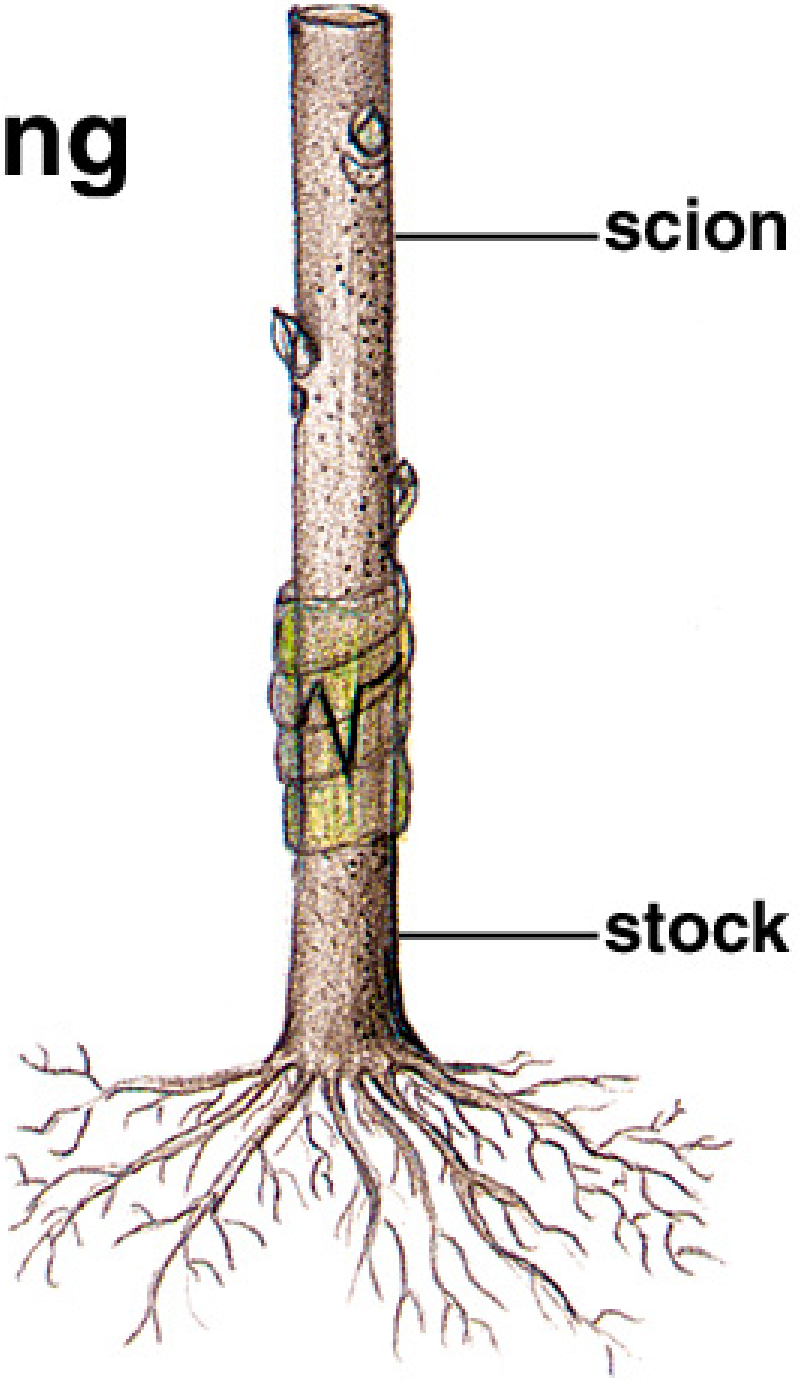
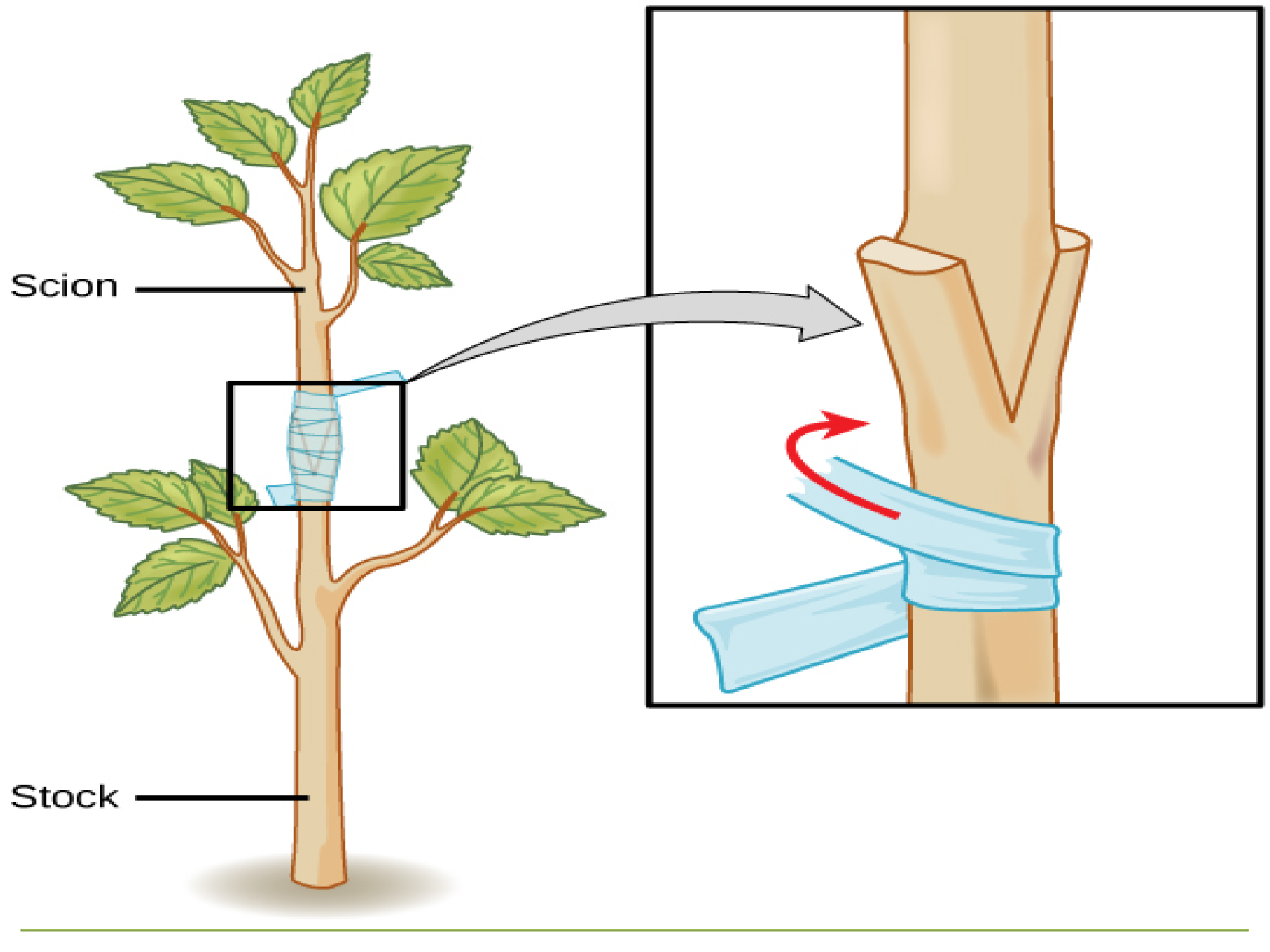
Tools Used

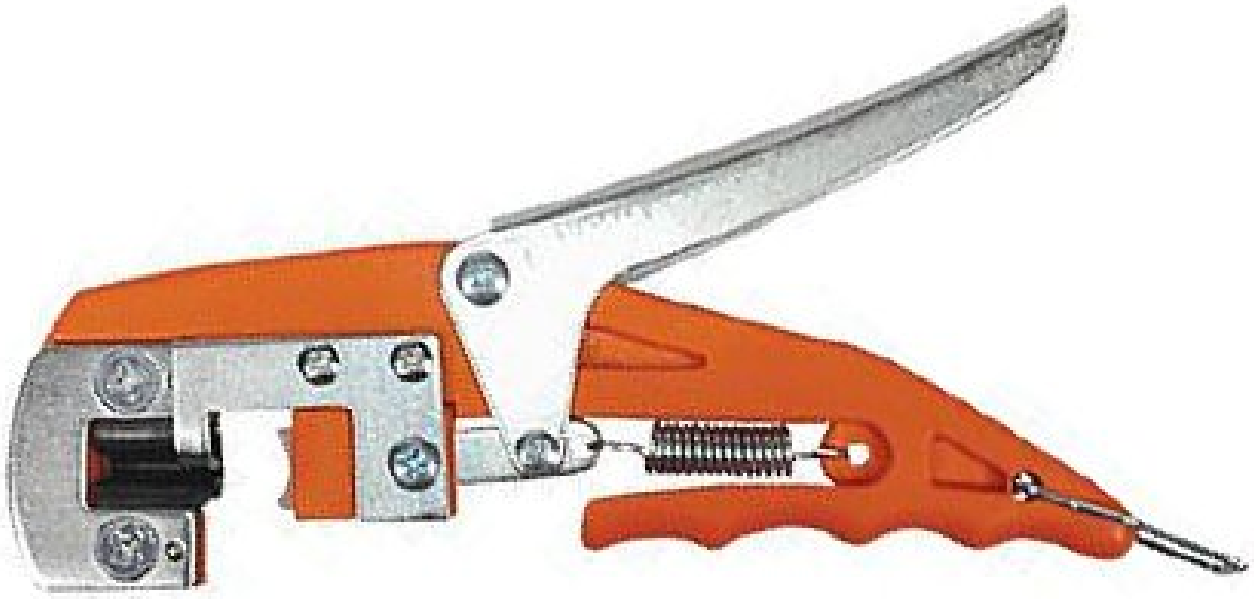
- Budding Knife / Grafting Knife
- Fine tooth saw
- Pruning shears
- Tying Materials : tape, rubber strips
- Wax
- A cleft-grafting chisel or small hatchet/heavy knife

Simple Grafting

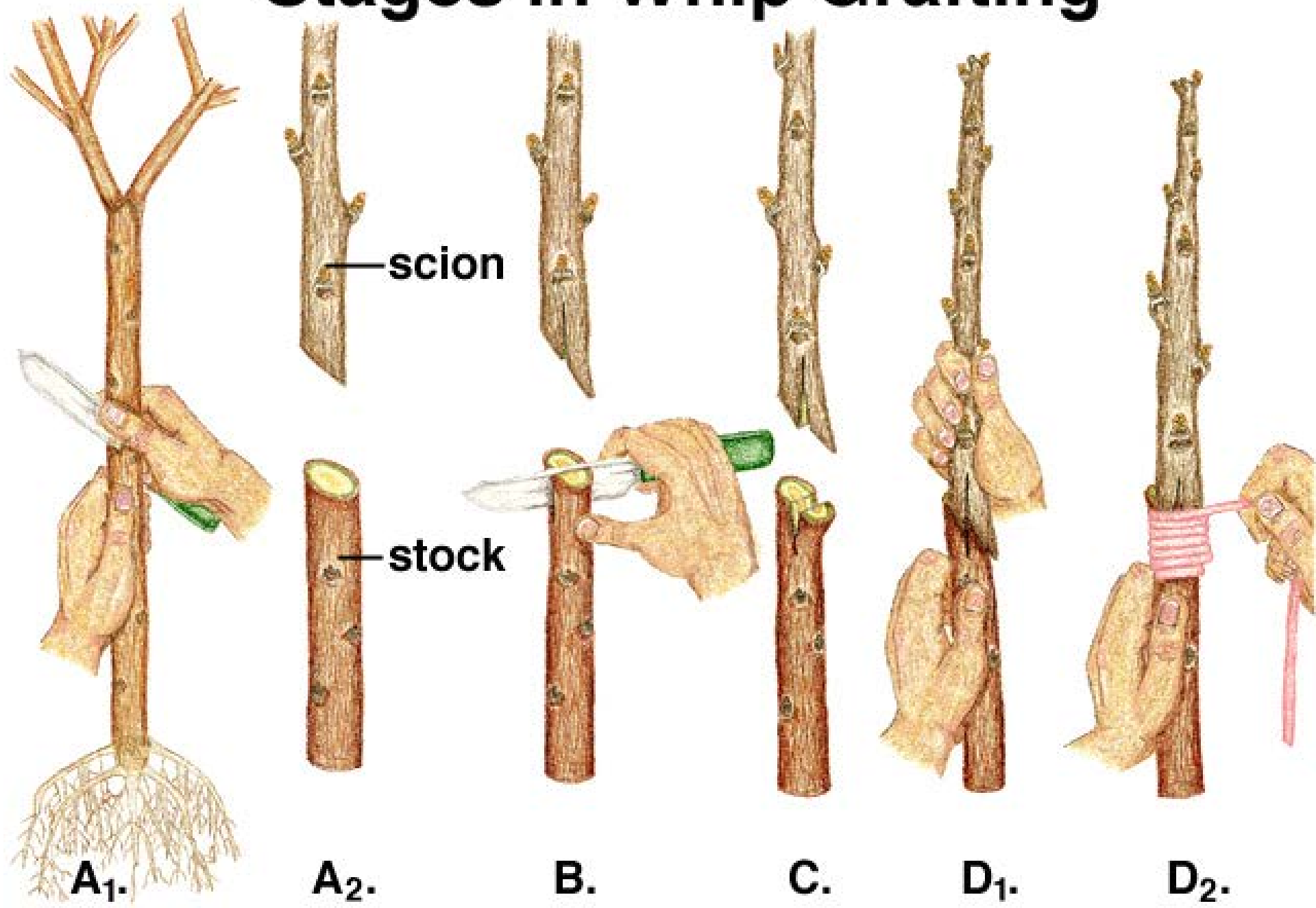



Scion
Stock

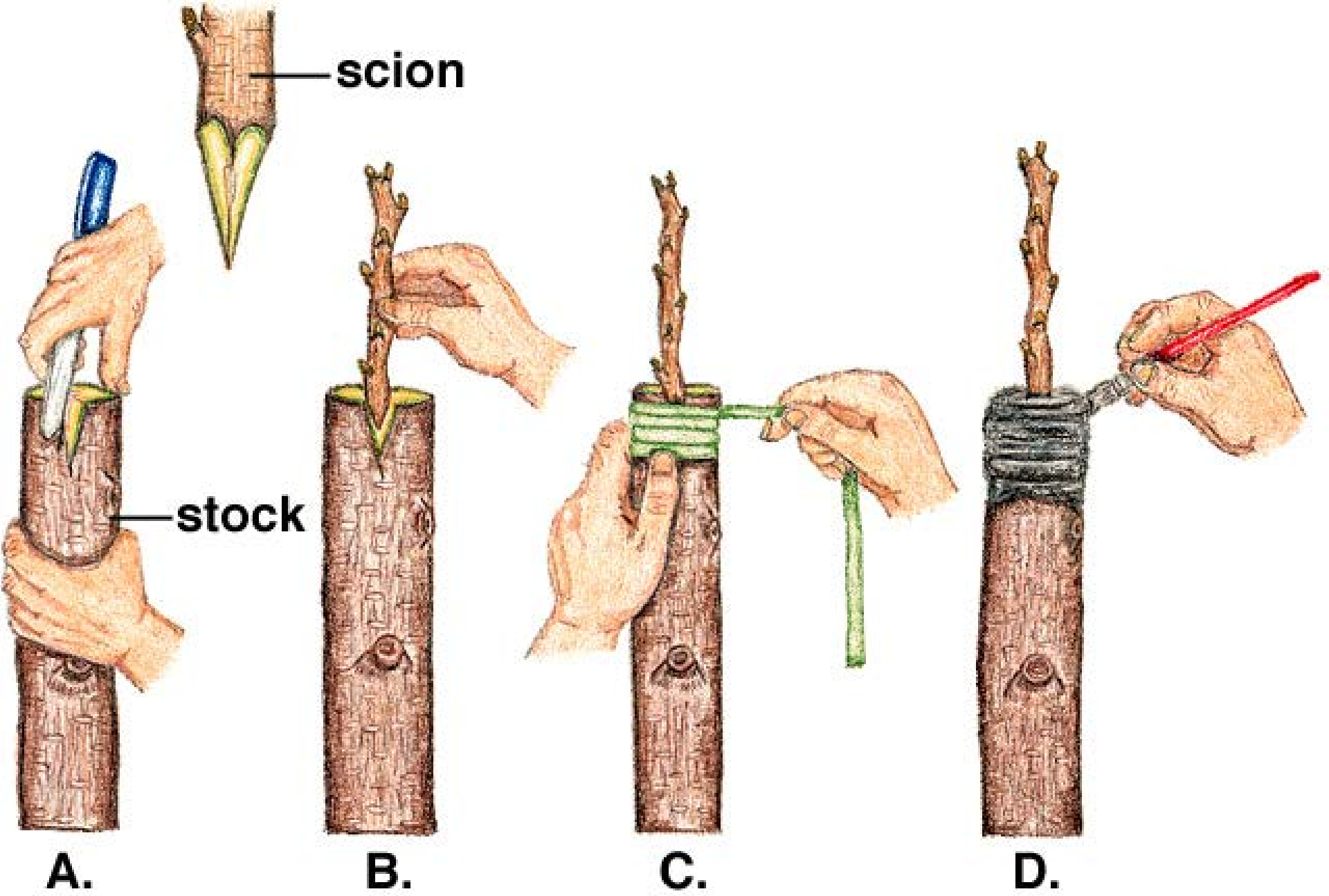
Grafting Machine



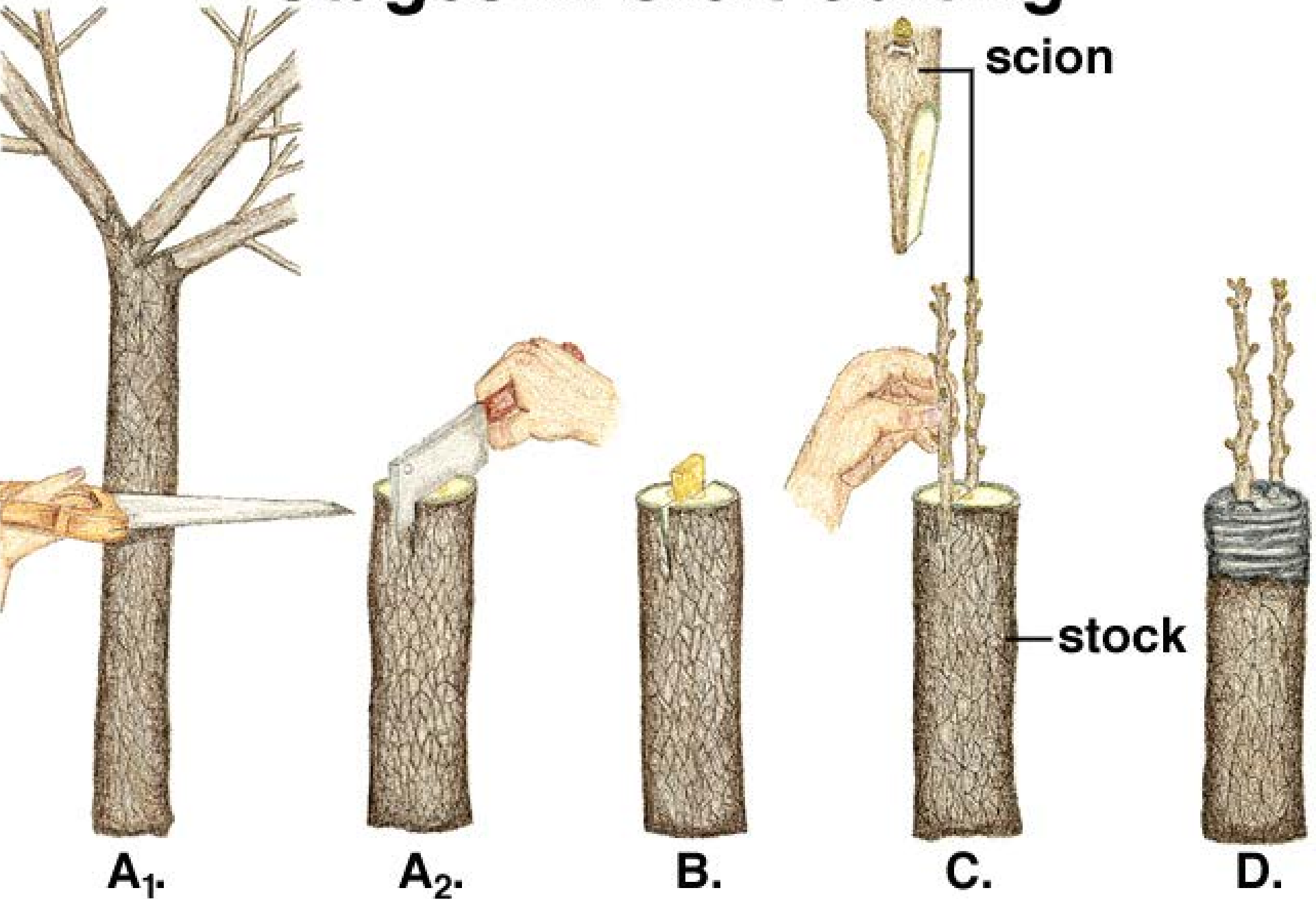
Stages in Whip Grafting



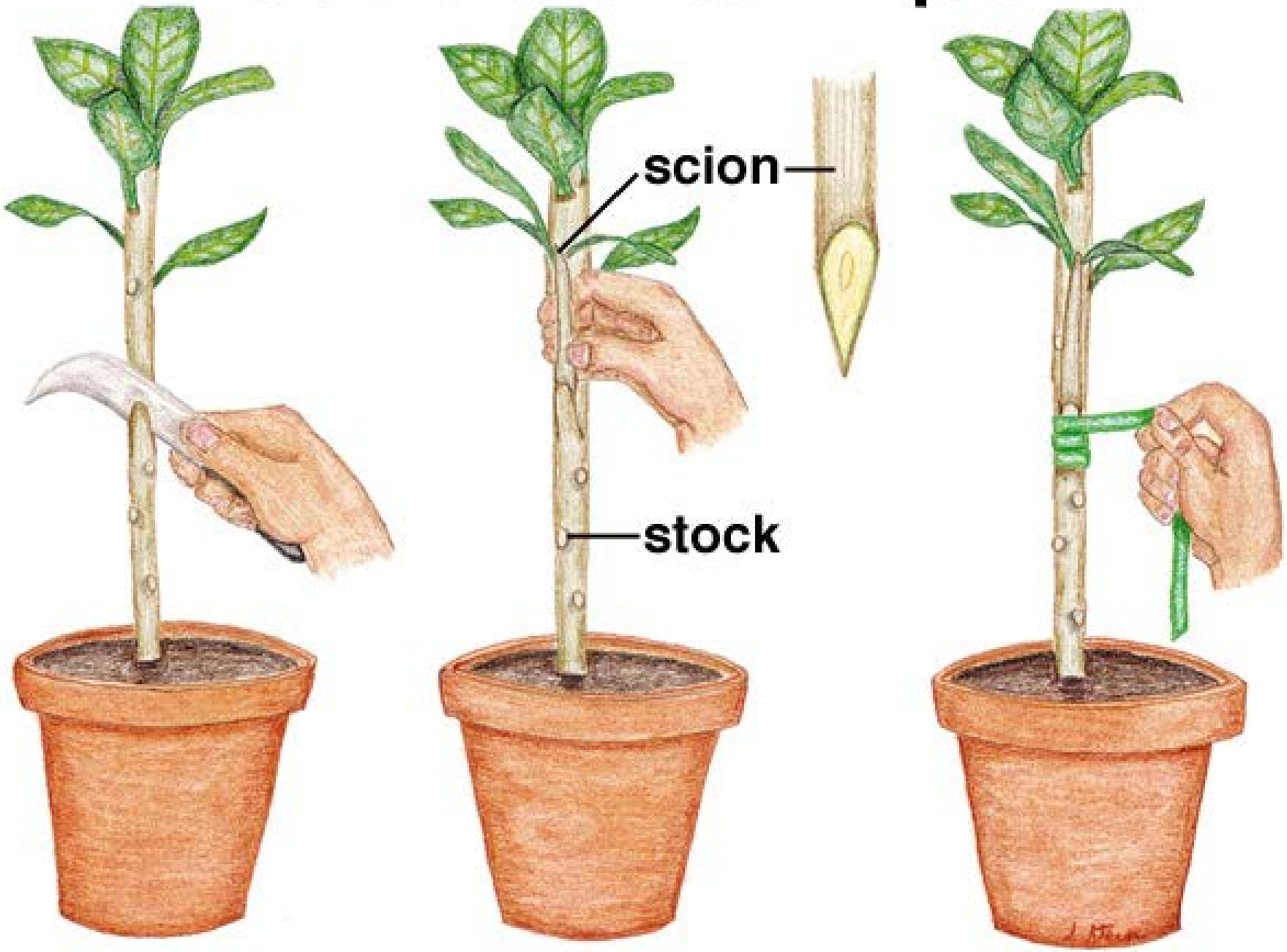
Grafts of Different Diameters



Stages in Cleft Gafting

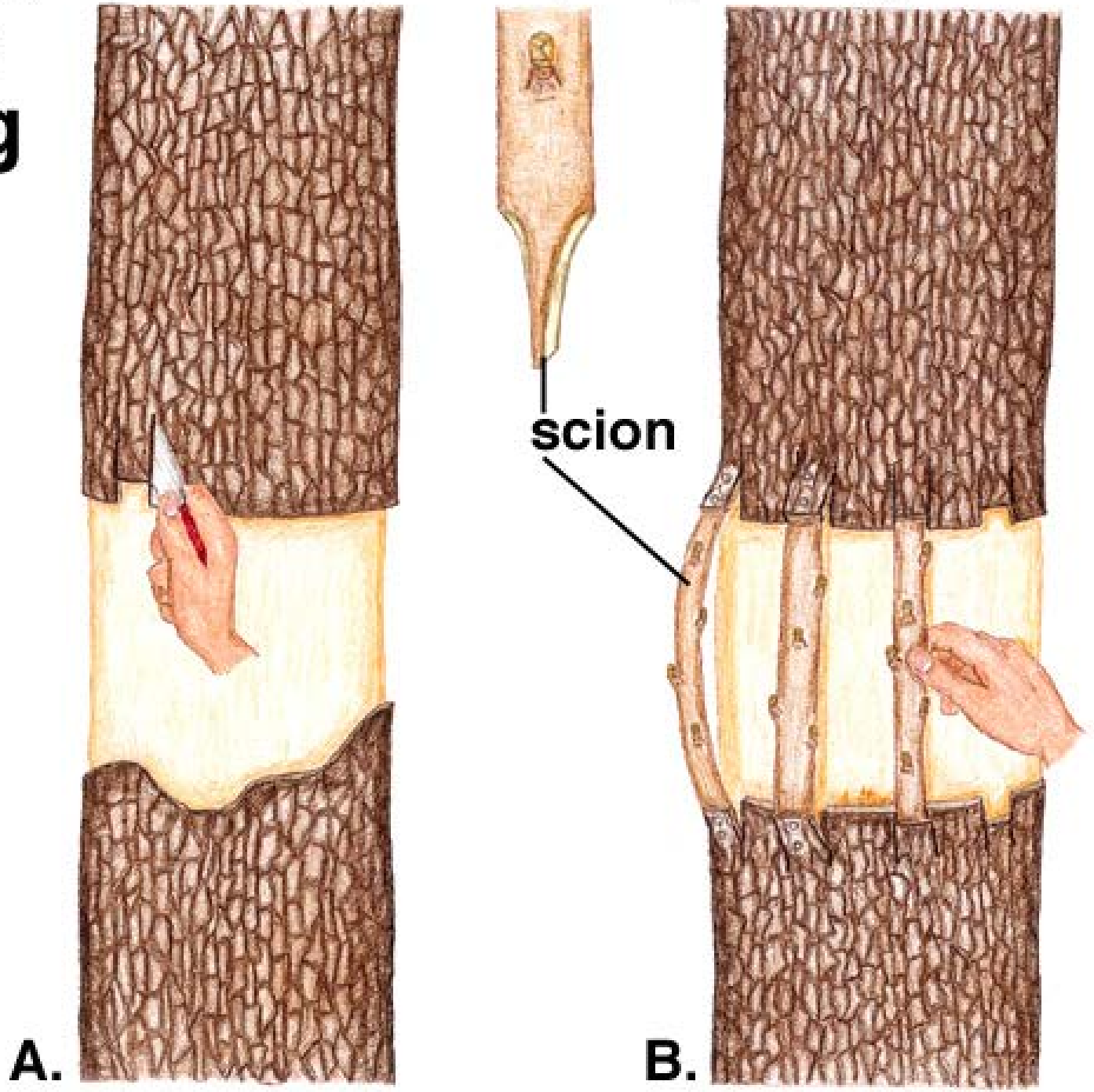


Side Graft Technique

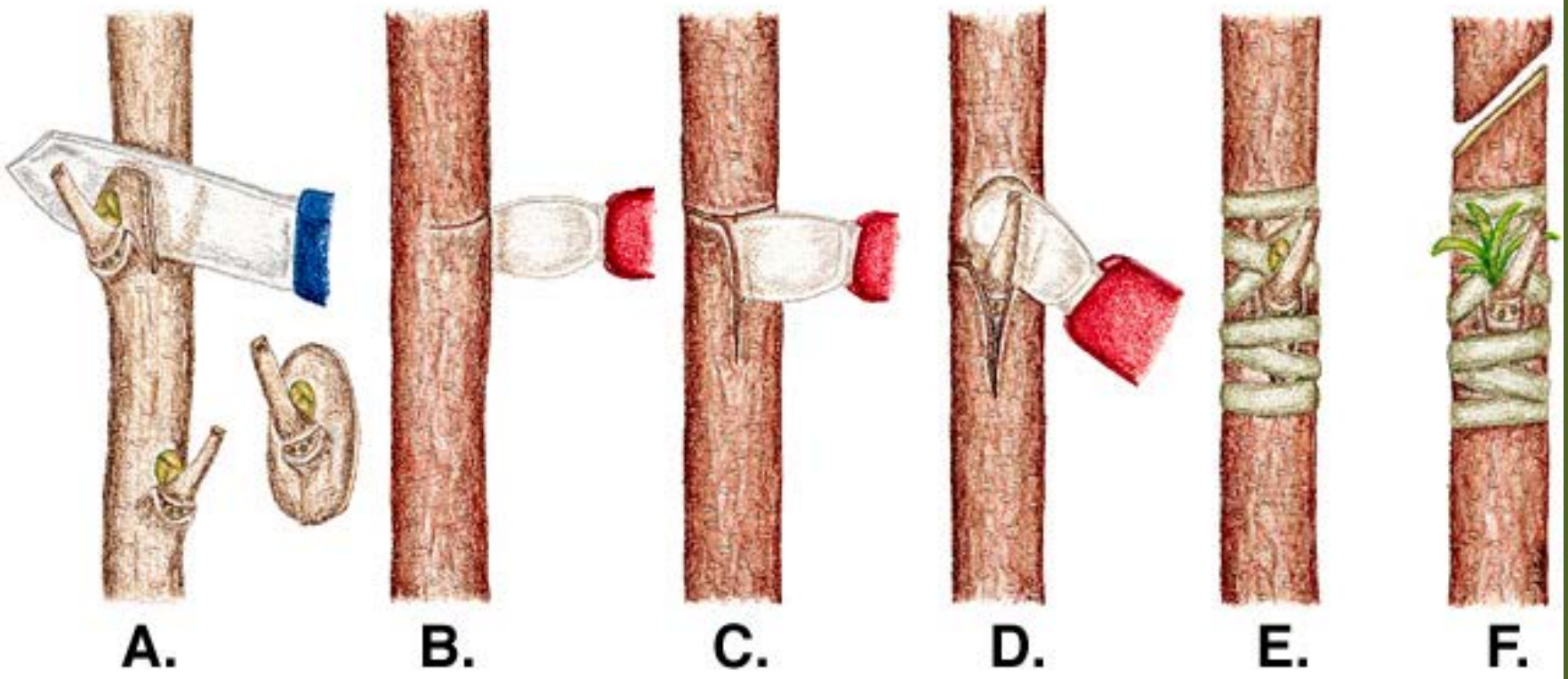


Approach Graft

Bridge Grafting



Bud Grafting



Chip Budding

Grafting and Budding Notes

- Cambial layers of stock and scion must meet
- Parts must be held securely
- Keep air out!
- Union heals by callus production
- Adequate temperature for cell division
- There are limitations!

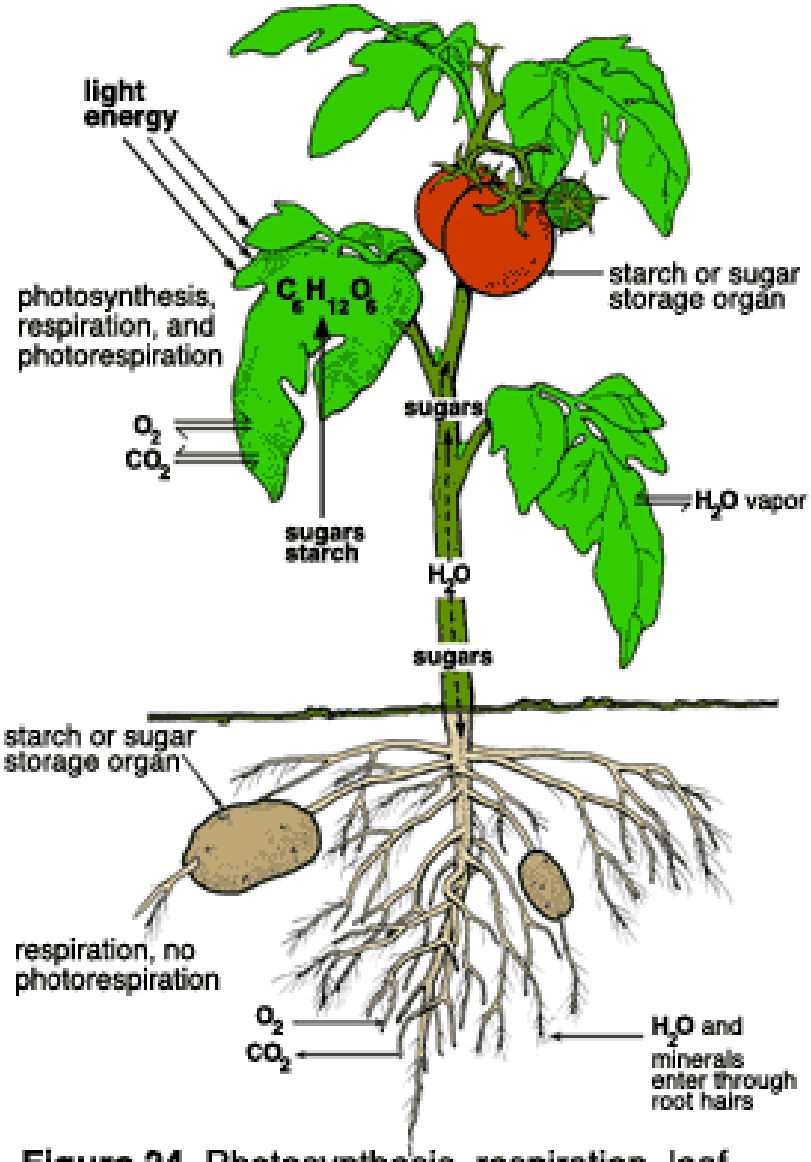


Figure 24. Photosynthesis, respiration, leaf water exchange, and translocation of sugar (photosynthate) in a plant.

Questions ?

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