

# Introduction to Fruit Tree Grafting

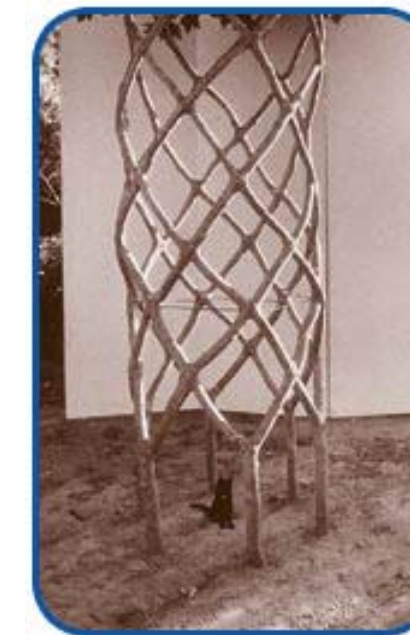
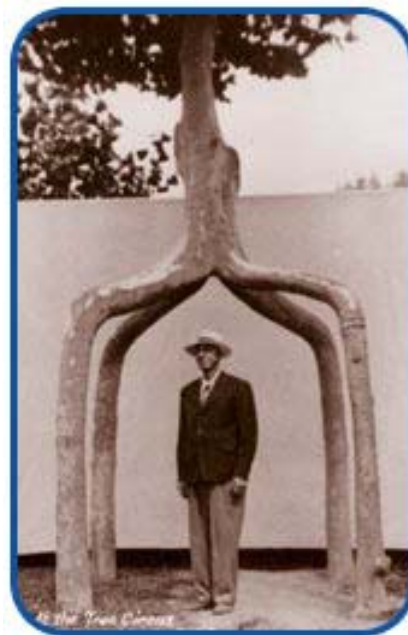
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# Why do we graft?

- Not true from seed
- Weak root system
- Speed up conversion/production
- Dwarfing
- Novelty



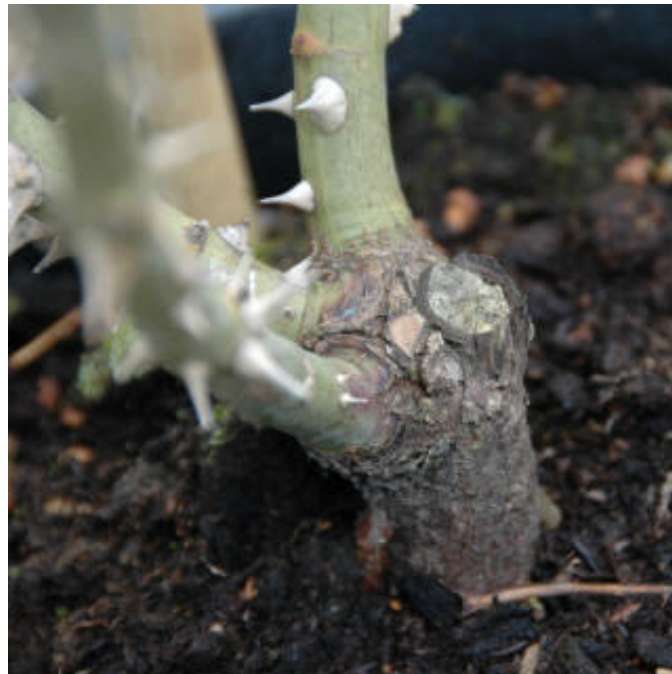


# Grafting Vocabulary



# Rootstock

- That part of a tree which becomes the root system of a grafted or budded tree.

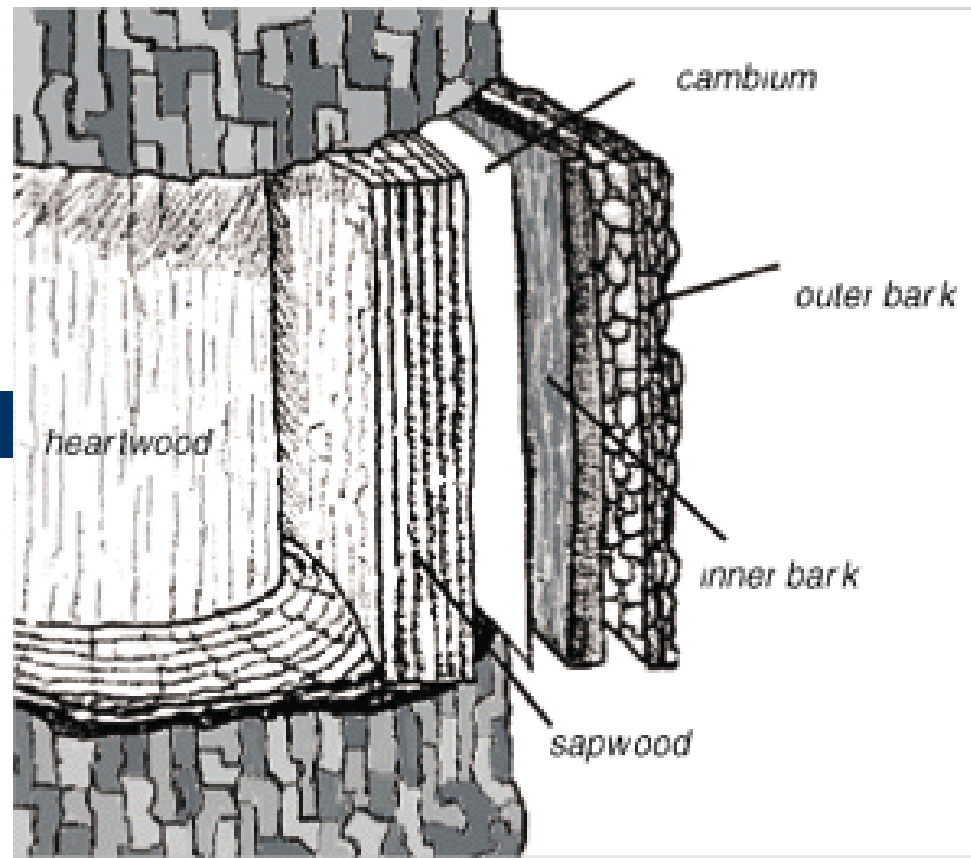


# Scion

- A piece of vegetative wood from the desired variety containing several buds. This material will become the top of the tree where fruit is produced.



# Cambium



- This is a single layer of cells between the wood and bark of a tree or shrub that produces new cells. In grafting, the cambium of the scion must line up as closely as possible with the cambium of the stock for a good union.

# Cultivar

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- This is a term now used in place of variety. It means cultivated variety and differentiates a plant from a botanical or natural variety.



# What Can be Grafted?

- Most varieties of a particular fruit or flowering species are interchangeable and can be grafted.
- Plants of the same botanical genus and species can usually be grafted even though they are a different variety

# What Can be Grafted?

- Plants with the same genus but of a different species often can be grafted. However, the result may be weak or short-lived, or they may not unite at all.

# What Can be Grafted?

- Plants of different genera are less successfully grafted, although there are some cases where this is possible. For example, quince, genus *Cydonia*, may be used as a dwarfing rootstock for pear, genus *Pyrus*.

# What about Genetics?

- Is there a blending of genes when grafts are made?



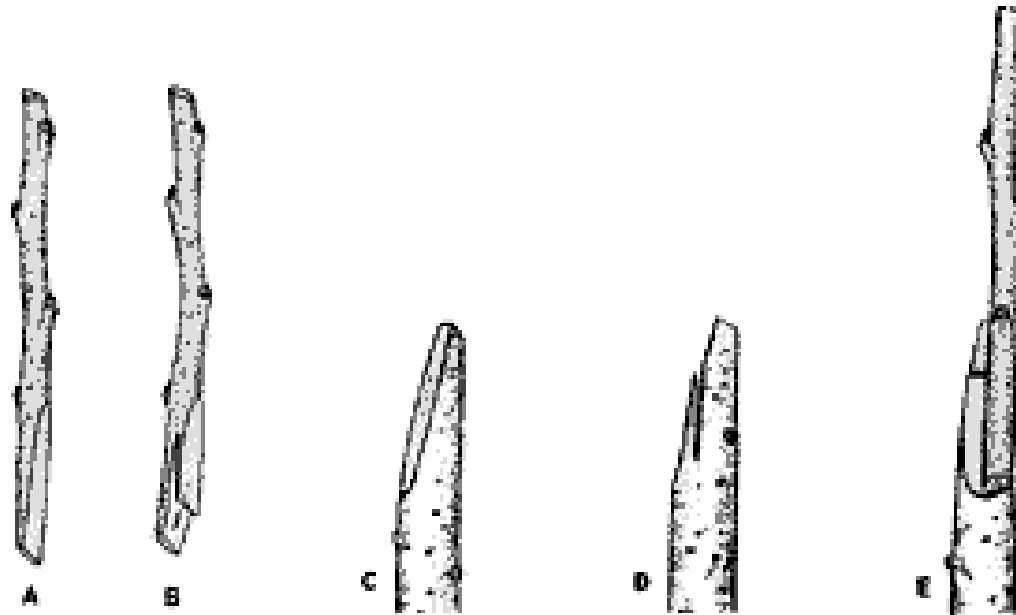
# Required Materials

- Sharp knife
- Grafting wax
- Budding strips (or electrical tape)
- Rootstock
- Selected scion(s)

# Types of Grafts

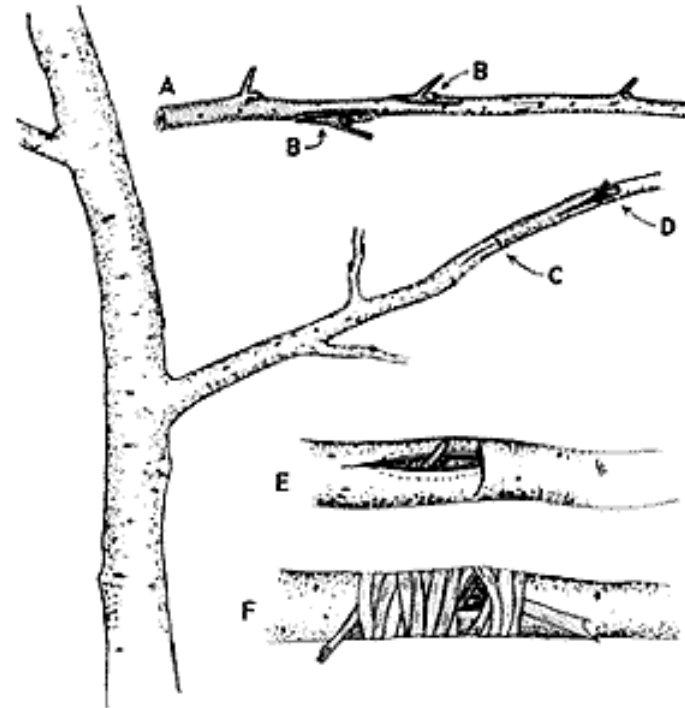
- Whip (a.k.a. whip and tongue)
- Budding (a.k.a. T-budding)
- Cleft
- Bark
- Side

# Whip



**The whip graft is usually used for grafting root stocks and scions but can also be used for grafting small branches.**

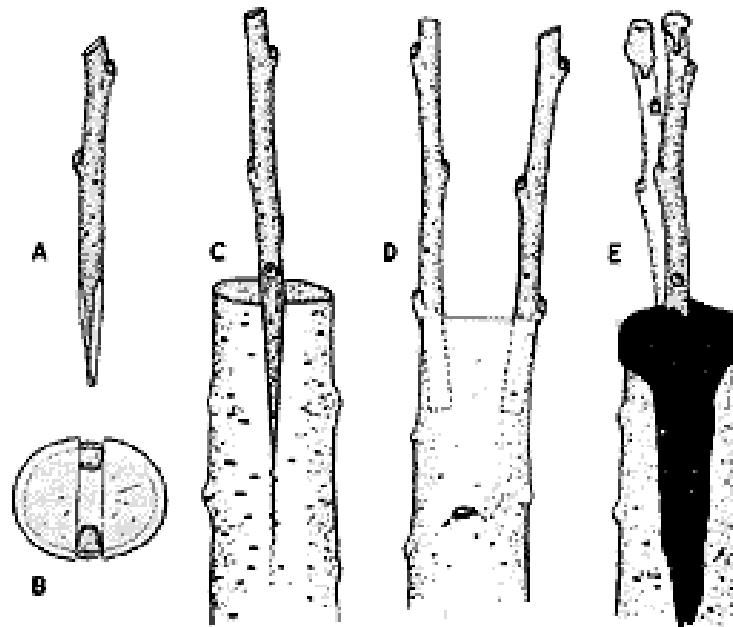
# Budding



**In budding, a single bud does the work of a scion.**

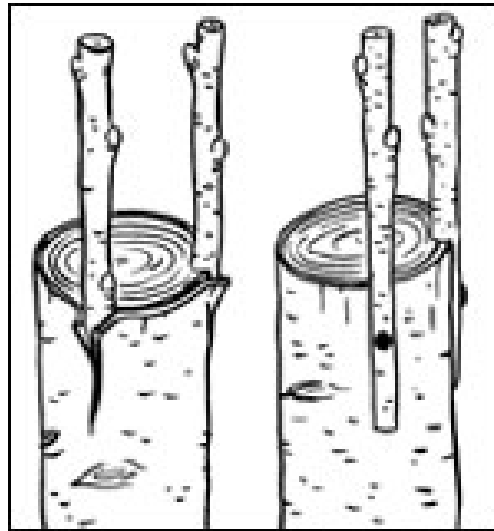


# Cleft



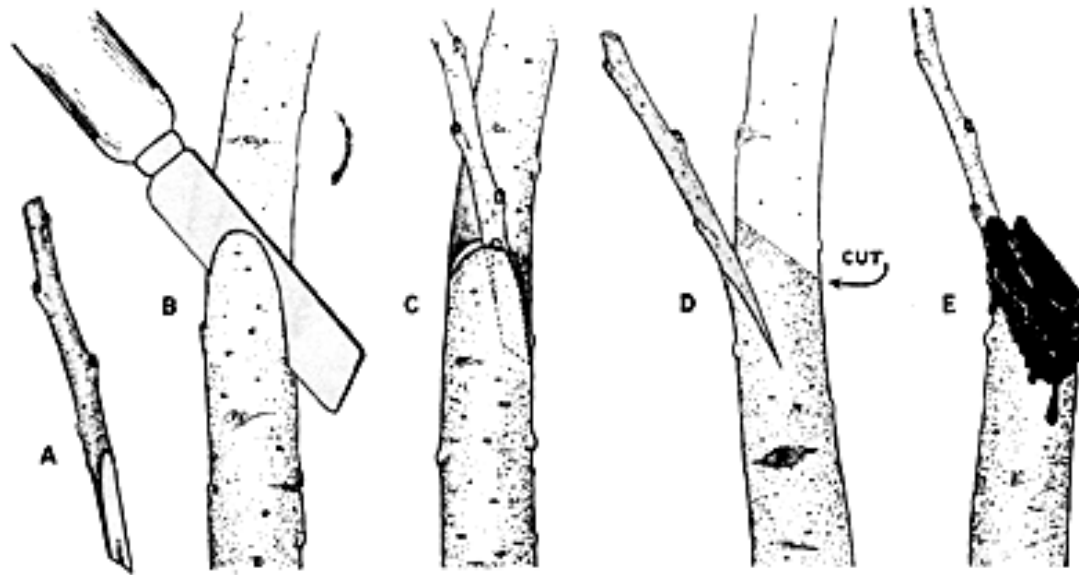
**The cleft graft is the one to use on large branches.**

# Bark



**Bark grafting is relatively easy and requires no special tools. It is similar to cleft grafting and may be performed on branches ranging from 1 inch to several inches in diameter.**

# Side



**In the side graft, the cut goes across the grain to reduce splitting.**

# Reasons for failure

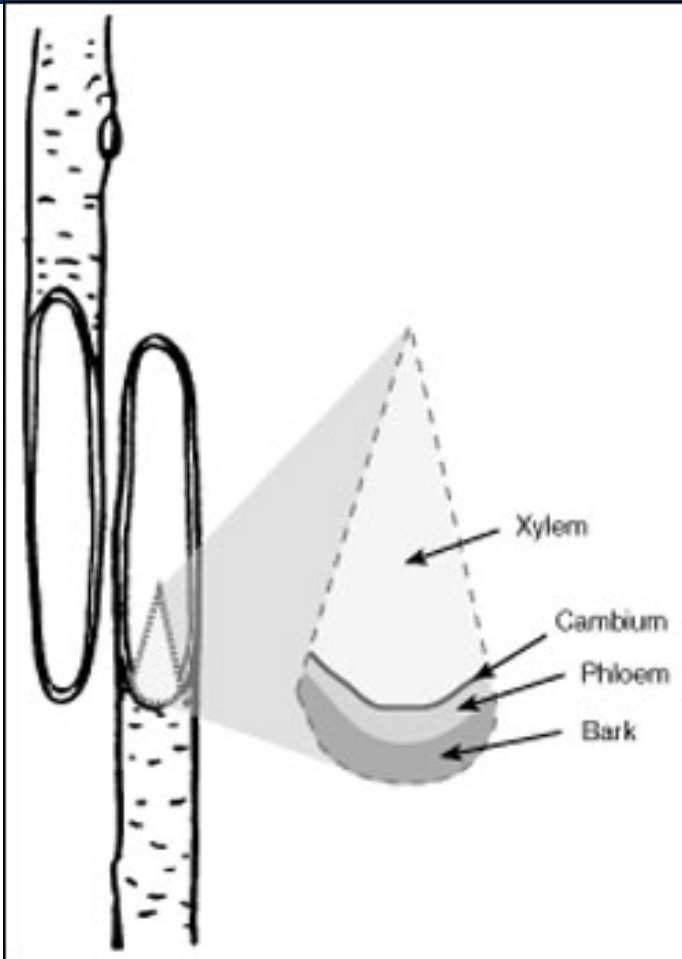
- Stock and scion were not compatible.
- The cambiums were not meeting properly.
- Scions were upside down.
- Grafting was done at the wrong time.
- Understock or scion were not healthy.
- Scions were dried out or injured by cold.
- Scions were not dormant.
- The graft was not properly covered with grafting wax.
- The scion was displaced by storm, birds or other means.
- The graft was shaded too much by other growth.
- The graft was attacked by insects or disease.
- The graft union was girdled because tape was not cut or released in time.

# Hands-On Activity



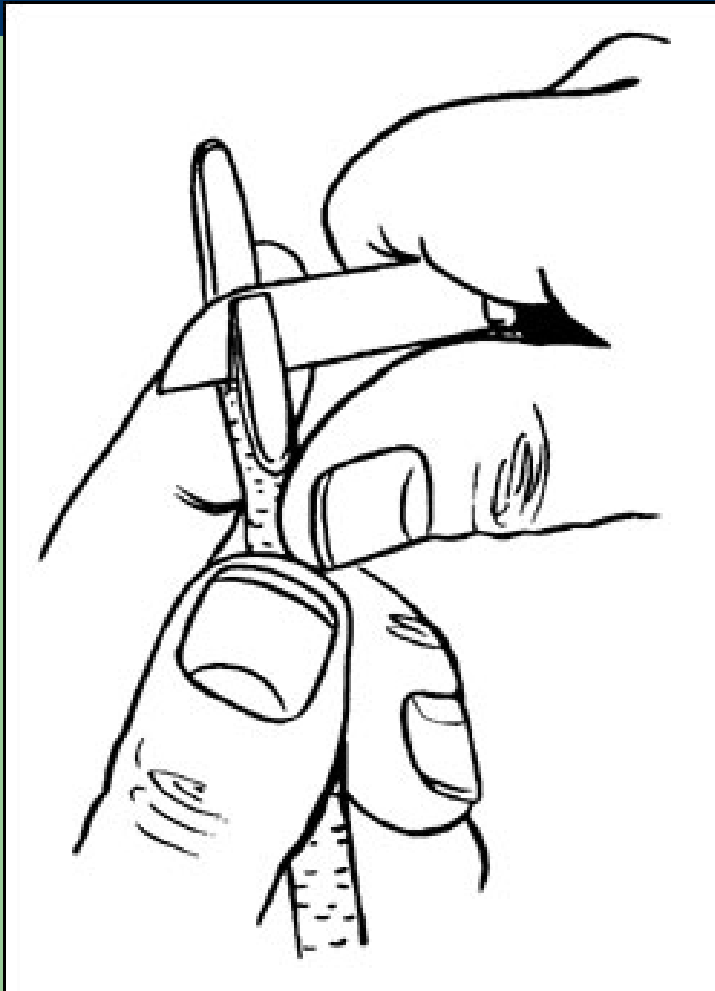
**Whip and  
Tongue grafting  
with apples**

# Whip Grafting



**Cuts for the whip graft must be smooth and straight.**

# Whip Grafting

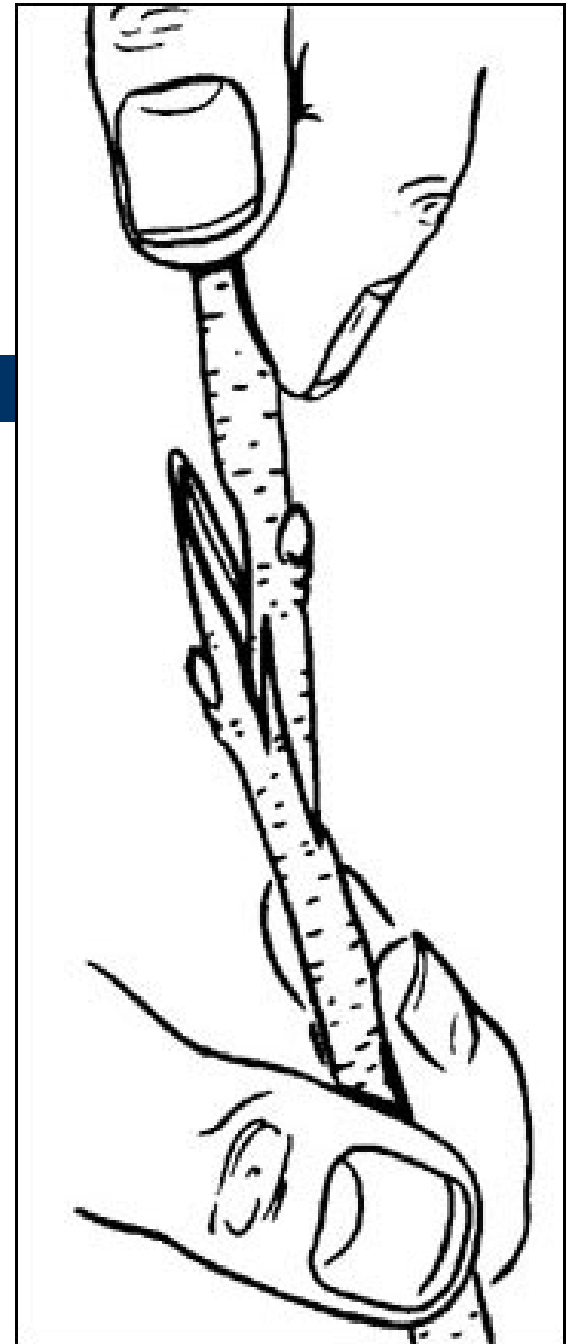


**Cut again to form the tongue**

# Whip Grafting

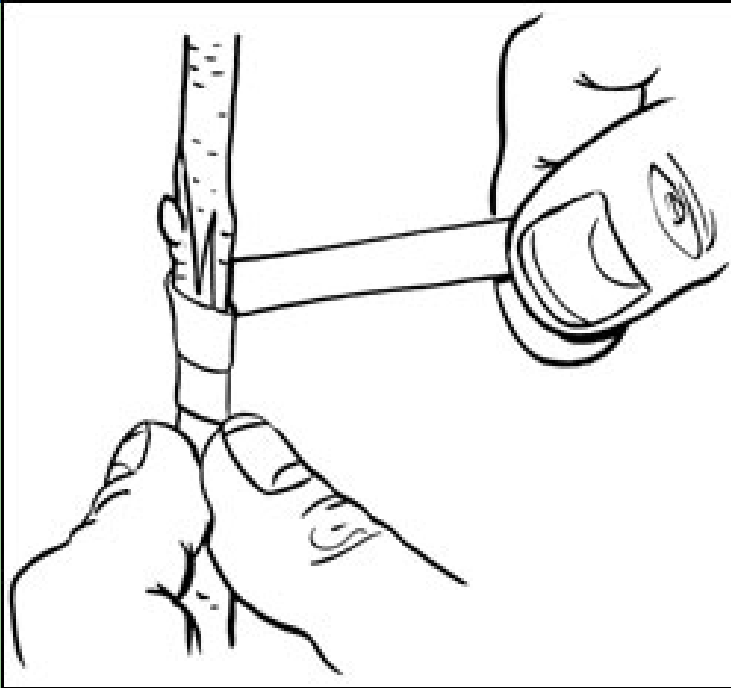
**Push stock and scion tightly together.**

**Match the two parts together. Unless the scion and stock are the same size, be sure the scion is in contact with the inner bark on one side. If the toe of either the stock or scion extend beyond the heel of the other, cut it off evenly.**





# Whip Grafting

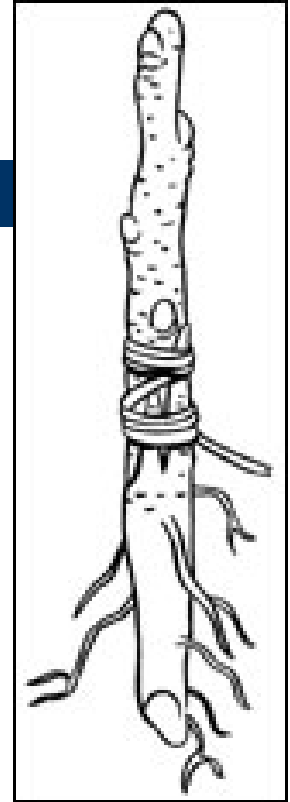


**Wrap graft to keep cuts tight and to prevent drying.**

**Bind tightly with tape, then carefully cover the union and binding material with grafting compound.**

# Whip Grafting

**Whip and tongue graft with scion attached to root system.**



**Remove wrapping as soon as the scion has started to grow to prevent girdling of the tree.**





# Whip Grafting

**Now love your tree for a couple years and it will love you back for decades...**

