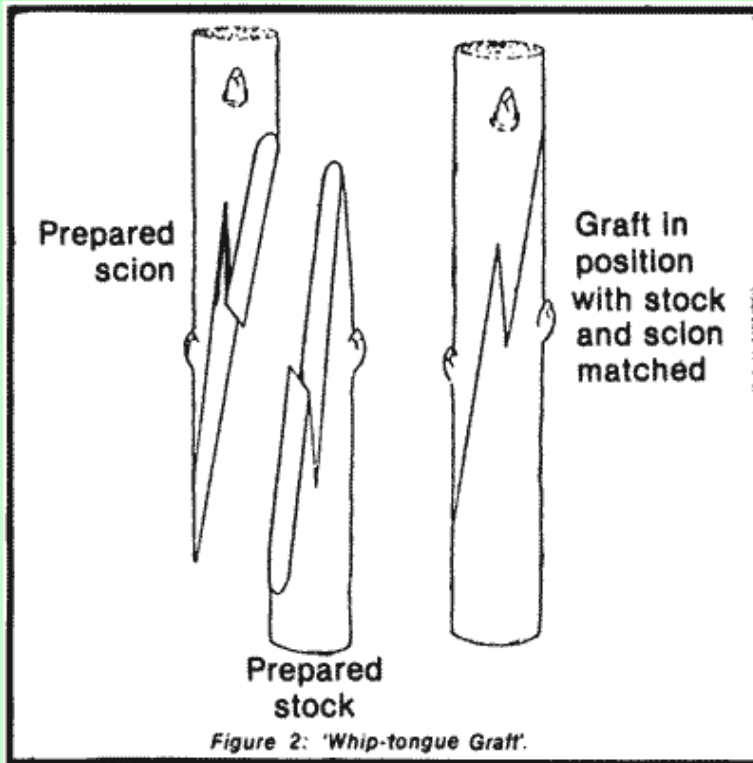


Grafting



Specifically Apples

Deb Shubat - grafter

History

- Earliest evidence of grafting recorded on tablets were found in Mesopotamia at Mari 3800 years ago.

Grafting happens naturally in the tops of trees and roots



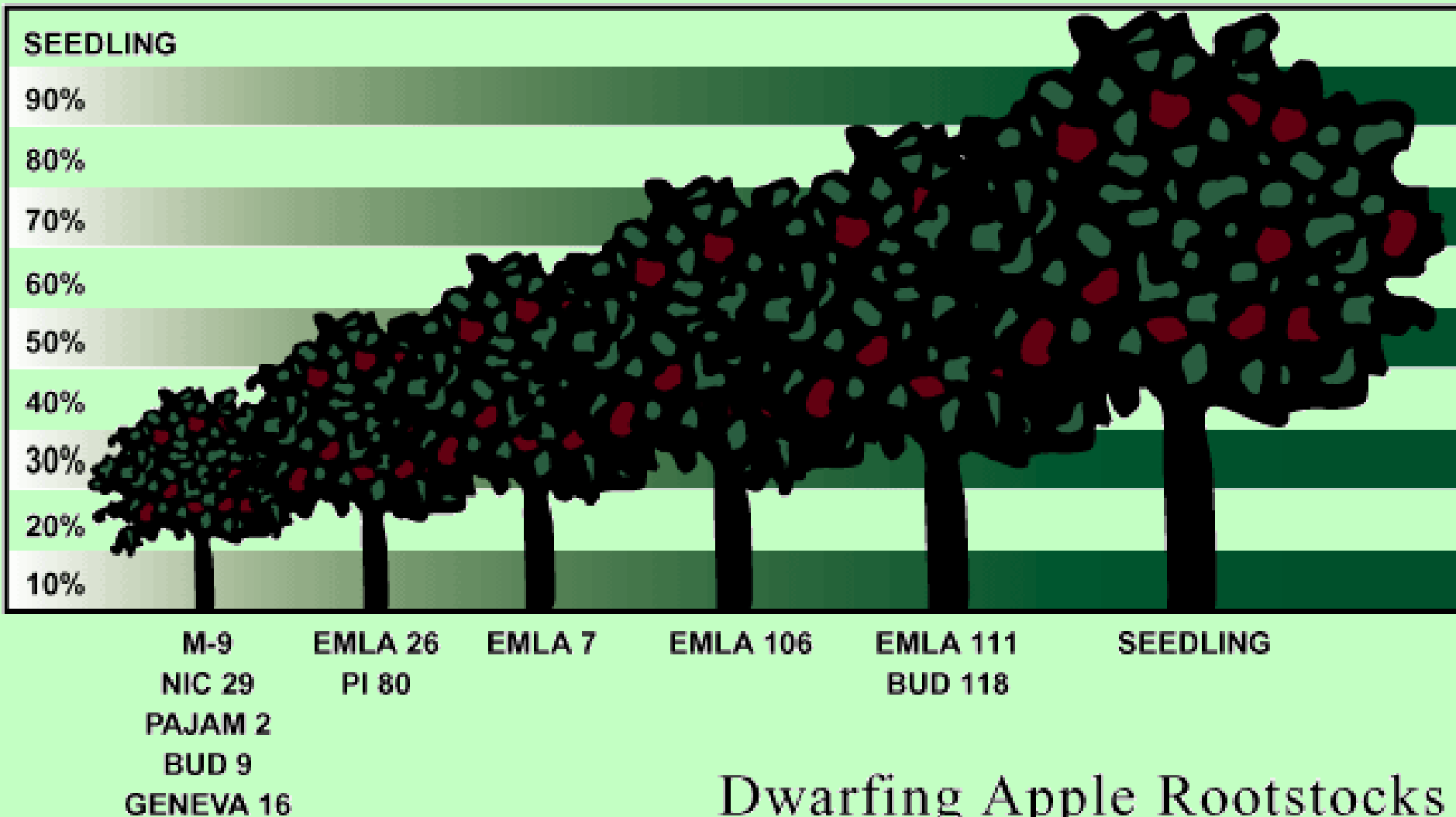
Buds starting to expand
Most of these grafted trees have
two labels to help insure
Their identity.



What is Grafting?

- Scion- a one year growth twig of the tree you want for a top.
- Rootstock- on the next slide, usually not an edible apple, but a great root.
- Interstem- a more complicated double graft for putting a large root on a size controlled top.

Rootstocks



Why Graft?

- Vegetative reproduction
- Change the variety
- Change root system
- Add pollinizer
- Repair damage
- Create designs

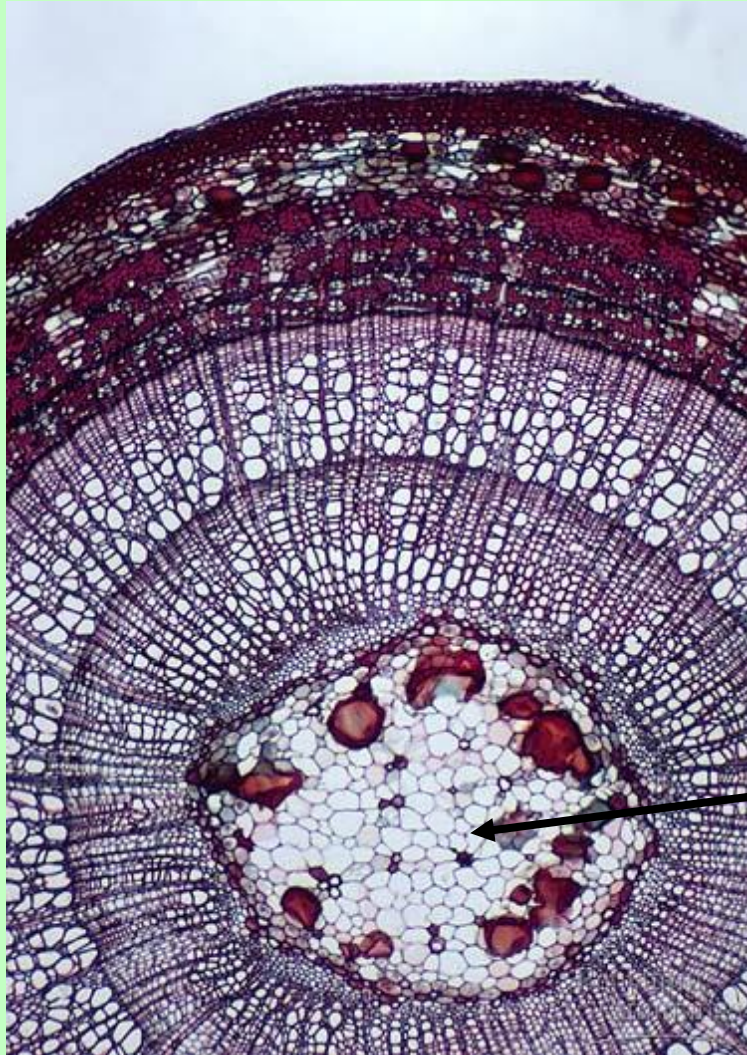
Timing and Conditions for northern MN

- Dormant bench grafting (Feb.-Mar)
 - Both scion and root dormant
 - Whip and tongue
 - Cleft
- Dormant in orchard (Late March-April)
- Active growth grafting (August-early Sept)
 - T-bud
 - Chip

Compatibility

- Scion and root must be closely related
- Best union happens by grafting within the same species
 - Apple scion to apple root
 - Pear scion to pear root

Woody Stem Anatomy



Bark

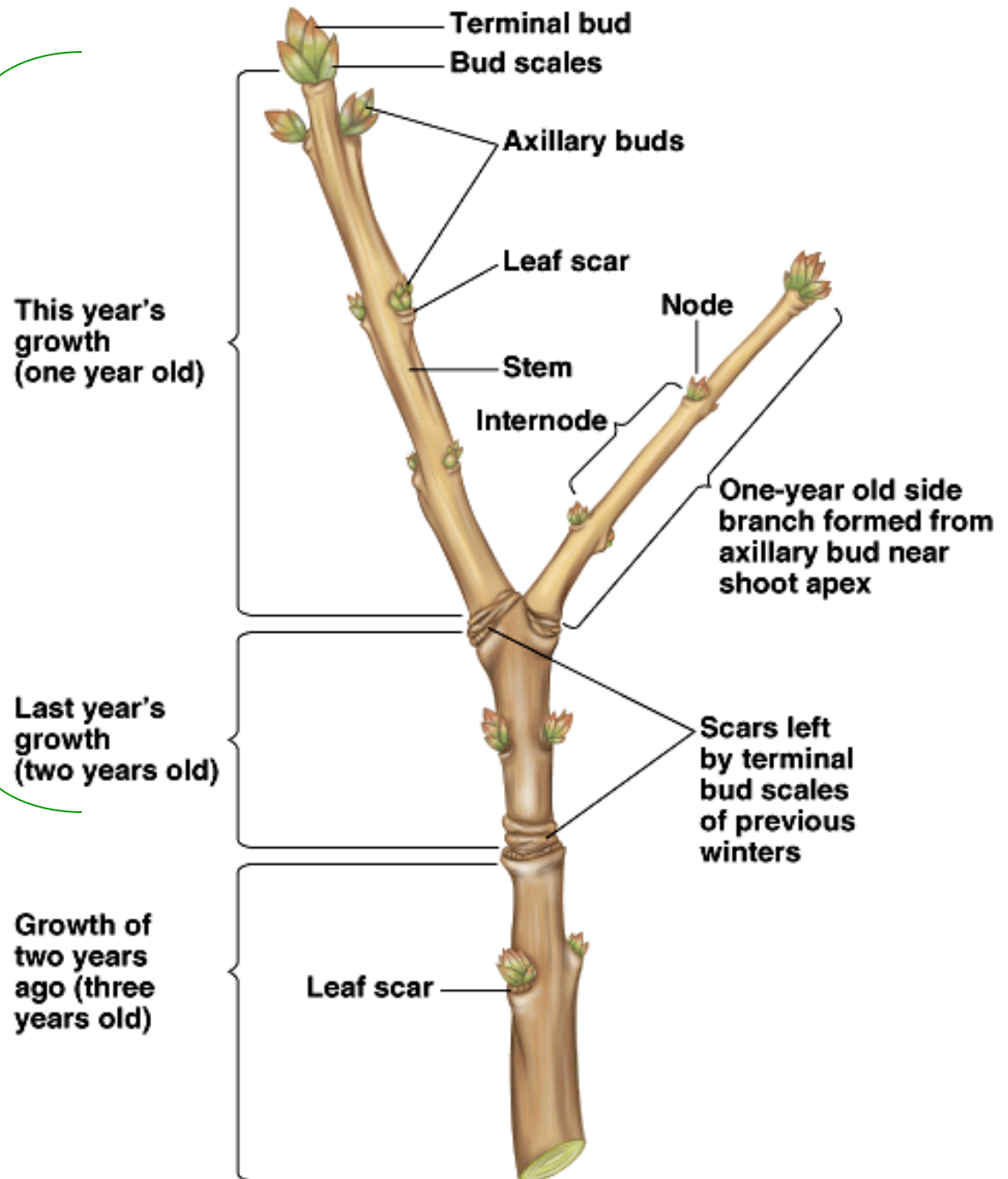
Vascular Cambium

Growth Ring in Xylem

Pith

**Cambium of scion and
rootstock Must Touch!**

**Scion wood
Should be
One or two
Years old**
If you know
the variety
well enough
to know
there are no
flower buds
on the scion.



Prevent Desiccation

- Work fast
- prevent drying of cut surfaces
- Don't forget to seal the tip

What you need

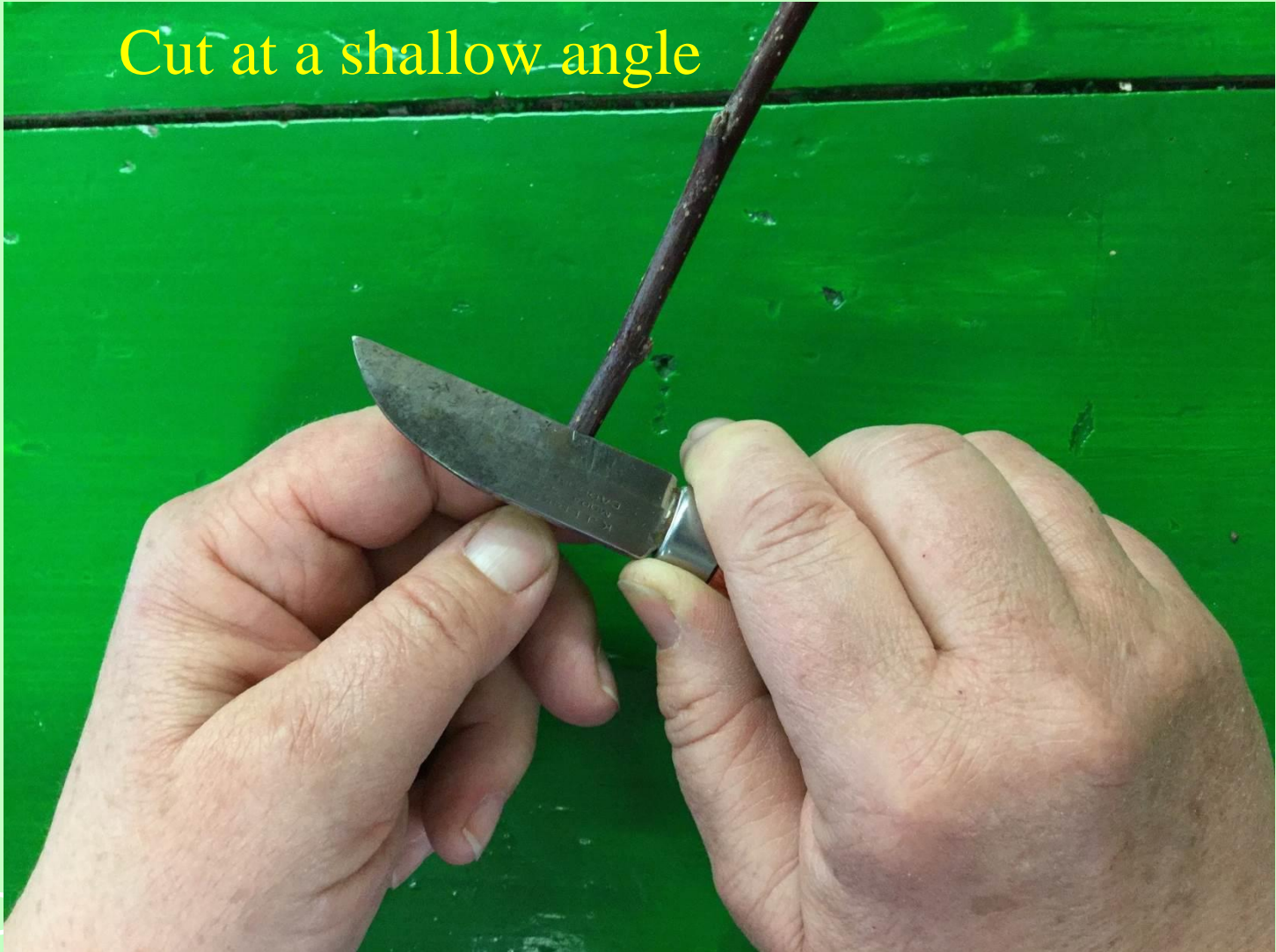
One year
twigs



Straight bladed knife

Whip and Tongue Grafting

Cut at a shallow angle



This twig is from a flowering crab that has purple wood



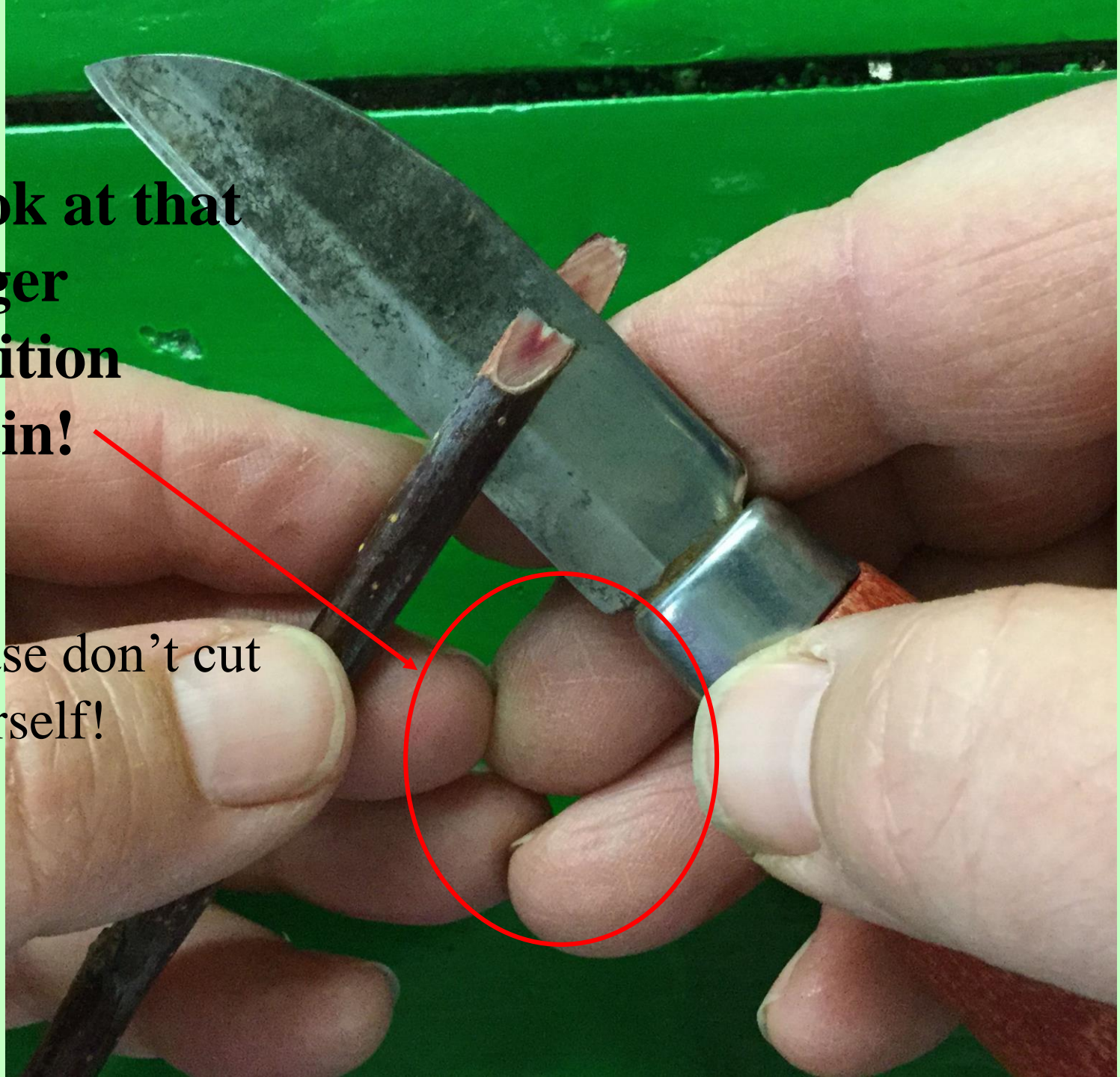
Whip and Tongue Grafting



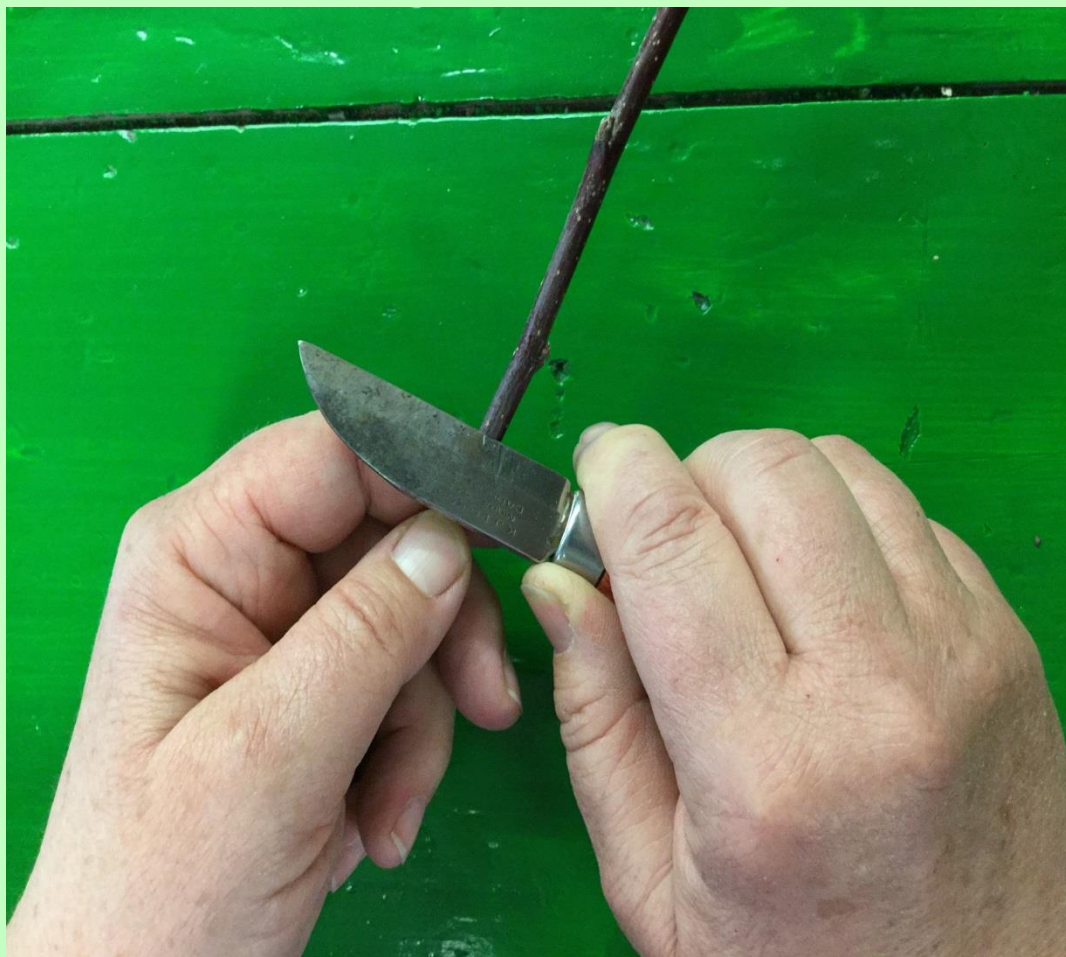
Use the pith as center and split the stem. Note finger position!

**Look at that
finger
position
again!**

**Please don't cut
yourself!**



Whip and Tongue Grafting



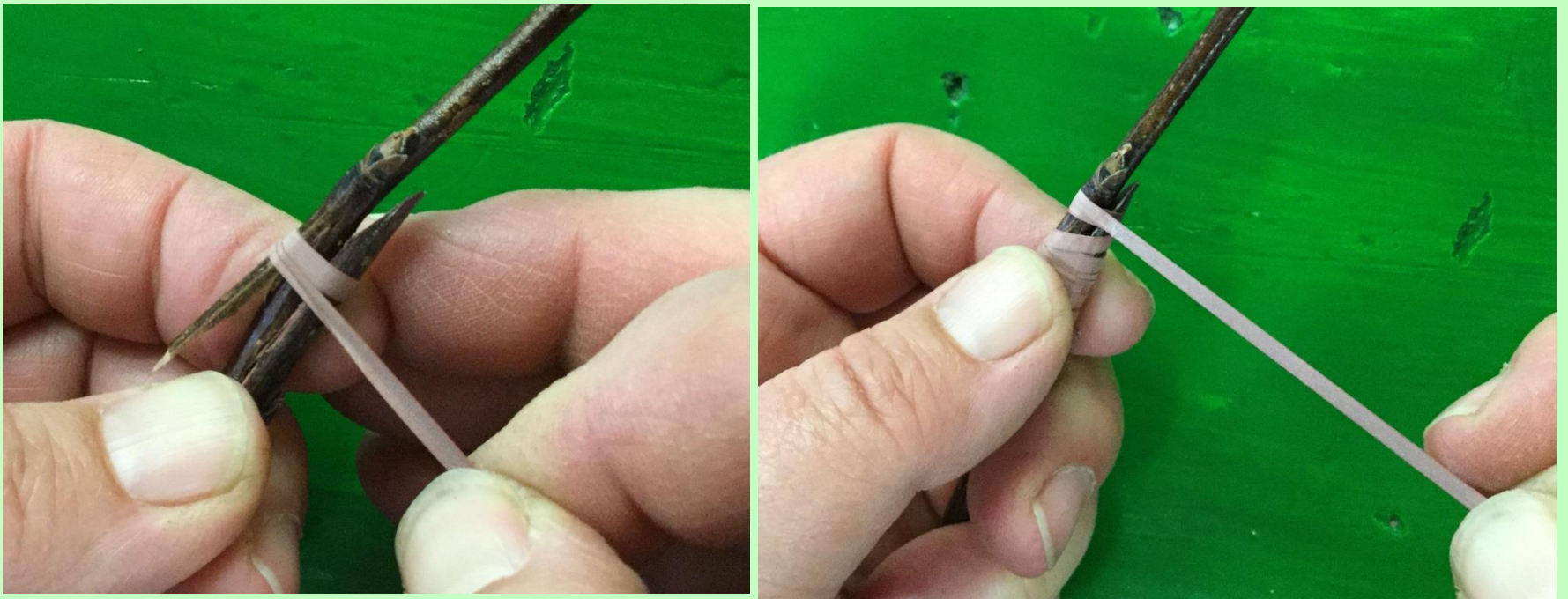
Repeat the same cuts Top of the rootstock and the **bottom** of the scion.

Whip and Tongue Grafting



Push rootstock and scion together with cambium lined up on one side.

Whip and Tongue Grafting



The grafting band squeezes the rootstock and scion together

Whip and Tongue Grafting



The New Grafting wax

Whip and Tongue Grafting



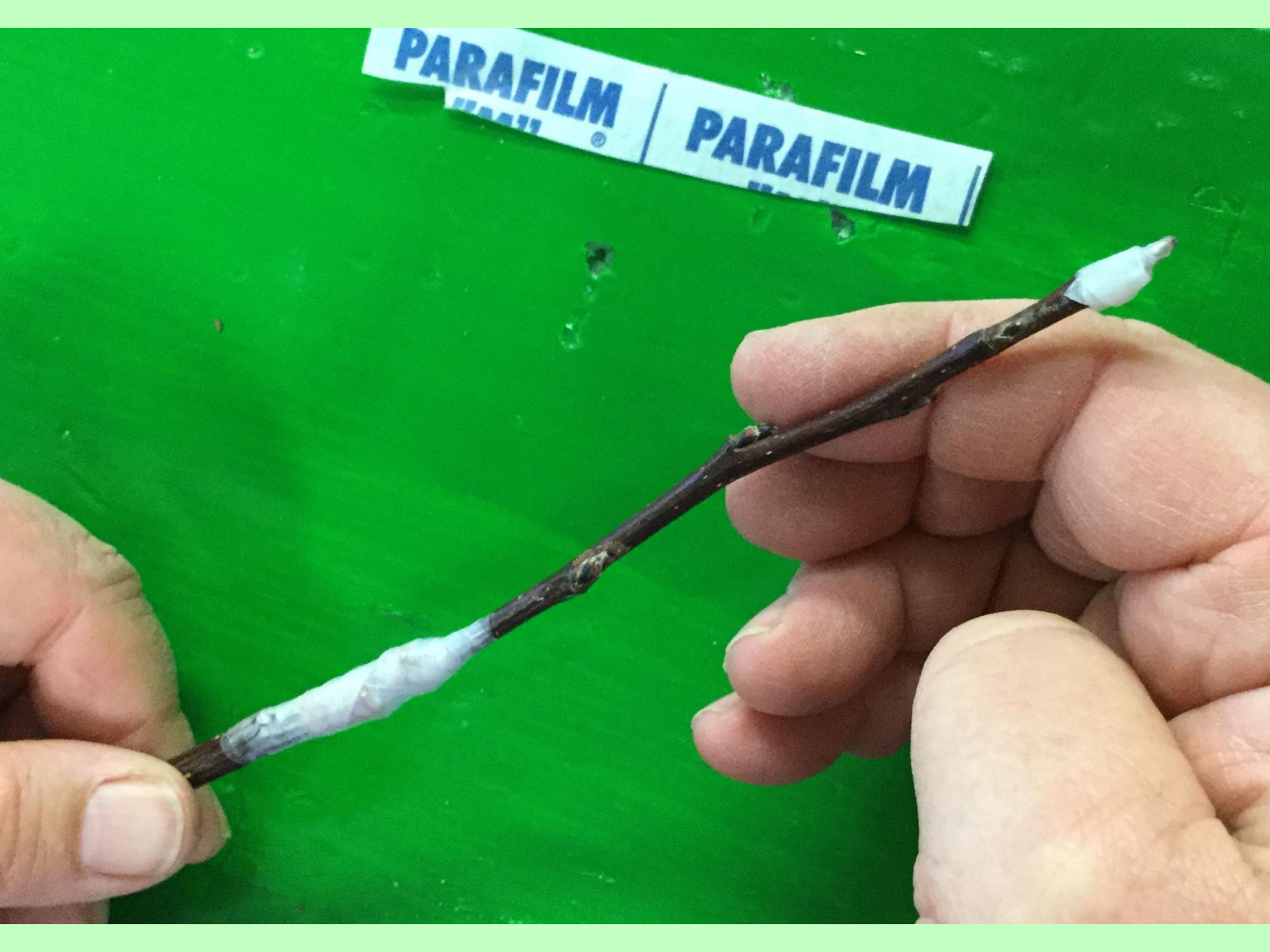
Parafilm keeps the graft from drying out

Wrap the whole graft and also the tip of scion.

If your scion has an apical bud, snip it off and seal the cut.

The apical bud produces hormones that inhibit healing of the graft.

The scion should end up with 4 or fewer buds



LABEL YOUR TREE

- Use metal labels that take an impression
- Bury the label on a designated side of the trunk (example: always on the south side)
- Make a map of the yard with locations and names of your plant material



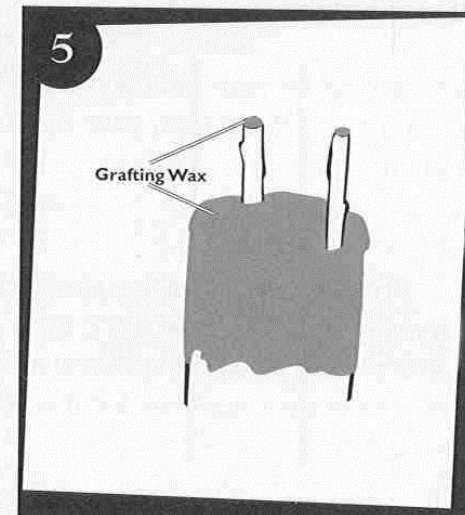
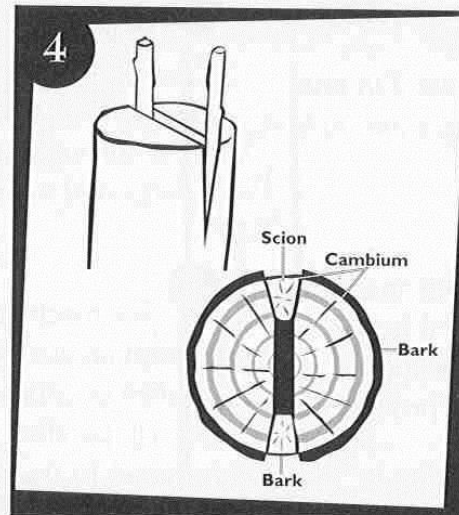
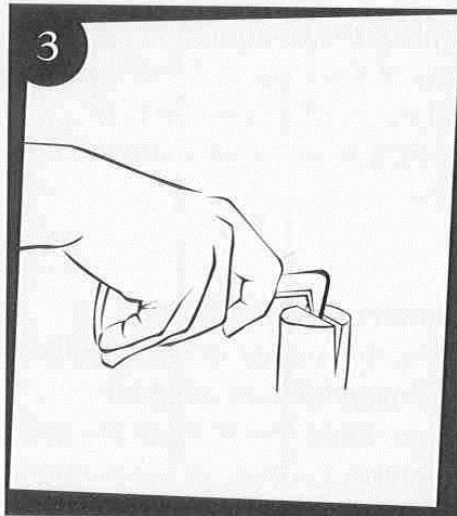
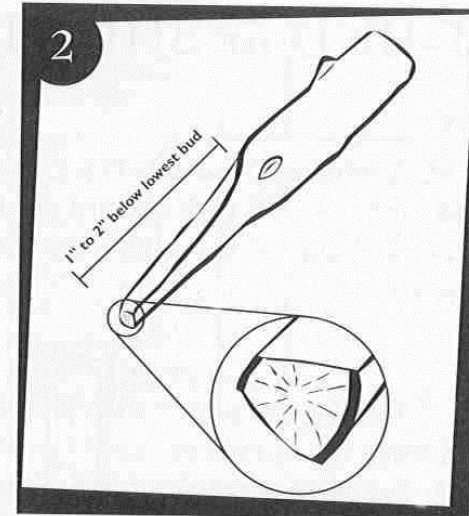
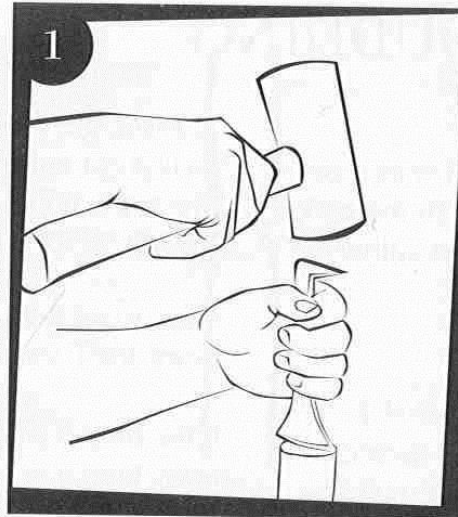
Healed Graft



Cleft Graft

Cleft-Graft

1. Done when trees are dormant
2. March-April in Duluth



Cleft Graft



Storage and Healing

- Place bench grafts in a cool place to start the healing process.
- Can be a refrigerator or root cellar
- Do not let their roots dry out
- Pot up in May or line out in a garden
 - Bring the plants out on a cloudy day.
- Train the new growth (up 3')

Protect your tree from animal damage.

Least dangerous Vole poison = gum or Rodentol (it's a bran and molasses pellet)

Wrap trunks up 3 feet or more with a light colored wrap in fall

You can use a cylinder of hardware cloth, $\frac{1}{4}$ inch buried a couple of inches

Deer deterrent: Hinder or rotten eggs+bitters
re-spray after rain

Where can I get Grafting Supplies?

- Fedco tree catalog also on line
- A.M.Leonard catalog and on line
- Dans feed bin has Tree Kote/ Wound sealer, or order Doc Farwell's seal&heal.
- Look for a straight bladed knife with a solid blade and robust handle
- “Google” **grafting supplies** and you will find lots of other suppliers