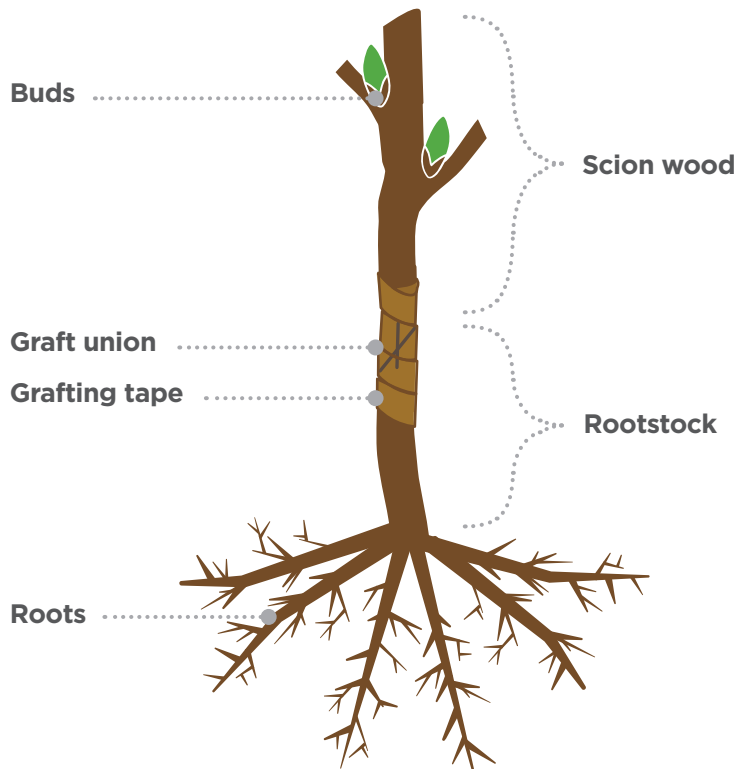




Rootstock and grafting

A grafted fruit tree is made up of two parts of different trees joined together to ensure the desired variety of fruit can be grown. Rootstocks make up the base of grafted trees, they provide the root portion. A scion consists of the fruiting section taken from the fruit variety you wish to grow. The variety of fruit can be chosen for taste, season or suitability to the area.



Most fruit trees are not grown from a seed because their variety cannot be guaranteed to be the same as the tree the fruit was picked from. This is because the seed will contain a mix of the genetics of both parent trees with varying results, for example two siblings will look different and have different personalities.

Other benefits of grafting include:

- Grafted fruit trees basically produce clones of the fruit from the parent tree to ensure all of the fruit share the same characteristics i.e. the same variety of fruit.
- Grafted trees produce fruit much earlier, some fruit trees can take up to 10 years to produce fruit without a rootstock.
- They can be chosen to produce smaller trees, such as dwarf or semi dwarf varieties, which allows more trees to be grown in a smaller area. It also makes harvesting the fruit easier as the trees are shorter.
- Having a smaller tree can also increase fruit yield as more energy can go into fruit production rather than tree growth.
- Rootstocks can be chosen for their resistance to certain adverse conditions e.g. cold, pests and diseases.

For grafts to be successful the rootstock and scion should be from closely related plant species. A cherry and plum could be a rootstock and scion for each other as they are both pitted fruit. However, an apple tree cannot be used as a rootstock for a plum scion or the other way around.



Grafting techniques

There are two main grafting techniques for fruit trees, whip grafting and bud grafting.

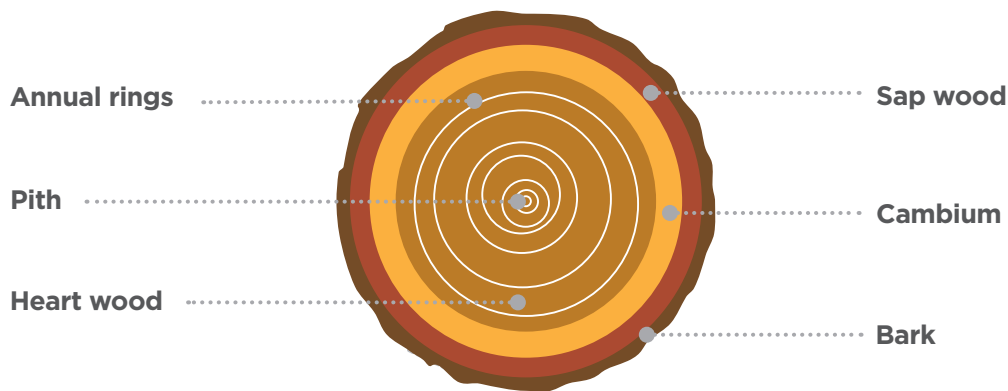
Whip grafting involves a short section of scion wood being attached to a rootstock, this should be done in late winter which produces a single stem, year old tree ready for the following summer.

Bud grafting involves the attachment of a single bud to an actively growing rootstock in the summer.

Whip grafting has the advantage of allowing the tree to develop quicker as it uses a larger piece of the scion wood, while bud grafting produces a straighter tree with a stronger union.

Each grafting technique involves the joining of the cambium layer of the two different sections.

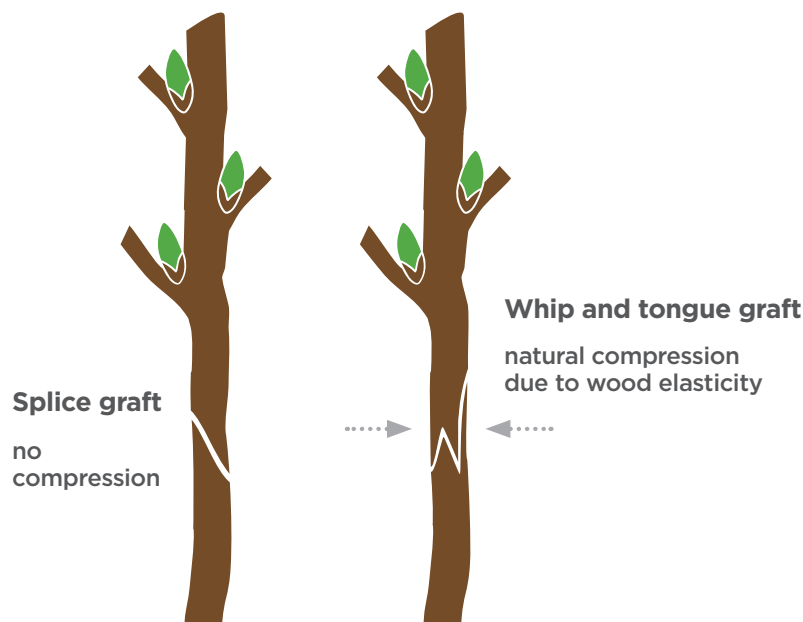
The cambium layer in wood is a small layer of cells just underneath the bark. This cell layer is the growing part of the wood, it produces new bark and wood annually. It produces the secondary growth of stems and roots which allows an increase in thickness.



Whip grafting

There are two types of whip grafting, splice graft and whip and tongue graft.

- Splice grafting is a simple diagonal cut which has no compression.
- Whip and tongue grafts use a zig zag cut that allows for natural compression due to the elasticity of the wood, making a stronger join.





Selecting a scion wood

Choose a healthy tree of the variety of fruit you'd like. A scion should be taken from last year's growth and should contain 3 buds.

1. **Stock bud** – this should be just behind the grafting cut to help with the healing of the join.
2. **Top bud** – to form the shoot.
3. **Middle bud** – if the top bud doesn't grow this acts as a back up.

Attaching the scion to the rootstock

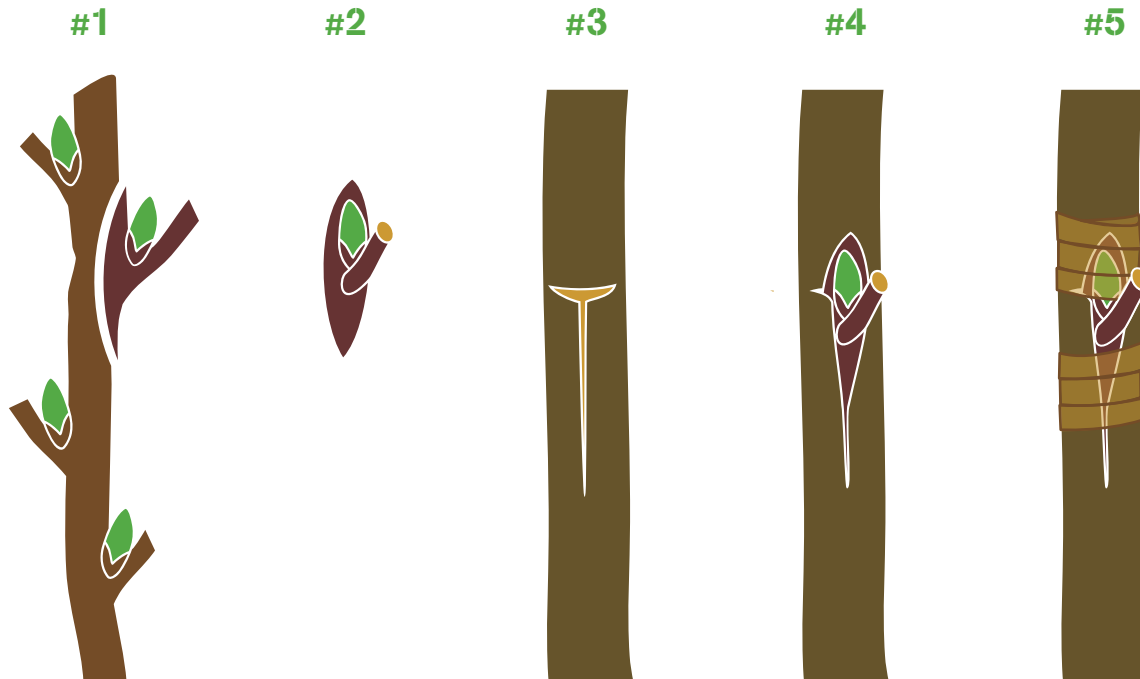
Decide on a grafting technique and cut the rootstock roughly 20cm tall - a shorter cut introduces the risk of pathogens from the soil while a taller cut can result in a weak union.

| Splice graft | Whip and tongue graft |
|---|---|
| <p>Cut both the scion and rootstock diagonally at a 45 degree angle.</p> <p>Match the two cut ends together so that the cambium layers are touching.</p> <p>Wrap this union in grafting tape and grafting wax to allow them to fuse together.</p> | <p>Make a diagonal cut through the scion and rootstock.</p> <p>Make another cut downwards into the scion wood, roughly 1.2cm deep, a third of the way from the top of the cut face.</p> <p>Make a matching tongue cut of equal depth in the scion wood, line these cuts up and slide them together, interlocking the tongues, ensuring the cambium surfaces meet.</p> <p>Wrap this union firmly in grafting tape pressing the two sections tightly into each other.</p> |

Let the graft heal, once the top bud has grown 2.5cm or so you know the graft has been successful.



Bud grafting



For bud grafting you need to locate a big, healthy bud, that has been exposed to the maximum amount of sun and without obvious damage.

Once a suitable bud has been found, use a grafting knife to slice into the bark roughly 1.2cm beneath the bud. Slowly and carefully slide the knife upwards, cutting into the cambium layer and outer bark.

#1 Finish the cut roughly 1.2cm above the bud so it comes away neatly.

#2 Choose the branch you'd like to place the bud on and carefully cut a 2.5cm vertical slit in the bark layer.

#3 At the top of this vertical cut, slice across creating a T shaped incision.

#4 Slide the bud into this t shape, with the growing tip pointing upwards, ensuring the cambium layers are touching.

#5 Wrap this join in grafting tape to keep it dry.

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