

Grafting Fruit Trees

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Grafting is the practice of joining the living tissue from one plant to that of another of the same or closely allied species so that they will fuse and function as one plant.

It is done to improve production by uniting tissue from a highly productive variety to a healthy seedling with strong root system. The seedling is called the 'rootstock' and the introduced tissue is called the 'bud' or 'scion'. Grafted trees yields earlier than those developed from seedlings.

In making a graft the object is to place the cambium of the scion in close and firm contact with the cambium of the rootstock. The cambium is the tissue located just beneath the bark, between the bark and the wood, and is a layer of actively growing cells which produce the wood, bark and vascular system of the plant. The cambium of scion and rootstock are brought together by making a cut in each to expose the cambium, placing the exposed surfaces in contact and binding the scion and rootstock tightly together to prevent movement. It is essential that the cambiums of scion and rootstock are well aligned or the scion will die so the cuts are made to give a snug fit between scion and rootstock. The cuts to scion and rootstock must be made with a very sharp, clean blade to obtain a flat, clean surface and minimise damage to the tissues.

There are a number of types of graft depending on the nature of the matching cuts made in the scion and rootstock. These various types of graft are named and some species may be more successfully grafted by one method than by another. The graft described here is the Fokert bud graft but a number of other types are described in DPIFM Technical Bulletin No. 194 *New Grafting Techniques for Exotic Fruit Trees*.



A modified Fokert bud graft on a rambutan showing the bud patch placed on the rootstock before the bark flap is trimmed



This graft is firmly bound with grafting tape



A good union has formed between the bud patch and the rootstock

THE SCION

Only healthy and vigorous scions should be used and they should come from selected, desirable cultivars. The scion should be taken from terminals at the stage of a new flush with buds which are swollen but have not opened. If no buds are forming on the mother tree they may be encouraged by removing some or all of the leaves from the scion. It is as well to have no leaves on the scion since this reduces water loss from the scion after grafting.

For the Fokert bud graft a bud together with a strip of underlying bark and cambium about 20 mm long by 5 mm wide is cut from the mother plant. This is the scion. A number of scions may be prepared and used over a period of an hour or more provided they are not allowed to dry.

THE ROOTSTOCK

The rootstock should also be healthy and vigorous and should be adequately watered before grafting. Two parallel cuts 5 mm apart and 20 mm long are made down the length of the stem a few centimetres above the ground. The cuts go into the cambium. The bottom of the strip of bark so formed is cut and the strip is folded up to expose a hollow.

THE GRAFT

The scion is fitted into the hollow, the flap is cut off leaving a small tag to hold the scion in place and the graft is bound with grafting tape. The binding holds the scion to the rootstock and protects the union from infection and desiccation but must not damage or cover the developing bud.

Immediately after grafting the plant should be placed in shade and a polypropylene bag should be placed over the graft to maintain a humid atmosphere and prevent the scion from drying out. This bag is removed after about five weeks when the scion starts flushing.

About two weeks after the scion starts flushing the rootstock above the graft should be cut off so that the scion bud becomes the only shoot on the plant. Any shoots which appear on the rootstock below the graft should be regularly removed.

The grafted plant should be watered regularly but not excessively, since overwatering will damage the roots. Avoid fertilising during the initial growth of the graft as fertilisers might cause the death of the graft tissues.

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