

## PRACTICAL ROOT GRAFTING

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I propose to explain in detail one type of graft—root grafting—a very old method but from the point of “propagation”, very much neglected. It is simple and works well with all apple, cherry, plum, peach, nectarine, and pear cultivars. Many ornamentals may also be propagated by this method—rhododendrons, camellias, wisterias, and some difficult conifers not easily produced by cuttings. Figure 1 illustrates the various type of root grafts that I will describe.

This type of graft can be made using a whole root or pieces of roots. For a whole root graft, it is advantageous that both scion and root be of the same size.

Usually the whip and tongue method is used but also the wedge or saddle graft can be used. The length of the root should be not less than half the length of the scion. If both are the same length, even better. This will depend a lot on the internode length of each cultivar or species, availability of material, and the depth to which the graft is to be planted.

If scion or root are not of the same size they will have to be matched on one side and possibly with the top bud of the scion in line with the matched side. Pencil-sized root and scion are ideal for this type of graft. Roots of larger diameter may be devoid of fibrous roots, depending on the species, and thus be more difficult to “take.”

Due to the poor quality of the larger sized roots, most root grafts are done using piece roots, from 2 to 8 mm in diameter and 40 to 80 mm long. The diameter of the scion may vary from 3 to 20 mm with the same length as mentioned for the whole-root graft. I personally have grafted thousands of apple trees in the past using root pieces, with excellent results.

The scion is split at the bottom by starting through the bud (apple, cherry, etc.) or node, e.g. camellia, conifers. This is very important: the scion is then divided into two halves of equal consistency (degree of density). If this operation is done properly, very often there is no need to bind the graft.

The best of one or two root pieces is wedge-shaped and slightly angled (8 to 15 mm long) and inserted into the split cutting on the bud side or node.

The second and smaller root on the opposite side is shaped in a similar fashion. For two root piece grafts a cutting needs to be at

least 6 mm or above in diameter. For smaller cuttings one root piece is more suitable.

Always remember to maintain the polarity of the roots in all the grafts. The best way to do it is to cut the top part of the root horizontally and the bottom on a slant. If this procedure is always adopted no mistakes will be made.

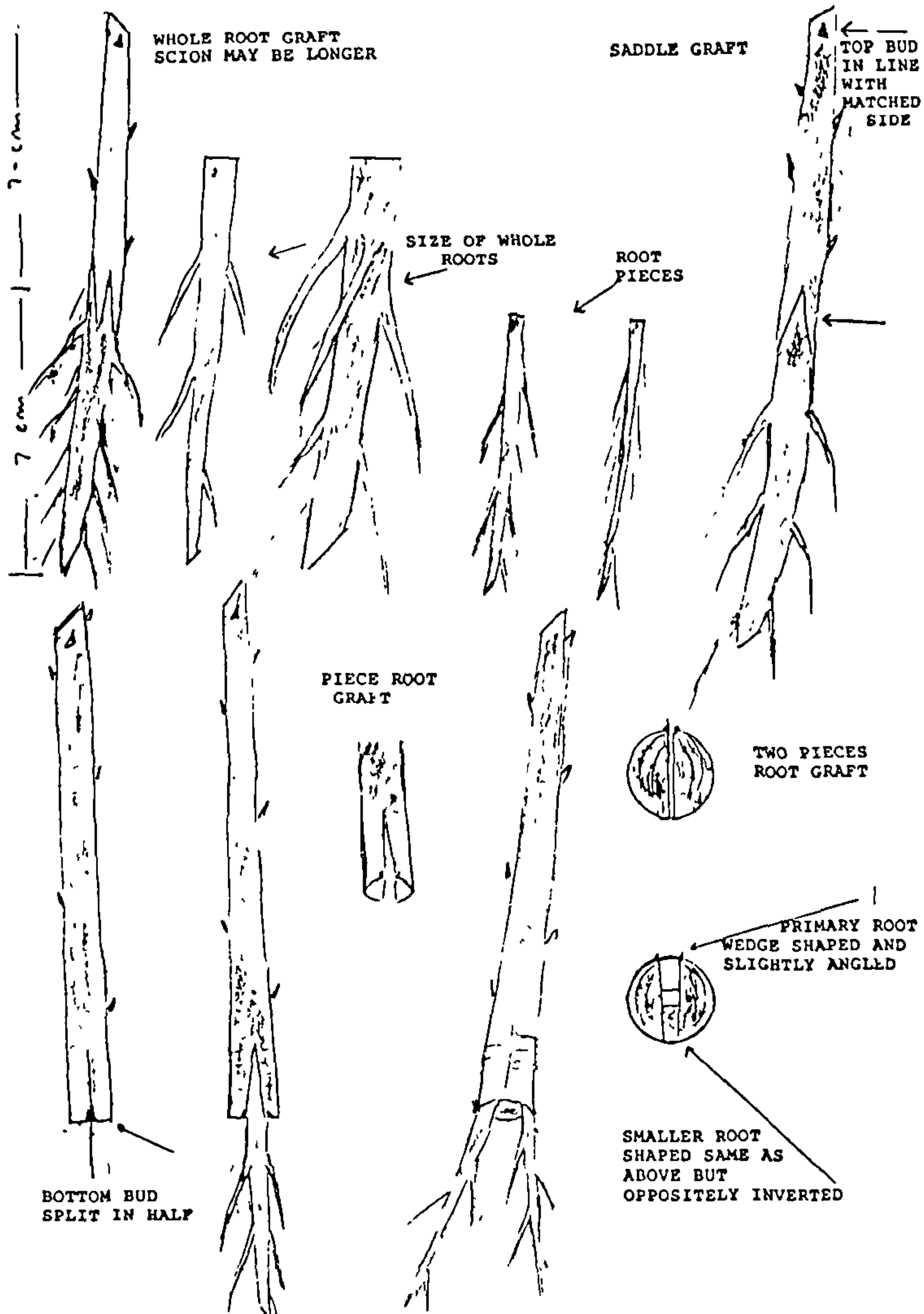


Figure 1. Several types of root grafts

For securing the graft, I have used, with good results, a 15 to 18 cm long piece of thread obtained from hessian, sugar bag, or burlap. This material will decompose very easily and will not constrict the graft. I do not recommend budding rubbers.

Planting out for deciduous trees depends a lot on the climatic conditions. For subtropical Western Australia, grafts may be planted any time of year as soon as they are ready.

For colder areas, early winter grafts can be stored at 5 to 8 °C and planted out 4 to 10 weeks later. Store the grafts in a mixture of clean sand, perlite, and peat moss, which is reasonably moist. Plants susceptible to crown gall may be dipped in a solution of “No Gall.” (fruit trees).

I prefer to see all these grafts planted deeply so that only two buds are exposed. Evergreen stock will have to be provided with a controlled environment to obtain a good “take.”

With today’s facilities—fog, mist, and temperature control—the success of this type of grafted cutting has improved greatly.

I have noted over the years, that cuttings of some plants, however reluctant to provide themselves with their own roots, will do so if a small root-piece is inserted at the bottom of the cutting. In this case, wounding and application of a rooting hormone will also help.

Other cuttings will produce roots better only on succulent successive young growth. Plant the graft at soil level and, as the young growth starts, cover it with more soil so that young roots can develop on the new growth. In this case the graft becomes a “nurse graft”. Eventually the initial root from the graft may completely disappear. When you are sure that this will occur on a particular plant, then you can use a rubber tie; this will constrict the initial root and allow the young plants to develop their own roots.

As you can see, this system of grafting may be useful when conventional cuttings are not successful.