

The Four-Flap Graft

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Grafting is needed to propagate outstanding varieties of fruits. The four-flap graft is an easy-to-do, successful propagation procedure for amateurs and professional horticulturists. It is ideal for small-caliper trees up to 1 inch in diameter before they are large enough for the Texas-method inlay bark graft.

The four-flap grafts most successful when the scion and rootstock pieces are near the same diameter. The best fit is obtained when the scion is slightly larger than the stock.

Collecting and Storing Propagation Wood. Collect scion wood from the desired tree while dormant in late February or early March and store until spring propagation time. Optimum scion wood diameter is 3/8 to 3/4 inch; 1-inch diameter is maximum. Select healthy, 1-year-old wood with prominent, well developed buds. Label all propagation wood by cultivar name and place it in a container with moist paper towels. Polyethylene bags make excellent storage containers. Store the wood in a refrigerator at 32 to 36 degrees F.

Grafting Techniques. The best time to graft is April to mid-May when the rootstock is actively growing, the bark "slips" freely and leaflets are 1/2- to 3/4-inch long. Take the scion wood directly from cold storage and use immediately. Do not let the scion sticks dry out during grafting procedures.

The following outlines the four-flap grafting method:



Figure 1

Use a stock plant with a primary stem or lateral limb of 1/2- to 1-inch diameter. Cut straight across the trunk or limb with sharp pruning shears at the point you wish to graft. If possible, leave one or two side branches below the grafting point; but cut them back to 6 inches. This keeps the tree vigorous, protects it from sun scald and keeps the scion from becoming too tall or whip like and breaking off. Place the graft 7 to 8 feet above the ground if cattle or horses are grazing near the trees; otherwise place the grafts at a comfortable working height. Roll a rubber band 3 inches down from the top to the stock (figure 1).

On the stock plant where the horizontal cut was made, make four vertical, equally spaced cuts 1-1/2 inches long. Make sure the cuts penetrate the bark down to the interior wood (figure 2).

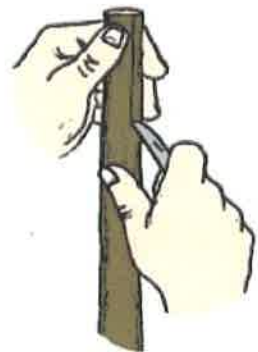


Figure 2

The Grantham grafting tool can be used to make the 4 vertical cuts (figure 3).

Choose a smooth, straight piece of scion wood that is approximately the same diameter as the stock and about 6 inches long. It should have two or three plump buds, open at each node. Use a sharp knife to cut the scion on four sides. Start the cut about 1 ½ inches from the bottom end and move the knife away from you (figure 4).

Make cuts through the bark down to the wood but do not remove too much wood. The end view will be square as shown in figure 2. Do not completely "skin" the scion. Leave four thin slivers of bark and cambium at the corners.

Pull the four flaps of bark down 1-1/2 inches on the stock. This is why the graft is sometimes called the banana graft (figure 5).



Figure 3

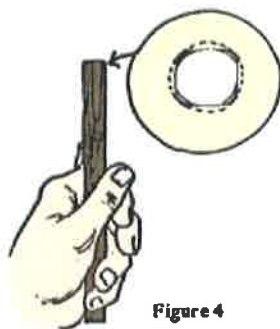


Figure 4

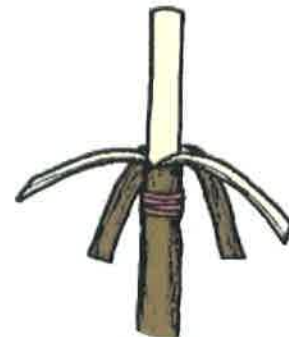


Figure 5

Remove the inner stock wood and be careful not to damage the 4 flaps on the stock (figure 6).

Insert the scion piece upright on the stock (figure 7).

Pull the four flaps on the stock up into place to cover the four cut surfaces on the scion. Roll the rubber band up onto the flaps to hold them in place (figure 8).



Figure 6

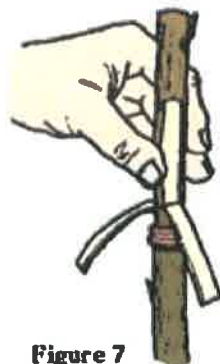


Figure 7



Figure 8

Place the bark strips of the scion in the cracks between the flaps of the stock (figure 9).

Wrap the cut flap areas with flagging tape, green floral tape, white budding tape or a material that stretches to allow expansion of the graft union as it begins to grow. Masking tape and electrical tape cause problems because they have less stretch. Do not let the stock flaps twist during the wrapping operations. The tape should cover the entire cut area of the graft (figure 10).

Coat the cut surface of the tip end of the scion with a protectant such as white glue, orange shellac or tree healing paint to prevent it from drying out (figure 11).



Figure 9

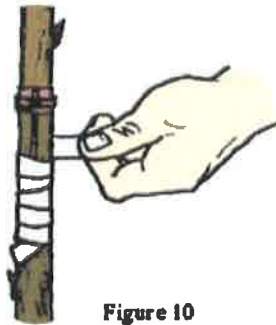


Figure 10



Figure 11

Loosely cover the taped area with a piece of household aluminum foil. This reflects sunlight and maintains a lower temperature at the graft union (figure 12).

Cut off the corner of a pint-size or quart-size polyethylene bag (freezer type) and carefully slip it down over the graft union with the scion protruding through a hole in the bag. Be careful not to knock the buds off the scion while positioning the bag (figure 13). Tie the cut corner of the polyethylene bag to the scion just above the aluminum foil wrap but below the first bud on the scion. Then tie the lower end of the bag at the bottom edge of the aluminum foil. (Do not leave exposed wood inside the polyethylene bag.) These ties may be made with any material that will stretch, such as plastic budding tape or rubber bands.

Do not trap air in the polyethylene bag because it will create excess heat which damages the graft (figure 14).



Figure 12



Figure 13



Figure 14

Aftercare: Remove all ties, the polyethylene bag and the foil 4 to 6 weeks after the graft has taken.



Figure 15

Keep vegetative growth on the stock plant in check. Many new branches will appear on the stock below the graft. Maintain some of these branches to keep the tree healthy; however, the stock branches must not become dominant or exceed the height of the scion. Remove the growing tips of the stock branches several times during the growing season. Removing the tips causes the stock to have a trashy or bushy appearance, but it helps the tree develop and increases its diameter and overall vigor. After 2 to 3 years when the scion is strong, remove all “trashy” branches below the scion and remove all but one shoot to form the trunk.