

Texas Inlay Bark Graft

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Inlay grafting is one of the best and most popular systems of propagating pecans in Texas. It has been successfully used when other systems have failed because of heat, drought and wind. It has also been successfully used on walnuts, apples, pears, grapes, rabbiteye blueberries and persimmons.

The Texas method of inlay grafting, developed by B.G. Sitton, L.D. Romberg, F.R. Brison, B.G. Hancock and others in the 1950s, follows the basic fundamentals of the standard bark graft. However, this technique uses an inlay cut and employs an entirely new system of covering the graft and stock. The inlay occurs when two parallel cuts are made through the stock bark forming a scion inlay pattern on the stock. Aluminum foil is used as a stock cover, reflecting sunlight and reducing temperatures around the graft. The foil is covered with polyethylene film to assure constant high relative humidity around the graft. This system not only results in a high percentage of growing grafts, but it is easy to use. All necessary equipment can be carried in an apron since the need for a burdensome wax melter is eliminated. The more stressful the grafting conditions, the more important this grafting technique becomes. This method gained popularity and wide use throughout the pecan industry following numerous method demonstrations and promotions by B.G. Hancock and his many students.

Anyone can successfully use the inlay graft by following these instructions and practicing to develop skill in the basic techniques.

Figure 1. Use rootstock trunks or major side limbs that are 1 1/2 to 3 1/2 inches in diameter. Leave one or two side branches below the cut to keep the tree vigorous, to protect from sunburn and to keep the graft from overgrowing and blowing out. Cut straight across the trunk or limb with a sharp saw above a straight section of the trunk or limb. Make the cut 7 or 8 feet above ground if cattle or horses are grazing in a native grove.

Figure 2. Select a section of stock with a flat surface so the flat cut surface graft stick will fit cambium to cambium without air space separation. Choose a spot on the south or

southwestern side so that prevailing winds will blow the graft shoot toward the trunk instead of away from the trunk. If the old bark is rough, cut it down to live bark, forming a clean shield. Leave the bark as thick as possible to securely hold the graft. Do not cut through the bark into the wood.

Figure 3. Use a knife with a very sharp blade and a sheepfoot point, similar to that illustrated. Grafting knife blades are beveled only on one side to give a flat cut. Firmly hold the knife in a closed fist and cut the graft stick with numerous thin slices.

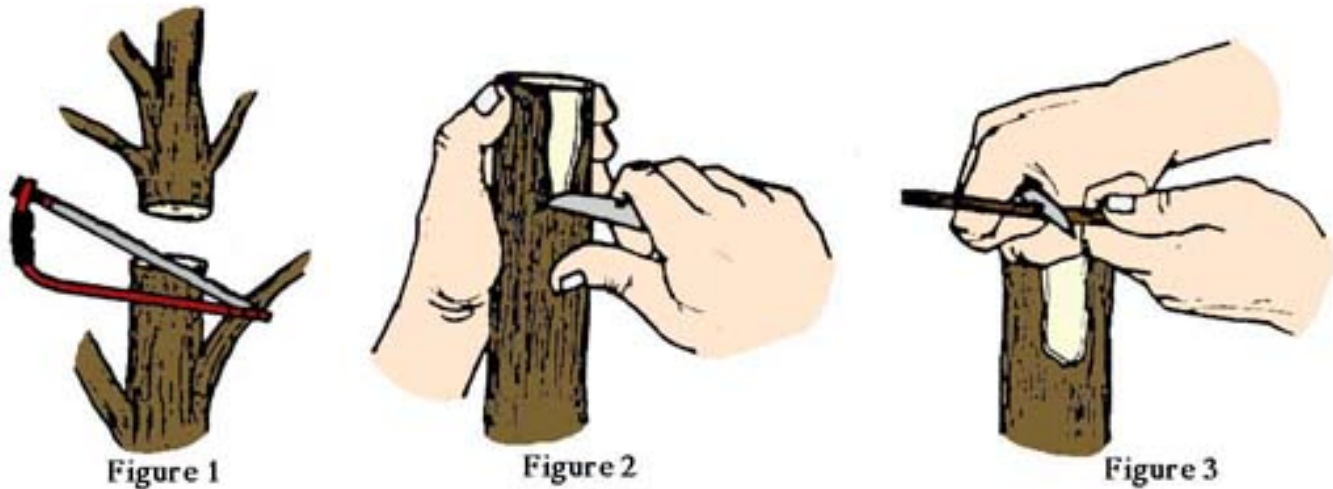


Figure 4. The finished graft stick will have one to three buds and three cuts; a slant cut, a long cut and a back cut. The slant cut should begin 1/2 inch below and on the side opposite the lowest bud. It should extend half the distance through the graft stick at approximately a 45 degree angle. The long cut is the same thickness from the slant cut to the end of the graft stick. Make the long cut perfectly flat at the midpoint of the graft stick. The back cut is chisel-shaped and is 1/2 inch long on the back side and lower end. This makes it easier to insert the graft stick and provides additional cambium contact. The long cut can be 1 1/2 to 3 inches long.



Figure 5. Place the long cut surface of the graft stick against the clean shield of live bark on the stock. Allow the slant cut to extend above the stock. Firmly hold the graft upright with the left thumb. Begin the first inlay cut at the top of the stock on the right side of the graft stick. Cut through the bark down into the wood. Draw the knife straight down the right side of the graft stick to within 3/4 inch of the bottom portion of the graft stick. It is very important to make this cut straight into the bark. Do not angle the knife to the left or right.

Figure 6. Hold the graft firmly in position with the thumb of the right hand. Do not allow the graft to move after the right inlay cut is made.



Figure 5



Figure 6

Figure 7. Bring the left hand around the back of the stock. Catch the graft with the first three fingers of the left hand and hold in exact position. Make the second inlay cut on the left side to the graft stick, cutting straight into the stock as on the right side.

Figure 8. The two parallel inlay cuts through the bark should be exactly the same shape as the long cut section of the graft stick.

Figure 9. Peel the bark flap 1/2 inch down between the two parallel inlay cuts. Slide the graft stick between the bark and wood of the stock. There should be no air space between the long cut and the flat wood surface. If the bark does not easily separate from the stock, the cambium is not slipping and you will need to wait several days, then try again.



Figure 7



Figure 8



Figure 9

Figure 10. As the graft stick is inserted, press the bark flap against the graft stick with the thumb of the right hand to firmly hold the graft stick in the slot. Apply firm but gentle pressure on top of the graft until it is forced into the inlay slot.

Figure 11. Stop pushing the graft stick when the bottom of the slant cut touches the top of the stock. This exposed slant cut surface will form callus and new tissue, which will cover the top to the stock and securely anchor the graft to the stock in 1 to 3 years. Do not push the slant cut below the top to the stock because it will separate the graft stick from the flat wood.



Figure 10



Figure 11

Figure 12. The graft can be secured by any one of several methods. Eighteen gauge 3/4-inch nails, 5/8-inch flat point staples in a vertical position, budding tape or flagging tape have all been successfully used.

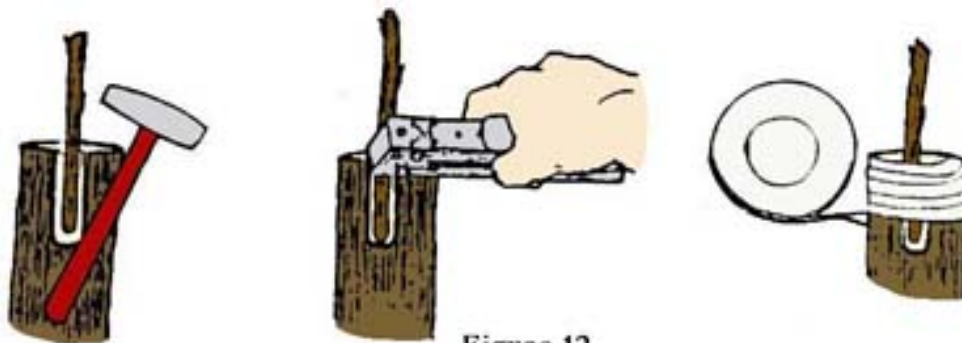


Figure 12

Figure 13. Take a 2-inch square of household aluminum foil and tear a line halfway down to the center of the square. Fold the aluminum foil around the stock so that the bottom of the tear fits right under the lowest bud.

Figure 14. Fold each side of the divided end of the square of aluminum foil. Cover all cut surfaces with the foil, including the slant cut of the graft stick. Crimp the foil to form a loose mod around the stock. All cut surfaces of the trunk and graft stick should be covered.

Figure 15. Cut off one corner of a pint- or quart-sized polyethylene bag. Slip the bag over the graft stick and gently pull it down until the cut corner rests below the lowest bud and

above the slant cut.



Figure 13



Figure 14



Figure 15

Figure 16. Tie the polyethylene bag at the cut corner around the graft just below the lowest bud and above the slant cut so that no air leaks occur. Tie with one wrap of a rubber band, small rubber strip or polyethylene tape so that the graft will not be girdled as it grows.

Figure 17. Tie the lower end of the polyethylene bag around the stock with foil covering all of the enclosed area. Make a small puncture above the lower tie to allow water to drain out of the bag.

Figure 18. Coat the cut surface of the tip end of the graft stick with orange shellac or white glue.

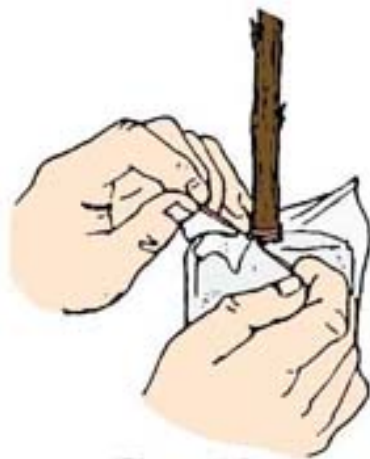


Figure 16

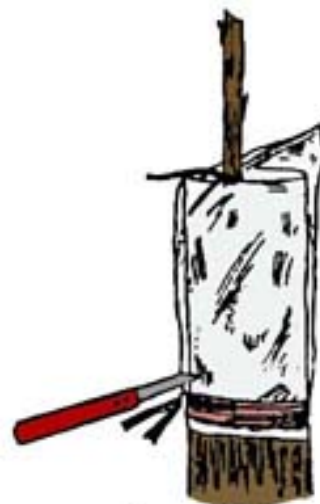


Figure 17



Figure 18

Figure 19. The buds on the graft stick should begin growth in 6 weeks. Remove the polyethylene bag and foil when the shoots are over 6 inches long. Keep these shoots pruned back to only 24 inches to prevent wind blowouts. If maximum growth is needed, in 6 to 10 weeks select the strongest shoot and tie it to a brace to prevent it from blowing out. After one year, select the strongest shoot on the graft stick and remove all others. After 2 or 3 years, when three-fourths or all of the trunk is covered with overgrowth, remove all shoots below the graft.



Figure 18

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<http://aggie-horticulture.tamu.edu/propagation/inlay/inlay.html>