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*TOP-WORKING PECAN
TREES*



Address

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TOP WORKING PECAN TREES

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Top-working pecan trees has passed beyond the experimental stage. Some of the methods employed during the experimental period have been found to be impractical and have been discarded. Others, while a success as far as getting the buds to live, has been found impractical from a commercial standpoint. There is little doubt that in the future the methods now in use will be improved and other successful methods brought into general use.

When Pecan Trees Should Be Top-Worked.

Top-working the pecan will be found to be advantageous under three general conditions:

1. When native seedlings, that are not too large, are not producing satisfactory crops of nuts.
2. When plantings of named varieties have not proven a commercial success in certain sections;
3. When a person who understands propagating the pecan desires to plant seed where the trees are to stand and top-work the young seedlings.

Effect of Size and Age on Top-Working.

The age of a tree is not so important as the size, except that age, under normal conditions, is indicative of size. In using large trees it is necessary to remove limbs over three inches in diameter, thus producing wounds that are difficult to heal, which often results in decay and the final death of the trees. Another objection to top-working large trees is that the shoots coming out through the rough bark are not strongly attached to the body of the tree and frequently break off before or just after budding.

Trees from three to twelve inches in diameter give better results than larger sizes. With these sizes it is necessary to be very careful in order to secure a perfectly sound tree after the new top has been developed. Mistakes are frequently made in removing the tops from the larger trees, which often result in the death of trees or the forcing of shoots in positions where they will not be able to make strong branches.

Removing the Top.

Trees vary so much in the formation of tops that it is difficult to lay down an exact rule for cutting back that will apply in every case. When the tree is more than three inches in diameter it is a serious mistake to remove all of the top at one time, and the old method of removing the leader close to the main body is rapidly being discarded, except in the smaller sizes. Better results are

obtained by cutting the tops back to stubs not more than three inches in diameter. If it is possible to force out one strong shoot from each of these stubs the wound will heal quickly, leaving a sound tree. The proper topping of a tree is a matter of judgment which must be acquired largely through experience.

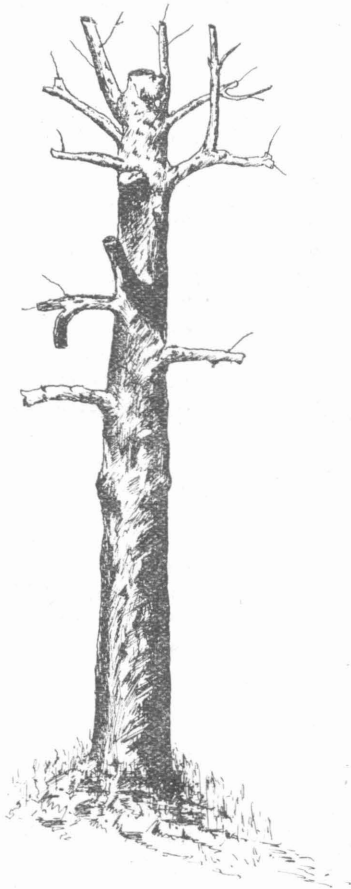


FIG. 1. (U. S. Farmers' Bulletin No. 709)
Pecan tree cut back for top working.

Taking all factors into consideration, a vigorous, well-rooted one to three year old sprout or seedling, measuring from one to two inches in diameter will give better results when top-worked than will any other age or size. The most perfect work the writer has ever seen has been on sprouts and young trees branching from three to five feet from the ground and not more than two inches in diameter. Wounds made on trees of this size will heal readily, giving a sound tree with a perfect top in from one to two years from the time the work is done. Trees of this size and age will not come into bearing as soon as older trees, but the work is less expensive and the percentage of first class specimens secured is much greater.

Methods of Budding.

Ring budding is probably the first method put into general use in working over pecans. This method generally indicates the taking of a complete ring of bark with a bud attached and inserting it on a stock from which a similar piece of bark has been taken. The ring bud produces a very severe wound and it is often difficult to secure a perfect union. The successful use of this method requires extreme care and attention to details. Where the ring

bud is to be used the natural top should be partly removed during the dormant season or just before growth begins in the spring. As soon as young shoots have made a growth of from six to eight inches those that are weak or badly placed should be removed and only two or three buds allowed to develop around each point where a bud is to be inserted. This thinning out permits the shoots that

are to be budded to make a better growth and to become more firmly attached to the body of the tree.

Repeated experiments have demonstrated that ring budding cannot be started in Texas much earlier than July 1st and cannot be continued after August 15th, except under unusually favorable climatic conditions. The success of the work depends on close attention to details, mature buds, a full flow of sap, the character of the stock and climatic conditions. If all these factors are favorable, as high as 85 or 90 per cent of the buds may grow.

The percentage will be much smaller if only one of these factors is unfavorable, and complete failure may result when only a few of the factors show a marked degree of unfavorableness.

The patch bud is a modified form of ring budding. It extends from one-fourth to one-third the distance around the stock. This gives it an advantage over the ring bud in that it does not make so severe a wound and, as a rule, is easier to handle. This method of budding requires practically the same treatment and conditions as ring budding.

Chip bud. The application of the chip bud to the pecan was first worked out successfully by

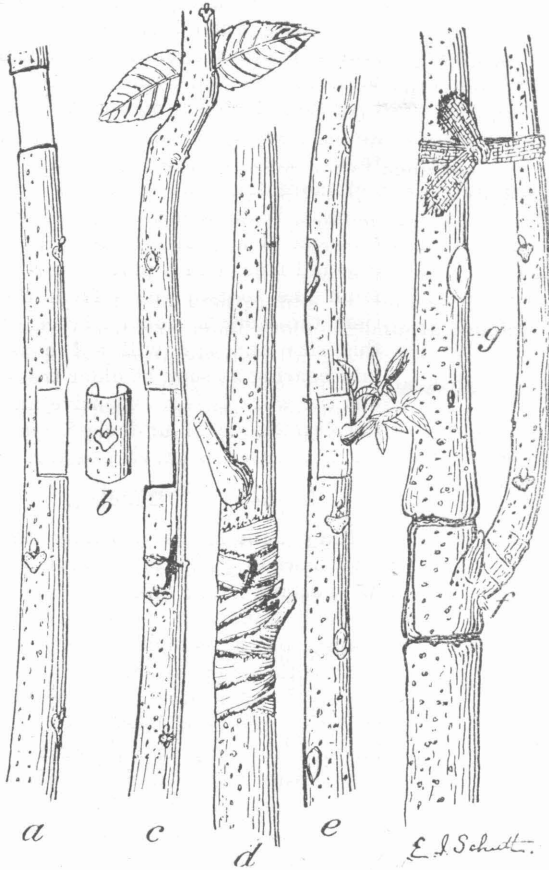


FIG. 2. (After Edwards) Annular budding. *a*, Bud stick from which the bud has been removed; *b*, the bud ready for insertion in the matrix of the stock; *c*, the stock ready to receive the bud; *d*, the bud after being placed in position and carefully wrapped; *e*, growth taking place, the wrapping having been removed; *f*, growth from the bud supported by being tied to the stock (*g*) above the union. Note the scars above the union, where the buds were removed in order to direct the flow of sap to the new bud. A cloth patch is preferred to strips of cloth as shown in drawing.

Charles L. Edwards of Dallas, Texas, and has come into general use in nearly all sections of the state. The most essential requisite to success in chip budding is the wrapping. Many failures are recorded and much prejudice has been aroused against this method through the use of improper wrapping material.

The proper time for chip budding is during the dormant season, just prior to the beginning of growth in the spring. It is necessary for the bud wood to be thoroughly dormant and best results are obtained before the sap starts in the stock, although budding may be done after the tree has started new growth, provided the buds have been kept dormant. Under normal conditions this method may be employed successfully in central Texas between February 20 and April 15. Preferably, the bud should be inserted in one-year-old growth, although two-year-old wood often gives good results. The bud should be inserted in a smooth place near the base of the stock and the stock shortened to not more than twenty inches beyond the bud. Immediately after inserting the bud it should be carefully wrapped. The wrapping material consists of a strip of cloth that has been soaked in beeswax and cut into blocks of about one and one-half inches in length and one inch wide, with a hole punched in the center large enough to admit the bud. Raffia or stout twine should be wrapped around the cloth above and below the bud. When growth starts in the spring all native sprouts should be removed from the branches and trunk of the tree soon after they appear. This will necessitate going over the tree every few days for a period of about six weeks or two months. By that time all buds that are alive will have thrust out and made sufficient growth to check the development of native sprouts. Soon after the young shoot is forced out, the raffia should be cut or loosened just below the bud to prevent girdling. When the young shoot is twelve or fourteen inches in length the raffia may be removed entirely and the waxed cloth should be examined carefully to prevent girdling.

The young shoot should now be tied to the stub above where the bud was inserted. This should remain tied a year or two to prevent the shoot being broken off by the wind. See Fig. 2.

Professor J. A. Evans of Polytechnic, Texas, has met with splendid success by using only wax in this kind of grafting. Instead of using waxed cloth and wrapping with raffia, or some other material, Prof. Evans carefully covers all cut surfaces with a thick coating of wax, composed of ~~two~~ parts beeswax to ~~one~~ of resin. The wax and resin are melted together and when partly cooled as much alcohol as they will absorb is added.

Crown budding. This method of budding is now being employed successfully in working over pecans in Texas. If the seedling tree is not more than one and one-half inches in diameter the entire top may be removed at the height of from eighteen inches to three feet above ground and the bud placed at the crown. The

bud is the same as the shield bud, except that the lower end is cut to a blunt point. The bark is slit on one

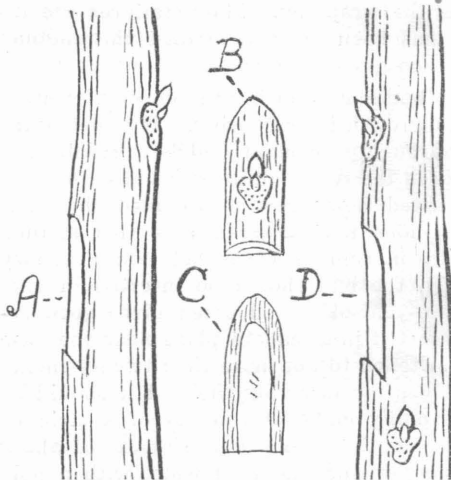


FIG. 3. (After Edwards) *a*, shows a dormant pecan scion from which a bud has been cut; *b*, front view of bud with downward sloping cut at lower end; *c*, inside view of same bud with thin layer of wood to protect germ of bud; *d*, shows a stock with bed prepared to receive bud.

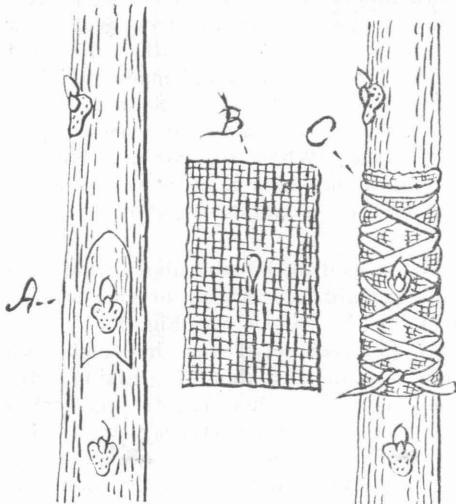


FIG. 4. (After Edwards) *a*, gives front view of bud fitted on stock; *b*, waxed cloth wrapper with eyelet in center; *c*, shows wrapper fitted on and properly tied.

of the stock. Also, the lower part of the bud is cut to a blunt point. The best time to use the modified shield bud is just as the trees begin to grow in the spring.

that the lower end is cut side of the crown and the bud forced in, as is done when a shield bud is inserted. The bud should

then be covered with a piece of waxed cloth, as recommended for the chip bud, and the crown carefully wrapped with from one to six layers of waxed cloth, depending upon its size. When trees

four or five inches in diameter are worked over by the crown method the young shoots should be cut back to stubs and the buds inserted in the crown of each stub.

When the stub is more than one inch in diameter two or more buds should be used. If the stubs are three inches in diameter, four buds should be used, spaced equal distance apart. The best time for crown budding is just at the beginning of growth in the spring, or as soon as the bark begins to slip readily.

Instead of using buds it is often found advisable to use small twigs containing from one to three buds. The twig should be cut on one side and inserted just under the bark.

Modified shield bud. This method of budding is practically the same as crown budding, except that the bud is inserted at some point on the body

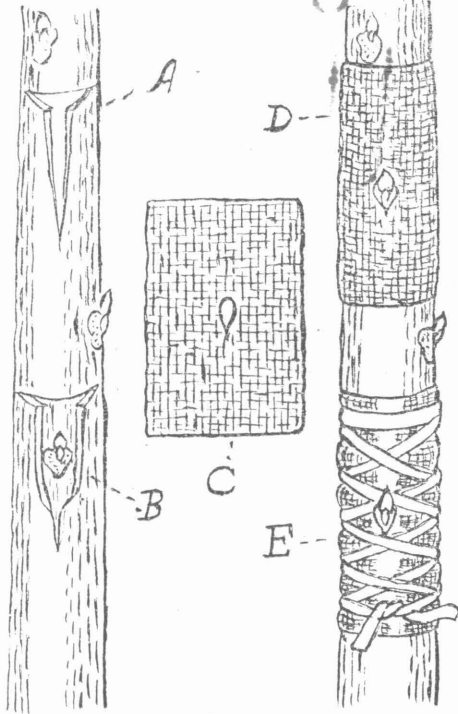


FIG. 6. (After Edwards) Modified Shield Budding. *a*, shows stock prepared for bud; *b*, bud in place with flaps of bark pared down; *c* waxed cloth wrapper; *d*, wrapper in place with nipple of bud projecting through eyelet in wrapper; *e*, wrapper tied on properly.

longer.

Top-working pecan trees offers a great opportunity to all persons interested in this important Southern industry. The practice of working over pecans to improved varieties has not become as general as is the case with apples, pears, European plums, etc., in some of the Northern and Western states, but with the improved methods now employed and with the constant improvement in the work there is no reason why unprofitable pecan trees should not be transformed to varieties of known merit.

The chip, crown and modified shield bud have several advantages over the ring bud.

1. The work is done in the early spring, when the weather conditions are more pleasant for work than during the summer.

2. The young buds are forced out early in spring, thus giving them a full season in which to grow.

3. The bud wood being dormant in early spring can be kept in good condition longer and shipped further than during the summer months.

4. The season in which the work can be successfully done is much

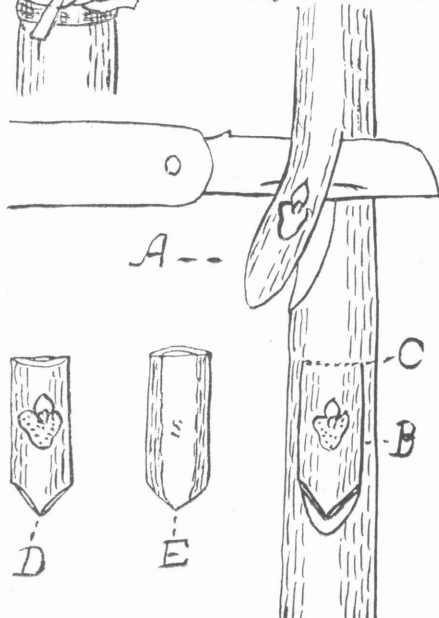


FIG. 5. (After Edwards) Modified Shield Budding. *a*, shows first cut in taking off a shield bud from dormant scion; *b*, a similar bud modified by trimming at lower end; *c*, dotted line where bud should be severed from scion; *d*, front view of modified shield bud; *e*, inside view of bud showing thin layer of wood.