

## GRAPEVINE PROPAGATION:

# Improved **FIELD BUD** of **GRAPEVINES**

*using a modified  
and plastic*

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Photo 1. Completed chip bud tied with one-half inch white plastic tape.

**F**IELD BUDDING of grapevines has been practiced for years, especially in non-irrigated areas. The resistant rootstock becomes established more quickly and its roots explore the soil more quickly when it has its own top, rather than when it is a benchgraft with a different leaf system.

Depending upon the management and the type of growth made, a good #1 root-

ing should be ready to bud in early summer of the year it was planted. The limiting factor to early summer budding was the availability of mature budwood. This was obtained from the non-irrigated hillside vineyards that would dry early in the summer. With the recognition of grape virus diseases, many such vineyards were no longer used as budwood sources. Since the newer vineyards of



Photo 2. Spring field budding: decapitated rootstock showing cut in rootstock.

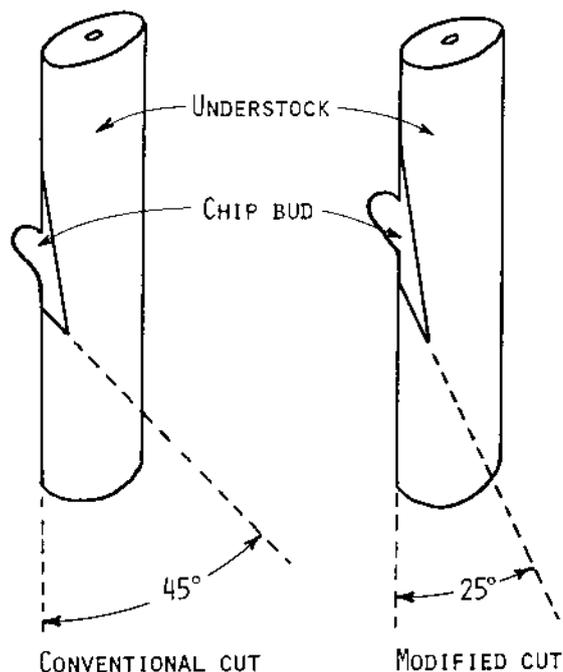


Photo 3. Chip bud placed in cut of rootstock, ready for tying.

# DING

cut

tape



Sketch comparing different angles of cut below bud.

clean stock were planted on flat fertile and irrigated, early mature budwood was not available. In order to bud early the grower used budwood that had been stored in refrigeration. With this successful alternative method the grower could field bud in June and July, long before the rootstocks were dry, and having a long post-budding season to properly "callus in" the bud. The "take" becomes progressively poorer the later in summer or fall that the budding occurs.

In areas where it is a common practice to plow to the vine and build up a 6 to 8" ridge in the vine row, budding at ground level is wrong. The height of budding on the rootstock should take into consideration the height of the ridge so that the rootstocks should be planted in the soil at a higher level.

The rootstocks were budded using the techniques commonly described and tied in place with a rubber budding strip. About 15 to 20% of the tops of the shoots were cut off to hasten callusing. The budded part of the vine was covered with a mound of loose, preferably moist soil to prevent drying out.

After budding, irrigation definitely is not recommended, since the presence of excess water in the mound near the cut surfaces of the bud shield, and the absence of air prevent the formation of callus, resulting in either a poor take or a complete failure.

In the spring, the heavily compacted mound of soil around the vine must be broken up carefully so as not to injure

the bud or growing shoot and permit the bud to warm and start growth. At this time, the top of the vine was cut back to basal buds, and the budding rubber was removed if the bud was well callused in. If the bud had not callused in well, the budding rubber is left intact, since both bud and stock tend to dry out after removal of the wet mound, and the bud shield may pull away from the rootstock and dry up if the rubber is cut.

The possibility of using plastic tape for field budding instead of a rubber budding strip has been considered for some time. A block of 180 dormant resistant-rootstock rootings (of Dog Ridge, Salt Creek, 1613, Freedom and Selection J 17-9) were planted at the Kearney Horticultural Field Station on May 3, 1973. Dormant budwood of Emperor was placed in refrigeration in plastic bags at 32-34°F in February 1973. The rootings were all #1 grade and had made vigorous growth. Since these vines had been irrigated at 10- to 14-day intervals and were going to be irrigated after budding, it was considered unwise to field bud them using a rubber budding strip and mounding with soil. The standard nurseryman's one-half inch white plastic budding tape was used. After budding, the vines were not mounded. To insure that the buds would remain dry, the tape was wrapped not only over the cut surfaces of the bud shield, but also over the bud. The buds were placed about three inches above the ground level facing the stake. The block was irrigated the day after budding in a



Photo 4. Chip bud grown into two shoots, budded May 28, photographed July 5.

furrow on each side of the vine row, about 18 inches from the vine and at two-week intervals.

The cutting of the bud shield was modified somewhat from the technique shown in various books on propagation. Instead of the usual 40 to 45° angle cut just below the bud, a more acute angle of about 25 to 30° was made (see sketch). A corresponding cut was made on the rootstock. This would permit a deeper setting of the foot of the bud into the stock and a better chance for a close, tight fit at this position. Since past observations indicate that callus formation and union of the stock and bud shield occur first at this point, it was felt that such a modification would offer a greater chance of success. The rootstocks were budded to Emperor on July 25 and 26.

In late October the tapes on about five budded vines were removed in order to examine the union. It was found that the buds were completely callused in. The color of the bud shield had changed from a dormant brown to that of the same green color as the rootstock. The shield was growing with the stock. The buds were rewrapped again with tape. The vines were allowed to go through the winter undisturbed.

# LABOR MANAGEMENT SEASONAL FARMWORK

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In March, the tops of the rootstocks were cut off about one-half to one inch above the bud, making an angled cut away from the bud, so bleeding would occur on the opposite side from the bud. The tape was removed. At this time the buds on the rootstocks were swelling. The chip buds were kept from swelling by the tightness of the tape covering, which should have been removed earlier. Locating the buds and cutting off the tops of the rootstocks was very easy because there was no mound of soil to remove; and the chip bud could be easily located by means of the contrasting color of the white tape with the ground. In May the vines were examined. Seven of the 180 had failed to push. Of these seven, three buds were still dormant, since the rootstock tops had not been cut off properly and were forming new shoots. Two of the field buds had died, but the bud shield was still alive and growing. One bud and bud shield had failed completely.

Two separate blocks of St. George rootstock (73 vines) that had been budded to Cabernet Sauvignon by the standard method in September of 1973, but had failed to grow, were rebudded to Cabernet (48 vines) and Zinfandel (25 vines) on May 15 and May 28, respectively. Half-inch white plastic tape was used on dormant budwood, wrapping the bud shield but leaving the bud exposed. On about half these rootstocks, the tops had been cut off earlier to push the original bud. The new bud was placed on the opposite side of the trunk from the old bud (see photos 1, 2, 3). The vines were not covered. At the end of two weeks most of the buds were swelling. At this time the tops of those vines that had not been cut off were removed in order to force the buds. No differences in the swelling and ensuing growth of the buds could be noticed between rootstocks with tops and those without tops. On July 5, at the last inspection, all but five buds were growing in the block budded to Cabernet Sauvignon, for a successful take of 89.6%. Because this block was removed, it is not known if these last five would eventually have pushed, even though still green. Most of these vines were growing vigorously and had formed small bushes 14 to 22 inches high (see photo 4). A final inspection was made on September 23 in the block budded to Zinfandel. All but three vines were growing, for a successful take of 88%.

The use of 1/2" white plastic nursery-men's tape appears to be a promising way to bud grapevines. This budding method may be used even to correct a

mixed variety in a vineyard after the vines have been trained as a bilateral cordon for the first two years. One or two chip buds placed on the trunk 10 to 12 inches below the bottom wire of the trellis and wrapped with plastic tape make it easy to obtain the correct fruiting variety and to re-establish the cordon or cane either the same or the following year, depending upon whether or not the vine was budded in the spring, summer or fall. When budding high on a trunk, a very large bud generally has to be used. Two buds on opposite sides of the trunk will allow one to bring out one branch of the cordon from each bud. However, if only one bud is used, it is still possible after the shoot is bent to form one arm of the cordon, and to start the opposite arm from the lateral shoot that generally pushes near the bend, after the shoot has been tied in place. By using dormant wood held in refrigeration, it is possible to bud anytime in the spring up to about the middle of July and safely force the bud the same year.

Experience shows that the bud shield should be tied tightly with tape, but the bud itself should remain exposed, so that it can push. Do not cut the tape. There is no danger of the tape girdling the vine, since it tends to stretch with the growth of the stock.

#### Advantages of tape

The advantages of using tape are: (1) digging a basin around the rootstock in order to bud is unnecessary; (2) it is not necessary to cover the bud with soil after budding; (3) there is no mound of soil hardened by winter rains to be removed in the spring; (4) the white budding tape easily marks the location of the bud so that the top of the rootstock may be cut off; (5) as weather warms up in the spring, the bud will push along with the other buds and not be delayed as in the mounding technique; (6) rootstock irrigation is possible anytime after budding without the danger of arresting the callusing.

The tape should not be removed in the spring after the top of the rootstock is cut off, because leaving the tape intact prevents the bud shield from being disturbed and possibly breaking the callus, prevents the bud from drying out, and adds support to the shoot in its initial growth. There is no danger of girdling the shoot in the early part of the year.

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**T**HE CONDITIONS under which seasonal farmworkers are recruited and employed continue to be one of the most persistent problems in U.S. agriculture. The recruitment and management of seasonal labor has remained troublesome for both employer and employee. The standard of living of seasonal farmworkers has brought social burdens and unfavorable publicity to farmers, who have rarely felt that labor supplies have been satisfactory.

In 1965 the Coastal Growers Association, a nonprofit agricultural cooperative of more than 300 citrus grower members, confronted the problem directly by initiating a new approach to their labor management practices. The approach they developed was to actively seek employees living or working in the local community. They also sought employees outside the community through referral from present and past employees. Their policy of not employing workers in family groups was continued. The management strategy was to retain employees as long during the year as possible, and to be competitive in the labor market by providing attractive pay levels without unduly increasing picking costs.

These new personnel practices were intended to secure an adequate supply of workers, reduce turnover, and increase efficiency. Their view was that success in these efforts would reduce or stabilize picking costs, and increase both hourly wage rates and potential total earnings of workers.

To enhance the attractiveness of em-