

# Topworking

## THE PROCESS

**C**ommonly, topworking starts in the spring, in late April or early May, when the sap flow has begun and it continues all the way into the summer months. The most optimum time is the first two weeks of May when the weather is becoming consistently warm. Professional contractors who charge on a per tree basis typically do successful topworking. Each job is unique and the price per tree varies. Costs are determined by the size of the tree, how many buds are required per tree, whether topworking is done on scaffold limbs or on the trees' trunks, whether the contractor is on a 12-month contract or just to do the budding, whether pruning is done by the contractor and whether the contractor's travel time is paid for.

To insure a good job, we suggest establishing a 12-month contract with a topworker with 95 percent guarantee of success. The grower's responsibilities will be preparatory pruning, irrigation, fertilization, pest control, periodic suckering and brush shredding. The contractor is responsible for proper timing of all phases of the process, which includes, advising on preparatory pruning, budding, trunk painting, bud tape removal, heading back budded scaffold branches, tree sealing major cuts, monitoring growth of the new bud and protecting from wind damage, re-budding bud failures, and removal of nurse limbs.

**Topworking budwood is not always readily available. Plan ahead and order your buds from TreeSource by January 1.**

## TOPWORKING BY THE NUMBERS:

**1** Trees are pruned to accommodate the budding operation [see photo 1]. This must be done either one month prior to the budding operation or the same day the trees are budded. Pruned trees will go into shock and won't readily accept a bud. They must be allowed time to recover. This is a heavy pruning and is normally directed by the topworking contractor but accomplished by the grower. Brush shredding will be required after pruning unless trees are very small.

**2** Contractor then buds trees as directed by grower. The younger the tree, the fewer buds are required to do the job. If tree is between 1 to 4 years (depends on the size of the trunk), budding may be done on the trunk and only 1 to 2 buds will be required. Trunk budding is cheaper, heals over quickly, has less suckering problems, but comes into production slower than scaffold budding. For an older tree, it becomes necessary to bud on scaffold branches and 3 to 8 buds can be required. The price of topworking bud-



**Photo 1**

wood is typically 35-cents apiece. Thus, the number of buds can increase the costs significantly because budwood is not normally included in the overall bid price. It should be noted that buds for April-May budding normally are cut in January and placed in cold storage. Fresh buds aren't readily available until late May or June. *(The state of California requires that buds are from CDFA registered budwood sources.)*

**3** The budding process on trees is different than in a nursery situation. The contractor will scrape the bark to remove the layer of cork on the tree to get to the softer portion of the bark below. He will cut a "T" or an inverted "T" into the limb and slip a bud into that "T." Then the tree is tied with a much stronger plastic tape than used in a nursery situation, usually around six mils thick and one inch wide. It is recommended that the budding be done on the inside of the scaffolds for the strongest result [see photo 2]. Budwood is also larger and stiffer than that used for nursery purposes.

**4** About three to four weeks after budding the tape is removed when callous forms around the bud. The topworker makes the call when it is time. At this time, some contractors cut off the branch 6 or 8 inches above the bud.



**Photo 2**

However, some will leave the branch a while longer until the buds have emerged. Timing is not written in stone. A "nurse limb" (an unbudded branch of the tree) must be left on the tree until the following spring, which provides photosynthesis for the tree during the growing season [see photo 3].

**5** At this point, the tree looks like it has been "dehorned" and it has one remaining branch with leaves on it. This exposes the tree to sunburn so all the remaining branches **must be** whitewashed, which is usually included in the price of the budding contract. Some contractors may whitewash the trees as an earlier step prior to budding, but serious damage to the tree will occur if whitewash is not on the branches by

**6** Once the tape is removed and the bud begins to grow, pest control becomes very important. The budding contractor will not see the trees on a daily basis so it is the grower's responsibility to monitor and treat for pests. Basically the grower becomes a citrus nurseryman. Economic thresholds are very low for these emerging buds since any injury can stop development of the new shoot.



**Photo 3**

**7** As that all-important bud grows, so will suckers. These suckers must be removed frequently because they take valuable nutrients that should be used for the development of the new bud. The degree of suckering will vary depending on what type of tree is topworked. Valencias are very vigorous require frequent suckering. Topworking Valencias to new varieties of navels only compounds the problems. Although this is horticulturally sound, the foliage of navels and Valencias look identical and workers need to be carefully trained to make sure they don't accidentally break off the new buds. *It is very important that the new buds are always the tallest sprouts on the tree.*

**8** Once buds have started to become established and have grown to a height of no more than 18 inches, the topworker will return to head back the new shoot. This reduces the risk of damage due to wind and sometimes they will tie the new bud to the branch it has been budded onto. Techniques vary, but it is not uncommon for heading back to occur up to 3 times during the first growing season. The biggest risk at this time is the bud breaking off and having to grow all over again or not growing at all. It is at this time that such abnormalities are discovered and grafters will use various techniques to stimulate development. This may include scoring the bark above the bud or actually re-budding those that have failed. It is uncommon to have 100 percent bud

take. Ninety percent is considered a good job and in some years, 70 to 80 percent is not uncommon. So, re-budding is a normal part of the conversion operation in order to obtain the desired result.

**9** Once the bud has been headed back and tied up, most of the contractor's work is done for the growing season. Once the bud is as big around as a person's index finger at the base, it is ready to get the final cut close to the base of the bud. It is very important this cut be made at an angle, sloping downward (see photo 4), and be sealed with asphalt tree seal. An an-



**Photo 4**

gled cut heals better than jobs that are cut flat. A flat cut that doesn't heal will eventually cause the area to rot, which may shorten the life of the topworked tree (see photo 5). The timing of this cutting can be done in the fall or often the following spring. (Again we mention suckering because it is an ongoing problem for the grower. The branches are exposed to sunlight and continue to create new sprouts. However, as long as the buds are taller or above the suckers, the bud's development is not being seriously inhibited. Too many suckers, however will siphon off energy that could go to the bud.)



**Photo 5**

**10** The final step of topworking occurs in the early spring, about 10 months after the initial budding. This involves removal of the nurse limbs after the threat of frost has past. Topworking contractors usually do this in March, rain or shine. This cut must be made close to the trunk to allow adequate healing. We re-emphasize it is important that ALL major cuts on a tree be sealed properly.

From then on it is the growers' responsibility to bring the tree into production. As the new buds are developing so are additional suckers and they become more difficult to spot because the foliage of the buds may be hiding them. Although this is not a major problem, this could mean that a limb of the wrong variety could develop in the tree. Careful monitoring is especially critical in the case of a navel on Valencia because they look exactly the same and are difficult to observe without fruit as an indicator.



**Trunk topworking, 2.5 years from budding.</**