BENCH GRAFTING PLUM AND APRICOT AS COMPARED TO T-BUDDING

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For many years we have been producing apricot, fruiting plum, and ornamental plum by T-budding on peach seedling rootstock. At no time have we been satisfied with the results. We have also tried T-budding on various plum rootstocks, mainly *Prunus americana,* with even worse results. About 2 years ago we had a block of *Prunus americana* on which the bud stand was so bad that we decided to graft them in the spring where they stood in the field. This was highly successful but also expensive. This success caused us to wonder if bench grafting might be a more economical way to produce these trees.

In January, 1975, we bench-grafted 7,169 apricot and plum scions on *Prunus americana* rootstock. The scions were dormant, one year growth. The grafting method used was whip and tongue, made at the crown of each seedling rootstock. The graft unions were wrapped with standard cloth grafting tape. The grafts were callused in the greenhouse for 10 days at about 65°F. After the callusing period the grafts were held in cold storage at 35° to 40°F until the proper planting time. They were planted in the spring at the same time as our normal planting time for apple grafts. We prefer to plant all bench grafts 5 to 10 days before peach blossoms are in full bloom. This timing will vary a little from season to season, but has proven to give best results.

In the fall, 1975, a count was made to determine the results of our grafting. There were a total of 3,067 salable trees produced from the 7,169 grafts, which figures out to 42.7%. All of the apricot and fruiting plum reached a caliper of 7/16″ or better and were dug and sold during the 1975-76 season. The ornamental plum grew more slowly and was carried over for digging in the fall of 1976. The figure of 42.7% salable trees from grafting compares with a 5 year average of 24.7% salable trees from T-budding. In addition, the majority of the grafted trees were big enough for sale in 1 year instead of two as required for T-budding.

The results with *Prunus salicina* 'Santa Rosa', our most popular selling plum cultivar, were even more outstanding. Over a 5 year period T-budding yielded an average of 13.5% salable trees. The best of the 5 years yielded only 24.6% salable trees. The 'Santa Rosa' bench grafts produced 62.6% salable

trees. Not only were the grafted trees produced in 1 year less time, they were healthier, better quality trees.

In January, 1976, we bench-grafted 35,626 apricot and plum. The same methods were used as previously described, except that after grafting, the scion of each graft was dipped in rose wax to prevent dehydration of the scion after planting. This had been somewhat of a problem on the previous year's grafts, especially on the apricots. The scions were dipped in the wax down to, but not including the taped graft union. The temperature of the wax was carefully controlled so as not to injure the scions. At planting time in the spring the grafts looked beautiful as they were unpacked from the boxes. In fact, they were some of the best looking grafts we have ever produced.

Now for the bad news. After planting, the grafts were treated with an 18″ band of Treflan herbicide at double the normal rate for our soil type. This rate has been recommended by the manufacturer for about 2 years as a means of controlling Johnson grass in soybean fields. (It also does a pretty good job controlling plum grafts). Nearly all of the grafts started to grow normally, and it looked as though we might get a 95% stand. However, when the new growth was 4 to 6 inches long, many of the grafts wilted and eventually died. The grafts that survived were mostly stunted and will have to be grown on for another year before being big enough to sell.

Even with the bad stand caused by the herbicide, the grafts still out-performed our average results for T-budding. At the time this paper was prepared, there were 13,720 live grafts of the original 35,626 planted, for a stand of 38.5%. Table 1 gives a comparison between T-budding and grafting.

In summary, we believe that bench grafting of apricot and plum is a successful method for making a significant reduction of production costs for these items.

Table 1. A comparison, by cultivar, between T-budding and grafting. The figures below represent the percentage of trees produced from each method of propagation.

Cultivar	T-Buds[1]	1975 Grafts[2]	1976 Grafts[3]
Apricots			
Prunus armeniaca 'Early Golden'	26.8%	26.5%	39.3%
Prunus armeniaca 'Moorpark'	33.8%	23.0%	31.5%
Plums			
(Prunus salicina × *P. angustifolia)* × *(P. salicina* × *P. munsoniana)* 'Bruce'	31.7%	56.3%	32.9%
Prunus insititia 'Burbank'	27.6%	50.6%	21.4%
Prunus insititia, damson plum	16.2%	35.8%	56.1%
Prunus (P. munsoniana ×*P. salicina)* × 'Golden'? 'Gold'	27.7%	38.8%	44.8%
Prunus nigra 'Hanska'	34.5%	56.1%	48.2%
Prunus salicina 'Methley'	—	—	17.9%

Table 1. (Continued)

Prunus salicina 'Ozark Premier'	30.1%	37.5%	24.5%
Prunus salicina 'Santa Rosa'	13.5%	62.6%	52.8%
(Prunus besseni × *P. salicina)* 'Sapa'	39.4%	—	59.7%
Prunus cerasifera "Allred'	13.5%	—	50.0%
(Prunus cerasifera 'Atropurpurea' × *P. salicina)* 'Hollywood'	—	—	77.0%
Prunus cerasifera 'Krauter Vesuvius'	15.4%	49.7%	30.7%
Prunus cerasifera 'Thundercloud'	19.3%	19.7%	29.9%
Average - All Cultivars	24.7%	42.7%	38.5%

[1] Five year average figures of salable trees.
[2] Salable trees produced from grafting.
[3] Live trees produced from grafting. Since herbicide stunted the trees, none will reach salable size the first year.

DEFOLIATION OF NURSERY STOCK FOR EARLY HARVEST[1]

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This paper combines information compiled from the extensive research of Dr. Fenton Larsen of Washington State University, my own recent defoliation study, and a recent survey of nurserymen concerned with the problems and present uses of defoliants.

Late leaf retention has plagued the nursery industry since storage of fall-dug stock began. This problem results in delayed digging and increased labor to hand-strip or "sweat" the leaves off. Heating of foliage in storage causes stem and bud damage and a possible increase in storage molds which can cause losses.

Leaves can be removed by mechanical or chemical means. The most common mechanical methods are hand-stripping and sweating in pits, both of which are expensive. This paper will discuss chemical defoliation.

A good chemical defoliant requires the following: at least 50% defoliation in a short time (2-3 weeks); inexpensive and easy application; and, most important to the nurseryman, not be injurious to treated plants. However, use of defoliants is often limited due to the danger of bud or bark damage and poor growth after transplanting.

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