

*Conclusions: The Ultimate Product:* If the forementioned cultural practices, are carefully observed and carried out to near perfection, coupled with excellent weather conditions, the final product will result in a June bud which perhaps peaks on  $\frac{3}{8}$ " to  $\frac{1}{2}$ " or  $\frac{1}{2}$ " to  $\frac{5}{8}$ " in caliper and with a height of some 3 to 5 ft. This tree was frequently grown on nematode resistant rootstock. It most certainly was grown on fumigated soil assuring freedom from nematode at the time of delivery. It most likely was grown with indexed rootstocks. It is obvious that the June bud of today has been designed and produced from start to finish to meet the exacting requirements of the commercial orchardist and the state.

Perhaps the day will come, when the nursery trade will develop a term better suited and more descriptive of this highly developed product. Until such time, we will continue to refer to our one year old fruit tree as a "June bud."

### YEARLING FRUIT TREE RAISING IN IDAHO

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Peach root is used predominately for all varieties of peach, plum, and apricot except on heavy soil; then plum root is preferred. Lovell pits are used mostly and planted in rows 42 inches apart. Planting is done here about the first of October as we have two weeks of irrigation season left to soak the ground well before winter sets in. Pits are then covered with one inch of soil and 2 inches of sawdust. After this has been done a disc hiller is used to cover the sawdust 2 to 3 inches deep to prevent it from blowing away over winter and early spring.

Usually about the 10th of May the seedlings emerge. When the seedlings first come through the ground they are very susceptible to frost. Some years we have had as much as 80% loss by frost. This is why we plant 15 to 20 pits per foot. If germination is good and we have no frost we have far in excess of seedlings necessary for proper stand so we have to thin to  $2\frac{1}{2}$  to 3 inches apart. We have had a spotted stand upon some occasions and with careful handling and lots of water seedlings can be thinned and transplanted and get a very desirable seedling for budding. Transplanting is done only on abnormal years of weather or stand. Thinning is done when the seedlings are about 6 to 8 inches high. Seedlings are cultivated at 10 to 14 day intervals until about August 1st., when we start budding. Seedlings are  $\frac{5}{16}$  to  $\frac{3}{8}$  inch caliper when we start budding and  $\frac{3}{8}$  to  $\frac{1}{2}$  inch caliper when budding is completed. We spray twice, about July 10 and August 1st. for control of peach borer.

We raise about 12 varieties of peaches, about the same of plums and prunes and four varieties of apricots. Buds are placed on the north east side of the seedling about 2 inches

above the ground. Sawdust still makes the ground loose and easy to work as well as easy to keep weeded.

About the 25th of October seedlings are sprayed with a fungicide to help prevent any bud loss from excess moisture and control any blight or fungus which might over winter on the seedlings. No protection is needed for buds to over winter as we usually have snow covering the buds in any severe weather between December 10 and February 1st.

Buds are cut off and suckered about the 15th of April and about two more suckerings are required to transfer all the growth to the budded tree. Usually we have to side limb once and sometimes twice each season. Side limbs are removed to a height of 18 inches.

About the first of June we apply a spray for insect control. About July 1st an application for aphid and mite control. July 10th and August 1st we spray for the control of peach borer. Usually we have such long warm falls that two sprays for peach borer is necessary. By the end of the growing season we have a large percentage of  $\frac{5}{8}$  caliper trees.

Digging usually is done about November 15th as most all leaves are off and trees are dormant by this time. Trees are graded and stored in a dirt floored cellar and the roots covered about 16 inches deep with sawdust. Doors are left open until the weather outside gets to 10 degrees above zero, then they are closed to prevent excess chilling. This make the trees dormant for spring plant. Usually some poison bait is placed among the trees to prevent mice from burrowing in the sawdust and eating the roots.

Cherry seedlings are bought from seedling growers and planted 7 inches apart in rows 42 inches apart. We use a No. 2 seedling as No. 1's get too large. Mahaleb are used predominately as they do better in this area and gall is not a very serious problem. Spraying is the same as other trees except that only one spray is applied for borer. These are not a problem on cherry.

Pear seedlings are also bought by us. These are also planted 7 inches apart. No. 2 seedlings are used. Either French or domestic Bartlett are used. Domestic Bartlett usually makes a much more fibrous root but either one does well here. We usually spray three times for pear psylla and blister mite. These are no problem with us here but spraying must be done.

Apple seedlings are also bought by us. Planting and spraying is done the same as pears as they are planted close in the nursery. Buds are all placed on the north east side of the tree about 2 inches above the ground. This protects the buds from winter sun as it is quite bright here. All clonal rootstocks are budded 8 to 10 inches above the ground but also on the north east side of the tree. This give a long shank on the tree to allow deep planting and also leaves the bud union above the ground when planting in the orchard.



We find it very important to be through budding by September 10th. The sap is still up until the last of September but the bud stand drops off sharply after this date. Sometimes we will leave some seedlings until spring if we are a little undecided as what to bud. We can bud by April 15 to 20th and grow mostly  $\frac{5}{8}$  inch caliper trees which the trade prefers in this area.

We find that apple and prune trees headed at 42 to 48 inches in the orchards make the nicest trees to shape and the best angles for scaffolds so  $\frac{5}{8}$  in. caliper trees are desired. Cherry and pears may be headed somewhat lower as they tend to grow very erect if not summer pruned the first year of planting.

## PROPAGATION OF CITRUS PLANTS

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Citrus plants are quite simple to reproduce. Grown from seed, they do not usually produce true-to-type progeny; therefore, to maintain genetic continuity vegetative techniques are required. The familiar "T" bud is used almost universally to bud onto a suitable rootstock seedling. Plants bud easily in early spring or fall. Bud stands in excess of 90% are easily obtained with most varieties.

If citrus plants are so easy to propagate, why discuss them at all? Well, they are easy to reproduce but any citrus nurseryman can recall a few nightmares about mutations and virus diseases. Anyone can propagate citrus plants if he can control temperature, but few of us in the business have escaped some problems with mutations, or virus. Thus, a citrus nurseryman's primary concern is not with reproducing trees but protecting his customer and the citrus industry from the spread of virus disease and introduction of mutant or variant strain.

The citrus industry does not have any of the virus controlling techniques common to deciduous plant propagators. We can't use cuttings from rapidly growing terminals. We cannot use heat chambers. We cannot now use meristem cultures or other exotic methods used with ornamental plants. We do, however, have a trick of our own. Plant propagators have long known that the seed is a good shield against viruses. Seedling progeny rarely carry the virus diseases of their parents. A question is usually asked at this point if citrus seedlings are not true-to-type how is it possible to maintain varietal or genetic continuity using them to escape virus? To circumvent this problem the citrus industry has learned to take advantage of a peculiarity of citrus seed. The seed of many varieties produce more than one seedling from a single seed. They produce the normal gametophytic seedling plus others which arise from the nucellus, a tissue surrounding the sexual embryo. These nucel-