

FAIR OAKS HORTICULTURE CENTER

A Self-Guided Tour

January, 2001

HISTORY

Orchard: Most fruit trees were planted bareroot on April 1998; the arborsculpture trees were planted in February 2000. The trees were planted on small mounds to improve drainage. After planting, trees were cut (headed) to about 2 ft. tall and painted white to protect from sunburn and subsequent borer damage. Drip irrigation was then installed and an 8-inch layer of mulch was applied.

Vineyard: Rooted cuttings of 'Freedom' rootstock vines were budded with table grape varieties by Master Gardeners in February 2000. Budded vines were grown in pots and then planted in the vineyard in April 2000. Vines are being trained as either cordon/spur or head/cane.

Berries: In January 2001, we are planting black, boysen, blue, rasp, and other berries.

FULL-SIZED TREES

Apricot (open center)

The best time to prune apricots is in August because they are susceptible to a fungal disease called Eutypa dieback, which can kill branches and whole trees. The fungal spores are spread by wind and rain and they germinate on fresh pruning wounds, particularly in late fall and early winter. If infected, sap oozes profusely from around wounds within a few months. If pruned in August, wounds heal before fall rains. However, exposed branches must be protected from sunburn, preferably with leaves of lower fruiting spurs, or if exposed, paint with a 50:50 mix of white interior latex paint and water. Some regrowth will occur after pruning in August, but less occurs when pruning is done in late August than in early August.

The other time to prune apricots is in late February or early March, which is after the period when most spores are released. Also, pruning wounds heal quickly in late winter because growth is beginning.

Observe:

- The center should be kept fairly open to promote sunlight penetration onto lower fruiting spurs, which increases lower fruit production and shades major scaffold branches.
- White paint is applied to south or west facing branches exposed to long periods of sun.
- Note the numerous lower fruiting spurs and try to find next year's flower buds on the spurs; they formed in July.
- How would you prune it?

Peach (open center)

Observe:

- Note the vase shape. Also note the large number of flower buds on one-year-old shoots that are exposed to sun compared to those that are shaded. Maintaining an open center through the summer is the key to producing low-growing lateral shoots that have many flower buds.

Cherry (open center)

Cherries are noted for their vigorous upright growth. Encourage branching and low fruiting by heading new shoots twice during summer and/or by bending branches outward. Both practices slow growth and promote spur development and fruiting. Avoid heading during the dormant season as much as possible, because this stimulates vigorous growth.

Observe:

- This ‘Lapins’ cherry tree has 6 other varieties that were budded in summer 1998 and spring 1999 (lack of cross-pollination will not be a problem!). The point where the bud was inserted and later grew is located between the white paint marks.
- In 2000, these main branches were bent outward and tied to stakes. Note the upright nature of new vigorous shoots. Clusters of buds can be seen on spurs on older branches low in the tree.

Apple (central leader)

Apples naturally grow in a central leader shape, although they can be made to conform to open center and espalier. After planting, the central leader is created by allowing the middle, most vigorous shoot to continue upright growth. Other branches are bent over to make the first whorl of branches, and all others are removed altogether. Sometimes the central leader naturally puts out side branches (for the next whorl) and continues its upright growth. Other times it is headed slightly above the point where the next whorl is desired, forcing lateral branches. Then the central, most upright shoot becomes the new leader.

The central leader tree should be Christmas tree shaped. The lower whorl is the widest and the upper whorl is kept narrowest, so the light comes in from the sides rather than from the center. Main lateral branches of one whorl should be offset from the adjacent whorl branches to prevent shading of the inner part of the lower branches.

Observe:

- Each lateral branch on this ‘Fuji’ tree has been bud grafted with a different variety. Ultimately, this tree will have 16 varieties (4 whorls and 4 branches) in addition to the original ‘Fuji’. The location where each bud was inserted is indicated by white paint marks above and below the bud.
- Notice that the branches are tied down with string to slow their growth and promote fruiting spur development.

Perpendicular “V” Peaches

This is a training system that several commercial peach growers use; it provides early fruit production and high yields. It is a method of growing many trees in a small space, but not as many as fruit bushes; also, a ladder is required because trees are usually allowed to grow up to about 10 ft. Perpendicular “V” trees are planted 5-6 ft. apart, so a fairly small space can accommodate many varieties. All fruiting shoots arise from the two main scaffold branches. As with open center, the center of the tree must be kept free of upright, vigorous shoots, which otherwise would branch out and shade lower fruiting shoots.

GENETIC DWARF CITRUS

With little pruning, genetic dwarf trees grow no more than 8-10 ft. tall and wide. Standard sized trees can reach 20-25 ft., although they are kept small by pruning. Common citrus varieties are available as genetic dwarfs, which require little pruning. Young trees mainly require removing crossing or conflicting branches, shaping, and removing rootstock suckers. Mature trees mainly require shaping and removal of inner dead wood. Citrus occasionally send up single, odd-shaped branches that can be headed or removed, or simply left, as can be seen on one of the trees.

GENETIC DWARF PEACHES AND NECTARINES

Genetic dwarf peaches and nectarines produce short internodes. Like citrus, they have standard (full-sized) rootstocks. Unlike citrus, standard varieties of peaches and nectarines are not available in genetic dwarf, but some very delicious and productive varieties are available at nurseries. Pruning is done in the winter because it is nearly impossible to see branches when the leaves are on. Select and maintain healthy major scaffold branches, much like with mature trees. Thin out crowded branches, and open up the canopy to allow sunlight to reach lower branches. Fruit production tends to move higher and higher, so it is necessary to reduce the height of mature trees and keep them open with thinning cuts.

FRUIT BUSHES

This method of tree training was developed by Ed Laivo of Dave Wilson Nursery. It is very simple and provides trees that are small and easily managed. Many varieties and species can be planted in small areas, providing successive ripening throughout the summer. Although more expensive initially, this method looks very promising for backyard orchards because of their ease of management. The effects of this pruning on long-term production are not well known. It will probably be necessary to periodically prune out and renew large, older branches.

With this method, trees can be grown singly (trees spaced 8-10 ft. apart), three in a hole (trees spaced 18 in. apart), four in a hole (trees spaced 24 in. apart), in hedgerows (trees spaced 2-4 ft. apart), or even on a trellis.

How to Create Fruit Bushes:

- After planting, cut the tree off at knee height and paint the trunk white.
- In about late April or early May when new growth is about 2-3 ft. long, cut the new growth in half with hedge shears. In about June when the subsequent new growth is about 2-3 ft. long, cut that new growth in half. The new growth may need to be cut once or twice more. With all the heading cuts, there can be an excess of branches, so they need to be thinned out a bit (remove some shoots) to allow sun to reach the lower branches.
- In the second year, continue cutting new growth in this manner until the trees reach about 6 ft., or at the height at which you can easily prune the top.
- In the third year and beyond (if your tree has reached its maximum height), simply cut off any shoots above the 6 or 7 ft. permanent structure periodically through the summer. Ed Laivo recommends doing this heading only twice each season. Shoots are removed in early May and again after harvest in July or August. But the shoots are then quite thick and must be cut with

bypass loppers. Shearing the tops like bushes makes it easier to deal with prunings (just chop them lower as you prune), however, the additional pruning causes profuse growth of shoots in the upper tree. This growth can cause excess shading of lower wood, upper branches must be thinned periodically. Little pruning should be necessary during the dormant season if adequate summer pruning was done, but additional thinning of branches and topping are usually necessary. Dormant pruning can also be done during or just before flowering, when it is easy to see which branches have no flowers. But it is fairly easy to identify dormant flower buds.

Observe:

- Notice where shearing or heading cuts were made and the subsequent shoot growth.
- Notice on many trees how shoots had grown above 6 ft. and did not get pruned off low enough during the summer.
- Notice how the trees are not allowed to grow into one another.
- Notice the large amount of fruiting spurs formed in the lower part of the canopy (but peaches and nectarines don't have spurs – flowers and fruit are produced all along the previous year's shoots). In late summer look on the spurs and shoots for the buds for next year's flowers.

ESPALIER TREES

Apples and pears have traditionally been espaliered. However, just about any tree type can be made to grow on a trellis. Espaliers are useful where you have a narrow space, such as alongside a fence or house. Shoots can be meticulously trained along wires or spread out in a fan shape, with fruiting spurs carefully selected and maintained. Or shoots can simply be tied up and the tree clipped like a hedge, with periodic thinning of branches.

Observe:

- Apple and pear shoots are being trained on the wires (the pear was replanted). Fruiting spurs are already forming for next year's flowers and fruit. Apples and pears produce flower buds at the tips of short spurs. Can you find some of next year's terminal flower buds?
- During the spring and summer, notice the trap for codling moths (the "worm in the apple"). Inside it are small codling moths that were attracted by the red lure, which emits a sex pheromone to attract the male. Pheromone traps are used mainly for monitoring populations, but they can reduce populations somewhat too.
- The pluot was trained by simply tying branches up at random and shearing the sides. It quickly filled in its allotted space the first year.
- The fig tree is not well adapted to tight spaces like this, but it still produces figs. Tiny figs begin to form on shoots late in the season and can be seen through the dormant season; these will grow and ripen in early summer next year. However, most of the fruit form on current season's growth. But summer pruning to keep it in a hedge eliminates much of this crop.