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PRUNING

Young Fruit Trees

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DEPARTMENT OF HORTICULTURE



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PRUNING YOUNG FRUIT TREES

Young non-bearing fruit trees are pruned for the purpose of training them 1) to a desired form and 2) to develop a strong framework that will support the bearing portions of the mature tree in later years.

Young fruit trees should be pruned lightly—Too much pruning tends to dwarf the tree and retard fruit bearing. A tree that is pruned heavily each year will be smaller, come into bearing later and bear smaller crops, at least for the first few years, than one that is pruned lightly.

The amount of pruning given should be only that which is essential for the development of a strong framework of scaffold branches. After the framework is established little pruning is required until the trees come into full bearing.

Time to prune—Late winter or very early in the spring before growth starts.

Tools needed—1) A sharp pruning knife with a curved blade, 2) strong hand shears and 3) a small fine-toothed pruning saw. Keep tools sharp and clean.

Making the cuts—When removing a branch or shoot make the cut as close and parallel to the parent branch as possible. Use shears in such a way that the cutting edge is next to the parent branch. Avoid bruising or tearing the bark. Use a saw for removing branches over $\frac{1}{2}$ inch in diameter.

If two branches of about equal size and length originate from the same point, one of them should be headed back or shortened considerably more than the other so that it will become a side branch of the one pruned less severely. The development of forks and weak crotches may be avoided by taking advantage of this principle of the "unequal cut."

METHODS OF TRAINING

Young fruit trees are trained either by (1) the modified leader, or (2) the open-center method.

Modified leader method—A well developed modified leader tree is one with a central trunk or axis several feet in length along which a number of main laterals or scaffold branches arise. These should form wide angles at the point of attachment with the trunk, be spaced

at least 6 inches apart and none should be directly opposite or directly below another. Large 1-year-old nursery trees are preferable for developing this type of tree. Two-year-old nursery trees of the apple, pear, plum and sour cherry are commonly used.

The methods used in developing a modified leader tree vary with the different kinds of fruits. Starting with a 1-year-old nursery tree, the general procedure is as follows:

First pruning—At the time of planting. Head or cut back large 1-year-old unbranched trees to $3\frac{1}{2}$ to 4 feet above the ground. Those $3\frac{1}{2}$ or less in height need no heading back. Well-branched 2-year-old nursery trees are pruned in the same manner as that described below for the one-year orchard tree.

Second pruning—In the spring, a year after planting. This is the first pruning of a 2-year-old nursery tree when planted in the orchard.

1. Save one of the most vigorous upright-growing shoots for a leader.

2. Select one or more, preferably two, well placed lateral branches that form wide angles with trunk for permanent scaffold branches. The lowest one on apples should be about 30 inches from the ground and 20 to 24 inches above on other fruit trees. Remove all sharp-angled branches.

3. Head the branch selected for a leader, if necessary, to about 20 inches above its point of origin and shorten the remaining laterals so that when held in an upright position their tips will be 4 to 6 inches lower than the tip of the leader.

Third pruning—Two years after planting.

1. Select the topmost shoot developed from the leader the previous season to continue as the leader.

2. Save two or three lateral shoots which developed from the leader for additional scaffold branches. Head them back, if necessary, keeping the leader dominant.

3. During the previous season, the branches saved for scaffolds will have rebranched, forming secondary shoots or laterals. Two or three of these that are 6 inches or more away from the leader may be saved from each scaffold. Remove or head back any that may be longer than the leader or midrib of the main scaffold branch. Treat each scaffold as though it were a young tree.

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4. Leave the several parts of the tree in balance. The lower branches should not outgrow the upper portions of the tree, nor the upper branches be allowed to grow longer and "shade out" the lower ones.

5. Save short twigs and spurs that develop in the interior part of the tree. If these develop into vigorous shoots that tend to make the center of the tree thick and bushy, they may be thinned out a year later.

Fourth pruning—Three years after planting. The main purpose is to encourage formation of additional framework and maintain a proper relationship between the established scaffolds. Select two or three additional scaffold branches as described for the previous pruning. Keep the leader dominant. Correct any tendencies to develop weak crotches. Save short twigs and spurs. If opposite branching occurs on the trunk or along the main branches remove the poorer one.

Fifth pruning—Four years after planting. By this time the main framework, consisting of six to eight main scaffolds will have been established and it is no longer necessary to encourage the further development of the leader. It is not advisable, however, to head back the leader at this time. If necessary, it may be cut back to a well-placed, outward-growing lateral one or two years later. With most varieties no heading back will be necessary as the leader naturally becomes suppressed or checked in growth by the end of the fifth or sixth year.

In general, the pruning at the beginning of the fifth year, except that no additional scaffolds are selected, is about the same as that of the previous season. Usually no heading back and very little thinning out is required until after the trees are in full bearing.

Open-center method—Used mostly for training young peach trees. Differs from the modified leader method in that the central leader is removed at the time of planting and the branches selected for scaffolds are developed from a comparatively short space on the trunk.

1. Head back the 1-year-old tree to 18 to 24 inches at planting time.

2. Select three scaffold branches that are well distributed around the trunk and as near as possible to the place where the tree was headed back. If the branches are large and

uniform in size they may be left at 10 to 12 inches in length. If slender and uneven in size, cut them back to short stubs with one or two basal buds. Shoots which develop from these buds may be selected for the main scaffold branches.

3. Inspect the trees 2 or 3 weeks after planting and with a sharp knife remove all shoots except those to be saved for scaffold branches. Make another inspection and a light shoot removal 2 weeks later. Rub off all growth from the trunk of the tree.

4. In the spring of the second year remove any shoots other than those selected to form the framework and head the 3 scaffolds to equal lengths so that they will develop as nearly uniform in size as possible. Usually very little other pruning is required.

DIRECTIONS FOR PRUNING

Apples—The modified leader type of training is used. Extra care is necessary in the selection of branches for the main framework of the tree. The main scaffolds should be spaced at least 6 inches and preferably 8 to 10 inches along and around the trunk. Do not attempt to save too many scaffold branches in one season. The result will be too close spacing and a crowd-

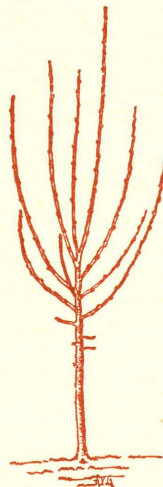


FIG. 1

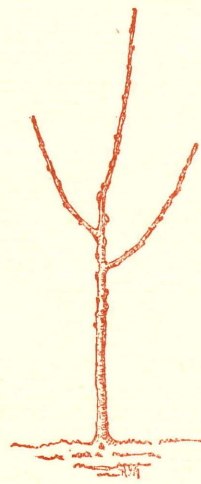


FIG. 2

Fig. 1. A vigorous young apple tree before pruning.

Fig. 2. Young apple tree after second pruning (first for a 2-year-old nursery tree). Two wide-angled laterals have been selected to form the lower scaffold branches. The leader is left longer than the lateral shoots.

ed condition of the branches on the trunk. Branches that appear to be widely spaced on a 2- or 3-year-old tree may grow together and become crowded in later years. In general, the pruning should be mostly of the thinning out type with as little heading back as possible.

Pears—The modified leader method is recommended. The trees tend to form narrow-angled crotches and to assume an upright habit of growth. Make cuts to outside buds and to outward growing laterals whenever possible. Care should be taken to keep the leader dominant, the scaffold branches in balance, and to develop strong wide-angle crotches throughout the tree. Severe heading back to keep the trees from becoming too high is not advisable. Blossom spurs which may develop along the leader or within 12 to 18 inches of the base of the main scaffolds should be removed.

Peaches—The open-center method of training is preferred. Skill and careful attention are required for developing the trees properly by the modified leader method and there is evidence to indicate that trees trained by the three-scaffold open-center method will have less winter injury and generally will be longer lived.

The trees are sometimes trained in a manner known as the side-leader method. This method is successful only when used by the most ex-

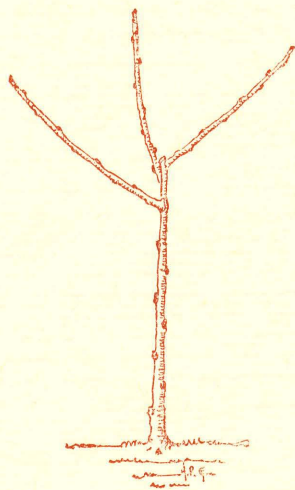


FIG. 3

Fig. 3. Young peach tree pruned after planting to be trained by the three-scaffold open-center method. When 3 branches of sufficient vigor and uniformity cannot be found the branches are cut back to short stubs.

perienced growers and generally is not recommended.

Regardless of the method of training, only a light corrective pruning should be given during the second and third years. Small wood in the center of the tree should be left. If this wood is left it will be possible to harvest a fairly good crop of peaches the third growing season. In the fourth year the small wood in the center of the tree should be removed.

Sour Cherries—The modified leader tree is best. A 1-year-old nursery tree usually has a number of lateral branches and a selection of some permanent scaffolds may be made at the time of planting. More laterals may be left than will be required for permanent scaffolds when the trees are fully established. Cut the laterals back to 6 to 8 inches in length and leave the leader 8 to 10 inches longer than any of the scaffolds.

One or two years after planting remove superfluous laterals and save three or four well-spaced wide-angled ones for permanent scaffolds. No heading back is necessary unless the terminal growth has exceeded 20 inches or unless some branch is outgrowing the others.

In the spring of the third year make another selection of scaffold branches to complete the framework of the tree. There should be six or seven main branches distributed along about 3 feet of central axis or leader. Remove crowding or interfering secondary branches at this time. After the framework is established little pruning is advisable.

Sweet Cherries—Modified leader training is recommended. The trees usually require less pruning than those of other fruits. Special attention should be given to the development of a strong framework of scaffold branches as the trees are susceptible to crotch splitting. Wide spacing of the scaffolds is important. Long pole-like branches which often develop in young trees 3 or 4 years old should be headed back to outward growing laterals.

Plums—European varieties such as Italian Prune, Stanley and Green Gage and others are trained by the modified-leader method. They require less pruning than varieties of the Japanese type. Most varieties will form good tops even though little pruning is done. The centers should be thinned lightly to admit sunlight and to develop a healthy spur system. Heavy head-

ing back results in long upright growths and high dense tops, hence, heading if advisable should be light.

Japanese varieties such as Burbank and Abundance are trained to form an open-center tree although the modified leader method is satisfactory for most varieties. Varieties such as Burbank which make a low-spreading growth need more corrective pruning than others to develop and maintain a well-shaped top.