

Fig. 13: One year old apple tree with lateral branches and central leader (CL).

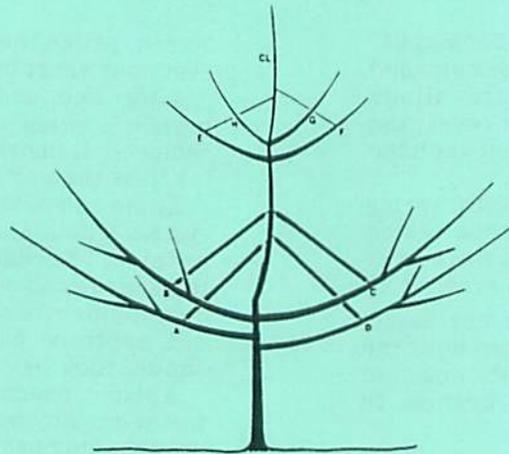


Fig. 14: Two year apple tree with wooden spreaders (A) and metal spreaders (B).



Fig. 15: A one year old peach, cherry, apricot, or plum tree.

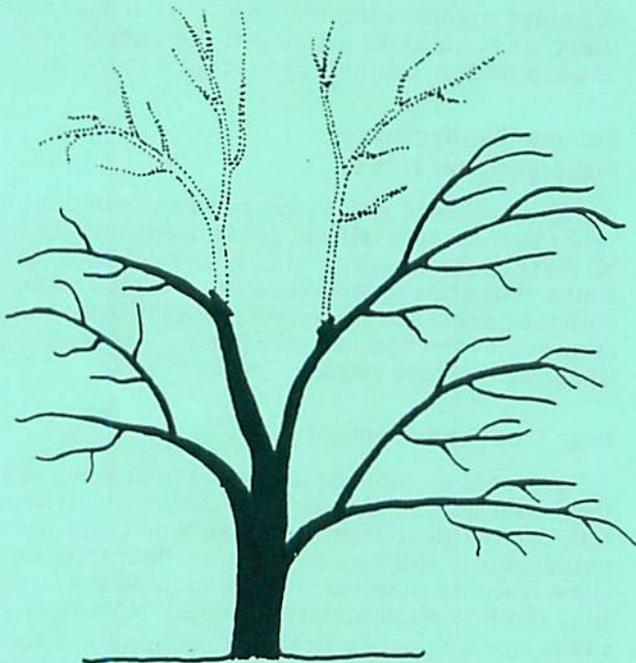
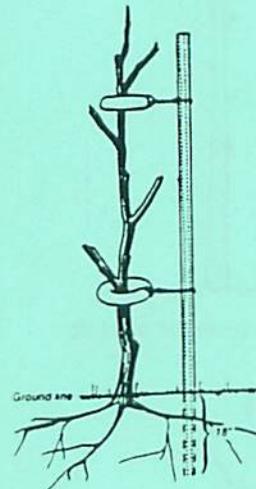


Fig. 16: One or more large limbs may be removed from excessively tall trees. Large cuts should be made close to the remaining limb and the wound should be coated with a wound dressing.



Method of staking a tree which needs support.

BULLETIN 591

Growing & Using Fruit at Home

CULTURAL PRACTICES AND PEST MANAGEMENT

Pruning Tree Fruit

At planting, fruit trees should be headed back to 24" to 28" above the ground (Fig. 11). All broken or damaged limbs should be removed. This procedure allows branches to form at desired levels, improves the strength of the tree and provides a balance between the top and roots.

As the branches reach 4 to 6 inches in length, spring loaded clothes pins can be used to form strong crotch angles (Fig. 12). They should be removed at the end of the first season. Branches which begin to grow at 18 inches or lower can be cut off during the summer. Sometimes in peaches only one or two limbs begin near the union. If limbs are above the union, select one and allow this to grow upright and begin to branch. In

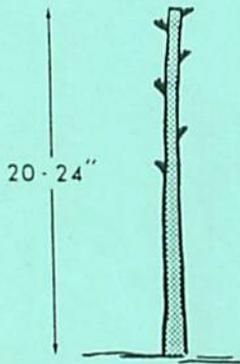


Fig. 11: Young tree pruned at planting.

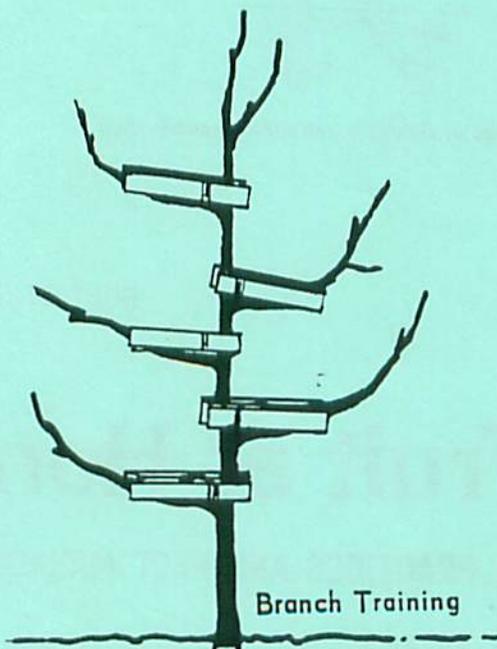


Fig. 12: Form well-spaced laterals and strong crotches by training trees when they are young. Clothes pins are good to hold small branches at position desired. Remove clothes pins at the end of the growing season.

March, prune the tree as if it were just planted. However four short branches near the top can remain.

After one and two years of growth, all lateral branches below 18 inches or below the first lateral are removed. Remove limbs which have narrow crotch angles (less than 45°).

Apple and pear trees are pruned to the central leader system which allows 3 to 4 groups of four branches to develop. The central leader is cut in March at 18 inches to 24 inches above the last group of limbs to insure the development of more limbs (Fig. 13). A two or three year old apple or pear needs more limb spreading and should look like Figure 14.

Apricot, peach, nectarine, cherry and plum should be trained to an open center system. After the first year of growth, four branches are chosen and all limbs in the center of the tree are removed as in Figure 15. Pruning during the next several years, begins with removal of shoots in the center, allowing spreading and reducing upright growth when the tree reaches maximum height of 6 to 8 feet for peach and nectarine and 10 to 14 feet for cherry, plum and apricot. Fruiting limbs need the small diameter branches thinned with 4 to 6 inches between them. As main limbs get longer, the ends of limbs are headed back 6 to 8 inches to increase strength.

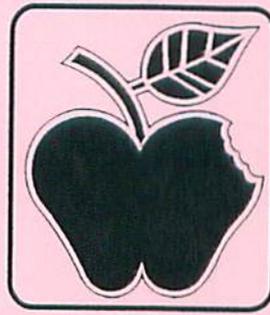
Pruning Old, Neglected Apple and Pear Trees

Old apple trees which have been neglected for many years become very tall and dense. Reducing the height of these trees usually requires the removal of large limbs. When this is done, the cuts should be made flush with the bark of a lower limb (Figure 16). Other thinning cuts will be needed in lower portions of the tree, but likely will involve smaller limbs.

Pear Trees and Fireblight

Pear trees do not need to be pruned as much as apple trees. Neither is obtaining wide-crotch angles so essential, for the pear tree has tough wood and is not so vulnerable to splitting or breaking. Pear trees do need some training, however, and the method shown for apples should be the pattern followed. Most cultivars of pears are subject to fireblight, which kills infected areas. It is rather difficult and unwise to try to stop the blight by pruning out damaged areas during the growing season, for the causal organisms can be spread by the pruning shears. Ordinarily, one should wait until the dormant season to cut out the infected wood, and even then the cut should be made 8 to 10 inches below the affected portion, preferably back to an outward-growing branch.

FRUIT



TIPS

RENOVATING OLD, ABANDONED APPLE TREES

By Charles D. Kesner and Keith L. Lamkin

Department of Horticulture, Michigan State University; and county extension director, Emmet County, Michigan, respectively.

Old, abandoned or semiabandoned apple trees occur throughout the Midwest. Often cultivars are very old and no longer are grown commercially. Many of them, however, if properly managed, could produce good fruit for use by homeowners for fresh eating or for processing into applesauce, apple jelly, apple butter or cider. When trees of desirable cultivars are near residences, people often are interested in attempting to care for them so the fruit can be used.

Often the old trees are 25 to 30 feet tall and have not been pruned for many years. The average homeowner is simply not equipped to spray and care for them, so the fruits produced are generally small, diseased and severely damaged by insects. However, a tree that is reasonably structurally sound may be renovated and brought back into production. The trunk should not be severely rotted, and large lateral limbs should not be hollow. Unsound trees can be successfully renovated, but they will not live as long.

Once the owner has decided that a

particular tree or trees are worth keeping, how can he/she bring the trees back into production with quality fruit and, at the same time, reduce the tree size to make them more manageable? In some cases, aesthetic value also may be a consideration. The following renovation procedure is suggested.

RENOVATION

An abandoned or semiabandoned apple tree generally is very tall and very thick and contains a large number of dead or dying limbs inside the canopy (Figure 1). Such a tree obviously is unmanageable, and its size needs to be significantly reduced.

Very severe cuts can be made without doing permanent damage. Once cuts are made, latent buds within the tree will produce new, very vigorous limbs to replace old, weak ones.

Study the main structure of the tree closely before deciding where to make the cuts.

Try to locate some relatively new water sprout-type growth in the lower portion of the tree that can be left to produce part of the new tree structure. Water sprout growth is identified

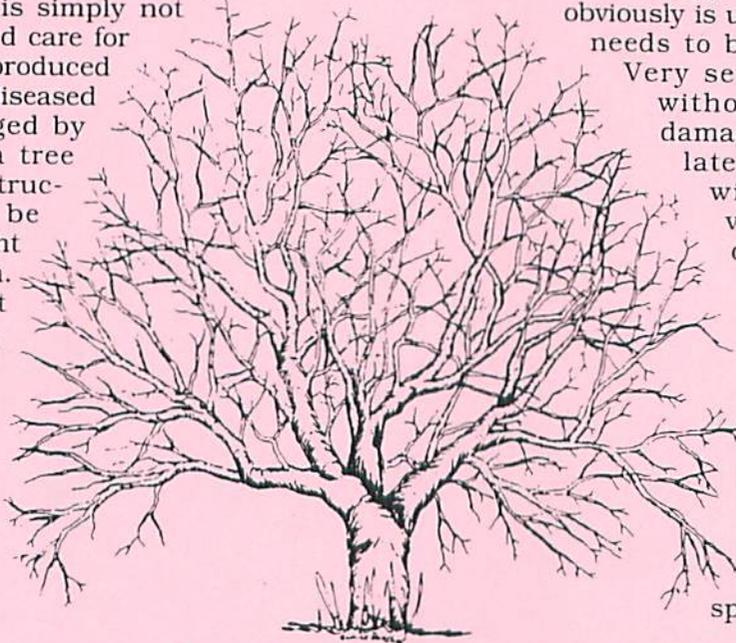


Figure 1. The typical abandoned apple tree is very tall with many weak and dead or dying interior limbs.

NORTH CENTRAL REGIONAL PUBLICATION NO. 429





Figure 2. An unpruned, abandoned apple tree showing several water sprouts (new growth within the past 2 to 4 years). Note the smooth bark on these limbs. Older limbs have scaly bark. Leave some of this young growth to begin the new tree structure.

by very smooth bark that indicates it is new growth that has occurred within the past two to four years (Figure 2). Older limbs have heavy, scaly bark and generally should not be saved.

Renovation is best done in early spring, usually in April. If water sprout growth can be found in the lower areas of the tree, remove all the old, large limbs about 8 to 12 inches above this new growth (Figure 3). This is most easily accomplished with a chainsaw. Undercut these large limbs slightly before removing them so that they don't tear the bark severely when they fall. The old limbs generally are very large and heavy. Be careful that they do not break off the shoots you intend to leave when they fall to the ground. When making severe cuts on old limbs, try to cut them more or less perpendicular to the ground. Cuts that face upward will collect and hold water from rainfall, causing ice damage in winter and decay in summer. Paint these large cuts with white outdoor latex paint within a few days to protect the wound from the weather. Outdoor white latex is not toxic to the tree and seals moisture out, preventing decay.

Making the major limb cuts generally removes a significant portion of the old tree. The root

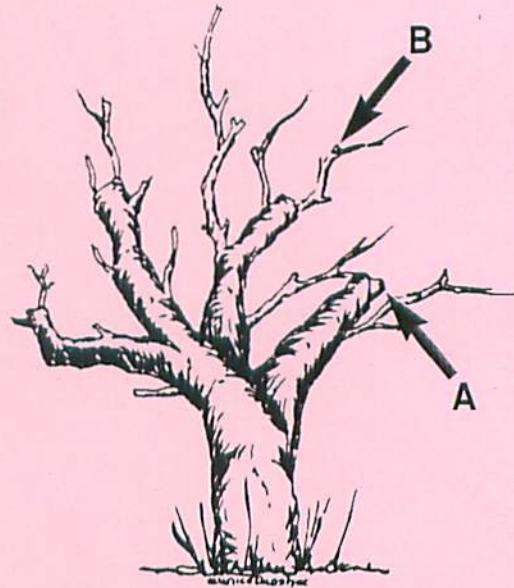


Figure 3. The first severe pruning of an abandoned apple tree. Note that some of the newer water sprout growth was left on this tree and large limbs were cut to 10 inches above the origin of these small branches (A). Also, note that the terminal ends of the small branches have been cut back in favor of more outward growing laterals (B).



Figure 4. A renovated tree two growing seasons after major limbs were removed. Note the cuts made on upright growth to force outward growth.

system under such a tree is very extensive and will produce much new top growth the first season, so avoid fertilizing the tree the first season after cutting. Trim back the shoots left on the main limbs so that the new growth is forced outward. Usually this means cutting off the upright shoots in favor of a lateral limb on the shoot (Figure 4).

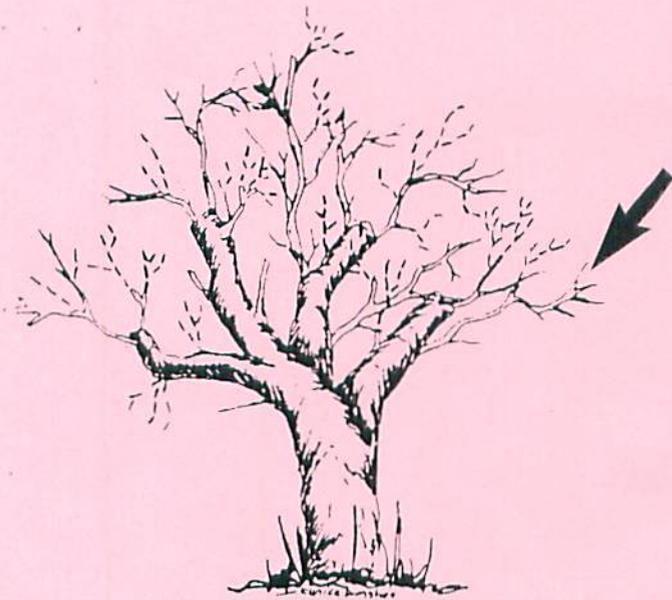


Figure 5. In the second spring, many small limbs produced the first summer are removed, leaving only the most desirable. Note that the upright portions of new shoots denoted by dotted lines should be removed to prevent the tree from becoming too tall.

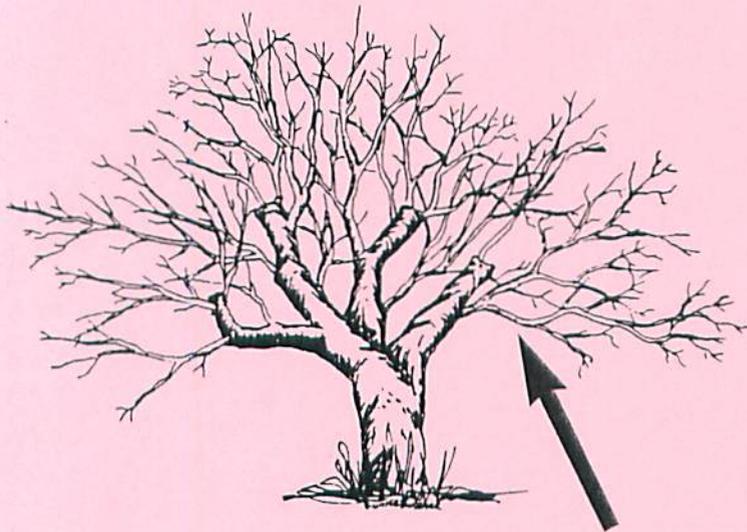


Figure 6. By the spring of the third season, the tree has now produced many new, vigorous branches and is capable of producing a small crop of fruit. Note that many of the small limbs left the first spring have developed into relatively large, productive structures.

By the end of the first growing season, this severely pruned tree will produce large numbers of new, vigorous shoots. In the second spring (usually April), most of these new shoots should be removed, leaving only those in desirable locations that can be trained outward. The shoots that are left as permanent limbs



Figure 7. A renovated tree after three full growing seasons. Note the productive capacity of this "rebuilt" tree. Also note where cuts have been made to force outward rather than upright growth.

then should be headed (the top portion removed) to a more lateral limb parallel to the ground (Figure 5).

During the second growing season after the severe pruning, very vigorous new growth will occur again, producing a tree very similar to that shown in Figure 6.

In April of the third growing season, many of the new shoots produced during the second growing season should be thinned out, leaving only the most desirable limbs chosen earlier. The limbs left also should be tipped to promote more lateral rather than upright growth. Generally, a small crop of fruit is produced the third year.

The new tree structure produced using this pruning method generally results in a tree 12 to 15 feet tall, or about half the height of the original tree. All the growth on this new tree also is quite vigorous and will produce good crops of large, high quality fruit. The reduced tree size also makes the tree much easier to spray and manage (Figure 7).

Each succeeding spring, remove some limbs and thin the growth on permanent limbs to prevent the tree from getting too thick. The shading that results from underpruning reduces fruit production and causes weak growth in the inner portions of the tree.

This system of renovating old apple trees is very severe but has proven to be very successful in producing smaller trees with good production of high quality fruit. These trees also can be maintained relatively easily for many years.

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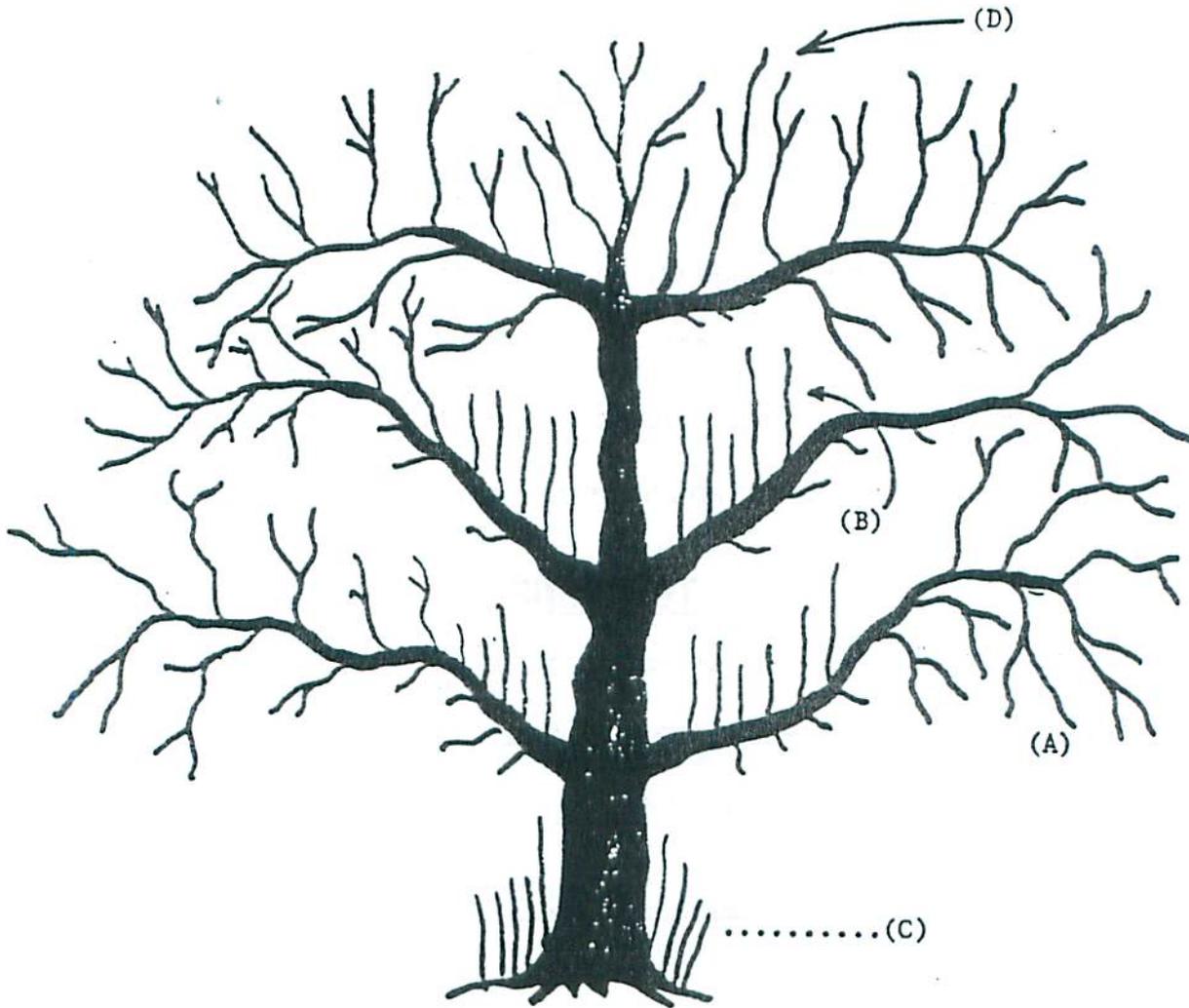
Gail L. Imig, director, Cooperative Extension Service, Michigan State University, East Lansing, Michigan 48824

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PRUNING FRUIT TREES



1. Remove all weak branches that area shaded out (A)
2. Remove water sprouts in July of growing season or prune out when dormant (B)
3. Remove sucker growth around base of tree in July or when dormant (C)
4. Head back top growth to regulate size of tree (D)

WHY PRUNE?

1. To increase the vigor of fruit trees.
2. To allow spray materials to penetrate increasing coverage of leaf and fruit surfaces.
3. Increase the size of fruit by permitting sunlight to penetrate foliage.
4. To shape and lower the height of fruit trees.
5. To prune out diseased and/or dead branches.
6. To induce fruit bud set when done in July on some fruits.
7. To eliminate weak branches shaded out by other branches.
8. To remove water sprouts and suckers.
9. To maximize efficiency of sprayers, dusters, and fruit harvesting equipment.
10. To reduce labor costs in pruning and harvesting of fruits.

WHEN TO PRUNE?

1. Normally during dormant season for general pruning.
2. Summer pruning in June to reduce the size of the tree by limiting growth.
3. In July to induce fruit bud set for the following season.

TOOLS TO USE

1. A curved pruning saw.
2. Two handled lopper with arms at least 3' long.
3. A hand set of pruning shears.
4. A good steady ladder, step or extension type.

* The above suggestions pertain primarily to apple trees.

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PRUNING MATURE FRUIT TREES

Pruning the Bearing Apple and Pear Trees

Uniform vigor of the fruiting wood throughout a tree is ideal. Fruiting wood in the top of the tree, however, has the best exposure to sunlight, which is essential for plant and fruit growth, and is therefore more vigorous than the wood in the lower portion of the tree, which is shaded. Also, the orientation of the fruiting wood along a main lateral branch influences its vigor and fruiting potential.

For apples and pears, a cone-shaped tree most efficiently intercepts light. The cone shape, although easily maintained in a young tree, is difficult to preserve as the tree ages. The top of the tree, which has the most vigorous growth, tends to spread and shade the lower limbs. When pruning, avoid small cuts, which have an invigorating effect. Making one or two large cuts, either removing an entire branch or cutting a major portion back to a vigorous fruitful lateral, is more effective. Remove upright-growing, vigorous water sprouts and leave the weakest ones.

In the lower part of the tree, remove limbs that are shaded by other limbs. When limbs are young and fruitful, they are in an upright to horizontal position. As they become older and less fruitful, they rotate to a drooping position and should be taken out. Also, eliminate all broken and crossing limbs.

Rejuvenating an Old Apple or Pear Tree

Most old apple and pear trees are too tall for convenient spraying or harvesting. This can be a limiting factor in the ability of the home orchardist to adequately control diseases and insects. To facilitate spraying, it may be necessary to decrease the height of a tree. The top one-third of an old tree can be eliminated by making major cuts just above large side branches.

During the growing season, water sprouts grow in the vicinity of these large cuts. These should be cut or pulled off during July and August to keep them from shading the center of the tree where light penetration is desirable.

During the dormant pruning season, remove all vigorous upright shoots at their point of origin. Many latent buds are at the base of these vigorous shoots, and any stubs left will give rise to many water sprouts. Leave a few of the weakest water sprouts to provide shade in the top and reduce sunscald. Prune the lower part of the tree as previously described for bearing trees.

Fine pruning—the removal of small limbs to create space between fruiting limbs—allows good light penetration to all the leaf surfaces. Generally, some fine pruning is necessary for fruit trees, especially for terminal-bearing apple cultivars such as Rome Beauty and Cortland. Do not, however, fine prune small limbs the first and possibly second year after severely heading back the tree top.

Pruning the Bearing Stone Fruit Tree

Cherry, plum, and prune trees require the least pruning of all fruit trees because of the way they bear their fruit. Lightly heading back to a strong lateral branch to keep the tree in bounds, thinning out branches to provide good light exposure for the remaining limbs, and removing dead, broken, or diseased growth is sufficient.

Peaches are borne on the previous season's shoot growth. As the trees attain full size, severe pruning maintains and renews fruiting wood of good vigor throughout the tree. Terminal shoot growth of 12 to 18 inches is desirable. If the shoot growth is weak or the lower limbs become too

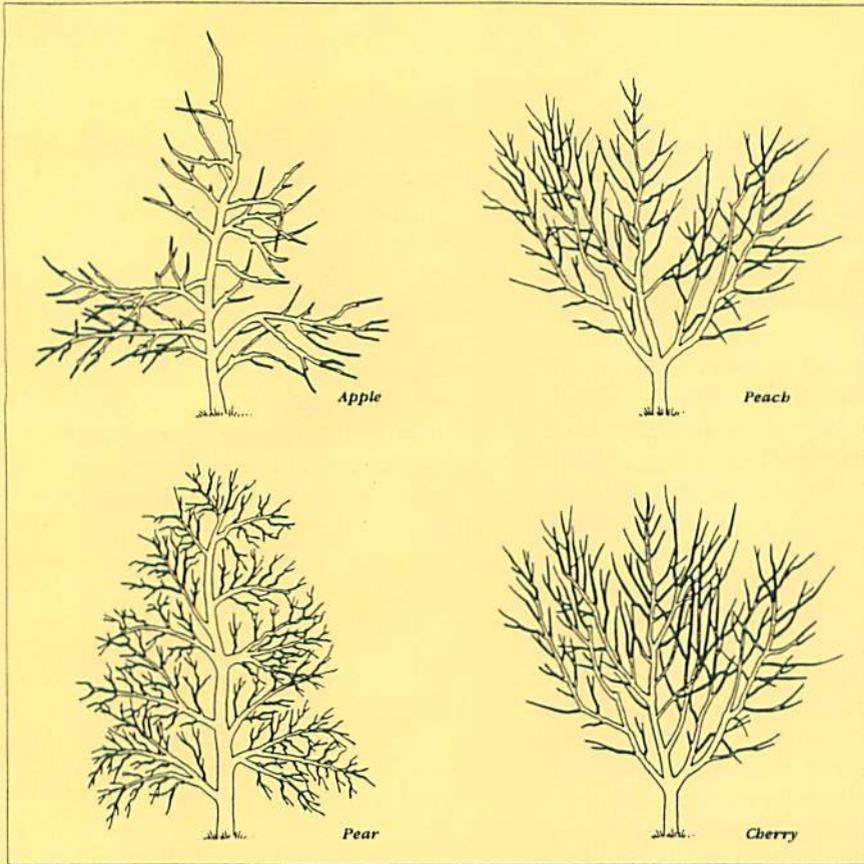
long, cut the branches back into two- or three-year-old wood; make the cuts to an outward-growing side branch. After heading back all of the main branches, thin and space the fruiting shoots so they are about 6 to 8 inches apart. This spacing provides good light exposure to the fruiting shoot and allows development of new shoots for next year's crop. The fruiting shoots should not be headed back, but the fruits should be thinned, as generally fruit set is excessive.

INFORMATION BULLETIN 150

A Cornell Cooperative Extension Publication

The Home Fruit Planting

Marcia Eames-Sheavly and Marvin P. Pritts



Mature fruit trees with good branching structure. Note different growing habits.

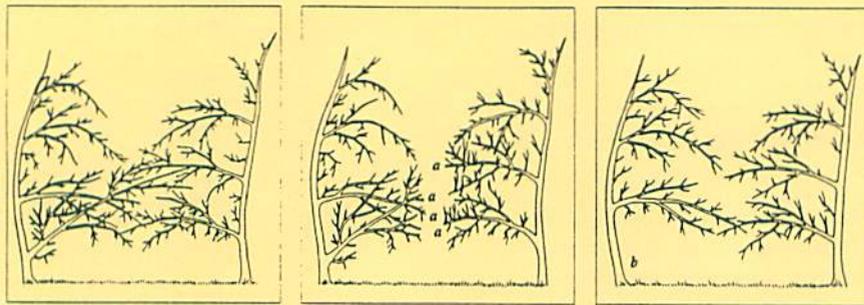


Fig. 6. Overlapping branches of adjacent trees: typical crowding in the row in high-density plantings.

Incorrect pruning: the numerous heading-back cuts, a, stimulate undesirable vegetative growth in the vicinity of the cuts and result in loss of fruitfulness farther back on the branches.

Correct pruning: the removal of the large branch, b, eliminates crowding without stimulating undesirable vegetative growth.

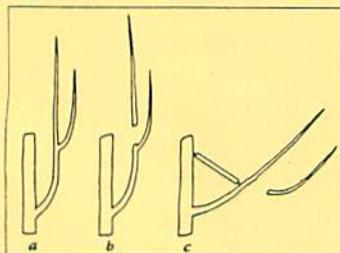


Fig. 7. Training an upright scaffold limb: a, upright scaffold; note narrow crotch angle and smaller, upright lateral branch; b, incorrect procedure: thinning out to the upright does not improve the crotch angle and limb position or control vigorous vegetative growth; c, correct procedure: spreading the limb improves the crotch angle and properly positions the scaffold; remove the lateral, for it will be shaded by growth from the main scaffold limb.

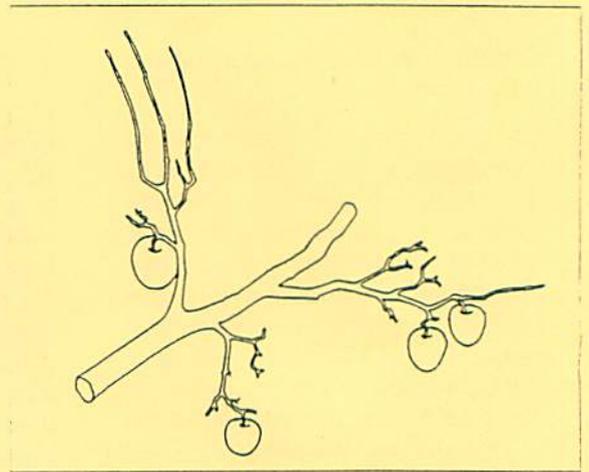


Fig. 4. Orientation of fruiting branches: the upright branch is excessively vigorous, only moderately fruitful and produces fruits that are often soft and poorly colored; the branch growing from the underside of a larger branch is heavily shaded and, as a result, is low in vigor and fruitfulness and produces small fruits of poor color; the horizontal branch is of moderate vigor and very fruitful, and because of good light exposure, produces fruit of superior color.

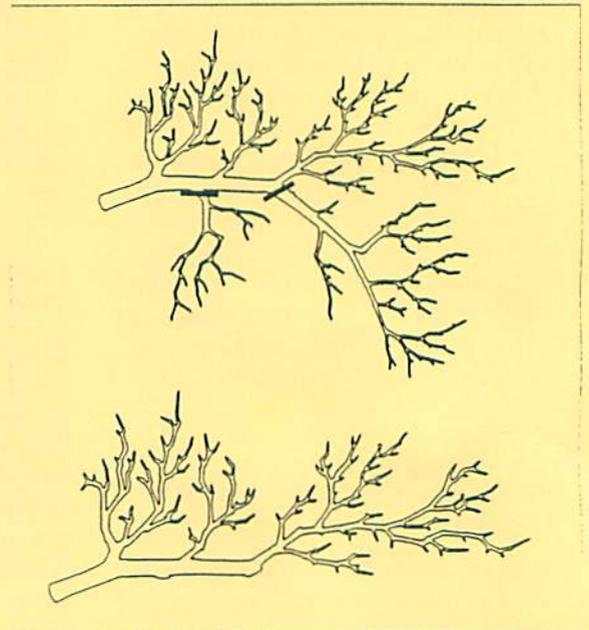


Fig. 5. Pruning drooping branches: above, branches that droop downward are not well exposed to light and usually shade other branches; below, to prune, remove the ends of such branches back to a lateral in a near-horizontal position, and remove all branches growing downward from the bottom of larger branches.

Pruning to Restore an Old, Neglected Apple Tree

This neglected apple tree is 24 feet tall and has a spread of 24 feet. Only half is shown. Since the trunk is fairly solid and the tree is basically healthy, it can be restored. Careful pruning over a period of 4 years will be required to 1) reduce its height, 2) increase the vigor of the fruiting wood, and 3) open the tree to light and make it accessible for spraying and picking. If all of the heavy cutting to reduce tree height were done at once, there would be excessive and unmanageable regrowth of remaining limbs.



← All new growth is in the tree top out-of-reach.

← Fruiting wood lacks vigor, is too dense for good fruit quality.

← Dead limbs due to shading by limbs above.

← No limbs left in first six feet.

First year of restoration pruning. You will need a 14-foot ladder for this job. It is definitely unsafe to attempt to restore an old tree on an inadequate ladder, or worse, by climbing the tree. It will not be possible to do this pruning with a pole saw.



a — Riser topped at 18 feet; reduces suckering.

b — Main scaffold limb topped at 16 feet.

← Upper layers of horizontal and hanging wood removed.

← Dead wood removed.

Extension Circular 1005

May 1981

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← Long shoots grow from near the cuts and on the upper sides of horizontal limbs. Most are unwanted and must be removed.

← Some new growth begins on lower limbs due to increased exposure to light.

Before the second dormant pruning, check the results of the previous year's work and plan how to reduce tree height still further. The limbs left above those that will be permanent suppress growth on lower limbs.



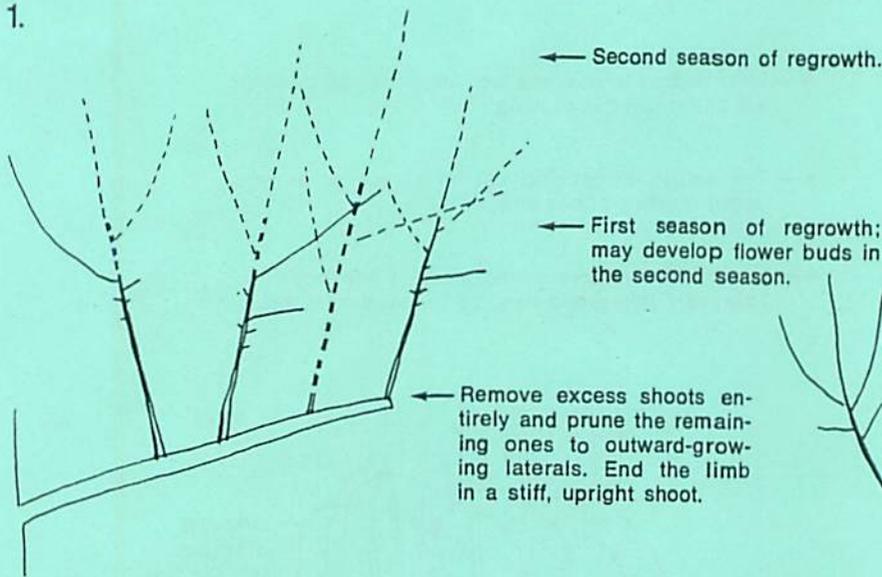
a — The highest shoot is topped at 17 feet.

b — The main scaffold limb is topped at 14 feet; thin-out shoots on upper limb.

← Keep all live wood on lower limbs. Lower limbs must develop to replace fruiting wood lost from the top.

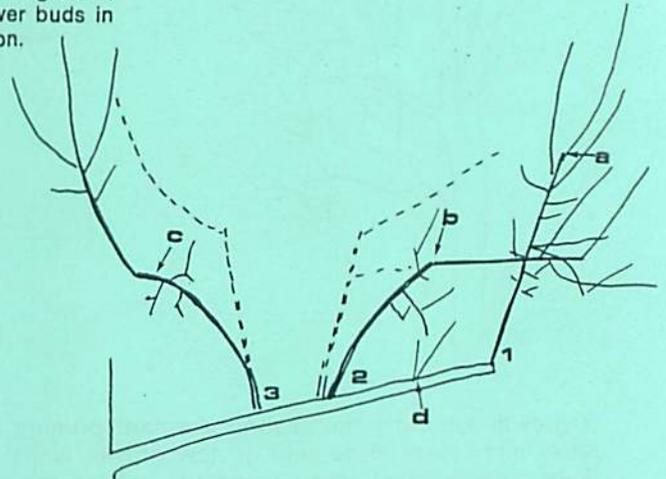
After the second dormant pruning. The final tree height has been established at 17 feet. Loss of lower limbs makes it hard to reduce the height more without excessively reducing yield.

1.



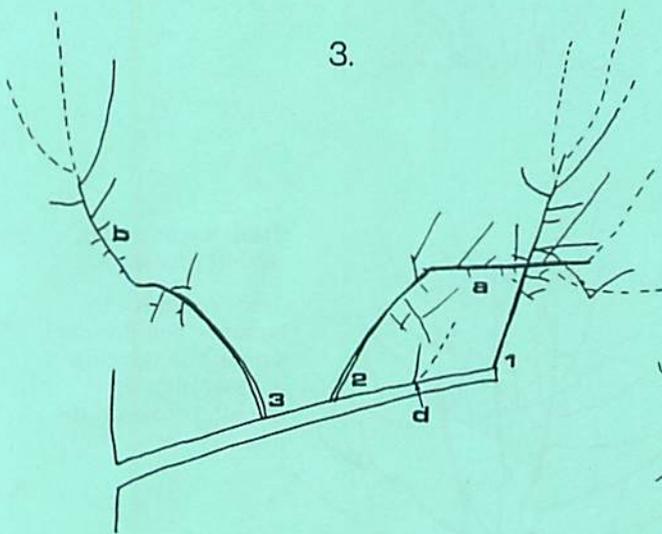
A stylized drawing of a secondary scaffold limb. Regrowth are 2 years old and branched. Some varieties of apple will not branch as readily. Dashed lines show the wood to be removed by pruning.

2.



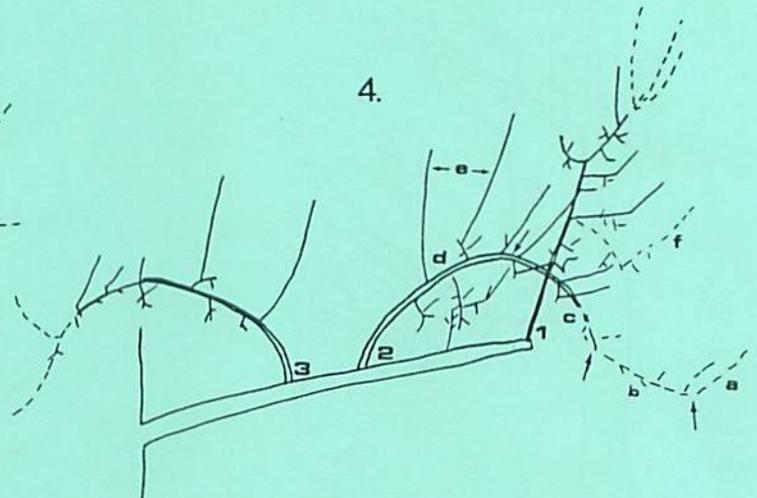
The same limb showing regrowth and change of limb position due to fruiting (former limb position in dashed lines). Branch 1 was headed at a, which stiffened it and held it in position. Branches 2 and 3 were pruned to outside laterals at points b and c. Regrowth from point d is short because branches 1 and 2 suppressed it.

3.



The same limb showing, with dashed lines, what will be pruned away. All three branches were cut-back to a single upright shoot which, on branch 1, was headed to stiffen it. This reduces growth of shoots below and helps to develop fruiting wood close to the secondary scaffold branch. Note development of flower-bearing spurs at a and b on limbs 2 and 3.

4.



The same limb four seasons after the initiation of pruning to restore the old tree. The ages of portions of branch 2 are labeled as follows, between the arrows, a) last year's growth; b) 2-year-old portion (note new flower spurs); c) 3-year-old portion which fruited the previous summer; d) 4-year-old portion. Upright shoots at e and elsewhere are removed completely or left unheaded. Portions a, b, and part of c are removed because they are too far from the secondary scaffold branch. They will be replaced with shoots such as at e when they form flower spurs. On branch 1, which has been headed every year to hold it in position, fruiting wood renewal is carried out by removal of hangers as shown at Point f.

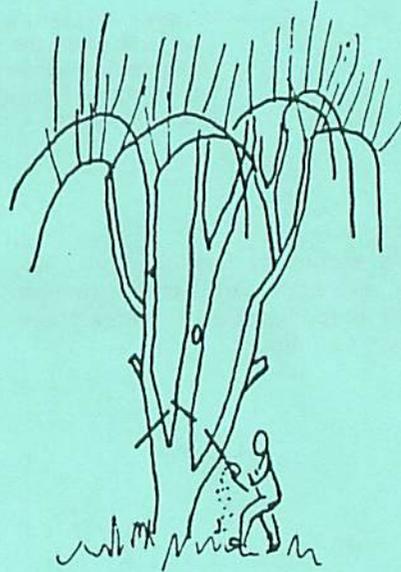


← Most re-growth is in the top. More than 50 percent will be removed in pruning.

a — The details of pruning will be shown on an enlarged drawing of this limb.

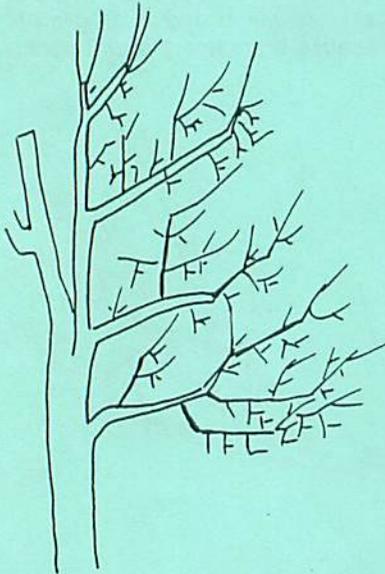
← Lower limbs receive ample sunlight and begin to grow; very little wood need be removed from them.

Regrowth following the second dormant pruning. Remove more than 50 percent of new growth in the top limbs and re-direct lower limbs upward as required.

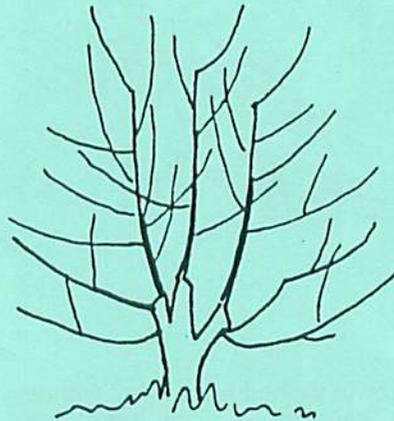


Another method:

When all low limbs are already lost, "debarb" the tree just above the crotch with sloping cuts.



After four years of intensive pruning the tree is 17 feet tall, has an 18-foot spread, a roundish-conic overall shape, well-developed lower limbs, and an abundance of young fruiting wood.



Treat the cuts with wound dressing.

Train regrowth by summer and dormant pruning to develop wide-spreading branches low on the tree.



PRUNING YOUNG FRUIT TREES

EXTENSION BULLETIN E-850

Jerry Hull¹

Extension Specialist, Horticulture Dept.

Young non-bearing fruit trees are pruned to (1) give them a desired form and (2) develop a strong framework that will support the fruit in later years.

Prune young fruit trees lightly—Too much pruning tends to dwarf the tree and slow down 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.

Prune only enough to develop a strong framework of scaffold branches. After the framework is established, the trees need little pruning until they come into full bearing.

Time to prune—Prune in late winter or very early spring before growth starts.

Tools you will need—(1) A sharp pruning knife with a curved blade, (2) strong hand shears, and (3) a small fine-toothed pruning saw. You will also need long-handled loppers for fifth-year pruning. Keep tools sharp and clean.

Making the cuts—When removing a branch or shoot, make a parallel cut as close to the parent branch as possible. Use shears with the cutting edge next to the parent branch. Avoid bruising or tearing the bark. Use a saw to remove branches more than half an inch thick.

If two branches of about equal size and length start from the same point, head back or shorten one of them considerably more than the other so that it will become a side branch of the longer one. Take advantage of this "unequal cut" to avoid having forks and weak crotches develop.

METHODS OF TRAINING

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

Fruits pruned to the modified leader method are:

¹Originally prepared by R. P. Larsen. Former Extension Specialist in Horticulture, MSU.

apples, pears, cherries, and European varieties of plums. Peaches and Japanese varieties of plums are pruned to the open-center method.

Modified Leader Method

A well-developed modified leader tree is one with a central trunk or axis several feet long from which a number of main laterals or scaffold branches arise. These should form wide angles where they join the trunk, they should be spaced at least 6 inches apart, and none should be directly opposite or directly below another. Large 1-year-old nursery trees are best for developing this type of tree. Two-year-old nursery trees of apple, pear, plum, and sour cherry are often used.

The method used to develop a modified leader tree

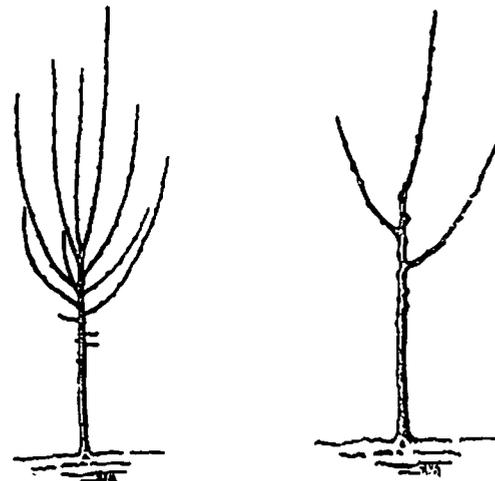


FIG. 1

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) to the modified leader method. Two wide-angled laterals have been chosen to form the lower scaffold branches. The leader is then left longer than the lateral shoots.

varies with 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. Trees $3\frac{1}{2}$ feet or less in height need no heading back. Prune well-branched 2-year-old nursery trees in the same manner as that described below for the second pruning.

Second pruning—In the spring, a year after planting. This is the first pruning of the 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 for permanent scaffold branches one or more, preferably two, well-placed lateral branches that form wide angles with the trunk. The lowest scaffold branch on apples should be about 30 inches from the ground. On other fruit trees, the lowest should be 20 to 24 inches above the ground. Remove all sharp-angled branches. Keep the scaffold branches 6 inches or more apart.

3. If the leader needs pruning, head it back to about 20 inches above the top scaffold. Shorten the laterals so that when you hold them upright their tips will be 6 inches lower than the tip of the leader.

Third pruning—Two years after planting.

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

2. Save two or three lateral shoots from the leader for more scaffold branches. Head them back if need be, to keep the leader dominant.

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

4. Leave the several parts of the tree in balance. Do not let the lower branches outgrow the upper portions of the tree, nor the upper branches grow longer and "shade out" the lower ones.

5. Save short twigs and spurs that develop in the inside part of the tree. If these grow into vigorous shoots that tend to make the center of the tree thick and bushy, you can thin them out a year later.

Fourth pruning—Three years after planting. This pruning should encourage formation of more framework and keep a proper relationship among the present scaffolds. Choose two or three more scaffold

branches as described for the third 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 of four to six scaffolds will be set up and you will not need to encourage the further development of the leader. Do not, however, head back the leader at this time. If necessary, you can cut it back to a well-placed, outward-growing lateral 1 or 2 years later. Most varieties need no heading back and very little thinning out until after the trees are in full bearing.

Open-Center Method

This method is used mostly for training young peach trees. It differs from the modified leader method in that you remove the central leader at planting time and choose the branches for scaffolds along a fairly short space on the trunk.

Steps in training a tree to the open-center method are as follows:

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

2. Choose two or three scaffold branches that are well arranged around the trunk and that are as near as possible to the place where the tree was headed back. If the branches are large and uniform in size, you can leave them 10 to 12 inches long. If slender and uneven in size, cut them back to short stubs with

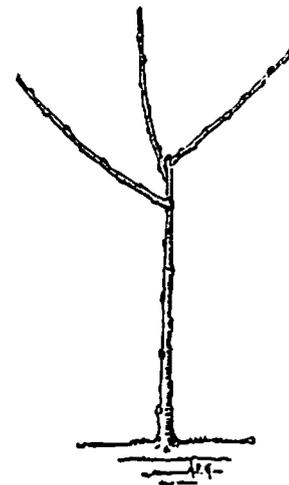


FIG. 3

Fig. 3. Newly-planted peach tree pruned to the three-scaffold open-center method. When three branches of sufficient vigor and uniformity cannot be found, the branches are cut back to short stubs.

one or two basal buds. Choose shoots which develop from these buds for the main scaffold branches.

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

4. In the spring of the second year, remove any shoots other than those you have chosen to make the framework; head the three scaffolds to equal lengths so they will grow to be as near the same size as possible. Usually the trees need very little other pruning.

PRUNING FOR DIFFERENT FRUITS

Apples

The modified leader type of training is used. Take special care in choosing branches for the main framework of the tree. There should be at least 6 inches (8 to 10 inches is better) between the main scaffolds along and around the trunk. Do not try to save too many scaffold branches in one season. That will crowd the branches on the trunk. Branches that look well spaced on a 2- or 3-year-old tree may grow together and become crowded in later years. In general, prune by thinning out, and do as little heading back as possible.

Pears

The modified leader method is best. Pear trees tend to form narrow-angled crotches and to grow upright more than spreading. Use outside buds and outward growing laterals whenever you can. Keep the leader dominant and the scaffold branches in balance, and try to develop strong, wide-angled crotches throughout the tree. Severe heading back to keep the trees from becoming too high is not good. Remove blossom spurs that develop along the leader or within 12 to 18 inches of the base of the main scaffolds.

Peaches

The open-center method of training is used most. Developing the trees properly by the modified leader method takes skill and much attention. Trees trained by the two or three-scaffold open-center method, however, usually have less winter injury and live longer.

Peach trees are sometimes trained in a manner known as the side-leader method. Only the most experienced growers have had success with this method, and it is not generally recommended.

No matter how you train the trees, prune them very lightly during the second and third years. Leave any small wood in the center of the tree. By leaving it, you can harvest a fairly good crop of peaches the third growing season. Remove the small wood in the center of the tree in the fourth year.

Sour Cherries

The modified leader tree is best. A 1-year-old nursery tree sometimes has a number of lateral branches from which to choose permanent scaffolds at planting time. If the lateral branches are not well spaced with wide angles, wait until the second year before choosing the scaffolds. Cut the laterals 6 to 8 inches and leave the leader at least 8 to 10 inches longer than the scaffolds.

During the second year choose 2 to 3 laterals for the permanent scaffolds. These will probably need some heading back and thinning out to keep them from overgrowing the leader.

In the spring of the third year, choose more scaffold branches to complete the framework of the tree. There should be four to six main branches arranged along about 3 to 4 feet of central axis or leader. Remove crowding or interfering secondary branches at this time and again suppress the scaffolds, so that the leader will remain dominant. Prune very little after the framework is well established.

Sweet Cherries

Modified leader training is best. Sweet cherry trees usually need less pruning than other fruit trees. Give special attention to growing a strong framework of scaffold branches, since the trees tend to have weak crotches. Wide spacing of the scaffolds is important. Head back to the outward-growing laterals those long pole-like branches which often develop in trees 3 to 4 years old.

Plums

European varieties such as Italian Prune, Stanley, Green Gage, and others are trained by the modified leader method. They need less pruning than varieties of the Japanese type. Most varieties will form good tops even though you do little pruning. Thin centers lightly to let in sunlight and to develop a healthy spur system. Head back little if at all. Heavy heading back results in long upright growths and high dense tops.

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

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