



UNIVERSITY OF IDAHO  
College of Agriculture

# PRUNING—

**Ornamental Trees**  
**Ornamental Shrubs**  
**Fruit Trees**

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## TABLE OF CONTENTS

	Page
Purpose of Pruning -----	3
Time of Pruning -----	3
Tools for Pruning -----	4
Wound Dressing -----	4
Pruning Deciduous Trees -----	5
Pruning Deciduous Shrubs -----	7
Pruning Vines -----	8
Trimming Hedges -----	8
Pruning Roses -----	9
Pruning Evergreens -----	11
Pruning Apple Trees -----	12
Pruning Pear Trees -----	15
Pruning Dwarf Fruit Trees -----	15
Pruning Peach Trees -----	16
Pruning Plums and Prunes -----	16
Pruning Small Fruits -----	17
Pruning Grapes -----	19

# **Pruning Ornamental Trees and Shrubs** and **Fruit Trees Around the Home**

by  
ANTON S. HORN

## **The Purpose of Pruning**

Home surroundings are improved by judicious annual pruning of horticultural plants. Pruning keeps plants neat. Done correctly, it tends to hold plants in bounds and preserve their natural beauty. It is best not to rely on pruning alone, but to select a plant of the proper size in the first place. Pruning fruit trees increases the yield of high quality fruit.

Pruning invigorates older plants and stimulates growth of foliage, stems, flowers, and fruits. It prevents malformation of plants. It offsets loss of roots at planting time. Pruning reduces the need for nitrogen.

All pruning has an overall dwarfing effect even though it stimulates new growth in the vicinity of the cut. This is especially noticeable if pruning is done after the leaves are out. Everything being equal, an unpruned plant of the same age will grow larger than a pruned plant. Root pruning has a definite dwarfing action. This pruning is done by pushing a sharp spade into the soil around a small tree or shrub. This cuts the roots and dwarfs the plant.

## **Time of Pruning**

Generally it is best to prune in late winter or early spring while the plants are still dormant. The framework of the plant is easy to see before the leaves come out. Early fall pruning may force the plant into late fall growth and make it susceptible to winter injury. Late fall pruning will not have that effect but may increase winter injury because of tenderness of the wound areas and their tendency to dry out.

As a general rule in transplanting barerooted trees and shrubs from a nursery, prune off one-third of the top. This pruning reduces the amount of water the plant needs until the root system is established. If you transplant trees and shrubs from the woods or neighbors' plantings, remove one-half the top to compensate for roots lost in transplanting. A nursery plant has generally been undercut or transplanted a number of times so it has a more compact root system. If roots are spread well at planting time you eliminate root girdling.

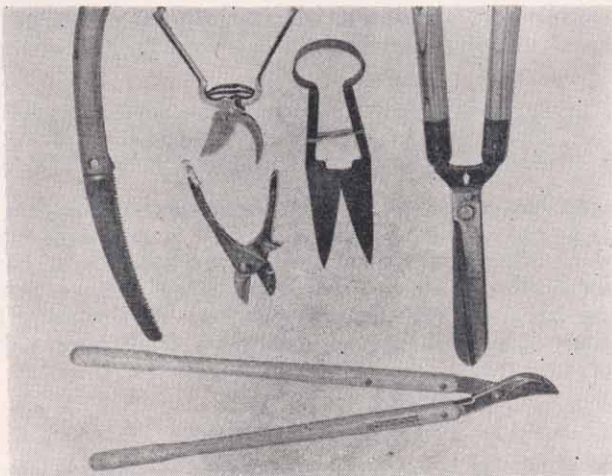
Cuts must be clean and close so they heal readily.



## Tools For Pruning

Pruning tools for general use may include a pair of hand shears, a lopper, hedge shears, and a saw for large branches. A folding saw with teeth that point toward the handle is best for most jobs. It cuts on the pull stroke, and can be carried in your pocket. Curved saws on long handles and pole pruners are handy for shade trees. Loppers should be strong and light and of the type that can be tightened so they work freely and cut without tearing. They must make clean, smooth cuts. The hedge shears must be strong and the cutting edges of good metal. The hand shears may be of the type that has a solid bar to cut against or made of two cutting edges. Sheep shears are sometimes used in pruning hedges and evergreens. The instruments must be kept sharp.

### PRUNING TOOLS



Left to right—Folding saw, two kinds of hand shears, sheep shears, and hedge shears. Below—Lopper.

## Wound Dressing

Many types of dressings for pruning wounds are available. Among the best are the asphalt tree-healing compounds. Paint the compound on the wounds 2 inches in diameter or larger. Do not use creosote.



## Pruning Deciduous Trees

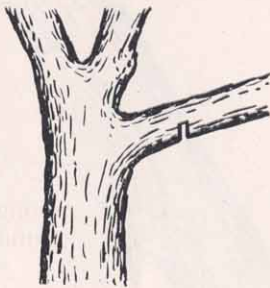
When you prune a tree, distribute the cuts so that you preserve the tree's natural form. Select and prune away weak, broken, and diseased branches, branches with weak, narrow crotches, and branches too close together. Head back limbs you wish to keep if they are too long. Branches are headed to an outward-growing side branch or to a bud pointed outward. Generally we leave one central leader or stem. After shade trees are 15 to 20 feet high, remove lower limbs to a height of 7 feet. Later this may be extended to 10 feet. This applies to such large shade trees as elm, tulip, hackberry. Birch, flowering crab, and similar trees do not lend themselves to this type of pruning. Train them to several leaders or stems rather than one central stem.

It is generally believed that little pruning is required of shade trees after they are established. It is considered they prune themselves by the dying out of some branches. Generally they are shaded out. These must be removed.

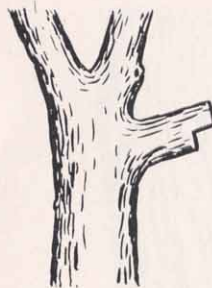
Only in rare instances is it desirable to change a tree's shape. Some species lend themselves to change, but the change usually spoils their looks. It is best to preserve the natural shape of the tree. This can be done with a little corrective pruning. Each species of tree is different. Most pruning should be of the "thinning out" type. Avoid cutting large limbs that leave wounds difficult to heal. When large limbs must be removed undercut them first to avoid splitting, then cut from the top until the limb breaks. Cut the stub flush with the tree when the limb has been properly removed.

Don't "dehorn" a tree. Such pruning ruins its shape. It is sometimes necessary to lower the height of a tree because of wires or other obstructions. Do this by cutting back to outside laterals and thus preserving all possible natural shape and beauty. Plant a small tree where its height may eventually be obstructed. This is better than trying to keep a large tree in bounds. "Headback" in early spring while the tree is still dormant. Some trees such as London plane, and soft maple, respond to this better than others.

Prune trees that bleed—maples, walnuts, birches, and mulberries—just after the leaves come out in spring.



Under-cut  
first.



Then cut from top.



Cut to make  
a smooth sur-  
face to facili-  
tate healing.

## In Making Cuts

Cut back to a strong lateral branch with a smooth, close cut. Cut back to a strong outward-facing bud using a clean cut that slopes inward about one-fourth inch above bud. Make cuts flush.



Just right.



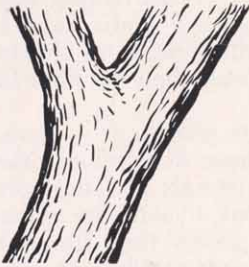
Too close to bud.



Too much surface  
for quick healing.



Stub too long.



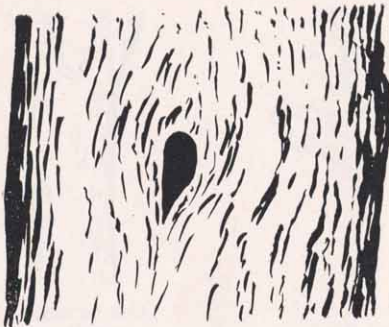
Before Cutting.



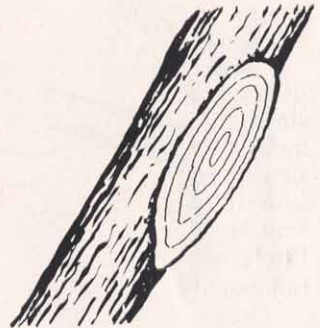
This stub is too long.  
It will not heal.



Good, smooth cut,  
flush with limb.



Stub broken out and hollow.



This cut is too large.



## Pruning Deciduous Shrubs

The primary purpose of pruning shrubs is to keep them young and in bounds. Plant shrubs that will grow to the desired size rather than depending on pruning to restrict their size. Wise pruning preserves the natural shape without sacrificing much bloom.

### Summer-Blooming Shrubs

Hills-of-Snow hydrangea, Sorbara, Kerria, Tamarix, butterfly bush, Rose of Sharon, Anthony Waterer spirea, honeysuckle, Hypericum, and others, can be pruned in early spring while dormant by—

1. cutting out all dead and diseased wood. If canes die back from winter injury, cut into live wood about 2 inches below the dead portion. Kerria often requires this treatment.
2. cutting out all weak wood.
3. taking out some of the oldest wood and thus thinning to a reasonable number of healthy canes.
4. cutting back the remaining canes to a point just above the second or third bud of last year's growth. When pruning Hills-of-Snow hydrangea and Anthony Waterer spirea, cut down to the ground late in fall or before spring growth begins.

### Spring-Blooming Shrubs

Forsythia, spirea, mockorange, flowering quince, Deutzia, lilac, Viburnum lantana and Viburnum carlesi, bush roses, and many others are in this group of shrubs grown mainly for their floral effect. All tend to get leggy and are generally pruned just after blooming. This not only encourages production of wood for next year's bloom but produces a maximum of blooms this year.

Prune by:

1. cutting out all dead and diseased canes.
2. cutting out all weak wood.
3. taking out some of the older branches close to the ground. In removing these, choose those that will not leave a stub or change for the worse the shrub's shape. Pruning in this way lowers the shrub's height. Take out a few of the older canes every year.

Leave the suckers to take the place of old branches, unless the variety is budded on a different understock. Then remove all suckers arising from the understock. Cut these below the ground and as close to their point of origin as possible.

Head the remaining canes to outside lateral branches or outward-growing buds. Do this unevenly to preserve the natural grace of the shrub. For example, cut one cane back to 39 inches, another to 24 inches. Don't give the shrub a short haircut. Such close cropping causes suckers to grow through the center and spoil the shrub's natural beauty. Loss of vigor and weak blooming result from hedge-fashion pruning. Pruning shrub tops without thinning produces crowding in its branches. Prune with a purpose.

### Rejuvenation

Quite often a shrub has been so neglected that all its branches are cut to the ground in the spring to produce new shoots. Generally, this is too drastic.





**Poor forms for hedges.**

light. Otherwise they will die and the hedge will be too open at the bottom.

During the dormant season, cut the hedge back to size if it gets out of bounds. Then trim the regular way. If the hedge is open at the bottom, it is sometimes best to cut it back almost to the ground so that it will develop a new top.

Privet, box, Peking cotoneaster, Siberian pea, Japanese barberry, common buckthorn, lilac, and Pyracantha are good hedge plants for trimmed hedges. Van Houtte spirea does not make a good hedge as it never blooms well when sheared. One of the hardiest hedge plants is Peking cotoneaster with its small, shiny green leaves. It produces a medium textured hedge but is susceptible to oyster shell scale.

### **Pruning Roses**

Barerooted roses need to be pruned at planting time to balance the top with the roots. This is necessary to compensate for the roots that were cut off when the plant was dug.

Removing spent blooms will not only improve the looks of the plant but will prevent formation of the fruit (hips), bring everblooming varieties back into bloom quicker, and result in stronger growth and better flowers in the other sorts.

### **Hybrid Tea Roses**

These bloom on the current season's wood and are constant bloomers if they have proper care. Most rose plants are cut to 12 inches by the nurseries before shipping. Cut out diseased canes and weak and injured wood. Cut back to 8 to 10 inches to outside buds. Be sure to prune off any broken roots but do no other root pruning. Leave three or four strong canes.

Prune your garden roses annually or you will soon have a briar patch. Prune just before growth starts or just as the buds are bursting. Take out all dead canes by cutting at least an inch into live wood. Cut out all thin, weak canes. Cut out diseased and otherwise damaged canes. Crossing branches can be corrected by removing weaker branch. Thin out some of the older canes. Cut the remaining strong canes to about 20 inches if you are pruning a vigorous rose on a good soil in a warm climate similar to the Boise valley. Pruning canes to about 8 inches produces bigger blooms. Cut one-fourth inch above a strong bud that faces outward. The cut should slope inward. Cover the cuts with a dab of asphalt tree-healing compound.



Better to cut out one-third or more of the old canes, then cut the remaining branches to a point just above a lateral branch. This forces many suckers from remaining canes. Thin these. Cut out some of the remaining old branches close to the ground when spring comes. A year later take out the rest of the old branches. This leaves a shrub with mostly new canes. Thin these to produce a well balanced shrub. Shrubs that lend themselves to this treatment include Hydrangea, Forsythia, privet, dogwood, sumac, and honeysuckle.

### Pruning Vines

Clematis and other vines that bear flowers on the current season's growth are pruned during the spring by cutting back canes to size you want. Thin out weak, diseased, and dead canes.

### Trimming Deciduous Hedges

Plant deciduous hedges 6 to 8 inches apart in the row if you want a small, formal hedge. For medium-sized hedges space them 12 inches apart. If you want a tall, trimmed hedge, plant vigorous plants 18 to 20 inches apart.

Immediately after planting, cut the young plants severely back to induce bushiness close to the ground. Just how much you can cut them back depends on the species and the variety and conditions of the stock. Cut all plants to the same height. Take off about 50 percent of the top of bushy plants having good low branches. Cut back leggy plants with few low branches nearly to the ground.

After the spring growth, clip the hedge back within 3 inches of the former cut. If growth is not vigorous, wait until spring of the second year to cut back. From then on, trim whenever the hedge needs it and cut back to within 4 inches of the former cut until the hedge is the desired height. Three or four trimmings will keep the hedge neat all season. Clip each time within 1 inch or less of the former cut. Use hedge shears. Trim the sides first and then the top. Young hedge plants should be pruned on the inside faces or inter-faces as well as the outside until the spaces between plants are filled in.

You can trim hedges in various shapes. The triangular is probably the best where there is a lot of ice and snow. Make them broader at the base than at the top so that lower branches receive plenty of sun-



Good forms for hedges because the lower branches get a lot of sunlight.



Sometimes roses are pruned so early that seeing outside buds is difficult. When you prune this early, cut again to outside buds after they have opened. Carefully examine long sucker growth and remove suckers that grow from below the bud union.

### **Hybrid Perpetual Roses**

These are vigorous and resistant to cold. They include Frau Karl Druschki, American Beauty, Ulrich Brunner, and others. Prune them as you prune hybrid tea roses but less severely as they produce their flowers on last year's wood. Leave more green wood to produce blooms. They usually bear once a season.

In areas where there is much winter damage, the pruning job consists of pruning back into live wood but saving as much live wood as possible.

### **Shrub Roses**

The shrub roses include Rugosa, Austrian Copper, and Hugonis. Prune these roses for best appearance with as little cutting as possible. Cut out dead, broken, and diseased canes, crossing branches, and weak canes. Remove some of the older canes and encourage newer canes. If the shrub is too large, head it back only to where its size is more suitable. Do this after the shrubs have bloomed in order not to reduce the bloom for the present season.

### **Hardy Rambler Climbing Roses**

Climbers include Paul's Scarlet, Blaze, Climbing American Beauty, Dr. Huey, and Climbing Peace.

Prune to make them fit the fence, trellis, or pergola. In spring, cut out dead, broken, weak and diseased canes. If the remaining canes are too long for the trellis, shorten them. Do no more pruning than this or you will reduce the bloom. Just after they have bloomed you can thin out some of the old canes. This stimulates development of new shoots and of laterals that will bear flowers next year. You can do this pruning during the dormant season but at the sacrifice of some flowers.

Severity of pruning depends on the amount of wood produced by the variety. Some of the large-flowered everblooming types do not produce as much wood every year as the ramblers and hardy climbers.

### **Floribundas and Polyanthas**

These include Ma Perkins, Vogue, Improved LaFayette, Fashion, Eutin, and Masquerade. The floribundas produce large flower clusters and the polyanthas have clusters of small flowers.

In pruning these, bear in mind that we grow the bushes for mass effect of the flowers. Pruning is mainly a thinning out process. The floribundas have smaller canes than hybrid tea roses and more of them need to be left on each bush. Thin out the old canes for a uniform height by heading back the long canes to outward-facing buds.



## Pruning Evergreens

Because evergreens are nearly always planted with the roots in a ball of earth, pruning at planting time is seldom necessary.

Pines and spruces grown as specimen trees are permitted to assume their natural form and require little or no pruning. Occasionally they develop double leaders. When this happens, remove the weaker or least-desirable one. When the tip or main stem has been broken off, frosted, or otherwise destroyed, a new leader may be trained by selecting a strong branch from the uppermost whorl and carefully bending it upward. A splint will be needed to keep it erect. Slightly head back other branches in the whorl.

The lower branches of young spruce and pine should not be cut as this detracts from the natural beauty of the tree.

In the base planting of a home, keep Mugho pines in bounds by pinching out buds or clipping the "candles" of new growth. These terminal shoots, while still soft, can be clipped one-half their length. This makes any pine more compact.

Spruce are best if allowed to grow unpruned, but blue spruce can be sheared in almost any shape desired. Shearing any plant into "odd shapes" is poor landscape design and not to be encouraged.

Fir trees can be thickened by removal of terminal buds.

In the base planting of a home clip or shear such evergreens as junipers, arborvitae, and Japanese yews to keep them in symmetrical form, induce dense foliage, and to keep them in bounds. Shear in early spring before growth starts. Repeat later. Do not shear after July. In southern Idaho they are generally sheared first about April 15 and again about July 15.

Evergreens make good clipped hedges. Shear in early spring. Shear lightly in summer for second shearing. Recommendations for shaping deciduous hedge plants also apply to evergreens used for this purpose.

We usually like spreading junipers and yews in their natural form. It is best to plant them where they have sufficient room for growth. But some, like Pfitzer juniper, grow too large and need to be kept in bounds. Cut them back to laterals. You can also shear them into hedge form. To spread forms like Pfitzers, remove the top growth. Cut small shoots or entire branches and try to leave extending points; otherwise the shrub will resemble a tub. To keep the lower branches of spreading forms from dying out of too much shade, head back the top branches to a lateral so they do not shade branches beneath them. Keep the triangular shape in mind when pruning. Thin Von Ehron juniper as well as heading it back.

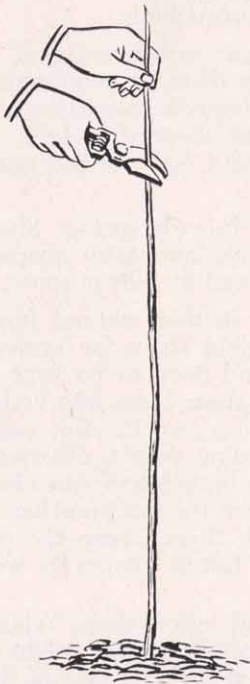
Certain evergreens such as Oriental Arborvitae often show "winter burn" where they are exposed to winter sun throughout the brightest part of the day. Those plants are better located on the east side of the house where they are shaded from afternoon sun. Generally, if only a few branches are winter burned they may be pruned out.

## Pruning Apple Trees

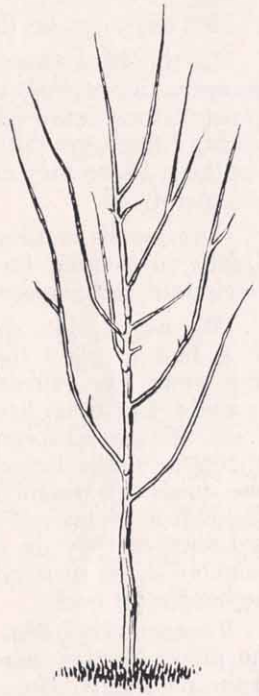
Apple trees are generally purchased as 1-year old whips or 1- or 2-year-old branched trees. The whips are 4 to 6½ feet tall.

Head the whips back to 36 to 48 inches. If headed too low the branches will grow from the top of the small trunk and be too close together. With higher heading it is easier to select branches 6 to 8 inches apart and well distributed around the tree. No further pruning is done and scaffolds are selected the next dormant season. Pick the bottom scaffold, 1¼ to 2 feet above the ground. Select two or three additional limbs spaced 6 to 8 inches apart along the trunk. Each scaffold should point in a different direction of the compass. If not all scaffolds can be selected, the top branch will throw laterals to pick from the next dormant season. Sometimes branches suitable for scaffold branches are on the tree at the time of planting and—if in the right places—they may be left.

The height of head is the distance from the ground to the lowest branch. The higher the head of an apple tree the smaller the tree and the lower its productive capacity when it reaches bearing age. Low spreading trees bear earlier. An open top generally goes with the spreading form. A dense top shades out formation of fruit buds and reduces color in red varieties.



Prune a one-year-old apple tree this way immediately after planting.



Then select wide-angled scaffold branches the next year as shown here.

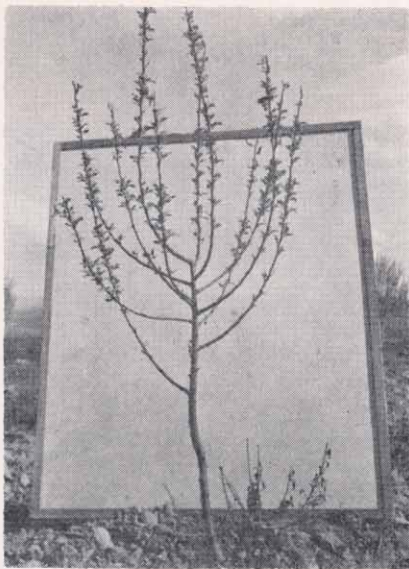


## Delayed Heading

To get wide crotch angles on Delicious apple trees, most Idaho fruit-growers use a method termed "delayed heading." The 1-year-old tree is cut back at planting time to a height about 4 to 6 inches greater than the height to which it would have been cut in the conventional method of training, around 36 to 40 inches. When the new branches are 4 to 8 inches long, shorten the trunk again to remove all narrow-angled branches near the tree's top. The next year you can select scaffold limbs. Make sure they are at least 6 inches apart on the trunk and distributed around the trunk so they are pointing in different directions. Four are usually selected for permanent leaders. A fifth is retained above these and is kept small by pruning. Its purpose is to keep the fourth scaffold just below it from growing upright. All growth between the scaffolds is cut back by half or more. Don't allow it to remain more than 20 inches long. Cut out the fifth scaffold when the tree is about 5 years old, and the stubby growth between scaffolds is removed when the tree begins to bear.



In delayed heading make the first cut six inches above the point that will eventually be the top of the tree. Make the second cut (indicated by arrow) when new branches are four to eight inches long.



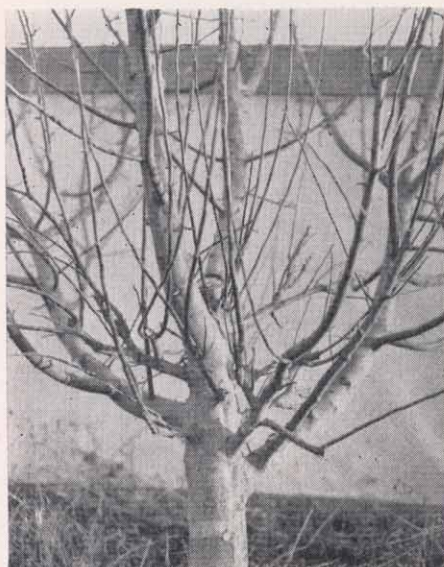
Select wide-angled scaffolds the second year. Select four permanent leaders and keep a fifth above these until the tree is five years old.

## Trunk Renewal System

In this system Delicious apple trees are cut back to 2 inches above the graft union at planting time. Then pick the single most vigorous of the shoots that appear. Remove the rest. Do this when the shoots are 1 to 2 inches long. Put a stake by the tree; otherwise you will walk over it or run over it with a garden tractor. Unless you spray for a



The tree at the right was trained by removal of inter-scaffold growth. Note the weak, narrow angles of the scaffolds. The tree at bottom, left was trained by repression of inter-scaffold growth. It has desirable wide angles. The picture at bottom right shows how the same tree looked after inter-scaffold growth was shortened by pruning.



radius of 2 feet around the tree with DDT you will have damage from cutworms. The new trunk will grow rapidly and usually branch the first year. As soon as possible, remove any branches arising lower than 20 inches. You can select scaffolds during the growing season or wait until winter. If you do select during the growing season, leave three or four shoots arising between successive scaffolds and head them back several times during the growing season.

As soon as the tree comes into bearing, the branches will spread from the weight of the fruit. Pruning delays bearing, so don't do any more pruning than necessary. Less sunscald occurs on low-headed trees than those headed high. The heading recommended is as low as possible.

### **Pruning the Bearing Apple Tree**

An objective in pruning bearing apple trees is to keep them vigorous. Generally speaking, if you prune heavily you reduce bearing surface. If pruning is light, you encourage fruit-bud formation. Pruning consists of removing crossing branches and weak wood. Thin the tops to facilitate spraying and to let in light. Close planting is one reason for trees' becoming too tall. Their lower limbs simply are shaded out. When this occurs, the main crop of fruit is in the top regardless of pruning treatment. It is possible to lower trees by heading back to outside laterals.

Apples are borne on spurs. One object of pruning is to single out fruiting wood and expose it to light and to thin out old fruiting wood. Weak spurs are generally on weak, thin branches. Rather than practice spur pruning it is wise to remove this weak, thin wood. It is well to open up the trees' centers; but do not take out all bearing wood from them. Remove or shorten watersprouts every year. Fertilization and thinning combine with good pruning to give maximum yields of quality fruit. On trees in a windy area, it is wise to restrict pruning mainly to the leeward side.

### **Pruning Pear Trees**

Train young pear trees by the modified-leader system described for apples. Pear trees tend to be more upright in growth than apple trees and are less inclined to branch. The tops may be kept more dense. Train branches to spread by means of twine or wire tied to branches and stakes in the ground. They will bear earlier.

Mature pear trees are easier to prune than apple trees because they have fewer branches. Take out crossing branches and those growing inward and upright and tending to increase the height of the tree. The home fruitgrower can afford to remove weak spurs and space the others for light and renewal where the commercial grower cannot. Exposing the fruiting wood to sunlight increases the production of quality fruit. Sometimes pear trees are pruned by cutting back every terminal growth. This makes the trees produce a lot of new wood but also makes them more susceptible to fire blight. In Idaho such pruning invites disaster from fire blight but maintains a good supply of fruiting wood.

### **Pruning Dwarf Fruit Trees**

Just as you prune standard-sized trees, prune your dwarf trees back at planting time to keep the top in balance with the roots.

If the trees are whips 3 to 4 feet in height, cut them back to 30 inches. The next dormant season select four or five branches well spaced around the tree and remove all others. Trees to be grown as natural bushes need no further pruning other than to thin out branches.



## Pruning Peach Trees

We seldom buy peach trees as 1-year-old whips. They are usually branched and from 3 to 9 feet in height. As a rule the lateral branches are too weak so we cut them back to stubs about 1 inch long so that stronger shoots arise for framework branches.

Keep the tree low and spreading. Cut it to a height of 30 to 36 inches and train it to the open-center type. This means that rather than a central-leader tree you have a vase-shaped tree in which scaffold branches of more or less equal size take the place of a single central leader. This better exposes the fruit to the sunlight. During the first dormant season, select four or five wide-angled laterals for scaffold branches. Make sure they are well placed on the trunk so that each points in a different direction to give a well balanced tree. Little additional pruning is necessary until bearing age is reached. The tree will bear fruit in its third season.

It is possible to prune peaches to a modified leader type. This means that we leave a central stem for a while. Head the tree at 36 to 44 inches and cut all the laterals back to short stubs an inch long. Select four or five well spaced shoots for scaffold branches when the shoots are 2 to 4 inches long. Rub the others off. Leave the lowest shoot about 20 inches from the ground.

Prune your bearing trees by heading back and thinning. Fruit is borne on 1-year-old wood. Distribute this evenly throughout the tree.

Stimulate production of new wood. Trees have to be pruned annually, or terminal growths are short. Occasionally you may find it necessary to prune 2- and 3-year-old wood. This produces a dense mass of terminal shoots that must be thinned to prevent shading out new growth in the tree. Old trees not annually pruned and fertilized will bear fruit on short, spur-like growths. Prune into 2- and 3-year-old wood to rejuvenate their growth. Make cuts to an outward growing branch.

Avoid dehorning or cutting back to stubs and branches. Delay winter pruning of peaches until you know whether the crop of buds has been winterkilled. On frosty sites, delay pruning until you know how much the frost has damaged your blossoms. Frost sometimes kills the lower blossoms but leaves a crop in the tops. You won't want to prune these off. Like other fruit trees, peach trees growing too close together become too tall. Their fruiting wood is in the tops because lower branches have been shaded out.

## Pruning Plums and Prunes

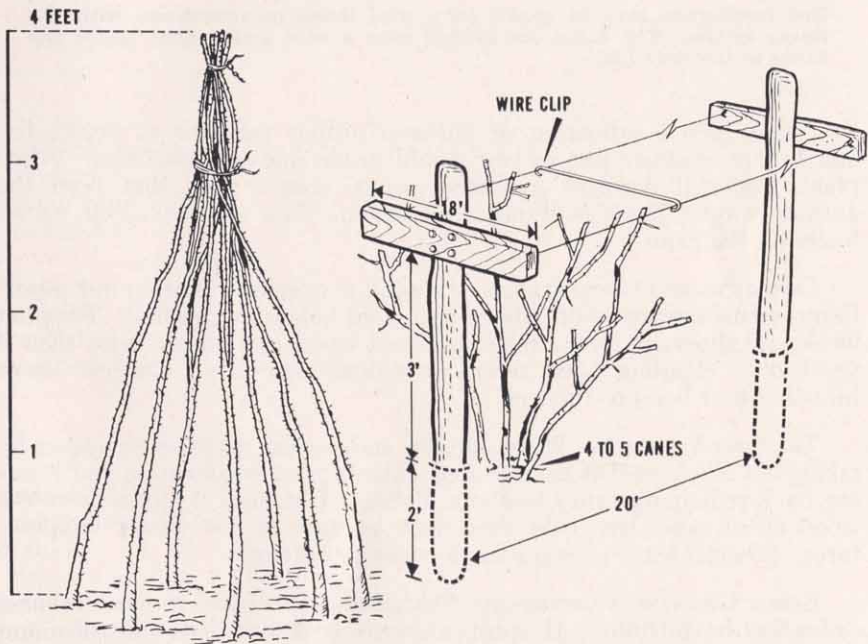
When you set out plum trees as whips, cut them back to 36 inches. Select five scaffold branches the next winter. You can also cut plum and prune trees back to 48 inches. If you do so, select five scaffolds 6 to 8 inches apart around the tree when the shoots are 4 to 5 inches long. No other pruning is needed other than to correct structural weakness and relieve crowding. Most plums require little heading back. Pruning generally consists of thinning. In some varieties, the tree gradually becomes dense, and thinning is necessary. Other varieties produce a lot of sprouts that need to be cut out.



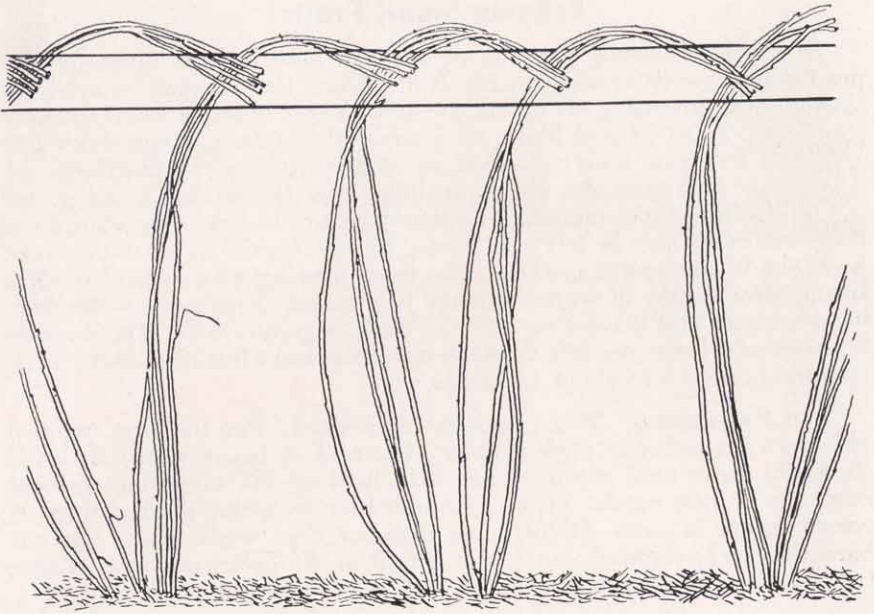
## Pruning Small Fruits

**BLACK RASPBERRIES** must be pruned in three distinct operations to get the best yields of high quality fruit. Prune first in early summer by pinching off or cutting off tips of the new shoots. Do this when the new shoots are  $2\frac{1}{2}$  to  $3\frac{1}{2}$  feet high. Of course all shoots will not reach this height at the same time so several successive prunings or pinchings are necessary. This promotes side branching. For the second pruning, cut out old fruiting canes immediately after harvest. In heavy snowfall areas these old canes may be left until spring to hold up the snow and prevent breakage in the newer growth. The third pruning takes place in early spring after danger of winter damage has passed. Now remove the thin, weaker canes and leave 4 or 5 of the thick, vigorous ones. The number of canes you leave per hill depends upon the soil's fertility. Head back the side branches to about 12 inches.

**RED RASPBERRIES.** Two prunings are needed. For the first, remove old canes immediately after fruiting. In areas of heavy snowfall, leave these old canes until spring. They help hold up the snow and prevent breakage of new canes. Prune a second time in spring after danger of winter injury is past. At this time thin out thin, weak canes and cut back the thick, vigorous canes to a height of 40 inches or more. Taller canes with a lot of natural vigor do well on soil with high fertility.



The tepee system of training raspberries is shown at the left. At the right is a two-wire trellis system that may be used with any of the brambles. You can adjust the height of the trellis to the vigor of the plant.



**Red raspberries may be grown on a wire trellis in accordance with the linear system. The canes are arched over a wire and caught under the canes of the next hill.**

Prune such everbearing or autumn-fruiting varieties as September and Indian Summer just as you would prune one-crop varieties. While plants are still dormant in early spring, remove tips that bore the autumn crop. These will not fruit again. The summer crop grows lower on the cane.

**CURRENTS AND GOOSEBERRIES.** Pruning is primarily cutting out superfluous stems that rise both above and from below the ground. Thin out weak and diseased stems; take out dead wood and stems more than 3 years old. Heading back stems is seldom necessary. Cut off lower branches that bend to the soil.

**TRAILING VARIETIES.** Prune Boysen and similar varieties in spring by taking out all canes that have fruited, thinning out weak canes, and heading back remaining canes to about 10 feet. Cut back 2 inches into live wood of all canes that have died back because of low winter temperatures. You can leave as many as 15 canes per plant.

**ERECT GROWING VARIETIES OF BLACKBERRIES.** In late summer remove canes that have fruited. In spring remove weak and diseased canes and thin remaining canes to seven per hill or three per foot of row. Shorten lateral branches to about 12 inches. In early summer, pinch back new canes to 36 inches. This induces branching.



## Pruning Grapes

In Idaho we usually grow American-type grapes. Vinifera or European grapes are grown only in the warmer sections.

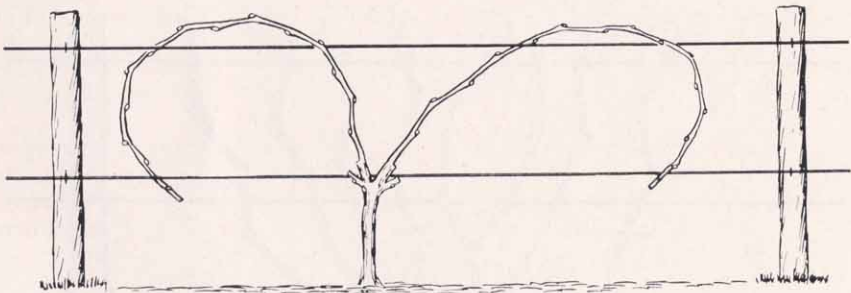
The American-types, also called labrusca grapes, may be pruned a number of ways. They are often used to cover arbors when they are wanted for shade as well as fruit. Growers usually leave more wood under these conditions. If you leave a lot of wood you will have smaller grapes.

Prune the mature vine of vinifera grapes to a stem about 3 feet high. Leave short arms at the top to bear fruiting canes. A stake is necessary to hold up the stem at first, but in time the stem will support itself. Labrusca grapes need trellis support.

At planting time, grapes are headed back to about two buds. Vines coming from the buds are staked. One-year-old plants with a widespread root system are generally used.

We have many systems of training grapes, but only a few are discussed here. Remember to keep a judicious amount of the new tan-colored wood as it is the wood that produces fruit. The older, scaly-barked wood is only a support for the new wood. For most varieties, leave enough 1-year-old wood to include about 40 to 60 buds or nodes.

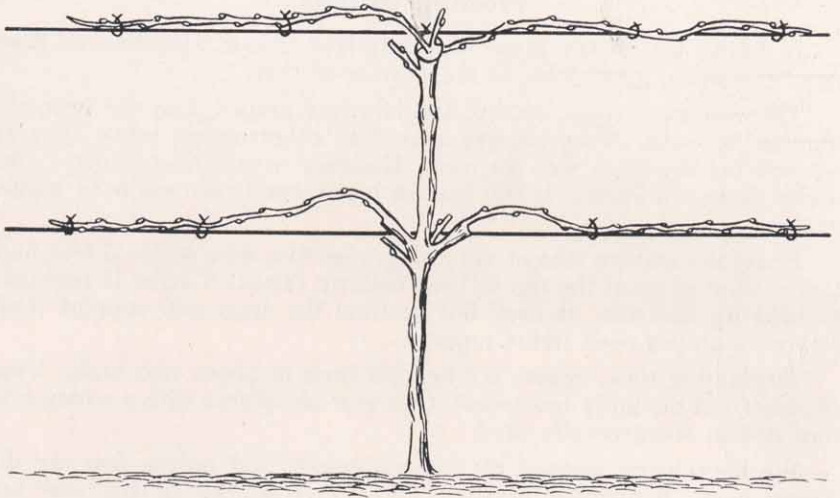
One method of trimming and growing grapes is the umbrella Kniffin system. Select two healthy last-year's canes with about 20 buds each and tie them to the wires. You can use binder twine. Two or three short spurs of two buds each are also left at the head to provide canes for next year.



**Umbrella Kniffin system**

Another system is the four-cane Kniffin. Leave from 40 to 60 buds, but select four canes of last year's wood. Each cane will have 10 to 15 buds or nodes. Select canes of medium vigor.

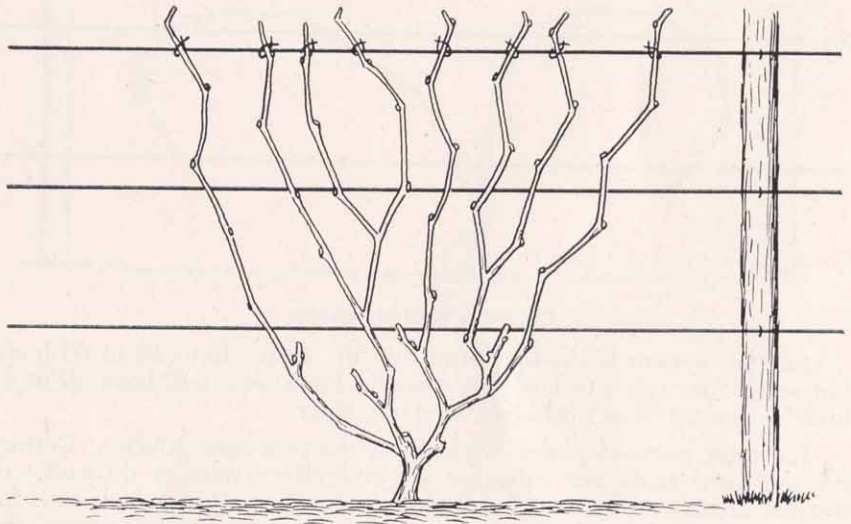
For most parts of Idaho, we suggest the four-cane Kniffin. Getting enough good buds per cane for an umbrella system is difficult. In warmer areas we often need a total of 60 buds or more, which calls for at least a four-cane and sometimes a six-cane system. For this reason, the four-cane Kniffin is generally more usable.



**Four-cane Kniffen system**

You can make a trellis of No. 9 galvanized wire. Attach the lower wire to the post 30 inches from the ground, the upper wire about 4½ feet high. Tighten the wires as they become loose.

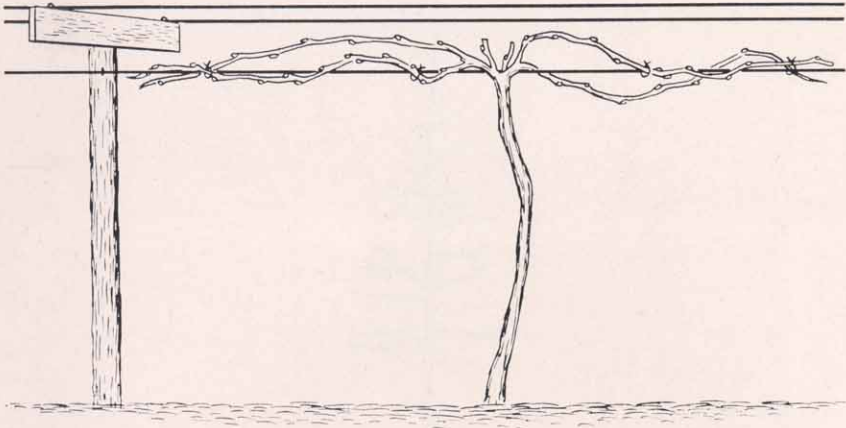
The fan system is similar. Use the same number of buds if you want large grapes.



**The fan system**



In the Munson system we use three wires as shown in the illustration. Four canes are used—two in each direction.



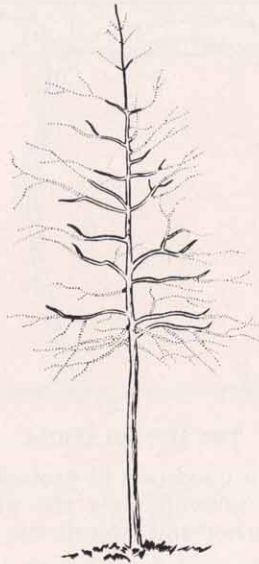
**The Munson system**

The canopy system is a good one to protect grapes from birds. The vine is trained to form a network over the surface of the arbor. The head is at the top of the arbor and laterals run in all directions.

We usually prune grapes in late winter or early spring. If you delay pruning too long, cut ends of the vines “bleed” sap. In general, this is not harmful, but early pruning is best.



Use of pictures by the United States Department of Agriculture, Ohio State University, and University of Minnesota is gratefully acknowledged.



**In transplanting single-leader trees, such as oak, avoid cutting out the central leader. Reduce the number of branches by taking out weak and crossing branches, and heading back limbs you want to keep.**



## Definition of Terms

Balled trees or shrubs:

Transplanted with their roots in a ball of earth.

Barerooted:

Trees or shrubs transplanted with bare roots in contrast to those transplanted with roots enclosed in a ball of earth.

Center-leader type of tree:

The central stem or leader is not removed. Additional side branches are trained from the central stem.

Heading:

Cutting back a trunk or branch to a certain point.

Height of head:

The distance from the ground to the lowest scaffold branch.

Modified-leader type of tree:

The top scaffold limb is left for 3 or 4 years before it is headed to an outward growing branch.

Open-head or vase form:

Usually the central stem is cut back to about 24 to 30 inches and branches grow, forming a vase shaped tree.



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