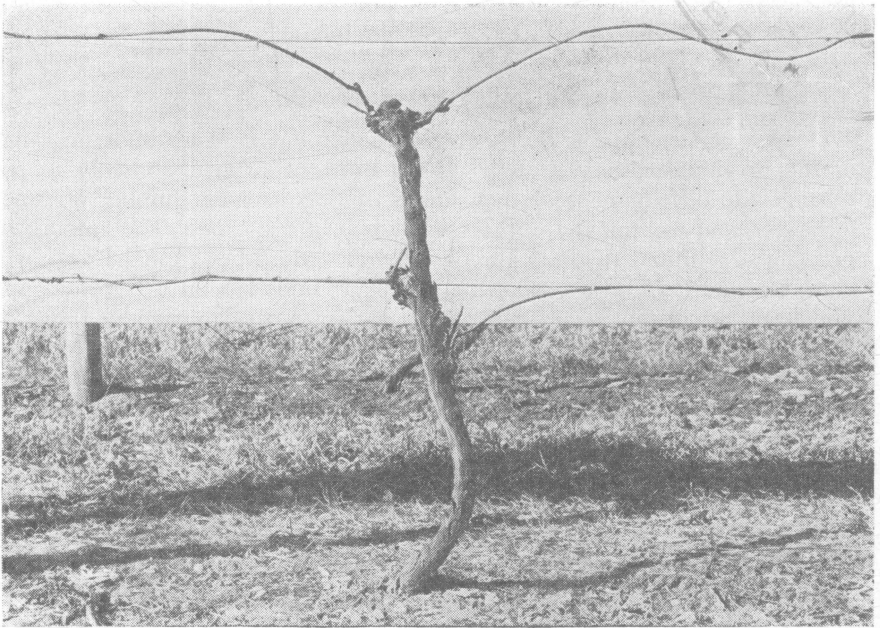


pruning small fruits

By Vernon Patterson
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Grapevine properly pruned to the four-cane Kniffin system.

Agricultural Extension Service
The Ohio State University

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Pruning Small Fruits

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The fruiting habit of small fruits should be considered in the pruning of these fruits. A thorough understanding of the manner in which fruit is borne on the plant will assist the grower in deciding what cuts to make. Annual pruning of small fruits and grapes is absolutely essential to maintain satisfactory growth and production. As thinning of these fruits is not practicable, the pruning procedure becomes one of the most important practices to influence quality, size, and production.

PRUNING THE GRAPE

Fruit of the grape is borne on shoots developing from buds on canes of the previous season's growth. Vines must be pruned annually to encourage the development of these canes, to regulate the number of canes to be left, and to limit the number of buds on these canes. The amount of pruning is adjusted to the vigor of the vine. More buds can be left on a vigorous vine than on a weak vine. Too few buds left on a vigorous vine will limit production. Too many buds left on a weak vine will result in small scraggly bunches.

Pruning is generally done, in Ohio, after the coldest part of the winter is past. Usually, by the middle of February, pruning can be started and can continue until buds swell. Pruning can be done in the spring after sap starts to flow, but the danger of knocking off tender buds when brush is removed makes this practice inadvisable. The "bleeding" of vines caused by pruning after sap starts is objectionable, but does little harm to the vigor of the vine. Summer pruning is not recommended. Grapes do not require direct sunlight to color, but full development of healthy leaves is necessary for satisfactory size and quality of fruit.

PRUNING YOUNG VINES

FIRST YEAR.—At planting time, prune off all but the strongest cane. This cane is cut back to two buds.

SECOND YEAR.—Remove all but the most vigorous single cane, and leave it long enough to reach the first wire of the trellis. This will be between 30 and 36 inches. If the cane is weak, cut it back to two buds as in the first year. It will thus require an additional year for weak growing vines to reach the trellis.

KNIFFIN SYSTEM.—The four-cane Kniffin, or occasionally a six-cane, is one of the most popular systems of pruning grapes in Ohio. According to this system, a single cane is allowed to develop a vertical trunk. The trunk

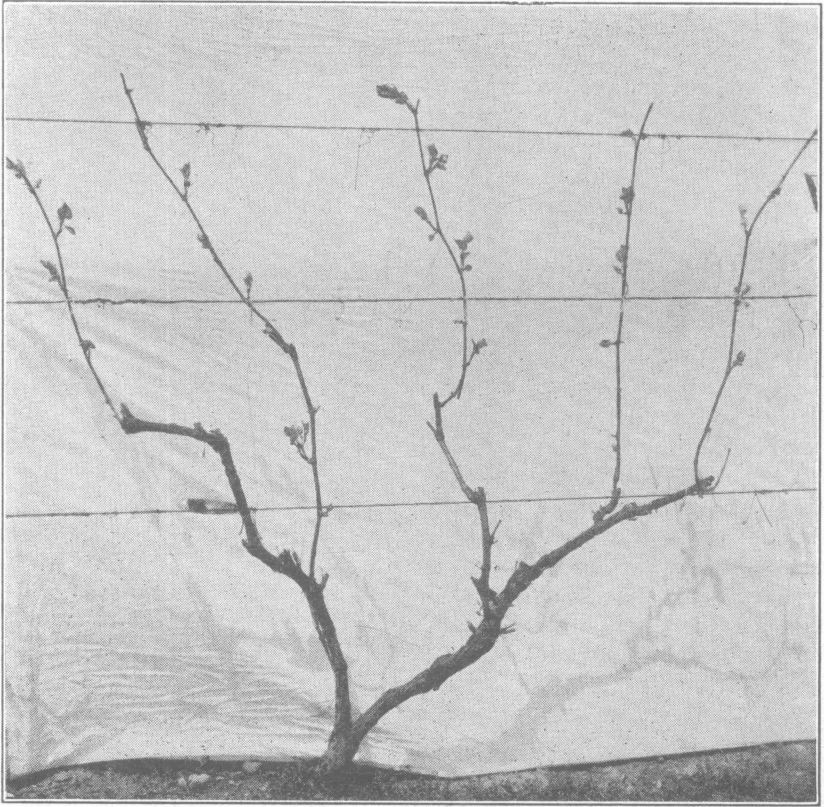


FIG. 1.—Fan system for pruning grapes is popular with some growers. Note the renewal spurs provided near the base of each fruiting cane.

is attached to a two-wire trellis, the lower wire of which is about 3 feet above the ground, and the upper wire about 2 feet above the lower wire.

During the second year, horizontal canes will develop parallel to the wires of the trellis. The most fruitful of these canes will be those about $\frac{1}{4}$ inch in diameter when measured between the fifth and sixth node. Large "bull" canes and slender willowy branches are less productive. Two of the desired size canes are selected at the intersection of each wire with the main trunk. One cane is selected to run in one direction along the wire and the other cane selected to run in the opposite direction. These four canes will produce the fruit for the coming year. After the pruning is completed the canes are tied to the trellis or arbor with twine or wire.

Prune each vine according to its age and vigor. During the third year, the vine, if vigorous, can carry about 25 buds after pruning. This would mean that each of the four canes would be pruned back to 6 buds per cane. Mature, vigorous Concord vines may carry 40 or more buds after pruning. Weaker vines will fruit better if less than 40 buds are left.

Renewal spurs must be provided to produce the fruiting canes for the next year's crop. These renewal spurs consist of unneeded fruiting canes which are cut back to one or two buds. At least two or three should be left near each of the wires when the Kniffin system is followed. Vigorous fruiting canes will develop from these spurs and will thus supply the fruiting wood for the following season.

Recent work in New York in studying the severity of pruning indicates that it may be desirable to leave more buds for vigorous vines. The rule followed in this pruning work was to leave 30 buds for the first pound of prunings removed and 8 additional buds left for each additional pound of prunings. In addition to

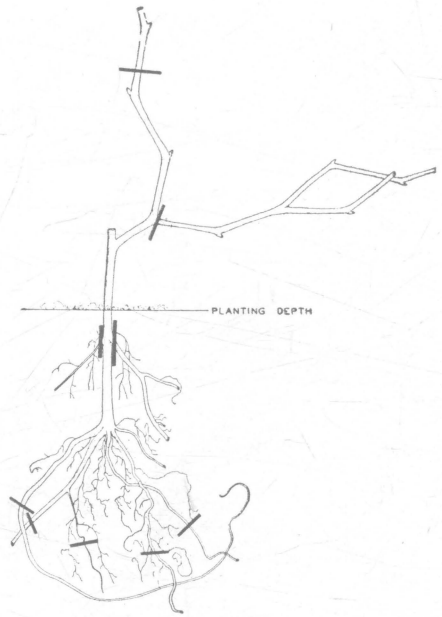


FIG. 2.—Grape plants from the nursery are pruned back to two buds. The roots and top are pruned as indicated by the black marks.

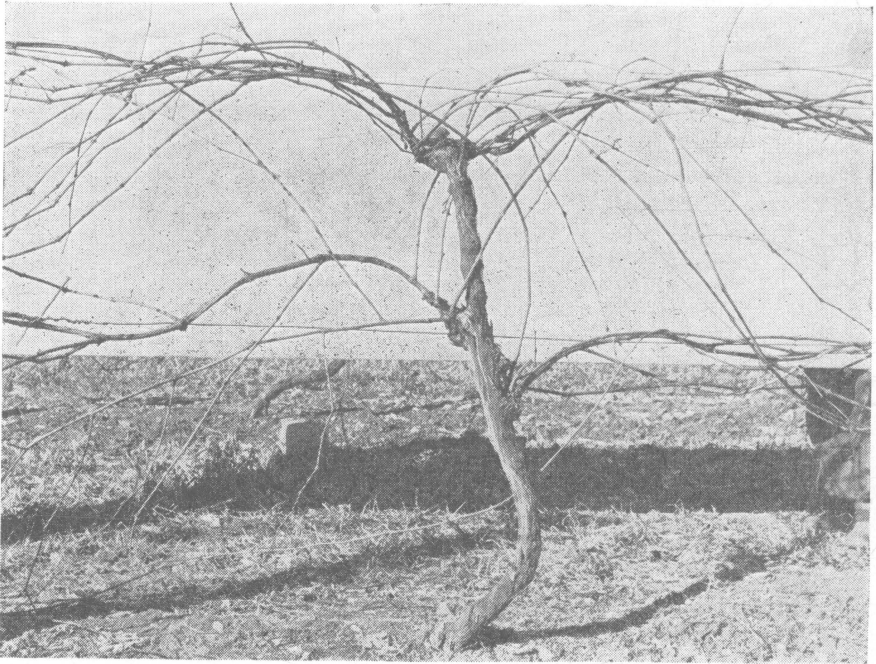


FIG. 3.—Vine before pruning to the 4-cane Kniffin system. Note the number of fruiting canes originating close to main trunk.

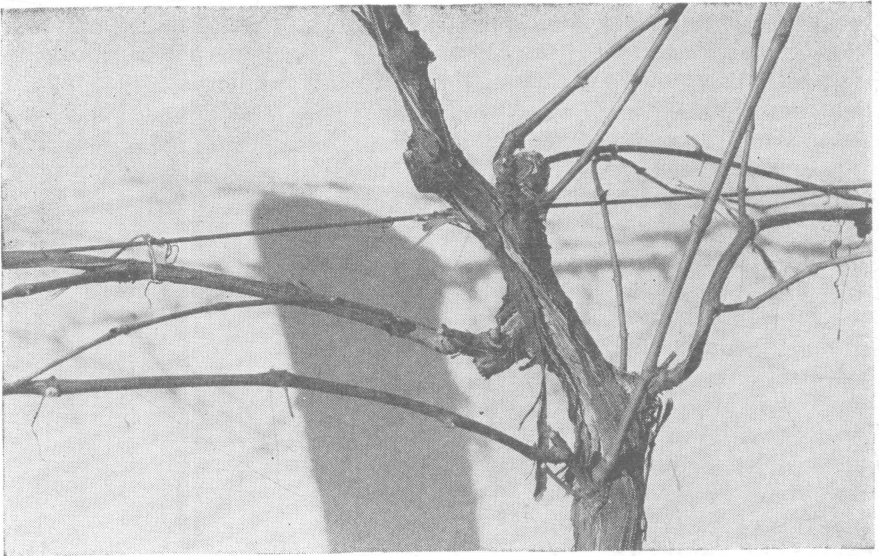


FIG. 4.—Fruiting canes develop from buds left on renewal spurs. Note the satisfactory cane growth from the portion of vine before pruning.

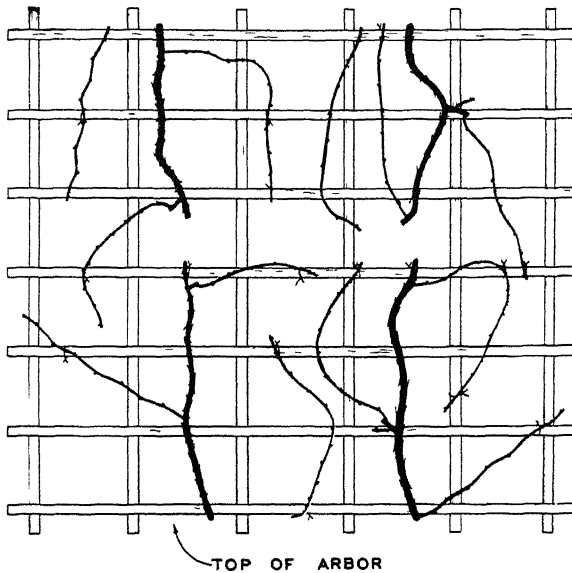


FIG. 5.—A properly pruned, well managed vineyard.

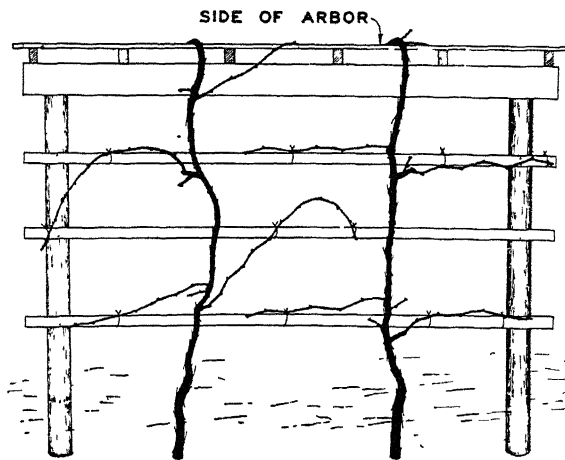
leaving more buds per cane, it was found that a higher trellis encouraged better fruiting and was also helpful in controlling pests. The grape grower should consider this work as experimental. It is mentioned here only to suggest the necessity of evaluating the vine before pruning.

FAN SYSTEM.—

The fan system of training grapes is popular with some growers in Ohio. As the name suggests, the vine is shaped similar to that of a fan after pruning. When this system is followed, the lower wire of the trellis is usually 2 feet above the ground. Two other wires are placed above at 18 to 24 inches apart, to which the fruiting vines are tied in an oblique pattern.



In the fan system, the cane to be used as the trunk is selected in the same manner as for the Kniffin system. At pruning time the second year, the cane is headed back at a point high enough to reach the lower wire of the trellis. In some cases, the head is formed at a lower level and the two side arms of a Y-shaped trunk are tied to the bottom wire.



The main trunk or side arms are tied to the lower wire during the second growing season. Lateral shoots will develop from the main trunk, and at pruning time for the third year, four or five of the most desirable, best located canes are selected and pruned

FIG. 6.—The Kniffin plan of pruning is suggested for arbors. The amount of fruiting wood (canes) and the respective renewal spurs at their base are shown after pruning. More canes are left than for trellis pruning, as shade is a factor here.

back to about five or six buds each. These canes are tied to the trellis in such a way that they resemble a fan. That is, the canes are tied more or less at equal distances apart on the trellis. Renewal spurs are selected as in the case of the Kniffin system.

The mature vines are pruned exactly the same as for the third year, except more buds may be left on the entire vine than for the third year. A total of around 40 buds per vine of a vigorous Concord variety is desirable. More buds can be left if the vine is particularly vigorous, and fewer buds should be left if the vine is weak.

PRUNING NEGLECTED VINES

Vines become rangy and unproductive if pruning is neglected for a year or more. Such vines have too much old wood, and the best fruiting wood is a long distance away from the trunk or the base of the vine. Remove as

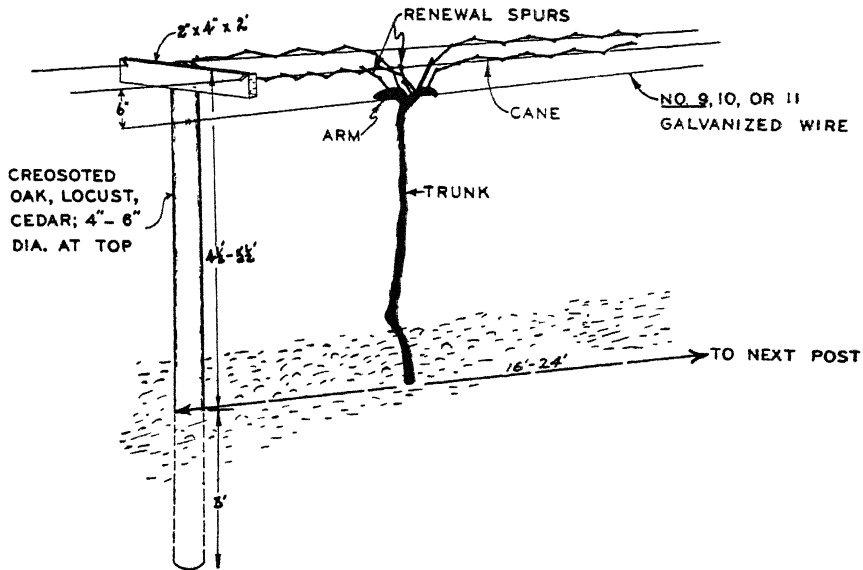


FIG. 7.—The system shown above for training grapes (similar to Munson system) is convenient for backyard plantings. Grapes are easy to spray, cultivate, and pick. It is convenient to pass under trellis from row to row.

much old wood as can be spared, then cut back the trunk and arms as far as possible. Four or five reasonably desirable canes for fruiting are left, and it is desirable that these originate as close to the main trunk as possible. After 2 or 3 years of renewal pruning, the neglected vines can be brought back to a fairly manageable pattern.

If neglected vines are dehorned, that is, cut back to large stubs with little or no young wood, there are no canes left for fruiting. It will take a year or two to get such vines producing again. It is usually best to prune neglected vines to a pattern approaching some modification of the fan system. Old grape vines can be rejuvenated by pruning more than can most other

fruits. It is well, always, to bear in mind that fruiting canes be developed at a point close to the main trunk. It is unwise to attempt to rejuvenate vines that have been neglected for several years. If these vines are over 25 years of age it is usually best to plant new ones, which in about 3 years will be in full production. Young plants produce better grapes more economically than old vines.

PRUNING THE BRAMBLES

Raspberries and blackberries are the important brambles grown in Ohio. The fruit is borne on canes that grow one year, fruit the next, and die shortly after. The pruning consists of (1) summer pinching of tips of new canes of black raspberries and blackberries, (2) removal of old canes shortly after they have fruited, and (3) shortening the canes and branches in early spring while dormant.

SUMMER PINCHING.—If no wire trellis or supports are used, summer pinching of the new shoots of black and purple raspberries is generally practiced by the commercial growers of Ohio. This consists of removing

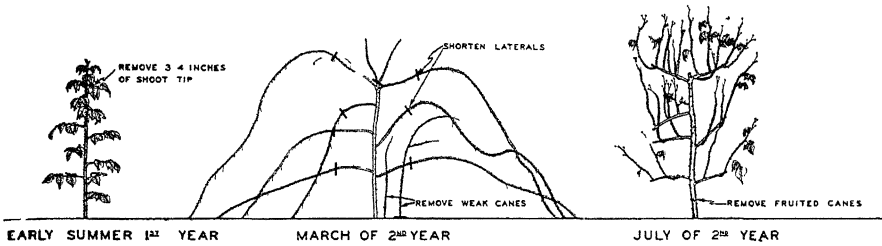


FIG. 8.—Shoots of the black and purple raspberry arise from the roots early in the growing season. When they attain proper height (see text) they should be summer pinched to induce vigorous laterals which are shortened the following March. Bearing canes are removed after harvest.

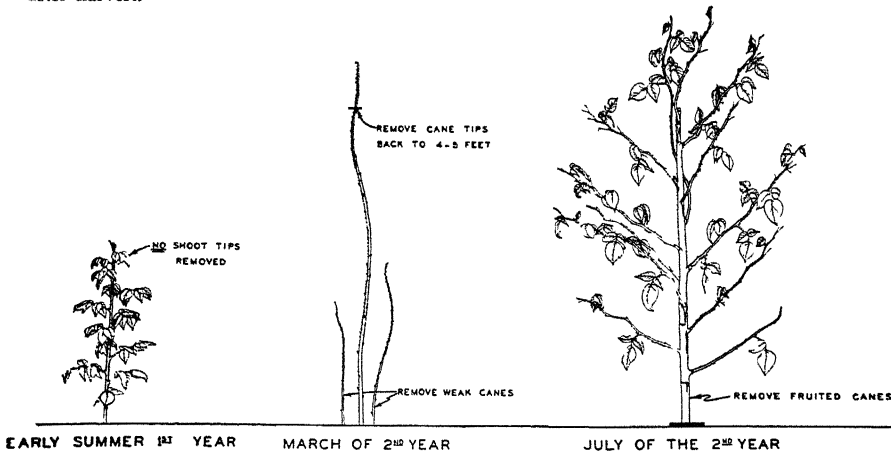


FIG. 9.—Red raspberry shoots from the roots require no summer tipping. Few, if any, laterals are formed. In March of the next year, the weak canes are removed, and the tips of the remaining canes cut back. After harvest, canes which have borne are removed and burned.

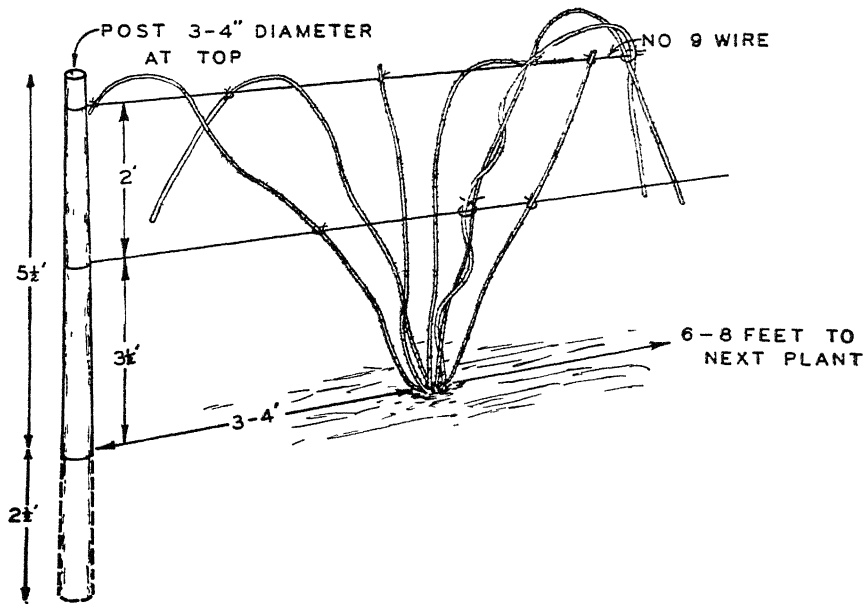


FIG. 10.—A two-wire trellis is useful for training the trailing type blackberries, and the Boysenberry and Youngberry. The trellis should be established before the beginning of the second year.

with shears or gloved fingers the top 3 or 4 inches of the new shoots. This is done after they have attained a height of 18 to 24 inches for black raspberries, and 18 to 30 inches for purple raspberries. Pinching checks the terminal growth and causes lateral branches to develop. The result is a low, stocky plant. Such a plant withstands high winds, and facilitates harvesting the next year. It is necessary to go through the planting two or three times before and during harvest to top properly the vigorous shoots as they appear.

Summer pinching of the ends of the blackberry shoots of upright growing varieties, such as Eldorado, is ordinarily done when the plants are about 24 to 30 inches high.

Red raspberries are not summer pruned. If tops are cut back, weak laterals are produced which are not desirable, and canes are more likely to winter-kill. Summer pinching of red raspberry shoots also tends to reduce yields without sufficient improvement in size of berries.

REMOVAL OF FRUITED CANES.—It is best to remove the old canes of brambles soon after the crop is harvested. They should be removed close to the ground. A pair of long-handled lopping shears or a bramble hook are convenient tools for this purpose. Elimination of the old canes gives more room for the developing shoots. The old canes may also carry disease. Removal during the growing season will help reduce the spread of such disorders.

DORMANT OR SPRING PRUNING.—The best time for dormant pruning is in March, after danger of winter freezing is past and before the buds begin to swell.

Red raspberries require only light cutting back of the tips to prevent the canes from later becoming top-heavy and bending to the ground with fruit. The small, spindly canes should be pruned out of the hedge row, leaving the larger canes from 6 to 10 inches apart. If the hill system of growing red raspberries is used, about 7 or 8 strong canes per hill are left. The narrow, 12-inch hedge row system of growing is preferred to the 24- to 30-inch hedge row.

Many growers find that large crops of high quality red raspberries can be produced from canes that are trained to a trellis. By the use of the trellis, a much longer fruiting cane can be left, and the support makes it possible

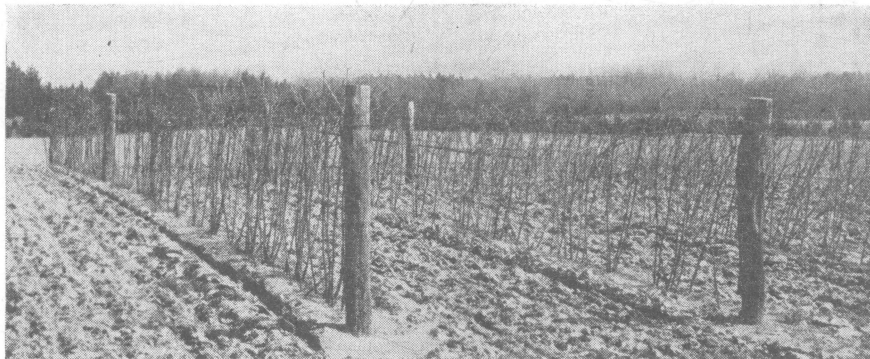


FIG. 11.—A trellis is desirable for red raspberries to prevent canes from becoming top heavy and bending to the ground with fruit. Note that canes are tied to the wire.

to keep the cane from bending to the ground. A trellis may consist of two wires stretched to the middle of the row and anchored at each end by strong end posts. Occasionally, posts in the row will be desirable to keep the trellis from sagging. Red raspberries grown in this manner are pruned to a length of 5 to 6 feet and the canes tied to the trellis. This provides a much longer fruiting surface. It is suggested that the long canes be left only if the soil is capable of producing a large, thrifty cane for this purpose. If the soil is poor, berries will be small if this system is followed.

The lateral branches of black and purple raspberries, that have been summer pinched, should be pruned back rather severely in the spring. For black raspberries, the size and quality of the fruit is improved by leaving the stronger laterals carrying from 8 to 12 buds. The branches should be about 8 to 10 inches long after pruning. Weaker laterals may be cut shorter, and very vigorous laterals may be left somewhat longer.

The laterals of purple raspberries can carry more buds than those of black raspberries. They are usually pruned back to 10 to 14 inches, depending on the vigor. Small, spindly laterals should be removed entirely. The yield may be reduced if fewer than 5 laterals are left per cane. Do not remove canes over $\frac{1}{2}$ inch in diameter at the ground level, as thick canes are the most productive. Remove any surplus canes smaller than $\frac{1}{2}$ inch in diameter.

The laterals of blackberries, which have been summer pinched, are

relatively vigorous and should be left about 18 inches in length. With blackberries, it is sometimes best to wait until the blossoms appear before the laterals are cut back. Some varieties tend to bear fruit far out on the laterals, and a delay in pruning will prevent cutting away too much of the crop. This is particularly true of varieties, such as Snyder, Eldorado, and Merseau. On the other hand, the Early Harvest and Lawton blackberries bear their fruit near the base of the laterals and farther down on the canes.

PRUNING CURRANTS AND GOOSEBERRIES

The fruit of the gooseberry and currant is borne on 1-year-old wood and 1-year-old spurs on older wood. Pruning consists essentially of removing branches after they have borne fruit for 2 years. Late winter or early spring pruning is recommended. Two- and 3-year-old wood is the most productive. In the case of 1-year-old red and white currant bushes, the smaller, weaker shoots should be removed, leaving about 8 strong shoots. At the end of the second year, four or five 2-year-old and three or four 1-year-old canes should be left. When pruning the 3-year-old bush, three or four canes each of 3-, 2-, and 1-year-old wood are left. With older bushes, canes 4 years or more old should be removed. Pruning is a renewal practice to keep the bush producing mostly on vigorous 2- and 3-year-old canes.

Some varieties of currants tend to grow more upright than others. These should be thinned by removal of the central shoots. In case of varieties with a spreading type of growth, the outer and lower canes generally

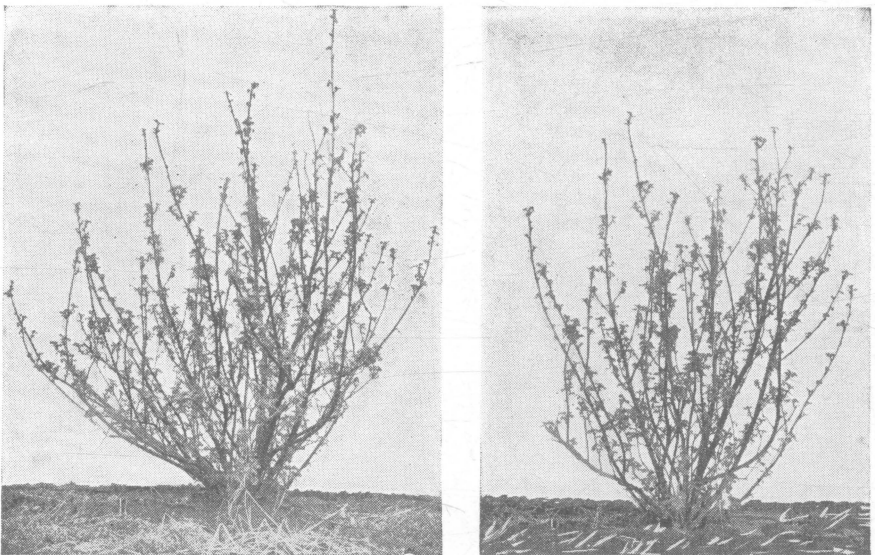


FIG. 12.—The photograph on the left is a Red Lake currant before pruning; on the right, after pruning. The tall growth has been cut back. Low horizontal branches and most of the wood older than 3 years has been eliminated. One-year wood has been thinned to three or four vigorous canes.

should be removed. If these canes are allowed to remain, they become laden with fruit, droop to the ground, interfere with cultivation, and the fruit becomes dirty.

PRUNING BLUEBERRIES

Blueberries may be pruned any time during the dormant season. The fruit of the blueberry is borne on wood of the previous season's growth. Here again the vigor of the vines will determine the severity of the pruning operation. Large berries of high quality can be obtained by judicious pruning.

Little or no pruning is necessary for the first 3 years. The type of pruning at the end of this period depends on the character of the growth. Some varieties are of the erect growing type, such as June, Concord, and Rubel. It is necessary to do more thinning out in the center of the bush for these varieties. However, in case of the spreading type, such as Cabot and Pioneer, the lower branches, that tend to drag the ground, should be removed.

The shoots that develop after the middle of the growing season are usually weak, with relatively few fruit buds. They should be removed, leaving only the vigorous growth. Some varieties, as Cabot and Pioneer, require relatively more heading back and thinning out at pruning time to thin the crop. About 3 to 6 fruit buds per shoot are left on the 2- and 3-year branches. Varieties such as Concord and Rubel require little heading back of shoots.