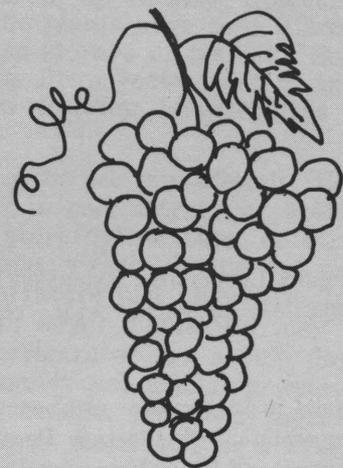




# **SMALL FRUITS in the Home Garden**

**Publication 426-840 Reprinted April 1983**

**Virginia Cooperative Extension Service  
Virginia Tech and Virginia State  
Virginia's Land-grant Universities**



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no. 426-840  
1983  
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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, and September 30, 1977, in cooperation with the U.S. Department of Agriculture. Mitchell R. Geasler, Director, Virginia Cooperative Extension Service, and Dean, Extension Division, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061; M. C. Harding, Sr., Administrator, 1890 Extension Program, Virginia State University, Petersburg, Virginia 23803.

# SMALL FRUITS IN THE HOME GARDEN

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A home fruit planting appeals to urban people with limited space as well as to those on farms. It can pay for itself in several ways: in the production of high-quality fruit, in an improved diet for your family, in the economic value of the produce, and in the personal satisfaction of growing your own fruit.

The small fruits offer definite advantages for home culture. They require a minimum of space for the amount of fruit produced, and bear one or

two years after planting. Also, pest control is typically easier than with most tree fruits.

Your success with a small fruit planting will depend upon the attention you give to all phases of production—variety selection, soil management, fertilization, pruning, and pest control. Plant only what you can care for properly. It is better to have a small planting well attended than a large one neglected.

## PLANNING THE SMALL FRUIT GARDEN

Locate your small fruit planting as close to your home as possible. Space in or near the vegetable garden is usually preferred. Where space is a limiting factor, small fruits may be used in place of ornamental plants of comparable size. Strawberries may be used as a border for a flower bed. Grapes and raspberries may be planted parallel to the garden on a trellis or a fence along a property line. Blueberries may be planted to form a dense hedge or used in a foundation planting around the home.

Select a site that is free from frost pockets, low wet spots, and exposure to strong prevailing winds. Small fruits thrive best in a fertile, sandy loam soil high in organic matter, but they will give good returns on the average garden soil under adequate fertilization and good cultural practices.

Overcrowding frequently results in weak plants and low yields. It also makes insect and disease control more difficult. For best results, small fruit plants should be set no closer than the minimums indicated in Table 1.

Table 1. Space Requirement, Yield, Bearing Age, and Life Expectancy of Small Fruits.

Fruit	Minimum Distance		Average Annual Yield per Plant	Bearing Age	Life Expectancy
	Between Rows	Between Plants			
Blueberry	6 feet	4 feet	4 quarts	3 years	20-30 years
Blackberry (erect)	8	3	1½	1	5-12
Blackberry (trailing)	8	6	1½	1	5-12
Raspberry (red)	8	3	1½	1	5-12
Raspberry (black)	8	4	1½	1	5-12
Raspberry (purple)	8	3	1½	1	5-12
Grape (Amer.)					
(Fr. Amer.)	10	8	15 lb.	3	20-30
Grape (muscadine)	10	10	25 lb.	3	20-30
Strawberry (regular)	3	1	½	1-2	3
Strawberry (ever-bearer)	3	1	½	½	2
Currant	8	4	5	3	10-20
Gooseberry	8	4	5	3	10-20

Special attention should be given to the selection of varieties. They must be adapted to your soil and climatic conditions. If possible without sacrificing too much yield or quality, select varieties with the least insect and disease problems. Table 2 lists some varieties of small fruits suggested for planting in the home garden. They are listed in the order of ripening, and include only those adapted for growing under Virginia conditions.

Obtain the best nursery stock available. Buy only from reputable nurserymen who guarantee their plants to be true to name, of high quality, and packed and shipped correctly. Beware of "basement bargains." High prices do not necessarily mean high quality, but good, well grown plants are not cheap.

Place your order early—as soon as you decide what you want. Specify variety, size, and grade of plants desired, and time of shipment preferred. It is best to have the plants arrive at the time you are ready to set them out.

When your order arrives, unpack the bundles and inspect the plants. The roots should be moist and have a bright, fresh appearance. Shrivelled roots indicate that the plants have been allowed to freeze or dry-out in storage or transit. Such plants seldom survive. Plant roots must be kept moist and free from freezing temperatures at all times.

If the plants cannot be set immediately, they should be kept either in cold storage or heeled-in. Wrap them in polyethylene film, or other material that will prevent their drying out, and store them at a temperature just above freezing. Strawberry plants, in small quantities, may be held in the home refrigerator for a few days. If refrigerated storage is not available, remove the plants from the bundle, and heel them in carefully in a trench of moist soil in a shaded

**Table 2. Some Suggested Varieties for the Home Small Fruit Planting. (Listed in Order of Ripening)**

<b>BLUEBERRIES</b>	Catskill
1 Earliblue	Pocahontas
1 Ivanhoe	Surecrop
Blue-ray	Atlas
Bluecrop	Redchief
Jersey	Guardian
2 Berkeley	Marlate
Herbert	
Coville	
	2 <b>STRAWBERRIES</b> (ever-bearing)
<b>BLACKBERRIES</b> (erect)	Superfection (Gem, Brilliant)
Darrow	Streamliner
Black Satin (thornless)	Ozark Beauty
Dirksen (thornless)	
<b>BLACKBERRIES</b> (trailing)	<b>GRAPES</b> (American Bunch)
Lucretia	Price
1 Boysenberry	Seneca
Lavaca	Himrod
	Fredonia
<b>RASPBERRIES</b> (red)	Monticello
Sunrise	Delaware
Latham	2 Concord
Pocahontas	Century I
Cherokee (everbearing)	Steuben
Heritage (everbearing)	
2 <b>RASPBERRIES</b> (black)	<b>GRAPES</b> (French-American Hybrids)
New Logan	Aurora (Seibel 5279)
Bristol	Cascade (Seibel 13053)
Cumberland	DeChaunac (Seibel 9549)
	Chancellor (Seibel 7053)
2 <b>RASPBERRIES</b> (purple)	
Sodus	
2 <b>CURRENTS</b>	<b>GRAPES</b> (Vinifera)
Wilder	Pinot Chardonnay
Red Lake	White Reisling
2 <b>GOOSEBERRIES</b>	1 <b>GRAPES</b> (Muscadine)
Pixwell	Hunt
Red Jacket	Scuppernong
	* Carlos
<b>STRAWBERRIES</b> (regular)	* Magnolia
Earlidawn	Thomas
Earlibelle	* Dearing
Earliglow	Topsail

<sup>1</sup> Recommended for Eastern Virginia only.

<sup>2</sup> Not recommended for Eastern Virginia.

\* Perfect flowered. Other varieties are pistillate and require pollinizers.

location. Pack the soil firmly around the roots to eliminate all air pockets and to prevent the roots from drying out (Fig. 1).

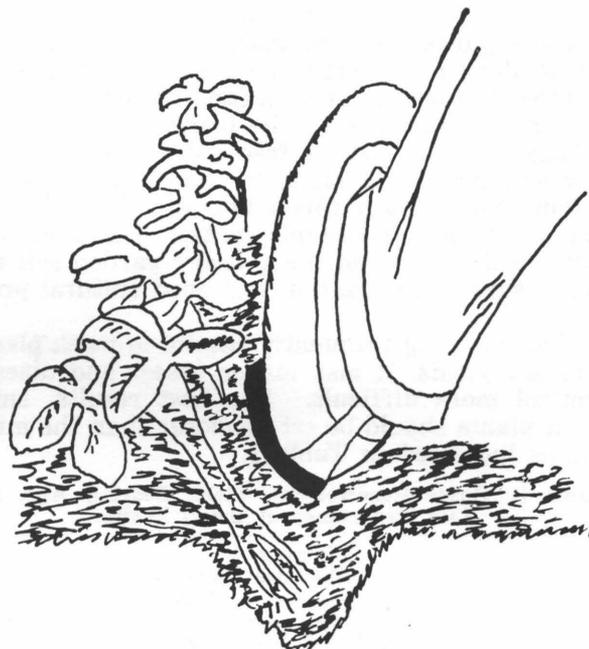
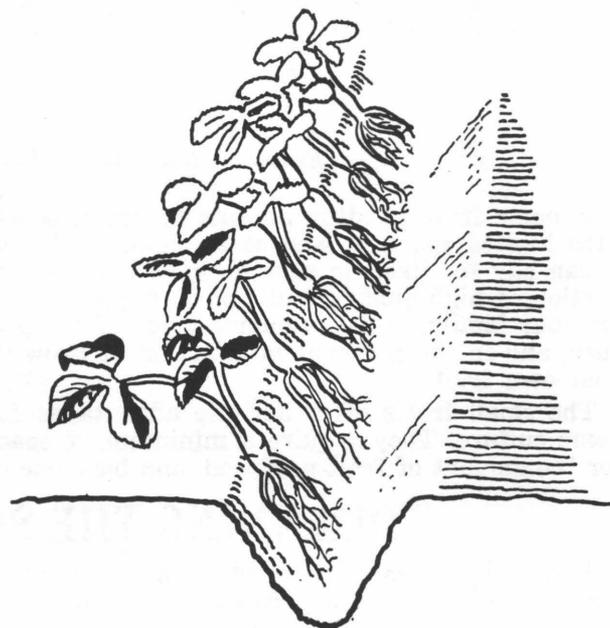


Figure 1—Heeling in strawberry plants.

## ESTABLISHING THE PLANTING

There is probably nothing that causes more disappointment and failure in small fruit plantings than the lack of careful preparation and attention to detail at the time the plantings are established. Prepare the soil properly, set the plants

carefully, and generally create conditions favorable for new growth. Detailed suggestions for the establishment of each of the small fruits are included in this publication. These suggestions should be followed closely for best results.

# MAINTAINING THE PLANTING

Once the planting has been established, future success will depend upon the care that it is given. If the planting is to be productive and long lived, it must be properly fertilized. Competition from weeds or other plants must be avoided. Insects and diseases must be controlled, and the plants

must be properly pruned. Study the maintenance suggestions for each of the small fruit crops, and plan to care for the planting properly. To do otherwise will probably result in disappointment and wasted effort.

## STRAWBERRIES

Strawberries are the most widely cultivated small fruit in America. They are the favorite of many for pies, jams, jellies, preserves, and for eating fresh. Inasmuch as strawberries are adaptable to a greater range of soil and climatic conditions than any other fruit, they are well suited to the home garden and may be grown successfully in every section of Virginia.

### VARIETY SELECTION

Strawberry varieties vary greatly in their adaptability to soil and climatic conditions. The varieties suggested for planting in Virginia are of proven merit and have been selected on the basis of vigor and productivity of the plant and quality of the fruit. Virus-free plants of each variety are available.

*Earlidawn* is a very early variety that has blossoms which are somewhat tolerant to cold. The fruit is large, bright red, and medium firm. It is a good dessert variety and it freezes well.

*Earlibelle*, a variety adapted to the growing conditions of Eastern Virginia, produces heavy crops of brightly colored, large, firm berries even in crowded plant beds.

*Earliglow* is a new variety noted for its superior dessert quality and disease resistance. The medium-large berries are very attractive with a glossy, deep red color. It is one of the best for eating fresh, as a frozen product, and in jams and jellies. The plants are very vigorous and productive.

*Catskill* is a large, irregularly shaped strawberry. The fruit is red, mildly subacid, and has good dessert quality. It is above average as a freezing variety.

*Pocahontas* is a vigorous grower. The fruit is large with an attractive, bright red skin and flesh. It is slightly subacid, and of good dessert quality. It is also fine for freezing.

*Surecrop* is mildly subacid and good for desserts. The deep red berries are large and irregularly shaped. The plant is large, vigorous, and tolerant to droughty conditions.

*Atlas*, from North Carolina, has performed well in Virginia. It has a large firm berry with a slight wedge shape. The color is medium red and the quality very high. The plants are large, vigorous, moderate in runner production, and quite tolerant to most strawberry diseases.

*Redchief* is an extremely productive, high quality dessert berry. It is medium to large in size, of uniform deep red color, with a firm glossy surface. Redchief is very resistant to red stele.

*Guardian* a midseason commercial variety, is also a favorite of the home gardener. The large, deep red berries are firm, uniform in size and attractive. It has good dessert quality and freezes well. The plants are vigorous, productive, and resistant to many common strawberry diseases.

*Marlate*, ripening a week or more after the normal late varieties, is popular with both home gardeners and commercial growers who wish to extend the berry season. Seldom damaged by late frost, it is usually a productive and dependable variety. The fruit is large and attractive with good flavor and dessert quality. It also makes a nice frozen product.

*Everbearing Strawberries* are not as good as the regular varieties, either in quality or yield. Because of consistently low yields, they are not recommended for planting in Eastern Virginia.

*Superfection* is currently the leading variety. The fruit is irregular in shape and of medium size and firmness. It is an acid berry of fair dessert quality.

*Streamliner* fruits are larger than those of Superfection and more symmetrical. Although soft, they are a little less acid and have a more pleasing flavor. Streamliner's productivity in Virginia has been disappointing.

*Ozark Beauty* is an everbearing variety that shows considerable promise. The plant is vigorous and produces good quality fruit. The berries are red, wedge shaped, firm, and only slightly acid. It is a good variety for eating fresh and for freezing.

### ESTABLISHING THE PLANTING

#### Site and Soil

Strawberries bloom very early in the spring, and the blossoms are easily killed by frost. In areas where late frosts are a hazard, try to select a site for your planting that is slightly higher than the surrounding areas. Although strawberries grow best in a fertile, sandy loam soil with a pH of 5.7 to 6.5<sup>1</sup>, they may be successfully grown in any good garden soil that is well drained and well supplied with organic matter.

<sup>1</sup>Soil test information may be obtained through your Extension Agent.

Soil for strawberries should be thoroughly prepared for planting. It should be loose and free of lumps.

Do not set strawberries in land that has recently been in sod. A clean-cultivated crop planted on the site for a year or two will leave the soil better prepared for strawberries and will assist in controlling weeds and white grubs which are so troublesome in strawberry plantings. Where grubs and ants are a problem, chemical control may be necessary.

#### Planting

Virus-free 1-year-old plants should be set out early in the spring, about 3 or 4 weeks before the average date of the last frost. Spacing of the plants will depend on the training system used, but they should not be crowded. They should be placed no less than 12" apart in rows 3 to 3½' apart. Set each plant so that the base of the bud is at the soil level (Fig. 2). Spread the roots out and firm the soil carefully about them to prevent air pockets which allow them to dry out.

### MAINTAINING THE PLANTING

#### Soil Management

Cultivation for weed control in strawberries should begin soon after planting and continue at approximately 2-week intervals throughout the first growing season. Cultivation must be shallow to prevent root injury. Hoe as often as necessary to remove grass and weeds growing between the plants.

Chemicals for weed control may be used if so desired. Use only those materials recommended for strawberries, and follow directions on the labels. Contact your Extension Agent for the latest recommendations.

Most home garden strawberry plantings are mulched. Any organic material free of weed seeds makes good mulch. Hay, straw, and pine needles are most frequently used. Mulch should be applied 2 to 4" deep over and around the plants after the first freezing weather in the fall. This protects them from heaving and freezing injury during the winter. After the danger of frost is over in the spring, about half of the mulch should be raked off the plants into the area between the rows. Mulch left around the plants will help keep the berries clean, conserve moisture, and check weed growth.

Black plastic is frequently used as a mulch for strawberries. It is effective in inhibiting weed growth and preventing the evaporation of moisture from the soil surface. Mulching with strips of kraft paper treated with a fungicide for control of molds and other diseases has been satisfactory. It is as effective as the plastic mulch and is less expensive. Also, the paper breaks down after several months of use and is incorporated into the soil.

#### Fertilization

Fertilization has seldom proved beneficial to strawberries on good soils well supplied with organic matter. Where a soil analysis indicates the

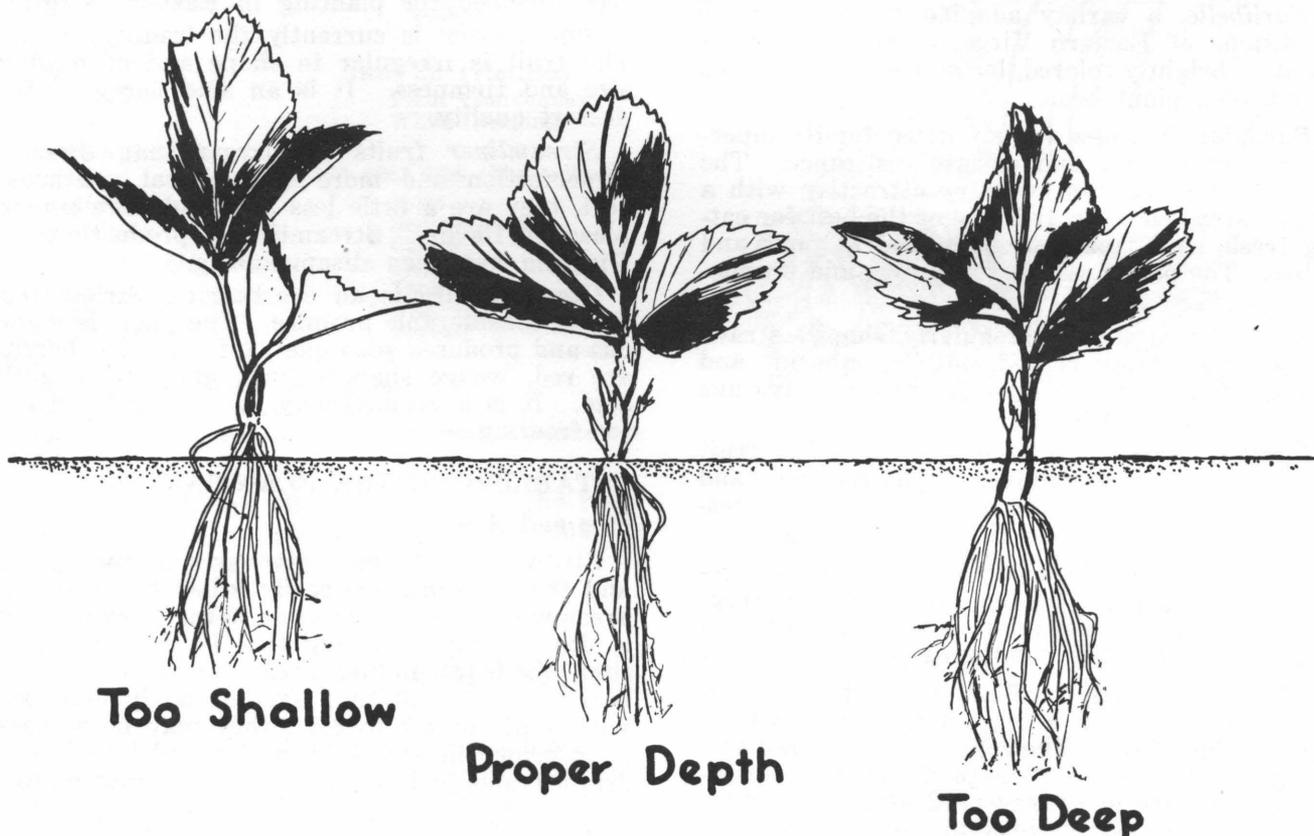


Figure 2—Depth of setting strawberry plants.

need, about 1 lb. per 100' of row of a complete fertilizer, such as 10-10-10 or 10-6-4, should be cultivated into the soil before you begin to plant. The fertilizer used in the fall application should be the same analysis at the same rate and should be broadcast over the row in late August or early September. The limited root systems will not benefit from fertilizer placed in the row middles. Brush the material off the plants to avoid foliage injury.

Do not apply fertilizer in the spring to picking beds of strawberries growing in heavy land because there is danger of excess vegetative growth which results in reduced yield, increased rot, later ripening, and poorer quality fruit. In light, sandy soils, where nitrogen leaches out rapidly, a spring application is usually beneficial. Apply a quickly soluble nitrogen fertilizer, such as nitrate of soda, at the rate of  $\frac{1}{2}$  to  $\frac{3}{4}$  lb. per 100' of row before new growth begins.

### Training

There are three basic training systems used in strawberry production. Many modifications of these systems are found. Under the matted-row system, used by most home gardeners, runner plants are allowed to set freely in all directions. The mother plants should be set 24" apart in the row. Keeping the width of the plant bed narrow results in a better grade of fruit which is easier to pick.

In the hill system, plants are spaced 12" apart in the row. All runners are removed as soon as they appear, and the plants are encouraged to stool-out in large crowns. This system is desired by many because the planting is easier to cultivate and harvest and produces larger and better berries. More plants are required, however, and the initial cost of the planting is greater.

Plants in the spaced-row system are set 18 to 24" apart in the row. The runner plants are set in place by hand until the desired stand is obtained. They are usually spaced 6 to 12" apart. All the late-formed runners are removed as they appear.

### Blossom Removal

During the first season, all flower stems on the plants should be removed as soon as they appear (Fig. 3). This strengthens the plants and allows for earlier and more vigorous runner production. The early-formed runner plants bear the best fruit the following year.

### Renovation

If your strawberry planting is in a vigorous condition, it may be retained for fruiting the second year. It is seldom advisable to fruit a planting more than 2 years. The berries are smaller and the plants tend to "run out."

Soon after harvest, remove the mulch, and clip the tops of the plants to within 1" above the crowns with a scythe or mower. If insects and foliage diseases are prevalent, move the leaves and mulch material out of the planting, and burn them. Apply a quickly soluble nitrogen fertilizer,



Figure 3—Pinching strawberry clusters.

such as nitrate of soda, at the rate of  $\frac{1}{2}$  to  $\frac{3}{4}$  lb. per 100' of row to encourage vigorous top growth. Any good garden fertilizer supplying an equivalent amount of nitrogen may be used if desired.

Some plant thinning may be needed, particularly in the matted-row system. Thin the plants to 6 to 8" apart after new foliage appears. Keep the planting clean-cultivated throughout the summer, irrigating when necessary during the dry season to keep the plants growing vigorously. Fertilize again in the fall as recommended for the first year, and renew the mulch after freezing weather begins.

### Pest Control

Birds are one of the biggest pests in the home garden strawberry planting, and it may be necessary to cover the plants with tobacco cloth or plastic netting to keep the crop from being eaten before the berries are ripe enough to harvest. Aluminum pie tins, suspended by a string or wire above the plants in such manner that they twist and turn in the breeze, have been successful in keeping birds away.

For further information on strawberry diseases and insects and their control, contact your Extension Agent.

### CULTURE OF EVERBEARING VARIETIES

The everbearing varieties of strawberries are less vigorous and generally less productive than the regular varieties. Irrigation is necessary for them because the late-summer-and-early-fall crop ripens during a period when soil moisture is usually quite low.

Soil preparation and fertilizer requirements before planting are the same as for regular varieties. Best yields are obtained from the everbearing varieties if they are set in early spring in the hill system about 1' apart, cultivated for the first 10 days to 2 weeks, and then mulched to a depth of 1 to 1½" with sawdust.

Unless the sawdust is mixed with the soil, there is little danger of the development of a nitrogen deficiency. Should this occur, however, it can be quickly overcome through the application of ½ lb. of nitrate of soda to each 100 sq. ft. of mulched area.

Remove all runners as soon as they appear, to encourage the plants to stool-out in large crowns. Blossom clusters must be removed until the plants have become firmly established and are growing vigorously—usually about the first of July. Ber-

ries will begin to ripen about a month later and will continue until frost, if weed growth is kept down and adequate moisture is supplied. Fruit the plants for the spring and fall crops the second year, then destroy the planting.

### HARVESTING

In the home garden, strawberries should be allowed to get an overall red color and become fully ripe before harvesting. It is at this stage that the sugar content is higher and the flavor is best. It will be necessary to pick every day during the peak of the season.

Harvest the berries carefully by the stems to prevent bruising. Pick all that are ripe, inasmuch as they will not keep until the next harvest. Ripe strawberries may be held for a day or two in a refrigerator.

## GRAPES

Grapes of some type can be grown almost anywhere in Virginia. Careful selection of cultivated varieties compatible with local soil and climatic conditions has led to successful production in home gardens and a few commercial vineyards in many sections of the Old Dominion.

### VARIETY SELECTION

#### American Bunch Grapes

Home fruit gardens in Virginia may include a number of varieties of bunch grapes ripening in succession over a long season.

*Price*, a 1972 introduction from VPI&SU, is a medium-sized blue-black grape of good quality that ripens 4 weeks before Concord. It is less subject to black rot, mildew, and skin cracking than many other varieties. The vine is of average vigor and productivity.

*Seneca*, an early yellow grape, is noted for its good flavor and tender pulp. It holds well on the vine and will keep in cold storage for about 2 months after harvest. Vine vigor and productivity are only moderate, and this variety is quite susceptible to black rot and mildew.

*Himrod*, a new golden-yellow grape, has good flavor and is almost seedless. Hardy, vigorous, and productive, it has been superior to its sister seedling, *Interlaken*, in all areas of Virginia where both have been grown.

*Fredonia* is the most popular early blue grape. It ripens about 10 days before Concord. The berries and bunches are large and attractive. Although the flavor is not as good as Concord, it appears to be better adapted to the warm climate of eastern and southern Virginia.

*Monticello*, another VPI&SU introduction, is a medium-size, blue-black, slip-skin grape ripening 10 days before Concord. Although of only average vigor, it is very productive and must be cluster-thinned to prevent overbearing. It is high

in sugars and very good as a table grape as well as for jams and jellies.

*Delaware* is a high-quality red grape ripening about 1 week before Concord. Quite susceptible to downy mildew, this variety produces clusters and berries that are rather small and vines that grow slowly. Delaware has an unusually good balance of sweetness and acidity. It yields fine quality white wines and is much used in blends for American champagnes.

*Concord* is by far the most widely planted blue grape. The good quality fruit ripens unevenly some seasons in warm climates. The vines are vigorous and productive.

*Century I*, a VPI&SU introduction of the non-slipksin type, ripens with Concord. Its crisp, meaty flesh has a flavor distinctly of the *vinifera* type, sweet and fruity. The clusters are large, usually well filled with large, ovate, reddish-black berries. It must be close-pruned and cluster-thinned to prevent overbearing which causes winter injury to the wood. Subject to black rot and powdery mildew, it requires disease control measures typical of *vinifera* grapes grown under eastern climatic conditions.

*Steuben* is a blue-black variety ripening about 1 week after Concord. The berries are medium in size with a sweet, spicy flavor. They keep well in storage. The vines are hardy, vigorous, and productive.

#### French-American Hybrids

Of the many varieties available, the following French-American hybrids have been sufficiently tested to be recommended for planting anywhere in Virginia where American bunch varieties can be grown.

*Aurora* (*Seibel 5279*) is an early pinkish-white grape with fine flavor. This variety can be used to produce a white table wine of excellent quality. The vine is vigorous and produc-

tive and has been amply hardy in winter cold in northern grape growing areas and in Virginia.

*Cascade* (Seibel 13053) is an early blue grape that is hardy and productive. It produces a superior rosé wine and blends well with heavy-bodied dark-red wines. The vine generally crops regularly, but is severely damaged by birds in some seasons.

*DeChaunac* (Seibel 9549) has become an established commercial variety in Ontario, Canada, and most grape growing areas of the Eastern United States. The vine is below average in vigor, but is winter hardy, productive, and has very few disease problems. It ripens in early midseason. The wine is well colored red and of consistently high quality.

*Chancellor* (Seibel 7053), ripening with Concord in most areas of Virginia, is hardy, vigorous and very productive. It is a dark blue grape, making a red wine of very high quality.

### Vinifera

Few varieties of *Vitis vinifera* for table use have performed well in Virginia. They lack winter hardiness, are very susceptible to fungus diseases endemic to this area, and are totally lacking in resistance to the grape root louse (*Phylloxera*). *Vinifera* culture in Virginia requires planting only vines grafted on resistant rootstocks, a rigorous spray program, and protection in areas subject to frequent low and fluctuating winter temperatures.

In northern grape growing areas, and in a few plantings in Virginia, there is limited production of some *vinifera* varieties for wine. Of these, *Pinot Chardonnay* and *Johannisberg* (White) *Riesling* have been the most successful.

*Pinot Chardonnay*, considered by many to be superior to all other varieties for dry white wine, is only moderate in hardiness, vigor, and productivity. It is a medium-size white grape in a compact cluster ripening 3 to 5 days ahead of Concord.

*White Riesling* is perhaps best for most Virginia conditions. The vine is vigorous, productive, and moderately winter hardy. It is a white grape, ripens about 1 week after Concord, and makes an excellent dry white wine under good growing conditions.

### Muscadine Grapes

In areas where it is adapted, the muscadine grape is a favorite for home plantings. It is highly desired for juice, jam, and jelly. Some varieties are cultivated for the exceptional quality of the wine. It cannot be successfully grown where temperatures fall below 10°F., however, which limits its production in Virginia to the southeastern portion of the state.

Most varieties have imperfect flowers and require pollination from either male or perfect-flowered varieties. Of those suggested for plant-

ing in Virginia, Carlos, Magnolia, and Dearing are perfect-flowered and will supply adequate pollination for the other varieties.

*Hunt* is an all-purpose black variety. The large, attractive berries ripen evenly and early — mid-September in eastern Virginia. It is excellent for wine, unfermented juice, jelly, jam, and for eating fresh.

*Scuppernong*, a name commonly applied to all bronze-skinned muscadine grapes, is the oldest and best known variety. Berry clusters are usually small and shatter badly, but the grape quality is good, and it has a very distinctive flavor.

*Carlos*, a 1970 introduction from North Carolina, is a perfect-flowered bronze variety, ripening with Scuppernong, and similar to it in size and flavor. It makes excellent white wine, is relatively cold hardy, disease resistant, and productive. It is recommended for both commercial and home garden planting.

*Magnolia* is a self-fertile white variety of large size and very high quality. The vine is vigorous and very productive.

*Thomas*, another old-standard variety, has reddish-black, medium to small, high-quality berries which are very sweet. It is an excellent variety for unfermented juice.

*Dearing*, a light-skinned, perfect-flowered variety, has very sweet, medium-sized berries.

*Topsail*, the sweetest variety of all, is preferred by many because of the high sugar content. The berries are medium to large, greenish-bronze in color, and have a smooth skin. They ripen in early October in Virginia.

For further information on these and other grape varieties, see Extension Publication 5, "Grape Growing in Virginia," available through your Extension Agent.

## ESTABLISHING THE PLANTING

### Site and Soil

Grapes should be planted where they have benefit of the sun for most of the day. They are deep-rooted plants, frequently penetrating to a depth of 6 to 8' under good soil conditions. They grow best on fertile sandy-loam soils high in organic matter. Deep sands or heavy clays may be used, however, if provisions are made for adequate fertilization, moisture, and soil drainage. Grapes are tolerant to a wide range of soil acidity, but prefer a pH of 6.0 to 7.0<sup>1</sup>.

### Planting

Grape vines are usually set in early spring about 3 or 4 weeks before the average date of the last frost. Vigorous 1-year-old plants are usually preferred. Allow plenty of room between plants—at least 8' for the American bunch varieties and 10' or more for the vigorous-growing muscadine type. Trim the roots to about 6" in length in order to encourage formation of feeder

<sup>1</sup>See footnote, page 5.

roots near the trunk. Where the vines are to be set, dig the holes large enough so that the roots may be spread without crowding, and the plants may be set at about the same depth they grew in the nursery. Prune to a single cane, and head it back to two buds.

## MAINTAINING THE PLANTING

### Soil Management

Mulching is the preferred soil management practice in the home grape planting. Almost any organic material may be used. Cover the area with mulch to a depth of 4 to 6". Black plastic is a satisfactory mulch material. However, it does not add to the humus content of the soil upon deterioration.

Although grapes are deep-rooted plants, they do not thrive in competition with weeds and grass. If mulch material is unavailable, some cultivation should be done. It should be shallow and only as necessary to eliminate undesired vegetation.

### Fertilization

Like all fruit plants, grapes require a large amount of nitrogen. Except in the sandy soils, this element may be the only one needed in the fertilization program. In the home garden,  $\frac{1}{4}$  teacup or about 2 oz. of nitrate of soda per vine should be applied after growth begins in the spring. Spread the fertilizer in a circle around the plant and 10 to 12" from the trunk. Repeat the application about 6 weeks later. Just before growth begins in the spring of the second year, apply 4 oz. in a 4' circle around each vine and

about 1' from the trunk. Increase the amount to 8 oz. the third year. A mixed fertilizer, such as 10-10-10, applied at the above rates may be substituted where phosphorus and potassium are needed.

Fertilizer applications to mature bearing vines should be based on the growth and vigor of the plant. If the average cane growth is only 3' or less, additional nitrogen may be needed. Where proper pruning is practiced and competition from weeds and grass is kept to a minimum, however, it is doubtful that you will need to go beyond the amount recommended for a 3-year-old vine.

### Training and Pruning

Much attention is given to the training and pruning of grapes. To be most productive, they must be trained to a definite system and pruned rather severely. There are several training systems used. The two most common are the vertical trellis and the overhead arbor. Both of these are satisfactory in the home planting if it is kept well-pruned.

Of the many variations of the vertical trellis, the single trunk, four-arm Kniffin system is the most popular. All types of grapes grown in Virginia do well under this system of training. Posts are set 15 to 20' apart and extend 5' above the ground. Two wires are stretched between the posts, the lower being about  $2\frac{1}{2}$ ' above the ground and the upper wire at the top of the posts. Set between the posts, the vine is trained to a single trunk with four semipermanent arms, each cut

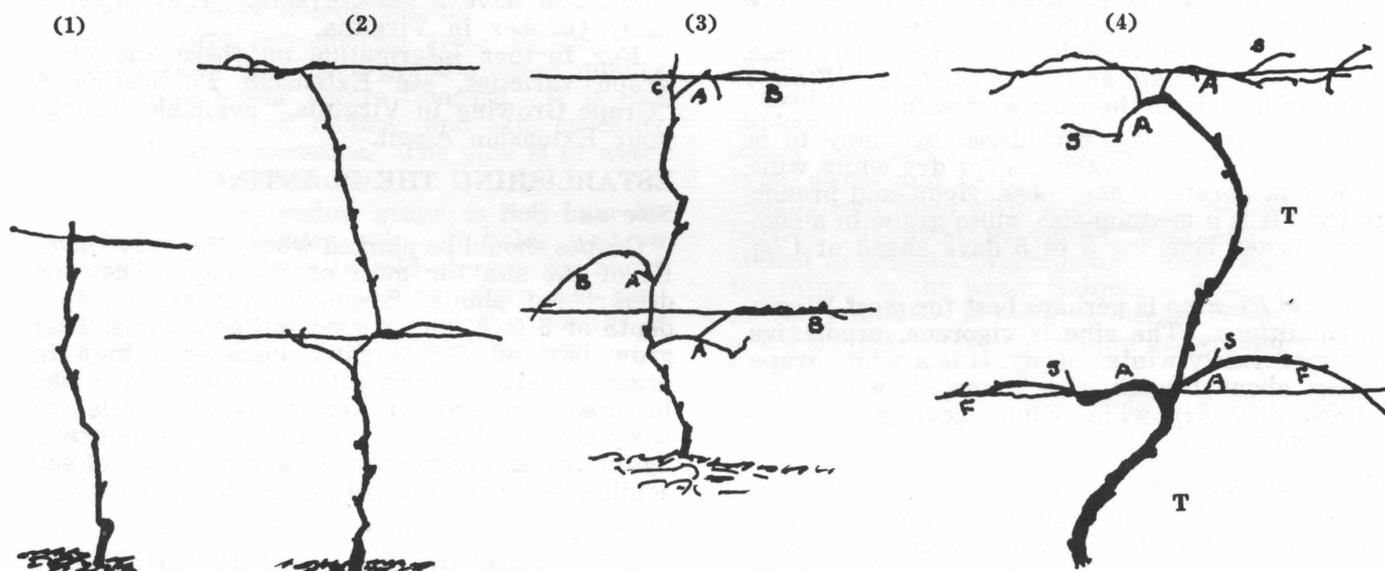


Figure 4.—Stages in training the young vine to the single trunk, four-arm Kniffin system.

- (1) After pruning the first winter. The single cane is cut back and tied to the lower wire. If the cane has grown less than 3' during the first summer, it should again be cut back to two buds.
- (2) After pruning the second winter. Two new canes of four or five buds each are tied on the bottom wire. A third new cane is tied up to the top wire and cut off.
- (3) After pruning the third winter. Three of the arms (A) and the fruiting canes (B) have been formed. A cane (C) with four or five buds is left to establish the fourth arm.
- (4) A fully formed vine after pruning the fourth winter. The arms (A) should be shorter than those shown. The vine consists of a single permanent trunk (T), four semipermanent fruiting arms (A), four annual fruiting canes (F), and four renewal spurs (S), with two buds on each.

back to 6 to 10" in length. One arm is trained in each direction on the lower wire, and one in each direction on the upper wire (Fig. 4).

During the annual winter pruning, one cane is saved from those that grew from near the base of each arm the previous summer. This cane is cut back to about 10 buds. The fruit in the coming season is borne on shoots developing from these buds. Select another cane from each arm, preferably one that grew near the trunk, and cut it back to a short stub having two buds. This is a renewal spur. It should grow vigorously in the spring and be the new fruiting cane selected the following winter. All other growth on the vine should be removed. This leaves four fruiting canes, one on each arm with eight to 10 buds each, and four renewal spurs, one on each arm cut back to two buds each (Fig. 5).

Muscadine grapes are more vigorous than bunch grapes and require more space in which to spread. They are trained in a similar manner. Do not cut back the arms, however. Allow

them to grow horizontally along the wires to a length of 5' or more, or until they meet arms from other vines trained to the same wire. By the end of the second year, the arms should be established and should have reached their full length. Annual pruning then consists of removing all dead wood and the tendrils that encircle the arms and trunk, thinning out the weak canes and spurs, and cutting all remaining canes back to two or three buds each (Fig. 6a and 6b).

The same training and pruning techniques may be effectively used in training grapes to the arbor system. The only difference is that the wires supporting the arms are placed overhead and parallel with each other instead of in a horizontal position. Overhead wires are usually placed 6 to 7' above the ground.

If an arm dies, or for any reason needs to be replaced, choose the largest cane that has grown from the trunk near the base of the dead arm and train it to the trellis wire. To renew the trunk, train a strong shoot from the base of the old trunk

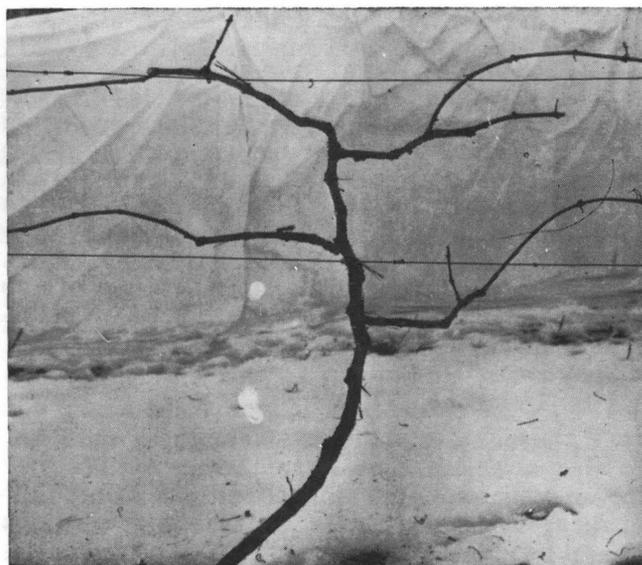
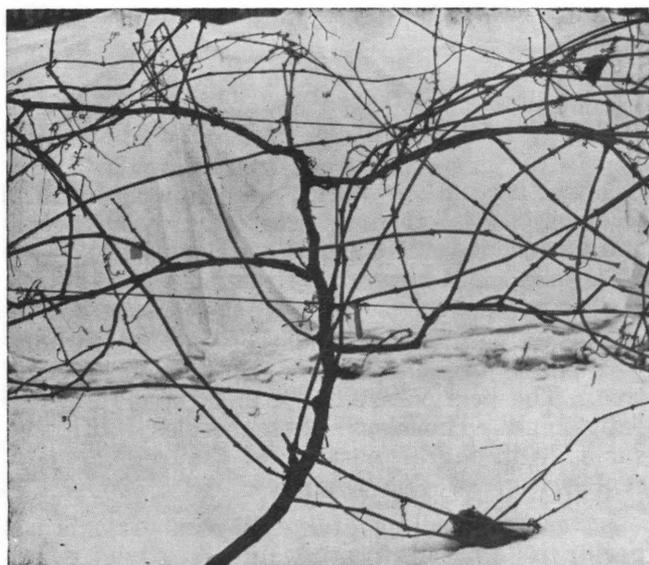


Figure 5.—Grape vine before and after being pruned to four-arm Kniffin system.

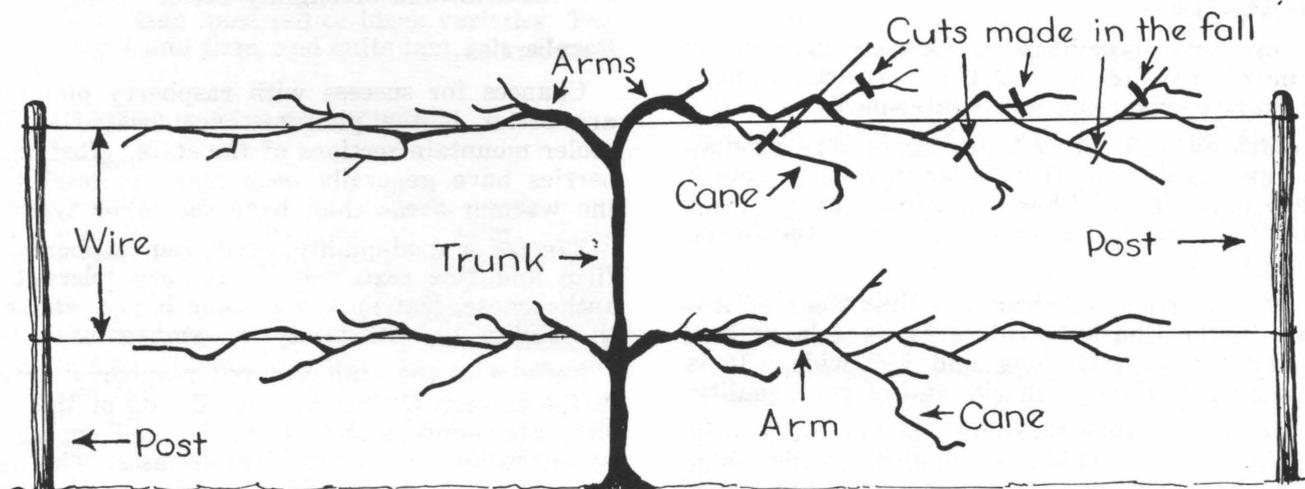


Figure 6a.—Pruning muscadine grapes.

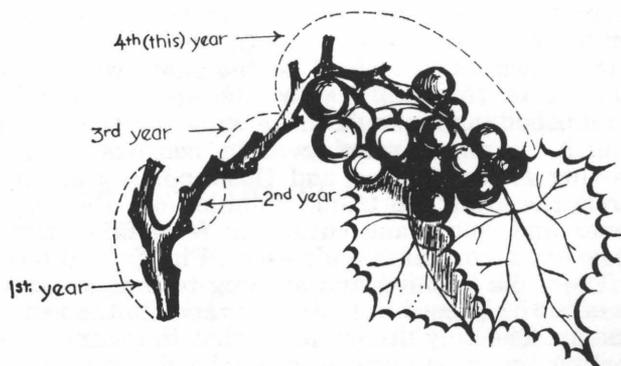


Figure 6b.—System of bearing in muscadine grapes.

to the trellis as though it were the cane of a new vine. Establish the arms in the same manner as for a new vine, and cut off the old trunk.

Pruning may be done anytime after the vines become dormant. In areas where there is danger of winter injury, pruning may be delayed until

early spring. Vines pruned very late may "bleed" excessively, but there is no evidence that this is permanently injurious.

For current recommendations on the chemical control of insects and diseases of grapes, contact your local Extension Agent.

### HARVESTING

For best quality, bunch grapes should be fully ripe when harvested. They will not improve in sugar content or flavor after being removed from the vine. Most varieties should be used immediately because they do not keep well after ripening. Cut the clusters off with a knife or shears to avoid bruising the fruit and damaging the vine.

Muscadine grapes grow either singly or in loose clusters. Some varieties may be shaken off easily when ripe; others have to be handpicked. The grapes should be used soon after harvesting inasmuch as their storage life is relatively short.

## BRAMBLES

The bramble fruits, which include the red, black, and purple raspberries, and the erect and trailing blackberries, may be successfully grown in most home gardens throughout Virginia. Both raspberries and blackberries will usually yield a moderate crop of fruit the second year after planting and a full crop the third season. With good management, it is possible for growers to extend the productive life of well-located plantings beyond the 6- to 8-year average.

### VARIETY SELECTION

Of the many varieties of blackberries and raspberries available, few have proven satisfactory for growing under Virginia conditions. Only top-quality 1-year-old plants of the best varieties should be planted. Obtain virus-free plants when possible.

#### Blackberries

Three erect-type blackberries are suggested for planting in Virginia. All are relatively new, productive, vigorous, and winter-hardy.

*Black Satin*, entirely thornless, is very productive and hardy. The fruit is large, firm, jet black when fully ripe, and has a delicious flavor. Peak quality is attained 2 to 3 days after the berry turns black.

*Darrow*, ripening about the first week of August in the Charlottesville area, is a large berry, almost an inch long and  $\frac{3}{4}$ " wide. It is glossy black, mildly subacid, and of good quality.

*Dirksen*, another thornless blackberry, is also very productive and hardy. Slightly smaller than *Black Satin*, it is equally as good when fully ripe.

Trailing blackberries thrive best in the warmer growing areas of southern and eastern Virginia.

The *Lucretia* dewberry, best of the trailing blackberries, is relatively winter-hardy, vigorous, and productive. The fruits are very large, often  $1\frac{1}{2}$ " long. It is a sweet berry with a good flavor.

The *Boysenberry* is easily winterkilled and should be planted only in areas of mild winters. The plants are extremely vigorous and productive. The berries are large and flavorful when fully ripe. Thornless boysenberries, with the same fruit characteristics as the regular boysenberries, are also available.

*Lavaca*, a seedling of the Boysenberry, is superior to its parent in production, size, and resistance to cold and disease. The fruit is also firmer, less acid, and of slightly better quality.

#### Raspberries

Chances for success with raspberry plantings are better if the plantings are located in the cooler mountain sections of the state. Red raspberries have generally been more successful in the warmer areas than have the other types.

*Sunrise*, a good-quality, early, red raspberry, is firm and fine textured. It is very tolerant to anthracnose, leaf spot, and cane blight, and has the ability to withstand low temperatures.

*Latham* is the standard red raspberry grown in the eastern United States. Plants of this variety are vigorous and productive and appear to be somewhat tolerant to viral diseases. The berries are above average in size, and are firm and

attractive. The flavor is somewhat tart, but the quality is good. This variety ripens 1½ to 2 weeks after Sunrise.

*Pocahontas*, a recent introduction from VPI&SU, has a large, firm, medium-red berry with a tart flavor. It is winter-hardy and productive.

*Cherokee*, another VPI&SU introduction, is an everbearer especially adapted to the Piedmont area of Virginia. The good-quality berries are large and firm. It is winter-hardy and very productive.

*Heritage*, an everbearing red variety, is recommended for planting. This variety may be annually pruned by simply mowing all tops in late winter. Use of this pruning technique will yield one crop in August of each year.

Black raspberries are very susceptible to viral diseases and are readily infected when grown near red varieties carrying the virus. Plants of red and black raspberries should be separated by at least 700'.

*New Logan* yields heavy crops of large, glossy-black fruit of good quality. The plants hold up well during drought and are relatively tolerant to mosaic and other raspberry diseases.

*Bristol* is a hardy, vigorous-growing, and highly productive variety. The good-quality, glossy-black berries are large, firm, and attractive. They may be difficult to pick unless fully ripe.

*Cumberland*, ripening about the same time as Bristol and 1 week later than New Logan, has long been the favored variety because of its attractive, large, firm berries and fine flavor. The plants are vigorous and productive.

The purple raspberry is a hybrid of the red and black types. The fruits have a purple color and are usually larger than the parent varieties. They are more tart than either the reds or blacks and are best used in jams, jellies, and pies. They are excellent for quick freezing. The plants are hardy, vigorous, and very productive. Brandywine is the best purple raspberry available. It ripens later than most red or black varieties. The fruit is large and firm, and quite tart, but of good quality.

## ESTABLISHING THE PLANTING

### Site and Soil

The brambles grow best on deep, sandy-loam soils, well supplied with organic matter. They may be grown in almost any good garden soil, provided it is well drained to a depth of at least 3' and has a high moisture-holding capacity. Although the pH of the soil is not critical, a range of 5.8 to 6.5 is considered optimum<sup>1</sup>. Select a site where tomatoes, potatoes, or eggplants have not been grown. These crops often carry verticillium wilt which lives in the soil for

<sup>1</sup>See footnote, page 5.

many years. Inasmuch as brambles, particularly black raspberries, are very susceptible to this disease, plantings on such sites are usually unsuccessful.

### Planting

The bramble fruits should be planted early in the spring—about 4 weeks before the average date of the last frost. Work the soil as for garden vegetables, particularly where the plants are to be set. When planting in rows, allow at east 8' between rows to facilitate cultivation. Erect-growing blackberries and red and purple raspberries may be set as close as 3' in the row. Black raspberries should be not less than 4', and the trailing blackberries should be not less than 6' apart.

Set the plants at about the same depth they grew in the nursery. The crown should be at least 2" below the soil line. Spread out the roots and firm the soil carefully around them. Do not allow the roots to dry out.

Most bramble fruits come with a portion of the old cane attached. This serves as a "handle" in setting the plants. Soon after new growth begins, the handle should be cut off at the surface of the ground and burned. This is a safeguard against possible anthracnose infection.

## MAINTAINING THE PLANTING

### Soil Management

Brambles grow best where there is a large amount of humus in the soil. This is most easily maintained under a permanent mulch. Mulch should be applied soon after setting the plants, maintained throughout the life of the planting, and replenished annually or as needed.

Any good organic material is satisfactory. Two inches of sawdust should be sufficient. At least 5 or 6" of the more bulky materials should be applied. Where straw, sawdust, or other material low in nitrogen is used, it may be necessary to add sufficient nitrogenous fertilizer to prevent a temporary deficiency as the mulch begins to decay. Usually about ½ lb. of nitrate of soda or the equivalent for each 100 sq. ft. of mulched area will be enough. Black plastic serves as a good mulch to preserve moisture and keep down weeds, but it does not add to the humus content of the soil.

If mulch material is unavailable, or if cultivation seems necessary, make the cultivations very shallow to avoid disturbing the roots, and repeat as often as necessary to control weeds until the beginning of harvest.

### Fertilization

On fertile soils, or where a good mulch is maintained, it is usually unnecessary to make an application of fertilizer in the bramble planting. If growth is poor, the addition of ½ to 1 lb. of nitrate of soda to each 100' of row when growth begins in the spring will be beneficial. On

light, sandy soils, where phosphorus and potassium may be low, an equal amount of 10-10-10 or similar fertilizer should be used instead. Do not overfertilize, however, because it may result in too much vegetative growth with a loss of yield and quality of the fruit or in injury to the roots of the plant.

### Training and Pruning

Trailing blackberries need some form of support. They may be grown on a trellis, trained along a fence, or tied to stakes. The other brambles may either be trained to supports, or with more severe pruning, grown as upright, self-supporting plants. Red raspberries and erect-growing blackberries are frequently grown in hedgerows.

A simple trellis, used in many home gardens, consists of two wires stretched at the 3 and 5' levels between posts set 15 to 20' apart. The fruiting canes are tied to these wires in the spring. The erect varieties are tied where the canes cross the wires. Canes of the trailing varieties are tied horizontally along the wires, or fanned out from the ground and tied where they cross each wire.

Where stakes are used for support, they are driven into the ground about 1' from each plant and allowed to extend 4 or 5' above the ground. The canes are tied to the stake at a point about midway between the ground and the tips of the canes, and again near the ends of the canes.

The canes of the bramble fruits are biennial in nature; the crowns are perennial. New shoots grow from buds at the crown each year. Late in the summer, the new canes develop lateral branches with fruit buds on them. Early in the second season, fruit-bearing shoots grow from

these buds. After fruiting, the old canes die, and new shoots spring up from the crowns.

These fruiting canes may be removed any time after harvest. They should be cut off close to the base of the plant, removed from the planting, and destroyed. Some growers, as a sanitation practice, do this immediately after harvest. Most, however, wait until the dormant pruning.

The dormant pruning is usually delayed until danger of severe cold is past and accomplished before the buds begin to swell. It consists of the removal of all dead, weak, and severely damaged canes, and the selection and pruning of the fruiting canes for the coming season. Where possible, fruiting canes  $\frac{1}{2}$ " or more in diameter are selected.

Black raspberries should be summer-topped when the young shoots are about 24" high; purple raspberries, when about 30". Summer topping consists of removing the top 3 to 4" of the new shoots by snapping them off with the fingers or cutting them with shears or a knife. Where trained to supports, let them grow 6 to 8" taller before topping.

At the dormant pruning, thin each plant until only four or five of the best canes remain. Cut the lateral branches of the black raspberry to 9 to 12" long; those of the purple raspberry to 12 to 15" (Fig. 7).

The following comments concerning red raspberries do not apply to the Heritage variety.

Red raspberries should not be summer-topped. Canes of the everbearing varieties are handled in the same manner as those of the ordinary varieties. At the dormant pruning, where the hill system of culture is used, thin until only seven or eight of the best canes remain per hill.

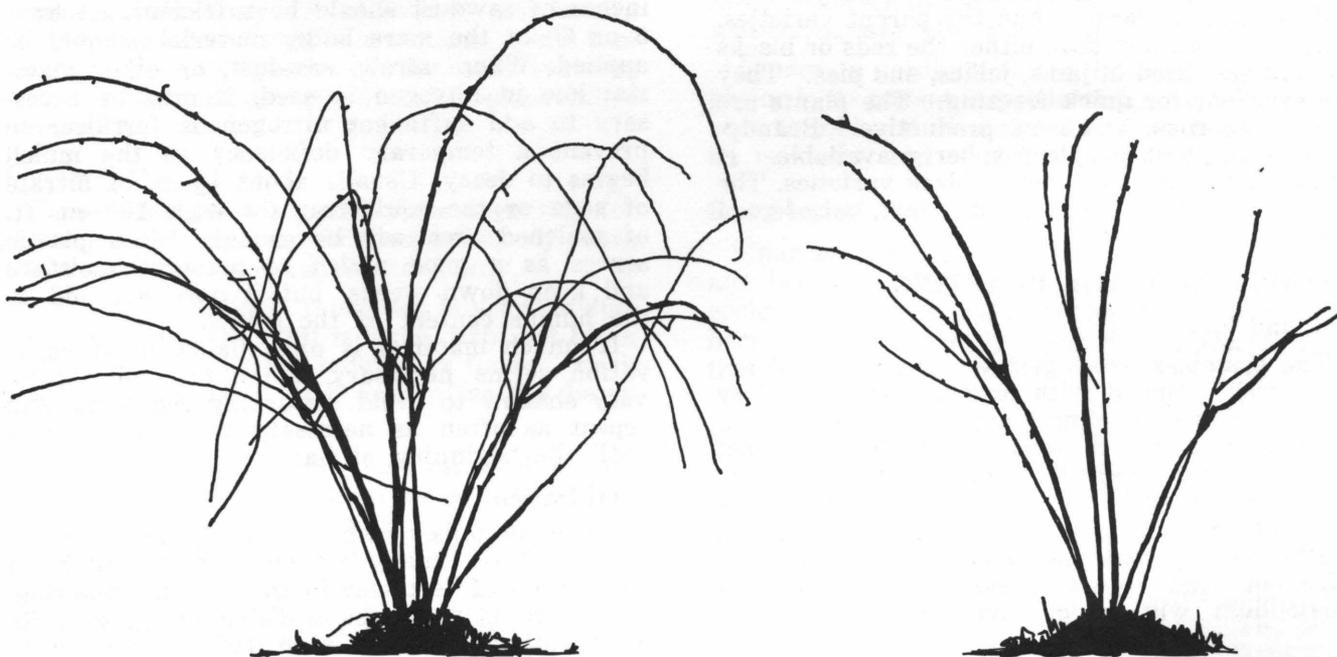


Figure 7.—Pruning black raspberries, before and after.

If the plants are grown in hedgerows, keep the width of the rows to 18" or less, and remove all plants outside the row areas. Thin the number of canes within the hedgerows to 6 to 8" apart, saving the best canes.

Where the canes are supported either by a trellis or by stakes, cut the canes back to a convenient height for berry picking, usually 4 or 5'. Grown as upright, self-supporting plants, whether in hills or in hedgerows, the canes should be cut back to about 3' in height. Any lateral branches present should be cut to about 10" in length (Fig. 8).

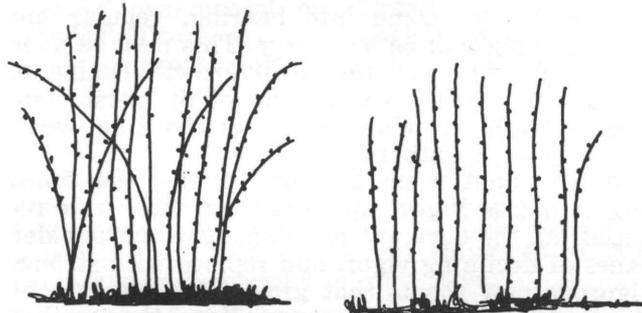


Figure 8.—Pruning red raspberries, before and after.

The new shoots of erect blackberries should be summer-topped when they are 30 to 36" high.

## BLUEBERRIES

Many home gardeners have been successful with blueberry plantings in Virginia. Although they may be grown in any area where native blueberries, azaleas, mountain laurel, or rhododendrons do well, they have a better flavor when grown where nights are cool during the ripening season. They are very exacting in soil and moisture requirements, but require little protection from insect and disease pests.

### VARIETY SELECTION

To provide for adequate cross pollination and to increase chances for a good crop of fruit, two or more varieties of blueberries should be planted. The following varieties suggested for planting in home gardens in Virginia ripen over a 6- to 8-week period, beginning in early June and continuing through July. All are vigorous and productive under good growing conditions and produce berries of large size and good quality.

*Earliblue* has a large, light blue berry. It is firm, resistant to cracking, and of good dessert quality. Lacking hardiness, it is not recommended for planting in western Virginia.

*Ivanhoe*, less hardy than most varieties, is one of the best in dessert quality. The berry is large, light blue, and firm.

*Blueray*, very hardy and productive, is recommended for planting throughout Virginia. The fruit is large, medium light blue, flavorful, and resistant to cracking.

To prevent the planting from becoming too thick and reducing yields, it may be necessary to remove excess sucker plants as they appear. This can be done either with a hoe or by hand. In the hedgerow type of culture, leave only three or four shoots per running foot of row. Grown in hills, four to five new shoots may be allowed to develop in each hill.

At the dormant pruning, where supports are used, head the canes to 4 or 5' in height. Canes grown without support should be headed to 3'. Cut lateral branches back to 15 or 18" long.

Trailing blackberries require little pruning. All dead and weak canes should be removed after harvest or at the dormant pruning. They should be thinned to seven or eight of the best canes per hill, cut to about 5' in length, and tied to either a stake or trellis.

For current recommendations on chemical control of insects and diseases of the bramble fruits, contact your Extension Agent.

### HARVESTING

Raspberries and blackberries are highly perishable. They should be harvested as soon as ripe, handled very carefully, and either placed in cold storage or used without delay. It may be necessary to harvest daily to prevent loss of fruit and the spread of molds and other diseases in the planting.

*Bluecrop*, although lacking in vigor, is very hardy and drought resistant. The fruits are large, light blue, firm, and resistant to cracking. Their dessert quality is good.

*Jersey*, one of the leading commercial varieties, is also a favorite in the home garden. The plants are vigorous and hardy, producing heavy crops of large, light-blue berries of good quality.

*Berkeley* has a very large, light-blue berry. It is exceptionally firm and resistant to cracking. Though only medium in dessert quality, it is well liked for its large size, firmness, and productivity.

*Herbert* is a variety with superior dessert quality. The berry is very large, medium blue, moderately firm, and resistant to cracking.

*Coville* is of good dessert quality, but quite tart until fully ripe. It is a very large berry, deep blue, firm, and resistant to cracking. The fruit hangs well in clusters even after it is ripe.

### ESTABLISHING THE PLANTING

#### Site and Soil

Blueberries should be planted where they have full sunlight most of the day, and far enough from the roots of trees to avoid competition for moisture and nutrients. They are shallow-rooted plants and must either be irrigated, heavily mulched, or planted in a soil with a high water table. Adequate drainage must be provided, however, because they cannot tolerate "wet feet."

They grow best in porous, moist, sandy soils high in organic matter with a pH range of 4.0 to 5.2. Have a soil test made<sup>1</sup>. If it is not acid enough for blueberries, work such materials as peat moss, oak leaves, pine needles, or sulfur into the area where the plants are to be set. This should be done 6 months to a year before planting.

To acidify sandy soils, sulfur is recommended at the rate of  $\frac{3}{4}$  lb. per 100 sq. ft. for each full point the soil tests above pH 4.5. On the heavier soils use  $1\frac{1}{2}$  to 2 lb. Once the proper acidity is established, it can be maintained through the annual use of an acid fertilizer, such as ammonium sulfate or cottonseed meal.

### Planting

Vigorous 2-year-old plants about 15" high are recommended for planting. Set in early spring, about 3 or 4 weeks before the average date of the last frost. Blueberries are usually planted every 4' in rows 6' apart.

Give the roots plenty of room. Where the plants are to be set, dig the holes wider and deeper than necessary to accommodate the root systems. If not previously done, incorporate plenty of organic matter—well-rotted sawdust, peat moss, or woods mold—into the soil in and around the hole. Trim off diseased and damaged portions of the top and roots, and set the plants just a little deeper than they grew in the nursery. Spread the roots out, and carefully firm the soil mixture over them. Water thoroughly after planting.

## MAINTAINING THE PLANTING

### Soil Management

Mulching is the preferred soil management practice in the blueberry planting. The entire area around and between the plants should be mulched. Nearly any organic material is satisfactory—leaves, straw, hay, peat moss, crushed corncobs, or sawdust. It should be applied to a depth of 5 or 6". Many growers use a combination mulch, a layer of leaves on the bottom with 2 or 3" of sawdust on top. Renewed annually, this heavy mulch retains moisture, keeps the soil cool, and adds needed organic matter.

### Fertilization

No fertilizer should be applied at planting time, and usually none is needed during the first growing season. On weak soils, however, the application of 2 oz. ( $\frac{1}{4}$  teacup) of ammonium sulfate around each plant about the first of June will be beneficial.

Ammonium sulfate, at the rate of 2 oz., should be spread in a circle around each plant about 6 to 8" from its base just before the buds begin to swell the second spring. Increase the amount each succeeding spring by 1 oz. until each mature bush is receiving a total of 8 oz. (1 teacup) annually.

Cottonseed meal has proven to be an excellent fertilizer for blueberries and is used by many

home gardeners. It supplies the needed nutrients and helps maintain an acid soil. Use it at the rate of  $\frac{1}{2}$  lb. per plant. The rate should be doubled when the plants come into bearing.

Where sawdust is used as a mulch, it will be necessary to apply additional nitrogen to prevent a deficiency as the sawdust decays. Usually about  $\frac{3}{4}$  lb. of ammonium sulfate for each bushel of sawdust will be sufficient.

### Pruning

Until the end of the third growing season, pruning consists mainly of the removal of low-spreading canes and dead and broken branches. As the bushes come into bearing, regular annual pruning will be necessary. This may be done any time from leaf fall until growth begins in the spring. Select six to eight of the most vigorous, upright-growing canes for fruiting wood and remove all others.

After about 5 or 6 years of age, the canes begin to lose vigor, and fruit production is reduced. At the dormant pruning, remove the older canes of declining vigor, and replace with strong, vigorous new shoots that grew from the base of the bush the previous season. Keep the number of fruiting canes to six or eight, and remove the rest. Head back excessive terminal growth to a convenient berry picking height (Fig. 9).

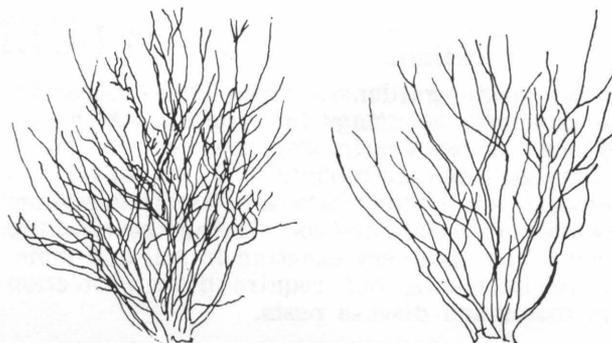


Figure 9.—Pruning blueberries, before and after.

### Pest Control

Birds are by far the greatest pest in the blueberry planting. Covering the bushes with wire cages, fish or plastic netting, or tobacco cloth, is perhaps the best method of control. Aluminum pie tins have been used successfully. They are suspended by a string or wire above the bushes in such a manner that they twist and turn in the breeze and keep the birds away.

### HARVESTING

Some varieties of blueberry will bear the second year after planting. Full production is reached in about 6 years with a yield of 4 to 6 qt. per plant, depending on vigor and the amount of pruning.

Blueberries hang on the bushes well and are not as perishable as blackberries or raspberries. Picking is usually necessary only once every 5 to 7 days. Blueberries will keep for several weeks in cold storage.

<sup>1</sup>See footnote, page 5.



## Planting

Vigorous 1-year-old plants are preferred. Planting in rows 8' apart with the plants spaced 4' within the row is the usual practice. Prepare the soil for planting as you would for a garden crop, and set the plants slightly deeper than they grew in the nursery. This causes new shoots to arise from below the soil level, forming bushes rather than single stems. Pack the soil firmly about the roots and cut the tops back to a height of 8 to 10".

## MAINTAINING THE PLANTING

### Soil Management

Mulching is the preferred soil management practice for currants and gooseberries. Any good organic material is satisfactory. Spread the mulch in a 3' circle around each bush, pulling it back each winter to eliminate a nesting place for mice which like to feed on the young shoots. Black plastic may be used if desired.

### Fertilization

Currants and gooseberries usually respond to fertilization even when planted in fertile soils. An annual fall or late winter application of either barnyard or poultry manure is an effective way of supplying their nutritional needs. Spread it about 1" deep in a 3' circle around each plant. In the absence of manure, 1 teacup or about 8 oz. of nitrate of soda per plant should be applied just before the buds break in the spring. On sandy soil, a complete fertilizer, such as 10-10-10 or 10-6-4, at the rate of 1½ to 2 cups per plant may be needed.

### Pruning

Currants and gooseberries typically form bushes with many branches arising near the ground level. Pruning may be done any time during the dormant period and consists primarily of thinning-out excess stems.

Except for the removal of weak, broken, or

prostrate stems, very little pruning is done until the plants are 4 years old. The mature bush should have three or four stems each of 1-, 2-, and 3-year-old wood. The actual number should be determined by the vigor of the bush. Heading back is done only to reduce the height of extra long 1-year-old shoots.

Remove all wood over 3 years old. Cut off the damaged and low prostrate stems, retaining only the most vigorous of the 2- and 3-year-old stems. Select three to five of the best 1-year-old shoots, and remove the rest. Head back young shoots that are too long (Figs. 11-12).

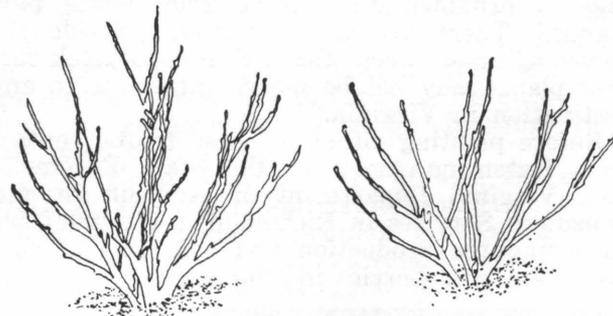


Figure 11.—Pruning currants, before and after.

## HARVESTING

Currants and gooseberries begin bearing when about 3 years old and have a productive life of 10 to 20 years. Under good cultural practices in the home garden, currants should yield 5 to 10 qt. per bush annually, and gooseberries even more.

Unlike most fruits, currants and gooseberries may be left on the bush for several weeks after they are ready for use. Gooseberries may be left 4 to 6 weeks, and some varieties of currants even longer. They should be handled carefully to avoid bruising the fruit. Inasmuch as gooseberries sunscald very quickly, they should be placed in the shade soon after being picked.

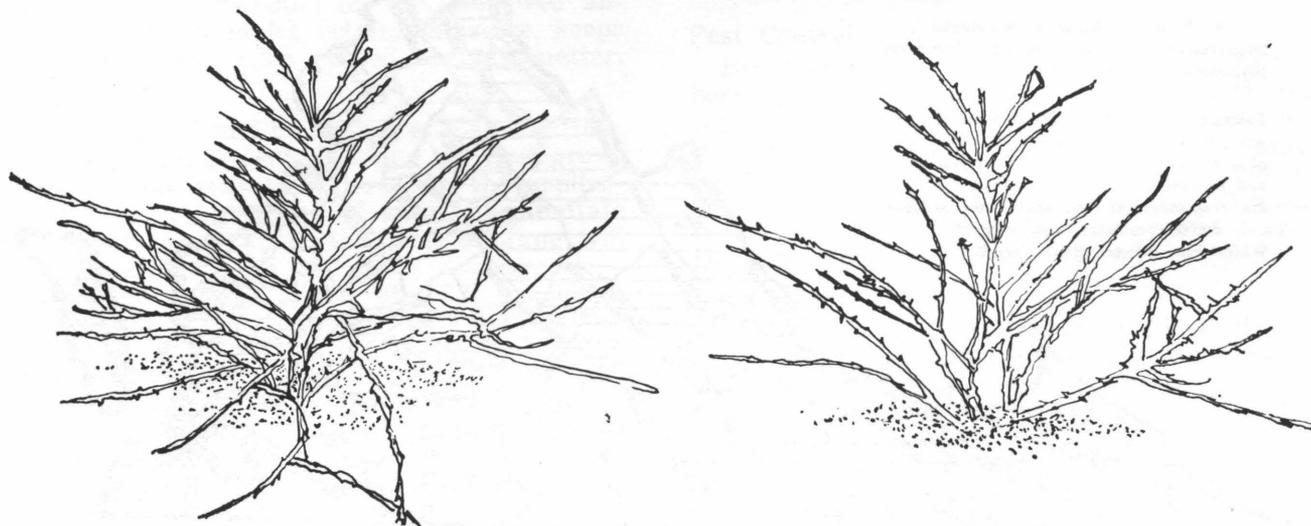


Figure 12.—Pruning gooseberries, before and after.



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