

CHAPTER 11

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CHAPTER 11

Fruit in the Home Garden

Edited and revised by William Lord, University of New Hampshire Cooperative Extension

Success with a fruit planting depends upon how well it is planned and how well the plans are carried out. Unfortunately, it is not possible for trees to be planted and good quality fruit harvested with little or no effort. Relatively less care is required in the culture of sour cherries and pears than any of the other tree fruits, but even these cannot be expected to produce good quality fruit year after year if left unattended. Proper attention must be given to insect and disease control, pruning, fertilization, soil management, and other necessary practices.

The small fruits offer advantages over fruit trees for home culture. They require a minimum of space for the amount of fruit produced, and bear 1 or 2 years after planting. Also, pest control is typically easier than with most tree fruits. Success with a small fruit planting will depend upon the attention given 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, well-attended planting than a large, neglected one.

Tree Fruits

Planning the Tree Fruit

It is desirable to locate the fruit planting as close to your home as possible. **Full sunlight all day long is required for good fruit production.** Where space is limited, fruit trees may be set in almost any location suitable for ornamental plants. Consider the mature size of the tree when designing the planting. Dwarf fruit trees lend themselves to ornamental plantings as well as orchards. They come into bearing earlier than standard-sized trees, occupy less space, and can be more easily pruned and sprayed with equipment normally available to the average gardener. Most nurseries now carry dwarf and semi-dwarf apple trees of several varieties. Dwarf pear, peach, and cherry trees are not recommended in northern areas as they lack hardiness; however, they may be worth trying in extreme southern New Hampshire.

Size of Planting

Space, site, size of family, available time, and pollination requirements determine size of the planting. Choose fruits based on family preference, adaptability, and available space. Never attempt to plant more than you can care for properly. The information in the table on page two should help you determine the size of your planting.

Tree Spacing

How far apart should the trees be set? This is an important factor, and to a large extent, it influences selection of site and varieties. The table on the next page shows the minimum desirable distances between fruit trees in home orchards. They can be set farther apart if space allows, but, for best results, should not be set closer than the minimums indicated. To maintain a bearing surface low enough for necessary pest control, trees should not be crowded.

Space Requirement, Yield, Bearing Age, and Life Expectancy of Tree Fruits

<u>Fruit</u>	<u>Minimum Distance Between Plants</u> (feet)	<u>Approximate Yield Per Plant</u> (bushels)	<u>Years to First Significant Production</u> (years)	<u>Life Expectancy</u> (years)
Apple - standard	30	8	7 to 10	35 to 45
Apple - semi-dwarf	15	4	4 to 6	35 to 45
Apple - dwarf	8	1	2 to 3	35 to 45
Pear - standard	20	3	5 to 8	35 to 45
¹ Pear - dwarf	12	1	3 to 4	15 to 20
Peach (and nectarine)	15	4	3 to 4	15 to 20
Plum	18	2	4 to 5	15 to 20
Cherry - sour	20	60 qt.	4 to 5	15 to 20
² Cherry - sweet	25	40 qt.	4 to 5	15 to 20
³ Apricot	20	1 - 2	4 to 6	15 to 20

¹Rootstock only hardy to -5 to -10 °F. Extreme southern N.H. only.

²Hardy to -10° F, bloom very early so frost-free site important.

³Similar climatic limits as sweet cherry but, blooms so early that frost is a problem in most locations.

Site Selection

The importance of selecting the best site possible for fruit planting cannot be overemphasized. Good air drainage is essential. Cold air, like water, flows downhill. For this reason, fruit buds on plants set in a low spot are more likely to be killed than those on a slope. Frost pockets; low, wet spots; and locations exposed to strong prevailing winds must be avoided. South-facing slopes encourage early bud development and can sometimes result in frost damage. Select late-maturing varieties for this location.

Deep, well-drained soil of good fertility should be selected. A fertile, sandy loam or sandy clay loam is suitable for most tree fruits. Adequate drainage is the most important soil characteristic. No fruit trees will grow well or survive long in soils that are excessively wet! Poor soils may easily be improved by proper fertilization and cultural practices. Improving soil with poor internal drainage is difficult and expensive. Fertile soil is desirable; deep, well-drained soil is vital.

Variety Selection

Give special attention to the selection of varieties. They must be adapted to your soil and climatic conditions. Northern-most parts of New England are at the northern edge of fruit tree adaptation. Select hardy species like apple. If possible, without sacrificing too much yield or quality, select varieties with the fewest insect and disease problems.

Several varieties of the same kind of fruit maturing at different times may be planted to prolong the season. The value of certain varieties for special uses such as freezing, canning, and preserving should be considered. Some varieties may be purchased in season from commercial growers more economically than you can grow them yourself.

Cross-pollination is necessary for satisfactory fruit set in many tree fruits. Varieties that are cross-fruitful and that have overlapping bloom dates should be selected. To be certain of adequate cross-pollination, plant at least three varieties of apples.

The following table lists some varieties of tree fruits suitable for planting. The varieties are listed in the order of ripening.

Some Suggested Varieties for the Home Fruit Garden

(listed in order of ripening)

APPLES

- Dutchess
- Ginger Gold
- Paulared
- McIntosh
- Gala
- Cortland
- Macoun
- Golden Delicious
- Red Delicious
- Northern Spy

APPLES (scab immune)

- Redfree
- Prima
- Liberty
- Freedom
- Jonafree

²NECTARINES

- Mericrest
- Hardired

²CHERRIES (sour)

- Montmorency
- North Star

PEARS

- Harrow Delight
- Clapp's Favorite
- Moonglow
- Bartlett
- Seckel
- Flemish Beauty
- Harvest Queen

²PEACHES

- Redhaven
- Reliance
- Madison

CHERRIES (SWEET)

- Sam
- Hedelfingen
- Van
- Kristin
-

PLUMS (Japanese)

- Methley
- ¹Shiro
- Ozark Premier

PLUMS (Hybrid)

- Underwood
- Pipestone
- Superior
- Toka

PLUMS (European)

- Earliblue
- Blue Bell
- Italian Prune
- Stanley

APRICOT

- ²Goldcot
- Perfection

Apricots are recommended for trial planting only. The buds of currently available varieties respond to the first warm days of early spring and are usually killed by frost or low temperature common to most areas. Unless protection can be provided, a crop can be expected no more frequently than once every 4 or 5 years.

Winter Minimum Temperature

*Hardest Cultivars

Crop	Degrees F
Apple	-40
Apricot	-20
Blackberry thorny	-25
thornless	0
Blueberry highbush	-20
hybrids	-35
Grape American	-30
vinifera	-5
French Hybrid	-20
Peach, Nectrine	-15
Pear	-30
Plum	-25
Raspberry red	-30
purple	-15
black	-10
Sour Cherry	-30
Strawberry (unmulched)	5
Sweet Cherry	-10

Production Limits*

At least two of the recommended pear and plum varieties should be planted. Japanese and European plums are not effective as pollinizers for each other so two varieties of the same type should be planted.

¹Shiro is not a good pollinizer. Plant three varieties if it is one of your planting choices.

²Self-fruitful - no cross pollination needed.

All of the sour cherry and peach varieties listed are sufficiently self-fruitful to set satisfactory crops with their own pollen.

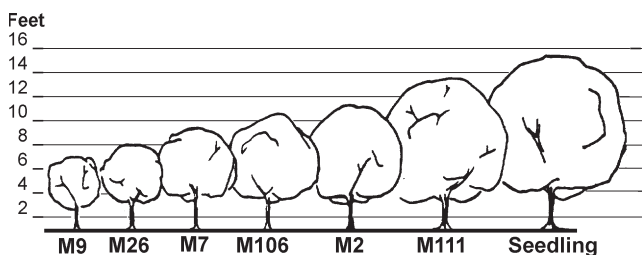
Apple Rootstocks

Apples, like other tree fruits, will not produce trees with the same characteristics from seed. If you plant a seed from a McIntosh apple, the fruit would likely be small, unattractive, and of poor quality. Therefore, apple trees are propagated vegetatively by either budding or grafting scion wood of the desired cultivar on a rootstock. The rootstock and scion variety maintain their respective genetic identity but are joined at the graft union and function as a unit.

Traditionally, apple trees have been propagated by grafting wood from desired varieties onto apple seedlings. More recently, increasing use is being made of vegetatively propagated or clonal rootstocks which offer distinct advantages over seedlings. The three major considerations in rootstock selection are:

Size control (Dwarfing)

Probably the most widely accepted reason for the use of clonal rootstocks is tree size control. By proper selection of rootstock, we can determine mature tree size. For example, the same variety of apple will produce a 16- to 18-foot tree on the root stock cultivar, Malling Merton (MM)111, down to a dwarf tree of 7 to 8 feet on a Malling (M)9 rootstock. Intermediate sizes can be attained by other rootstocks such as M26 and M7. Unfortunately, many apple trees offered to consumers are labeled as dwarf trees, but the buyer has no idea which rootstock has been used and how dwarf the tree will be.



Precocity

The earliness at which a tree produces fruit is also directly affected by the rootstock. Trees on seedling rootstocks usually do not begin fruiting until they are 7 to 10 years old. Trees on M9 rootstock will often produce crops in 2 to 3 years. Other rootstocks are intermediate in this regard. Usually, the more dwarfing the rootstock, the earlier the tree will bear fruit.

Stability

A major consideration in selecting apple rootstocks is the degree of anchorage provided. For example, trees on M9 rootstock are very small but because of brittle roots, must be provided some type of support. This can consist of a post, a trellis, or other means of holding the tree upright. The semi-dwarfing M7 rootstock may require support for the first few years but is often grown without support.

Buying Trees

Obtain the best nursery stock available. Buy only from reputable nurseries who guarantee their plants to be true to name, of high quality, and packed and shipped correctly. Beware of bargains. High prices do not necessarily mean high quality, but good nursery stock is not inexpensive.

One-year-old trees are usually preferred. A common mistake made by many gardeners is to select oversized or ready-to-bear nursery trees. Experience has shown that younger trees bear almost as soon, are easier to keep alive, and develop into more healthy, vigorous trees than do the oversized stock. The older trees cost nurserymen more to grow and are sold for higher prices, but are usually worth less than younger trees. Fruit trees grow well from dormant, bare root stock if planted early before growth begins.

For peaches a 4-foot tree, 1/2-inch in diameter, is considered the ideal size for planting. Vigorous, 4- to 7-foot, 1-year-old whips about 3/4-inch in diameter are preferred for apples. Pears, plums, cherries, and apples may be planted as 1- or 2-year-old trees. Either will be satisfactory as long as the trees have attained sufficient size and have good root systems.

When purchasing apple trees on dwarfing rootstock, be sure to specify the rootstock desired.

EM-9 is very dwarfing, has a rather weak root system, and must have mechanical support. Trees on EM-7 attain a size about 2/3 that of the same variety on seedling rootstock. EM-7 is a good choice for poorer soils. M-26 is recommended for general use in N.H. It will produce a tree that is easy to manage (10 ft.) and bears fruit early in life, generally beginning in the third year from planting. It should be staked. A 2 in. x 2 in. x 8 or 10 ft. pressure treated stake is ideal. Set the stake 2 1/2 feet in the ground at planting. The young tree should be loosely tied to the stake with soft twine or plastic electrical tape.

Setting the Orchard

Time of Planting

Fruit trees should be planted in early spring (late April to mid-May). Fall planting is not recommended in New Hampshire. The important thing to remember is that trees should be dormant and the soil should have proper moisture content.

Handling Nursery Stock

Roots of nursery stock should never be allowed to freeze or dry out. When your order arrives, unpack the bundles immediately and inspect the trees. The roots and packing material should be moist. Check to see if the bark is withered. Withered bark indicates the trees have been allowed to dry out in storage or in transit.

If trees cannot be planted immediately, they may be held dormant in the original packing in refrigerated storage for a week or two. If refrigerated storage is not available, trees should be taken out of the bundle and heeled-in carefully in a trench of moist soil in a shaded location.

Planting the Trees

Preparation of the soil where fruit trees are to be planted should be as thorough as preparation of the soil for a vegetable garden or ornamental planting. If the places selected for trees are in a lawn, it is best to remove the turf and spade the soil deeply over an area of several square feet where each tree is to stand.

Dig the hole a little deeper and **wider** than necessary to accommodate the roots, leaving the soil loose in the bottom of the hole.

Prune the roots of young trees only where necessary to remove broken and damaged ones or to head back some that are excessively long. Should a tree be so badly scarred or damaged that there is doubt of its survival, it is wise to discard it.

Set the tree at approximately the same depth it grew in the nursery. Never set it so deep that the union of the scion and rootstock is below ground level when the hole is filled. Ideally, this graft union will be 2 - 3 inches above the soil line.

Then begin filling the hole with pulverized topsoil, shaking the tree gently to filter the soil among the roots. The soil can be fortified with a couple of quarts of **wet peat moss if desired**. Don't mix fertilizer with the soil in the planting hole. Tamp the soil firmly and thoroughly. The addition of water when the hole is about 3/4 full will aid in settling the soil around the roots and increase chances for the tree's survival. After the water has completely soaked in, finish filling the hole, leaving the soil loose on top. Do not leave a water catching basin or depression around the tree. Ice freeze damage in snow-less winters can occur.

Orchard Management

Cultural Practices

Excellent weed control around young fruit trees should be practiced until they begin to bear fruit. Weeds must be eliminated so they will not compete for available moisture and fertilizer. Cultivation must be shallow to avoid injury to roots near the surface. The cultivated area should extend a little beyond the spread of the branches.

The use of mulch around tree fruits is not recommended as it provides ideal cover for mice which can girdle trees.

When trees are planted in rows, the area between the rows may be allowed to grow in sod or used for interplanting with low-growing vegetables or strawberries. Under sod culture, frequent, close mowing during the growing season is desirable.

Fruit trees, especially those on dwarfing rootstock, are becoming prominent in landscape designs. Under lawn culture, fruit trees can be given more attention than is usually convenient under other systems of culture. Equipment and materials for watering, pruning, spraying, and other cultural practices are essentially the same as those required for ornamental plantings. It is good practice to cultivate lightly for the first year or two, or until the tree has become firmly established. Lawn grass, if kept closely clipped, may be allowed to grow around the base of the tree in the third year, but will reduce growth and yield.

Chemicals for weed control should be used with extreme caution in the home garden. Careless use can result in severe injury to fruit trees and nearby ornamental plantings. See your county Extension educator for latest recommendations.

Fertilization

As a rule, no fertilizer is recommended or needed at planting time. After the young tree becomes established and growth begins, apply 1/2 to 3/4 lb. of a 10-10-10 fertilizer in a circle around the tree, about 16 inches from the trunk.

Because there are many soil types and varying levels of natural fertility, it is difficult to make one fertilizer recommendation which will apply equally well in all areas. Over-fertilization with either organic or inorganic materials should be avoided. Excessive vegetative growth will result, usually accompanied by delayed fruiting and possible winter injury. Contact your local Extension educator for information about a soil test that may identify specific needs in your planting.

Fertilizer may be applied in early spring about 1 or 2 weeks before active growth begins. When trees are grown in a lawn area, delay fertilizing the lawn until after trees are dormant to avoid late summer growth.

The usual method of application is to scatter fertilizer evenly under the tree, starting about 2 feet from the trunk and extending to just beyond the tips of the branches.

Terminal growth and general vigor of the individual tree should be observed closely. Where growth the past year was short, increase the amount of fertilizer slightly. If growth was excessive, reduce the amount or withhold it entirely. Remember that pear and some apple varieties are highly susceptible to fire blight and excessive growth will make this disease more prevalent.

Mature, bearing trees of peach, nectarine, and sweet cherry should produce an average of 10 to 15 inches of new growth annually. From vigorous, young, non-bearing trees, about twice that amount can be expected.

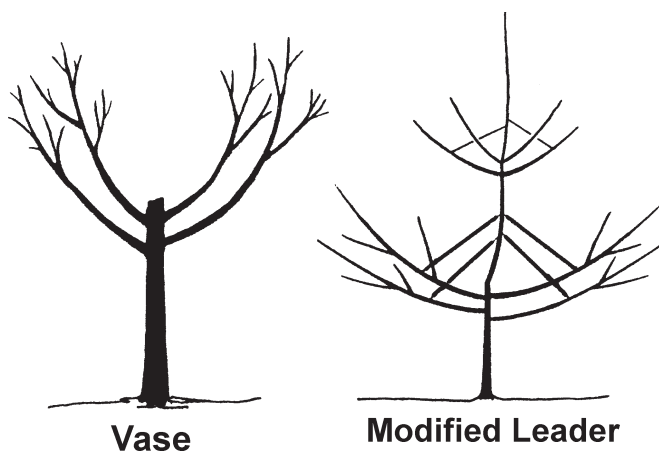
In general, 8 to 10 inches of terminal growth is considered adequate for mature, bearing apple, pear, quince, plum, and sour cherry trees. About twice that amount is sufficient for young, non-bearing trees.

Pruning

The general purpose of pruning fruit trees is to regulate growth, increase yields, improve fruit size and quality, and reduce production costs. Pruning is necessary to shape the trees for convenience of culture and for repair of damage. The methods for pruning fruit trees are designed to produce a strong framework and maximum yield of high quality fruit. However, the key purpose of pruning is to maximize exposure to the fruiting portion of the tree to sunlight.

Most pruning is done during the dormant season, preferably just before active growth begins in the spring. At this time, pruning wounds heal faster, flower buds can be easily recognized, and injury from low winter temperature is avoided. Summer pruning may be done to help train young trees to the desired shape, remove water sprouts and other undesirable growth, and maintain smaller tree size. It should be remembered, however, that all pruning has a dwarfing effect. For maximum yield of high quality fruit, prune only as necessary to establish a tree with a strong framework capable of supporting heavy

crops annually without damage and to maintain a tree sufficiently open to allow penetration of sunlight, air, and spray material for good fruit development and pest control. Pruning from September 1st through January 30th is not recommended.



(Peach, Nectarine)

(Other Tree Fruits)

Although pruning procedures vary according to the type, age, and variety, all newly planted fruit trees should be pruned in the spring before growth starts. This is necessary to stimulate lateral bud development from which to select good scaffold limbs. For a discussion of the proper pruning techniques to use on different fruit trees, see the Pruning chapter.

Thinning

Quite frequently, peach and apple trees set more fruit than they can mature to a desirable size. By thinning, or removing excess fruit, this difficulty can be overcome. Thinning not only allows for an increase in size of the remaining fruit on the tree, but also improves fruit color and quality, reduces limb breakage, and promotes general tree vigor. Thinning helps maintain regular annual bearing in certain apple varieties, such as Golden Delicious and Yellow Transparent, which otherwise have a tendency to bear heavy crops every other year.

Experimental results indicate that the sooner peach trees are thinned after bloom, the earlier the ripening and the larger the fruits at harvest. It is doubtful that final size of the fruits of any variety will be greatly increased by thinning if it is delayed much after the pits begin to harden.

It is generally recommended that peaches be spaced at least 6 to 8 inches apart on a branch. When thinning by hand, grasp the stem or branch firmly between your thumb and forefinger and pull the fruit off with a quick motion of the second and third fingers. Remove fruits that are small, shaded, or damaged by insects or disease, leaving the large, clean fruits exposed to sunlight.

Many growers use the pole method of thinning peaches. A 4- or 5-foot section of bamboo or other light wood is used. A piece of 3/4-inch garden or spray hose about 15 inches long is forced tightly onto the end of the pole, leaving some 8 to 10" of the hose extending beyond the end of the pole. A snug fit is necessary so the hose will remain in place while being used. Many modifications of this tool are used. One of the most common is a 30-inch section of plastic pipe, 1 inch in diameter.

Remove peaches by striking the limbs about 18 inches from their tips with the flexible part of the hose, using sharp, firm blows. This dislodges any loosely attached fruits. With a little practice, you should be able to remove individual fruits by this method.

Apples should be thinned as soon as possible after the fruit has set. If full benefits are to be obtained, thinning should be completed within 20 to 25 days after full bloom. In hand-thinning apples, use the same general technique used in hand-thinning peaches. A distance of 6 to 10 inches between fruits is recommended. With varieties of Delicious apples, where greater size of individual fruits is important, the greater spacing is preferred. The center apple of a cluster is usually the largest and the best apple to leave.

Thinning plums is usually limited to the large-fruited Japanese varieties. The primary concern here is to facilitate insect and disease control. Plums are usually thinned by hand to about 4 inches apart.

Rodent Control

Mice (voles) may cause serious damage to the fruit planting. They chew off the bark near ground level or below and often completely girdle a tree, causing it to die. Most of this damage takes place during winter. Mice may be controlled by trapping. This can be successful where only a few trees are involved.

Rabbits are responsible for the loss of thousands of young fruit trees each year. Perhaps the most satisfactory method of preventing rabbit and vole damage is the use of a mechanical guard. Galvanized screen or "hardware cloth" with a 1/4-inch mesh is frequently used. A roll 36 inches wide may be cut lengthwise, forming two 18-inch strips. By cutting these strips into pieces 14 inches long, guards 14 by 18 inches are obtained. Roll or bend the strip around the trunk of the tree so that the long side is up and down the trunk and the edges overlap. Twist a small wire loosely about the center to prevent the strip from unrolling. Push the lower edges well into the ground. This metal guard will last indefinitely and can be left in place all year.

Perforated plastic guards are also available. Like the metal guards, these can be left in place year-round. These are not as desirable as the hardware cloth guards since they become brittle and break. In addition, they shield the trunk from sunlight and air movement increasing the potential for insect and disease damage.

Other methods of rabbit control have been successful. Ordinary whitewash has given good results in some instances. A repellent wash recommended by the USDA, containing equal parts of fish oil, concentrated lime sulfur, and water, is used by some commercial growers. Also, rabbit repellents under various trade names are available. All these materials may be applied with a paint brush, from the ground up into the scaffold limbs.

Tree Fruit Spraying

For significant insect or disease problems, it may be necessary to follow a spray program. Information on the use of chemicals for such a program is available from the Extension office.

To be successful with your spray program, spray at the proper time and do it thoroughly. Leave no portion of the tree unsprayed. To make the job easier and to ensure adequate coverage, thin out excessive growth and remove all dead and weak wood. Cut old trees back to 20 feet or less, if possible. Train younger trees so they reach a height of no more than 18 feet.

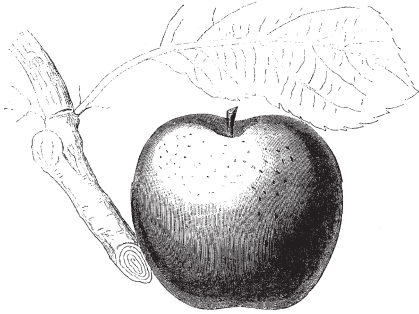
Semi-dwarf and dwarf trees should be considered when making your planting. Their small size makes the task of spraying easier.

Sanitation

Adopt good orchard sanitation practices. The destruction of harboring places for insects and diseases plays a large part in the control program. Conditions which encourage mice should also be eliminated.

These are some practices to include in an orchard sanitation program:

- Collect and remove debris.
- Remove and destroy all dropped fruit.
- Rake and remove apple and cherry leaves.
- Scrape loose bark from trunks, crotches, and main limbs of apple trees.
- Prune out and destroy all dead or diseased limbs, branches, and twigs.



Small Fruits

In this section, general guidelines are given for small fruit plantings, and then the specific fruits are covered in some detail.

Planning the Small Fruit Garden

Locate your small fruit planting as close to your home as possible, in full sun. 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 or as a ground cover. 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 the table below.

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

Fruit	Minimum Distance Between Rows (feet)	Minimum Distance Between Plants (feet)	Annual Yield Per Plant (quarts)	Years from Planting to 1st Significant Fruit (years)	Average Life Expectancy (years)
Blueberry	8	4	4 to 6	3	20 to 30
Blackberry (erect)	10	3	1½	1	5 to 12
Raspberry (red)	9	3	1½	1	5 to 12
Raspberry (black)	9	4	1½	1	5 to 12
Raspberry (purple)	9	3	1½	1	5 to 12
Grape (American)	10	8	15 pounds	3	20 to 30
Strawberry (regular)	4	2	*1	1	3
Strawberry (ever-bearer)	4	1	½	1/3	2

* per parent plant grown in the matted row system.

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. The following table lists some varieties of suggested small fruits. They are listed in the order of ripening, and include only those adapted for growing under Northern New England conditions.

Suggested Varieties for Home Small Fruit Planting

(listed in order of ripening)

BLUEBERRIES

- Patriot
- *St. Cloud
- Northland
- Blueray
- Bluecrop
- Bluejay
- *Northblue
- *Friendship
- Jersey

BLACKBERRIES

- Illini

RASPBERRIES (Red)

- Latham
- Boyne
- Killarney
- Autumn Britain
- Redwing
- Heritage

RASPBERRIES (Black)

- Jewel

RASPBERRIES (Purple)

- Success
- Royalty

STRAWBERRIES

(Everbearing)

- Superfection
- (Gem, Brilliant)
- Ozark Beauty

STRAWBERRIES

(Day-neutral)

- Tribute

STRAWBERRIES

(Regular)

- Earliglow
- Annapolis
- Northeastern
- Mohawk
- Cavendish
- Allstar
- Red Chief
- Primetime
- Sparkle

* Highbush x lowbush crosses especially suited to colder areas of New Hampshire.

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

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. Shriveled roots indicate that the plants have been allowed to freeze or dry-out in storage or transit. Such plants seldom survive.

If the plants cannot be set immediately, they should be kept either in cold storage or heeled-in. Wrap them in a garbage bag, 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 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 location. Pack the soil firmly around the roots to eliminate all air pockets and to prevent the roots from drying out.

Blueberries are often available as container grown plants. These cost more but generally perform better than bare root stock.

General: 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 follows. These suggestions should be followed closely for best results.

General: 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. Because 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 northern New England.

Variety Selection

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

Earliglow is 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 but not highly productive in all northern areas.

Annapolis has excellent fruit quality, red stele resistance, and is winter hardy.

Northeast is a new, very disease resistant variety from USDA. Fruits are flavorful. Especially suited to New England.

Mohawk is another new, flavorful, disease resistant variety from USDA.

Cavendish is a disease resistant variety from Canada. It produces large, flavorful fruit that sometimes color irregularly.

Allstar, berries are large and attractive with mild flavor. The plants are vigorous and runner freely. Resistant to red stele and Verticillium.

Red Chief 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. Red Chief is very resistant to red stele.

Primetime is another new variety from USDA. Fruits are large, firm and flavorful.

Sparkle, is an excellent flavored fruit, but is somewhat soft. Fruit size tends to decrease as season progresses. Plants are vigorous, copious runner producers with some resistance to red stele.

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 northern New England. 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.

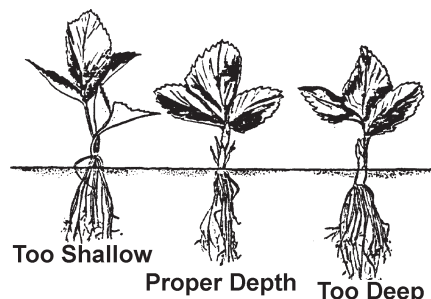
An interesting development in strawberry breeding is the production of varieties that are day-length neutral. This means that they do not respond to day-length the way that conventional varieties do, and can continue to produce over a long period of time. Although these varieties are listed with everbearers in catalogues, they are heavier producers and can be used satisfactorily in the home garden. Tribute is a vigorous variety with glossy, deep-green leaves; fruit is medium-sized in spring and summer, large in fall. Production and size drop in the heat of summer but pick up in fall. Best for fresh eating. Tristar also produces high quality fruit, but is not as productive as Tribute.

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 surrounding areas. Although strawberries grow best in a fertile, sandy loam soil with a pH of 5.7 to 6.5, they may be successfully grown in any good garden soil that is well-drained and well-supplied with organic matter. 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.



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 inches apart in rows. Spacing plants 18 inches apart in rows 4 feet apart is more desirable if space is not limited. Set each plant so that the base of the bud is at the soil level. Spread the roots out and firm the soil carefully about them to prevent air pockets which allow them to dry out. Water well when planting is finished.

Maintaining the Planting

Soil Management

Weeds are enemy #1 in the strawberry planting! 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.

Home garden strawberry plantings should be mulched in late fall. Any organic material free of weed seeds makes good mulch. Straw and pine needles are most frequently used. Mulch should be applied 2 to 4 inches deep over and around the plants after the first freezing weather in the fall. The last weekend in November is traditional in southern N.H. while mid-November is better in northern areas. This protects them from heaving and freezing injury during the winter. In mid-April (late April in northern areas), about half 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.

Fertilization

Heavy fertilization seldom proves beneficial to strawberries on good soils well-supplied with organic matter. Where a soil analysis indicates the need, about 1 lb. per 100 feet of row of a complete fertilizer, such as 10-10-10, should be cultivated into the soil before planting. 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. Apply fertilizer when plants are dry and brush the material off the plants to avoid foliage injury.

Do not apply spring fertilizer to strawberries growing in heavy land because there is danger of excess vegetative growth which results in reduced yield, increased rot, later ripening, and poor 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 feet 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 original plants should be set 18 to 24 inches apart in the row. Keeping the width of the plant bed narrow (usually 15 to 18" and no wider than 24") results in a good grade of fruit which is easy to pick.

In the hill system, plants are spaced 12 inches apart in the row. All runners are removed as soon as they appear, and the plants are encouraged to multiply in large crowns. This system is desired by many because the planting is easier to cultivate and harvest and produces larger and better berries than other systems. Many plants are required, however, and the initial cost of the planting is high. Black plastic mulch is particularly effective with this training system.

Plants in the spaced-row system are set 18 inches 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 inches apart. All late-formed runners are removed as they appear.

Blossom Removal

During the first planting season, all flower stems on the plants should be removed as soon as they appear. This strengthens the plants and allows early and 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 another fruiting.

Soon after harvest, remove the mulch and clip the tops of the plants to within 1 inch of 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, such as nitrate of soda, at the rate of $\frac{1}{2}$ to $\frac{3}{4}$ lb. per 100 feet of row to encourage vigorous top growth. Any good garden fertilizer supplying an equivalent amount of nitrogen may be used if desired. Rototill or spade row middles, narrowing the plant row to 8 to 12". During the tilling process, mulch sides of crowns lightly ($\frac{1}{2}$ ") with loose soil. Water the planting thoroughly.

Some plant thinning may be needed, particularly in the matted-row system. Thin plants to 6 to 8 inches 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 strawberry planting. It may be necessary to cover the plants with 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.

Culture of Everbearing and Day Neutral 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 foot apart, cultivated for the first 10 days to 2 weeks, and then mulched to a depth of 2 to 4 inches with pine needles or straw.

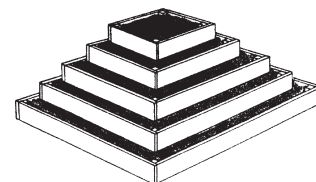
As the mulch decays, the development of a nitrogen deficiency could occur. It can be quickly overcome with the application of 10 lbs. of 10-10-10 to each 100 sq. ft. of mulched area.

Remove all runners as soon as they appear, to encourage the plants to multiply in large crowns. Blossom clusters should be removed until the plants have become firmly established. Berries will begin to ripen about a month after bloom and plants will continue to bear fruit until frost, if weed growth is kept down and adequate moisture is supplied. Allow the plants to bear fruit for the spring and fall crops the second year, then replant.

Strawberry Growing in Pyramids and Barrels

In a garden where space is extremely limited or where the gardener wishes to use the strawberry planting as a novelty or decorative feature, the strawberry pyramid or the strawberry barrel can be useful and interesting. Pyramids may be square or round. Each step of the pyramid should have a flat surface not less than 6 to 8 inches in width. The frames for a square pyramid can be constructed out of 6-inch wide boards of a durable wood such as redwood.

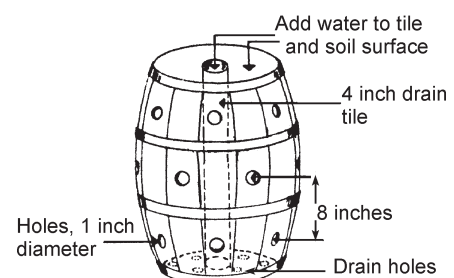
A suggested soil mixture for the pyramid is two parts good garden soil, one part peat, and one part sand. In preparing a strawberry barrel, 1-inch diameter holes are made in the sides of the barrel at approximately 8-inch spacings. As the barrel is filled with successive layers of soil, strawberry plants are carefully inserted through the holes so that the roots are held firmly in contact with the soil.



List of materials necessary for a 72 inch wide, 5 level square sided pyramid where each ascending level is 12 inches less in width.

- 4 boards 6 feet long and 6 inches wide
- 4 boards 5 feet long and 6 inches wide
- 4 boards 4 feet long and 6 inches wide
- 4 boards 3 feet long and 6 inches wide
- 10 feet of 2" x 2" for corners
- 1 pound of 6 penny galvanized nails

Barrel Planter



Though the strawberry barrel may be a successful novelty, yields of fruit will be smaller than those in pyramid culture, and much more attention to planting, watering, and winter protection are required.

Damage to the strawberry plants growing under normal cultural conditions can be expected if they are not protected from extreme cold during the winter. Because plants growing in a pyramid or barrel are elevated above normal ground level and therefore are highly exposed, additional winter damage can be expected to roots, crowns, and fruit buds. Consequently, care must be taken to provide adequate winter protection. Pyramids can be mulched with 6 to 8 inches of straw after the soil is frozen. Even with careful mulching, some plant injury can be expected during severe winters.

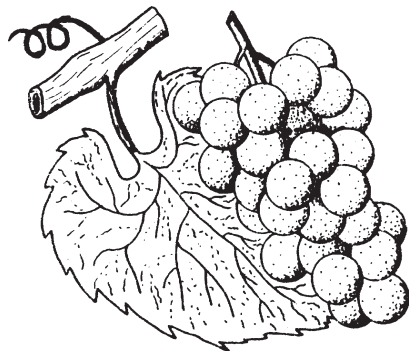
Harvesting

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 highest and the flavor is best. It is necessary to harvest every day during the peak of the season.

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

Grapes

Grapes are only marginally hardy in northern New England and are often severely winter damaged. Grapes should only be planted in protected sites. They are not recommended for commercial production. Careful selection of cultivated varieties compatible with local soil and climatic conditions has led to successful production in home gardens and commercial vineyards in many sections of the region.



Variety Selection

American Bunch Grapes

(These are the hardiest grapes, and the only type recommended for northern areas.)

Beta - Very hardy blue-black grape; it has small berries in small bunches. Beta is early ripening, and vigorous.

Valiant - Red, seeded, very hardy.

Edelweiss - Green, seeded, sweet, very productive.

Swenson Red - Very productive red grape, seeded, good flavor.

Seedless Table Grapes

(Hardy to -20°F)

Reliance - Hardy, seedless red table grape that ripens in mid-September. It has some disease resistance.

Canadice - Hardy seedless red table grape. It is early ripening and has good flavor.

Wine Grapes (French Hybrids)

(Hardy in southern N.H. only)

Foch - Small berries and bunches, Burgundy type wine.

Aurore - White, makes a fruity wine.

Establishing the Planting

Site and Soil

Grapes should be planted where they have full sun all day. They are deep-rooted plants, frequently penetrating to a depth of 6 to 8 feet 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 5.0 to 5.8.

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 preferred. Allow at least 8 feet between plants. Trim the roots to about 6 inches in length in order to encourage formation of feeder 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. Plants are set at about the same depth they grew in the nursery. Prune newly set plants to a single cane, and head it back to two buds.

Maintaining the Planting

Soil Management

Grapes are generally grown using shallow cultivation. A system of grass sod row middles and a shallow cultivated strip 2 feet wide under plants works well.

Although grapes are deep-rooted plants, they do not thrive in competition with weeds and grass. Cultivation to facilitate weed control should be done. It should be shallow and only as necessary to eliminate undesired vegetation.

Fertilization

Grapes require a large amount of nitrogen. Except in sandy soils, this element may be the only one needed in the fertilization program. In the home garden, $\frac{1}{4}$ cup or about 3 ounces of 10-10-10 per vine should be applied after growth begins in the spring. Spread the fertilizer in a circle around the plant and 10 to 12 inches 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 foot circle around each vine and about 1 foot from the trunk. Increase the amount to 8 oz. per year beginning in the third year.

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 feet 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

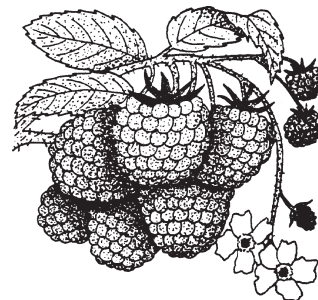
Much attention is given to the training and pruning of grapes. To be most productive, they must be trained to a definite system and pruned rather severely. There are several training systems used. The two most common are the vertical trellis and the overhead arbor. Both of these are satisfactory in the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

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.

Brambles

Bramble fruits include the red, black, and purple raspberries and the erect and trailing blackberries. Only red raspberries are hardy enough to be dependable producers, however. Purple and black raspberries and erect blackberries may survive in protected sites. Trailing blackberries are not recommended.



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 gardeners to extend the productive life of well-located plantings beyond the 6- to 8-year average.



Variety Selection

Of the many varieties of raspberries available, few have proven hardy enough with short ripening seasons to be satisfactory for growing under New England conditions. Only top-quality 1-year-old plants of the best varieties should be planted. Obtain virus-free plants when possible.

Blackberries

Only one erect-type blackberry variety is suggested for planting in northern New England. It is productive, vigorous, and relatively winter-hardy.

Illini has good hardiness and large berries of good quality. Illini plants are very thorny!

Raspberries

Boyne is the most winter hardy variety. It displays rugged, thorny canes, with vigorous growth. Fruit ripen early, are dark red, soft with good flavor.

Killarney is similar to Boyne with brighter, firmer fruit ripening slightly later.

Latham is an old, hardy variety that will grow well throughout the state. Fruits are soft, tend to crumble, and have only fair flavor.

Autumn Britain and **Redwing** are other early everbearers.

Heritage is the standard everbearer for quality. Unfortunately, it ripens too late in the fall for all but a few sites in extreme southern NH.

Black raspberries are very susceptible to virus diseases and are readily infected when grown near red varieties carrying the virus.

Jewel is the hardiest of the black raspberries, but still should be protected from extreme cold.

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.

Royalty, a purple raspberry with good flavor, very large fruit, and high productivity, is excellent for fresh use and for jam and jelly. It is resistant to mosaic-transmitting aphids and raspberry fruit worm.

Success is a dark purple raspberry from New Hampshire. It is very hardy and produces high quality but soft fruit.

Establishing the Planting

Site and Soil

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 feet 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. Select a site where tomatoes, potatoes, or eggplants have not been

grown. These crops often carry *Verticillium* wilt which lives in the soil for many years, and brambles, particularly black raspberries, are very susceptible to this disease.

Planting

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 least 8 feet between rows to facilitate cultivation. Red and purple raspberries may be set as close as 2 ½ feet in the row. Black raspberries and blackberries should be set 3 ½ to 4 feet apart in the row.

Set the plants at about the same depth they grew in the nursery. The crown should be at least 2 inches below the soil line. Spread out the roots and firm the soil carefully around them. Do not allow the roots to dry out. As the plant develops and new shoots emerge, do not allow the plant row to grow wider than two feet. Wide plant rows encourage disease problems because of increased competition among plants, and reduced air circulation.

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 can be cut off near the surface of the ground and destroyed, as a safeguard against possible disease 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, and maintained throughout the life of the planting by replenishing annually or as needed.

Any good organic material is satisfactory. Two inches of wood chips or pine needles should be

sufficient. 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 1 lb. of 10-10-10 for each 100 sq. ft. of mulched area will be enough. In addition; mulch may delay fruiting until later in the season and could increase risk of early winter injury by delaying plant hardening in the fall.

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 4 to 6 lbs. of nitrate of soda to each 100 feet 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 over-fertilize, however, because it may result in too much vegetative growth with a loss of yield and quality of fruit or in injury to the roots of the plant and burning foliage.

Training and Pruning

Refer to the Pruning chapter.

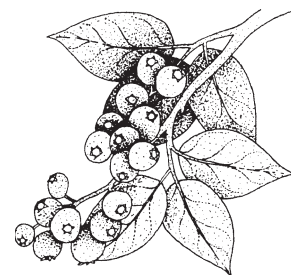
Harvesting

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.



Blueberries

Many home gardeners have been successful with highbush blueberry plantings in northern New England. They may be grown in any area where native blueberries, azaleas, mountain laurel, or rhododendrons do well. They are very exacting in soil and moisture requirements, but require little protection from insect and disease pests.



Variety Selection

To provide 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 gardens in New England ripen over a 4- to 6-week period, beginning in mid-July and continuing through August. All are vigorous and productive under good growing conditions and produce berries of large size and good quality.

Patriot is a very hardy plant developed in Maine. It produces large excellent quality fruit. Patriot ripens early.

Blueray, very hardy and productive, is recommended for planting throughout northern New England. The fruit is large, medium-light-blue, flavorful, and resistant to cracking.

Bluejay is a hardy, mid-season cultivar from Michigan. Fruits are attractive and flavorful.

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. Bluecrop will not tolerate poorly drained soils.

Northland is a hardy vigorous variety which produces high yields of small, good quality berries.

Jersey is a good quality late summer variety. Fruit are only medium sized and production is moderate.

In Coos county and other colder areas of the state, very hardy highbush x lowbush crosses are recommended. These include the varieties **St. Cloud**, **Friendship**, **North Country**, and **North Blue**.

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 be heavily mulched. Supplemental irrigation will be necessary in dry periods. 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 4.5 to 5.2. Have the soil tested and if it is not acid enough for blueberries, work 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 3/4 lb. per 100 sq. ft. for each full point the soil tests above pH 4.5. On heavier soils use 1½ to 2 lb. Once proper acidity is established, it can be maintained through the annual use of an acid fertilizer, such as ammonium sulfate .

Planting

Vigorous 2-year-old plants about 15 inches high are the minimum size recommended for planting. Two or three year old container grown stock is preferable to bare root stock. Set in early spring, about 3 or 4 weeks before the average date of the last frost. Blueberries are usually planted every 4-6 feet in rows 6-8 feet 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 leaf mold--into the soil in and around the hole. If peat moss is used, be sure to soak it well before use. 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, wood chips, bark, peat moss, or sawdust. It should be applied loosely to a depth of 5 or 6 inches. Many growers use a combination mulch, a layer of leaves on the

bottom with 2 or 3 inches of sawdust on top. Renewed annually, this heavy mulch retains moisture, keeps the soil cool in summer, and adds needed organic matter, and provides protection from low winter temperatures.

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. of ammonium sulfate around each plant about the first of June is beneficial.

Ammonium sulfate, at the rate of 2 oz. per plant, should be spread in a circle around each plant about 12 to 16 inches 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. annually. Where sawdust is used as a mulch, it may be necessary to apply additional nitrogen to prevent a deficiency as the sawdust decays. Increase fertilizer rates up to 50% as necessary to maintain good plant vigor.

Pruning

Refer to Pruning chapter.

Pest Control

Birds are by far the greatest pest in the blueberry planting. Covering the bushes with wire cages or plastic netting 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 3 to 7 days. Blueberries will keep for several weeks in cold storage.

For optimum flavor, do not harvest as soon as they turn blue. Rather, wait until the ring around the point of stem attachment turns blue - then the blueberry is ripe and at maximum flavor.