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# Small Fruits

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## Learning Objectives

- Describe the factors to consider in planning the small fruit garden.
- Understand the principles of proper planting, cultivation, fertilization, maintenance, pruning and renovation for small fruits (strawberries, blueberries, brambles, grapes, currants and gooseberries).
- Become familiar with common pest problems (diseases, insects, weeds and wildlife) in small fruits and their management options.



# Small Fruits

## Planning the Small Fruit Garden

Growing small fruits in the home garden offers many advantages to a gardener who is willing to provide the space and care plants require. All major small fruits, including strawberries, raspberries, blackberries, blueberries, currants, gooseberries, and grapes, can be grown successfully in most parts of Illinois. These plants tolerate small spaces and are popular even for small city lots. Space limitations can be overcome by fitting small fruit plants directly into the overall landscape in shrub borders, screen plantings, arbors, hedges, patios, or perennial gardens.

A well-planned garden supplies fresh fruit from early spring to the first killing frost in the fall. The fruits produced are enjoyed for their pleasant taste as well as for their dietary value as sources of vitamins, minerals, acids, and anti-cancer agents. Fruits of the best cultivars, harvested at the peak of their season, cannot be matched in the market regardless of price. Surplus production can be canned, frozen, or dried for use year-round.

Aside from the benefits of superior quality, the care and cultivation of small fruits at home can provide much pleasure and satisfaction. Careful selection of early- and late-season cultivars of different small fruits will supply fresh fruit over the longest possible season. Success, of course, also depends on careful attention to cultural details. This unit describes cultural techniques and cultivars for reliable production in Illinois home gardens.

### ■ Size of Planting

The number of plants the home gardener can grow is determined by the space and time available as well as the needs of the family. Home fruit plantings should be limited in size, especially if the primary objective is only to supply fresh fruit for home use. Large plantings may be justified for local sales or a 4-H project. The best advice is to plant no more than you can properly care for. Neglected plants produce low yields of poor-quality fruit, harbor destructive insects and diseases, and can be unsightly.

Plant spacing, approximate yields, and a suggested number of plants for a family of five are given in Table M-1.

**Table M-1. Spacing, bearing age, and production of small fruits.\***

Fruit <sup>a</sup>	Planting distance <sup>b</sup> between rows in ft	Distance <sup>b</sup> between plants in row in ft	Time from planting to fruiting in years	Life of plants in years	Height of mature plant in feet	Estimated annual yield per plant <sup>c</sup>	Suggested number of plants for family of 5
Strawberries (matted row)	4	2	1	3-4	1	1½ - 1 qt./ft of row	50-100
Everbearing (hills)	1-1½	1-1½	½	2-3	1	½ quart	100
Raspberries							
Red	8-10	2-3	1	8-10	4-6	1½ quarts	20-25
Everbearing red	8-10	3	1	8-10	4-6	1 quart - spring	15-20
Black	8-10	3	1	8-10	4-5	1 quart	20-25
Purple	8-10	3	1	8-10	4-5	1-1½ quarts	20-25
Currants	6-8	4	2	12-15	3-4	3-4 quarts	2-4
Gooseberries	6-8	4	2	12-15	3-4	4-5 quarts	2-4
Blackberries							
Erect	8-10	2-3	1	10-12	3-6	1 quart	15-20
Thornless, trailing	8-10	6-10	1	8-10	6-8	4-10 quarts	8-10
Blueberries	8-10	6-8	3	20+	5-8	6-10 quarts	6-8
Grapes	8-10	8-10	2	20+	5-6 (trellised)	1½ bushel	5-10

\* *Although there is no sharp demarcation between northern, central, and southern Illinois, some cultivars definitely perform better at a given latitude. For the purposes of this book, we have defined the regions as N = region north of Interstate 80; C = central region between Interstate 80 at the north and Interstate 70 at the south; S = region south of Interstate 70.*

*a Listed in approximate order of ripening from early spring to fall.*

*b Minimum suggested spacings. See discussion of plant spacings in text. If a tractor is available, space the rows to fit the equipment to be used in cultivation, mowing, and spraying.*

*c At full bearing age, with good care.*

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The yields shown are dependent upon proper cultivar selection and good management. The size and layout of the garden may vary according to the selection of fruits desired and the space and location available. To prevent shading when arranging small fruits in the garden, place the taller-growing fruits such as trellised grapes north of lower-growing fruits such as strawberries.

### ■ **Location**

It is a good idea to locate the small fruit garden near the house. If large trees are nearby, locate the garden to the south of them, if possible. There is an advantage in planting adjacent to the vegetable garden for convenience of doing cultural chores. However, sometimes the most convenient location does not have the most desirable exposure, soil, or water drainage.

The site should have reasonably fertile soil and be well drained. Avoid areas that collect water after a rain. A moderately elevated or sloping site will reduce losses from late spring frosts and provide better water drainage. Exposure to full sunlight is preferred, although most small fruits will grow in partial shade. Black raspberries and gooseberries can stand more shade than other small fruits. Wherever possible, take advantage of windbreaks such as buildings and hedgerows to protect the planting from severe prevailing northwest winter winds.

Strawberries and brambles should not be planted on a site where tomatoes, potatoes, peppers, eggplant, melons, okra, peas, beets, or roses have been grown in the past three to five years. *Verticillium* wilt is a disease common to all these crops, and if they are not rotated with nonsusceptible crops, severe losses can result. There are *Verticillium*-resistant strawberry and raspberry cultivars available; some of these cultivars are listed in the appropriate section later in this unit.

### ■ **Preparing the Soil**

Most small fruit plants will occupy the same location at least three years and as long as thirty or more years. Therefore, it is desirable to build up the soil fertility of the proposed planting site before planting. Planning one or two years ahead can also help to reduce weed problems.

All small fruit plants benefit from the addition of organic matter to the soil. If well-rotted manure that is free of weed seed is available, incorporate four

bushels (or 100 pounds) per 100 square feet in the summer or fall before planting. Similar levels of compost, decomposed leaves, or lawn clippings can also increase the soil's organic-matter level. Use only lawn clippings that have not been treated with herbicides. It is a good idea to add ten to fifteen pounds of 10-10-10 fertilizer per 1,000 square feet when leaves are used. Thoroughly work the organic material into the soil. In September, sow a cover crop such as annual rye at three pounds of seeds per 1,000 square feet to protect the soil during winter. Turn the crop under in spring to improve the soil.

To reduce weeds, plant and cultivate row crops for one or two years prior to planting small fruits. Avoid the *Verticillium*-susceptible crops listed earlier. Also, avoid sites where herbicides with long carry-over periods have been used recently. Regular cultivation and hoeing will be necessary to control weeds. The cultivation helps improve soil conditions by mixing organic matter in the soil and increasing aeration.

If sod must be turned under, it should be done in fall to allow decomposition to begin. Sod often harbors grubs (insect larvae) that feed on roots. Most of the grubs die if the sod is turned under and the ground cultivated at least one year prior to planting. All small fruits except blueberries grow satisfactorily in a soil pH range of 5.5 to 7.5. Blueberries require a pH of 4.8 to 5.2 for best growth. The pH measurement refers to the relative acidity or alkalinity of the soil: 7 is neutral, 6 to 7 is slightly acid, and 7 to 8 is slightly basic (alkaline).

Prior to planting, work the soil as thoroughly as you would in planting a vegetable garden. The soil should be well pulverized and moist, and soil granulation should be no larger than a pea.

### ■ **Planting Stock**

Healthy, vigorous plants are essential for establishing a successful small fruit planting. It is wise and, in the long run, cheaper to buy the best plants available. The disadvantages of poor planting stock can never be overcome. Reputable nurseries supply disease-free and true-to-name plants. The state certificate of nursery inspection is your assurance of healthy plants. Strawberry, raspberry, and blackberry plants should be "virus-free" at the time of purchase. Many of these plants are now supplied from tissue-culture propagation. Tissue-culture plants may cost more than traditionally propagated plants but are worth the extra cost.

Obtain catalogs from several nurseries. While some nurseries specialize in one or two types of small fruits (specialty nurseries), others are more general and supply most small fruits. Orders should be placed early to obtain desired cultivars. November or December is not too early to order plants for the following spring. The delivery date and method of shipment

should be specified when placing the order.

One-year-old plants of medium to large size are generally the best to buy. The added cost for older or extra-large plants is seldom justified. Blueberry plants are an exception. It is best to purchase two-year-old container-grown plants. Two-year-old transplants are also good.

### ■ **Choosing Cultivars**

Cultivars for home small-fruit plantings should be selected for their high quality for eating fresh, preserving, or both. Many cultivars of high-quality small fruits are not suited to commercial production, so the only source of these quality fruits may be your own garden. Disease resistance and winter hardiness also are very important considerations. Careful selection of early- and late-maturing cultivars will provide fresh fruit over a long harvest season. The use of several cultivars helps to ensure a successful planting; one cultivar may perform well in one location and poorly in others. The cultivars suggested in this unit are generally adapted to Illinois conditions. Special notation is made when a particular cultivar is best suited to a particular region. In addition to the suggested cultivars, gardeners can purchase and compare one or two new cultivars.

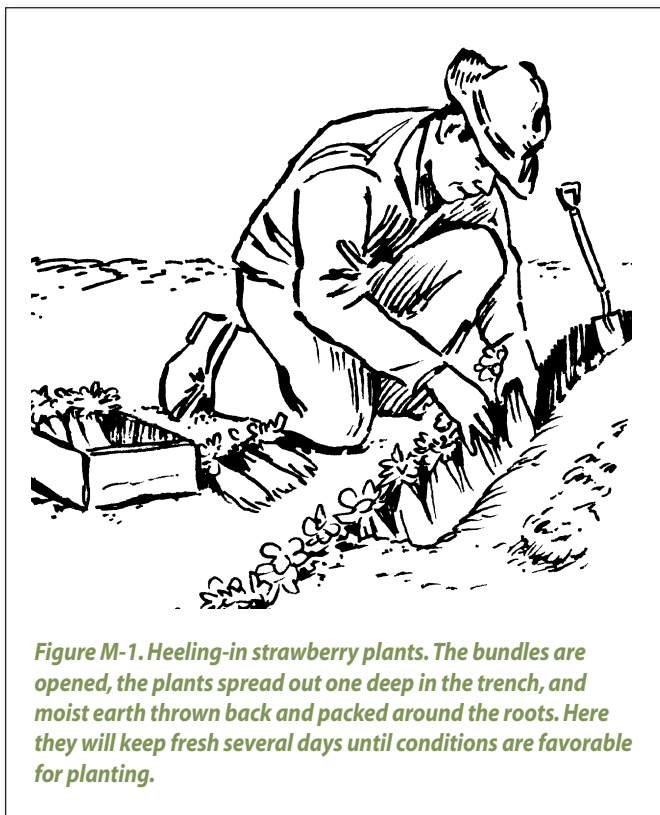
### ■ **Care of Plants on Arrival**

Most plants are dug by nurseries in late fall or early spring while the plants are dormant, stored under refrigeration, and then shipped dormant during the correct season. Such plants, when handled properly, are as good as freshly dug plants.

Packages should be opened and the plants examined as soon as they arrive. If they smell sour and rotten, they should be replaced by the nursery. Healthy plants have an earthy smell; roots should be supple and white. It is a good idea to peel back the wrapping to let excess heat escape from the package. *Do not let your plants dry out.* If the plants are dry when they arrive, soak the roots in water for one or two hours and plant immediately, if possible. If planting is delayed more than one day, place the plants in cold storage or in a refrigerator (32° to 40° F) that is not being used to store fruits and vegetables, or “heel-in” the plants (Figure M-1).

For cold storage, moisten the roots if they are dry, but be careful not to get them too wet, or the plants may mold and rot. Plants in plastic bags may be kept satisfactorily for a week in your home refrigerator. Avoid storing plants in refrigerators that also contain fresh fruits (especially apples and pears) because the fruit produces a gas (ethylene) as it ripens that can injure or kill plants. Do not allow plants to freeze.

To “heel-in” plants, select a location that is well drained, shaded, and protected from the wind. Dig a



**Figure M-1.** Heeling-in strawberry plants. The bundles are opened, the plants spread out one deep in the trench, and moist earth thrown back and packed around the roots. Here they will keep fresh several days until conditions are favorable for planting.

trench deep enough to permit covering the roots and long enough to place all of the plants side by side. After positioning plants in the trench, firm the soil over the roots. Do not cover the crowns of strawberry plants. Water the plants thoroughly and keep them shaded until they are ready to plant. Do not leave the plants heeled-in any longer than absolutely necessary. Their roots will begin to grow, and transplanting them will destroy some of their new feeder roots.

### ■ **Irrigation**

Lack of rain while new plants are becoming established—during bloom and harvest and during late summer and fall when fruit buds are forming—can reduce the quantity and quality of fruit. For optimal growth, most small fruits require at least one inch of water per week during the growing season. Irrigation to supplement rainfall to this level is especially important for soils subject to drought, such as sandy soils, or soils with a shallow hardpan that restrict the development of a deep-root system.

If possible, locate the small fruit garden where water is readily available for irrigation. Sprinklers, porous soaking hoses, and drip or trickle hoses are suitable for applying water. Irrigate to thoroughly wet the soil to the depth of the roots, at least six inches. Shallow watering to a depth of only one to three inches encourages shallow root growth and is of little value (and may even be harmful) to long-term plant survival.