Strawberries for the Home Garden

Resource: U of M Extension

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Strawberry plants make an excellent addition to the home garden, and are arguably the most popular summer-time fruit. A hardy cultivar placed in a well-chosen site will produce plenty of fruit for fresh eating, freezing, jam and desserts in a relatively small space. In addition to being grown in a traditional bed, strawberries can be grown as a ground cover or landscape ornamental. With adequate winter protection, strawberries may be grown throughout Minnesota.

Three types of strawberries are readily available to the home gardener. **June-bearing** strawberries produce a large, concentrated crop in late spring. So-called **everbearing** types produce two smaller crops, one in late spring and the second in early fall. The newer **day-neutral** plants are capable of producing fruit throughout most of the growing season. Of the three types, June-bearing strawberries normally produce the largest yield per season.

Cultivar Selection

Numerous improved strawberry cultivars have become available to home gardeners in recent years. In choosing cultivars for your garden, pay special attention to hardiness and season of harvest, factors which indicate adaptability to your area. If you live in an area characterized by late frosts, for example, choose a cultivar with a midseason or late harvest period. Although most garden centers sell strawberry plants in spring, many of the cultivars listed in **Table 1** are commonly available only from mail-order sources. For source information, contact your county extension agent

Table 1. Strawberry cultivars recommended for Minnesota.

Cultivar	Type	Season	Hardiness	Texture	Flavor	V. Wilt
Allstar	June	LM	F	VG	VG	Res
Ft. Laramie	Ever	-	Exc	F	F	Int
Honeoye	June	EM	VG	G	G	Sus

KEY

Type: June=June-bearing; Ever=everbearing; Neutral=day-neutral

Season: E=early; EM=early midseason; LM=late midseason; L=late

Hardiness, Texture, Flavor: F=fair; G=good; VG=very good; Exc=excellent

V. Wilt (Verticillium Wilt): Res=resistant; Int=intermediate; Sus=susceptible; -=unknown

Site Selection and Preparation

Strawberries require full sun for optimum fruit production. Plants which receive a minimum of six hours of direct sunlight each day should grow well and produce a harvestable crop, but berries will be fewer and fruit quality reduced compared to plants receiving more sun. Ten or more hours of sunlight each day is ideal.

Choose a site located away from trees and buildings which will cast shade for more than a few hours each day. Because trees will compete for water and nutrients as well as cast shade, the strawberry bed should lay beyond the root zone of large trees. In general, the root zone roughly corresponds to the canopy of a tree.

Soil should be both water-retentive and well-drained as strawberry plants will tolerate neither drought nor standing water. Excessively drained soils should be amended with peat or compost to improve water retention, while heavy clay soils will benefit from the addition of a mixture of peat and a coarsely textured organic material such as chopped leaves or straw to improve drainage and aeration. Strawberry plants perform best in slightly acid soil. A pH of 5.3 to 6.5 is optimum, but readings from 5.0 to 7.0 are acceptable. Conduct a soil test to determine any necessary pH adjustment as well as fertilizer needs. Pick up a soil test form at your county Extension office, or see University of Minnesota Soil Testing site.

The site selected should be free from weeds, grubs and soil-borne diseases. For this reason, a site composed of newly-dug sod may present problems since such a site is prone to attack by grubs and perennial weeds. Because solanaceous plants (tomatoes, peppers, eggplant and potatoes) can carry a soilborne disease known as Verticillium Wilt, to which many strawberry cultivars are susceptible, avoid planting where these plants have been recently grown. If avoidance is not possible, choose resistant cultivars.

Planting

Strawberries should be planted in the spring as soon as the soil can be worked. Purchase planting stock from a reputable nursery and plant as soon as possible after receipt. Dormant plants may be stored in a cool place for several days if immediate planting is not possible. Do not store plants close to ripening fruits as they could be damaged by gases given off during the ripening process. Do not allow the packing material surrounding the roots to dry out or become soggy. A cool, cloudy planting day will place the least stress on new transplants.

At planting time, damaged roots should be trimmed and excessively long roots cut to 4 - 5 inches in length. In addition, all flowers, runners and old leaves should be removed. Keep the plants protected from direct sunlight and drying winds during planting. Strawberry plants should always be set with the roots pointed downward and forming a moderate fan.

Planting depth is critical **(Figure 1)**. If the plants are set too shallow, the crown may dry out, while a too-deep position may result in crown damage or rot. Set the plants deep enough so the midpoint of the crown is even with the soil surface. After setting in, firm the soil around the plant and thoroughly water.

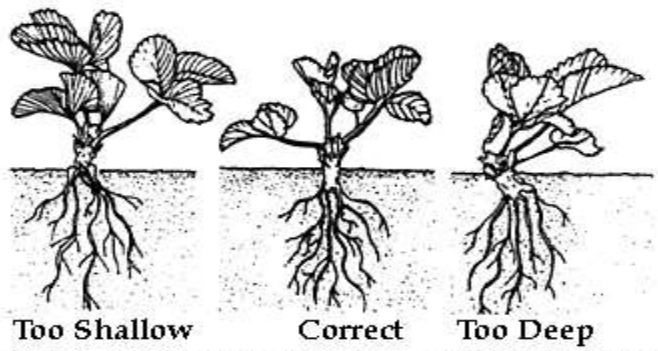

Figure 1. Set plants deep enough so all of the roots are covered, but making sure the crown is above the soil line. The plant on the left is too shallow and the one on the right is set too deep. The roots should extend straight downward

Planting Systems

Strawberries are normally grown using one of three systems. In order of increasing maintenance, they are the 'matted row,' 'spaced matted row,' and 'hill' systems. In the matted row system, the original ('mother') plants are spaced 18 - 24 inches apart in rows 3 - 4 feet apart and allowed to produce and set runner ('daughter') plants freely.

If the spaced matted row system is employed, initial spacing is the same, but daughter plant populations are kept low by allowing only a few runners to remain. Those daughter plants which are selected are pinned into place so that rooting occurs at a set distance, usually 6 - 12 inches, from other plants. The careful spacing used in the spaced matted row results in increased yield and decreased incidence of disease. In both the matted row and spaced matted row systems, rows are allowed to become 12 - 18 inches wide.

The hill system is often used for day neutral or everbearing cultivars and frequently is used in conjunction with raised beds. Mother plants are planted only 12 inches apart in a row, and staggered double rows are often used. In this system, all runners are removed so that only the mother plants are allowed to persist. Because these plants become less productive over time, they are normally replaced every 1 - 3 years.

Strawberries grown for ornamental purposes rather than maximum fruit production need not be planted in a bed, but may be incorporated into the landscape. Day-neutral types especially work well at the front of the perennial border as well as along a sidewalk or driveway. Because they produce fewer runners than June-bearing types, maintenance is minimal. One type of day-neutral, the alpine strawberry, may be grown from seed. Alpine strawberry plants produce tiny, highly flavored berries and make excellent ornamentals.

Strawberry plants may also be grown as a ground cover. To grow a strawberry ground cover, space the mother plants in grid, either 1 x 1 ft or 2 x 2 ft. The planting will require regular weeding in the first year, but maintenance should be minimal after the establishment period. Strawberries grown as a ground cover will not provide much fruit.

Care of June-Bearing Types

During the spring of planting, remove all flowers as they appear. This will allow the plants to put energy into development of healthy root systems and vigorous runners. Flower removal is often a painful task for the home gardener but is essential for future productivity.

Strawberries perform best when adequate water is provided. In a week without at least 1 inch of rainfall, irrigate using a sprinkler or soaker hose. One good soaking each week should suffice in most soil types. Always water early in the day so that foliage has a chance to dry before nightfall. This practice will help to prevent leaf diseases.

Because optimum fruit, root, and plant development occurs at relatively cool soil temperatures, an organic or inorganic mulch may be useful in keeping soil temperatures suppressed throughout the growing season. Additionally, a mulch will help to preserve soil moisture, control weeds and keep fruit clean. A clear or black plastic mulch is not recommended, as these types elevate soil temperature.

Because the crown of a strawberry plant may be killed at 15 degrees F, winter protection is essential. After 2 or 3 frosts have hardened off the plants, cover them with 4 - 6 inches of straw. Snow is an excellent insulator and will be sufficient where snow cover is reliable. Mulch should be removed in spring when growth begins, but may be left between rows to act as the summer mulch. If a frost is predicted after flowering begins, either recover the plants with straw or protect them with spunbonded polyester rowcovers.

Spunbonded rowcovers may also be used to speed harvest. Rowcovers are applied at the time of winter mulch removal and are left in place until flowering begins. This practice can speed harvest by as much as a week. Rowcovers must be removed at the time of flowering so pollination can occur. Fruits normally mature 28 days after pollination.

Because strawberries are poor competitors, keep all weeds out of the strawberry bed. Hand-weeding is recommended for home gardeners. Do not cultivate too deeply, however, as the strawberries' shallow root system may be damaged.

Strawberries require adequate nutrient levels for optimum production. At planting time, base any fertilizer application upon a soil test. Thereafter, apply a 10-10-10 granular fertilizer at a rate of 2-1/2 pounds per 100 feet early each season. A second application may be made shortly after harvest. Never apply fertilizer to strawberries late in the growing season, as this predisposes the plants to winter injury.

Renovation of June-Bearing Cultivars

A strawberry bed will require yearly renovation to keep it healthy and productive. After harvest is completed each year, mow off the foliage of the plants using a standard lawnmower taking care not to damage the crowns of the plants. This practice helps control leaf disease and stimulates runner production. After 1 - 2 weeks, rototill or hoe to narrow the rows to half the original width. The production of new runners should again result in rows 12 - 18 inches wide. Because fruit yield and quality decline over time, a strawberry planting should be replaced every 3 - 5 years.

Care of Everbearing and Day-Neutral Types

In the year of planting, all flowers should be removed until July 1, after which time the plants are allowed to flower and set fruit. Runners are normally removed as they appear, especially if the 'hill' system is used. Renovation is not practiced with

everbearing and day-neutral types. For maximum productivity, replace the planting every 3 years. Day-neutral strawberries may also be treated as annuals. Irrigation, mulching and weed control are the same as for the June-bearing types.

Insects & Diseases

There are many different insect pests of strawberry. Some of these pests will be present every year, and some you will never see, depending on the history of your garden and surrounding landscape. The most common insect pests of strawberries in Minnesota are tarnished plant bugs, strawberry bud weevils, slugs, sap beetles, and flower thrips.

The strawberry clipper clips off flower buds in spring, thus reducing harvest. The tarnished plant bug feeds on developing flowers, causing the deformed berries sometimes termed 'nubbins' to develop. Slugs feed on ripe fruit, leaving small, deep holes in the fruit, usually under the cap and irregular holes in foliage. Sap beetles feed on overripe or rotting fruits that remain in the garden. Feeding by thrips causes berries to appear bronzed and seedy. For more information, refer to Strawberry Insect Pests of the Home Garden.

Strawberries are susceptible to many different fruit rots and leaf diseases. Losses due to fruit rots may be kept to a minimum by planting in full sun, maintaining proper spacing and watering early in the day. Standard renovation practices will adequately control these diseases in home gardens. If you are unsure of what disease is affecting your plants you are encouraged to submit a sample to the U of MN Plant Disease Clinic. For information on specific diseases and control measures available, refer to Strawberry Diseases.