



Growing Strawberries in the Home Garden

Fresh strawberries are a favorite of almost everyone. Strawberries are relatively easy to grow and are hardy throughout Iowa.

Types of Strawberries

There are basically 3 types of strawberries. **June-bearers** are the most widely planted type of strawberry. June-bearing strawberries develop flower buds in late summer and fall as the day length shortens (nights become longer) and temperatures cool. The following spring, flowering occurs and the fruit typically ripen during June. The plants are strictly vegetative during the summer months. June-bearing plants produce runners during the long days (short nights) and high temperatures of summer.

The second type of strawberry is the **everbearing strawberry**. Everbearing varieties (cultivars) typically produce a late spring and late summer/early fall crop with little flowering or fruiting in the intervening weeks. Everbearers produce few runners and tend to form several crowns.

Day-neutral cultivars are the third and newest type of strawberry. They are regarded as an improved, more productive everbearing type strawberry. Day-neutral refers to the response of the plant to day length. Day-neutral strawberry plants are not strongly influenced by day length and will flower and fruit throughout the summer months. Temperatures, however, do affect day-neutral strawberries. Day-neutral strawberries perform best during the cooler periods of the growing season and are not very productive during hot weather.

Site

Strawberries require full sun and well-drained soils. The planting site should receive at least 6 hours of direct sun per day. Leaf and root diseases are often problems in poorly drained, wet soils. When selecting a site for the strawberry planting, do not plant in ground that is heavily infested with perennial weeds, such as quackgrass. Weed control will be extremely difficult. To prevent possible root disease problems, avoid sites where strawberries, tomatoes, potatoes, and peppers have been grown within the last 3 years. If possible, begin to prepare the planting site in late summer or fall of the previous year. Early preparation allows adequate time to conduct a soil test to assess the nutrient status of the site and control weeds. Early site preparation may also permit planting 1 to 2 weeks earlier in spring.

Source of Plants

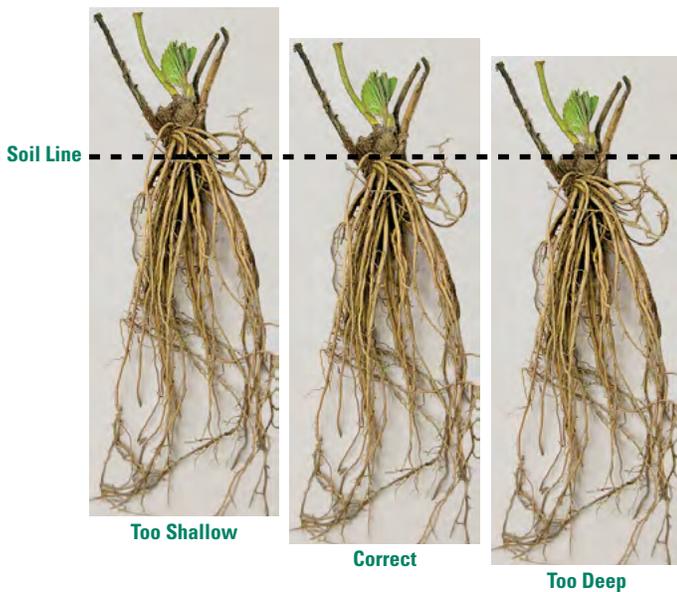
Purchase strawberry plants from a reliable, reputable mail-order nursery or garden center. Plants from an old planting may be disease infested. If planting must be delayed after purchase, place the plants in a plastic bag and place moist material, such as wood shavings or sphagnum peat moss, around their roots. The plants will die if the roots are allowed to dry out. Store the strawberry plants in the refrigerator at 32 to 40°F. Plants can be safely stored in the refrigerator for 1 to 2 weeks.

Planting Design

The type of strawberry determines the planting design. June-bearing strawberries are planted 18 to 24 inches apart in rows spaced 4 feet apart. Runners will develop and root freely and eventually form a matted row of plants about 2 feet wide.

Everbearing and day-neutral strawberries are typically planted in beds consisting of 2 or 3 rows that are 1 foot apart. The plants are spaced 1 foot apart within the rows. There should be a 2-foot-wide path between beds. Any runners that develop on everbearing and day-neutral strawberries are removed and the plants are maintained as large, single plants.

PLANTING DEPTH



Planting

Early spring (late March and April) is the best time to plant strawberries. Apply and incorporate the recommended type and amount of fertilizer (based on soil test results) into the top 6 to 8 inches of soil prior to planting. If the fertility level of the soil is unknown, apply and incorporate 1 pound of 10-10-10 or a similar analysis fertilizer per 100 square feet.

Remove the strawberry plants from storage when ready to plant. Trim off the older leaves, place the roots in water for an hour, then plant immediately. Set each plant in the ground so the crown of the plant is even with the soil surface.

Immediately after planting, water the strawberry plants and apply a starter fertilizer solution to aid establishment. Use a water soluble fertilizer following label directions or dissolve 2 or 3 tablespoons of a complete, garden fertilizer, such as 5-10-5 or 10-10-10, in one gallon of water. Apply 1 to 2 cups to each plant.

Blossom Removal

All blossoms should be removed from June-bearing strawberry plants during the first growing season. If berries are allowed to develop, they will reduce plant growth, runner production, and next year's crop. Check plants once a week and remove the blossoms by pinching or cutting. Flowering should stop by early July.

Remove the flowers on everbearing and day-neutral strawberries for 6 weeks to allow for good plant establishment. Later flowers may be allowed to develop into fruit.

Irrigation

Strawberry plants need 1 inch of water per week for adequate growth. Water the strawberry planting once a week during dry weather.

Weed Management

Weed control is essential to ensure optimal plant growth and fruit production. Weeds compete with the strawberry plants for water, nutrients, and sunlight. Weeds also reduce air circulation and result in fruit and foliage staying wet for longer periods. Disease problems are more serious when plant tissue remains wet for long periods of time. Cultivation is the most practical control measure for home gardeners. Cultivate often, but shallow, to control weeds. Hand weeding may also be necessary.

Insect and Disease Management

Good cultural practices can reduce damage and losses caused by insects and diseases. The following practices should reduce pest problems in the strawberry planting.

1. Select a planting site with good soil drainage. Avoid poorly drained, wet areas. Wet, poorly drained soils favor the development of destructive root diseases. Gardeners with poorly drained soils should plant strawberries in raised beds.
2. Select a site where strawberries, tomatoes, peppers, and potatoes have not been grown within the last 3 years to minimize the risk of *Verticillium* wilt, red stele, and other diseases.
3. Plant only disease-free strawberry plants obtained from a reputable mail-order nursery or garden center. Plants from an old bed are often disease infested.
4. Avoid applying nitrogen-containing fertilizers to June-bearing strawberries in spring. Nitrogen fertilizers produce dense foliage that increases drying time in the planting and also results in softer berries that are more susceptible to fruit rots.
5. Control weeds in the strawberry planting. Weeds reduce air circulation. Poor air circulation increases drying time in the planting, resulting in greater disease problems.

6. Apply a layer of straw mulch between rows and around plants. The mulch prevents soil from splashing up onto the berries. The mulch also helps control fruit rots.
7. Renovate June-bearing strawberries immediately after the last harvest. Mow off the foliage with a rotary mower within 1 week of the last harvest. Rake and remove the plant debris to aid in disease control.
8. Pick berries as soon as they are ripe. Overripe fruit may attract insects to the garden and are more susceptible to fruit rots. Promptly pick damaged or rotting berries and remove them from the planting.



Winter Mulch

Strawberries should be mulched in fall to prevent winter injury. Low temperatures and repeated freezing and thawing of the soil through the winter months are the main threats to strawberry plants. Temperatures below 20°F may kill flower buds and damage the roots and crowns of unmulched plants. Repeated freezing and thawing of the soil can heave plants out of the ground, severely damaging or destroying the plants.

Allow the strawberry plants to harden or acclimate to cool fall temperatures before mulching the bed. Applying mulch before the strawberry plants have properly hardened may make the plants more susceptible to winter injury. In northern Iowa, strawberry plantings are normally mulched in early November. Gardeners in central and southern Iowa should mulch their strawberries in mid-November and late November, respectively. Excellent mulching materials include clean, weed-free wheat, oat, or soybean straw. Chopped cornstalks are another possibility. Apply approximately 3 to 5 inches of material. After settling, the mulch layer should be 2 to 4 inches thick.

Leaves are not a good winter mulch for strawberries. Leaves can mat together in layers, trapping air and creating space for ice to form. The leaf, air, and ice layers do not provide adequate protection. A leaf mulch may actually damage plants due to excess moisture trapped under the material.

To reduce the chances of crop damage from a late frost or freeze, leave the mulch on as long as possible. Removing the mulch in March or early April may encourage the plants to bloom before the danger of frost is past. Temperatures of 32°F or lower may severely damage or destroy open flowers. Since the first flowers produce the largest berries, a late spring frost or freeze can drastically reduce yields.

To determine when to remove the mulch, periodically examine the strawberry plants in spring. Remove the mulch from the strawberry plants when approximately 25 percent of the plants are producing new growth. New growth will be white or yellow in color. (If possible, the winter mulch should remain on strawberries until mid-April in central Iowa. The average date of the last 32°F temperature in spring normally occurs in late April in central Iowa.) When removing the mulch, rake the material to the aisles between rows. If there is a threat of frost or freeze later in the season during bloom, lightly rake the mulch over the strawberry plants.

Harvest

Harvest strawberries when the fruit are uniformly red. Pick the berries with the cap and stem attached to retain firmness and quality. Pinch off the stem about ¼ inch above the cap. Strawberries can be stored in the refrigerator at 32 to 40°F for 2 to 5 days. Surplus can be frozen.



Renovation of June-bearing Strawberries

A June-bearing strawberry planting can be productive for several years if the bed is properly renovated. June-bearing strawberries should be renovated immediately after harvest. The renovation procedure includes leaf removal, creation of 8-inch-wide plant strips, and fertilization. After the initial renovation steps have been completed, irrigation and weed control are necessary throughout the rest of the growing season.

Start renovation by mowing off the leaves 1 inch above the crowns of the plants with a rotary mower within 1 week of the last harvest. (Do not mow the strawberry bed after this one week period as later mowing destroys new leaf growth.) To aid in disease control, rake and remove the plant debris.

June-bearing strawberries grown in 2-foot-wide matted rows should be narrowed to 8-inch-wide strips with a rototiller or hoe. When selecting the part of the row to keep, try to save the younger plants and remove the older plants. Narrow the strawberry rows with a rototiller or hoe even if unable to mow off the strawberry foliage within 1 week of the last harvest. Narrowing of strawberry rows can be done up to mid-July. If the strawberry planting has been allowed to become a solid mat, renovate the bed by creating 8-inch-wide plant strips. Space the 8-inch-wide plant strips about 3 feet apart.

Fertilization is the next step in renovation. Apply approximately 5 pounds of 10-10-10 or a similar analysis fertilizer per 100 feet of row to encourage plant growth and development.

Water the strawberry plants during hot, dry weather. Strawberries require 1 inch of water per week for adequate growth. Irrigate the planting during hot, dry weather to ensure optimal production next season as June-bearing strawberries develop flower buds in late summer and early fall.

Some June-bearing strawberry cultivars are extremely vigorous, producing runners beyond the 2-foot matted row. These runners should be placed back within the 2-foot row or removed to prevent the planting from becoming a solid mat of plants.



Well-maintained June-bearing strawberry plantings that are renovated annually may remain productive for 4 or 5 years. Poorly managed beds may be productive only 1 or 2 years.

Fertilization

Established plantings of June-bearing strawberries should not be fertilized in spring. Spring fertilization stimulates foliar growth, increases disease problems, and produces softer fruit. Lush, vegetative growth may make picking difficult. Also, soft fruit are more likely to be attacked by fruit rots. As a result, a spring fertilizer application may reduce the fruit yield. Fertilizer should be applied to June-bearing strawberries during the renovation process immediately after the last harvest of the season.

Everbearing and day-neutral strawberries can be fertilized in early spring and again in early August. Apply 5 pounds of 10-10-10 or a similar analysis fertilizer per 100 feet of row.

Culture of Everbearing and Day-Neutral Strawberries

Everbearing and day-neutral strawberries should not be renovated like June-bearers. All runners, however, should be removed. Matted rows of everbearing and day-neutral strawberries are not as productive as single plants.

Day-neutral strawberries perform best during the cooler periods of the growing season. Few flowers and fruit will be produced during hot, summer weather. Fruit production can be encouraged by cooling the day-neutral

strawberries with a summer mulch. Straw or crushed corn cobs are excellent summer mulches for day-neutral strawberries. These materials help to cool the soil, conserve moisture, suppress weed growth, and maintain clean fruit. Carefully place the mulch around the plants. The mulch depth should be approximately 3 inches. A summer mulch, however, may be unable to sufficiently

cool the plants when temperatures are extremely high. Flower and fruit production will cease until temperatures moderate. Everbearing strawberries also benefit from a summer mulch.

A well-maintained planting of everbearing or day-neutral strawberries should remain productive for 2 or 3 years.

Suggested Strawberry Cultivars for Iowa

Cultivar	Season	Berry Size	Flavor	Freezing Quality
June-bearing cultivars				
Earliglow	Early	Medium	Excellent	Very good
Annapolis	Early	Very large	Very good	Very good
Surecrop	Early to mid	Medium	Good	Good
Honeoye	Early to mid	Large	Good	Very good
Kent	Mid	Large	Very good	Good
Redchief	Mid	Large	Good	Very good
Cavendish	Mid	Very large	Very good	Very good
Allstar	Mid to late	Very large	Very good	Very good
Sparkle	Mid to late	Medium	Good	Good
Jewel	Late	Large	Very good	Very good
Lateglow	Late	Large	Very good	Very good
Day-neutral cultivars				
Tribute		Medium to large	Very good	Very good
Seascape		Large	Very good	Good
Albion		Very large	Very good	Good
Everbearing cultivars				
Fort Laramie		Medium	Good	Good
Ogallala		Medium	Good	Good

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