

Growing Guide: Strawberries

FUN FACTS

- Strawberries are not actually berries from a botanical standpoint. They are aggregate fruits, comprised of an enlarged flower stem, called a receptacle, on which are embedded approximately 200 achenes or dried fruits, each containing a single seed.
- Native species of strawberries are found in many parts of the world, with the exception of Africa, Australia, New Zealand, and Antarctica.
- According to the USDA, annual per capita consumption of strawberries in the United States, both fresh and frozen, is close to 5 pounds! The berries are enjoyed by 94% of the households in the country.
- Strawberries are an excellent source of Vitamin C.
- California is the major producer of strawberries in the U.S. — about a billion pounds annually! If that year's worth of berries were laid end-to-end, they would circle the globe 15 times!



GROWING GUIDE

"God could have made a better berry, but doubtless God never did." William Allen Butler is reputed to have lavished this praise on strawberries in the nineteenth century, and we have to agree— a perfectly ripe strawberry is the pinnacle of berry perfection!

While strawberry growing takes a little more planning and work than, say, cultivating lettuce or beans in the vegetable garden, the rewards are well worth the extra effort. And by adding the newer day neutral varieties to your berry patch as well as the traditional June bearers, you can enjoy fresh berries all summer long.

VARIETIES

June-bearing or short day strawberries are the classic varieties. And true to their name, they usually begin producing fruits sometime in early summer in most parts of the country, with the harvest continuing for four or five weeks, depending on whether the particular variety is an early, mid-season, or late bearer. Although June-bearers fruit in the long days of early summer, the environmental signal that governs this timing actually occurs much earlier, in the short days (and long nights) of the previous fall. The plants receive the signal to form flower buds as days shorten in late September through early November. It's actually the length of the night that the plant responds to, rather than the length of daylight. These buds stay dormant through the winter, and when the weather warms again in spring, the plants begin to flower and later, fruit. Depending on the variety, June bearers are suitable for growing in hardiness zones 4-10.

Day-neutral strawberries are a more recent development, and as their name suggests, they initiate flower buds regardless of daylength, which enables them to fruit more or less

continuously from early summer to fall, generally with three peaks of production over the course of the season. Their early summer berry production is not as great as that of the June bearers and the individual berries are generally not as large, but their sustained fruit production makes them a great choice for many home or school gardens. Day-neutral varieties are best suited to areas with relatively moderate summer temperatures, generally hardiness zone 6 or colder.

Everbearing strawberry varieties set a relatively large crop of berries in early summer and another smaller crop in the fall (they are not really everbearing, in spite of their name.) Their popularity has declined with the development of day-neutral varieties, which generally offer better fruit quality and yield. But you may still occasionally see some everbearers offered for sale.

Within each of these categories there are many different varieties or cultivars that are adapted to the different climate conditions found around the country. Your local State Extension Service is a good resource to help you determine which specific varieties will do best in your location.

There are a number of strawberry varieties that show resistance or tolerance to diseases such as red stele, verticillium wilt, anthracnose, leaf spot and leaf scorch. If these diseases are a problem in your area, check catalog descriptions or on-line resources to help you select appropriate disease-resistant varieties.

SITE

Choose a site in full sun, with well-drained soil rich in organic matter and good air drainage to reduce the likelihood of frost damage. Cold air runs downhill, so planting on a gentle slope is a good idea, where possible. Strawberries do best when they are not in competition with weeds. If you are making a berry bed in an area that has not been cultivated before, remove any sod, adjust the pH to between 6.0 and 6.5, if needed, work in some compost, and plant a summer cover crop like buckwheat to choke out weeds. You'll be all set next spring to get your plants in the ground in early spring.

WHEN TO PLANT

If you are ordering strawberry plants by mail, you'll receive dormant bareroot plants. (These are also available at many local garden stores.) Plant them in early spring, as soon as the ground can be worked. If you receive your plants before conditions are suitable for planting, wrap the bundles in damp paper towels, place them in plastic bags, and store them in the refrigerator. Many nurseries and garden centers also sell strawberry plants in containers, which can be planted a little later in the season; however they will establish best if they go in the ground when the weather is still cool. If you are growing strawberries in warm climate areas such as southern California and the Gulf states, fall planting is recommended.

PLANTING

The best way to arrange strawberry plants within a bed depends on the type of strawberry you are planting. June-bearing varieties produce lots of runners, above-ground, horizontally-growing stems on which new "daughter plants" form. They are usually planted in matted rows. Day-neutral and everbearing cultivars don't produce many runners and are planted in hills.

- **Matted rows system:** Set out strawberry plants 18-24 inches apart in the row, staggering rows 3-4 feet apart. These "mother plants" are then allowed to produce runners at will, resulting in many new "daughter plants." Because the plants are widely spaced initially, it's a good idea to lay down mulch between plants to keep weeds down. If you are

planting in raised beds that are 3-4 feet wide, you can space plants a little closer (12-18 inches apart) to fill the entire bed in a staggered pattern. Spaced matted row system is a somewhat more labor intensive variation. Only 6-8 runners per plant are allowed to form; the rest are picked off. The runners are spaced out manually and anchored in place with U-shaped pieces of wire. While spaced matted rows require more work, they generally produce a higher yield because of less competition and there are few disease problems due to better air circulation around plants.

With June bearing varieties, the flower buds should be picked off the entire first season the plants are in the ground so that the plants become well established. You'll begin harvesting berries the second year.

- Hill system: Day-neutral and everbearing plants produce few runners and are usually planted in hills. Set plants 12 inches apart in a staggered pattern, either in double rows with 3-4 feet between the double rows, or filling an entire raised bed. Pick off any runners that form.

The flower buds of day neutral cultivars should be removed for the first six weeks after planting. The flowers that form after that period will go on to produce a harvest from late summer to frost in the first year.

Strawberries can also be grown in containers, but in cold climates you'll need to plan on providing some winter protection. The easiest option for containers is to grow day-neutral varieties as annuals, replacing them each spring.

How to Plant

If possible, pick a cool, overcast day to put plants in the ground. Make sure the soil is dried out enough for planting. Take a handful of soil and squeeze; if it sticks together in a tight ball, let it dry out a while longer. If the ball of soil crumbles when you give it a gentle poke with your finger, you're good to go.

When planting dormant bareroot plants, soak them in water for 30 minutes before planting. Trim back roots to 4-6 inches; you want to be able to set the plants in the ground without bending or crowding the roots together.

No matter what type of strawberries you grow, it's very important to make sure that they are set in the ground at the appropriate depth. Take a look at your plant. You want to set it in the ground so that the crown, the point at which the leaves are emerging, is just above the soil line. If a plant is set too high, the roots will dry out; if the crown is buried, it will rot.

Dig a wide shallow hole for each plant and pull the soil in the center up into a cone. Drape the roots of the plants evenly over the cone; then fill in the hole with soil, firmly gently. Water well after planting. Spread mulch between plants to help conserve moisture and keep weeds down.

CARE

Watering: Strawberries have shallow roots systems that are susceptible to drought. Be sure to provide consistent soil moisture throughout the growing season.

Fertilizing: Depending on your initial soil preparation and fertility, you may find it helpful to sidedress or fertilize your strawberry bed during the growing the season. Sidedress June bearing

varieties lightly about six weeks after planting and again in late summer or early fall during their first season. In following seasons, fertilize after harvest when the bed is renovated (see below). Beginning about six weeks after planting, sidedress day-neutral varieties lightly each month during the summer months or use a slow-release fertilizer at the beginning of the season.

Winter protection: In cold winter parts of the country, cover plants with mulch just as the ground begins to freeze. (You don't want to cover plants too early as their exposure to shortening days and falling temperatures signals the plants to harden off for winter.) Four to six inches of clean straw or any loose mulch that won't become compacted works well, or you cover the bed with winter-weight row cover fabric. Remove mulch or covering in the spring as the plants begin to flower, but be prepared to re-cover plants temporarily if late spring frosts threaten.

Bed renovation: Strawberry plants are perennials but, alas, strawberry plantings are not. Beds eventually become overcrowded and yields decrease. Renovating beds after harvest can extend the useful life of a strawberry planting, keeping it healthy and productive.

When the harvest season for June-bearing strawberries draws to a close, mow off the foliage using a lawn mower with the blade set high enough to avoid damaging the crowns of the plants, collecting the leaves in the mower's bag. Then topdress the bed with compost and fertilize with a complete fertilizer. A week or two later, trim back the plants by hoeing or rototilling to reduce the width of the rows by about half. After 3-5 years, it's time to replace the entire planting.

Day-neutral and everbearing strawberry varieties don't need this yearly renovation, but for the best productivity, the plants should be replaced every 1-3 years.

TROUBLESHOOTING

The pests and diseases that may trouble your strawberry plants will vary depending on where in the country you are gardening. Below are a few of the more common and widespread problems. For more specific information, check with your local State Extension Service or Master Gardeners Program.

- Slugs are most problematic when the weather is wet. They will beat you to the harvest, feeding on ripe or almost ripe fruits. Setting out saucers of beer in the garden for slugs to crawl into and drown is a time-honored control. You can also set out old cabbage leaves, shingles or the like – anything that will serve as a good daytime hideout for night-feeding slugs. Go out in the morning, collect the marauders and toss them in a container of soapy water to drown.
- Tarnished plant bugs are ¼ inch long, brownish insects that damage strawberry blossoms or developing fruits, causing deformation of the mature fruits. If you've ever seen a strawberry with a shriveled up, hard, seedy tip, you've seen the kind of damage these bugs can do. (The unaffected parts of the berry are edible; simply cut away the deformed spots.) Tarnished plant bugs overwinter in weedy areas, so keep weeds down in and around the strawberry patch.
- Sap beetles are tiny black beetles that are attracted to ripe or over-ripe strawberries, especially ones that have been damaged by slugs or birds. The best defense is to harvest fruits frequently, including any damaged berries. You can also set out sap beetle traps along the edge of your strawberry bed using a lump of whole wheat bread dough set inside a quart jar topped with an inward-pointing funnel. Beetles go down the narrow neck of the funnel toward the dough, but aren't able to find their way back out. You can also use over-ripe berries as a lure inside the jar. Shade the trap to keep the dough from drying out and replace it as needed.

- Gray mold is a fungus disease that causes flowers to turn brown and die, as well as the growth of fuzzy gray mold on ripe fruits. It is most prevalent when the weather is cool and wet around harvest time. Picking and disposing of infected flowers and fruits can help control the disease, but do this separately from your regular harvesting to avoid spreading spores to uninfected berries, and don't work among plants when they are wet. Make sure that plants aren't overcrowded so that air circulation around them is good. Use drip irrigation or water early in the day so that plants dry quickly. Select varieties that show resistance or tolerance to gray mold.

HARVEST

The best advice is to pick often—at least every two or three days, even more frequently when the weather is hot. Berries are ready for harvest when they are completely colored. Some varieties will readily pull loose from their cap when picked. Other varieties will come away easily with a small portion of the stem attached. Still others need a light twist and pull to separate the stem from the plant. In all cases, be gentle, as strawberries bruise easily, and bruised fruits will not keep well. Morning, when berries are dry but still cool, is the best time of day to harvest.

For a tasty and healthful cold treat, try [Strawberry-Banana Smoothie Pops](#) from [Eating Well](#).