



Redwood Barn Nursery

1607 Fifth Street Davis, California

Strawberries

Strawberries are easy to grow! I always encourage novice gardeners to plant a few strawberry plants in their first garden. It will be the first thing you pick, and that first ripe berry is worth all the effort.

It may seem odd to say this when you realize that they are one of the most labor-intensive, high-input, heavily-sprayed agricultural crops in California.

But in the garden they have few issues and give quick results. The plant starts blooming right away, produces fruit in just a few weeks, can be allowed to ripen to an absolute peak of flavor on the plant, and continues fruiting for several weeks. It is perennial, sending out runners to make new plants and continuing to produce for a couple of years. Or you can just keep planting them as annuals: young starts are available all through the spring and summer.

History and origin of our garden strawberry

Most garden berries are North American natives: blackberries, blueberries, cranberries. The Americas, North and South, gave us the garden strawberry: *Fragaria x ananassa*. Two species, one from the western coast of South America, and one from eastern North America, were hybridized by the French in the 18th Century. There are plenty of other wild species of *Fragaria* native in many parts of the world, and they are harvested wild wherever they grow.

Strawberries have been cultivated so widely, hybridized so often, naturally mutated and crossed, that their taxonomy and genetics are very scrambled. There are diploid, tetraploid, pentaploid, hexaploid, octaploid, and even decaploid members of *Fragaria*. Nearly all are self-fruitful, except the musk strawberry (*F. moschata*) which has male, female, and hermaphroditic plants.

Short day vs. day neutral varieties

A key characteristic of strawberry plants is the photoperiod response.

The first garden varieties only flowered while the days were still short, so we call them short-day plants. They set fruit which ripens May – June, and then plants redirect their energy to production of runners that spread out and make new plants. Gardeners remove the runners to prolong production, but ultimately fruiting is done by early summer. These are sometimes called June-bearing varieties.

Strawberries were a highly prized, seasonal crop in the Victorian era. Perhaps that is why they are traditionally served at Wimbledon tennis tournament. A special fragile fruit with a narrow season that marks the start of summer, strawberries “evolved into a luxury, generally only for the wealthy, and began to be included as part of afternoon tea in the early summer. The timing of the harvest and availability coincided with Wimbledon during the fortnight of the tournament, nearly 150,000 servings of strawberries will be consumed.”

They are traditionally served with clotted cream, a genuinely strange British product.



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Other species aren't day-length sensitive. So breeders, especially at UC Davis, hybridized garden strawberries with those species, notably *Fragaria virginiana*, to get longer fruiting seasons. The first hybrids, introduced in 1979, continued to flower and fruit on into summer albeit with lower yields. They still wouldn't flower if temperatures were high, so were mostly used for extending the season in coastal growing areas.

Breeders have improved these "day-neutral" or ever-bearing types. They don't produce constantly, rather in cycles of fruiting. Temperature is still a factor for many, so recommended varieties differ regionally. Much ag production is still June-bearing types due to higher yields. But home gardeners like the longer production of everbearing ones.

What strawberries want.

- Strawberries grow and yield best in full sun.
- The plants are less susceptible to rot if the bed is elevated. Plant on furrows or make a raised bed.
- A small amount of fertilizer mixed in the soil with each plant is sufficient for the whole season.
- They're not deep rooted, so they need frequent watering. A drip system is ideal. They can get by with less water, and still yield well, when they get some light afternoon shade.
- A plant will produce at least a few fruit almost anywhere.
- If you pamper them with rich soil, frequent watering, and light, frequent feedings, you will be rewarded with vigorous growth, deep green leaves, and more abundant fruit.

Commercially they are grown as annuals due to pest problems. They plow them under, fumigate the fields, and plant again every spring. Home gardeners can just rake out the beds in winter to remove older crowns and diseased leaves, and will get good enough yields for two to three years. Plant new plants in another area of your yard every couple of years.

Everything likes to eat the fruit. Sowbugs, snails, and slugs crawl up and burrow into fruit that sits on the ground. Spread straw (hence the name) or medium-size bark around the plants as they start to flower. This will perch the fruit up high. Sowbugs don't like to climb. Put netting over the plants while the fruit ripens to protect it from birds and squirrels.

Even better: plant in containers, raised beds, even hanging baskets if they have sufficient soil volume. Get the fruit up where critters have to work to get at them.

The UC Davis connection.

UCD has housed a strawberry breeding program since the 1930s, producing varieties that transformed the industry. Dr. Royce Bringhurst at UCD, and Dr. Victor Voth in Irvine, worked from the 1950s into the 1980s and introduced the main varieties grown in California. Three of their most important were Chandler, Douglas, and Selva.

Dr. Bringhurst spoke to a pomology class I took in the late 1970's. A cherubic and jovial gentleman with ruddy cheeks and a broad smile, he endeared himself to us by walking in with a giant bowl of strawberries and waving us down to sample them. Note to public speakers: this *really* works to win over your audience.



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According to UC Davis News, “California is the dominant producer of both fresh and processed strawberries, providing more than 87 percent of the strawberries consumed in North America. Strawberry varieties developed at UC Davis produce about 60 percent of the strawberries consumed worldwide.”

UC makes a few cents for each plant of a patented variety that sells, and millions of strawberry plants are grown and sold to farmers each year. Revenues from patented varieties exceeded \$6 million to UC in 2014.

A note about organic strawberries.

There are almost no growers of organic strawberry *plants*. You can buy organic strawberry *fruit* at the grocery store. It was almost certainly not grown from organic starter plants. Organic farmers can start with conventional plants if they do not have an organic source. They grow the fruit organically.

Strawberries are host to many virus diseases, mites, fungus and bacteria. Plants are grown by multiplying young plants from the runners. Considerable care needs to be taken that diseases and pests are not transferred to the young plants shipped to growers. It is very challenging to do this organically. Foundation Plant Services, a UCD program, has a complex program for producing, maintaining and testing stock plants for strawberry growers worldwide to ensure that they are virus and pest free.

Some strawberry varieties for our area:

Day neutral/everbearing unless otherwise noted.

- **Sequoia** is top-rated for flavor. A UC introduction from 1968, it's considered short-day/June-bearing, but will yield longer than most of that type. Medium-sized fruit softens quickly, but worth it for the flavor. You'll never find this berry in a grocery store.
- **Albion** wins taste trials. At one I attended it was the hands-down favorite. High yield, large fruit, outstanding flavor, and good production through the summer.
- **Chandler** has long been one a leading commercial variety in California; also great for home gardeners. Heat tolerant, very productive. The fruit is large, great color, firm enough to freeze. Short day/June-bearing.
- **Ozark Beauty** is well-known everywhere for high production and large fruit, very good flavor.
- **Quinalt** is popular because the runners produce fruit before they root, increasing the yield in a small space, so it is popular for containers as the runners can trail over the side and produce fruit. Large fruit, sweet flavor.
- **Fort Laramie** has very large, bright red firm fruit that is pink inside. Great flavor, very sweet, very aromatic fruit.



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- **Eversweet** is widely adapted, tolerant of high temperatures so it yields more in summer here than many other types.
- **Seed strains:** F1 hybrid types with acceptable fruit are occasionally grown by bedding plant suppliers from seed. Some have ornamental flowers, so they're pretty and fun to grow. Look for the Elan series such as Berri Basket. The fruit is pretty good.

Gourmet and wild strawberries

Alpine strawberries, Wild strawberries, Fraises des bois (*Fragaria vesca*)

Consider these especially if shade is an issue. The tiny, dryish fruit is packed with intense flavor. These plants don't produce runners, just forming a tight clump. They flower constantly from spring through summer. Plant in the dappled shade of deciduous trees.

I have grown these in an oak barrel under my Sycamore tree for over a decade. The foliage is attractive, and we can pick a sampling of fruit any time during spring and summer.

Occasionally white-fruited varieties are available.

Pineberry

This strange, photogenic berry hit the scene in 2010 and created quite a stir. It is a hybrid from the same parents as the garden strawberry. Fruit is very pale pink, almost white, with red seeds; small, sweet, said to taste like pineapple and very aromatic.

Many people thought they were photoshopped, and that the whole thing was a hoax. Apparently the British retailer Waitrose that introduced them in the UK did so on April 1, and had a prior history of April Fools' Day pranks. They're real, though not very productive. Availability of the plants is very limited.

Ornamental strawberries

Wild species of *Fragaria* are sometimes grown as ground covers. Most fruit that is edible but not great. A couple of native plant nurseries offer a male variety that is fruitless.

Mock strawberry (*Duchesnea indica*) and Cinquefoil (*Potentilla neumanniana*) are sometimes intentionally planted as ground covers. Unlike true strawberries, they have yellow flowers. The small fruit of *Duchesnea* is dry but is eaten by birds, who spread it readily. It can become quite a garden pest.

Further reading:

More about UC strawberry varieties:

<http://research.ucdavis.edu/industry/ia/industry/strawberry/cultivars/>

Strawberries at Wimbledon:

<http://www.thepostgame.com/strawberries-cream-wimbledon-how-tradition-started>.



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Albion is a great UC variety for home gardeners. Flavor is outstanding and they continue to produce into the summer. Ron Ludekens of L.E. Cooke Co. took this picture. "They say a photo is worth a thousand words. So I don't need to write much about the humongous size of these Albion Strawberries. But what a photo cannot tell you was how delicious they were."



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Flavor usually described as spritely, alpine strawberries are tangy-sweet. They're not very juicy, but the flavor is strong. Alpine or wild strawberries prefer some shade and produce light crops all summer.



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Are they real? Lots of people didn't think so when pineberries were first introduced in 2010! Yes, the "albino fruit" (actually very pale pink) are garden hybrids created by crossing the same species that gave us the original garden strawberry. The pineberry is a novelty, with relatively small berries and low yields. Plants are occasionally available from mail order sources. Same growing conditions as regular strawberries.

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Some strawberry varieties have showy pink flowers (instead of the usual white) and have pleasant, sweet fruit. They are fun to grow as garden ornaments with the fruit as a nice bonus. Look for F1 hybrids such as Berri Basket, Elan, and Roman. Great for hanging baskets so long as you keep them watered.