



STRAWBERRIES

The Luscious Red Fruit

The image of a bowl of sliced red strawberries with cream and maybe a little sugar is a tantalizing picture. You can grow big red strawberries that bear by the bucketful in your own garden.

I know that some of you have tried the strawberry plants that nurseries sell in the springtime with poor results. The plants just do not have enough time to get established to produce a good crop before the summer heat arrives. With a fall-planted annual system, which we will be discussing, the summer heat problem is eliminated. First, let's get acquainted with the famous and tasty red berry.

The history of the strawberry

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is interesting, and the currently cultivated strawberry varieties are a fairly recent development. Wild strawberries are indigenous to both Europe and the Western Hemisphere. The wild berries were picked and sold in markets in Europe as far back as Roman times. In America, Indians used the berries before European settlers arrived. When English ships landed in Virginia in 1588, the English found wild strawberries growing there. The strawberries they found were superior to the wild strawberries of Europe in size, flavor and beauty. Cultivation of wild strawberries began in America as early as 1643 in Massachusetts. The first account of how to cultivate the wild European "wood" strawberries was given in a French publication in

1578. During the 19th century, crossbreeding was started to improve the strawberry. The groundbreaking variety resulted from a cross of a Virginia wild variety and an imported Chilean wild variety that produced a larger, firmer berry. The result was the Pineapple strawberry. The Pineapple strawberry was the first step to our present big-fruited strawberries. During the revolutionary period, in 1780, the first American hybrid strawberry 'Hudson' was developed. Today more than 30,000 acres of strawberries are cultivated in the United States. With an acre producing around 20 tons of strawberries, that adds up to a lot of fruit!

The origin of the word "strawberry" comes from the word "strew," and that word came from

the fact that the plants send out runners and "strew" themselves about. The Anglo-Saxon word "strew" was later converted to the English word "straw." Many thought the name had to do with the fact that straw was sometimes used as mulch for strawberries and, although incorrect, it is an interesting association.

Scientifically, the strawberry, belonging to the *Fragaria* genus, is a member of the large rose family (*Rosaceae*). *Fragaria* means fragrant. The "fruit" are actually the enlarged ends of the stamens of the plants. This results in the seed being on the outer skin instead of inside like most fruit.

Today's strawberry, *Fragaria x ananassa*, is a herbaceous perennial, producing leaves at close intervals on a short stem, producing flowers at the terminal position on the stem axis with roots at the base of the stem. This stem structure is called a crown and is the regenerative part of the plant.

A plant has about 30 roots but may have up to 100. Most of the roots are in the top 6 inches of the soil. The primary roots live one year. To maintain its perennial nature the plant initiates new roots at the nodes at succeeding higher levels on the base of the crown. Old plants gradually lose ground contact and succumb to drought or stress. To achieve good production the old plants need to be removed or isolated each year and replaced with young plants from plantlets on runners or by completely replanting. The old plants put out runners that form new daughter plants on stolons. A daughter plant initiates roots at the second node of the stolon. When these roots are developed the new plantlets can be severed from the old plant. This forms the basis of reproduction for new plants either in the garden or in the nursery.

The flower buds are formed from late summer into fall and the number of buds formed at that time determines the maximum number of berries the following spring. The strawberry fruit itself is formed following fertilization and develops by en-

larging its cells. Generally, the period from bloom fertilization to ripe fruit is 30 days, but it can be as little as 20 days or as long as 60 days depending on conditions.

Our summer heat prevents many of the everbearing strawberry varieties from producing well. Everbearing varieties will produce strawberries in Texas but will not match the production of the June-bearing varieties, and the berries they produce are usually small.

June-bearing varieties can and do produce bountiful crops. Time of planting is a critical factor for these one-crop, June-bearing strawberries. You want them to produce their full crop before the heat of summer arrives. To do this you need to plant in the fall and let them get established before the first fall frosts arrive. Strawberries can stand our winter temperatures but do not grow much during this time. Having them established in the fall means that with the first warming of spring they will start substantial new growth and shortly put on blooms and some runners. This system of fall planting and spring bearing, followed by removal of the plants and starting over again, is the very best system for Texas.

June-bearing varieties that do well in Texas are 'Sweet Charlie,' 'Festival,' 'Camarosa,' 'Camino Real,' 'Ventana' and the most common, well-adapted variety, 'Chandler.' The 'Sequoia' and 'Douglas' varieties will suffice if you can not get the better varieties. Sources for these varieties are listed below. Presently the only way to get these varieties at the right planting time, in the early fall, is to mail-order them. We hope that in the future Texas nurseries will offer strawberry plants in the fall. Order your plants so that they will arrive in the latter part of September.

Choose a sunny location for your berry patch. Full sun is a must. The best soil for your strawberries is a sandy or loamy soil that is loose and will let water drain away from the plants. Tight heavy soil should be avoided or amended. You can amend your

soil by adding sand and peat moss, compost or potting soil. Into this soil you can mix a time-release fertilizer such as Osmocote. Follow label directions as to amount. Usually these time-released fertilizers will last from three to 12 months. Water the soil before planting. In order to make sure that the drainage is good most growers put their strawberries on raised beds that are formed by either hand or machine. These beds should be about 8 inches above the ground area between the rows. Strawberries will not tolerate waterlogged, poorly drained soil. Although strawberries do best on soils with a slightly acid pH, good crops have been obtained on soils having a pH as high as 7.6.

Commercial growers fumigate the soil before planting to sterilize it and thus prevent soilborne diseases. Home growers can use solarization to achieve about the same results. This is done by laying down clear (not black) plastic on the ground for a month or more in the hot part of the summer before fall planting time. This heats the soil, thus somewhat sterilizing it. It will also kill many weed seeds. Be sure the clear plastic is in full contact with the ground so it will trap the heat.

You now have a choice of whether you want to use a black plastic soil covering or go with natural soil. Most commercial growers use black plastic to ensure that the berries do not rot as fruit rot is a major problem with strawberries. The black color also warms the soil in the spring, resulting in earlier berries that ripen before "the summer heat." So it is suggested that you use a black plastic covering on the soil. If you chose the natural soil you will still get berries, but some will rot on ground contact. Some people do raise strawberries without the plastic without too many problems. But the plants will bear a little later and you will have to weed and water more.

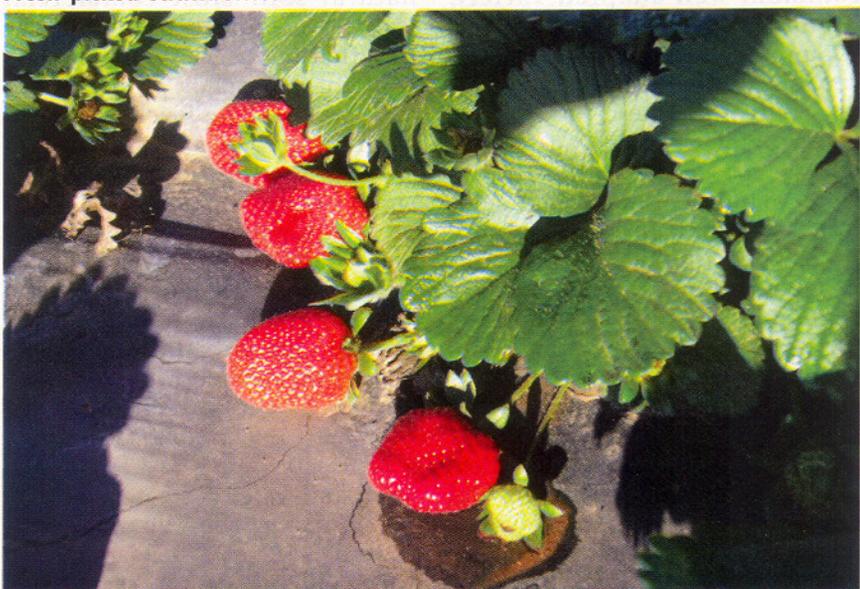
Either way you want your beds spaced 2-1/2 to 3 feet apart with room enough on top of the bed for two rows of plants that are 18



'Chandler.'



Fresh picked strawberries.



'Camarosa.'

inches apart. Within the rows the plants should be 12 inches apart. If you used the black plastic, cut the openings by making a slit in the plastic for each plant. With a trowel, make a crevice in the soil and bury the plant so that the middle of the crown is even with the soil line. This positioning of the crown is very important. Planting too deep will result in the plant rotting and planting too shallow will dehydrate the plant. Spread the roots out a little in the crevice and push the soil in around them. Sprinkle the transplants with water daily for a week to 10 days until the plants become established. Then water as needed depending on rainfall. If you used black plastic then little weeding will be needed. Otherwise, weed as necessary. After the first frosts of winter you will have little to do except water if it becomes too dry. With the black plastic and loose soil, sprinkler irrigation is the best watering method.

In the early spring you should see new growth followed by blooms. This is the critical time for your strawberries. Frosts can and do occur during this time and, although the plants themselves are hardy, the blooms are not. To prevent bloom or fruit loss due to frosts two methods can be used. First, you can use sprinklers to prevent frost damage. Second, row covers can be used during cool nights. Try to remove the row covers during warm days, and only cover them as necessary. If you just have a small patch, you can use a large piece of clear plastic with something under it to hold it off the plants as a deterrent to frosts.

The plants will produce some runners that need to be pinched off to put all the energy of the plant into making berries.

With these simple steps you should be producing ample crops of delicious strawberries. Most of the named June-bearing varieties will yield 1 pound or better of berries per plant. So if you want 25 pounds of strawberries in the early spring then plant 25 or 30 plants (you may lose a few).

Problems with pests and dis-

eases may be encountered occasionally. Spider mites can be a problem and there are sprays that will deal with them. Contact your county agent or garden center. Anthracnose can be a problem but many of the varieties I have listed are resistant. Fruit rot can be minimized by applications of fungicides. With black plastic to prevent ground contact this problem will be reduced. Powdery mildew can be a little problem during a very wet period. Generally, there are few pest and disease problems with strawberries grown with the annual system. TG

Richard Ashton is the author of several books on fruit growing, including The Incredible Pomegranate — Plant and Fruit, Jujube — The Chinese Date, Sweet Cherries For Southern Orchards and Plums of North America. They are all available from Third Millennium Publishing at www.3mpub.com/ashton or they can be purchased through the Texas Gardener bookstore.



'Festival.'

SOURCES

Here are two sources of fall strawberry plants (June bearers): Shasta Nursery in Anderson, California, is on the Internet at www.rootstock.com and has an ordering page at <http://plantingstockstore.stores.yahoo.net/>, or phone (530) 365-2768. They carry the varieties 'Chandler,' 'Camarosa,' 'Festival' and 'Sweet Charlie.' They sell 25 plants for \$8 plus shipping (the shipping may be as much as or a little more than the plants). Lassen Canyon Nursery of Redding, California, is at www.lascanyonnursery.com or by phone at (530) 223-1075. They have all the June bearing varieties listed as doing well in Texas. They have a minimum order of 100 plants for \$25 plus shipping. If you do not need that many, you may want to go in with someone else and divide the plants. Both these nurseries have growing farms in cool summer areas of northern California and Oregon where the chilling requirement of the plants will be partly met before you get them. This is especially important to those of you in the more southern parts of Texas.



'Sweet Charlie.'