



# Vegetable Gardening Tips

Growing Information for the Home Gardener Series



## Strawberries

Strawberries are a great addition to the home garden. Whether you intend on growing just a few plants in a container or multiple rows in the garden, following the advice provided in this guide (weather permitting) will lead to a successful harvest.

Botanically speaking, strawberries actually are not a fruit. They are an achene. The seeds on the outside of the strawberry actually are the fruit or ovarian tissue of the strawberry. The red flesh we eat is part of the receptacle.

### Planting Dates

In Louisiana, strawberries traditionally are planted from the beginning of October through mid-November. Production can start as early as late November when plug plants are used and it can continue through the beginning of June. After June, plants will discontinue berry production and begin vegetative production.

### Variety Selection

Strawberry varieties that historically have produced well in Louisiana are classified as short-day varieties. For these varieties, flowers are initiated during short days and cool temperatures in the fall and winter months, and fruit appears in the late winter and early spring in Louisiana when conditions are favorable for good quality fruit production.

Varieties that performed well in LSU AgCenter trials in 2010 through 2013 included: Festival, Benicia and Sweet Ann. Other varieties that tend to perform well in the state include: Camarosa, Camino Real and Chandler.

Choose Festival for a medium-sized berry and excellent production. Benicia produces slightly softer, but larger, berries than Festival. Combining Benicia and Festival plants would provide excellent production throughout the season in the home garden.

Sweet Ann strawberries actually are a day neutral plant. Sweet Ann berries have long, large fruit and are not as disease resistant as Festival and Benicia. Sweet Ann does, however, produce an excellently flavored berry

but it does not ripen all the way up to the shoulder. Both the interior and the exterior of the fruit along the shoulder tend to remain white, even when the fruit is fully ripe. Because of the lack of red color when ripening, commercial production of St. Ann is not recommended.

### Growing Strawberries in Containers or the Garden

How you grow strawberries depends on your ultimate production goal and the amount of space you have to dedicate to this crop. Just remember that the entire strawberry season is nine months long.

If you are limited on garden space and like to grow a variety of edibles, consider planting your berry crop in containers to maximize your raised bed and in-ground garden space. If you want to produce lots of strawberries, however, it's probably better to grow a large number of plants (100 plants per family of four is not too many) in the garden. You'll have some competition from wildlife for harvesting the ripe berries, so planting more ensures both you and nature will be satisfied with the harvest.

### Selecting the Correct Location

If you are expecting a plentiful harvest, you must select the most suitable location for maximum growth.

Look for an area in your yard that receives at least six hours of direct sunlight each day.

Strawberries will not grow in poorly drained soil. Select a well-drained high spot in the yard, build a raised bed or purchase containers.

You must provide irrigation to a strawberry crop. Choose a location near a water source – unless the berries are being grown in containers. Sufficient water easily can be transported to those berries in handheld watering cans.



# Planting in the Ground

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## Soil Preparation for the In-Ground Garden

Before planting strawberries, submit a soil sample for analysis to the LSU AgCenter's Soil Testing and Plant Analysis Lab in Baton Rouge.

One important piece of information from the soil analysis is the soil pH, which indicates if the soil is too acidic or too basic for growth. You ideally would want a soil pH between 5.8 and 6.2. Soil pH slightly out of this range is fine, but if it is greatly different, you may want to adjust the pH. Changing the soil pH can be achieved by adding lime to increase pH and sulfur to decrease pH. The amount needed depends on the starting pH. Remember that soil pH in native mineral-based soil will not change overnight. About six months generally are required for a reaction to occur. If your soil is just a little outside of the recommended range, don't worry too much about changing the pH, but if it is well below or above, then you probably want to consider doing something about it.

The results from your soil sample also will indicate how much fertilizer needs to be added. The LSU AgCenter's experts generally recommend adding 8-10 pounds of 13-13-13 fertilizer for every 100 linear feet of row prior to planting the crop. In smaller gardens, assume 1 pound of 13-13-13 should be applied for every 10 linear feet of row. Preplant fertilizer should be incorporated into the soil one to two weeks before planting.

Fertilizer may be banded or broadcast into the garden. Banding fertilizer is when the gardener places the fertilizer at least 4 inches below the soil line in the middle of the row. Broadcasting fertilizer is when the gardener measures out the total amount of fertilizer for the entire garden and uses a spreader to evenly disperse the fertilizer throughout the garden. Banding is a more efficient method for fertilizing plants because the fertilizer is right below the roots – where it will be picked up by the plant. Broadcasting fertilizer and then building rows or designating row space may result in some fertilizer falling into the walk space of the garden and not within the root zone.

Great soil tilth (the ability to work the soil) always helps plants grow because their roots can easily navigate through the soil. Start by tilling your garden at least 6 inches deep. To build rows in small gardens, simply use a hard rake or hoe to drag soil from the outer portion of the row toward the center of the row. Repeat on both sides of the row until a nice rounded-top row 8-12 inches high is formed. Turn the rake over and knock off the peak of the row to form a flat smooth surface. In larger gardens, using hill builders or modified implements attached to a garden tractor will help you build multiple long rows easily.

## Mulching the Garden

Mulch must be applied to strawberry crops. If the berries develop and touch the soil, they will rot prior to fully developing. Apply a 4-6 inch layer of wheat straw or pine needles to both the row middles and tops of rows. Other mulch sources such as newspaper also can be used and work best if shredded first and then wet after application to help them stick to the surface of the soil.

In larger gardens, use commercial plastic mulch that comes in 3- or 4-foot wide rolls of various lengths and can be purchased at most garden supply stores to prevent berry rot and to hold soil moisture.

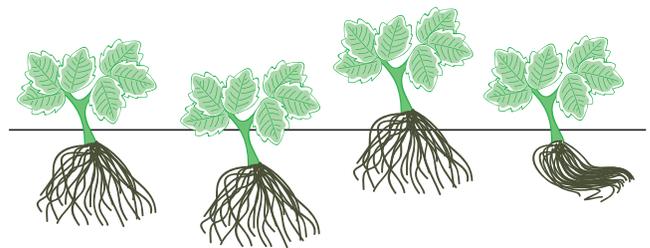
## Planting and Spacing

If space is unlimited in the home garden, strawberries can be continued as perennials. If space is limited, however, as it usually is, remove the strawberry plants in early summer and plant again the next fall.

Disease pressure is extreme in the summer months and does not always warrant the excessive spraying and maintenance. Plus, strawberry plants are relatively inexpensive to purchase. Check your parish's LSU AgCenter Extension Service office to see if it offers strawberry sales. Plants also can be purchased at most feed and seed co-ops, local plant nurseries and hardware stores.

One square foot of garden space is needed per strawberry plant. Beds or rows can be arranged in any manner that suits the gardener. Traditionally, plants are spaced 12 to 18 inches apart in the garden.

Strawberry plants are shipped to local nurseries from northern growers as bundles of bare-root plants. The hole dug for each plant must easily accommodate all roots without bending them or being too deep and covering the crown.



## Maintenance

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### Irrigation

Install a soaker hose or drip irrigation in your in-ground garden or raised bed. Water at the roots of plants because that places water where it will be most easily accessible by the plants. It also places less water on the foliage, which will help to reduce disease pressure.

After you transplant the bare-root plants, water them in and saturate the soil. Consider watering every day for the first week. You might notice bare-root plants shedding some of their original foliage. Don't worry. It will be replaced soon by new growth from the crown if you have planted and irrigated correctly.

Water also is critical when plants are producing berries. Do not skip a week of watering when berry production is in full swing. Rule of thumb: You should be irrigating with 1 inch of water per week if rain has not occurred.



## Additional Fertilizer Applications

In addition to preplant fertilizer (described in the soil preparation section), strawberry plants should receive two additional applications of fertilizer. Choose fertilizer with at least 15 percent nitrogen. Apply the fertilizer to both sides of the row (if double drilling), following rates on the fertilizer bag label. Calcium nitrate (15.5 percent N) typically is used, and 1 pound per 100 feet of row is recommended. These side-dressing applications should occur in January to early February and again in mid-March to early April.

## Frost Protection

Strawberries are very hardy plants and can withstand temperatures as low as 17 degrees Fahrenheit without needing to be covered. The flowers, however, are more sensitive to cold. Anytime temperatures are predicted to drop below 32 F and there are flowers on the plants, cover them.

Row covers made of lightweight white cloth called weather protection cloth can be purchased at most hardware stores. Berries can be covered with this cloth for up to three weeks without causing any harm. Make sure the edges of the cloth are secured to the ground with sandbags or other heavy objects. If a portion of the cloth detaches and the plants are exposed, protection is no longer provided. Anywhere the cloth is touching the flowers, the flowers will die back. Do not pull the cloth tightly over the plants.

Pine straw also can be raked over the tops of the plants to offer some protection from cold. If you do not cover your plants, you will simply lose some of your harvest.

## Insect/Bird Management

The most common pest of strawberries is the mite. Mites are very small, so it's usually easier to spot their damage than the actual mites. The leaves will begin to look stippled, and you will see small white webs on the undersides of leaves. Control mites with insecticidal soaps.

Slugs and snails also are detrimental to strawberry fruit and foliage. They are more active at night, so applying baits in the early evening is most effective. Slug baits, such as Garden Safe Snail and Slug bait, can be used safely in the garden. Make sure the label on any product you use indicates the bait can be used around vegetable plants. Another option is to place beer in shallow dishes at the soil level or to turn grapefruit halves upside down in the garden. Check often for the snails and slugs and discard your baits when they are full.

Birds love the red berries and will eat all of them if you don't watch carefully. Bird netting can be placed over the berries but it is a hassle to deal with when harvesting. You can hang free-moving shiny objects, such as metallic ribbon or CDs, in the garden or place fake rubber snakes (moved weekly) to scare birds away.

## Disease Management

Strawberries are susceptible to many fruit rot and leaf diseases in Louisiana. Diseases of strawberries include bacterial and fungal leaf spots, powdery mildew, fungal leaf scorch and blight, gray mold and anthracnose fruit rots. Viruses and nematodes also cause disease in strawberries.

A single microorganism can cause a wide range of foliar symptoms, which makes disease identification difficult. In addition, physical disorders such as nutrient deficiencies, herbicide drift injury and suboptimal soil pH can cause diseaselike symptoms. Homeowners are encouraged to submit a sample to the LSU AgCenter's Soil Testing and Plant Analysis Lab or to the LSU AgCenter's Plant Diagnostic Center in Baton Rouge campus for correct identification.

To aid in the prevention of disease in the home garden, an integrated approach is recommended. Planting disease-resistant varieties is the easiest and most economical method of disease control. But obtaining healthy, disease-free transplants is the most important management practice. Strawberry transplants often don't show visible symptoms of disease, but infected plants will grow poorly and can introduce pathogens into the garden for years to come. Most reputable nurseries sell certified disease-free transplants.

Cultural practices that encourage good airflow through and between the plants, such as trickle (drip) irrigation, plant spacing and weed removal, will reduce the occurrence of leaf spots and fruit rots. Selecting a sunny location with well-drained soil and planting on raised beds will reduce root, crown and fruit rots. Mulching also will provide a barrier between the berries and the soil, which will help to prevent fruit rots on low-sitting berries.

Good sanitation practices will help to prevent diseases from developing and spreading. Keep the garden and surrounding area free of weeds since they can host diseases and insects that act as vectors of disease.

Preventive sprays of fungicides may be needed during extended periods of cloud cover, high humidity and hot temperatures. Select fungicides with active ingredients such as sulfur, myclobutanil and captan. Only use fungicides labeled for strawberries and always follow the directions and rates on the label. Consult the LSU AgCenter's Louisiana Plant Disease Management Guide for a list of fungicide products available for home garden use.

## Growing Strawberries in Containers

If growing strawberries in containers, hanging baskets, strawberry pots, standard clay or plastic pots and ceramic containers all work well, provided they have drainage holes and are at least 8 inches deep. In containers, space plants 6-8 inches apart to maximize production in a small space.

Container-grown strawberries are easy to protect from frost and freezes because you can simply move them into a shed or carport for a few days at a time. If the container is very large and heavy, consider moving it using a dolly.

Strawberries also grow very well in raised bed gardens. Plant as you would an in-ground garden on 12-18 inch centers. Raised beds should have at least 8 inches of garden mix soil in them. If your raised bed is not this deep, use a tiller to break up any hardpans between the native soil line and the fill soil. Mulch the top of the raised bed as you would with an in-ground garden.

Fertilizer recommendations are extremely difficult to provide for containers and raised beds. Many of the garden soil mixes that are used in these situations are "precharged," meaning they already have fertilizer incorporated into them. Therefore, preplant fertilizer is not always needed. Side-dressing is still recommended, however, but at a rate of 1 tablespoon per plant using a 15 percent nitrogen source.

If you have been gardening in your raised bed for several years, it would be wise to send a sample of the

soil to the LSU AgCenter's Soil Testing and Plant Analysis Lab to determine if fertilizer is needed. When submitting a soil sample from a garden mix that is composed of organic materials (mostly peat, bark leaves), you should indicate on the label that it is a potting soil and not a native or mineral-based soil.

## Harvesting

Once production begins, visit the garden three times a week to harvest. Doing so will result in more fruit being consumed by those that live in the household and less of it going to the wildlife.

Harvest fruit when it is fully mature. Try not to rip the fruit from the plants. Instead, pinch it off, leaving a small stem. Bring a large bowl to the garden to place the fruit into. Do not stack the fruit too deep to avoid bruising the berries.

Only wash berries prior to eating. Washing them and then storing in the refrigerator will initiate molding. Store berries in the refrigerator immediately after harvest.



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