

Strawberry Planting Guide

Strawberries are not an easy crop to grow successfully. But, the rewards are great when you take them to market, or when you are savoring strawberry shortcake! This is my attempt to concisely but thoroughly walk you through the process of growing strawberries from pre-plant to harvest.*

Note: Although I have written this from a commercial grower's perspective, I think home gardeners can glean any needed information.

Pre-plant:

- Strawberries like a fertile soil, but don't have any unique fertility requirements. Just remember that this is a long-season crop (at least 8 months), so you will want to ensure plenty of organic matter in the soil, and plenty of slow-release fertility. (The only way to fertilize once the plastic is down is to either use foliar sprays or fertigation through the drip tape.)
- Ideally, soil should be tested and amended, and beds should be made well in advance of planting time (which means around the first part of September)
- The soil should be quite finely worked with no large pieces of plant material, rocks, or dirt clods (which will poke holes in the plastic and keep it from laying flat on the beds)
- We have experimented with growing strawberries on straw, on landscape fabric and on plastic, and we strongly recommend using plastic. The timing and varieties have been developed for use with plastic, and anything else will give less-than-satisfactory results.
- We recommend beds at least 6 inches tall and 30 inches wide with one row of drip tape buried down the middle of the bed.
- We have yet to find the perfect solution for the aisles between beds. Currently we broadcast spring oats after the plastic has been laid, but before holes have been punched. We then use a leaf blower to blow the seed off the plastic into the aisles and then use overhead sprinklers to germinate the oats. Once we get temperatures below 20 degrees in the winter, the spring oats will winter kill, and then they won't be a problem in the spring.

Planting:

- For years, the ideal planting time for Middle TN has been September 20. But, with climate change, you may want to go a few days later than that. Don't wait too long though! We have never had ideal-sized plants in the spring from October plantings.
- Make sure the strawberry plugs are well-watered, and the beds are moist under the plastic before planting.
- The usual plant spacing is two rows on a bed, with 12-14" spacing in the row and 12-14" between the two rows. Ideally, the spacing of the two rows is staggered. This spacing can be achieved by making some kind of wooden jig to poke the plastic, or by using some kind of rolling wheel to punch the plastic.
- Make every effort to keep the planting holes small. The bigger the hole, the greater the chance of weeds growing through the hole.

- We try to clean up the plugs before planting. This means taking off any dead or dying leaves and removing any runners. The ideal plug should have three or four healthy leaves and signs of a new leaf coming out of the crown.
- Plant the strawberry plugs at the same depth that they are in the plug trays, then lightly cover the potting mix of the plug with a layer of soil (to keep the moisture from wicking out of the plug). **If you plant the strawberries too deep, where the crown (the growing tip at the center of the plant) is buried, you will kill or seriously compromise the plant! This is extremely important!**
- If the weather is hot at planting time, it is important to get water on the plants as quickly as possible. Ideally, use overhead sprinklers during the heat of the day for at least three days after planting — to help the plants settle-in without undue stress.
- We try to have enough extra plants to do a walk-through about a week after planting to replace any plants that are compromised.

Post-Planting & Winter Chores:

- It is important for the plants to be “babied” in the fall. This means trying to give them ideal growing conditions: daytime highs in the 70’s and nighttime lows in the 50’s — with good, even moisture. If it is hotter than the 70’s, then you will want to really stay on top of watering. Overhead watering is ideal, since it gives some cooling effect, but drip can also work. If the temperatures are lower than the ideal, then using a medium-weight floating row cover can help to bring the temperatures back into that ideal range.
- Your goal is to have healthy plants with two branch crowns (secondary crowns) by Thanksgiving time. If you don’t have that crown branching by then, you are probably not going to have a full crop in the springtime. But, if you have more than two branch crowns, then you likely may be looking at plants that are too big come springtime — which means lots of tiny berries that are not fun to pick.
- As soon as possible after planting, you need to protect your strawberries from deer. Deer love strawberry leaves, and will seriously compromise your yield if they eat the tops off your plants. There are various ways to keep deer out. We are very satisfied with using 7.5’ tall, black, deer fencing (Trade name: Tenax Cintoflex). We use 8’ t-posts pounded in every 25’ around the perimeter of the planting. We use the yellow, electric fence insulators snapped near the top of the t-posts, and just hang the fencing from the insulators. The fencing will bend out at ground level to keep deer from crawling underneath. When you need to mow or weedeat under the fence, you can just lift the bottom edge and hang it from the fence insulator at the top. It’s the simplest, cheapest, and most effective solution we have found.
- In November and again in late February or early March, we go through and sanitize the plants (taking off any dead or dying plant material) and weed the planting holes.
- These strawberry plants will handle the cold, winter weather fine under most circumstances. The exceptions to this would be: **1.** If the temperatures go below 10 degrees, the crowns can freeze. So, you want to apply row covers if temperatures look like they are headed for the single digits. **2.** If we have a warm fall (or a prolonged warm snap in the winter), then the temperatures quickly plummet into the low 20’s or lower, you will want to use row covers to moderate these temperature

plunges. Ideally you want the plants to go into winter dormancy gradually (and stay there until March).

Late Winter/Early Spring:

- Applying straw to the aisles is a good idea at this point. This helps to prevent weeds from growing up, but also prevents dirt splash onto the berries.
- At some point in March (hopefully not earlier), the plants will begin to bloom. It is roughly 30 days from bloom to ripe fruit (a little more in early spring and a little less in late spring). So, you need to decide at what point you want to start saving the blooms (weighing the work and economics of frost-protecting vs. the economics and markets for early fruit; also weighing the fact that the first blossoms usually produce the biggest berries of the season).
- When you determine it's time to start frost protecting, there are two main options: 1. Using overhead sprinklers, or 2. Using floating row cover. Overhead sprinklers are proven and effective, but can be costly and a little complicated to set up (not to mention the long nights of walking the field — making sure the sprinklers are functioning correctly and not freezing up). If you are going to go this route, I would encourage you to read up on the techniques here: <https://strawberries.ces.ncsu.edu/strawberries-frost-protection/>. Using floating row covers is a little simpler, but can be risky if you don't have a way to monitor the temperatures under the covers. The key to using floating row cover is to have multiple covers available to use. One cover may not provide enough protection. Whether you use overhead sprinklers or row cover, it is really helpful to have a thermometer that can monitor blossom temperatures. You can learn about that here: <https://strawberries.ces.ncsu.edu/2009/12/mauris-sed-leo-aliquam-aliquam/>.
- If you are using floating row cover, it is important to remove the covers once the temperatures rise above freezing. This allows insects to pollinate the flowers and decreases the moisture on the leaves and berries (moisture is your big enemy).
- As soon as the plants begin to bloom, it is also good to start a weekly fertility/fungicide spray program. This is something I have not been very scientific about, but I do feel it helps when I am faithful with it. The fertility part can be as simple as using a kelp spray or kelp/fish spray. I have switched to molasses once the berries start developing (you don't want fishy-tasting berries). With the fungicide part, I have used a variety of organic sprays to help control the two main strawberry diseases: grey mold (botrytis) and anthracnose (in addition, we have sometimes had challenges with angular leaf spot). Sprays I have used include: Oxidate, Serenade, Trilogy, and Actinovate. I cannot prove that they work, or say which ones work better (because I usually alternate between a number of them), but what I can say is that when I spray regularly, the plants and fruit do better.

Harvest:

- The earliest we have picked our first berries was the first week of April. The latest we have started picking is the beginning of May. The average first berry picked is around April 21. The season usually lasts into the first or second week in June, but has ended as early as the last part of May or gone as late as the beginning of July! It is all

weather dependent — with hot weather shutting down the generative growth and shifting the plants to vegetative growth (sending out runners)

- Pray for no rain! Rain not only encourages disease on the strawberries, but also greatly reduces fruit taste and quality. We experimented this last year with erecting caterpillar tunnels over the strawberries in the early spring to keep the rain off, and were encouraged with the results.
- Harvest at least 3 times/week.
- Try to harvest before it gets too hot in the day, but after the dew has burned off. Ideally you don't want to work with the plants and berries if they are wet.
- Make sure harvesters pick the berries with the caps (calyx) on. Also make sure the fruit is deep red (not orange). There is a big difference in taste between red and orange berries!
- We always try to sell all the berries the day they are picked. Berries put in the cooler will sweat when taken out — which lowers the quality and beauty of the berries.
- Keep the plants well-hydrated through the drip tape — especially if temperatures are forecast to go into the upper 80's or higher. The berries will get sun scald if they are laying on the black plastic with no foliage cover.
- If high temperatures or rain are in the forecast, you might want to pick the berries a little "closer"(less ripe).
- If we have a large rain event and the berries get "waterlogged", we often freeze those ourselves for home use or make jam to sell. We don't like to sell fresh berries that aren't going to taste great and hold up well.

Post-Harvest:

- Once you determine that it's no longer economically reasonable to continue picking berries, it's time to "plow them under."
- First we pull up the plastic and drip tape, then prepare the ground for either another cash crop or cover crop.
- Some people "double-crop" the plastic by twisting off the strawberry plants, and then planting another crop on the same plastic (pumpkins or winter squash work well).
- Don't try to save the plants for another season! The watering, weeding, renovating, and potential disease issues are not worth it. Trust me, it's easier to re-plant every year!

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*If you want to get more in-depth information, go to <https://strawberries.ces.ncsu.edu/>. North Carolina State University (specifically Dr. Barclay Poling) developed this plasticulture system for the Southeast, and they are where I learned what I know. Although much of the fertility and disease information is geared for conventional growers, organic growers can still follow the production information shared.