

A-02 Special Case – Growing Strawberries

Living with Strawberries

Strawberries are a special case needing deliberate care and have limited lifespans for fruit production. Doing it right requires planning and follow through.

There's lots of inaccurate information online related to strawberries. All resources mentioned are trusted and vetted. Where there's issues with accuracy, we say so. Always listen to the vetted pros while you gather your own knowledge from experience.

Overall, particular cultivars are adaptable to most climate and growing conditions—choose wisely.



Fresh Strawberries.

Photo 9.8.1-4 (b)

Planning for Strawberries

Productive Lifespan – Strawberries do not produce indefinitely with the plants replaced after four years, two years, and for some, every year. No matter the cultivar, new plants will be required. Otherwise there will be a gap while new plants are established. Rotating beds for a consistent harvest is a common practice.

Production – The largest variety of cultivars only produce in June while there are some that produce more consistently, albeit with smaller harvests. When you see strawberries during off season, these have most likely been grown in greenhouses with chemical fertilizers or have been brought in from warmer regions.

Shopping for Strawberry Plants

Purchasing – Like with fruit trees, quality berry plants are bred in nurseries for specific characteristics. Expect to purchase online in early October for the following planting season in April. Major suppliers will breed plants best suited for their geographic location and weather. Shop as local as possible.

Delivery – Your plants will arrive in early to mid-April and need to be planted within a few days. Have your planting site ready to go. You'll be notified via email that they've been shipped.

Acclimation – If there's severe inclement weather, place plant bundles in water with moderate exposure to ambient temperature. The plants are generally cold hearty. If it happens after planting, cover the bed with a clear plastic sheet and remove as soon as the temperature warms. Otherwise, the plants could easily wither and die from excessive heat.

Types of Strawberries

Two Basic Types – June-Bearing and Everbearing. Within these are many cultivars, each with particular characteristics. See the following table for samples of those commonly available. This often changes but the best tend to endure. It's recommended to grow only one type of strawberry in separate beds.

Third Type – Some suppliers are differentiating Day-Neutral plants from Everbearing. This appears to only be sales hype with little to no difference between the two.

June-Bearing – These plants produce one harvest for about 10 days that push toward 30 with tasty fruits in large quantities. By far, the greatest number of cultivars are within this category. These plants produce favorably for three and sometimes four harvest seasons after which they need to be replaced.

Everbearing – These plants respond to sunlight and temperature in late spring (May – June) and again in early fall (August – September). The fruits are smaller than June-Bearing with less volume but comparable in taste. In general, these should be treated as annuals with only one full harvest season.

Day-Neutral – These are supposedly a new variety of strawberries that produce continuously throughout the growing season but none of the resources tout this—those designated as such are sold by reputable sources as Everbearing. Until known otherwise, Day-Neutral are Everbearing

Harvest Periods – June-Bearing cultivars have been bred to different harvest times. This is vague in plant descriptions and does not apply to Everbearing cultivars. For the homestead grower there would be little concern for these variations. It would be wise to choose cultivars based on other important characteristics.

| Harvest Season | June-Bearing – When Fruiting Begins |
|-----------------|--|
| Early Season | Late spring for approximately 10 days – depending on your growing region |
| Early Midseason | 5 days after the beginning of Early Season – for approximately 10 days |
| Midseason | 8 days after the beginning of Early Season – for approximately 10 days |
| Late Midseason | 10 days after the beginning of Early Season – for approximately 10 days |
| Late Season | 14 days after the beginning of Early Season – for approximately 10 days |

Source: Nourse Farms

Site Preparation for Strawberries

Sun and Water – Strawberries require full access to sun at about 8-10 hours daily, well-drained soil, and consistent access to water—both natural from rain and through irrigation.

Ongoing Production – Fruiting every year requires two sites with similar characteristics. Otherwise, there will be a down period while new plants are being established.

Planting Soil – Strawberries need loose, well-drained soil—any that would remain soggy after rain should be avoided. Slopes can work to drain off rainwater.

Type of Beds – Raised beds work well for soil texture and drainage. Those on a slight slope work best as rainwater collects and dissipates downhill.

Experience – We contemplated strawberries for several years while building up the rest of our homestead. The choice of sites was always the conundrum—what would we have to give up to grow strawberries? One fine homestead day, it became obvious. There was a wildly overgrown patch between the asparagus and blackberries that once housed volunteer raspberries that were removed a few years before. Here was full sun, slope for rainwater runoff, and access to irrigation. All that was needed was to clear the site.

Before – This overgrowth was removed mostly by cutting down and with some root pulling. It was a compromise knowing that there would be regrowth until the lifecycle was disrupted.

During – When cleared in early August, the site was covered with a 6-mil black plastic sheet until March. This denied sunlight and rain to the native plants and helped us get ahead of the regrowth. It worked.

After – The new raised bed was built up, irrigation installed, new planting soil mixed, and straw mulch topped it off. The plants arrived about two weeks later and were planted successfully.



Before – Rough Planting Site

Photo 9.8.1-5 (b)



During – Prepped Planting Site

Photo 9.8.1-6 (b)



After – Finished Bed. Plants after 6 weeks.

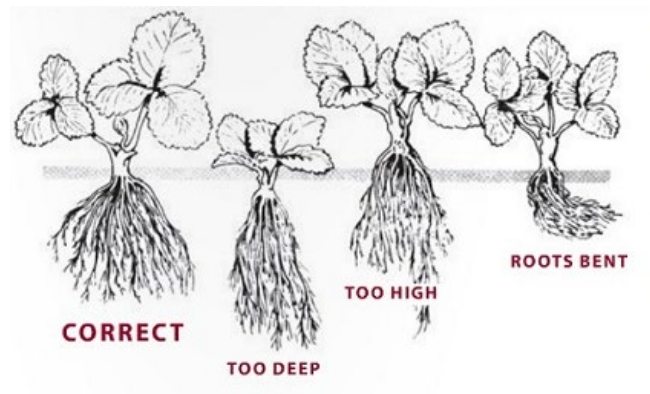
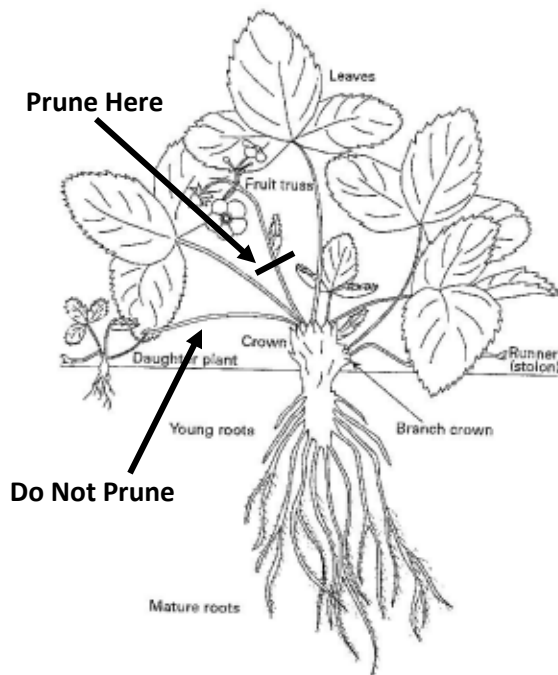
Photo 9.8.1-7 (b)

Experience – Initially we installed our usual hybrid olla system but there was not enough water pressure at the uphill end of the line to push water through the drip irrigation tubing. After a bit of flailing around, we went with soaker hoses buried under the bed soil. This was repeated in the adjoining veggie garden beds being fed from the same manifold. It was a good move—everything is now thriving. And, we got it done just a few days before the strawberry plants arrived.

Planting Strawberries

Strawberry plants have what's called a crown between the roots and developing stems. Vertical position and depth for roots and crown are key requirements. The hole should have sufficient depth to cover about half of the crown up to one inch from the top of the crown and be deep enough for roots to rest vertically. Do not allow roots to bend horizontally.

| <u>Spacing</u> | Between Plants | Within Rows by August | Between Rows | Raised Beds |
|----------------|----------------|--------------------------|--------------|--|
| June-Bearing | 12-24 inches | 6-8 inches apart | 36-40 inches | Leave space for sidedressing with fertilizer |
| Everbearing | 8-12 inches | 6-8 inches apart | 36-40 inches | |



Source: Nourse Farms / These illustrations appear in several resources. Their origin is unknown.

Mulch

Straw – Recommended. Less weedy seeds, long-term breakdown, and availability for winter protection. By retaining its form, straw also keeps the berries clean from soil, especially after rain. Have a second round of straw available for wintering over the plants.

Hay – Not recommended. This has seeds and breaks down within a few months. Removing or refreshing hay for the winter can be difficult when working around mature plants. At planting, hay can be used in a pinch but must be replaced with straw before runners emerge on June-Bearing plants.

Harvest Seasons

First Year

June-Bearing – There will not be any berry production during the first year. This is for establishing vigorous plants. Snip off entire bud stems as they appear. This puts all energy into growing the plants.

Everbearing – After planting in spring, snip off entire bud stems until the middle of June. This establishes the plants for production and an initial harvest in August and September. With some cultivars, this is the end of production and the plants must be replaced. Others will produce for a second year.

Second Year

June-Bearing – This is the initial big harvest season and varies by a few weeks depending on cultivars. Expect high yield, large berries, and excellent quality.

Everbearing – Berry size will be smaller with a lower yield. Some may produce the entire season.

Third and Fourth Year

June-Bearing – Diminishing production but within the same time frame.

Everbearing – Diminished to no production. Replace the plants.

During Harvest

Keep berries in shade and refrigerate immediately. Washing speeds spoilage. Preserve within one day.

Servicing Strawberries

Renovation / End-of-Season / Second Year and Beyond

This process was developed by commercial growers when they were using the matted-bed approach which has been abandoned for better production. As homestead growers, we still use matted beds.

June-Bearing Only – This process renews the plants with regrowth before the coming winter and for the following growing season. It must be performed correctly at the prescribed time. New leaves will form with flower buds as the plants take on new vigor. The regrown plants are mulched over for the winter.

Timing – Complete this after the June harvest and no later than July 15. Some resources say this can be completed in August but that's for areas with late winters since the plants need adequate time to regrow before sunlight diminishes.

Procedure – Cut off and remove all plant leaves with stems to about one inch above the crown. Do not remove stems leading to daughter plants. Thin to about 4-6 inches between plants. This includes new daughter plants as described below.

Top Dress – Renew the bed with about ½-1 inch of fresh garden soil to the proper depth for crowns, fertilize to the schedule below, and re-mulch with fresh straw to retard evaporation.



Renovated Bed. July 2024. Should have been completed in June. Note the plant spacing.

Photo 9.8.1-9 (b)

Runners

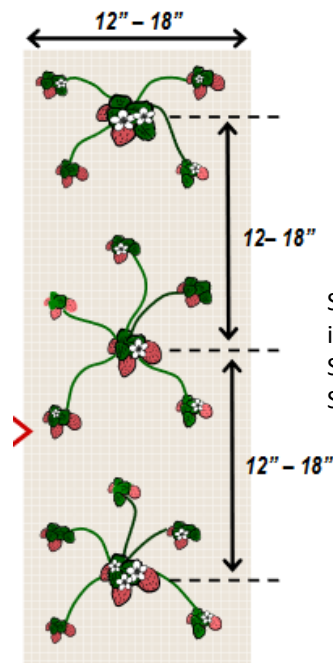
June-Bearing Only – Everbearing produces few to none.

As the plants mature, they put out stems that will set roots. From these, new daughter plants emerge which fills out the bed by August of the planting year. Additional runners will form from the daughter plants.

Result – Properly managed, the bed will become matted with additional plants. This increases production.

Managing Runners – Too many daughter plants diverts energy from mother plants which diminishes production. Thin to about five or six daughter plants per mother plant.

End of Production – At the end of their productive lifespan, remove all mother and daughter plants to make way for new plants. Cut up the plants for your compost.



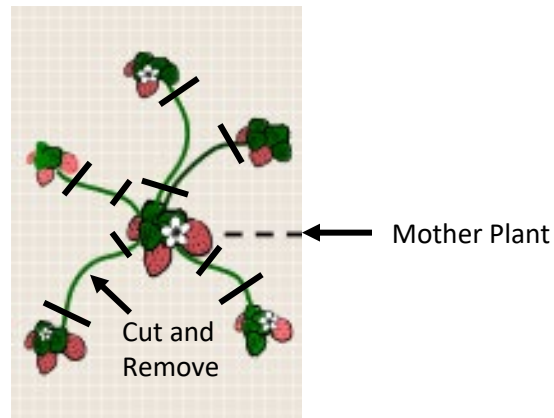
Source: Stark Brothers in their PDF version of Strawberry Steps to Success

Experience: Training Runners – Large six-inch landscaping staples work well for holding root nodes on runners at the soil to set roots and fill out the bed. For 25 original plants with their runners, 100 staples will likely be required. As to limiting the number of runners, the planting becomes so dense that it can be very difficult to identify which are from which mother plant. As such, when the bed is filled out, we simply cut off any emerging runners. Later in the season, when putting the plants to sleep for the winter, it may be possible to thin excess runners and it would be time to retrieve the staples. Finally, when a mother plant dies, simply redirect runners to fill the gap. The stems are strong and easily withstand handling.

Isolating Daughter Plants

Once a daughter plant has established its roots, it is no longer dependent upon the mother plants. This is when the runner should be cut at both plants.

Experience: Too Many Runners – As shown in the photo below, we were thrilled at how fully the bed filled out. There were daughter plants everywhere in a big tangled mess. None were thinned out which was a big mistake. As shown in the other photo below, we simply covered everything and put the bed to sleep for the winter. When uncovered in the spring, all of those runners had died off but left behind a difficult mess. With scissors in hand and six hours of picking through the plants, finally the bed was open. All of this could have been avoided by cutting out the runners.



Number of Daughter Plants – Five to six maximum. Stay on top of this every two or three days to keep the bed under control. This is very important.

Wintering Over

Timing is Important – Strawberry plants need to harden off before being put to bed after two or three frosts down to about 20°F—likely mid to late November. Buds on the plants will not be harmed.

Mulch – About four inches of straw to cover the plants. This will hold through winter and be available for spring. Bring in extra straw for the strawberries when planting garlic in October.



Fully Mature Bed. November 2023



Bed Mulched for Winter. About 4-6 inches of straw after three cold snaps. November 2023.

Experience: Too Much Winter Mulch – During the first winter after initial planting, we followed advice with 4-6 inches of straw. This became a nesting haven for voles who made a mess of the bed and the plants struggled to recover.

During the second winter we repeated the 4-6 inches of straw which we thought was fortunate with the heavy snow and ice. This killed about 80% of the plants. Meanwhile in the propagation test bed, with only light straw coverage, the plants not only survived but thrived with a good harvest.

From wherever the advice on 4-6 inches of winter straw mulch originated, it's too much.



80% of wintered-over plants died under the heavy straw mulch.

Spring Wake Up

About mid-April, depending on weather, uncover the plants and expose to the sun. The plants will look scraggly and as if dead. No worries. Within a few weeks the plants come alive with fresh growth. In about six weeks they will be flush with green leaves. In about early May fruit buds will open with flowers—these are susceptible to frost which would affect production. Harvest the straw for other garden uses.

See the Ohio State University reference for excellent photos on damaged strawberry flowers.

Protection – If cold occurs after flowers emerge, cover the exposed plants with a clear plastic sheet only until the temperature warms, usually overnight, and remove in the morning because too much heat could kill the flowers. The plants are cold hearty—you're protecting the flowers, not the plants.

Fertilizing

You are not fertilizing plants—you are fertilizing the soil in which they grow. Over fertilizing is detrimental to strawberry plants and subsequent production. As they grow and expand, the plants will be using nutrients in the soil—these must be replaced. If a good mix of garden soil is used when establishing the bed there will likely be suitable amounts of NPK as with a strong composting system. It's assumed that these fertilizing recommendations are for soil without access to suitable amounts of quality compost.

Type: 10-10-10. Anything stronger could damage the plants.

| | June-Bearing | Everbearing |
|---------------------------|--|---|
| Establishment Year | <p><u>Mix:</u> ½ lb per 100 sq ft worked into the soil</p> <p><u>Timing:</u> About 2 weeks prior to planting</p> <p><u>Repeat:</u> July, August, September</p> | <p><u>Mix:</u> ½ lb per 100 sq ft worked into the soil</p> <p><u>Timing:</u> About 2 weeks prior to planting</p> <p><u>Sidedress:</u> 1½ lb per 100 sq ft</p> <p><u>Timing:</u> July and August</p> |

| | | |
|--|--|--|
| <p>Subsequent Years</p> <p>Source: Stark Brothers</p> | <p><u>Sidedress</u>: 1½ lb per 100 sq ft 2/3 at renovation 1/3 in September</p> <p><u>Timing</u>: Between renovation and early September</p> | <p><u>Sidedress</u>: 1½ lb per 100 sq ft</p> <p><u>Timing</u>: July and August</p> |
|--|--|--|

Sidedressing – This is a band of fertilizer alongside a row of crops as opposed to topdressing directly on the crops. With strawberries, topdressing can damage the plants.

Propagating New Plants

This is an easy way to establish new plants that are genetically identical to the original. There are additional ways to propagate new plants, but working with runners is by far the easiest. If done right with June-Bearing cultivars that produce lots of runners, you will have likely purchased your last plants.

June-Bearing Mostly – These cultivars produce multiple daughter plants through runners. Everbearing plants produce far fewer runners so propagating in this manner will not be as prolific.

Timing – This can be done whenever new plants are needed, but most likely toward the end of the fourth season. Then comes a gap year while new plants are established unless a second bed has been prepared.

Procedure – Place a potting container with garden soil where a runner is forming. Push the root node into the top of the soil. Allow new daughter plants to set roots for about a month and cut off from the mother plant. Daughter plants now become new mother plants.

Pot Size – 5x5-inch square pots seem reasonable to allow for adequate root development. After planting out in mid-April, these pots would be released on time for tomato plant development.

Number to Propagate – Harvest more than you need for spares and to accommodate those that may die.

Light – Manage to natural cycles but avoid vigorous growth until late February or early March. If seedlings grow too fast too soon, take them off lights entirely.

Temperature – Strawberries are hearty down to 20°F without much help. There is little need for heat.

Transplanting – In mid-April, move your newly propagated strawberry plants into your refreshed bed.

See the video at strawberryplants.org for how to do this with results.

Experience – This is an ongoing experiment to learn while doing and following expert advice.

Step 1 – Established roots in pots at the bed with hearty-appearing daughter plants. After about a month, five of the six daughter plants were thriving. One of these produced its own runner with a root node.

Step 2 – Cut the runners from their originating plant and move the new plants indoors to seedling rack. All are thriving and will be nurtured through the winter for a test planting in the spring.

Step 3 – A full year of growth is anticipated followed by a hoped-for harvest the following year.

Step 4 – If all is well, there will be much larger harvest of daughter plants for planting the following spring before the final harvest from the original plants. Garden beds in the area will be rotated.

Step 5 – Monitor health and vigor of propagated plants in a separate test bed. Summer of 2024.

Step 6 – Evaluate the harvest from the propagated plants as compared to the original purchased plants.

Step 7 – After a winter of heavy snow and ice, with only light straw mulch covering, all plants survived

Step 8 – All plants produced berries in mid-May, a month earlier than expected and on schedule.

Step 9 – Propagate 25 plants during winter to repopulate the main bed. Harvest one year after planting.

Conclusion – Propagating your own strawberry plants works from daughter plants maintained over winter and a year ahead of harvest. This requires rotating beds with advance planning.



Step 1 – Seedling Started from a Runner. After about six weeks. New runner formed.

Photo 9.8.1-10 (b)



Step 2 – Seedlings to Rack. Note the runner that propagated a new seedling. Winter growing.

Photo 9.8.1-11 (b)



Step 3 – Winter Dormancy. Mid-February at 60°F on a heating pad. Only ambient light and one light watering daily.

Photo 9.8.1-12 (b)



Step 4 – Out of Dormancy. Mid-March. Spring growth prior to transplanting out in April 2024. Fruit buds formed on blossoms.

Photo 9.8.1-13 (b)



Step 5 – Ready for Transplanting. Responding to the warmer weather and extra hours of sunlight.

Photo 9.8.1-14 (b)



Step 6 – Transplanted to Test Bed. Room for new daughter plants without crowding.

Photo 9.8.1-15 (b)



Step 7 – Growth from Propagated Plants. Number of new daughter plants limited to five each.

Photo 9.8.1-16 (b)



Step 8 – Harvest from Propagated Plants. The same as from the original purchased plants.

Photo 9.8.1-17 (b)

Experience – When done right, with only a modicum of effort, June-bearing strawberries can be a one-time purchase to get started—much like with garlic and any other seed saving. Key is to plan ahead for the next bed in crop rotation so that you never miss a strawberry production season. Overall, it was much easier than anticipated.

Strawberry Diseases and Pests

Strawberry plants can be susceptible to a variety of problems. In the Ohio State University reference, Chapter 7 has excellent information along with many color photographs.

Disease Resistance

These are preventive measures that have been bred into various cultivars. Some suppliers may use abbreviations in their descriptions. See the following table for popular cultivars. As you will see, there is wide variation in how various cultivars are bred. Before making decisions, check with your local extension office for information on which soil pathogens are most prevalent in your area.

Crop Rotation

Noted in several resources are the same type of recommendations:

From Nourse – “Avoid planting strawberries in beds where previous crops held strawberries, raspberries, potatoes, tomatoes, eggplant, or peppers. These crops may harbor soil pathogens—Verticillium, Phytophthora, and nematodes which may affect your new plants.”

What this means is that strawberries would upset normal veggie crop rotation. Think ahead to what can be rotated where and when. It’s assumed they mean crop rotation only from the previous growing season.

Caveat to Crop Rotation – We observed a large pick-your-own farm in Ontario, Canada where all they grew were strawberries—in large fields year after year with no apparent crop rotation in the same fields in succeeding seasons. The same happens in Ventura County, California.

It seems that the guidance on crop rotation is from an abundance of caution. Similar recommendations are routine for tomatoes yet we’ve never had any of these soil-related issues. Perhaps it all has to do with the quality of your soil—when it’s excellent as first priority on your homestead.



Twin Rivers Farm, Ontario, Canada.
All strawberries every year.