



## Redwood Barn Nursery

1607 Fifth Street Davis, California

### How Did Your Garden Grow?

“I just had the worst tomato year ever! I finally took them out in August. Seemed like nothing else did really well either.”

“Had a great year with my tomatoes. So many in October this year, and some even later!”

That expresses the range of feedback I got about last summer’s vegetable garden season. Along with comments such as “I’m definitely planting earlier next year” and “maybe the plants need more shade.”

#### **Was 2021 an unusually difficult summer for vegetables?**

Why did some gardeners do well while others had poor results? In most cases the answers came down to watering.

Summer of 2021 wasn’t unusually hot from a tomato plant’s perspective. We get good fruit set on most varieties when high temperatures are below about 90 degrees F. Our number of days with suitable pollination weather was about normal (about half of our days are suited to tomato pollination in a typical summer here).

What really set 2021 apart was how dry the soil was at the start of the season. With about 7 inches of rain total, and very little in late winter, those poor seedlings needed extra water at the start of their growing season. The usual soil moisture remaining from winter rains simply wasn’t there by April when we were setting out tomato seedlings. Then many gardeners under-irrigated as the plants were growing. Drought-stressed tomato plants won’t set or develop fruit well.

Gardeners using drip watering systems for their plants seemed to fare the worst simply because they didn’t run them long enough. The low output of some drip emitters requires that the system run for a long time to provide several gallons of water to each plant. Shallow watering kept the plants on the edge of drought stress, and each heat wave led to blossoms dropping off, less vigor, and even sunburn on the fruit. As the soil got drier and drier, the plants did more poorly, and the quantity and quality of fruit was affected.

#### **How much should you water tomato plants?**

A tomato plant is a deep-rooted, robust vine with roots that wish to grow deep and wide. Varieties differ in their vigor and ultimate size. As a rule, to support that growth, you’ll need to give them five to ten gallons of water per week.

Why the range? ‘Determinative’ varieties, which stay smaller and tend to finish production early, will grow and yield well with five gallons per week. ‘Indeterminate’ varieties, which grow and produce all season long, need the higher amount because of the greater leaf surface area of the bigger plants.

It’s best to water deeply if you can. Watering to wet the soil past the current root zone each time allows the roots to continue growing deeper and wider. My preference is to give a full week’s water at one time, which is easy to do with our typical soils in this area. But if you are



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planting in a faster draining soil, commonly the case in raised planter beds, you'll need to water more often.

It's especially important that the plants not be drought stressed in the early summer during the growth, flowering, fruit set and fruit expansion stages. Once fruit starts to ripen, you can gradually water less often if you are primarily just growing a summer crop of tomatoes (as farmers do), and it is true that the flavor can be intensified by strategic late-season drought. But that also hampers the plant's ability to continue fruiting into fall, which tomatoes are quite willing to do here.

October is always my busiest harvest season for tomatoes. We nearly always get an "August cool down" when the weather pattern shifts and we get some influence from monsoon moisture pushing up from the Gulf of Mexico. With a full-grown vine and lots of flowers by then, a healthy tomato plant can produce dozens of fruit well into fall.

### **Should we plant earlier to beat the heat?**

There are disadvantages to early planting. Young plants going into cold soil sulk and don't grow much at first. The first flowers typically drop without setting fruit. The first fruit often get blossom end rot, which correlates with cold soil conditions.

My preference is to keep transplanting the young plants up into larger pots until the soil temperatures are warm.

Here are our guides for planting seedlings of tomatoes, peppers, and eggplants in the ground. For best results we plant:

- Tomatoes in April.

Soil temp about 60F; night-time lows above 50 - 55F, daytime highs at least near 80F.

Typical calendar date: late April.

- Peppers and Eggplants in May.

Soil temp about 70F; night-time lows about 60F, daytime highs above 85.

Typical calendar date: late May.

That's the earliest we like to put them in. My active planting month is May, and I continue to plant all the way through June. We have a very long growing season here. Four tomatoes that I planted last year on the 4th of July each yielded 20 to 40 fruit in October!

### **When and how do you plant the seed? And what about all those other summer veggies?**

First the how: we start the seeds in a mix of peat moss or coir and perlite or vermiculite. Don't use garden soil or compost for planting seeds due to the risk of seedling diseases.

Your indoor environment can be great for germination but is too low light for young seedlings. Bright light and some air movement yields sturdy seedlings. Avid gardeners find a place outdoors for their young vegetable plants to spend their days, and a spare table to set them on indoors at night.

- Peppers and eggplants: start January and February.



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We use heating pads and grow lights until they germinate, then they go either outdoors into popup greenhouses or outside into a sheltered location where we have heating pads set up. It's very important to keep them warm at the roots. You can move them outside into a sheltered but sunny location during the daytime and bring them back in each night.

At the two-leaf stage we transplant them into 4" pots.

We start these first because they will take about 10 – 12 weeks from seed to be big enough to plant out in the garden.

- Tomatoes: plant seed in March to early April.

They will go to 4" pots in about 4 weeks, even up into 1 gallon size if necessary. Keep them moving and don't let them get rootbound. If you start them early, they will be very tall and gangly when you plant them in the garden. That can be ok (just plant them deeper) but can lead to shock if the nights are below the low 50s.

They will take about 4 – 6 weeks from seed to be big enough to plant out in the garden.

My tomato plants go in the ground about the third week of April at the earliest.

- Other vegetables:

Seeds of basil, bush beans, corn, cucumbers, summer squash, and sunflowers can be planted anytime from about early April all the way into late June, some even later.

I don't plant seeds of melons or pumpkins until I'm going to be planting them outside within about 3 weeks of seeding. They sprout very quickly, grow very fast, and need warm soil. So, we start seeds of those beginning in mid-April and continue through June.

Okra needs very warm soil, as do watermelons. So, I start the seed in late April to plant outside in late May or into June. Then the last things I plant are pumpkins and winter squash (a term which refers to the types of squash that we grow in summer and store into the winter, such as Hubbard and acorn squash).

I know it's tempting when we get sunny winter days but try not to start seeds too early. If you do and the plants are getting big, transplant the seedlings to bigger containers so they don't get rootbound. Don't plant summer vegetables out into cold soil. It's better to transplant them up into larger pots while you wait for soil temperatures to become favorable.

There will, of course, be plenty of seedlings available at garden centers and hardware stores in spring if you want to skip this step.

### **Is there anything to be done about summer heat damaging the fruit?**

Every heatwave brings us lots of samples of sunburned fruit. Tomatoes and bell peppers that are exposed to afternoon sun when the daytime highs are in the 100's can get significant tissue damage on the exposed parts of the fruit. With peppers, I've found that all the other sweet peppers are less prone to sunscald than the bell types.



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The protective layer on the fruit gets thinner when the plant has inadequate soil moisture, and as the fruit matures. Green fruit has maximum cuticle thickness, which then gets thinner as the fruit ripens. Fully red-ripe fruit has very little protective coating. Pick it before that stage if extreme heat is in the forecast!

Shading the plants is likely to reduce yield overall. Tomato plants grow, flower, and yield best in full sun.

To minimize direct sun damage to the fruit, harvest strategically. If it's going to be over 100 degrees and a tomato fruit has reached or passed the "breaker stage," pick it and bring it inside. Breaker stage is when it's just beginning to turn from green to yellow. They'll continue to ripen and develop flavor after being picked.

Set the fruit on your kitchen counter, where it will take just a few days to fully ripen. In fact, the fruit will ripen quicker indoors during extreme heat than outdoors, because the tomato plant's response to very high temperatures is to go into a period of reduced metabolism. The ripening process slows or stops when it's very hot outside.

For greater success in 2022, plant into warm soil, water well, and harvest early if necessary.

For more information on starting summer vegetables from seed, click here:

<http://www.redwoodbarn.com/PDF/Startingvegetableseed.pdf>



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Tomatoes ripen and hold well at room temperature, and the fruit can be injured by exposure to direct sun during extremely high temperatures. When it's going to be unusually hot (100+), consider harvesting fruit that has started the ripening process. They'll finish ripening indoors.



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By midsummer an indeterminate tomato variety will fill a 6-foot cage, and with sufficient soil moisture it will continue to grow, flower, and produce fruit right through October. Some of the fruit on this vine is now at the breaker stage, so those can be picked if a heat wave is in the forecast and they will ripen indoors. Fruit that is further inside the vine will likely be adequately protected by foliage.



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Bell peppers are susceptible to sunburn on the fruit when we have our common summer heat waves. Most other peppers are less vulnerable in my experience. That includes sweet-flavored garden hybrids such as Gypsy, Italian peppers, Carmen (shown here), as well as hot peppers.



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You can make your own seedling mix quite easily. A good blend will retain moisture, but not stay soggy, and will not contain ingredients that might encourage fungus diseases. Common ingredients include peat moss, coir fibre, perlite, vermiculite, and pumice. Avoid garden soil and compost as those can encourage seedling diseases.



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Grow some tried-and-true varieties and try something new or unusual as well. Shown here: Red Boar tomatoes, one of the open-pollinated varieties selected and introduced by Wild Boar Farms, a local farmer and breeder who seeks to combine unique colors, special flavor, and good yield in his varieties.