

Tomatoes (and Other Summer Vegetables)

Tomatoes are the most popular vegetable grown by the home gardener, but growing them can be a challenge. The following recommendations should help, and are useful for peppers and other vegetables as well.

Location - Tomatoes need *at least* 6 hours of direct, unimpeded sunlight. Morning sun is better than afternoon sun. Avoid planting members of the tomato family – tomatoes, potatoes, peppers, and eggplant – in the same area for two to three years as they share the same pests and diseases, and these problems build up after repeated growing in the same area.

Soil - Creating the richest soil possible is the greatest key to success. Whether your soil is sandy, clayey, or somewhere in between, add a **good quality non-manure based compost**. Tomatoes are very susceptible to herbicide damage which can be introduced through contaminated manure based compost or by application of “Weed ‘n’ Feed” fertilizers. Mix in enough compost so that your garden is approximately *half* compost and *half* soil. If you have no soil, make a raised bed using a quality prepared soil. In either case, also mix in a good organic **higher-nitrogen fertilizer** for the first month or 2 then, switch to a **high-phosphorous fertilizer** to encourage flowering and fruiting. Add a dry fertilizer every 4 – 6 weeks as well as applying a liquid seaweed and fish emulsion up to every week. Vegetables are heavy feeders!

Varieties - The Natural Gardener carries many varieties that are well adapted here. It is important to grow varieties that are fairly quick to mature. Skip Richter, of the Texas AgriLife Extension Service, recommends varieties that ripen in 73 days or less. Also, some varieties have been bred to be resistant to common diseases. Here is the guide to disease resistance codes: **A**=Alternaria; **F**=Fusarium (**FF**= both Fusarium race 1 and 2); **N**=Nematodes; **T**=Tobacco Mosaic Virus; **V**=Verticillium. If your tomatoes have suffered in the past, choose varieties with the most resistance. Finally, choose *determinate* varieties if you want all of your tomatoes to ripen at the same time (useful if you’re canning them). Choose *indeterminate* varieties if you want your plants to keep producing more and more tomatoes as long as possible.

Timing - Tomatoes are harmed by temperatures below 45° F, and won’t set fruit above 90°, so timing is crucial. Spring tomatoes can be planted in the ground just after the average last frost date (at Austin Bergstrom, it’s March 3), but will need to be protected from cool/cold temps. Use **Row Cover**, a sheet, blanket, or plastic for frost protection. Do not allow the cover to touch the plant, or that part will freeze. Be sure to cover the plant completely, bringing the cover all the way to the ground. If using plastic and it gets warm &/or sunny the next day, remove the plastic or the plants will fry. To get a head start on the season, plant tomatoes in a container first and bring indoors when cool temperatures threaten.

In July, if spring-planted, indeterminate tomatoes still look good, cut off 2/3 or more of the plant and they will be rejuvenated for the fall season. If not, acquire fresh tomato starts and plant again for a fall crop of tomatoes. Now, it’s a race against time to get ripe tomatoes before the first frost. At Austin Bergstrom, the average first frost is November 28. Some folks add Christmas lights or utility lights under their frost protection at this point. If you don’t want to go to that trouble, harvest all green tomatoes before the first frost and let them ripen on a windowsill.

Planting – Tomatoes are the only vegetable you can plant deeper in the ground. If you remove the bottom leaves and leave 4-6” of stem above ground, it will sprout roots from the stem. Be sure to give plants the correct spacing, based on the variety. Apply mulch, about 2-3” deep. Mulch holds in moisture, keeps out weeds, moderates soil temperature, and can help prevent diseases by stopping rain splashing soil up on the plants. Water the plant thoroughly right away with seaweed and fish emulsion. This is a great stimulator for new transplants. Most varieties, except ‘Patio,’ will need a tomato cage or plant stakes – the sooner, the better.

Maintenance – Keep the soil deeply and evenly moist throughout the growing season. Over- or under-watering can lead to **Fruit Cracking** or **Blossom End Rot**. Continue fertilizing according to package directions. Regular foliar feeding with seaweed and fish fertilizer strengthens the plant, builds its resistance to diseases and pests, and provides essential trace minerals. Seaweed also contains growth stimulants that can help boost all plant functions, including flowering and fruit set. Foliar feed *only* in early morning or late evening, when there is adequate moisture in the soil. Also, avoid pruning tomatoes, since an abundance of leaf cover protects tomato fruits from sunburn. In summer, **40% shade cloth** suspended over tomatoes, or on the west side, can also help.

Problems – Tomatoes are susceptible to a host of insect and disease pests, but don't let that discourage you. Follow the recommendations listed above and stress is minimized, reducing tomatoes' vulnerability to such problems. Also learn to recognize beneficial insects, too, so you can enjoy their help in the garden. If problems begin to occur, get an accurate diagnosis as soon as possible.

Many soil-borne diseases, such as Fusarium and Phytophthora, can be prevented by mixing in a *beneficial streptomyces* at planting time. This is crucial if tomatoes must be planted in the same place as last year. If these diseases – and even air-borne diseases – show up on plants after planting, a water-soluble version can be used as a curative. There are many different fungicidal bacteria species; *Bacillus subtilis* is a widely available species for foliar application. These products work great on Early Blight, one of the most common fungal pathogens on tomato.

If tomato plants get Spider Mites, they need to be treated right away. Spider Mites are tiny critters that live on the surface of the leaves, sucking juices and giving the leaves yellow or pale freckles. In advanced stages, webbing will develop. Spray horticultural oil (if temps are BELOW 85 degrees) or insecticidal soap once a week for two or three weeks in a row. Aphids are small, soft-bodied, sucking insects that cluster on leaves and stems. They may be black, white, green, yellow, or red. To control, start with a strong blast of water every day. For a more serious case, spray plants with insecticidal soap every 5 days until controlled. If leaves seem to disappear overnight, it may be the Tomato Hornworm or another caterpillar. Spray leaves in the evening with B.t. (*Bacillus thuringensis*) and that should take care of them. Likewise, if there is a small, neat hole in the fruit, it may be a tomato fruit worm, and B.t. will help prevent further damage. As the season progresses, two more problems may crop up: Birds and Stink Bugs. Both are very difficult to thwart. Leaf-footed Bugs and other Stink Bugs may be picked off by hand and dropped into a bucket of soapy water. Or use a shop vac or Dust Buster to suck them up. You may want to dust Diatomaceous Earth (DE) over the whole plant – this may help reduce numbers. If tomato fruits have messy, rough holes in them, it is probably Bird damage. Many people hang red Christmas ornaments to fool and frustrate birds *before* the first fruit ripens. You may hang shiny objects, such as old CDs, Holographic Scare Tape, or the Guard'n Eyes Bird-Scaring Balloon. A condition known as Blossom-End Rot is not caused by a disease or an insect. This dry, brown/black lesion on the bottom of the fruit is a calcium deficiency usually triggered by uneven watering, so remember to water deeply and infrequently, and mulching. In containers, the addition of a calcium supplement such as bone meal or crab shell, will help alleviate the problem.

Tomatoes in a Well?

Yes! This trick will give your plants a jump start on the season, making use of the sunny warm days and rising soil temperature, but protecting them from unsuitable night temperatures that drop below 45°.

1. Cut the bottom off of a 5 gallon bucket or nursery container.
2. In your prepared & amended bed, dig a deep hole so only the top 2-3" of the pot will show above ground.
3. Amend the bottom of the hole with a *streptomyces* amendment (to ward off root-knot nematodes), a mycorrhizae amendment (to grow strong roots), & a higher-nitrogen dry organic fertilizer (to grow more leaves!)
4. Plant your tomato as usual, pinching off the lower leaves, and watering in with seaweed.
5. Sink your container around the tomato into the ground to form the well, and backfill soil around the *outside*, adding more fertilizer at varying depths to feed your plant in the future.
7. Keep some row cover & rocks handy: on nights when temperatures are expected to drop below 45,* fold the row cover over several times to make a thick cover over the top of the pot/bucket, and weigh down the corners with rocks. If possible, cover early in the afternoon to build up some heat. Wait to uncover until after temperatures rise above 50°, or leave covered for the day if you can't get to it.
8. As your tomato grows, pinch off a few of the lower leaves, gently pull the pot up, and firm some soil around the bottom of the plant. Continue feeding with a liquid organic fertilizer to encourage your tomato's growth.
9. Eventually, you'll remove the entire pot, and place a cage around the plant. It may only look 6" tall, but by now it will have a foot or more of roots underneath!

Homegrown tomatoes have such a legacy, there is even a song named after them written by Texan Guy Clark. Join in this tradition and grow your own today!