Moisture: A ground surface irrigation system is best suited for El Paso. Use a soaker hose attached to a timer set to operate every other day for 15 minutes. Just before the second watering, check the soil to determine dampness. If the soil is bone dry, increase the watering time. If the soil is quite damp, reduce the watering time. After the timer is set, check the soil periodically as the watering time will increase as the temperature rises as summer approaches.

COMMON PROBLEMS

Diseases: Early blight, septoria leafspot, verticillium and fusarium wilts, late blight, tobacco mosaic virus, bacterial spot, curly top virus.

Choose varieties with disease resistance bred in for best results. Fusarium and verticillium wilt are common diseases that can destroy a whole tomato crop; treating either disease is difficult. Many varieties are resistant to these two diseases—look for VF after the cultivar name, indicating resistance to the wilts. VFN means the plants are resistant to verticillium, fusarium and nematodes; VFNT adds tobacco mosaic to the list.

Insects: Flea beetle, hornworm, stink bugs, fruitworm, aphids, mites, whiteflies, cutworms.

Other Pests: Nematodes.

Cultural Problems:

Blossom-end rot: caused by irregular soil moisture or calcium deficiency

Poor color, yellow spots or large whitish-grey spots: caused by sunscald from lack of foliage cover

Leaf roll: a physiological condition often found in pruned tomatoes

Fruit cracking: irregular soil moisture

Temperatures above 90° or below 60° will reduce fruit set.

If the garden is in an open area, the plants may be damaged by rodents and rabbits. This requires putting a fence around the garden. As the tomatoes become ripe, they may attract birds, requiring putting up a net.

Mulch: Mulch to reduce water evaporation.

Harvesting: Once tomatoes start ripening, check vines daily. Cut or gently twist off fruits, supporting the vine at the same time. For best flavor, leave the fruits on the plants for as long as possible. At first sign of heavy frost, harvest all fruits. Tomatoes require 90-140 days to mature from seed; 60-90 days from transplanting, depending on the variety.

No Bloom - What Happened? Tomato plants that receive fertilizer too high in nitrogen will do a couple of things, none of which are good. They may not bloom at all, or they may drop the blossoms before the fruit has set. In order to prevent this from happening, use a fertilizer low in nitrogen or one specifically formulated for tomato plants.

Once the plants begin blooming, you may need to hand pollinate, especially if your tomatoes are growing inside a greenhouse where there is no wind. To hand pollinate, you will need to shake each plant to dislodge the pollen and allow it to self pollinate. There are "bloom set" sprays on the market. They apply a coating to the bloom to give it more time to self pollinate.

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GARDENING IN THE DESERT SOUTHWEST PUBLICATION SERIES

Growing Tomatoes in El Paso and the Desert Southwest

TEXAS MASTER GARDENER
TEXAS AGRILIFE EXTENSION SERVICE
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Growing Tomatoes in the Desert

Anyone who has eaten a tomato picked fresh from the plant knows how delicious it is. Store-bought tomatoes just don't compare! However, as shown in the box, El Paso's desert environment presents challenges for the home gardener when growing tomatoes. The guidelines presented here were developed by Master Gardeners growing tomatoes in El Paso.

Needs	Ideal	El Paso
Light:	Sunny	Sunny
Soil:	Well-drained, loam.	Generally, sandy soil or caliche
Fertility:	Medium-rich	Medium
PH:	6.0 to 6.7	7.5 to 8.0
Temp:	Warm (70 to 80°F)	Hot (up to100°F)
Moisture:	Moist, but not waterlogged.	Dry

Planting: Start seed indoors 5 to 7 weeks prior to average last frost (April 15 in El Paso). Transplant after all danger of frost is past and when the soil has warmed.
Spacing: 18 to 36 inches by 36 inches.

Hardiness: Tender annual.

Fertilizer: Tomatoes are heavy feeders. Use starter solution for transplants. Sidedress 1 to 2 weeks before the first tomato ripens with 1-1/2 ounces 21-0-0 per 10 foot row. Sidedress again 2 weeks after the first tomato ripens with a balanced fertilizer such as 5-10-5; repeat 1 month later.

Irrigation: Usually the best results are obtained using an automated surface irrigation system.

Practically speaking. . .

Light: The vegetable garden should be located in an open area away from tall structures such as walls and buildings and clear of shade trees. If this is not possible, the garden could be placed near a west wall that blocks late afternoon sun. The garden should never be next to a north facing wall. A south facing wall is okay.

Soil: Much of the soil in El Paso is sandy. Add 2-3 inches compost or composted manure to your soil. Till the compost into the soil to a depth of 6 to 8 inches. If you are in an area where the soil is rocky or high in caliche (resulting in poor drainage), you may need to create raised garden beds.

pH: The soil in El Paso tends to be very alkaline. Adding compost to the soil will help somewhat, but likely not enough. Ideally, test your garden soil to determine pH. Sulfur is a popular material added to soil to reduce the pH. One pound of sulfur per 100 sq ft will reduce pH by about 0.5 pH units.

Species: Choose tomato varieties that do well in hot climates. Tomatoes that do well in El Paso are:

Large:	Brandywine, Beef Master, Big Beef
Medium:	Heat Wave, Early Girl, Big Boy, Better Boy, Celebrity
Processing:	Roma, Viva Italia
Small:	Porter, Sweet 100, Yellow Pear, Shirley's Orange

A properly cared for tomato plant will yield 10 to 15 pounds or more of fruit.

Propagation: Tomato plants may be started indoors from seed or transplants may be purchased. If starting your own plants, use a light soil mix and give the plants plenty of light. This usually means placing the plants next to a south facing window. Seed starter containers are commercially available for starting your own plants.

These containers come in three parts. The bottom part holds water, the center part has multiple compartments for holding the soil and seeds, and the clear top part seals to the bottom part to hold in heat and humidity.

When the seedlings are about two inches tall, plant transplant them to large plastic drinking cups filled with potting soil and holes punched in the bottom to allow for excess water drainage. Water when the potting soil is almost dry.

Transplanting: Be sure to harden off the plants before transplanting outdoors. Hardening is placing the plants outdoors for two hours one day, 4 hours the next, etc., about 5 days before transplanting. Ideal plant spacing is 36 inches by 36 inches if you have the room, allowing for ease of picking fruit. Less than 18 inches by 36 inches and the plants shade each other too much and compete for nutrients.

Most vegetable plants should be planted at the same depth they were in the pot. ***Tomatoes are a notable exception.*** They will develop roots anywhere along the stem where it touches the soil. So you have the option of removing some of the lower leaves and burying the main stem in a horizontal trench. Or you can plant them in a deeper hole, with 80% of the plant height buried in the hole. Either method will develop more roots to extract more nutrients from the soil and develop larger plants which grow more tomatoes and can better withstand dry conditions.

Fertilizer: Starter solutions/root stimulators are usually prepared as aqueous solutions. After transplanting, give the plant a good dose of the solution. For the first sidedress, sprinkle a heaping teaspoon of 21-0-0 fertilizer around the drip line of each plant and stir it just under the surface of the soil. Do the same with the 5-10-5 fertilizer.

Support: Most tomatoes are vines. They need support to keep the fruit off the ground. Tomato cages will support the plant without additional ties. Plants can also be staked.