

Growing food at home series

Growing tomatoes

Pack D Notes 7

Types of tomatoes

There are many different types of tomatoes to choose from and a great variety in the fruits they produce; some are better for cooking others best straight from bush to salad or sandwich. Home gardeners can grow varieties that are not commonly available in the grocery stores as they have limited storage ability even though their flavor maybe excellent.

Select varieties for the use you prefer.

There are four broad shape classifications for tomatoes:

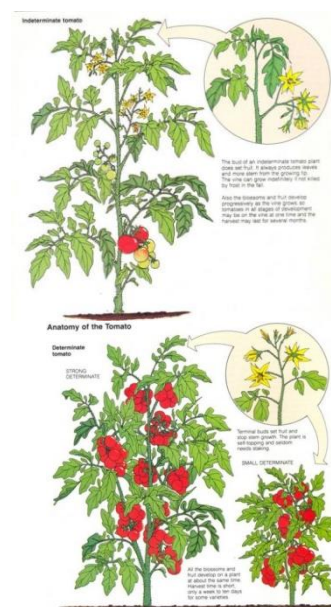
- **Globe tomatoes:** the most heavily commercially-cultivated fruit are large and round good for eating raw or cooking e.g. mande
- **Beefsteak tomatoes:** biggest fruit used for sandwiches e.g. brandywine, mortgage lifter, grosse lisse
- **Plum/Paste tomatoes:** small oval thick-walled fruit used to make sauces .e.g. romas, amish paste
- **Cherry tomatoes:** smallest fruit good for snacks and salads e.g. tommy toe, black cherry

Growing habit (shapes)

The plants themselves grow in different shapes and heights; some require staking or can be let ramble, whilst others are smaller and bushier.

Taller types e.g. Grosse Lisse, need to be supported by a stake (unless you want them to ramble and climb - this can make it difficult to keep pests and away and trim off diseased leaves) are also called **indeterminate**. These plants tend to produce fruits all season long with the fruits produced at intervals along their stems. Space these 80 – 100 cm apart.

Smaller and bushier types e.g. Roma, called **determinate** and don't require staking. They produce their fruits at the end of their branches and tend to bear most of their fruits all at once for a couple of weeks and then production fades out. That's because it eventually forms a flower cluster at the terminal growing point, which causes it to stop growing in height. Space these 50 – 60 cm apart.



Images: <http://squarefoot.creatingforum.com/t3013-tomatoes-determinate-vs-indeterminate>

Tomatoes may take 4-5 months until harvest, so some consideration of which varieties suit your interests and capacity needs to be taken. Plant at interval for extended crops.

Site selection

They will need at least 6 hours of sunlight, preferably morning sun and shelter from strong winds and western sun after 3pm. Orient your beds to maximise sunlight. In extreme heat periods- 35° to 40°, they will need to be shaded.



Because of potential diseases that stay in the soil, plant in a section of the vegetable patch where tomatoes have not been grown for 2-3 years.

Preparing the soil

Tomatoes prefer a pH range of 5.5 – 7. The clays soils feature in most of the suburbs of City of Salisbury are alkaline. Test your soil with a pH testing kit these are readily available at garden stores. If the soil pH is too alkaline add Agricultural Sulphur at the recommended rates, and if too acid, use lime as per instructions on the packet.

Tomatoes are heavy feeders that need rich, well-draining soil. Deal with drainage first, if you have clay soils add 60% or more of coarse builders to make it crumbly, or gypsum at a rate of a 9 litre bucket per 1 metre square. Then build up the nutrients in garden beds. We have found preparing the soil early, at least 6-8 weeks before planting, maybe the end of July for late September planting, advantageous. Too much nitrogen will give you big plants with little fruit, so make sure the any manures you add are well rotted, and check the nitrogen component of any other fertiliser is relatively low. Build the soil for feeding the plant when it is larger by mixing in the bed:

- Organic matter including compost, gypsum (for calcium), pelletised chicken manure (Yate's "Dynamic Lifter" or Neutrog's "Gygantic" or "Sudden Impact for Roses") or well- rotted manure - sheep or cow, blood and bone, and Sulphate of Potash
- Water in and let sit until the weather is better and soil warmer for planting. Check the moisture levels if there is no rain you may need to water to keep the soil moist and the microorganism in the soil active

Lyn's preferred soil preparation:

Start in winter about 6-8 weeks before planting. Lightly turn the soil, and make sure its moist

- Pelletised chicken manure- 2 good handful of per square metre
- Blood and bone- 1 good handful per square metre
- Seamungus - 2 good handful per square metre
- Sulphate of potash-1 small handful per square metre
- Egg shells pulverised- scatter ½ handful per square metre
- Turn over lightly and water
- Repeat at 2 week intervals but don't add any manure later than 4 weeks before planting.
- When planting add a small amount of Sulphate of Potash, and throughout growing season when they flower to help set fruit

Selecting healthy seedling

Select healthy young seedlings for planting. A healthy seedling is upright with a strong stem, not spindly, has lush green leaves not any yellow leaves or ones with spots on them and has some new growth. A few roots coming out of the holes in the bottom of the pot means its roots are established, too many roots coming through come may mean it is pot bound and not worth purchasing. Mildly pot bound where the roots are occupying the container is fine, and should help the plants establish flowers early. Add pinch of potash to the seedlings will help them flower too, which helps them get off to producing fruit early, not foliage.

Before planting remove side shoots and suckers from the lower part of the stem and plant them deep (7.5-10cm) with only the last two leaves just above the ground. This will encourage strong root growth as roots will develop along the buried stem.



Remove side shoots and plant deep to encourage strong root development

Staking and supports

Plan how you are going to grow your tomatoes and put their supports in when planting



Images <http://www.vegetablegardener.com/item/5157/how-to-support-tomatoes>

Staking should be done before planting with consideration as to how you are going to prune as this will determine your staking requirements. Staking is important as the weight of fruit can cause the stems to strain and possibly split which allow access to diseases. You can use 1 stake per plant, one on each side, three for a triangle. Trellis can be made fence, wire; anything that will provide support to the plant will do, although metal can heat up in the sun and burn tomato leaves. Tree tomatoes and vigorous varieties e.g. Grosse Lisse and Sweet Bite need staking.



Note: Reduce disease by using only clean and sterilised materials

Clean and sterilize stakes by soaking them in diluted bleach at the end of the season to prevent transferring soil borne diseases.

Use soft material as ties such as stocking, old tee shirts ripped into strips or plant tie ribbon; anything with some give in it. String will quickly cut into a stem on a windy day so avoid.



Planting

In Adelaide planting out when the soil temperature is warm; in spring is the best time. But the overnight temperatures can still be low then so late spring may be better. Harden the seedling up before you plant them by leaving them in the same conditions that they will be growing in for a few hours over a few days prior to planting.

- Plant tomatoes when the soil temperature is in the 15-20°C range - the preferred growing temperature, which is around late October to mid November. It's best to plant when the night time temperatures are about 15°C. When planting, ensure that the temperatures on the following days are not going to be too hot
- Space plants, still in containers, on the raised mound between trenches. Spacing depends on growing habit they need to be a reasonable distance apart to allow space to grow, access soil nutrition and have plenty of air around them
- Position stakes before planting to prevent root damage. Taller growers will be easier to harvest and take up less space if grown up a wire frames, tee-pee like sticks, stakes or trellis.
- Place 1tsp of blood and bone either side of the plant
- Water in seedlings with a diluted seaweed extract 1:10 ratio

Tip: Growing tomatoes in trenches is useful to channel water and fertiliser to plant roots. It's also beneficial to prevent fungal infections which are easily spread by watering on their leaves.

Dig the trench, and fertilise as you would for growing in normal beds

Plastic tube attached to stakes or on the ground around plant roots left over night on cold nights can keep the soil temperature warmer and keep plant growth more consistent in spring.

Watering

Tomato plants require regular to establish good growth and fruit set. Stress due to lack of water will reduce the quality and yield, and ultimately shorten the life of the plant. The soil type and rainfall will determine how frequently you need to water; clay soils hold water and will need to be watered less frequently than sandy soils. Soil around the roots needs to be always moist.

- During the growing period if rain has not been regular you will need to water. Train the roots to go deep by a slow deep soak once a week. During extreme heat period you may need to water every 2 or 3 days depending on the conditions. Check first
- Check the soil to determine whether to water or not by sticking your finger in the soil. If it is damp, do not water. If there is no moisture at all, then water
- Creating trenches to water in can help channel water to reach the roots
- Do NOT overhead water as this will encourage fungal or bacterial diseases

Feeding

With good soil preparation the plants should be fine to grow for a while before applying the first lot of fertiliser.

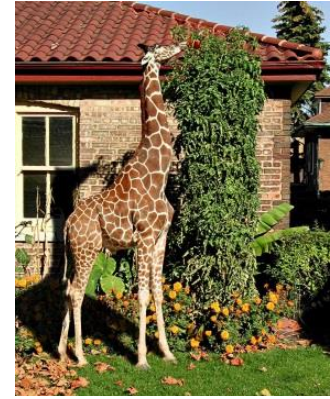


- Hold back from fertilising until the first flowers appear, and then sprinkle sulphate of potash (3 tablespoon and water in, repeat each month during growing season) around the base of each plant to encourage the flowers set into fruit.
- We add 1 teaspoon of granule sulphate of potash and water it in at the 1st flowers and 1st fruiting and continue as new flowers and fruit develop.
- Nitrogen is good for initial leaf growth, but if too much is used it will prevent good fruit set. A fertiliser higher in potash commonly called 'for fruiting and flowering' such as Neutrog's "Gyganic" or "Sudden Impact for Roses" is better as it encourages flowering and fruiting. Or use pelletised chicken manure or compost and sulphate of potash as described above.
- Over the life of the plant it should be fed at least 2 or 3 times to ensure adequate growth and development. Look at the leaves of the plant, if they are yellowing or fading, or if the tips are black or purple the plant needs fertilising. Place fertiliser in the trench. Plants that are overfed are very lush green and soft and are susceptible to wind and insect damage.
- Plants lacking in calcium (often due to inadequate watering or too much nitrogen) are susceptible to getting blossom end rot. Many of the liquid tomato foods (like Phostragen) contain added calcium. The calcium needs to be added before planting – it's too late if the problem occurs.
- Consider liquid fertilising approximately once every three weeks. Fish emulsion/Seaweed extracts gives them a good boost. Feed them early in the morning 7 am, not in the heat of the day.

Pruning

Reasons to prune are based on reducing fungal infections and directing the growth of the plant so that it is easy to harvest and manage. To reduce fungal infections increase the airflow by clearing away the leaves from the base of the plant.

Heavy pruning is usually unnecessary, and can reduce growth and yields. Be aware that too much pruning can lead to scalded fruit in hot spells, so you may need to provide shade during very hot weather.



Img:<http://forums.gardenweb.com/discussions/1887577/container-tomatoes>

- Pruning from the soil up to about 12" or 25 cm so that no leaves are touching the ground will avoid disease transmitting from the soil to the plant
- The taller growing indeterminate types can be influenced in how they grow by pruning and pinching them out. Do think about how you are going to grow these varieties and place stakes and trellising supports early for their eventual shape. Pinch off the soft shoots (apart from the tip shoots) that grow from the leaf junctions
- If you wanted to grow a tall plant up a pergola pole you may only want the one main leader (the main leader is at the top of the plant). The second strongest leader is the next one, below the first flower truss. The less leaders the slightly bigger your fruit may get

Side shoots

The side-shoot or suckers are new growths between the stem and the shade leaf. Don't remove the shade leaves, as they protect the plant. Pinch the side-shoot out if it is only a couple of cms in size. If it is bigger, cut it off with a scalpel type knife so as not too open up a messy wound which could become a disease entry point. Prune side shooting laterals and lower shooting stems as the plants grow. This will need to be done nearly daily once your plants take off!



The **determinate** varieties (often bushier, shorter growing varieties) don't need any pinching – ever as their growth structure is already determined.

Shelter in extreme heat

Tomatoes can become sunburnt when they are exposed in extreme heat and it ruins the fruit. The burnt section appears as a white to greyish sunken area on the skin of the fruits. To prevent this train the plant and manage pests and diseases to ensure good foliage cover, and shade them in hot weather. The late afternoon sun is most damaging. In extreme heat (38 C+), use 50/50 shade cloth. Make sure the shade cloth does not touch the plant, nor can be blown into it on windy days as this will damage the leaves. Also, ensure enough air flow and access.



Mulching

As the weather becomes hotter increasing apply a mulch of straw, pea straw around. According to Peter Cundall, if you spread a thick mulch of straw enriched with rotted sheep or cow manure around each plant, pressing it against the lower stems and watered in, it will not only keep the soils moist and temperature lower, it also will stimulate new root growth into the decomposing straw mix and result in bigger yields.

Harvesting

For the best flavour, ripe fruit is best so leave it on the bush until ready to use where possible. Semi-ripe fruit can be harvested and will ripen (but not in the refrigerator).

Tomatoes are better NOT stored in the fridge.

Selecting different varieties to grow will extend your harvest season.

If you leave fruit on the bush and don't water enough, heavy rain can cause the fruit to split.

Pest and disease control

Tomatoes are prone to suffering from a vast array of pest and disease. Early intervention is important to prevent them from spreading. Continually check for pest and diseases and treat accordingly. Good gardening hygiene measures to help prevent the spread of diseases.

We apply a regular dusting of tomato dust on the leaves to control caterpillars being careful not to dust the flowers as this can kill bees. Also sprinkle a light dusting to the soil around the stem, prune the lower leaves so none contact the soil to prevent fungal infections from the soil. Maintaining good airflow through the plants, and never overhead water will also prevent fungal infections.

A diseased plant can still keep on producing if you cut off and dispose of the diseased leaves (put them in the green bin, not your home compost). We remove diseased leaves weekly. Don't compost infected plants and fruit. Insects can be controlled by sticky traps

The list of pest and diseases is long and an internet search or consulting a few books from the library will be informative. Common diseases and pest include:

Pest and disease control continued

Tomato russet mite.

Usually after the first period of hot weather it can wipe out previously healthy plants. Leaves become dull brown and papery, dying from the bottom up, which exposes fruit to sunburn.

They live on back of leaves are about .25mm, cream, and toredo shaped. They love dry, dusty conditions so apply some mulch to the soil. Squirt off with water in morning. If severe in early morning spray with Wettable sulphur rate of 1teaspoon spray per litre onto front and back for leaves, or miticide or horticultural oil (which you can't use in hot weather), or insecticide soap spray such as natrasoap.



Nematode

Root nematode will cause plants wilt. To control drench soil with 1lt molasses mixed in 4L of water over 3 m square. Look for swelling on the roots of a dead plant to confirm.



Bacterial Wilt

Plants will wilt and there is no cure. To test slice stem lengthwise if the centre is white it is OK, if it's brown then it's infected.



Fungal problems

Prevent by practicing crop rotation, pruning to reduce air flow; water the base of the plant not the foliage. Only water when plant needs as over watering increases fungal problems.

Blossom end rot

Fruit goes rotten on the bottom where flower was caused by lack of calcium. Irregular watering can also cause- water as plants need and prevent water stress.



Fruit Split

Caused by excessive water. If heavy rainfall is forecast you may wish to pick crop early.

Sunburn

White patches on the upper surfaces. Use shades and be careful not to prune off all the leaves!



Aphids – tomato dust and spray

Growing tomatoes in pots

Pots

Choose pots with good drainage holes. They should have them on the side, and on the bottom. Many terracotta pots have only one hole, flush to the ground. These pots should be at least raised slightly, raising the hole off the ground. The size of pot depends on the variety. Tall growers need large tubs. Smaller sized tomatoes e.g. Floriana's San Marzano can go in much smaller pots (as small as 25cm diameter. If you go too small, the plant will forever dry out.



Deep saucers are extremely handy, particularly if you go away for a few days. They also save water. The trick is to let the plant use all the water, rather than continually topping them up, which can give the plants 'wet feet' (lack of oxygen to roots, often resulting in poor growth).

Soils

Garden soil in pots can also cause 'wet feet'. The fine granules in garden soil are so small, that they compact down in the pot causing poor drainage. A good potting mix has both large and small chunks of pine-bark, allowing more air around the roots. Like most things in life, you pay for what you get – expect poor performance from a \$3.00 potting mix and \$10.00 plus for a top of the line with all the extras. No other fertilisers or manures should need to be added initially.

Staking

Staking is something to think about now. The more support, the better. Some of the bush types, like Tumbler or San Marzano, can simply be left to cascade over the pot. Taller growers will appreciate wire frames, tee-pee like sticks, stakes, or by growing the pot near a fence or verandah pole.

Plants in pots may need to be fed more often. Look at the leaves of the plant. If they are yellowing or fading, or if the tips are black or purple, then the plants are hungry. They have that hard look. They are lacking in nutrients and will gradually become weaker. An overfed plant is very lush green and soft – this plant would be susceptible to wind and insect damage.

Watering

Check the soil regularly and don't let it dry out. Don't water a small amount, instead when the soil is dry water enough so that the water drains through the bottom holes and then repeat to saturate the soil. Tomatoes don't like 'wet feet' so we don't recommend placing saucers under the bottom of the pots as the lack of oxygen to roots, often resulting in poor growth.

Growing tomatoes from seed

If you are collecting your own seed make sure you are using non-hybrid seeds.

- Sow them in late July and keep seedlings in a warm spot, a window sill is good but move them away during the cold nights. The ideal soil temperature is 25°C
- Containers - jiffy pots, plastic punnets, paper cups, milk cartons (cut in half). All containers must have drainage holes
- Fill containers with seed raising mix or good potting soil and cover seeds with coir, leaving about 1cm from top for watering. Do NOT use regular potting mix or garden soil
- Plant 1-3 seeds in each pot
- Water with fine spray, cover with cut-off plastic bottles. Do NOT over water
- When the young seedling emerges make sure they are in a bright light spot otherwise they will be 'leggy'
- When seedlings are about 3-5 cm high and have developed the second pair of leaves, transplant to a pot. Add a pinch of sulphate of potash
- Plants need to be hardened up by putting the pots out into a similar position to where they will be growing during the day, but taken back to their previous situation at night before planting out into beds
- Mulch the bed well, keeping the mulch away from the stem
- Tomato plants do not like cigarette smoke so smokers need very clean hands before touching plants
- Basil is a good companion plant for tomatoes
- Over-watering may cause weak seedling

<http://www.graphicgardener.com/gardenblog/2011/03/tomatoes-seeds-and/>



Compiled by
David Clayton, Shannan Davis, Lyn Hancock and Leslie Wightman
for Grow Your Own Food Workshops, August 2015
updated By Shannan Davis, October 2020