

ORGANIC TOMATO PRODUCTION

- Yes, it's possible

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Consumers are increasingly considering health and environmental issues when buying food. Consequently, there is a growing interest in alternative production systems and methods like organic farming, which focuses more on sustaining health of soil, ecosystems, people and animals.

Tomatoes are not just good, they're also good for you. A single cup of raw tomatoes provides over 50% of the recommended daily allowance of Vitamin C and almost 25% of the RDA of Vitamin A, as well as a host of other vitamins and nutrients, including iron, folic acid, potassium, calcium, bone-enhancing Vitamin K and even lycopene (the photosensitive chemical that gives tomatoes, strawberries, and carrots their distinctive colours). A number of studies suggest that lycopene helps prevent several types of cancer, including prostate cancer, and that it promotes good health in a number of other ways as well.

You might be surprised to hear this, but tomatoes are one of the highest pesticide sprayed crops in the world. Hence, growing organic tomatoes gives farmers the satisfaction of knowing that they are not using harmful chemicals that leave toxic residues on food crops nor damaging the environment.

Crop yields

However, what concerns most farmers is the misperception that, organic tomato production yields are lower than conventional tomato production yields.

Hence the question, will the organic tomato production be as much as the conventionally grown produce? The answer to this question is **YES**, but only if efficient organic tomato farming techniques are employed.

How to grow abundant Organic tomato crops

So, how do farmers who wish to grow organic tomatoes ensure efficient production?

Variety selection: Choosing the proper variety is one of the most important decisions you will make for any crop and tomatoes are no exception, with thousands of varieties available. When choosing a variety, consider your market, disease resistance, production system, and climatic adaptability.

Selecting a site: When choosing where to position your tomato crop, remember tomatoes like full sun and lots of water, so be sure you have access to both. A well-drained soil ensures that plant roots stay healthy to deliver the nutrients the tomato fruit will need.

Crop rotation: Crop rotation is a critical component for pest management in organic systems. Tomato and its relatives (potato, eggplant and pepper) belong to the nightshade or Solanaceae family. Ideally, you should rotate to another family for a minimum of 3 years, but the longer the better. Using green manure and compost can also help with disease suppression. However, using grasses or small grains before a tomato crop can result in high wireworm or cutworm populations.

Preparing the soil: Good soil is the foundation of organic production. Building soil with a combination of cover crops, green manures, compost and natural minerals, will provide you with high yielding tomatoes. Add any natural lime that may be needed in the autumn so the field will be ready in the spring. Tomatoes grow best in neutral soil with a pH of 6.5 -7.

Planting: Transplants are the most common method of planting. Transplants are preferred over seeds as they have a competitive advantage over weeds. Transplants should be raised organically. This is one requirement for organic certification.

If organic seedlings are not available you must provide evidence to your certifier that you have made every effort to source organic material.



Healthy Soil = Healthy Plants = Healthy People

If you are growing tomatoes from seed that you started indoors, be sure to properly harden off your seedlings before planting them outside! Hardening off is the process of slowly and gradually acclimating indoor seedlings to the big bad world outside over the duration of a week or so. The goal is to be sure they're strong, ready, and will not go into a state of **shock or break** once they're exposed to outdoor elements.

Check transplants upon arrival to ensure they are pest and disease free. If pests or disease are present, treat with an organically acceptable pesticide prior to planting.

Be sure to water your tomatoes in after planting. Diatomaceous earth around the stem can help guard the plant from cutworms.

Spacing: Correct spacing is vital when planting tomatoes! Plant tomato plants 60cm apart and leave about 60 to 100cm between the rows. Giving your tomato plants space may seem silly at first, but they will eventually grow to be tall, wide, and strong if given enough space. Wide spacing allows for much needed airflow, and decreases the chances of blight spores eating away at your plant.

Staking: There are two different types of tomatoes: Determinate, and indeterminate. Determinate tomatoes will stop growing at a determined height, and they will put out a determined fruit yield. Indeterminate (eg heirloom) keep growing all season and fruiting all season as long as the weather allows. Both tomatoes need staking of some form, however determinate will typically only need around 100cm of support, whereas an indeterminate should be staked at least 200cm tall in most cases.

Staking cont.:

With both types of of tomatoes, remove the older lower leaves as soon as they start to look tatty. This improves air circulation within the plant and helps reduce the risk of diseases taking hold.

Fertilising: Crops need nutrients just like people do. A fertile soil should contain all the major nutrients for basic plant nutrition (e.g. nitrogen, phosphorus, and potassium), as well as other nutrients needed in smaller quantities (e.g. calcium, magnesium, sulphur, iron, zinc, copper, boron, molybdenum, manganese). Recommendations for supplemental organic fertiliser, lime and compost should be based on a soil test and a nutrient management plan. A soil test is the most accurate guide to fertiliser requirements and should be the first step to managing soil fertility.

However, if you don't have a recent soil analysis report, based on Organic Tomato Farmer experiences, here is a suggested recommendation:

The best way to fertilise your tomatoes is to first focus on establishing a strong root system and plant structure.

Plant tomato seedlings with 100g per m² Vita Grow 2:3:2(16) and 250ml (1 cup) per m² Earthworm castings.

Once the plant is green and ready to produce fruit, add our potassium rich Vita Fruit and Flower 3:1:5 (18) at 150g per m².

Also at flowering stage, to achieve the full genetic potential of your tomato cultivar, apply our new Liquid Organic Nourish 4:1:6 fertilizer at 5-10L/ha (Foliar spray) or 25-50L/ha (Soil drench/ fertigation), minimum dilution of 1:20 with water, applied as needed.

As indeterminate tomatoes produce for a longer time, re-apply Vita Fruit and Flower 3:1:5 (18) at 50g per m²

at about 5 months to ensure sustained production.



Watering: Tomatoes need LOTS of water to grow and develop. Water the plants slowly and deeply to build a strong root system. Shallow watering will encourage a weak root system. Even soil moisture promotes healthy calcium uptake.

Have you ever had your tomatoes crack once they've fully developed? This happens as a result of poor calcium uptake, or too much water all at once. Without proper moisture, the plant has a harder time absorbing calcium from the soil because of dehydration and sends too much water to the fruit, making it burst because the skin is weak from a lack of calcium in the cell walls.

Just like calcium is good for your bones, it is good for the 'bones' of the plant cells too. When your plant develops without an even soil moisture, it also loses its ability to properly set the fruit. When a tomato plant experiences an even soil moisture, calcium uptake occurs naturally and fruit will set properly. Mulching helps retain moisture.

Pruning: Early season varieties (< 70 days) generally do not require pruning. Later season or indeterminate varieties will need some of their side shoots or suckers removed to prevent them from becoming too bushy and ensure good size fruit.

Harvest and Post-harvest Activities

The days to maturity will vary with cultivar and growing conditions. Most tomato varieties will produce mature fruit 70–125 days after planting. As a guideline, tomatoes usually ripen 6–8 weeks from fruit set but this varies by region. The following stages of ripeness are commonly recognized for tomatoes:

- **Immature Green:** the seeds are not fully developed, there is no locular jelly surrounding the seeds, the fruit colour is pale green, and the flesh is hard.
- **Mature Green:** the fruit is fully grown, the light green colour at the blossom end has changed to a yellow-green cast, the seeds are surrounded by locular jelly, and the flesh is hard.
- **Breaker:** about one quarter of the surface at the blossom end shows some pink colour.
- **Pink:** about three quarters of the surface is pink, and the flesh is firm.
- **Full-Ripe:** the fruit is nearly all red or pink, and the flesh is still firm.
- **Over-Ripe:** the fruit is fully coloured, and the flesh soft.

When to harvest will depend on how the fruit will be handled and used. Fresh market fruit for local consumers can be picked red, while fruit that will be transported long distances should be harvested at the mature green or breaker stage.

Organic growers marketing directly to consumers frequently harvest vine ripe fruit. It is generally agreed that the edible quality of a tomato is best if it is harvested at the light red to red stage. Vine ripened fruit looks and tastes best, but it is more delicate to transport.

Conventionally grown tomatoes sold in wholesale markets are often picked at the mature green stage and ripened in storage with the use of ethylene gas. However, in organic production systems ethylene gas is not permitted for tomato ripening. Tomatoes naturally produce ethylene and mature green tomatoes will ripen on their own at 20°C in 14 days, or at 12°C in 28 days. Tomatoes can be ripened in well ventilated open cardboard boxes that are checked frequently so as to quickly remove rotting tomatoes. For storage of mature green tomatoes, temperatures should range between 12°C and 20°C

For more information, visit: www.talborne.co.za



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