YOUR GUIDE TO

GROWING TOMATOES IN HYDROPONICS

BY AGRICULTURE ACADEMY

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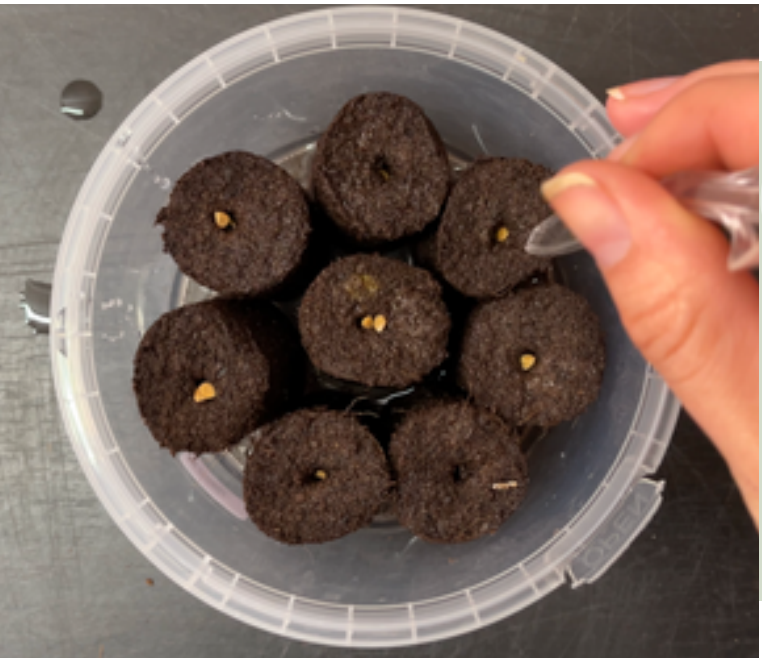
Are you looking to grow tomatoes in hydroponics? Here is our guide on how you can do so, from seed starting, selecting the best system and more!

STARTING YOUR SEED

OPTION 1: HOW TO GERMINATE SEED

Start with some hydroponic peat blocks. Place them snugly in a container and pour some water into the container, just enough to soak the peat blocks. Be careful to not pour too much water, your blocks will start to float and tip over. Take your seed and sow 2-3 of them into the holes in the top of the blocks. When selecting your seed, make sure you choose the varieties best suited to your conditions. Tall, trailing varieties are great if you have a small space. Their long vines can be easily trellised and make the most of vertical space. Bushy varieties might take up more floor space and be trickier to trellis, but they are generally shorter and less vigorous than trailing tomatoes which helps keep them from becoming unmanageable.

STARTING YOUR SEED



Sowing 2-3 seeds per peat block will help guarantee each will have a seedling.

3-4 weeks later the seedlings have germinated and can be thinned.

In our case, we chose the ‘Rodade’ tomato. Here is a quick look at why we love this variety:

- It is a dependable tomato, and very adaptable. This means the plants are able to produce lots of fruit even when conditions might not be optimal.
- It can be cultivated year-round in frost-free areas. This means we can grow our tomatoes in a sheltered greenhouse in winter without the need for supplemental heating.
- This variety has good resistance to serious tomato diseases, especially Verticillium, Fusarium and Bacterial wilts. This will limit the need for expensive fungicides and bactericides.

Keep your peat blocks in a watertight container with a constant film of water. Depending on the temperature and tomato variety, you should notice germination within 5–14 days. If you’re starting your seeds during the cooler months like we are, keep a lid on your container and put it in a sunny spot.

After the seeds have germinated, start thinning the weaker, slower seedlings. The goal is to have one seedling per rockwool block.

Before you transplant your seedlings into the hydroponics system, you will need to put your blocks into hydroponic baskets. As tomatoes grow quite large, choose a larger basket size for your seedlings. You can put your rockwool blocks into the baskets when you sow your seedlings or later on during the initial stages of root growth. Just don’t let the root system get too big before you use the baskets.

Place the seedlings in their peat block into hydroponic baskets, fill with expanded clay pebbles and they are ready!

STARTING YOUR SEED

OPTION 2: USE SEEDLINGS

Buying your seedlings is a great way to ensure faster yields. Make sure you buy from a reputable retailer who will supply you with healthy, disease-free plants. Remember you should also choose the variety best suited to you, either vining or bushy varieties.

Remove your seedlings from the trays and gently wash off all the growing medium from around the root system. Very often, these seedlings are grown in a soilless medium of coir and other organic and inorganic substances and so are technically already prepared for hydroponic cultivation. Unfortunately, this medium will not keep its form in a hydroponic setup. After you have removed the soil from your seedlings, wrap a rockwool block around the root system and then place them into net pots like we did when we grew our own seedlings. You can also use explanded clay pebbles in the place of rockwool.

STARTING YOUR SEED

Make a cut in the rockwool block and wrap it around the clean rootzone of the store-bought seedling.

Put your seedling into a basket and they are ready to go into your system!

CHOOSING THE BEST HYDROPONIC SYSTEM

NUTRIENT FILM TECHNQUE (NFT)

In this hydroponic system, a small stream, or film, of nutrient-rich water periodically flows over the roots of plants. The nutrient-rich water contains all the necessary macro and microelements required by the plants for optimum growth. The water flows from the nutrient tank, through the plant system, and back into the nutrient tank.

To modify this system to suit the needs of tomato plants, make sure you can install a trellis system. You can do this by installing your set up along the side of a trellised wall so you can lash the plants to the trellis. Or you can use overhead wire or twine for each tomato plant.

EBB AND FLOW

In Ebb and Flow, also known as Media Based, systems a growing trough is filled with an inorganic hydroponic substrate. The plants are supported by the substrate and the nutrient-water is pumped into the trough. The water then slowly returns to the nutrient tank through a valve in the trough.

Like the NFT system, you will need to provide a trellis system for your tomatoes. Depending on your available resources, you can install vertical trellising before you fill the troughs with the inorganic growing medium, and then place a seedling at each stake.

DUTCH BUCKET

In this system, a series of buckets are connected to a supply of nutrient-rich water. The water is pumped through a series of thin plastic spaghetti pipes into the buckets. The buckets are filled with inorganic substrate which support the plants. Growers suggest pumping water continuously, providing a gentle, uninterrupted supply of water to the roots. Most commonly, one bucket will support a single plant.

Dutch Buckets are one of the best options for tall-growing crops like tomatoes. The leader stem of the plant can easily be trellised upwards and make the most of vertical space.

GROWING REQUIREMENTS

As warm season crops, tomatoes need temperatures of at least 21°C and grow best at 26°C in the full sun. Nighttime temperatures between 13–18°C encourage optimum fruit yields (https://www.leaffin.com/hydroponic-tomatoes/#:~:text=Conditions%20for%20Tomatoes-,1.,Fahrenheit)%20encourage%20the%20fruit%20set.). Tomato plants will become stressed if exposed to direct rays of hot sun, so overhead shade nets might be required. 16–18 hours of daylight will promote vigorous growth. In terms of water, the EC (or electroconductivity) of the water should lie between 2–4 millisemens (mS). The optimum pH ranges from 6–6.5.

Tomatoes are heavy feeders and require adequate nutrient supply. Especially high levels of nitrogen and potassium are in demand, for optimum canopy growth and fruit production, respectively. Calcium is also required for peak fruit production, albeit in slightly lower amounts. Potassium nitrate and calcium nitrate are great hydroponic fertilizer options for tomatoes (https://www.leaffin.com/hydroponic-tomatoes/).

If you notice deficiency symptoms in your tomatoes, consider applying foliar feeds. When applied in this form, the nutrients are more rapidly available to help remedy deficiency symptoms faster than those applied through the root system. They are also useful when the pH and EC are not within the optimum ranges for tomatoes, which may prevent nitrogen and calcium uptake by the root system even if they are present in the nutrient solution.

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PESTS AND DISEASES

Like we mentioned, you will do yourself a massive favour by selecting tomato seeds and seedlings that have an inherent resistance to diseases like verticillium, fusarium and bacterial wilts.

If you're buying seedlings, purchase disease-free plants from certified nurseries and growers. If you do find yourself struggling with disease infestation, it is imperative you select food-safe chemical control methods.

PESTS AND DISEASES

In terms of pest infestation, aphids, spider mites and whiteflies are the most problematic. You can help prevent initial attack by keeping your tomatoes in the optimum growing state. Stressed plants are more susceptible to pest attack. Non-toxic options like neem oil can be used on food crops. Over-fertilisation with nitrogen can also encourage pest populations, especially aphids. With an oversupply of nitrogen there will be a flush of young, soft tissue that aphids absolutely love.

https://www.youtube.com/c/AgricultureAcademy