

# Hydroponics

Deep Water Culture (DWC) Method

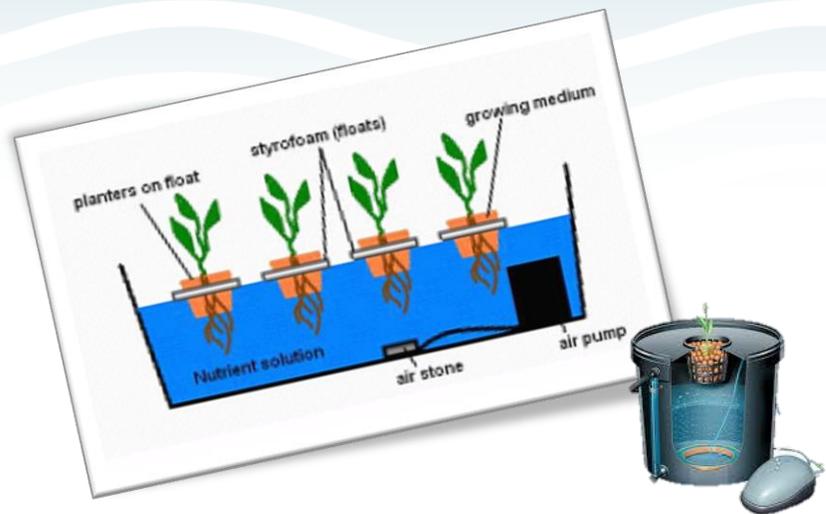
## What is Hydroponics?

Hydroponics is a process of growing plants without soil. When you think in terms of growing plants, what do the plants need? The plants need water, light, carbon dioxide and nutrients. Since plants rely on photosynthesis to make “food” they do not need soil only the nutrients from the soil. This is why hydroponics is possible. All of the properties of hydroponics are the

same as traditional gardening just minus the soil.

### A Brief History

Hydroponics is the method of growing plants without soil. The term hydroponics comes from the Greek words “hydro” meaning ‘water’ and “ponos” meaning ‘work’. Hydroponics although booming now, is not a new idea. Some even say it can be traced back to the hanging gardens in the city of Babylon. Francis Bacon started to research hydroponics in the 17<sup>th</sup> century.



## The Different Mediums

Depending on what type of hydroponics you are doing there are different mediums involved.

The always present mediums include:

- Water
- Light (can be natural or artificial)
- Air

Optional mediums include: growing mediums (such as perlite, vermiculite, oasis cubes, hydrocorn), containers.

## Hydroponics Facts

### Water

No water is wasted in hydroponics because it is recycled repeatedly.

### Pesticides

Like several other techniques, hydroponics can be grown using absolutely no pesticides.

### Harvesting

The harvesting rate on hydroponics tends to be much faster than soil techniques.

**5 HYDROPONIC FUN FACTS AND FIGURES**

Hydroponics is a method of growing plants without soil. It is the fastest growing sector of agriculture, and it could very well dominate food production in the future. There are many advantages of hydroponics and here are 5 great reasons to start growing now....

**hy-dro-pon-ics / hīdrə'pāniks/**  
 Noun: the science of growing or the production of plants in nutrient-rich solutions or moist inert material, instead of in soil.  
 Latin: words "hydro" meaning water, and "ponos" meaning labor.

- 90% less water** - farmers claim that some hydroponic crops use 90% less water than the same crops in traditional soil farming.
- 1/4 of the space** - you can plant 4 times the amount of crops in the same space as traditional soil farming.
- zero soil used** - grown in an inert medium without soil with perfectly balanced pH, nutrients solutions and highly oxygenated water which is delivered directly to the roots.
- x2 growth time** - some crops can grow twice as fast in hydroponics due to getting exactly the correct amount of nutrients, water and oxygen.
- 0.0 chemicals** - hydroponically grown crops can use NO herbicide or pesticide chemicals which significantly impact the environment and our bodies.

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We are passionate about Local Fresh Produce, Self Sufficiency, Sustainable Farming Methods and Organic Agriculture but what we love the most is Hydroponic Growing.

## Types of Hydroponics

There are 6 main types of hydroponic systems, our main focus is the Deep Water Culture system but we will glance at three other types.

### Ebb and Flow

This is a flood and drains system. This type of hydroponics is very popular with at home grows because it is easy to build yourself. This is simple. There is a timer that sets the plant containing basin to flood, there is a drainage tube about 2 inches from the top of the growing medium that drains it. When it reaches that it drains.

### Wick System

This is the simplest of all the systems. All this needs is a bucket, water, a plant container and a material that wicks, like felt or wicking rope. In laments terms the wicking rope, literally brings nutrients directly to the plant.

### The Drip System

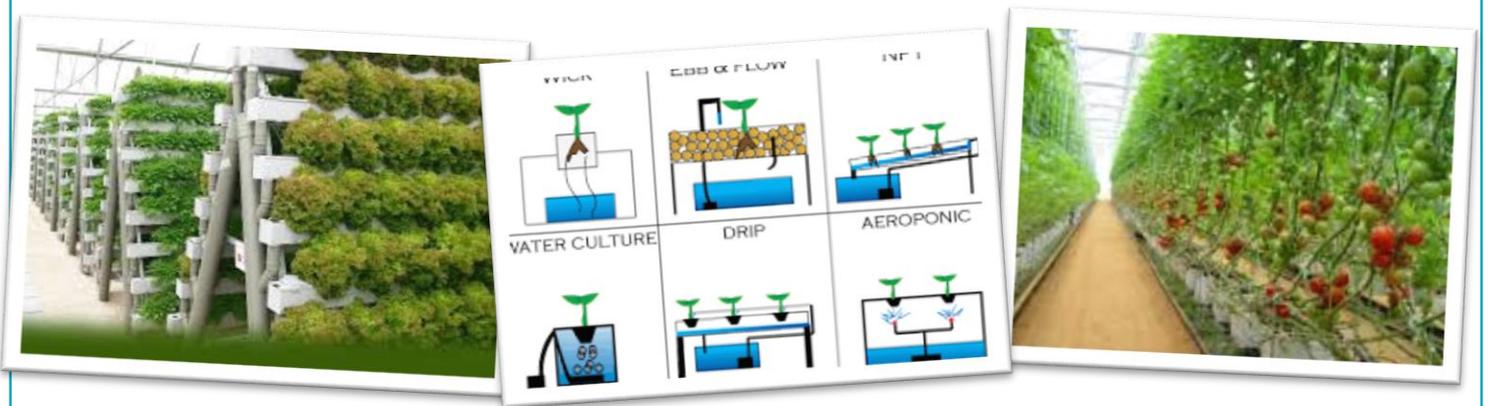
This is the most common method for commercial growers. In this type of system there is a reservoir which the plants grow in this sits about a second reservoir that contains water. In this instance the water is pumped up to the plants where they are watered. This method is different because the plants roots do not sit in water.

### Deep Water Culture

This is the example we have here today. In order for this to work you must sprout your plants typically in rock wool. Then the sprouted plant is transferred to a growing medium, typically something porous like hydrocorn (clay aggregate) or perlite. This sits inside a basin, in this case a 5 gallon bucket. The roots grow into the water. There is also an air pump included in the bucket for filtration and circulation of nutrients.



# HYDROPONICS



## The Pros and Cons

### Pros

- Uses 10% of the water of traditional soil gardening
- Is can be used in places where water is scarce.
- Can be done indoors
- Uses less space
- Less pests
- Less use of pesticides
- More cost efficient in the long run
- All foods to be locally grown
- Recycles water and nutrient solutions which wastes less water

### Cons

- The start up cost is high
- Plants are sometimes affected by algae outbreaks in the water
- People are afraid of starting hydroponics because they think it takes a lot of research and knowledge before hand.
- The containment systems can be complex



## DIY Hydroponics

### What you need.

- 1- 5 gallon bucket
- 1- airstone
- 1- Air pump
- ¾ inch hose
- Growing medium
- Rock Wool (for sprouting)
- Net cup

*This will cost you about \$20.*

*Depending on the size and scale of the project.*

<http://www.outdoorhydro.com/blog/2013/7/10/build-your-own-5gal-bucket-dwc>

*First you need to sprout your plants either in a rock wool cube or you need to add mature plants that you have been growing in a cloner. Then you can transfer your plants!*

## Sources

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