

HYDROPONICS

WHY?

WHERE?

HOW?

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What is 'Hydroponics'?

- ↓ 'Hydroponic' means 'working water'
 - ← 'Hydro' means water and 'ponos' means labor.
- ↓ Hydroponics is an ancient method of growing plants.

~**Fact:** The General Hydroponics brand was integrated into the NASA space program.

Why Hydroponics Over Soil?

1. Produces higher yields than agricultural soil in a much shorter time.
2. Ability to grow and support plants in areas of the world where soil cannot.
3. Grower can adjust nutrient intake to meet the plant's needs at all times.
4. Maximize each plant's genetic potential by customized feedings.

Seed Germination: Rapid Rooter Plugs

- ↓ Composed of composted materials
- ↓ Provides optimal air-to-water ratio within plug matrix.
- ↓ Result: Explosive early root growth
 - ← Hence the name, “Rapid Root.”



Germination or Cloning. Your Choice!



Hydroponic Process: Vegetative Stage

- ↴ Second grow stage (pre-bloom stage).
 - ↴ Usually 2-3 weeks is all that's needed!
- ~Fact: When growing flowering plants, hydroponics cuts down the vegetative time by up to 4 weeks when compared to growing in soil!**





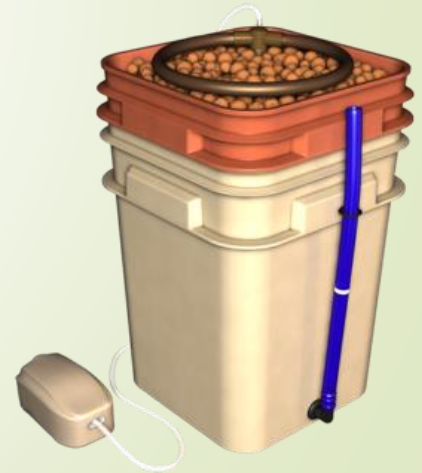
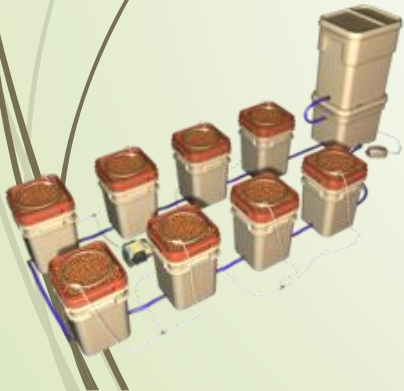
Hydroponic Process: Bloom Stage

- ↓ Often considered the 3rd cycle (fruiting/flowering stage).
- ↓ Nutrient solution strength will often be increased to support large yields.
- ↓ When growing hydroponically, we have the flexibility at our fingertips to customize our nutrient solution giving the plants EXACTLY what they need at all times.
- ↓ If plants get overfed (or underfed) plants grown in soil often take weeks to correct, while hydroponics takes only a few days!

Hydroponic Systems: WaterFarm

- ↓ Also known as a “top drip system” or “recirculating system”
- ↓ Can be used to grow a large number of plants at a time.
- ↓ System includes:

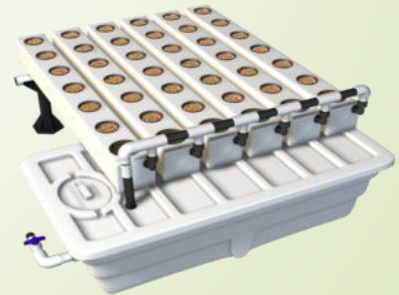
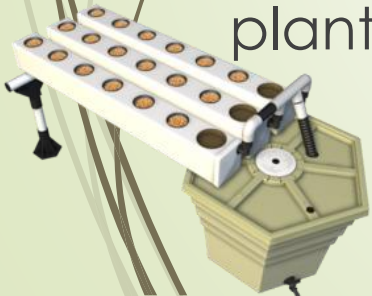
- Reservoir
- Growing chamber(s)
- Pumping column(s)
- Drip ring(s)
- Grommet(s)
- Drain level tube(s)
- Air pump
- FloraKit

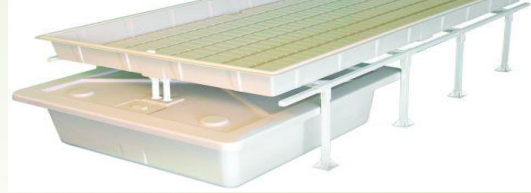




Hydroponic System: Aeroponics

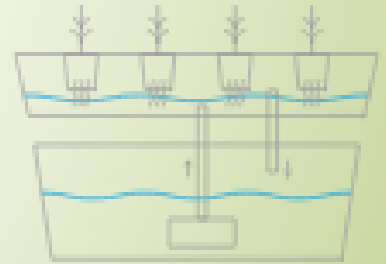
- ↓ Aeroponics- Growing plants in an air or mist-based environment.
- ↓ Oxygenates nutrients to plant's roots directly.
- ↓ Creates stronger, more resilient plants.
- ↓ Available in a range of sizes for larger number of plants.



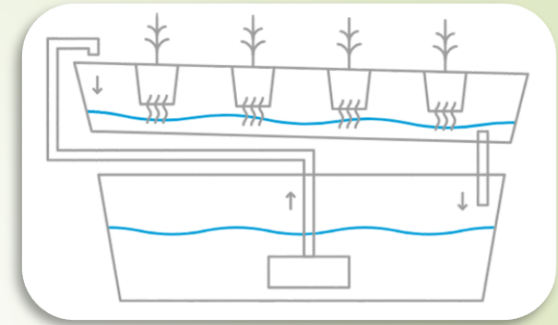


Hydroponic System: EBB and FLOW

- “Flood and Drain” System.
- Floods plant site with nutrient rich solution. Then allows solution to drain back to reservoir.
- Inexpensive and sufficient.
- Typically done with a pump set on a timer.



Hydroponic System: NFT



- ↓ Nutrient Film Technique (NFT).
- ↓ Thin film of nutrient solution is constantly flowing across plant roots.
 - ← In the tray or trough.
- ↓ Advantage: High level of oxygen in root zone and simple method of fertilizing.

HYDROPONIC FARMS AROUND THE WORLD



In Conclusion

Hydroponics is a more effective and efficient way to get the most out of your plants, maximize your harvest time, and can be done in any area of the world.