

## Agriecture: Hydroponics & Vertical Farming Technology

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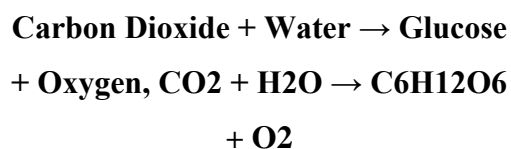
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### Hydroponics

Hydroponics is a set of hydro culture where hydro means water and ponics means to grow or cultivate. Hydroponics is one of the unique methodologies of soil-less cultivation. It is method of growing plants using mineral-based nutrient solution in water without soil and farm.

Photosynthesis process:



There is no word mentioned here i.e. "soil" where it is grown under soil. That is all the proof you need that

### HOW-TO HYDROPONICS



plants can grow without the soil. Stand your plants in a plastic/polybag/PVC pipes trough and lets a nutritional i.e. alpha, beta and gamma solution trickle or pass their roots (with the help of gravity and a motor pump).

### **Types of Hydroponic System**

1. Wick System
2. Water Culture
3. Ebb & flow (Drain and flow)
4. Drip system Recovery/ No recovery
5. N.F.T. (Nutrient film Technique)
6. Aeroponics system

### **Materials in Hydroponics**

#### **1. Coco Coir**

Has a great water retention capacity and excellent to air to water ratio.

#### **2. Rockwool**

- A fibrous material made from melted rock.
- Not Biodegradable
- Hazardous to health
- Must be pH balanced
- Excellent water retention.

#### **3. Expanded clay Pellets**

- Most popular media
- Drain quickly & PH neutral

### **Advantages**

- Higher yields in a smaller space achieved.
- Nutrients precisely controlled.
- GBB- Grow, Bloom and boost formulas used for appropriate growth at different stages.
- Using full-spectrum horticultural lights, Indoor gardens are grown.
- Soil-borne pests and diseases are eliminated.
- Weeds are eliminated.
- Plants are healthier and its maturity rate fasten.

- Automation is possible

### **Disadvantages**

- Cost of initial investment
- Production is management, capital and labor intensive.
- A high level of expertise is required.
- Daily monitoring or attention is necessary.
- Use specially formulated water-soluble nutrients always.
- Various water borne diseases also can spread rapidly through canal in recirculation system.

### **Vertical Farming**

Vertical farming seeks to ensure the sustainability of our cities proactively by addressing food security to the world increasing population .In principle; it is a simple concept to farm rather than out. The distinguishes between three types of vertical farming. The first type refers to the construction of tall structures with several levels of growing beds lined with artificial lights. This often modestly sized urban farm springing up around the world. Many cities have implemented this model in new and old buildings, including warehouses that owners repurposed for agricultural activities and all that. The second type of vertical farming takes place on the rooftops of old and new buildings commercially and residential structures and as on restaurants and grocery stores. The third type of vertical farm consists of various visionaries and multi-story building. In the past decade, we have seen an increasing number of proposals of this type. However, none has been built. It is important; however, to note the connection between these three types, the success of modestly sized vertical farm projects and the maturation of their technologies will likely the skyscraper farm. Environment specialists, urban farmers, architects, agronomists, and public health experts.