



## Hydroponics

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As per a data from Chennai-based non-profit organisation Green Acres Foundation, around 50,000 acres are estimated to be under hydroponic production around the world.

### Hydroponics Method

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- It is a method of **growing plants without soil** in which **plants get their nutrients from a mineral solution**.
- The method is **suitable** for growing **greens and herbs** as they don't have deep roots. Tomatoes and strawberries are other popular items.

### Costs Involved

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- The **initial costs** of setting up a hydroponic farm is very high.
  - A **physical outer structure** is required to grow the plants. This can be trays or tubes, which are typically made of food-grade plastic. The cost of this is typically **Rs. 50,000-75,000 for 1,000 sq ft**.
  - High costs involved in plumbing system and automation such as sensors, controller, water pump etc.
  - Money paid to consultants for help and guidance.
- **Cost involved in maintaining ambient temperature and moisture**
  - Depending on the type of enclosure, costs can vary from ₹25,000 to ₹1.5 lakh.
  - In some cases, LED lights are used to mimic sunlight, this further increases the cost.
- **Cost from Water**

If **water** of an area has dissolved minerals or is **hard**, **purification devices will be needed to make it usable**, thus adding to the costs.
- **In-Process Costs**
  - Power costs due to regular water supply , LED lights and climate control.
  - Plants also require nutrient feed from time to time which is either prepared at home or purchased from manufacturers.

## Benefits

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- The method requires **less labour**, and **yields are much higher** as plants grow faster (due to direct access to required nutrients) compared with regular farms.
- The method uses comparatively **less water** i.e. only about 20% of the water that is used in the conventional methods.
- The most efficient aspect of hydroponics is that it can be even applied in a **limited space**. There are cases where 6,000 plants have been grown in 80 sq ft space. This has been done by stacking plants vertically, as the method is **not limited by the ground area**.
- **Products like herbs and lettuce make this method viable as well as profitable.**