

Urban Farming –An Innovative Idea To Revolutionize Agriculture

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ARTICLE ID: 4

Today, the world is facing many threats arising from human-induced changes in nature's systems. Global warming, which is probably the most widely known of these changes, causes the sea level to rise as a result of ice melting at the poles and a subsequent increase in the volume of sea water. There is widespread debate on exactly how far the sea level will rise in the near future, but it is clear that there are some places in the world where the sea level has already risen and affected people's lifestyles. Further, a warming planet will most probably have more frequent flash floods, intensive tropical storms, and rainfall.

The Farmer population has decreased and various factors contribute to the poor yield of existing Farmlands. The youth are taking to non-agricultural vocations and employment in non - agricultural sectors. Thus, the Urbanizing communities are confronted with urban growth, changing life-styles and food security problems.

Urban agriculture, urban gardening or urban farming is the practice of cultivating, processing and marketing of food and food products in and around urban localities.

Table 1: Difference between urban and traditional farming

	Urban Farming	Traditional Farming
Space usage	Small space friendly, vertical farming	Large areas of farmland, horizontal farming
Water usage	Fewer water resources are used	More water resources are used
GHG emissions	Less GHG emissions	More GHG emissions
Food miles	Fewer food miles	More food miles

Packaging	Minimum packaging, usually fully recyclable	Maximum packaging, usually non-recyclable
Decentralization	Decentralized food production system	Centralized food production system

Types of urban farming:

1. Kitchen gardening
2. Street landscaping
3. Container gardening
4. Peri-urban farming
5. Vertical farming
6. Green house gardening
7. Rooftop gardening
8. Urban beekeeping
9. Small scale animal husbandry
10. Mushroom cultivation

a. Hydroponics b. Aeroponics c. Aquaponics d. Living walls

1. **Kitchen gardening:** Cultivation of vegetables and herbs in and around the domestic area for daily kitchen use.
2. **Street landscaping:** The vacant area alongside of the streets can be utilized for cultivation of vegetables.
3. **Container gardening: Utilization** of waste materials available in the urban areas for cultivation of crops. Waste material may include plastic bottles, torn shoes, broken containers like drums, buckets, mugs and other urban wastes.
4. **Peri-urban farming:** Cultivation of crops in the city outskirts or perimeter of the urban areas is peri-urban farming.
5. **Vertical farming:** Vertical farming is the practice of producing food and medicine in vertically stacked layers.
 - a. **Hydroponics:** is a soil-less culture technique in which plant can grow in a mineral nutrient solution.
 - b. **Aeroponics:** is the process of growing plants in an air or mist environment without use of soil or an aggregate media.
 - c. **Aquaponics:** Aquaponics is the farming of fish and plants in a single recirculating system.
6. **Green house gardening:** The large empty areas in and around the locality can be covered with the greenhouse for production of high value crops under controlled environmental conditions.

7. **Rooftop gardening:** Cultivation of vegetables and herbs on the roof of a house or an apartment by single or group of families to meet the daily needs of a family or a community.
8. **Urban beekeeping:** Maintaining bee colonies in and around urban gardens or peri-urban areas for pollination and for their honey is called urban beekeeping.
9. **Small scale animal husbandry:** Raising animals for food. For example, cities that allow residents to raise a limited number of chickens for meat and egg purpose, cow and buffaloes for milk purpose.
10. **Mushroom cultivation:** Mushrooms are scavenging fungi that can grow on organic waste and yield valuable products fit for human consumption.

Advantages of urban agriculture

- ❖ **Higher Yields:** The ability to grow vertically and hydroponically also allows urban farms to yield more produce per square foot than field farms.
- ❖ **Nutritional and quality food:** Fruits and vegetables are a rich source of Vitamins and minerals.
- ❖ **Efficient utilization of time (Agriculture as a hobby):**In the era of information and technology, people can make agriculture as a hobby and spend valuable time to learn about crop and animal husbandry, beekeeping, mushroom cultivation and aquaculture.
- ❖ **Efficient utilization of land and resources:** The vacant and abandoned lands in urban areas can be utilized for agriculture through allotting lands to poor and interested farmers and in turn help them earn their livelihood.
- ❖ **Educational benefits:** The younger generations have least knowledge and interest in farming. Establishing urban farms can teach them how food is grown, harvested, transported and processed to give it a final consumable form.
- ❖ **Saves Space:** Urban farming saves space because a variety of growing systems can be used to cultivate crops.
- ❖ **Proximity:** Urban farms are grown in city centres and other densely populated areas, so they're closer to their consumers than field farms.
- ❖ **Health benefits:** The crops cultivated in urban gardens are least exposed to pesticides, heavy metals and sewage waste, so, the food contamination is least and in turn has positive effects on human health.



- ❖ **Filter air and rain water:** Rainwater harvesting can not only be used as an adaptation measure against periodic water scarcity and reduction of drinking water use.
- ❖ **To Mitigates the urban heat:** Green roofs are an ideal heat island reduction strategy, providing both direct and ambient cooling effects.
- ❖ **Prevents soil erosion:** By converting vacant lots to productive, well-managed community gardens, degraded soil is restored and safeguarded for the production of food and the creation of green belts in urban areas.

Disadvantages of urban farming

- ❖ Insufficient Supply
- ❖ Contamination
- ❖ Lack of space
- ❖ Setup and Maintenance Costs is high
- ❖ Water and Soil Shortage
- ❖ Drastic reduction in rainwater infiltration into the soil
- ❖ Health and environmental risks
- ❖ Growers often operate without permits

The rapid increase in the population, excessive immigration into urban areas and increased demand for fruits and vegetables has caused frequent food shortages, inflations in food prices and sometimes food crisis in Indian markets. The saying “agriculture is a gamble with climate” suits the fluctuations in production and productivity in rural areas. Understanding these lacunas would suggest “urban farming “as a major solution.