

Vertical Farming: The Next Big Thing

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Introduction

Vertical farming is the practice of growing crop in vertically stacked layers' often incorporate controlled environment which aims to optimize plant growth, and soil less farming techniques such as hydroponics, aquaponics, and aeroponic. The modern concept of vertical farming was proposed in 1999 by Dickson Despommier. In India the vertical farming has been introduced in 2019.

Why vertical farming?

- Vertical farming hold the promise of addressing environment issue by enabling more food to be produced with less resource use.
- Minimization of water requirement.
- No weather related crop failure.
- High value fruit and vegetables cultivated in vertical farm.

Why grow vertically?

- Lack of land space
- Costs in the delivery of food supplies.
- Agriculture products are exposed to pesticides.
- Increased and year round crop production.
- Protection from weather related problems.

Opportunity

There is an increasing demand for protein vitamin and minerals rich food as more and more countries transition from developing to developed nations. According to the united nation world food programme nearly 1 billion people worldwide is undernourished (FAO 2012).It clear that place where population on growing also happen to be places where land is shrinking in term of arability. Vertical farming can relive high yielding land now used for fruit and vegetables cultivation. Vertical farming can relive high yielding land now Used for fruit and vegetabl3s cultivation.

Types of vertical farming

+ Hydroponics

Hydroponics involves growing plant in nutrient solution that are free of soils. The plant roots are submerged in the nutrient solution which is frequently monitor and circulated to ensure that the correct composition is maintained.

+ Aquaponics

An aquaponics system takes the hydroponic system one step further combining plant and fish in the same Fish are grown in indoor ponds producing nutrient rich waste that is used as a feed for the plant in vertical farm.

+ Aeroponics

The plant is an air/mist environment with no soil and very little water

Advantages of vertical farming

- from weather related problem
- Environment friendly
- Growing higher quality produce
- Conservation of resources
- Urban growth
- Organic crops
- Less labour costs

Disadvantages of vertical farming

- Less pollination
- Technology dependent
- Significant operational costs
- Technology not mature yet to support vertical farming
- Suitable only for certain types of crops
- Sometimes needs official permissions

Conclusion

Vertical farming is practice of producing food and medicine in vertically stacked layers, vertically inclined or combined with other structures. The land productivity of vertical farming is twice as high as traditional agriculture. Yield is approximately 20 times higher. It Conservation of resources and High level of food safety Applicable on non arable lands No



need for use of harmful herbicides or pesticides. Operating cost and capital saving over field agriculture.

