VERTICAL FARMING: THE NEXT BIG THING

Pooja*, Babli[1], Lalita[1]*, V. S. Pahil[2]

***Assistant Professor, Genetics & Plant Breeding, MMU, Mullana, Ambala**

[1]Assistant Professor, Agronomy, MMU, Mullana, Ambala

[1]*Assistant Professor, Entomology, MMU, Mullana, Ambala

[2]Director, Deptt. of Agriculture, and Dean, Faculty of Agriculture, MMU, Mullana, Ambala

India is a country with an ever increasing population and developing every day. Industrialization also increases rapidly from which arable land is declining. Due to urbanization, we are losing our land that could be used in farming and feeding the belly of such a huge population is the toughest task. So, Indian agriculture needs a change with developing India. Additionally, in traditional farming, there are many uncertainties like heavy rainfall, strong winds and all. These factors damage all the efforts of the farmers which they invest in growing crops. So, all these problems have only one solution i.e. Vertical Farming. Vertical Farming is growing plants in vertically stacked layers where uses of water and land are minimized and wastage also gets minimized. In V-Farming crops are secured from the pests and any other diseases because crops are grown in a controlled environment. In vertical farming Soil, Hydroponic or Aeroponics growing methods can be used. Where arable land is less, such places are mountainside towns, deserts and cities can grow a different type of fruits and vegetables. Most of the commercial vertical farms are produced inside buildings, greenhouses, and shading of crops produces unique crops. There are three methods used in vertical farming in India which are Hydroponics, Aeroponics and Aquaponics.

- **Hydroponics–** In hydroponics foods are growing through water nutrients without soil. By this method, food is secure from soil-related problems such as pests, insects and diseases.
- **Aeroponics–** In Aeroponics method water is used very less. Foods are grown through moisture and nutrients. As you know, in vertical farming plats are tie-up with support so on their roots water nutrients are sprayed.
- **Aquaponics–** Aquaponics is a method of combining plants and fishes in the same ecosystem. In this method, fish is grown inside the indoor ponds by providing them with nutrient-rich waste.

BENEFITS OF VERTICAL FARMING

- The first benefit of vertical farming is small area is used properly in producing foods.
- In traditional farming food is grown seasonably but in vertical farming, food is produced throughout the year.
- Vertical farming cuts the cost of transportation.
- In comparison to traditional farming, 70 to 95% minimum water is used.
- In vertical farming, there is no issue of pests and any other diseases because in this method 90% or no soil is used.
- Organic food is produced in vertical farming as it is free from pesticides and air pollution.

DRAWBACKS OF VERTICAL FARMING

- Establishment cost is very high in vertical farming.
- In making artificial light expenses are more as compared to traditional farming because in traditional farming plants are grown by natural lights.
- Trained staff is needed in vertical farming.
- Properly dispose of waste is required in vertical farming.
- In vertical farming, LED light produces a huge amount of heat so it becomes a problem in maintaining the temperature during summer.

CONCLUSION

Vertical farming is definitely a solution to critical problems in Indian agriculture system like lack of supply or oversupply of farm produce, reducing arable land, over-use of pesticides, over-use of fertilizers, deteriorating soils, and even the un-employability.