

IMPORTANCE, SCOPE OF PROTECTED CULTIVATION

(1)

Definition:

- ✓ Protected cultivation is the modification of the natural environment to achieve optimum plant growth. Modification can be made to both the aerial and root environment to increase crops yields, extends the growing season and permit growth during periods of the year not commonly used to grow field crops.
- ✓ Protected cultivation may also indicate comprehensive system of controlled Environmental agriculture in which all aspects of the natural environment are modified for maximum plant growth and economic return

Scope and Importance:

1. Cultivation in Problematic Agriculture Zones

There is about 75 mha of land in India comprising of such problematic conditions as barren and uncultivable, cultivable wasteland, fallow land, desert, sever cold. If a small portion of this area put under cultivation using greenhouse technology, then income generation of local habitat could be increased substantially.

2. Greenhouse Complexes around Metropolitan and Other Big Cities

A conservative estimate revels that there is a large and sustained demand of fresh vegetables, fruits and ornamental plants throughout the year in almost every big city. These big cities also experience the need of off-season and high value crops. To meet the city requirement greenhouse cultivation may be a right option.

3. Export of Agricultural Produce

A agriculture in India is being considered increasingly to reduce the foreign trade deficit and there has been good international market for horticulture produce, especially, flowers from India. Promotion and greenhouse cultivation of export oriented crops seems to be possible source of foreign earnings. Such facilities should be constructed near the lifting point to reduce the burden on transportation cost.

4. Greenhouse for Plant Propagation

Greenhouse technology is being, nowadays, considered as a suitable approach for raising

of seedlings and cuttings which require control environment for their growth. The existing nurseries without a greenhouse facility could be converted into a greenhouse for improving the capacity as well as quality of the plant material. Even different type of plant material can be propagated using the greenhouse facility. In temperate climatic zone, the **plant propagation** through greenhouses would mean a considerable reduction in the total time required for preparation of saplings.

5. Greenhouse Technology as Base for Other Biotechnology

The hydroponics or nutrient film techniques require control environmental condition of growing plants. Similarly, material generated through tissue culture and biotechnological methods also need to be propagated in control environment. **Greenhouse technology** is the best-suited answer to carry out such type of studies.

6. Cultivation of Rare and Medicinal Plants

India has a wide variety of orchids/herbs, which have been identified for large scale cultivation. The **greenhouse** could provide the right type of environmental condition for the intensive cultivation of these plants.

Advantages:

- Can be grown in various unfavourable agro-climatic conditions.
- Certain vegetable crops can be grown round the year.
- Quality of produce is superior.
- Higher input use efficiency are achieved.
- Management of insect, pest, disease, weeds is easier.
- Agricultural income per unit area increases.
- Provides excellent opportunity to produce vegetables.

Constraints:

- Basic cost and operational cost very high
- Irregular power supply
- Availability of quality material
- Lack of technical know-how
- Lack of suitable varieties/hybrids for greenhouse cultivation
- Exotic seeds are costly
- Poor performance of indigenous varieties