

NURSERY MANAGEMENT

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• The management of seedlings can be done in a better way with minimum care, cost and maintenance as the nursery area is small..

Nursery is a place where seedlings, cuttings and grafts are raised with care before transplanting.

Advantage of raising seedlings in nursery

1. It is very convenient to look after the tender seedlings
2. It is easy to protect the seedlings from pests and diseases
3. Economy of land usage (duration in the main field is reduced)
4. Valuable and very small seeds can be raised effectively without any wastage
5. Uniform crop stand in the main field can be maintained by selecting healthy, uniform and vigorous seedlings in the nursery itself.

Preparation of nursery Selection of site

1. The nursery area should be nearer to the water source
2. Generally, the location should be partially shaded i.e. under the trees. If not, artificial shade is to be provided
3. It should be well protected from animals
4. Proper drainage facilities should be provided.

Selection of soil

A medium textured, loam (or) sand loam soil is preferred. Soil should be rich in organic matter. Soil depth should be preferably by 15-25 cm.

Types of nursery bed

- a) Flat bed b) Raised nursery bed

Preparation of raised nursery bed

Selected soil should be worked well to break the clods. Weeds, stones and stubbles should be removed. Height of the raised bed should be 10-15 cm with a width of 1m and length may be according to the requirement and conveniences. Two parts of fine red earth, one part of sand and one part of FYM can be incorporated to each bed to improve aeration and fertility of the soil. Before preparing the bed, the soil should be drenched with 4 % formaldehyde or 0.3 % copper oxy chloride to kill the pathogenic spores in the soil.

Advantage of raised nursery bed

1. Water movement will be uniform and drainage of excess water is possible (In the case of flat bed water moves from one end to the other and there is possibility of washing away of seeds).
2. Germination percentage of seeds is normally high. Operations like weeding and plant protection measures are easy.

Nursery is a place where planting material, such as seedlings, saplings, cuttings, etc., are raised, propagated and multiplied under favorable conditions for transplanting in prepared beds. The availability of quality and true-to-type planting material is the prerequisite of successful and remunerative ornamental crop production. Among flower crops, majority of the annuals are propagated by seeds and require a nursery for raising the seedlings. Nursery It is an area, in which new saplings are raised and are ready for sale or transplanting at a permanent place in a field.

Raising of seedlings in a nursery is important for various reasons.

Importance of nursery ---

- It is possible to grow and maintain a large number of plants per unit area.
- Small and expensive hybrid seeds can be raised more effectively due to better care and management.
- When seeds are sown in seedbeds, their germination percentage increases and the vigour of the seedlings also improves

- Manipulation of growing conditions for plants becomes easy.
- Better and uniform crop growth can be obtained in the main field by selecting vigorous and healthy seedlings.
- Off-season sowing of seeds becomes possible, which ultimately results in fetching more returns.
- The seed requirement of nursery raised crops is less as compared to direct seed sowing of the same crop due to better management.
- Sowing seeds in a nursery allows additional time for doing preparatory tillage in the main plot. Harvesting of the previous crop can also be prolonged, if needed.
- Management of insect-pests, diseases and weeds is easy in a nursery.

Selection of the nursery site

Several factors are responsible for the selection of a suitable nursery site.

Some important considerations are as follows:

Location -

A nursery must be located in a pollution-free environment. It must be ensured that the nursery site gets adequate sunlight. However, care must be taken that the plants are protected against severe heat.

Topography of land --

The topography of land at the nursery site must be even. If it is undulating, it must be levelled.

Soil --

The soil must preferably be loam or sandy loam with large quantity of organic matter. The pH of the soil must be near neutral (6.5 – 7.5). It must have adequate water retention capacity and aeration.

Water

The quality of water used in a nursery is important for the growth of plants. Saline and polluted water must not be used. It must be ensured that there is adequate water supply ‘

Irrigation

. Besides, the nursery must be located near a water source so that there is no water scarcity at any time in the course of raising plants.

Drainage

The nursery site must have adequate drainage facility and be free from waterlogging. Water must not stagnate at any time.

Transportation

The nursery site must be accessible by road. It must not be far from potential markets so that there is no damage to the seedlings during transportation

Labour

As nursery work is labour-intensive, the nursery site must have enough number of labourers.

Protection from animals

The nursery area must be protected by enclosures so as to prevent damage to the plants by stray animals.

Market

needs and size Market plays an important role in the success of nursery business. Various type of inputs like seeds, fertilizers, pesticides, fungicides, plant growth regulators, poly bags, agricultural implements, different type of spare parts and other miscellaneous items required in the nursery must be available in the nearby market.

The nursery must be located near the city or an area from where people can purchase the plants. Alternatively, a mechanism to explore domestic and international markets must also be worked out for the success of nursery business.

Types of nursery

On the basis of duration

Temporary nursery--

This type of nursery is developed only to fulfill seasonal requirements or a targeted project. Such a nursery is, usually, small in size and is set up for a short period

Advantages

- Mortality or injury due to shock of lifting and transportation of seedlings is negligible due to less distance between the nursery and actual planting site.
- Initial investment in a temporary nursery is less as compared to a permanent one.

Disadvantage

Because of its temporary nature, basic facilities like irrigation may not be adequate. Therefore, special arrangements need to be made in order to keep the plants and seedlings in healthy condition.

Permanent nursery

In this type of a nursery, the plants are nourished and kept for a longer period of time till they are sold out or planted permanently in a field

Advantages •

Greater range of planting stocks, such as seedlings, grafted plant, budded plants, layers, rooted cuttings, etc., are available.

Disadvantages •

The initial investment cost is high.

- The transportation cost is more.
- Such a nursery needs intensive labour management.
- It must be backed by a large market for the sale of plants and seedlings
- It requires skilled human resource round the year.

On the basis of plants produced

Ornamental nursery

Seedlings, rootstock and scion material of ornamental plants are raised and conserved for further use in such a nursery. It includes mother blocks of ornamental plants, which are used in layering, as well as, producing scion material

for budding and grafting. The raised and flat beds of the nursery are occupied by seedlings of various annuals, perennials and rootstocks of ornamentals

Vegetable nursery

Planting material like seedlings of vegetables

Fruit plant nursery

In this nursery, seedlings and cuttings of rootstocks, budded plants, grafts, layers and cuttings of fruit trees

Forest nursery

Different species of trees and climbers planted in forests and used in 'social forestry'

On the basis of structure used

Open field nursery

Such a nursery is established in open areas without any permanent structure. Usually, raised, flat or sunken seedbeds are prepared.

Hi-tech nursery

Such a nursery is established under protected structures. The protected structures in which the nursery can be successfully raised

Shade-net:

Such a nursery is raised under shade-net houses. To give different amount of shade to plants based on their requirements;

Poly-tunnel:

The nursery is covered with a plastic film or sheet to form a tunnel. It is miniature structure, which produces greenhouse-like effect.

Nursery bed

It refers to a land, which is made free from weeds, stumps, stones, pebbles, etc., and is used for sowing of seeds to raise seedlings and multiplication of different species of plants through asexual means.

Preparation of the nursery bed

Nursery beds can be prepared in three different ways.

Sunken bed

Level bed •

Raised bed

Precautions to be taken during the preparation of nur

- A nursery bed needs to be prepared carefully so that uniform and healthy seedlings are obtained for planting.
- The nursery bed is, generally, used to germinate sown seeds or for rooting of cuttings planted in the soil. Besides nutrition, sufficient moisture and aeration are important factors that affect seedling growth.
- The nursery bed must be prepared in fertile soil rich in organic matter content, having adequate drainage and aeration. Soil having more water retention capacity does not need frequent irrigation.
- Excess irrigation in sunken or flatbed may lead to rotting of seeds, seedlings and damping-off incidence. Watering of the bed depends on the type of soil. Sandy soil needs frequent watering.
- Soil-borne infections caused by nematodes, insect-pests and pathogens may be avoided by treating the soil in different feasible ways.

Soil treatment

Soil or any planting medium used in the nursery may be contaminated by various pests. T

Soil solarisation

It is an environment-friendly method to control soil-borne plant

- Formalin solution is used to sterilize the soil.

Soil treatment by fungicide •

Fungicides like captan or thiram @ 5 g/m² are used to control soil-borne pathogens.

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Seed treatment

To keep the seeds free from pathogens, fungicides like captan, thiram or carbandazim are applied @ 2.5–3 g/kg seed, and mixed thoroughly in the seeds to disinfect the surface of the entire seed lot.

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