

# Unit 12: Nursery and Plantation Technology

## Nursery Establishment and Management

### Steps in Nursery Establishment:

#### 1. Site Inspection:

Before setting up a nursery, it's crucial to inspect the site, considering factors like:

- **Climate:** Temperature, rainfall, humidity, and wind.
- **Soil:** Soil depth, moisture retention, texture, pH, and drainage.
- **Topography:** How the landscape affects climate and soil.
- **Vegetation:** Types and characteristics of existing plants.
- **Biotic Factors:** Impact of fire, livestock, wild animals, insects, and diseases.
- **Water Sources:** Availability of water from ponds, lakes, etc.
- **Labor and Accessibility:** Proximity to labor and transportation.

#### 2. Selection of Planting Site:

A good nursery site should:

- Be open, level, and well-drained.
- Have loose-textured soil for easy nursery operations.
- Be close to a reliable water source.
- Be accessible to transportation.
- Be far from insect pests and disease sources.

#### 3. Species Selection:

Choose species that:

- Suit the site conditions.
- Stay healthy throughout their growth cycle.
- Provide good growth, yield, and meet the plantation's objectives (e.g., fuel wood, protection).

#### 4. Preparation of Planting Site:

Prepare the site to:

- Capture and absorb rainfall.
- Minimize risks from fire and pests.
- Clear the area, layout beds, and build nursery structures.
- Prepare germination beds for sowing seeds.

### Design and Layout of the Nursery:

- **Location:** The nursery should ideally have a square or rectangular shape to minimize fencing and maximize efficiency.
- **Orientation:** Nursery beds should be oriented towards the sun for optimal photosynthesis.

- **Division:** Roads within the nursery should be established for easy management, typically between every 6-10 beds, with a width of 3-5 meters.
- **Preparation of Beds:** Beds should be 1m wide and 5-10m long, with shade covers to protect from harsh sun. Beds can be raised or sunken depending on the conditions.

### Producing Plants from Seeds:

1. **Containers:**  
Use clean, well-draining containers that are at least 2-3 inches deep.
2. **Soil:**  
Use quality, sterile, seed-starting mix or potting soil. Avoid garden soil, as it may contain weeds and disease organisms.
3. **Planting:**  
Plant seeds at the proper depth, generally covering them with soil three times their thickness.
4. **Watering:**  
Use room-temperature water to keep soil consistently moist without overwatering. Avoid splashing water on leaves.
5. **Maintaining Moisture:**  
Cover containers to trap moisture until seeds germinate, then reduce watering to let the soil partially dry between waterings.
6. **Temperature:**  
Maintain warm soil (around 78°F) for germination and slightly cooler air temperature (below 70°F) for seedling growth.
7. **Fertilization:**  
Start feeding seedlings with a half-strength liquid fertilizer after they develop their second set of true leaves.
8. **Light:**  
Provide 14-16 hours of light per day to prevent seedlings from becoming leggy and weak.
9. **Air Circulation:**  
Ensure good air circulation to prevent disease and strengthen stems.
10. **Hardening Off:**  
Gradually acclimate seedlings to outdoor conditions before transplanting to prevent shock.

### Summary:

Nursery establishment and management involve careful planning, from site selection to species choice and proper seedling care. By following these steps, nurseries can produce strong, healthy plants that will thrive in their intended environments.