

## Quadrant II – Transcript and Related Materials

**Programme:** Bachelor of Science (Third Year)

**Subject:** Botany

**Course Code:** BOD 105

**Course Title:** Nursery and Gardening

**Unit:** 01

**Module Name:** Planting - direct seeding and transplants, potting seedlings

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### Notes

Planting and transplanting are two important operations. The time of planting depends on the climate of the area. E.g. deciduous plants are transplanted during the dormant season when they are in leafless condition. Other season of planting is spring when new growth takes place, provided the plants can be given sufficient care and irrigation during the ensuing summer. Under Indian conditions, the best period is to transplant during the rainy season, provided there is no water-logging.

### Planting

Process of putting plants/seeds into the ground or into a container of soil so that they will grow.

### Methods of planting:

**Direct seeding or planting:** method of planting seeds directly in the garden plot. Sowing of seeds directly in the soil, to produce food and to do this economically by conserving water, nutrients, etc. Seeds and plants used are big seeds, seeds that grow fast and seeds and plants that do not need extra care during the seedling stage. e.g. cucumber, Watermelon, Carrot etc.

**Advantages:** Not subjected to stress like being pulled from the soil, Requires less labor, Plants mature 7 - 10 days earlier than transplanted e.g. rice and no need to prepare a nursery

**Disadvantages:** The seeds are exposed to birds, rats, and snails; Plants tend to lodge, more seeds are required and greater crop weed competition.

**Indirect method or Indirect seeding planting** - is planting seeds in a starter such as a pot /nursery bed. Once ready, transplant the plant to permanent location. This is practical among plants with small seeds such as cabbage, tomatoes, eggplants etc. They are sown in seed boxes or seedbeds in rows to produce seedlings which are then transplanted into the field. As soon as seedlings have grown three or more leaves, they are now ready for transplanting.

**Advantages:** Success rate for indirect seeding is higher than direct seeding, Control over growing conditions, such as protecting the soil from pests, yield a greater crop and allowing the seeds to germinate in a protected environment like a greenhouse.

**Disadvantages:** Additional preparations like seedlings are ready for transplantation during the correct growing season, Plants are at risk of transplant shock when you transplant and Greater expenses due to the cost of materials such as seedling trays and maintaining a greenhouse.

**Example of planting of shrubs and trees:** Dig the pits for planting, the good surface soil is kept separately and not mixed with the rest of the soil. After digging the pit the soil is returned to the pit mixed with the requisite quantity of manure, the surface soil going on the top. While planting a small hole is made at the center of the pit and the plant is placed with the ball of earth. Plants of eastern India have balls of earth which are clayey in nature.

These should be broken carefully before planting and the roots spread out evenly and placed in the central hole. The plant should not be placed deeper than when it was in the nursery. After transplanting, the earth around the root should be firmed thoroughly. A basin should be made on the ground around the plant for watering.

**Techniques: transplanting**

**Transplanting** - method of planting seed in a seed box/nursery bed. When the seedlings are big enough with two or four true leaves they are transplanted or seedlings have attained 12 -15 cm in height.

**Transplanting of seedlings:**

The seedlings will be ready for transplanting in about 4-6 weeks. At this stage the seedlings will have 3-4 leaves. They should never be allowed to grow too long in the nursery bed.

### **Process of transplanting of seedlings:**

Water the bed few hours (12-24 hours) before uprooting the seedlings for transplanting. Uproot the seedlings with utmost care. Take a small transplanting trowel or a narrow flat stick, insert it into the soil and take out few seedlings. Separate them carefully. Take care to prevent roots from injury. Transplant the seedlings immediately after uprooting.

### **For transplanting of seedlings:**

Always transplant the seedlings in the evening. In the main plot, make a hole of desired depth so that the root system fits. Place the seedling in the hole and gently press the soil around it. Water immediately; frequent watering is needed immediately after transplanting till seedlings are established in the field. For transplanting follow the recommended spacing between plant to plant and row to row.

#### **A. Sowing Seeds in Seed Pans/Seed Boxes**

Very small tiny and dust like seeds are best sown in seed pans or seed boxes or seed trays as they can be managed easily. Seed pans are shallow earthenware or plastic pots of about 10-15 cms height and 35 cms diameter at the top and base. They having a few drainage holes.

#### **B. Seed tray/Seedling tray**

Seed tray/ Seedling tray is a plastic tray available in different sizes. The usual size is 53 cms length and 27cms breadth. It has got 98 drainage providing cells with 98 net pots each of 3 cms diameter, which easily fit into the cells. Seed tray is a permanent arrangement while net pots are removable along with the seedlings to be transplanted with it. Each seed is allowed to grow with or without net pot.

For Potting Seedlings

- Potting up seedlings into larger containers is to enable their roots to continue to grow without getting root-bound.
- A root bound-plant is not a happy plant. When a plants roots are being restricted to the point that they start to grow in circles around themselves, they become tangled and “bound up”.
- This can reduce the roots ability to spread out and flourish after they’re planted out in the garden.
- Plant health is directly tied to root health, so this means the plants are also less likely to flourish.
- Another reason to pot up seedlings is that as their roots grow larger, they drink more water, and thus dry out more quickly.

### When to pot up seedlings

- The best time to pot up a seedling greatly depends on the size of container you started it in.
- Smaller containers, like trays with dozens of cells each, are going to require potting up sooner.
- Plants will feel cramped and overgrown in trays.
- About 6 to 8 weeks after germination. After that, we’ll move them into 6-inch or 8-inch pots.

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