

Quadrant II- Transcript and Related Materials

Programme : Bachelor of Science (Third Year).
Subject : Botany
Paper Code : BOD 105
Paper Title : Nursery & Garden Techniques
Unit : Vegetative Propagation
**Module Name :Methods Of Vegetative Propagation- Layering, Grafting
& Budding.**
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Notes:

Propagation- Process of increasing the number of plants of a particular species or Cultivar.

Vegetative Propagation- Asexual method of plant reproduction- occurs in leaves, roots and stem.This occur through fragmentation and regeneration of specific vegetative parts. Over the years, horticulturalist have developed – asexual methods, using vegetative plant parts.

It is Classified into two broad categories-

- 1) Natural vegetative Propagation
- 2) Artificial Vegetative Propagation

Natural vegetative Propagation -This occurs when plants grow and develop naturally without any human interference. Natural vegetative Propagation can be enabled by the development of Adventitious roots.Method of plant reproduction- occurs in leaves, roots and stem of parent plant.The vegetative plant structure arising from the stem are known as rhizomes, bulbs, runners, tubers etc.

Artificial Vegetative Propagation- This type of vegetative reproduction is carried out by humans in fields and Laboratories. Most common type are Cutting, Grafting, Layering, Budding etc

1. Grafting- technique of joining two living parts from different plant together in such a manner that they will unite and contribute to grow as one plant. Cuttings from some other plant part –Scion (shoot system) is attached to other plant part- stock (root system) rooted in the ground. Produce harvest from the grafted plant reflects only characteristics of scion parent and not from both Stock and Scion. Stock serve as ground support. Commonly used for plant species such as- Apple, Mango Cashew, Avocado etc. Types of Grafting- Spliced Approach grafting, Whip/Tongue grafting, Side grafting, Cleft or Wedge grafting etc

2. Layering- Stem of the plant is bent to the ground and covered with soil. Adventitious roots emerge from the plants parts covered with the soil. The attached stem with developing roots is known as layer. Commonly used for plant species such as- Breadfruit, Chickoo, Guava etc. There are several types of ground layering- Simple layering, Tip Layering, Air layering etc.

A- Simple layering- done in autumn or early spring.

Select a stem (1-2 years old) –bend, down to the ground. Pin it in a place and lightly cover it in the soil.

B- Compound layering- Also called as Serpentine layering-done in same way as simple layering, except –multiple points are rooted along the same stem. Commonly used for plant species such as- Clematis, Grapes, Philodendron or Pothos etc.

C-TIP Layering- Plants such as Cane berries, prefer to root at the tip instead of mid stem.

Dig a hole of (3 to 4 cm) and insert the tip of the shoot. Cover with Soil.Commonly used for plant species such as- Purple & Black raspberries, Cane berries etc.

D- Air layering- Used on tree branches and other elevated stem that cannot be bent to ground level, and for plants that are difficult to root by other means.Commonly used for plant species such as- Camellia, Citrus and Rhododendron, etc.

3. Budding- is described as a Pseudo grafting or sometimes called as Bud Grafting.

3- Budding- in this method – single Bud or small portion of bark from desired plant is taken and inserted into small slit of bark of other plant (root stock). Next both are tied together and do not allow dry, which later unite and developed into composite plant.

Types of Budding- Shield/ T-Budding, Inverted T –Budding,I-Budding, Patch-Budding etc.Commonly used for plant species such as- Rose, fruit crops etc. Budding is done when root stock is actively growing (i.e. Spring, rainfall).

Advantages of vegetative Propagation- They contain genetic material of only one parent, and can be easily incorporated. Plants species with desirable traits, and highest quality can be reproduce. It also helps to maintain consistent taste in products made from the plants or

crops. Plants also bypass immature seedling phase and therefore reach mature phase earlier. This can save time and resources for commercial growers.

Disadvantages of vegetative Propagation-They have potential to impact –biodiversity of species. Also if particular plant is susceptible to certain disease – entire crops can be infected.