

B.Sc.(Hons) Horticulture- 1st Year, II Semester 2019-20
Course: Plant Propagation and Nursery Management

Lecture No. 08

Topic: Asexual propagation its advantages and disadvantages

In this method the vegetative parts of plants such as leaves, stems, and roots are used for propagation. These plants may be taken from single mother plant. It is also called as vegetative method of plant propagation.

- It is independent of sexual propagation process as there is no involvement of sex organs.
- It takes place due to mitotic division. Mitotic division continues in shoot tip, root tip and cambium.
- When some portion of plant is wounded, mitotic division takes place.
- Under mitotic division, chromosomes divide longitudinally to form two daughter cells. This forms the basis of asexual propagation.
- The plants raised through asexual process are identical to mother plants. Cutting, division, layering, budding and grafting are main techniques of asexual propagation.

➤ **Advantages of Asexual Propagation:**

- Asexually propagated plants are true to type.
- Asexually propagated plants have short juvenile phase (3-4 years) and bear flowers and fruits in the early age than seedling plants.
- The vegetatively propagated plants are smaller in stature and hence management operations like spraying, pruning and harvesting etc. become easy.
- Some fruits such as Banana, Pineapple, seedless Guava and seedless Grape varieties can only be propagated through vegetative means.
- Using asexual methods, desirable characters of a mother plant can be multiplied easily.
- The benefits of rootstocks and scion are usually exploited through asexual propagation.
- Repairing of damaged portion of plant is possible through asexual propagation as in case of bridge grafting or buttressing. These methods can be used for healing of the wounds caused by rodents.
- Some diseases can be avoided in susceptible varieties by grafting them on a resistant rootstock e.g. Use of “Rangpur Lime” as rootstock for budding Mandarin orange to avoid gummosis disease.
- Inferior quality crown of the existing plants can be improved. For example, side grafting and crown grafting in mango.
- It is possible to grow multiple varieties on the same plant. One can grow numerous varieties of Roses and Mangoes on different branches of the same stock.
- Number of plant per hectare is more due to its small canopy and restricted growth.

- Vegetative propagation helps in rapid multiplication with modern techniques like tissue culture and other micro propagation techniques.

➤ **Disadvantages of Asexual Propagation:**

- Asexual propagated plants have shorter life-span.
- Asexual propagation restricts diversity.
- Technical expertise/skill is required.
- Plants are generally not so vigorous and long lived as seedling plants and they require special skill for propagation.
- In citrus, Tristeza virus causing the major disease in citrus plant i.e **Quick decline** and this disease transmitted through bud wood. Thus, sometimes asexual propagation disseminates diseases.
- Hybridization in these plants is not possible because there is no variation in the progeny; these methods are not suitable for development of a new variety.

Source:

1. Sharma RR & Manish Srivastav.2004. Plant Propagation and Nursery Management (First Edition 2004).International Book Distributing Co. Lucknow 226 004 U.P.(INDIA).
2. Singh Jitendra. 2010. Basic Horticulture. Kalyani Publishers, New Delhi.
3. <http://ecoursesonline.iasri.res.in/course/view.php?id=133>