



B.Sc. I
Semester- I (O.E.)

“Agri Based Microenterprises-I”

Unit:II.

Horticulture and Nursery Management

Dr. Mrunalini N. Desai

Department of Botany



B.Sc. I
Semester- I (O.E.)
“Agri Based Microenterprises-I”

Unit:II. Horticulture and Nursery Management


Propagation of horticultural plants

Reproduction is the important character of a living system. It is essential for the preparation and multiplication of the species and individuals of the species, respectively. There are two basic aims of the propagation.

- 1.To preserve the essential genetic characters of the plant species for many generations i.e. perpetuations of the species.
- 2.To achieve an increase in the number of individuals of the species.

Plants exhibit two methods of reproduction viz. sexual and asexual or vegetative. In sexual reproduction method propagation of plants is carried out through seeds. While in vegetative method propagation is carried out through vegetative tissues.

In case of horticultural plants multiplication of individuals as well as improvement of characters, both the aspects are important. The new individuals with improve characters or changed characters are considered as new varieties.



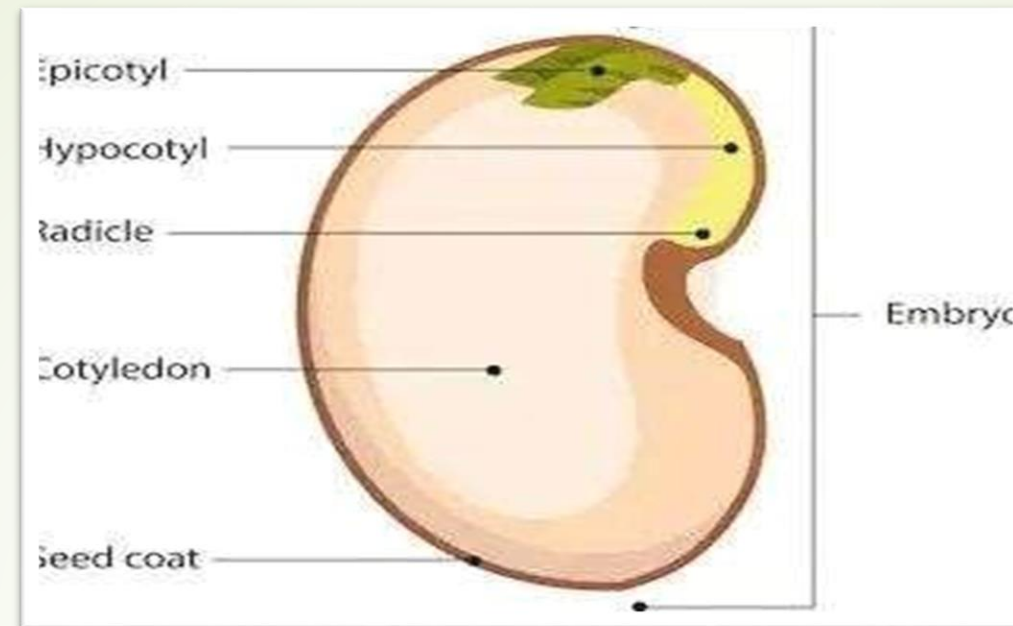
For increasing the number of individuals and for improvement in characters the horticulturist has to manipulate both sexual and Vegetative propagation methods through different breeding methods are carried out.

Different methods of propagation of horticultural plants, essential to increase the number of individuals as well as to retain the improved characters in the cultivar.

Propagation by sexual methods:

The plants which are produced from the seeds, after germination are called seedlings. The term seedling in case of horticultural plants indicates that the plant is propagated from seed by sexual method. The planting of the seed is the physical beginning of seedling propagation.

Structure of seed:



To understand the criteria for selection of seeds and propagation, it is essential to know the general characters of a seed.

Seed shows three basic parts:

- 1.The embryo
- 2.The food storage tissues that are endosperm cotyledon and
- 3.The seed coats

The embryo has two growing points, radical which grows into root and plumule which grows into shoot system.

The seeds show great variation in their size, shape, form, colour and chemical composition in different species.

Criteria for selection of seeds:

In case of horticultural plants, to be propagated by seeds, to collect high quality seeds is of primary importance. The important methods of collection for seeds are....

1. From commercial seed production centers
2. By seed exchanges
3. By collecting seeds from specific regions
4. From seed orchards
5. From fruit processing industries

1. From commercial seed production centers:

These seeds are produced in specialized areas with less humidity, to avoid infection of fungi and bacteria responsible for various diseases. After production the seeds are supplied in bulk, in the form of bags, sealed and moisture free packets. The bags or packets are properly labeled for identification and seed quality. Such seeds are certified seeds. In India many such centers are present i.e Indo American company, Bangalore, Nimbar seeds, Pune Mahyco seeds.

2. Seed collection from specific regions:

In many states, with developed horticultural activities, there are many seed collection zones or seed production centers. These zones or centers are with many trees or plants with necessary quality seeds with necessary permissions from the concern department seeds can be collected from these plants. Such collection of seeds can also be carried out from parks, roadside trees and streets, but with intimate knowledge of each species and proper method of collection.

3.Seed exchanges:

Many plant societies, botanical gardens and germ-plasm reservation centers, provide seeds of essential cultivar, in the form of exchanges. Normally, at these centers, the production is limited and therefore the supply of specialty seeds is also in small amounts.

4.Seed orchards:

Plantations or orchards are also the centers of supply of seeds with specific qualities and pure seeds. Normally, seeds from such orchards are used for propagation of trees of horticultural importance. They are also used by nurseries for the production of root stock seeds of certain species or cultivars.

5.Fruit processing Industries:

In fruit processing industries, during production of some products, seeds are mechanical removed and collected at one region. If the fruits used in such process is from one orchard and from orchards having plantations from similar root stock, the seeds collected at one place will be with uniform and known qualities. Such seeds can be used for propagation of desired cultivar, useful for commercial production of seeds.

Merits of seed propagation:

1. In some plants vegetative propagation is not possible. In case of such plants, seed propagation is the only method to increase the number of individuals of the species
2. The seed propagation does not require any implements and materials to raise the plants and therefore it is easy and less expensive.
3. Hybrids showing mixed characters are new cultivars and can be produced relatively easily in the form of seeds.
4. Many trees which are developed from seeds exhibit longer life span, bear more fruits during season and are more robust than the individuals of the same species developed through vegetative propagation.
5. Seed propagation is the process which makes available, the root stock, essential for budding and grafting during vegetative propagation.
6. Most of the viral diseases are not transmitted through seeds, so the propagation through seeds is useful in producing virus free individuals.
7. In small size seeds, plants can be stored for many years. Seeds which are stored properly remain viable for many years. E.g.- Lotus seed remains viable for 1000 years.



Demerits of seed propagation:

1. The plants propagated from seeds are not usually the true type of their ancestor.
2. Trees produced from the seeds, require longer duration to start reproductive growth and bear the fruits.
3. In case of trees produced from seeds harvesting, pruning, spraying are more difficult and expensive because the stem is tall and the crown is compact and at a higher level.
4. Though seed propagation produces the root stock, it is not possible to achieve the benefits of the root stock unless it is used for vegetative propagation i.e. budding and grafting.



Thank You