

# Reproduction in Plants

**Reproduction**-It is the ability of living organisms to produce new individuals.

- Two modes of reproduction
  1. **Asexual reproduction** – New plants are formed without seeds or spores.
  2. **Sexual reproduction** – New plants are obtained from seeds.

## Different Modes of Asexual reproduction

**1. Vegetative propagation**- It is the ability of a plant to produce new plants asexually from vegetative parts like roots, stem, leaves, and buds.

- **Stem propagation:** Example-Rose
- **Propagation by leaf:** Example- *Bryophyllum*
- **Propagation by roots:** Example- Sweet potato

**Stem propagation** -- The surface of potato has several buds called eyes that develop into new plants.

**Propagation by leaf** – The leaves of *Bryophyllum* have several buds at their margins that develop into tiny plants.

**Propagation by roots** – The roots of sweet potato, *Dahlia* get detached from parent plant and give rise to a new plant.

Sugarcane, rose, money plant, etc. reproduce by stem cutting.

## Advantages of vegetative propagation

- i. Method of propagation for seedless plants.
- ii. Exact copies of parent plant are produced.
- iii. Large numbers of offsprings are produced.
- iv. Disease free plants can be propagated.

## 2. Budding

- Involves formation of a bulb-like projections called bud, from the main parent body.
- This bud gradually grows and get detached from the parent cell thereby forming a new individual.
- For example- yeast.

## 3. Fragmentation

- It is a form of asexual reproduction where new individuals are formed from the fragments of parent body.
- For example- *Spirogyra*.

## 4. Spore formation

- Spores are asexual reproductive bodies which can germinate into a complete individual on onset of favourable conditions.
- For example- ferns

## Sexual reproduction in plants

- A plant reproduces sexually with the help of flowers.
- Stamen and pistil are the reproductive parts of a flower.
- Stamen is the male reproductive part and pistil is the female reproductive part.
- Bisexual flowers have both stamen and pistil. Examples – Lily, rose, *Hibiscus*, mustard, *Petunia*, etc.
- Unisexual flowers have either stamen or pistil. Examples – Corn, papaya, cucumber, etc.
- Stamen is the male reproductive part and consists of filament and anther.
  1. Anther produces numerous pollen grains.
  2. Pollen grains contain male gametes.
- Pistil is the female reproductive part and consists of stigma, style, and ovary.
  1. Ovary contains one or more ovules.
  2. Ovules contain egg cell called female gamete.

## Sexual Reproduction in Plants

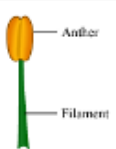
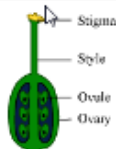
The flowers are the reproductive structures of a plant. The male reproductive part of a flower is known as the stamen, while the female reproductive part of a flower is known as the pistil.

### Types of Flowers

**Unisexual flowers**-The flowers which contain only the male reproductive part, i.e stamen. For example, corn, cucumber

**Bisexual flowers**- The flowers which contain both the male and female reproductive parts, i.e stamen and pistil. For example, mustard, rose

Structure of a stamen and pistil

Stamen	Pistil
 <p>The diagram shows a stamen with a yellow, oval-shaped anther at the top and a long, thin green filament below it. Labels 'Anther' and 'Filament' point to their respective parts.</p>	 <p>The diagram shows a pistil with a yellow stigma at the top, a green style in the middle, and a green, oval-shaped ovary at the bottom. Labels 'Stigma', 'Style', 'Ovule', and 'Ovary' point to their respective parts.</p>
<p>The stamen consists of an anther and a filament. The anther contains pollen grains and produces the male gametes.</p>	<p>The pistil consists of the stigma, style, and ovary. An ovary contains ovules. The female gamete or egg is produced inside the ovule.</p>

**Pollination** – It is the process of transfer of pollen from anther to stigma.

### Self Pollination

- Pollens are transferred from stamen to pistil of the same flower of the same plant.
- It occurs within same flowers (bisexual).

### Cross Pollination

- Pollens are transferred from stamen of one flower of a plant to stigma of another flower of same plant or that of a different plant of the same kind.
- It occurs in both unisexual and bisexual flowers.
- Pollens are transferred from one flower to another with the help of insects, birds, wind or water.

**Fertilisation:** It is the process of fusion of male and female gametes to produce a zygote.

After fertilisation, the ovary matures into the fruit and the ovule matures into the seed.

### **Seed dispersal**

- Distribution of seeds to new places is known as seed dispersal.

### **Importance of seed dispersal**

- Reduces competition between plant and plant seedlings
- Helps plant in inhabiting a new suitable habitat
- Prevents overcrowding

The process of seed dispersal is fulfilled with the help of many external agents like animals, wind, water, etc.