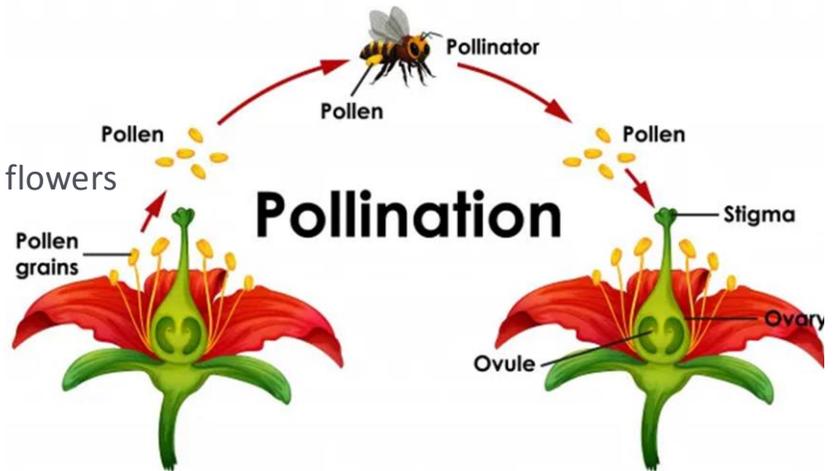


## BIOLOGY SS 2: WEEK EIGHT

### Pollination

#### CONTENT

- ✓ Definition
- ✓ Pollination in plants
- ✓ Features of self and cross-pollinated flowers
- ✓ Agents of pollination



#### DEFINITION

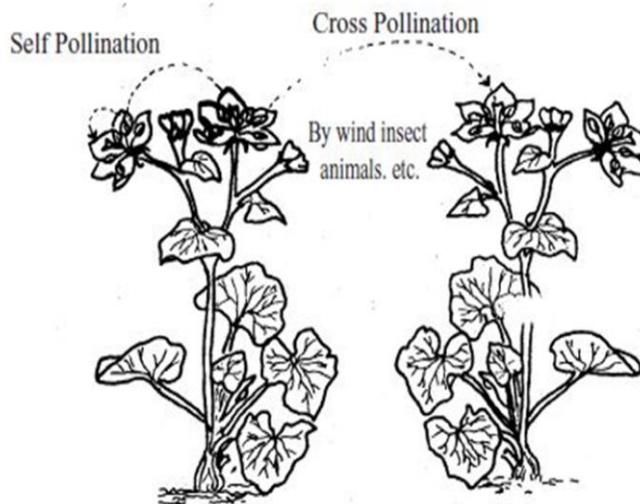
This is the transfer of mature pollen grains from the anther of one flower to the mature stigma of the same or another flower of the same plant or another plant of closely related species. Pollination usually precedes fertilization. There are two types of pollination namely; self-pollination and cross-pollination.

#### SELF POLLINATION

This is the transfer of mature pollen grain from the anther of a flower to the stigma of the same flower or to that of another flower of the same plant e.g. tomato and pear. Therefore, self-pollination involves only one parent plant i.e. bisexual flowers or monoecious plants.

#### CROSS POLLINATION

This is the transfer of mature pollen grains from the anther of a flower to the stigma of a flower on another plant of the same or closely related species e.g. hibiscus, pawpaw. Therefore cross-pollination involves two parent plants i.e. unisexual flowers or dioecious plants. Cross-pollination depends on external agents like wind, insect etc.



## ADVANTAGES OF SELF POLLINATION

1. It ensures effective pollination in bisexual flowers
2. It avoids wastage of pollen grains

## DISADVANTAGES OF SELF POLLINATION

1. Production of weak offspring due to continuous self-pollination
2. The offspring are less adaptive to the environment.

## ADVANTAGES OF CROSS POLLINATION

1. Production of healthier offspring.
2. Production of viable seeds
3. The offspring are more adapted to the environment
4. Formation of new varieties with good characteristics

## DISADVANTAGES OF CROSS POLLINATION

1. It depends on external agents e.g. wind and insect
2. It leads to wastage of pollen grain, especially in wind pollination.

## FEATURES OF SELF POLLINATED FLOWERS

Features favouring self-pollination include

1. **Homogamy:** This is the ripening of anther and stigma of bisexual flower at the same time
2. **Cleistogamy:** This is when ripe pollen grains are deposited on the stigma which then becomes ripened at the same time.

## FEATURES OF CROSS POLLINATED FLOWERS

1. **Dioecious flowers:** When male and female flowers occur on separate plant e.g. pawpaw
2. **Dichogamy:** When male and female parts mature at different times. Dichogamy can be
3. **Protandry:** When anther matures or ripens before the stigma e.g. sunflower, okro and cotton
4. **Protogyny:** When stigma matures before anther e.g. palms and figs.
5. Possession of brightly coloured petals to attract insect e.g. hibiscus.
6. Possession of sweet smell for attracting insects e.g. rose flower.
7. Unisexual flowers
8. Self-incompatibility
9. Position of anthers and stigmas

## AGENTS OF POLLINATION

Agents of pollination (pollinators) are the organisms which help in the transfer of pollen grains from the anther to the stigma of flowers. This pollinator includes: insects, birds, snails, bats and man and also physical factors like wind and water.

The two major agents of pollination are:

- ✓ insects
- ✓ wind

Flowers pollinated by them are marked with certain features that will be stated below

### **CHARACTERISTICS OF INSECT POLLINATED FLOWERS (ENTOMOPHILOUS)**

1. Large conspicuous petals and sepals
2. Bright colouration
3. Possession of scent
4. Presence of nectars.
5. Presence of rough, sticky and relatively few pollen grains
6. Flat, sticky stigma to receive pollen grains.

Entomophilous flowers include hibiscus, crotalaria, the pride of Barbados, etc.

### **CHARACTERISTICS OF WIND POLLINATED FLOWER (ANAEMOPHILOUS FLOWER)**

1. Small inconspicuous petals and sepals
2. Dull coloured flowers
3. Absence of scent
4. Absence of nectars
5. A large quantity of pollen grains
6. Pollen grains are small, lightened sticky
7. Elongated sticky stigma with a large surface area.

Examples include cereals like maize, guinea corn and rice

### **ASSIGNMENT**

1. What is pollination?
2. Explain what you understand by self and cross-pollination.
3. What are the features of self and cross-pollination?
4. State five characteristics of entomophilous and anemophilous flowers.
5. What are the agents of pollination?