

## CHAPTER 24

### PLANT REPRODUCTION

#### I. Mosses, Ferns, Conifers (non-flowering)

A. **Alternation of Generation** is that plants have to phases to their life cycle.

B. Mosses have the main generation as the **gametophyte (haploid)**. Haploid cells have only one set of chromosomes ( $n$  cells). The **sporophyte** generation only grows into the fruit capsule (diploid). Diploid cells have paired sets of chromosomes. figure 24.3.

C. Ferns have the dominate stage in the **sporophyte generation (diploid cell)**. The spores made the sporophyte generation create a small plant that releases sperm and egg. After fertilization the egg develops into a plant that looks like a fern. **figure 24.5**

D. Conifers have the dominate form as a **sporophyte** (diploid cell). The sperm is transferred by wind from the male cone to the female cone. They **zygote** develops into the seed in the cone. The seed is released when the female cone opens.

## II. Flowers and flowering

### A. Flower Structure Diagram

B. How do flowers bloom at the same time?

**Photoperiodism** is the length of daylight and darkness. The timing of flower development and blooming often triggered by the length of darkness.

1. **Short day plants:** long nights cause blooming  
Fall blooming plants or early spring blooming  
such as crocuses (Feb.).
2. **Long day plants:** days longer than the nights  
cause blooming in the late spring or summer.  
Some examples are carnations and potatoes.
3. **Day neutral:** Blooming is triggered by  
something other than darkness such as  
temperature or moisture.
4. **Flowers must bloom at the same time to  
exchange DNA (hereditary material).**

### III. Flowering Plant Life Cycle

#### A. Gametophyte (sex cells)

1. Female ovules under go meiosis to form haploid cells.
2. Male pollen cell under go meiosis to form pollen grains (sperm cells).

#### B. **Pollination** is the transfer of pollen grains.

1. Types of pollination
  - a. **Wind** carries pollen from male to female flowers.
  - b. **Bats** pollinate night blooming flowers in the tropics.
  - c. **Bird** pollinated such as humming birds.
  - d. **Insects** such as bees, flies, and ants pollinate many flowers .
2. **Nectar** is a sweet liquid produced by flowers to attract pollinators which are dusted with pollen as they feed on nectar. Some insects eat pollen which is high in protein.

3. A flowers scent and color attracts pollinators.

4. **Fertilization Steps Diagram**

5. **Seed Structure**

D. Fruit Formation

1. Fruits are tissues around the seeds (ovary)

2. **Fruit Diagram**

E. Types of seed dispersal

1. **wind**, (dandelion)
2. **clinging fruits** (burrs), (beggars tick)
3. **Food fruits**, (black berries)
4. **Water**, (coconut)

F. **Seed Germination** is spouting out of dormancy.

1. Seeds germinate in temperature ranges between 25 C and 30 C. Temperatures below 0 C and above 45 C prevent germination.
2. Seeds need to absorb about 60% of their weight in water to germinate.
3. Many seeds can survive passing through a digestive system.
4. Seed Spouting Diagram