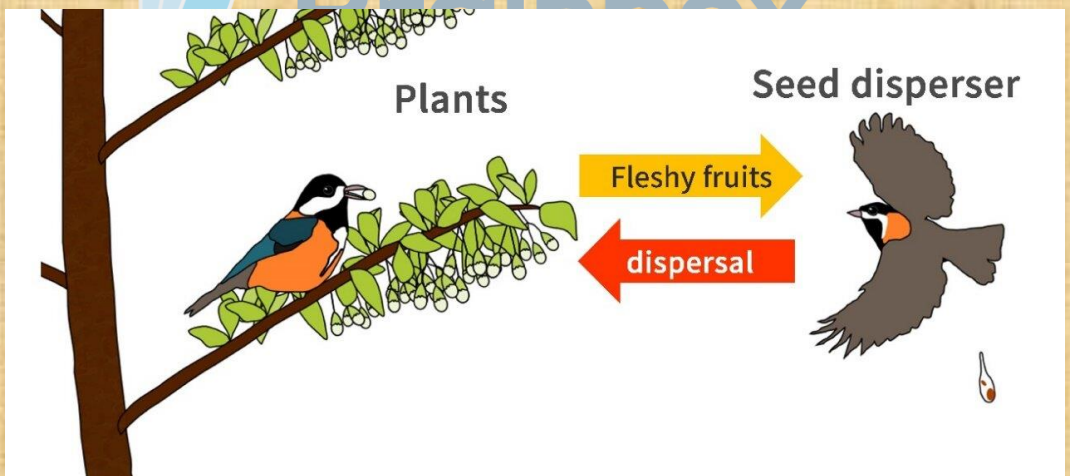


SEED DISPERSION

We all know that plants are extremely important to life on Earth. Though plants give us many things, we like to eat the fresh fruits they give us.

How do we get these fruits from plants?

In plant reproduction, we already learnt that after fertilization, the ovary develops into fruit and the **ovules develop into seeds**. Fruits are fleshy substances that protect the seeds. A seed contains a mini undeveloped plant called an embryo, which is embedded in a nutritious tissue called endosperm. It has everything it needs to sprout in a new location, become established and eventually to grow into an adult plant.



Why do seeds need to disperse?

All plants need water, sun and space in order to grow. Now it is tough for a little seed to make it in the big world. Plants make seeds that can grow into a new plant but if the seed just fall to the ground under the parent plant, there rises a competition between them for the utility of resources. They might not get

sun, water or enough nutrients from the soil. Here not only a seed landing in a suitable place to grow is necessary, but it must compete with the existing plants for sunlight, water and nutrition.

A seed cannot get the things it needs to grow if it falls immediately below its parent because its parent is already using the resources in that location. Therefore, seeds need to get to a new location in order to find the resources necessary for growth. This relocation is called dispersal.

The seeds need to be dispersed and transported to new places for germination and the development of new individuals. Because plants cannot walk from one place to other like humans and animals, they developed a number of methods to disperse their seeds.

Seed dispersal is considered important for biodiversity conservation.

Seeds lack the fundamental structures and innovations animals use to move from one place to another, such as legs or wings. As such, seeds evolved different strategies for dispersing to new locations. The process of dispersal varies from plant to plant.

Few seeds can be carried by air, few seeds float on water and few seeds use animals or birds to carry them to their suitable places. Mangrove trees have seeds that float on water and the generally observed white hairy ball like structures flying in the

air are seeds of Caltropis. Some plants even shoot the seeds out explosively. These are various strategies to disperse seeds.



Without seeds, forests would not be able to regenerate. Forests are important because they provide many ecological services such as clean air and clean water, and they provide us with a lot of valuable products such as wood and food.

Fires are common in some areas like Australia's forests. At those times, plants cannot run away from the fire so some plants have developed a way to help their seeds survive. Few plants rely on fire to open their cones and disperse the seeds.

The evolution has shaped a number of adaptations for plants to disperse their seeds and fruit. Adaptation is an evolutionary process that helps an organism make the most of its habitat. Seed dispersal is an example of adaptation.

Here the seed size is also an important factor. The seeds of flowering plants vary in size. Some are as small as grains of salt while others may be almost the size of golf balls. The larger the seed, the more food reserves it contains. This allows the germinating seed and young seedling more time to grow. Hence, there is a great chance for establishing successfully. But,

for larger and heavier seeds, it would be difficult to disperse by wind and explosion. Seeds, which are minute and lighter, are easily blown about by the wind.

A plant produces too many seeds. A small percentage of seeds produced develop into mature plants to ensure the survival of species. It is a matter of survival. Some seeds do not germinate and some are eaten. Only a few develop into mature plants. If all the seeds germinate into plants, what would happen? We will be able to see one or two species of plants all over the world.

A mustard plant produces more than 10,000 seeds in its lifetime. If all the seeds germinate to grow into adult plants, think how many seeds would be produced. If this happens for a period of six years, the entire globe will be covered with mustard plants!

Plants maintain biodiversity and ensure the survival of their own species by playing a vital role in the maintenance of life on Earth.

These factors play an important role in deciding the strategies to be followed by the plants in the process of seed dispersal.