

Plants—Production And Storage

Plants have a very important role to play in our lives. In addition to the vital oxygen supplied by the plants, they are also a source of food and other useful materials like medicines, oils, fibres etc. Therefore, it becomes important for us to grow more and more plants and to do that we need to understand how the plants grow.



Modes of Reproduction in Plants

By Seeds

We have noticed seeds in most of the fruits. Some fruits like mango produce a single seed while others such as papaya and orange produce many seeds. If we take a closer look at the seed we would find that it contains a tiny plant in itself.



Apple



Mango



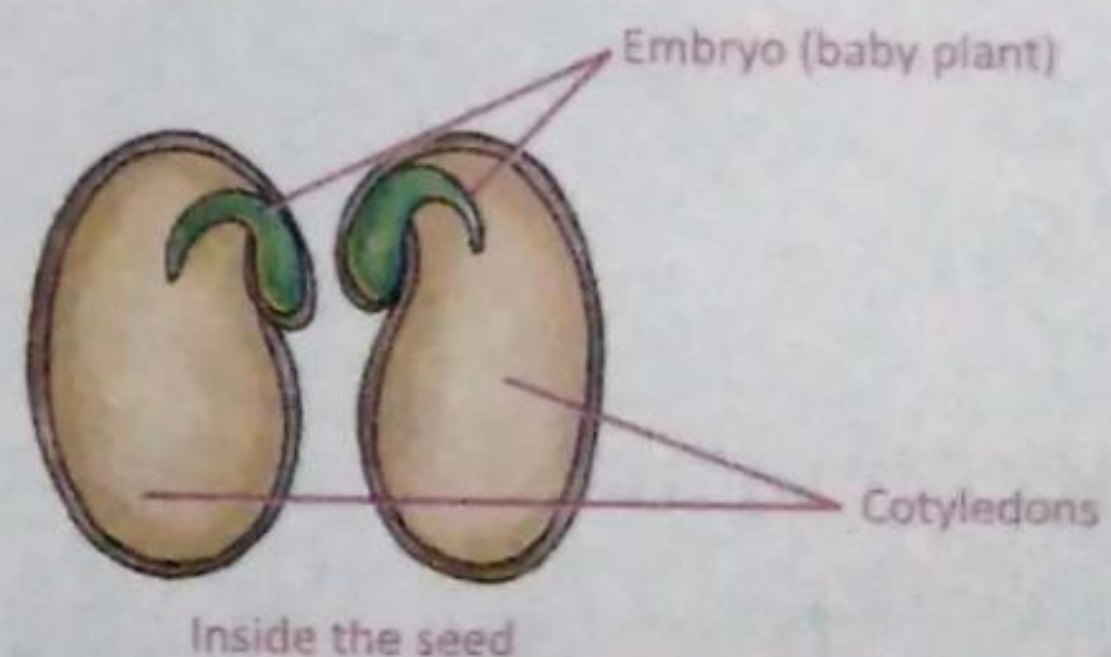
Kiwi



Sweet lime



A seed



Structure of a bean seed

The outer covering of the seed protects the baby plant inside. The **seed coat** allows water to enter the seed which is required for its

germination. If we carefully break open the seed we can see the **cotyledons** that store food for the seed and the tip from where the new shoot would arise. After that the function of production of food for the plant is taken up by the young leaves.

✦ **Cotyledons** – The part of the seed that stores food for the baby plant.

✦ **Germination** { ^{Ans-3} The process by which the young plant grows out of the seed is called **Germination**.

Soak the green gram dal overnight. Drain the water and tie it in a handkerchief for about five hours. What do you observe?



Planting the Seeds

The seeds will not grow just anywhere. (They require certain suitable conditions for growth: such as Soil, water, Air, Temperature)



Soil

– The seeds need fertile soil to grow.



Air

– The seeds need air to breathe.



Water

– The seeds need the right amount of water for germination.

Warmth

– The seeds need warmth from the sun to grow.

Dispersal of Seeds

In order to **germinate**, the seed must reach the soil. There are many agents that take the seed away from the fruit or the mother plant, through a process called **dispersal**, to a suitable place for germination.

Ans-3

The process of germination occurs in different stages:

- Seed absorbs water and seed coat bursts. It is the first sign of germination. There is an activation of enzymes, increase in respiration and plant cells get duplicated.
- Chemical energy stored in the form of starch is converted to sugar, which is used during germination process. Soon, embryo gets enlarged and seed coat burst opens.
- Growing plant emerges out. Tip of the root first emerges and helps to anchor the seed in place. It also allows embryo to absorb minerals and water from soil.
- The shoot with tiny leaflets emerges the next.

Quick Revision:

A. Fill in the blanks:

1. Seed coat is the outer covering of the seed.
2. Cotyledons store food for the baby plant.
3. The seeds need the right amount of water for germination.

B. Give two examples of seeds that are dispersed by:

- | | | |
|--------------|-----------------|-----------------|
| 1. Wind | <u>horbeam</u> | <u>sycamore</u> |
| 2. Water | <u>coconut</u> | <u>willow</u> |
| 3. Animals | <u>apple</u> | <u>mangoes</u> |
| 4. Explosion | <u>geranium</u> | <u>poppy</u> |

Reproduction by Other Plant Parts

Ans
D5

By Roots

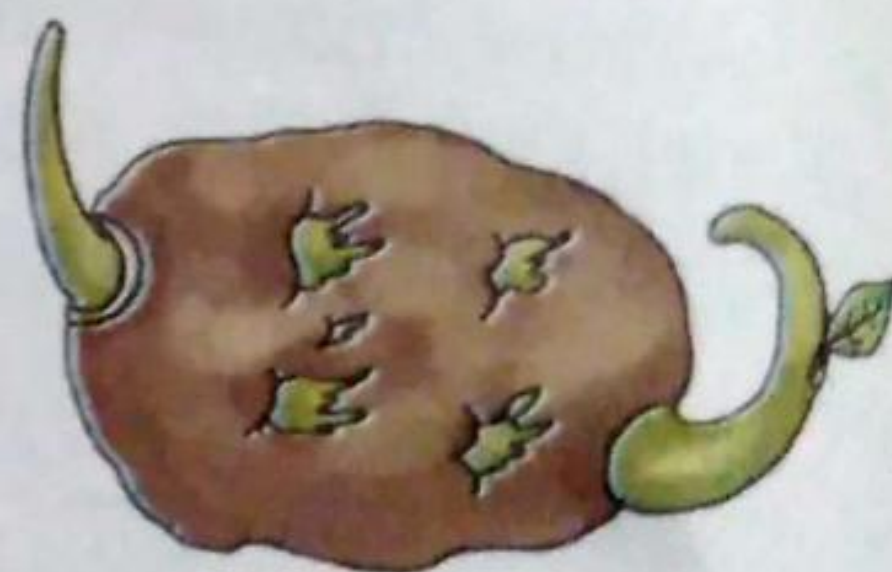
Some roots like that of carrot, the tuber of potato, the bulb of the onion etc., can grow into a full plant when provided with suitable conditions for growth.



Onion



Carrot



Potato



Money plant

By Stem

The stem cutting of the rose plant, money plant etc., can be used to obtain a new plant under ideal conditions for germination.)



a.

Cut the stem



b.

Reproduction of rose from stem

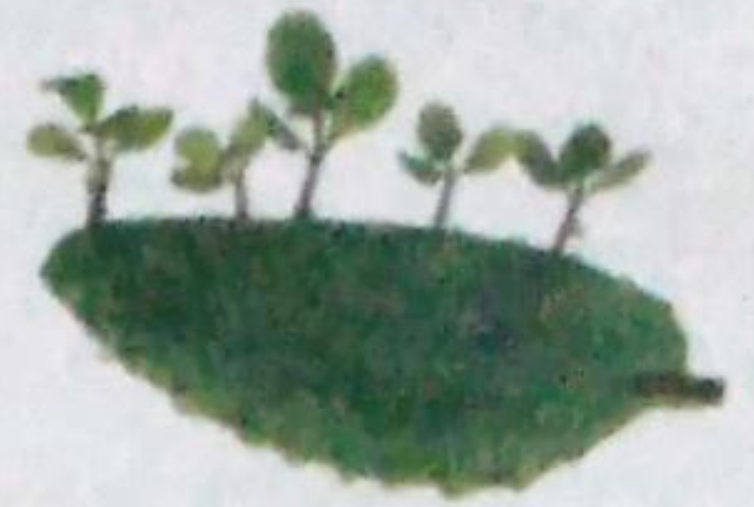


c.

Plant the cutting in moist fertile soil

By Leaves

Leaves of the bryophyllum plant give rise to tiny plantlets at the edges. These can be grown into new plants under ideal conditions.



Bryophyllum

Crop Production

Ans 1(c) A **crop** is a plant grown in a particular area for a particular period of time for consumption by human beings. *Ans 1(b)* The large scale production of crops for food is known as **agriculture**.

Different crops require a different weather for their growth. Some crops like rice and maize require heavy rains during their growth. Such crops are grown from June to October. They are known as **Kharif** crops.

Crops like wheat, beans and legumes require the light winter rains for their growth. These are planted in November and harvested in the month of April. These are known as **Rabi** crops.

Terrace farming, also known as step farming and often simply called terracing, is a method of cultivation. Terrace farms are a series of step-like ledges supported by man-made walls. Crops are grown on the carved steps of flat land called terraces. Terrace farming is a way to grow crops on steep hills and mountain sides. Terraces are easier to cultivate than vertical slopes. Terraces prevent rain from eroding the soil. Terrace farming is practiced in many parts of the world including Asia, Africa, Europe and South America. The Incas were the first people to use terrace farming.



Agriculture is a blend of many steps or activities:



1. Ploughing



2. Manuring



3. Sowing



4. Irrigation



5. Adding Insecticides



6. Harvesting

Ans
D4

- **Ploughing** – It is the preparation of soil for sowing the seeds.
- **Manuring** – The addition of manure makes the soil rich in nutrients.
- **Sowing** – The seeds are then sown in the prepared soil.
- **Irrigation** – The field is then watered or irrigated.
- **Insecticides** – They are sprayed on the standing crops to protect them from pests and insects.
- **Harvesting** – The fully grown crops are picked from the fields or harvested.)

Ans 2.C

- 💡 **Ploughing** – The process of loosening the soil for sowing seeds.)
- 💡 **Irrigation** – The process of watering the soil.
- 💡 **Manuring** – The process of addition of manure to fields.
- 💡 **Insecticides** – Chemicals used to kill insects in fields.
- 💡 **Harvesting** – The cutting of crops.



Crop Storage

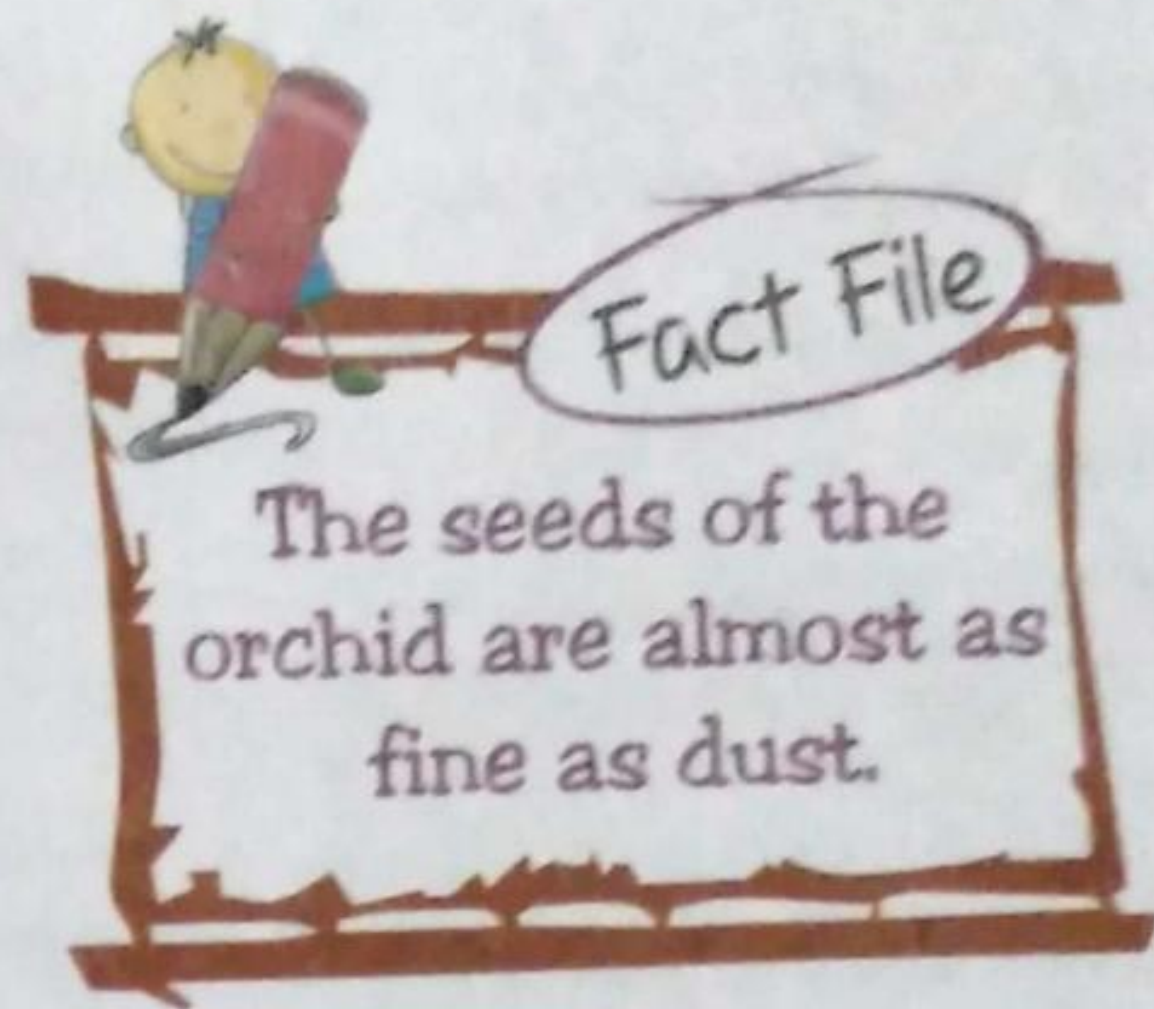
Agriculture is the primary occupation of our country. There has been much technological advancement in the field of agriculture over the last decade. It has led to an overall increase in the crop production but one aspect that still needs to be dealt with is appropriate storage of crops (It is the time after the crops are harvested and before they are sent to the market.)

Many problems that pose a threat to the stored crops are:

- Adequate space for storage of crops.

Ans
2.C
Storing

- Pests like rodents, squirrels etc., that feed on the stored grains.
- Rain and moisture spoil the quality of the stored grains.
- Black-marketing of stored crops.



New Words

Dispersal

Crop

(Kharif crops

(Rabi crops

Harvesting

Ans 1 (a)

- (The transfer of seeds away from the mother plants to a place suitable for germination.)
- A plant grown in a particular area for a particular period of time for consumption by human beings.
- The crops sown from June to October. Ex- Rice, Maize
- The crops sown from November to April. Ex- wheat, beans
- The picking of ripe crops.



Let's Revise

1. The cotyledons store the food for the baby plant.
2. Seeds dispersed by water have a woody coating that enables them to float on water.
3. Seeds may have minute hooks that stick to animal bodies and are easily dispersed.
4. The heat causes the seed pod to dry and hence burst open.
5. The crops grown have to be stored carefully.



Let's Answer

A. Rewrite the following statements correctly:

1. The seed coat is waterproof.

The seed coat allows water to enter the seed.

2. The woody covering causes sinking of seeds in water.

The woody covering allows seed to float in water.

3. The wings on seeds cause them to stick to animal bodies.

The wings on seeds allow them to fly long distances.

4. The wet seed pod burst open to release seeds.

The dried seed pod burst open to release seeds.

5. Large scale production of crops is called irrigation.

Large scale production of crops is called agriculture.

B. Which part of the following plants would give rise to a new plant?

1. Hornbeam

seeds

4. Carrot plant

root

2. Rose plant

stem

5. Bryophyllum plant

leaf

3. Onion plant

roots

6. Water lily plant

seeds

C. Circle the odd one in each:

1. Rose

Money plant

Potato

2. Coconut

Onion

Water lily

3. Soil

Water

Carbon dioxide

4. Poppy

Geranium

Burdock

5. Storing

Irrigation

Manuring

D. Answer these:

1. Define the following:

a. Dispersal pg.no-41

b. Agriculture pg.no-39

c. Crops Pg.no-39

2. Differentiate between:

a. Dispersal by wind Vs Dispersal by water

b. Rabi crops Vs Kharif Crop

c. Ploughing Vs Storing

3. What is germination? What are the ideal conditions for a seed to germinate? Pg.no-36

4. Briefly explain the steps in agriculture. Pg.no-40

5. Briefly explain any two ways of reproduction in plants other than by seeds.

Pg.no-38