

## 12. Food for All

Can you tell ?



- (1) Which vegetables do we get around the time of Diwali? Which fruits? Which grains?
- (2) What are the seasons for jowar, bajra, rice, mangoes, oranges and jackfruit?
- (3) Which parts of plants do we use as food?

### Agriculture

**Agricultural seasons :** We get food from plants. For that purpose, we sow grains in fields and plant fruit trees in orchards. About 60% of the land of our country is in use for agriculture. There are two main agricultural seasons in our country.

The season from June to October is called the kharif season. In this season, the crops are watered mainly by the rain.

The season from October to March is the rabi season. In this season, rainwater that has soaked into the soil, the retreating monsoons and dew are the sources of water for the crops.

In addition, some crops are grown from March to June. These are called summer crops.

Can you tell ?



Which is the season for growing rice?

**Agricultural work :** Every farmer wishes to get a good harvest. A good harvest provides a good income. Fertile land, good quality seeds and fertilizers, and availability of water are essential for a good harvest. It is also necessary to carry out the tasks of tilling the land. The crop in

the field must be protected and the harvested crop must also be stored safely. All of these processes are important.

The population of our country is increasing, and still the needs of all the people are being met. This has been possible because of modern improved methods of agriculture.



**Traditional agriculture :** In the traditional methods of agriculture, ploughing, tilling, etc. were done with the help of oxen. A 'mot' (a huge leather bag) driven with the help of oxen was used to



draw water from the well. Harvesting, threshing, etc. was done by the members of the farmer's family themselves with the help of oxen. However, farmers now carry out all these tasks with the help of machines.



Ploughing the land

## Improved methods of agriculture

**Improved seeds :** Earlier it was customary to preserve the seeds of one harvest for sowing in the next season. Those seeds did not have a high yield. Nowadays, improved seeds are developed through research. They are available in the market for every crop such as jowar, rice, groundnut, wheat, etc. These have a higher yield. They can resist pest attacks. Some varieties become ripe for harvesting in a shorter period of time while some give a high yield even with a low water supply.

**Modern methods of irrigation:** Crops grow well if they are watered at the right time. Water from rivers, lakes and wells is used for irrigation in addition to rainwater. Greater quantities of water are stored by building dams and bunds on rivers to obstruct the flow of water downstream. This also helps to raise the levels of groundwater.

Crops were traditionally watered through canals. However, much water from the canals is lost due to evaporation and seepage into the ground. Now, certain improved methods of irrigation are used which provide enough water to the plants and at the same time, help to save a lot of water.

Drip irrigation and sprinkle irrigation are two of these modern methods.



**Drip irrigation**



**Sprinkle irrigation**

The drip irrigation method makes use of pipes with holes. This ensures that the required amount of water drips only near the plants. Thus, full use is made of the available water.

Sprinkle irrigation makes use of sprinklers of different sizes that spray water directly on plants.

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### Find out.

- (1) Names of two varieties of improved seeds of jowar.
  - (2) Who helped the farmer to drive the 'mot'?
  - (3) How is groundwater lifted these days?
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## Fertilizers

If the same crops are grown frequently in a field, the fertility of the soil decreases. Then we have to add fertilizers to the soil to restore its productivity. Fertilizers provide the required nutritive substances to the crop. There are two kinds of fertilizers, natural and chemical.

Natural fertilizers are called manures. They are obtained from materials available in nature like green waste and animal dung.

Chemical or artificial fertilizers are mixtures of different chemical substances in specific proportions, useful for agriculture. In traditional agriculture, organic manures such as compost were used. Chemical fertilizers came to be

used for quicker growth and higher yields. However, the harmful effects of the use of these fertilizers soon became clear. The overuse of chemical fertilizers leads to accumulation of excessive chemicals in the soil. This lowers the fertility of the soil and reduces its productivity.

Overwatering makes the land saline and fallow. This is seen especially in the parts where water is available in plenty, as for example, near dams or on river banks.

If land becomes saline and fallow, it has to be tested to find out which substances it lacks. The fertility can be restored by adding these substances. It is a costly and time-consuming procedure. Therefore, it is better to avoid excessive use of fertilizers and water.



**Spraying insecticides**

**Protection of crops :** Diseases and pest attacks can damage crops in the fields. As a remedy, insecticides and pesticides are sprayed on crops or certain chemicals are rubbed on the seeds before sowing.

**Storage of grain :** Storing the harvested crop safely is as important as

increasing the production. What steps are taken for this purpose?

The grain is dried well in the sun and filled in sacks. The sacks are then stocked in the house or, after selling, in warehouses or shops. Stored grain can get damaged in two ways. Mice, rats and insects can spoil the grain to a great extent. Also, if the grain is stored in a closed and damp space, it catches fungus and becomes unfit for eating.



To prevent such damage by pests, chemicals are sprayed at the place of storage or all around it. Neem leaves are mixed in the grain. Some protective chemicals that can be mixed with the grain are also available in the market. Their smell repels insects. Storage places are always kept dry and airy to prevent fungus formation.



**Neem leaves**



## Use your brain power!



What is the advantage of storing grain in wattle and daub baskets?

### Food storage and conservation of environment

Like humans, other living things also store food. Each of them has a different way of doing it. Insects like ants store food. Bees collect nectar from flowers and store it in a honeycomb, in the form of honey. Squirrels store seeds. Because these animals store food, it is available to them when they need it.



Food storage

All the time, plants are busy producing the food they need. Even so, there are some plants that store food. You are familiar with bulbs of plants such as onions and garlic, and tubers such as potatoes, ginger, etc. They are all parts of the stem of the plants. Radishes, sweet potatoes, beetroots are the roots of their plants. These plants store food in their stems or roots. We, too,

store food in our homes according to our needs.

In India, due to the improved methods of cultivation, we now produce plenty of foodgrains. The production exceeds the demand. The surplus foodgrain is stored in huge warehouses.

Sometimes, production is affected by a disaster such as floods, drought, a cyclone or hailstorm. At such times, the stored surplus grain can be used for the people. It can also be used for people displaced due to disasters like an earthquake.

**Visit to a Fair Price shop :** Visit a Fair Price shop to understand the rationing system (public distribution system). Observe the different kinds of grains available there and if possible, the types of ration cards.

**The green revolution :** Today our country is self-reliant as far as production of foodgrains is concerned. We are also able to export the surplus grain. The tremendous increase in foodgrain production in our country was achieved during the 'Green Revolution'. It was brought about by the joint efforts of scientists, people working for the spread of science and farmers. The credit for the research that led to improvement in the seeds of wheat and rice that resulted in the Green Revolution in India goes to Dr M. S. Swaminathan.



Dr M. S. Swaminathan

**Food security :** Food is a basic need. Many countries have made laws to ensure that every person gets sufficient food according to their need. These laws are known as Food Security laws. In 2013, our country too enacted a Food Security Law. It has made it possible to fight ills like malnutrition, starvation and deaths due to hunger.

**Agricultural assistance programme :** Through this programme, farmers are given proper information and guidance about the latest technology, irrigation facilities, improved seeds, use of fertilizers and pesticides, etc. They can also get weather forecasts and other agriculture related information from these assistance centres.



**A farmer asking for information from an agricultural assistance centre**

In addition, agricultural schools have also been started for farmers. Members of a farmer's family can learn about new technology at these schools. Agricultural Produce Marketing Committees hold exhibitions too for farmers.

The agricultural department of the government, agriculture universities, television, newspapers and various periodicals work for the spread of modern methods of agriculture. Now, it is possible for all farmers to use these modern methods to increase production. The whole country benefits from these efforts.

### Do you know ?



**Organic farming :** Farming that relies on natural (organic) materials is called organic farming. It is a form of traditional agriculture. In this method, the nutritive substances in the soil are retained. The organic pesticides used in this method have no harmful effects on those who eat the produce. The grain grown by this method is nutritious and also good to the taste. That is why, farmers have begun to opt for organic farming methods.

Organic farming involves use of manure obtained from plants and animals. These manures consist of fish and bone meal, animal excreta as well as decomposed remains of plants and animals.

### Always remember –



- (1) Crops should be watered only as much as necessary.
- (2) Care should be taken when using chemical fertilizers and pesticides. Their overuse should also be avoided.

### What we have learnt –



- There are two main agricultural seasons - the kharif and the rabi season.
- Using improved methods of farming leads to an increase in production.
- Farmers can get information about modern agricultural technology through Agricultural Assistance programmes.

## Exercises

### 1. What's the solution ?

The plant in the pot is not growing well.

### 2. Use your brain power !

What is the purpose of storing foodgrain in our house?

### 3. Find and correct the incorrect statements.

- (a) There is only one method of farming.
- (b) India is an agricultural country.
- (c) Use of improved seeds does not lead to higher yields.

### 4. Answer the following questions.

- (a) What are the advantages of using improved seeds?
- (b) Which are the modern methods of irrigation? What are their advantages?
- (c) Describe the 'drip irrigation' method.
- (d) What are the reasons due to which growing crops are damaged?
- (e) What is done to avoid the damage to crops?
- (f) What causes the fertility of the soil to diminish?
- (g) What changes has modern technology brought about in the methods of farming?
- (h) What methods are used to preserve foodgrain?
- (i) How is water made available for farming?

### 5. Match the following.

#### 'A' Group

#### 'B' Group

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|---|--|
| (1) Grain stored in a damp place                | (a) Prevents growth of fungus on the grain |
| (2) Grain stored in dry air                     | (b) Prevents insect infestation            |
| (3) Adding proper chemicals to the stored grain | (c) Fungus attack                          |

### Activities

- 1. Make a note of the day when the grain stored in your house was purchased.
- 2. Obtain seeds of five types of grain, put them in separate packets and stitch them to a large sheet of paper. Write all you know about each foodgrain.
- 3. With your teachers, visit a farm where modern methods of agriculture are used.

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