

OUR CROPS

PART 1

The crops we grow are part of our lives. You may already know a lot about these crops. You may have seen how the land is tilled and how crops are grown on the farms near your home. In this chapter, we shall try and look for answers to some questions about these crops. Some information is given in this chapter, but there is a lot of other information which you will have to collect.



You can collect information about crops from different sources. These include:

1. A student from a family of farmers.
2. A farmer.
3. The grain market.
4. Newspapers.
5. The Agriculture Department.
6. Books and booklets on agriculture.
7. Your teacher.

We shall analyse the information to find answers to some of the questions about our crops.

The cropping seasons - Kharif and Rabi

You know that different crops are grown in different seasons. The two main seasons are called **kharif** and **rabi**. The kharif season is the monsoon season and the rabi season is the cold season.

Classify the crops you know about into the following four groups:

1. Kharif crops
2. Rabi crops
3. Summer crops
4. Crops that grow in all three seasons (1)

After studying these groups, can you conclude that most crops have a particular season in which they grow? (2)

The first question

Have you ever wondered why different crops grow only in a particular season? Let us find out why this is so. Let's take the example of wheat. (If you wish, you could also choose rice, soyabean, *tuar*, *kutki* or any other crop as an example.)

Do all farmers grow wheat only in the rabi season? (3)

The question is, why is this so?

To find an answer to this question, we must first see what differences there are between the rabi and kharif seasons.

There are many ways in which these two seasons can be compared. Make a table in your exercise book to list the differences between them. The format of the table is given below. Enter the differences in the table as you identify them.

First of all, which months do the rabi and kharif seasons fall between? (4)

Table 1

Name of season	Duration (months)	Cloud cover	Rain		Light		Heat/Cold	Length of night	
			Light	Heavy	Less	More		Long	Short
Rabi									
Kharif									

In which season is there more rainfall - rabi or kharif? (5)

In which season is the sky more cloudy? In which season do crops receive more heat (light) from the sun? (6)

Which season is hotter - rabi or kharif? (Before answering this question, think in which season you wear warm clothes, cover yourself with quilts, etc.) (7)

There is one more difference between these two seasons.

You know that the length of the night changes during the course of the year. In the summer season, the nights are shorter and in the cold season they are longer. The graph below shows how

the length of the night changes over the year in Central India.
 Let us identify one more difference between the rabi and kharif seasons from this graph.

How long (many hours) are the nights in July? (8)

How long (many hours) are the nights in November? (9)

On the basis of the answer to these two questions, can you tell whether the length of the nights, increases or decreases during the kharif season? (10)

In the same way, can you tell whether the length of the nights increases or decreases during the rabi season. (11)

Enter your answers in Table 1

Write a summary

On the basis of the information in the table, list the differences between the rabi and kharif seasons. (12)

Now that you have identified several differences between the rabi and kharif seasons, let us try and understand why wheat is cultivated only in the rabi season.

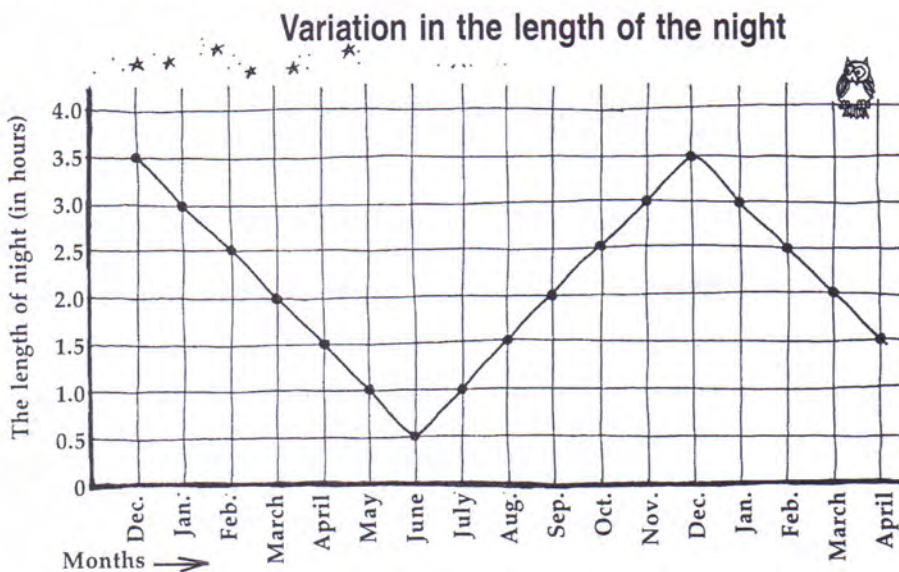
You know that we grow wheat to harvest its grain. The wheat grain is the wheat seed.

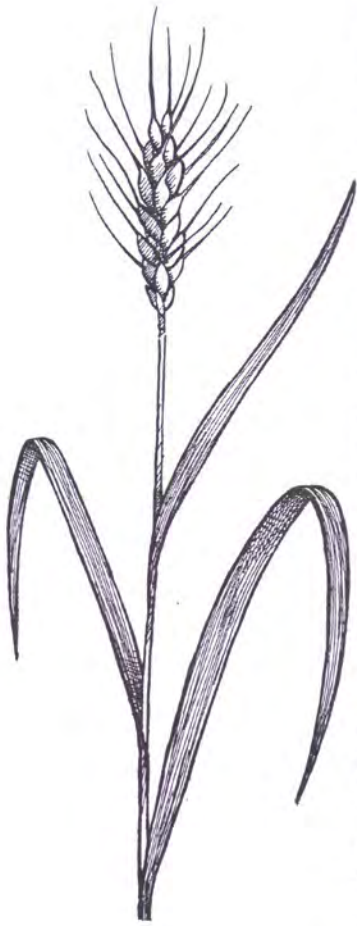
Can a plant produce seeds without flowering? (13)

Two conditions for flowering

Scientists did a lot of experiments with plants and discovered some interesting facts about flowering. They found out that plants can flower only if two important conditions are met with.

The first important condition is that a plant flowers only when it has reached a particular stage in its growth. For example, the plant should cross a particular height before it flowers. In some





plants, flowers appear only after the stem of the plant has developed a particular number of segments. Similarly, the wheat plant can flower only after 7 to 9 leaves emerge from its stem, not before. Only after this condition of minimum growth is met with, is the wheat plant ready to flower.

It takes about 8 to 10 weeks after the wheat seed is sown for 7 to 9 leaves to grow. In other words, the wheat plant is ready to flower after 8 to 10 weeks. But there is one more condition to be met with, before the flowers appear.

This second condition is related to the length of the night. Flowers appear on the wheat plant only when the nights are shorter than 12.5 hours. As long as the nights are longer than 12.5 hours, the wheat plant does not flower.

Look at the graph and find out when this condition is met with. That is, when is the length of the night less than 12.5 hours? (14)

Suppose a farmer sows his wheat seeds in September. Can he expect flowers to appear on the wheat plant after 8 to 10 weeks, that is, in December? Give reasons for your answer. (15)

Another farmer thought that since the wheat plant blossoms only when the nights are shorter than 12.5 hours, why not sow the wheat seeds in January?

Do you think the wheat plants will flower in February? Give reasons for your answer. (16)

If wheat is sown in kharif, what would happen?

Can you now say why wheat cannot be sown in the kharif season? (17)

Let us examine this question in a little more detail.

For the wheat plant to flower, the nights should be shorter than 12.5 hours.

Check in the graph to see in which months this condition is met with. (18)

Suppose a farmer sows wheat in July. It requires 8 to 10 weeks of growth to be ready to flower. This situation would occur in October.

Look at the graph and say whether the nights in October are longer or shorter than 12.5 hours. (19)

Under these circumstances, can wheat be grown in July? (20)

One more fact

While studying the differences between the rabi and kharif seasons, you had also seen which season is hotter and which is colder. If the temperature is high, the growth of the wheat plant is affected. In the early stages of growth, the wheat plant requires cool weather. If the temperature is high, the wheat seeds may not germinate.

If wheat is sown in July, will the seeds face any problem? (21)

We have studied and analysed why wheat is grown in the rabi season. So you can see that farmers too, study and analyse crops before deciding which crop to grow when.

We saw what problems would occur if we sowed wheat in July. There is one more problem. The wheat plant requires higher temperatures for the grain to form. Suppose the wheat is sown in July and the plants flower in October.

Which season follows after October - the hot season or the cold season? (22)

So, can the wheat grain form after it flowers in October? (23)

Can you now explain in your own words, why the wheat crop should be sown in the rabi season? (24)

The length of the night and flowering

We saw in this chapter that there are two important conditions for a plant to flower. One is the stage of growth of the plant and the other is the length of the night. The effect of the length of the night is different for different plants.

Some plants flower only when the length of the night is less than a particular limit. We saw that this limit is 12.5 hours for wheat. Such plants are called **short-night plants**. There are some plants which flower only when the night is longer than a particular limit. If the nights are shorter than this limit they do not flower. Cotton is an example of such a plant. They are called **long-night plants**. In addition, there are other plants which are not affected by the length of the night. They flower throughout the year or at different times of the year. Soyabean is an example of such a plant. They are called **night-neutral plants**. Can you say what kind of plants the following are:

Mango	Sunflower	<i>Gulmohar</i>	Marigold
Flame of the Forest	<i>Gokhru</i>	<i>Chandni</i>	<i>Gultevdi</i>
<i>Neem</i>	Tamarind		

In this chapter, we studied one question related to our crops. In Class 8, we shall try to find an answer to another important question about plants. That question is: What are the ways of increasing the productivity of crops?

Some questions for revision

1. In Madhya Pradesh, the nights are shorter than 12.5 hours from February. In Uttar Pradesh, this situation comes a little later in March. On the basis of this information, can you tell when wheat is ready for harvesting in these two states?

New words

Rabi	Kharif	Short-night plants	Long-night plants
Night-neutral plants			