Unit 5

Fertility of the Soil

We are familiar with the soil. Soil is very important for us. Write a short note about soil after discussing it with your friends.

Soil is chiefly used for agriculture. **Soil having required nutrients is called fertile soil.** Soil should be tested at regular intervals to increase and maintain its fertility.

Soil-testing :

Visit your village-volunteer with your teacher and collect information regarding testing of the soil.
(In absence of village-volunteer you may engage any farmer or a person related to the agriculture to collect above said information.

What is soil-testing ?

What are the methods of soil-testing ?

After how much interval of time, soil-testing should be done ?

What are the benefits of soil-testing ?

Soil pH is also determined along with soil-testing. With the help of pH, we can measure the water holding capacity of the soil. pH meter is used to determine pH. To get approximate idea of pH, pH streep is used.

Soil research centers are established in every district for soil-testing and modern methods for agriculture in our state.

Visit a farmer near your house or school. Discuss about the soil and crop of your village and note down the names of those crops.

- What is ploughing ?

- What are the benefits of ploughing ?

- Which type of equipments used for ploughing ?

- What is sowing ?

- What precautions should be taken at the time of sowing ?

- Which apparatus are used during sowing ?

- What are the weeds ?

- Which harmful effects does a crop bare due to the weeds ?

- Which steps can be taken to remove the weeds ?

- What is rotation of crops ? Why does it required ?

- Which crops can be rotated ?

- What is an alternative crop ?

- What are the benefits of an alternative crop ?

- Which crops can be selected as an alternative crop ?

- Why do fertilizers added to the soil ?

- Which types of fertilizers are used generally ?

- Which types of other fertilizers can be used ?

- What are the losses to the soil by using chemical fertilizers ?

- What are the benefits to the soil by using chemical fertilizers ?

- Which steps should be taken to save the crop ?

- What is protection of crop ? How can we do that ?

Bring the book 'Soil and Agriculture' from your school library and collect more information regarding the soil.

Discuss with your teacher or parents about the production of different types of natural fertilizers.

Soil loses its fertility due to some reasons. Discuss the following question with your friends :

- Why do we clean our house and class-room daily ?

- What shall we see in the dust while we clean the floor ?

- How do the soil particles come to our house ?

You may have seen the soil particles blowing with the air. Thus, soil particles move from one place to another due to wind.

What is required ? Heap of soil, plastic bottles, needle, water, pan, cardboard, bucket.

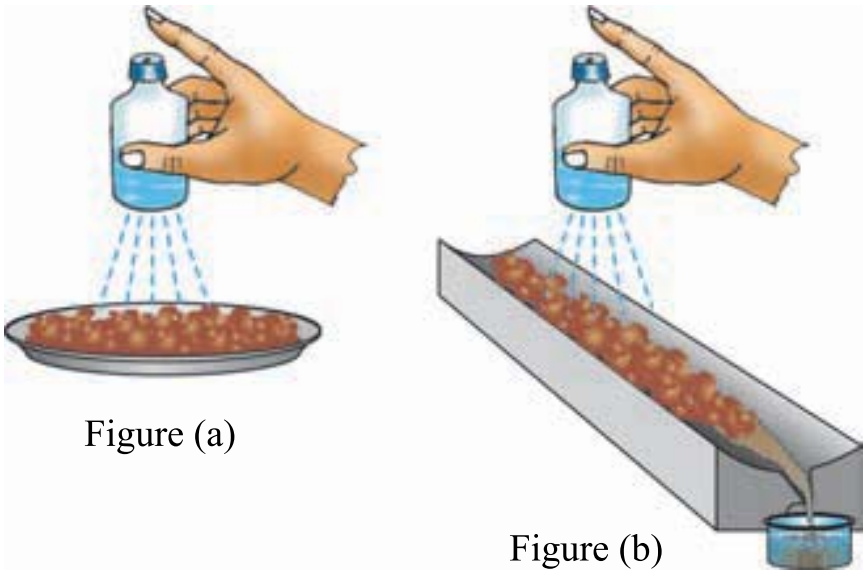


Figure (a)

Figure (b)

What to do ?

- ☞ Arrange all equipments as shown in the diagram.
- ☞ Take a plastic bottle and make 8 to 10 holes at its bottom.
- ☞ Make a hole in its cap.
- ☞ Now take water in a bucket and fill the bottle by dipping it in to the bucket.
- ☞ Now close the cap of bottle keeping it under the water.

☞ Put your finger on the hole of the cap of the bottle.

☞ Now, remove your finger from the hole as shown in the figure (a) and let the water drop on the heap of soil kept in the pan.

☞ What happens to the heap of soil when water drops on it.

- Whether soil particles become free from one another ? Yes / No

- Now, repeat this activity with the heap of soil kept on the slanting card board as shown in the diagram (b).

- Now, observe the water gathered in the pan.

- Which type of water was there that you poured on card board.

- Which type of water accumulated in the pan ?

- Why did the water in the pan become turbid ?

- How did the sand come into the pan ?

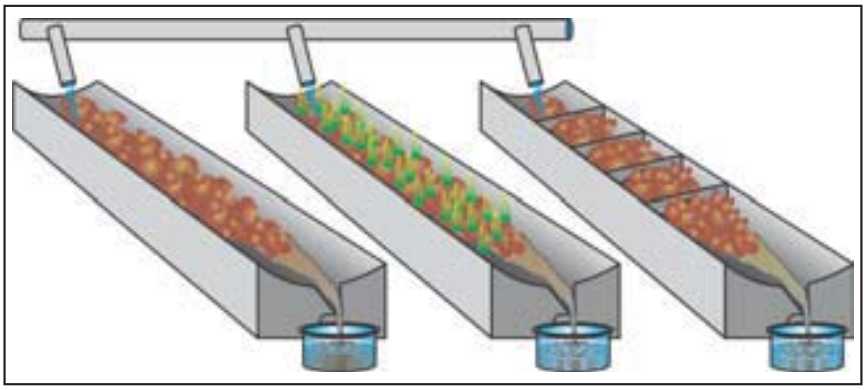
Removal of soil particles due to natural factors such as wind, rain and running water is called soil-erosion.
It reduces the soil-fertility. Hence soil-erosion must be prevented.

Measures to prevent soil erosion :

What is required ? Three cubical boxes of card-board, green grass with soil, water and three glass beakers.

What to do ?

- ☞ First of all, fill all the three boxes with equal amount of soil.
- ☞ In any one out of three boxes, put the green grass with soil.
- ☞ Make horizontal steps in the second box.
- ☞ Arrange all the three boxes on a slope as shown in the diagram.
- ☞ Pour equal amount of water in each box simultaneously.
- ☞ Collect the water coming out of the each box in separate beakers.



- ● Observe the water coming out of the each box in separate beakers.
- ● Which type of water is collected in each of three beakers ?

- ● In which beaker there is the cleanest water ?

- ● In which beaker there is the most turbid water ?

- ● Which soil shows least soil-erosion ?

- ● Which soil shows most soil-erosion ?

- How does soil erosion can be prevented by growing trees ? Discuss it with your friend and teacher ?

Soil erosion can be prevented by proper irrigation method.

Earthen pot irrigation :

It is most useful method for irrigation of fruit crops. A quite deep pit is made near the roots of plant. Make some pores either at the base or make pores in such a way that the pores remain towards the plant and put this earthen pot in the pit, in such a way that the mouth of pot remains towards the upper side. The remaining pit is filled with the soil. Plants are provided water by filling this pot. This irrigation method saves the water as well as time.

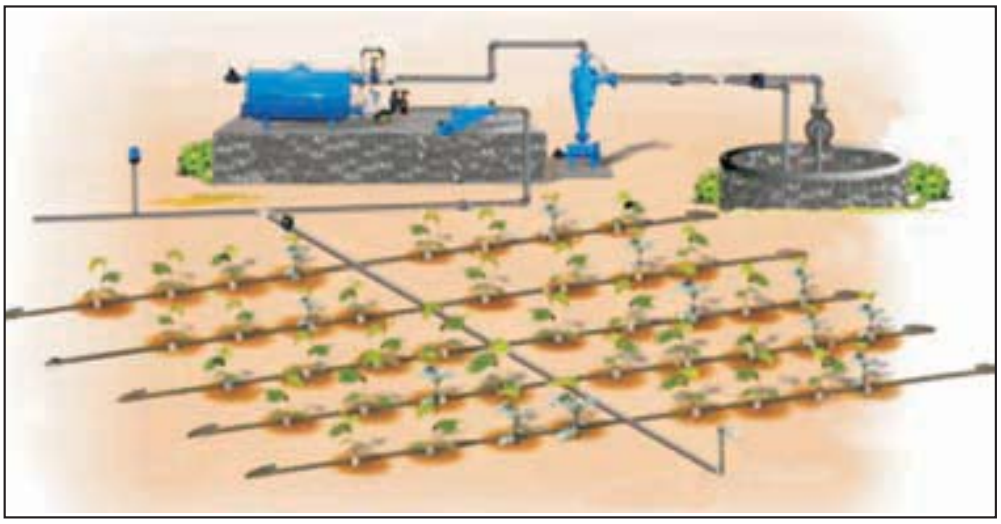
Channel (Nick / Dhoria) irrigation method :

In this method a nick is prepared in the farm and water is given to the crop by it.

It is very popular method but it invites huge wastage of water.

Drip irrigation method :

A pipe with holes toward the roots of each plant is fitted in each row of crop. Each plant gets water drops by the pipe.



This irrigation uses minimum amount of water. Weeds do not get water. As a result weeds cannot grow. Plants can grow better because it gets enough quantity of water. This method is useful even in uneven soil. This method is very useful in hilly regions.

Bring books named 'Soil and Irrigation' and 'Speciality of District' from your school library and gather more information about the irrigation.

Q.1 Which methods should we adopt to control soil-erosion ?