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# Sanjiv Refresher

# Science

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Class VIII

Based on Latest NCERT Textbook


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# Syllabus

No.	Chapter/Unit	Objectives
1.	Crop Production and Management	Understand the process and concept of crop production and management.
2.	Microorganisms : Friend and Foe	Learn about the useful and harmful Micro organisms.
3.	Coal and Petroleum	Learn about the fuels and their characteristics.
4.	Combustion and Flame	Understand chemical reactions.
5.	Conservation of Plants and Animals	Understand the importance of conservation of biodiversity.
6.	Reproduction in Animals	Understand Sexual reproduction and endocrine system in animals.
7.	Reaching the Age of Adolescence	Study of secondary sexual characters.
8.	Force and Pressure	Observing and analysing the relation between force and motion in a variety of daily-life situations and Idea of pressure; pressure exerted by air/liquid; atmospheric pressure.
9.	Friction	Understand the concept of friction and factors affecting friction.
10.	Sound	Learn about the types, sources and characteristics of sound.
11.	Chemical Effects of Electric Current	Understand electric current and circuits.
12.	Some Natural Phenomena	Understand about some natural phenomena like Rain, thunder and lightning.
13.	Light	Learn about the characteristics and observations of the process of light and reflection.



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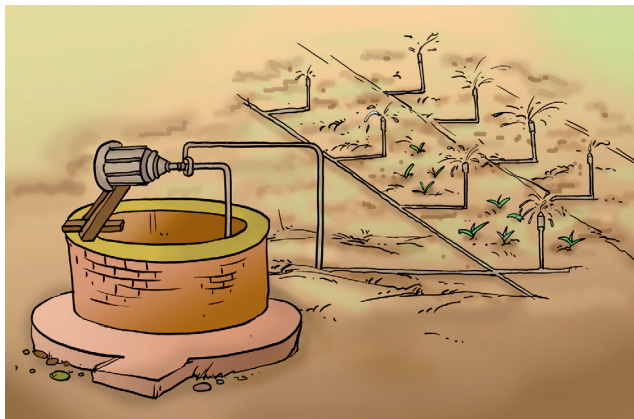
# Crop Production and Management

## Summary

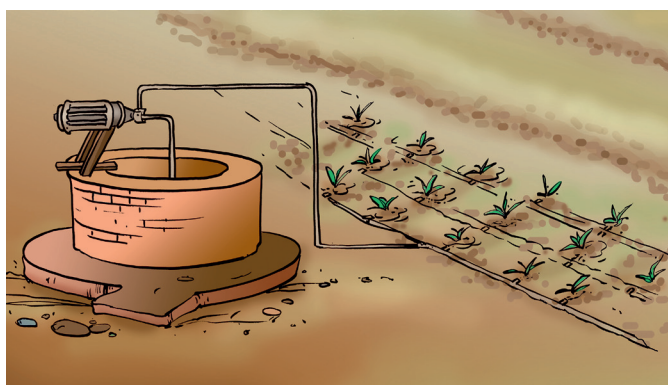
- All living organisms require food. Plants can make their food themselves.
- Energy from the food is utilised by organisms for carrying out their various body functions, such as digestion, respiration and excretion.
- In order to provide food for a large population – regular production, proper management and distribution is necessary.
- When plants of the same kind are cultivated at one place on a large scale, it is called a crop. For example : crop of wheat means that all the plants grown in a field are that of wheat.
- Crops are of different types like cereals, vegetables and fruits. These can be classified on the basis of the season in which they grow.
- The crops which are sown in the rainy season are called kharif crops. The rainy season in India is generally from June to September. Paddy, maize, soyabean, groundnut and cotton are kharif crops.
- The crops grown in the winter season (October to March) are called rabi crops. Examples of rabi crops are wheat, gram, pea, mustard and linseed.
- Cultivation of crops involves several activities undertaken by farmers over a period of time. These activities or tasks are referred to as agricultural practices which are listed below :
  - (i) Preparation of soil (ii) Sowing (iii) Adding manure and fertilisers (iv) Irrigation (v) Protecting from weeds (vi) Harvesting (vii) Storage.
- One of the most important tasks in agriculture is to turn the soil and loosen it. This allows the roots to penetrate deep into the soil. The loose soil allows the roots to breathe easily even when they go deep into the soil.
- Since only a few centimetres of the top layer of soil supports plant growth, turning and loosening of soil brings the nutrient-rich soil to the top so that plants can use these nutrients.
- The process of loosening and turning of the soil is called tilling or ploughing. This is done by using a plough.

- The ploughed field may have big clumps of soil called crumbs. It is necessary to break these crumbs. Levelling the field is beneficial for sowing as well as for irrigation. Levelling of soil is done with the help of a leveller.
- Manure is added to the soil before tilling. This helps in proper mixing of manure with soil. The soil is moistened before sowing.
- The indigenous wooden plough is increasingly being replaced by iron ploughs nowadays.
- Nowadays ploughing is done by tractor-driven cultivator. The use of cultivator saves labour and time.
- Before sowing, good quality, clean and healthy seeds of a good variety – are selected. Farmers prefer to use seeds which give high yield.
- Seed drill sows the seeds uniformly at equal distance and depth. It ensures that seeds get covered by the soil after sowing. This protects seeds from being eaten by birds.
- Appropriate distance between the seeds is necessary to avoid overcrowding of plants. This allows plants to get sufficient sunlight, nutrients and water from the soil.
- The substances which are added to the soil in the form of nutrients for the healthy growth of plants are called manure and fertilisers.
- Continuous cultivation of crops makes the soil poor in nutrients. Therefore, farmers have to add manure to the fields to replenish the soil with nutrients. This process is called manuring.
- Fertilisers are chemicals which are rich in a particular nutrient. Fertilisers are produced in factories. Some examples of fertilisers are – urea, ammonium sulphate, super phosphate, potash, NPK (Nitrogen, Phosphorus, Potassium).
- Excessive use of fertilisers has made the soil less fertile. Fertilisers have also become a source of water pollution. Therefore, in order to maintain the fertility of the soil, we have to substitute fertilisers with organic manure or leave the field uncultivated (fallow) in between two crops.
- The use of manure improves soil texture as well as water retaining capacity. It replenishes the soil with nutrients.
- Another method of replenishing the soil with nutrients is through crop rotation. This can be done by growing different crops alternately.
- The organic manure is considered better than fertilisers.
- Water is absorbed by the plant roots. Along with water, minerals and fertilisers are also absorbed. Plants contain nearly 90% water.
- Water is essential because germination of seeds does not take place under dry conditions.
- The supply of water to crops at regular intervals is called irrigation. The time and frequency of irrigation varies from crop to crop, soil to soil and season to season.
- Traditional methods of irrigation are cheaper, but less efficient. The various traditional ways are : (i) moat (pulley system), (ii) chain pump, (iii) *dhekli*, (iv) *rahat* (lever system).
- Pumps are commonly used for lifting water. Diesel, biogas, electricity and solar energy is used to run these pumps.

- Modern methods of irrigation help us to use water economically. The main methods used are as follows : (i) Sprinkler System, (ii) Drip System.



**Fig. : Sprinkler System**



**Fig. : Drip System**

- In a field many other undesirable plants may grow naturally along with the crop. These undesirable plants are called weeds.
- The removal of weeds is called weeding. Weeding is necessary since weeds compete with the crop plants for water, nutrients, space and light. Thus, they affect the growth of the crop. Some weeds interfere even in harvesting and may be poisonous for animals and human beings.
- Weeds are also controlled by using certain chemicals, called weedicides, like 2,4-D. These are sprayed in the fields to kill the weeds. They do not damage the crops.
- Harvesting in our country is either done manually by sickle or by a machine called harvester.
- A machine called 'combine' which is in fact a harvester as well as a thresher.
- Farmers with small holdings of land do the separation of grain and chaff by winnowing.
- Storage of produce is an important task. If the harvested grains are to be kept for longer time, they should be safe from moisture, insects, rats and microorganisms.



**Fig. : Combine**

- Before storing the grains are properly dried in the sun to reduce the moisture in them. This prevents the attack by insect pests, bacteria and fungi.
- Farmers store grains in jute bags or metallic bins. However, large scale storage of grains is done in silos and granaries to protect them from pests like rats and insects.
- Dried neem leaves are used for storing food grains at home. For storing large quantities of grains in big godowns, specific chemical treatments are required to protect them from pests and microorganisms.
- We get cod liver oil from fish which is rich in vitamin D.
- Food is also obtained from animals for which animals are reared. This is called animal husbandry.



### KEY TERMS AND DEFINITIONS

- **Crop** : Plants of the same kinds are grown and cultivated at one place on a large scale.
- **Kharif crops** : Crops that are grown in rainy season during June-September are known as Kharif crops. For example : Rice, maize, groundnuts, soyabean, etc.
- **Rabi crops** : Crops that are grown in winter season during October-March are known as Rabi crops. For example : Wheat, gram, peas, mustard, linseed, etc.
- **Agriculture practices** : Various activities done by farmer over a period of time for cultivation of crops, these activities are referred to as agricultural practices.
- **Plough** : It is a tool used for tilling/loosening and turning of the soil, adding fertilizers in the crop, and removing the weeds.
- **Sowing** : It is the process of planting seeds in the soil.
- **Fertilisers** : Fertilisers are chemicals which are rich in a particular nutrient. For example : Urea, Super phosphate, NPK (Nitrogen, Phosphorus, Potassium).
- **Irrigation** : The supply of water to crops at regular intervals is called irrigation.
- **Seeds** : Seeds are the small, hard part of plant containing an embryo and capable of germination to produce a new plant.



- **Storage** : Storage is a process of keeping grains safe from moisture, rodents, insects, etc. for longer time.
- **Weeds** : Unwanted or uncultivated plants that grow naturally in the field are called weeds.
- **Threshing** : Separation of the grains from chaff.
- **Silos** : Silos are tall tower or pit on a farm built to store grains.
- **Animal husbandry** : The process of breeding, rearing and caring of farm animals to get food from them.
- **Manure** : Natural substance (organic) obtained from decomposed animal waste and plant residue that provide humus to soil.
- **Granaries** : Granaries are large rooms built above ground level to prevent rodents and pets from attacking the grains.
- **Harvesting** : Crop cutting after maturity of crop is called harvesting.
- **Weedicides** : The chemicals used to control or destroy the weeds are called weedicides. For example : 2,4-D (2,4-dichlorophenoxyacetic acid), metolachlor.
- **Winnowing** : Process of separating grain and chaff is called winnowing.

### Activity 1.1

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Take a beaker and fill half of it with water. Put a handful of wheat seeds and stir well. Wait for some time.

**Q. 1.** Are there seeds which float on water?

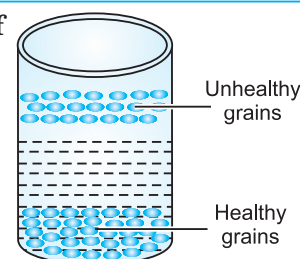
**Ans.** Yes, there are few seeds which floats on water.

**Q. 2.** Would those be lighter or heavier than those sink?

**Ans.** They would be lighter because heavier things settle at the bottom of the liquid or water.

**Q. 3.** Why would they be lighter?

**Ans.** The seeds which floats on the surface of water are damaged seeds. They become hollow and lighter in weight.

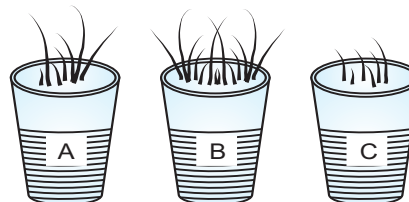


**Fig. : Separating healthy seeds from unhealthy seeds**

### Activity 1.2

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Take *moong* or gram seeds and germinate them. Select three equal sized seedlings. Take three empty glasses or similar vessels. Mark them A, B and C. To glass A add little amount of soil mixed with little cow dung manure. In glass B put the same amount of soil mixed with little urea. Take the same amount of soil in glass C without adding anything. Now pour the same amount of water in each glass and plant the seedlings in them. Keep them in a safe place and water them daily. After 7 to 10 days, observe their growth.



**Fig. : Growing seedlings with manure and fertiliser**