

CROP PRODUCTION AND MANAGEMENT

Food is a substance that provides us energy to do work grow, remain healthy and protects the body against various diseases and infections. It can be of plant origin or animal origin.

Crops

When plants of same type are grown and cultivated in a field at large scale, it is called a crop and the pattern of growing such crops is called cropping pattern, e.g. wheat crop, paddy crop, etc. The two broad cropping patterns are

- (i) **Kharif Crops** The crops that are sown in rainy season are called kharif crops or summer crops. These are sown in June-July and harvested at the end of monsoon season, i.e. during September, e.g. paddy (rice), maize, cotton, groundnut, millets, etc.
- (ii) **Rabi Crops** The crops that are grown in winter season are called rabi crops or winter crops. These are sown during October-November and harvested by the end of March, till April end e.g. wheat, gram, pea, mustard and linseed.

Agricultural Practices

Cultivation of crops involves several activities undertaken by farmers over a period of time. These activities or tasks are referred to as agricultural practices.

1. Preparation of Soil

Soil is prepared by sowing seeds by two major methods

All methods of growing crop are discussed in this chapter. Rabi and kharif crops are two main crops in India is produce food. Balance diet is needed by human beings to remain healthy.

(a) Ploughing

- The process of loosening and turning the soil is called ploughing or tilling. It is done by using a plough.
- It is beneficial as it helps the roots to penetrate deeper in the soil, breathe easily, removes weeds. It turns the soil to enrich it with nutrients.

(b) Levelling

- The ploughed soil becomes loose, therefore to prevent soil erosion, the ploughed soil is levelled by pressing it with a wooden or iron leveller.
- Levelling also helps in the uniform distribution of water in the fields during irrigation.

2. Agricultural Implements

The agricultural practices are done by using various tools. These tools are called agricultural implements. These include plough and seed drill cultivator.

3. Sowing

It is the process of scattering or putting seeds into the soil, so as to grow a new crop plant. It is done with the help of traditional tools (funnel-shaped tool) and seed drill (mechanical method of sowing using a tractor).

4. Adding Manure and Fertilisers

Some substances are added in the soil to provide nutrients to the plant for their healthy growth. These are called as manure and fertilisers.

- **Manures** are organic substances derived from the decomposition of plant and animal wastes like cow dung, urine, etc. Plant and animal wastes are dumped in pits at open places and allowed it to decompose by some microorganisms. The decomposed matter is used as organic manure.
- **Fertilisers** are chemical substances which are rich in a particular nutrient, *e.g.*, urea, ammonium sulphate, potash, etc.

5. Irrigation

- To maintain the moisture of the soil the fields are watered regularly. This process of supplying water at regular intervals is called irrigation.
- The sources of water for irrigation are wells, tubewells, ponds, lakes, rivers, dams and canals.
- The traditional methods of irrigation involve moat or pulley system, dhekli and chain pump, etc. The modern methods of irrigation involve sprinkler system and drip system.

6. Protection from Weeds

- While the plants are grown in the field, many small, unwanted plants also germinate and grow in the field along with the crop plant. These unwanted, wild plants that grow along with the cultivated crops are called weeds.
- Many methods are adopted by farmers to remove these weeds and to control their growth. These methods include tilling, using hoe spraying of weedicides like 2-4, D and manually removing them by hands.

7. Harvesting

When crops get matured, they are cut and gathered. This process is called crop harvesting. It occurs in following steps

- Crop is harvested by pulling it out or by cutting it close to the ground. It is either done manually by sickle or by a machine called harvester.
- After that grain seeds are separated from the chaff. It is called threshing. This is carried out with the help of a machine called combine which is a combination of harvester and thresher.
- Then the grains are separated from chaff by the process called winnowing.

8. Storage

- Since the crops/grains have to be kept for longer time, they should be safe from moisture, insects, microorganisms, etc. Therefore, the harvested and cleaned grains are first dried to evaporate moisture.
- It is followed by spraying of insecticides and rodenticides to protect it from rats and insects. After that, the grains are stored in jute bags or metallic bins (silos) and in big godowns).

Food From Animals

- Some animals are reared at home or in farms for their products. When this is done at large scale it is called animal husbandry. We get milk, eggs, ghee, butter, meat, etc from different animals.
- At large scale, grains are stored in silos and granaries to protect them from pests. The big containers that are used for the storage of grains in large quantities are called silos. They protect the stored grains from pests and insects.

Components of Food

Our food is usually made up of one or more ingredients, which we get from plants or animals. These are called nutrients as these provide nourishment to our body.

The nutrients present in our food are as follows

Component	Characteristic	Source
1. Carbohydrates	<ul style="list-style-type: none"> • Main source of energy. • Mainly obtained from plant sources. 	<ul style="list-style-type: none"> • Wheat, rice, maize, pearl millet, potato, sugar, banana, mango, etc.
2. Protein	<ul style="list-style-type: none"> • Essential for the growth and repair of the body tissues. • Can be of plant or animal origin. 	<ul style="list-style-type: none"> • Animal protein—Milk, cheese, egg, fish or meat. • Vegetable protein—Gram, moong, tuar dal, beans, peas, etc.
3. Fats	<ul style="list-style-type: none"> • Provide energy to the body. • Can be obtained from plants as well as from animals. 	<ul style="list-style-type: none"> • Animal fat—Butter, ghee, milk, egg. • Plant fat—Groundnut oil, sunflower oil, til oil, nut oil, etc.
4. Vitamins Fat soluble vitamin-A, D, E and K Water soluble vitamin-B and C	<ul style="list-style-type: none"> • Required in small quantities and essential for proper working of the body. • If lacking in food, cause deficiency diseases. 	<ul style="list-style-type: none"> • Vitamin-A—Night blindness orange, carrot, spinach. • Vitamin-D (Rickets)—Fish, egg, liver. • Vitamin-E (infertility)—Many fruits and vegetables. • Vitamin-K (non-clotting of blood)—Green vegetables. • Vitamin-B (Beri-beri)—Vegetables, rice, broccoli, etc. • Vitamin-C (Scurvy)—peppers, citrus fruits.
5. Minerals	<ul style="list-style-type: none"> • Required for proper functioning, normal growth and good health. 	<ul style="list-style-type: none"> • Spinach (Fe), salt (NaCl).
6. Roughage	<ul style="list-style-type: none"> • Reduces the risk of heart disease and bowel cancer. 	<ul style="list-style-type: none"> • Whole grain, pulses, potatoes, fresh fruits, salads etc.

PRACTICE EXERCISE

1. Kharif crops are grown in
 (a) winter season (b) rainy season
 (c) summer season (d) Both (a) and (b)
2. Identify the kharif crop from the following.
 (a) Groundnut (b) Wheat
 (c) Pea (d) Mustard
3. Rabi crops are grown during
 (a) June – July
 (b) January – February
 (c) August – September
 (d) October – November
4. Among the following rabi crop is
 (a) wheat (b) cotton
 (c) millet (d) maize
5. Identify the correct set of rabi crops.
 (a) Wheat, gram, pea
 (b) Groundnut, mustard, soybean
 (c) Millet, paddy, pea
 (d) Mustard, linseed, cotton
6. Ploughing is a method of preparing soil. It is beneficial as
 (a) it removes weeds
 (b) helps roots of penetrate deeper
 (c) helps roots to breathe easily
 (d) All of the above
7. Ploughing is the process of
 (a) loosening and turning the soil
 (b) levelling of soil
 (c) watering the crop
 (d) None of the above
8. The process of scattering or putting seeds into the soil is called
 (a) irrigation (b) ploughing
 (c) sowing (d) levelling
9. The modern method of sowing seeds is
 (a) funnel (b) seed-drill
 (c) plough (d) tilling
10. In seed-drill, sowing is done with the help of
 (a) funnel (b) plough
 (c) tractor (d) leveller
11. Manures all
 (a) organic substances
 (b) inorganic substances
 (c) salts
 (d) Both (a) and (b)
12. Manures are derived from the decomposition of
 (a) cow dung (b) wine
 (c) dead leaves (d) All of these
13. The chemical substances rich in particular nutrients are called
 (a) manures
 (b) fertilisers
 (c) decomposed matter
 (d) None of the above
14. Which of the following is not true for fertilisers?
 (a) They increase the yield
 (b) Their excessive use disturbs the balance of nutrients in soil
 (c) They are generally used in small quantity
 (d) They are environment friendly
15. Watering the crops is called
 (a) sowing (b) manuring
 (c) tilling (d) irrigation
16. The system of irrigation where water is supplied drop by drop near the roots of plants, is called
 (a) pulley system (b) drip system
 (c) sprinkler system (d) lever system
17. Weeds are the
 (a) main crop plants
 (b) insects and pests
 (c) unwanted plants growing along the crop
 (d) chemical substances

- 18.** Which of the following tools would a farmer use to remove weeds from the field?
 (a) Leveller (b) Plough
 (c) Trowel (d) Cultivator
- 19.** 2,4-D is a
 (a) pesticides (b) insecticides
 (c) fungicides (d) weedicides
- 20.** The term used for the process of separation of grains from chaff is
 (a) sieving (b) winnowing
 (c) threshing (d) hand picking
- 21.** Threshing is carried out with the help of a machine called
 (a) thresher (b) harvester
 (c) combine (d) plough
- 22.** The big containers that are used for the storage of grains in large quantities are called
 (a) silos (b) bags
 (c) cold house (d) None of these
- 23.** Milk yielding animals are called
 (a) milch animals
 (b) drought animals
 (c) broilers
 (d) layers
- 24.** The main source of energy in our food is
 (a) protein (b) carbohydrate
 (c) fats (d) vitamin
- 25.** Food component essential for the growth and repair of the body tissues is
 (a) carbohydrate (b) protein
 (c) roughage (d) minerals
- 26.** Food component that provides energy is
 (a) carbohydrate
 (b) fat
 (c) protein
 (d) Both (a) and (b)
- 27.** Deficiency of vitamin-C causes
 (a) anaemia (b) rickets
 (c) scurvy (d) xerophthalmia
- 28.** Water soluble vitamins are
 (a) vitamin-A and D (b) vitamin-E and K
 (c) vitamin-B and C (d) None of these
- 29.** A good source of vitamins of B group is
 (a) carrot
 (b) fish oil
 (c) germinated seeds
 (d) egg yold
- 30.** Tocopherol is the chemical name of
 (a) vitamin-B (b) vitamin-E
 (c) vitamin-C (d) None of these

Answers

1	(b)	2	(a)	3	(d)	4	(a)	5	(a)	6	(d)	7	(a)	8	(c)	9	(b)	10	(c)
11	(a)	12	(d)	13	(b)	14	(d)	15	(d)	16	(b)	17	(c)	18	(c)	19	(d)	20	(b)
21	(c)	22	(a)	23	(a)	24	(b)	25	(b)	26	(d)	27	(c)	28	(c)	29	(c)	30	(b)