

## Crop Production and Management

### Crop Introduction

#### INTRODUCTION

- (i) **Cereals:** These are rich in carbohydrate and thus provide energy. eg. – Rice, wheat, maize, sorghum, barley, millets.
- (ii) **Pulses :** These are rich in protein and thus helpful for body building. eg. – Gram, moong, pea, lentil, urd, pigeon pea.
- (iii) **Oil seed crops :** These are rich in oil and fatty acids. eg. – Groundnut, sunflower, soyabean, mustard, sesame.
- (iv) **Vegetable crops:** These provide vitamins, minerals along with small quantities of carbohydrate protein and oils.

- All organisms require food for their growth and survival.
- Food is the combination of various organic and inorganic substances which are capable of providing energy for the various metabolic activities.
- In all cases the food for animals comes directly or indirectly from plants.

#### SOURCES OF FOOD

**Leaves :** Cabbage, spinach, trigonella, lettuce

**Roots :** Carrot, radish, turnip, sweet potato

**Stems :** Potato, corms, rhizomes (ginger)

**Bulbs :** Onion, garlic

**Fruits :** Tomato, brinjal, gourd, cucumber

**Flowers :** Cauliflower, bauhinia, banana

COMPETITION WINDOW
<b>Plantation crops :</b> these crops are grown for commercial purposes which increase cash. <b>Eg. Tea, Coffee, Rubber, Coconut.</b>
<b>First cultivated crops were cereals such as rice, wheat, barley and corn.</b>

(v) **Fodder crops:** These provide green fodder to the cattle. eg. – Berseem, sorghum, maize, oat, Sudan grass, alfalfa.

❖ **Crops:** Plants of same kind which are grown and cultivated at one place on a large scale are known as crops.

- Different types of crops require different climatic conditions like temperature, humidity and photoperiods.
- Crops are divided into two groups on the basis of growing season.
- Kharif crops : These crops are sown in the months of June/July and harvested in September/October every year.

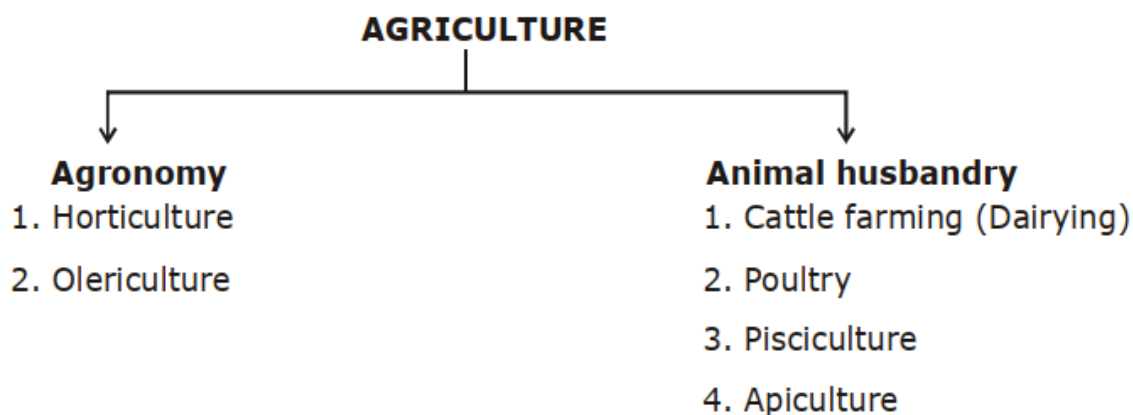
eg- Paddy, maize, sugarcane, sorghum, pearl millet.

- Rabi crops : These crops are sown in the months of October/November and harvested in March/April every year.

eg- Wheat, oat, barley and pea.

❖ **Agriculture:** – Word agriculture has come from two Latin words, ager meaning field or soil : culture meaning cultivation. Agriculture or farming is the cultivation of the soil. It includes growing of plant crops and rearing of animals.

- It is an applied biological science which deals with the production of plants and raising of livestock for human use.



**CROP PRODUCTION & MANAGEMENT**

COMPETITION WINDOW
<b>Horticulture</b> is the science of growing and management of fruits and flowering plants in orchards and gardens.
<b>Olericulture</b> is the science of growing and management of vegetables.
<b>Silviculture</b> : Cultivation of wood and trees. E.g. Teakwood, Pine.
<b>Floriculture</b> is the science of growing decorative plants, specially of flowers. e.g. Rose, Jasmine, Gladioli, marigold.

**❖ Basic requirements of agriculture:**

- An open field which gets plenty of sunlight and air.
- Properly loosened and aerated soil in the fields.
- Sufficient source of water for irrigation.
- Proper nutrients for the growth of plants.
- Removal of weeds which use up the nutrients in the soil.
- Proper fencing of the field towards off grazing animals.

**❖ Modern agriculture:** – Modern agriculture is a combined effort of art, science and technology to provide food, cloth and shelter to increasing human population. To improve the efficiency of the agriculture process and increase output following steps are taken:

- Highly efficient tools and machines are made and used.
- Building of dams and canals for irrigation.
- Development of pest resistant and high yielding variety.
- Use of fertilizers and pesticides for nutrition and protection of crop respectively.

- ❖ **Sustainable agriculture:** The practice of farming and production of maximum agriculture yield through management of natural resources without disturbing the environment is known as sustainable agriculture.

**AGRICULTURE PRACTICES:** Activities which are carried out by the farmer to ensure good crop yield in particular sequence till the crop mature at harvest are known as agriculture practices.

(1) Soil preparation: (a) Ploughing (b) Levelling (c) Manuring

(2) Sowing

(3) Irrigation

(4) Weeding

(5) Harvesting

(6) Threshing

(7) Winnowing

(8) Storage.

**(1) SOIL PREPARATION** Various process are included in it.

**(a) Ploughing or Tilling** – Process of loosening and turning of the soil is called ploughing or tilling.

**(b) Levelling** : Tilled soil may have big blocks of soil (crumbs). Crumbs are broken down and soil is levelled with wooden planks or iron leveller, the process called levelling. Levelling is done for better sowing and irrigation.

**(c) Manuring** : Farmers have to add manure to the field to replenish the soil with nutrients, the process known as manuring.

**(2) SOWING** The process of putting the seeds in the soil is known as sowing. Before sowing good quality (healthy and good variety) seeds are selected.

**(3) IRRIGATION** : The process of artificial supplying of water to crop at different intervals is called irrigation. The time and frequency of irrigation varies from crop to crop, soil to soil and season to season

**(4) WEEDING** : Removal of weeds or undesirable plants is called weeding. It can be done by khurpa (trowel) and Harrow.

**(5) HARVESTING:** The cutting and gathering of crops after its maturation is called harvesting. It can be done manually by sickle or by a machine called harvester.

**(6) THRESHING:** The process of beating out the grain from the crop is called threshing. It can be done by threshers.

**(7) WINNOWING :** The process of separating the grains from the chaff is called winnowing.

**(8) STORAGE :** Proper storage is necessary to get seasonal food regularly throughout the year.

Freshly harvested grains have more moisture. If freshly harvested grains are stored without drying, then they may get spoil and lost their germination capacity. Hence before storing them the following precautions must be undertaken.

### CROP IMPROVEMENT

- ❖ **Green revolution** :— Yield of crop per hectare greatly increased due to the use of genetically improved variety of seeds.
  - Developed new varieties of rice, wheat and maize increased food production of India.
  - The desirable superior character in a variety can be incorporated through various methods of genetic improvement of crops like plant breeding and genetic engineering.
- ❖ **Plant breeding:** The science of improving crop varieties is called plant breeding. These involve introduction, selection of plant and than hybridization.
- ❖ **Cropping patterns** : Different ways of growing crops can be adopted to get maximum benefit.
  - (a) Mixed cropping** : The growing of two or more types of crops on same field is called mixed cropping. The products and wastes from one crop can stimulate the growth of other crop in it.
  - (b) Intercropping** : The growing of two or more crops grown in a definite row pattern is called intercropping.
  - (c) Crop rotation** : The process in which different crops are grown alternately in the same field is called crop rotation.

### COMMON DISEASES OF CROPS

Crop plants can be destroyed by a variety of disease-causing organisms. The crop diseases can be divided into four major categories.

- (i) Seed borne diseases: Caused by fungi generally and spread through seeds. e.g. Ergot of bajra.
- (ii) Soil borne diseases: Spread through soil. e.g. Smut of bajra.
- (iii) Air borne diseases: Spread through air. e.g. Rust of wheat. Water borne diseases: Spread through water. e.g. Bacterial blight of rice.