Food Resources

(English Medium)

Exercise 82:

Solution 1.1:

C. Both (A) and (B)
Fertilisers are chemical substances and manures are organic compounds that can be used to provide nutrients to the crops.

Solution 1.2:

B. Weeds
Weeds are unwanted plants on agricultural land. They compete with agricultural plants for food, space and light and decrease the crop yield.

Solution 1.3:

C. Zinc
Zinc is used by plants in a very small quantity and is therefore a micronutrient.

Solution 1.4:

C. Canal system
Canal irrigation system is a good arterial distribution system which can be controlled by rotating the supply of water in different fields. This is of great advantage when water supply is short.

Solution 1.5:

B. 13
Soil provides plants with 6 macronutrients and 7 micronutrients essential for their growth and development.

Solution 1.6:

B. Water
Air, water and soil are the sources of nutrients for plants. Air provides with carbon and oxygen.
Water provides with hydrogen.
Soil provides with minerals like nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, iron, boron, zinc, copper, molybdenum and chlorine.

Solution 1.7:

A. Ectoparasites
Ticks and mites adhere on the skin of cattle and horses and cause skin diseases.

Solution 1.8:

B. Mehsana
The Mehsana breed of buffalo, native of Mehsana and Vadodara districts of Gujarat gives 1200 to 2500 litres of milk during lactation period.

Exercise 83:

Solution 1.9:

D. Apis mellifera
Apis mellifera gives a high yield of honey and hence, is used for apiculture.

Solution 1.10:

C. Pomphret
Pomphret and Bombay duck are available in large quantities on the sea coast of Saurashtra and in Kutch of Gujarat

Solution 2.1:

We get carbohydrates from cereals, proteins from pulses and minerals, vitamins and a small amount of proteins from vegetables.

Solution 2.2:

Examples of Kharif season crops:

- Maize
- Soyabean
- Millet
- Cotton
- Urad
- Moong

Solution 2.3:

Examples of Rabi season crops:

- Wheat

- Mustard
- Peas
- Sugarcane
- Gram
- Linseed

Solution 2.4:

The following characters should be considered for selection of plant variety for crop improvement:

- High yield
- Rapid growth
- Good reproduction rate
- Resistance to disease
- Drought resistance
- High nutritional value
- Resistance to very high or very low temperature
- Low production cost

Solution 2.5:

Improved hybrid varieties of rice are

- Basmati
- Kasturi
- Sona

Solution 2.6:

Manure is defined as organic minerals of biological origin added to the soil to increase the production of crops.

Solution 2.7:

Nutrients required by plants in relatively larger quantities are called macronutrients.
Example – nitrogen, phosphorus, potassium, calcium, magnesium and sulphur.
Nutrients required by plants in smaller quantities are called micronutrients.
Example – iron, boron, manganese, zinc, copper, molybdenum and chlorine.

Solution 2.8:

Examples of phosphatic fertilisers are

- Single superphosphate
- Triple superphosphste
- Dicalcium phosphate

Solution 2.9:

Examples of complex fertilisers are

- Nitrophosphate
- Ammonium phosphate
- Urea ammonium phosphate

Solution 2.10:

The process in which two or more crops are grown together in the same piece of land is called as mixed cropping.
Example – Wheat + Gram
Maize + Urad bean

Solution 2.11:

Advantages of intercropping:

- Soil erosion is prevented.
- The produce of each of the crops can be harvested and marketed separately.

Solution 2.12:

Insect-pests cause damage to the plants in following ways:

- They scrape the root, stem and leaf.
- They suck the cell sap from the plant parts.
- They bore into stem and fruits reducing the yield.

Solution 2.13:

The place where bees are kept during apiculture is called an apiary.

Solution 2.14:

Two basic targets of poultry farming are

- Production of egg
- Production of meat

Solution 3.1:

Hybridisation is a technique of cross breeding between two or more species of a plant. This technique is used to improve genetic constitution of crop plants. Hybridisation is of three types:

- **Intervarietal Hybridisation:** When two plants belonging to two different subspecies of the same species are crossed, it is called as intervarietalhybridisation. Most of the hybrid varieties of cereals have been developed by this method. The hybrid varieties thus evolved give good yield, are resistant to disease, are of better quality and show high nutritional value.
- **Interspecific Hybridisation:** When two plants belonging to two different species of the same genus are crossed, it is called as interspecifichybridisation. Several disease, pest and drought resistance varieties of wheat, tomato and sugarcane have been developed by this method.

- **Intergeneric Hybridisation:** When two plants belonging to two different genera are crossed, it is called as intergeneric hybridisation.

Solution 3.2:

- Plants get their nutrients from air, water and soil.
- Air provides with carbon and oxygen.
- Water provides with hydrogen.
- Soil provides with minerals like nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, iron, boron, zinc, copper, molybdenum and chlorine.

Solution 3.3:

Manure is defined as organic minerals of biological origin added to the soil to increase the production of crops. It has the following effects on the soil:

- They make the soil fertile by enriching the soil with nutrients.
- Manure contains organic matter. The organic matter in manure increases the water holding capacity of the soil. Thus, they help to improve the texture of the soil by making it soft and improve the drainage in clayey soil.
- The organic matter in the manure also provides food for soil bacteria. Bacteria decompose this organic matter and make nutrients available to plants in the simplest form.

Solution 3.4:

Farmyard manure is a type of organic manure prepared by decomposition of mixture of cattle dung and urine. Small quantities of fodder and other organic matter are also added in the preparation of farmyard manure.

Solution 3.5:

Green manure is the remains of green plants left in the soil after harvesting the produce. It is a practice of growing and ploughing new crops with the previous crop remains in the soil. Green manure may include both leguminous and non-leguminous plants. Green manure helps to improve the physical structure of the soil and also, improve soil fertility.

Solution 3.6:

Grains are stored for the following reasons:

- To make use of grains for sowing in the next season.
- To make foodgrains available throughout the year.
- To maintain the price rate of agricultural products.

Solution 3.7:

Two nitrogenous fertilisers are:

- Urea
- Ammonium nitrate

Solution 3.8:

The process in which two or more crops are grown together in the same piece of land is called as mixed cropping.
Example – Wheat + Gram
Maize + Urad bean
Advantages of mixed cropping are:

- It minimises the risk of crop failure due to abnormal weather conditions.
- It helps to maintain the fertility of the soil.

Exercise 84:

Solution 3.9:

Growing one type of crop continuously in the same price for years together results in depletion of land's fertility. It results in nutrient deficiencies and an increase in crop diseases. Therefore, rotation of crops is essential.

Solution 3.10:

Weeds are unwanted plants in cultivated field that grow with the crop plants. They compete with the crop plants for nutrients and water from the soil and also for space and light. Thus, they reduce the crop yield.

Solution 3.11:

For improvement in variety of crops, new crop breeds have been produced. Selection and hybridisation are two important steps of plant breeding techniques.

Selection:

Following characters should be considered for selection of a plant variety for crop improvement:

- High yield
- Rapid growth
- Good reproduction rate
- Resistance to disease
- Drought resistance
- High nutritional value
- Resistance to very high or very low temperature
- Low production cost

Hybridisation

Hybridisation is a technique of cross breeding between two or more species of a plant. This technique is used to improve genetic constitution of crop plants. Hybridisation is of three types:

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varieties of cereals have been developed by this method. The hybrid varieties thus evolved give good yield, are resistant to disease, are of better quality and show high nutritional value.

2. Interspecific Hybridisation When two plants belonging to two different species of the same genus are crossed, it is called as interspecifichybridisation. Several disease, pest and drought resistance varieties of wheat, tomato and sugarcane have been developed by this method.
3. Intergeneric Hybridisation When two plants belonging to two different genera are crossed, it is called as intergeneric hybridisation.

Solution 3.12:

Fertilisers are artificially manufactured chemicals added to soil to increase the fertility of the soil. They contain high amount of nutrients and are therefore required to be added in small amounts. Fertilisers are divided into the following four groups based on the nutrients they provide:

1. Nitrogenous fertilisers: These fertilisers provide the macronutrient nitrogen to the plants. Examples – urea and ammonium nitrate are nitrogenous fertilisers.
2. Phosphatic fertilisers: These fertilisers provide the macronutrient phosphorous to the plants. Examples – single superphosphate, triple superphosphate and dicalcium phosphate are phosphatic fertilisers.
3. Potassic fertilisers: These fertilisers provide the macro nutrient potassium to the plants. Examples – muriate of potash and sulphate of potash are important potassic fertilisers.
4. Complex fertilisers: These fertilisers provide two or more than two nutrients to the plants. Example – Nitrophosphate, ammonium phosphate and urea ammonium phosphate.

Solution 3.13:

Irrigation systems supply water to agricultural lands during shortage of water by natural means. Different irrigation systems adopted to ensure regular water supply to agricultural lands are:

- Canal system: Small or large water reservoirs like dams, supply water to different agricultural lands through an extensive network of canals. A main canal distributes water to several branch canals, to distributaries or to channels. The water thus reaches the field in a controlled manner.
- Wells: Wells are constructed by digging the land where plenty of ground water is available. There are two types of wells viz; Dug wells and tube wells
  Dug wells have their bottom below the ground water level and water accumulates in the well from the surrounding soil.
  Tube well or bore wells are constructed by setting a porous pipe deep into the soil below the ground water level. Water is lifted from such through pumps.
- River lift system: In this system, the water is directly drawn from rivers by pumps and used for irrigation.
- Tanks: Tanks are small water storage reservoirs which store the water run- off from small catchment areas. This stored water is then supplied through pipes for irrigation.
- Modern irrigation methods: Fountain irrigation and drip irrigation are the modern methods of irrigation that help in conservation of water as well.

Solution 3.14:

Marine fisheries: The fishes cultured and obtained from sea water source are marine fishes. Marine fishery resource in India includes a coast line of 7500 Kms and the extensive deep sea. The common Indian marine fishes are Pomphrets, Tuna, Bombay Duck and Eel

Inland fisheries: Inland fisheries deal with the culture and production of fishes from fresh water and brackish water. Rivers, Canals and reservoirs are fresh water resources whereas estuaries and lagoons are brackish water resources. Polyculture of Inland fisheries is a common and advantageous culture system. In Polycultutre, fishes having different food habits are selected so that all the available food in the pond can be effectively utilised. Example – Catla, Rohu, Mrigal, Common carps and grass carps are cultured together so that they do not compete with each other for food. Catla is a surface feeder, Rohu feeds in the middle zone, Mrigals and Common carps are bottom feeders whereas grass carps feed on weeds.

Topography of a pond, quality of the soil and water and temperature of the water are the factors considered during fish culture.