Board – CBSE	Class – 9	Topic – Improvement in Food Resources

Introduction

Food provides nutrients like carbohydrates, fats, protein, vitamins, and minerals. Both plants and animals are major sources of food.
As the population is increasing, we have to improve the efficiency of food production to meet the demand of the public.

Green Revolution

The green revolution is a programme introduced in many countries to increase food production by the use of modern technology, proper irrigation, improved seeds, etc.

White Revolution

White revolution is a programme designed to develop the dairy industry in India. This programme made the country self-sufficient in milk and milk products.

Improvement in Crop Yields

Food Resources: **Cereals** (Wheat, rice, maize, millets, and sorghum) provide us carbohydrates; **Pulses** (Grams, pea, and lentil) provide us proteins; **Oilseeds** (Soya bean, groundnut, sesame, and castor) provide us fats; **Vegetables, spices, and fruits** provide us a range of minerals, nucleic acids, and vitamins.

The two types of crops seasons are:

(i) Kharif Season: Crops that are grown during the monsoon. E.g. rice, paddy field.

(ii) Rabi Season: Crops are grown in the winter seasons. E.g. Mustard, potato

Approaches that enhance the crop yield are as follows:

(i) Crop Variety Improvement

(ii) Crop Production Management

(iii) Crop Protection Improvement

Crop Variety Improvement

Hybridization: The process of combining different varieties of plants to create a hybrid.

Properties to be possessed by improved seed

(i) Higher yield: To increase the productivity of the crop per acre.

(i) Improved quality: The quality of crop products varies from crop to crop.

(ii) Biotic & Abiotic resistances: Crop production reduces due to biotic and abiotic.

(iii) Wider adaptability: Crops that can grow in different conditions will help in setting high production.

(iv) Desired agronomic traits: Developing varieties of desired agronomic characters helps give higher productivity.

Crop Production Management

Nutrient Management: Like other organisms, plants also require some elements for their growth. These elements are called nutrients.

Source	Nutrients
Air	carbon, oxygen
Water	hydrogen, oxygen
Soil	(i) *Macronutrients*: nitrogen, phosphorus, potassium, calcium, magnesium, sulphur (ii) *Micronutrients:* iron, manganese, boron, zinc, copper, molybdenum, chlorine

Manure: Manure contains large quantities of organic matter and also supplies small quantities of nutrients to the soil.

Types of Manures

(i) Compost: Straw, sewage waste, vegetables, weeds.

(ii) Vermicompost: Organic kitchen waste with worms to decompose.

(iii) Green manure: Green plants

Fertilizers: Fertilizers are commercially produced plant nutrients.

Types of Fertilizers

(i) Nitrogen fertilizers

(ii) Phosphate fertilizers

(iii) Potassium fertilizers

Difference between Manures and Fertilizers

Manures	Fertilizers
These are organic substances.	These are inorganic substances.
These are made up of natural substances	These are made of chemical substances.
These have less nutrients.	These have a large number of nutrients.
Manures are slowly absorbed by the plants since They are insoluble in water.	Fertilizers are easily absorbed by the plants since they are soluble in water.
It is difficult to store and transport.	Their storage and transportation are easy.

Irrigation: Supplying dry land with water to the crop is called irrigation.

Methods of Irrigation:

(i) Wells: Two types of wells, namely Dug wells and Tube wells. In Dug wells, water is collected from water-bearing strata. In the Tube, wells can tap water from the deeper strata. From these wells, water is lifted by pumps.

(ii) Canals: These get water from large rivers.

(iii) River lift system: Water is directly drawn from the rivers for supplementing irrigation in areas close to the river.

(iv) Tanks: These are small storage reservoirs.

(v) Rainwater harvesting: Rainwater harvesting is an accumulation of water in tanks for later use. This also prevents soil erosion.

Crop Patterns: Different patterns are used to maximize the production from the crop field.

(i) Mixed cropping: Growing two or more crops together in the same field.

Example: Wheat + Gram, Cotton + Mung bean

(ii) Intercropping: Two or more crops are grown on the same field in a definite pattern such as 1:1, 1:2, or 1:3 are followed.

Example: Soybean + maize

(iii) Crop rotation: is the practice of growing different crops one after another on the same field.

Advantages of crop rotation:

(i) Improves soil structure and fertility.

(ii) Increase productivity per unit area.

(iii) Mitigates the buildup of pathogens and pest

Crop Protection Improvement

Crops are attacked by rodents, insects that damage the crops. Also attacked by microorganisms.

Chemical methods- by using insecticides, fungicides, and rodenticides.

Biological control involves making use of another organism that kills the pests.

- **Storage of grains:** For getting seasonal foods throughout the year, they are stored in safe storage. But during the storage of grains, they can be destroyed and wasted by various means.

(i) Biotic problem: Due to living organisms like insects, birds, mites, bacteria, fungi.

(ii) Abiotic problem: Due to non-living factors such as moisture, inappropriate temperature, etc.

These factors affect quality degradation, loss in weight, change in color, poor

germ inability.

Animal Husbandry

Animal husbandry is the scientific management of animal livestock.

- **Cattle farming**

  - **Purpose:** Milk (milk animals) and draught labor (draught animals) in agriculture.
  - **Crossbreeding:** To get desired qualities, Exotic- the quality of lactation Indigenous breeds- the quality of disease resistance
  - **Desirable maintenance:** Good ventilation in sheds, Roughage/ concentrates Protection from parasites & skin diseases Vaccination. Diseases can cause death and reduce milk production
  - **Example**: Exotic or foreign breeds (Jercy, brown Swiss), Local breeds (Red Sindhi, Sahiwal)

Poultry Farming: Poultry farming is done for eggs and meat. They both provide protein to our diet.

- **Broilers:** Birds grown for obtaining meat are called broilers.
- **Layers:** Birds grown for obtaining eggs are called layers.
- Breeding is done to enhance the following properties in hens:

(i) More and better quality chicks.

(ii) Low maintenance.

(iii) Breeding is done to produce dwarf broilers (meat-giving birds). Feeding cost is the

Fish Production

Cheap source of animal protein.

Two ways of obtaining fish:

(i) Capture fishing: One is from natural resources called capture fishing.

(ii) Culture fishing: the other way is by fish farming, which is called culture fishery. **Aquaculture** involves cultivating freshwater and saltwater populations under controlled conditions.

- The growing of marine fish is called Mariculture

Marine fishing:

Resources include 7500 km of coastline and the deep seas beyond it.

Popular marine fishes include pamphlets, tuna, sardines, Bombay duck.

Inland fishing

- It includes fish production in freshwater (for example ponds, rivers, lakes, reservoirs) and brackish water (for example estuaries).

Bee-keeping

- The cultivation of bees on a commercial scale for the production of honey.
- Bee-keeping needs low investments; farmers use it as an additional income-generating activity.
- The local varieties of bees used for commercial honey production are Apis cerana Indica, commonly known as the Indian bee, A. dorsata, the rock bee, and A. florae, the little bee.
- The Italian bees have a high honey collection capacity.
- The value of honey depends upon the pasturage, or the flowers available to the bees for nectar and pollen collection.