CBSE Class 12 Science Chapter 9
Strategies For Enhancement In Food Production Notes

One of the major concerns in recent times has been the issue of population explosion which in turn has necessitated the enhancement of food production. For this reason, different biological techniques and principles are being developed.

These techniques are applied to animal husbandry and plant breeding which has a major role in our efforts to increase the food production. Some new techniques such as embryo transfer and the tissue culture techniques are ought to play a vital role in enhancing the food production furthermore. Explore more through strategies of enhancement in food production notes provided here.

Topics Covered in Chapter 9 Strategies For Enhancement In Food Production

Animal Husbandry

Plant Breeding

Single Cell Proteins

Tissue Culture

Animal Husbandry

It is the agricultural practise of breeding and raising livestock. It deals with the care and breeding of livestock such as cows, horses, cattle, sheep, camel etc that are useful to humans as they provide milk, eggs, honey, silk, meat, fibre etc. It also includes fisheries and poultry farming. The management of farms and farm animals involves the following procedures:

- Dairy farm management - it is the management of animals for milk and its products
- Poultry farm management - Poultry is the class of domesticated birds used for food or for their eggs which typically includes ducks and chicken
- Animal breeding - it aims at increasing the yield of animals and improving the desirable qualities of the produce. When breeding is between animals of the same breed it is called inbreeding while cross between different breeds are called outbreeding
- Bee-keeping or apiculture - it is the maintenance of hives of honeybees for the production of honey.
- Fisheries - it deals with catching, processing or selling fish, shellfish or other aquatic animals

Plant Breeding

It is a technology that has helped increase yields to a large extent. Green revolution was dependant to a large extent on plant breeding techniques for the development of high-yielding and disease-resistant varieties in rice, wheat, maize etc. Plant breeding is the purposeful manipulation of plant species in order to create desired plant types that are better suited for cultivation, give better yields and are disease resistant.

Listed below are the steps in breeding a new genetic variety of a crop:

- Collection of variability
- Evaluation and selection of parents
- Cross hybridization among the selected parents
- Selection and testing of superior recombinants
- Testing, release and commercialization of new cultivators

The most common methods of plant breeding are listed below:

- Hybridization
- Tissue culture
- Biofortification
- Mutation breeding
- Somatic hybridization
- Plant breeding for improved food quality and developing resistance to insect and pests

Single Cell Protein

Single cell protein(SCP) is one of the alternate sources of proteins for animals and human nutrition. Microbes are cultivated on an industrial scale as a source of good protein. Spirulina(blue-green algae) can be grown on materials like waste water from potato processing plants, molasses, straw, sewage to produce large quantities and can serve as food rich in protein, fats, minerals etc. This also helps to reduce environmental pollution.

Tissue Culture

In tissue culture, any plant part can be taken out and cultivated in a test tube in sterile conditions in a special nutrient media(providing a carbon source such as sucrose and also inorganic salts, vitamins, amino acids and growth regulators). This process of generating a whole plant from any cell/plant is called totipotency. The method of producing thousands of plants through tissue culture is called micropropagation and these plants are genetically identical to the original plant from which they are grown.