

1. Explain any one method of crop production which ensures high yield.

Ans. Nutrient Management: Some chemical elements are required by all plants. They are called essential elements.

An essential element is the one which is involved in nutrition, growth, reproduction or functioning of plants so that its deficiency produces a disorder which can be corrected by the supply of that element. Sixteen chemical elements are essential for plant. Out of these two (carbon and oxygen) are obtained from air. Hydrogen is got from water. These three elements are called non-mineral elements since they are not got from soil. They form 94-99.5% of the total plant body.

The remaining 13 nutrients are got from soil with the help of roots. They are also called mineral elements or mineral nutrients. Six of these elements are required in larger amounts. They are called macro-nutrients. *E.g.* nitrogen, phosphorus, potassium, calcium, magnesium and sulphur.

The remaining seven elements required in trace or micro amounts are called micro-nutrients. *E.g.* iron, manganese, boron, zinc, copper, molybdenum and chlorine.

2. Why are manure and fertilisers used in fields?

Ans. Manure and fertilisers are added to the soil to increase the fertility of soil and productivity of crop. They overcome the deficiency of nutrients in the soil.

3. What are the advantages of inter-cropping and crop rotation?

Ans. Advantages of Intercropping:

- (i) Inter-cropping increases productivity per unit area.
- (ii) It saves time and labour of the farmer and makes better use of resources.
- (iii) Seeds of different crops can be sown separately.
- (iv) Soil erosion is checked as the field is not left uncovered for long period.
- (v) Specific fertilisers required for each crop can be added.

Advantages of crop rotation:

- (i) Attack by insects and fungi is minimised because different pests are associated with different crops. Thus varying the crops, the insects and fungi associated with the crop usually disappear.
- (ii) Rotation of crops helps in weed control. This is because weeds are associated with specific crops. When the crop is changed, the weeds

associated with the crop usually disappear.

- (iii) It saves a lot of nitrogenous fertiliser, because growing leguminous crop, during the rotation fixes atmospheric nitrogen with the help of their nitrogen fixing bacteria and there is no need to add nitrogenous fertiliser to the soil.
- (iv) The chemical nature of the soil is not altered. (Fertiliser is not added or if added it is in negligible amount).
- (v) The land is not kept free of cultivation. Two to four crops are raised which increases the income of farmers.

4. What is genetic manipulation? How is it useful in agricultural practices?

Ans. Genetic manipulation is a process where the gene for a particular character is introduced inside the chromosome of a cell. When the gene for a particular character is introduced in a plant cell, a transgenic plant is produced. These transgenic plants exhibit characters governed by the newly introduced gene. For example, let us assume there is a wild plant that produces small fruits. If the gene responsible for a larger fruit size is introduced in this plant, this plant becomes transgenic, and starts producing larger fruits. Similarly, genes for higher yield, disease resistance, etc. can be introduced in any desired plant.

Therefore, gene manipulation plays an important role in agricultural practices. It helps in improving crop variety. It ensures food security and insect resistant crops. It also improves the quality and yield of crops.

5. How do storage grain losses occur?

Ans. There are various biotic and abiotic factors that act on stored grains and result in degradation, poor germinability, discolouration, etc. Biotic factors include insects or pests that cause direct damage by feeding on seeds. They also deteriorate and contaminate the grain, making it unfit for further consumption. Abiotic factors such as temperature, light, moisture, etc., also affect the seed. They decrease the germinating ability of the seeds and make them unfit for future use by farmers. Unpredictable occurrence of natural calamities such as droughts and floods also causes destruction of crops.

6. How do good animal husbandry practices benefit farmers?

Ans. Good animal husbandry practices keep the animals healthy and more productive. There is higher yield of animal products – milk, eggs, meat.

- (i) **Shelter:** Diseases spread, if the animal shelters are dingy and crowded. If they are spacious, hygienic and well lighted, the animals remain healthy.

- (ii) **Vaccination:** Vaccination of young animals prevents the occurrence of common diseases.
- (iii) **Segregation of sick animals:** When sick animals are noticed, they are immediately segregated. Cleanliness drive is undertaken and the remaining animals are given prophylactic doses of medicines to prevent the spread of disease. The livestock remains healthy and productive.
- (iv) **Proper diet:** A proper optimum diet with feed additives enhances growth and yield of animals.
- (v) **Breeding:** Breeding for more milk, longer lactation period, more egg laying, better convertibility of food and other good characteristics have allowed various branches of animal husbandry to give better yield.

7. What are the benefits of cattle farming?

Ans. The benefits of cattle farming are:

- (i) **Milk:** It provides milk. Better breeds and better diet have increased milk availability in India. The phenomenal rise in milk availability is called White Revolution. Dr. Verghese Kurien is the father of White Revolution in India. Today, India produces more milk (over 88 million tonnes) than any other country though per capita milk availability is still low at 242 gms/day.
- (ii) **Utilisation of spare time:** Farmers and others can utilise their spare time in the morning and evening for cattle farming.
- (iii) **Extra income:** Cattle farming provides a good amount of extra income.
- (iv) **Fodder:** Growing fodder is helpful to farmers as the land is not left vacant. Selling of fodder gives good return.
- (v) **Organic wastes:** Wheat bran, rice bran, gram chaff and oil cakes are organic wastes which provide a good part of cattle feed.
- (vi) **Soil fertility:** Cattle dung is useful ingredient for biogas generation and manure formation.

8. For increasing production, what is common in poultry, fisheries and bee-keeping?

Ans. Variety improvement, housing, rearing, sanitation, disease control and marketing are the common factors for increasing production.

9. How do you differentiate between capture fishing, mariculture and aquaculture?

Ans.

Capture Fishing	Mariculture	Aquaculture
In capture fishing, the fish catching is done from various natural resources such as rivers, lakes, oceans, seas, etc.	In mariculture, culture of marine fishes is done in coastal water. The desired marine fishes and other animals are cultivated and obtained.	In aquaculture, culturing of fish is done using fresh water ponds. The desired fresh water fishes obtained.

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