

Improvement in Food Resources

1. NCERT INTEXT QUESTIONS

1. What do we get from cereals, pulses, fruits and vegetables?

Ans :

- Cereals give carbohydrates which provide energy.
- Pulses give proteins which build our body.
- Vegetables and fruits provide vitamins and minerals.

2. How do biotic and abiotic factors affect crop production?

Ans :

Factors responsible for loss of grains, during storage and production are :

- Biotic factors like rodents, pests, insects, etc.
- Abiotic factors like temperature, humidity, moisture, etc. These can affect seeds as :
 - infestation of insects
 - weight loss
 - poor germination ability
 - degradation in quality
 - discolouration
 - poor market price

3. What are the desirable agronomic characteristics for crop improvements?

Ans :

Desirable agronomic characteristics for crop improvements are :

- Tallness and profuse branching are desirable characters for fodder crops.
- Dwarfness is desired in cereals.

4. What are macro-nutrients and why are they called macro-nutrients?

Ans :

Macro-nutrients are the essential elements which are utilised by plants in large quantities. Many macro-nutrients are required by the plants for the following functions :

- As the constituent of protoplasm
 - N, P, S are present in proteins
 - Ca is present in cell wall
 - Mg is important constituent of chlorophyll
- The 6 micronutrients required by plants are : nitrogen, phosphorus, potassium, calcium, magnesium and sulphur.

5. How do plants get nutrients?

Ans :

Plants get nutrients from air, water and soil. There are sixteen nutrients essential for the growth of plants. Carbon and oxygen are supplied by water and remaining thirteen nutrients are supplied by soil.

6. Compare the use of manure and fertilizers in maintaining soil fertility.

Ans :

Effects of using manures on soil quality :

- The manures enrich the soil with nutrients and organic matter.
- Add humus to the soil
- Increase water retention capacity of sandy soils
- Increases soil fertility and helps in improving soil structure.
- In clayey soils, the large quantity of organic matter help in drainage and in avoiding water logging.

Effects of using fertilizers on soil quality :

- By the continuous use of fertilizers the rate of soil erosion increases.
- By the use of fertilizers porosity of soil decreases and the plant roots do not get oxygen properly.
- The nature of soil changes to acidic or basic.

7. Which of the following conditions will give the most benefits? Why?

- Farmers use high-quality seeds, do not adopt irrigation or use fertilizers.
- Farmers use ordinary seeds, adopt irrigation and use fertilizer.
- Farmers use quality seeds, adopt irrigation, use fertilizer and use crop protection measures.

Ans :

- Farmers using good quality seeds, adopting irrigation, using fertilizers, and using crop protection measures will derive most benefits.
 - The use of good quality seeds increases the total crop production. If a farmer is using good quality seeds, then a majority of the seeds will germinate properly and will grow into a healthy plant.
 - Proper irrigation methods improve the water availability to crops.
 - Fertilizers ensure healthy growth and development in plants by providing the essential nutrients such as nitrogen, phosphorus, potassium, etc.
 - Crop protection measures include various methods to control weeds, pests, and infectious

agents. If all these necessary measures are taken by a farmer, then the overall production of crops will increase.

8. Why should preventive measures and biological control methods be preferred for protecting crops?

Ans :

Preventive measures and biological control methods should be preferred for protecting crops because excessive use of chemicals leads to environmental problems. These chemicals are also poisonous for plants and animals. Preventive measures include proper soil and seed preparation, timely sowing of seeds, intercropping and mixed cropping, usage of resistant varieties of crops, etc. On the other hand, biological control methods include the usage of bio-pesticides that are less toxic for the environment. An example of bio-pesticides is *Bacillus thuringiensis*, which is an insect pathogen that kills a wide range of insect larvae. Therefore, both preventive measures and biological control methods are considered eco-friendly methods of crop protection.

9. What factors may be responsible for losses of grains during storage?

Ans :

During the storage of grains, various biotic factors such as insects, rodents, mites, fungi, bacteria, etc. and various abiotic factors such as inappropriate moisture, temperature, lack of sunlight, flood, etc. are responsible for losses of grains. These factors act on stored grains and result in degradation, poor germinability, discolouration, etc.

10. Which method is commonly used for improving cattle breeds? Why?

Ans :

Cross breeding is a process in which indigenous breeds of cattle are crossed by exotic breeds to get a new breed which is high yielding. The desired characters are taken into consideration during cross breeding. The offspring should be high yielding and should be resistant to climatic conditions.

11. Discuss the implications of the following statement :

“It is interesting to note that poultry is India’s most efficient converter of low fibre food stuff (which is unfit for human consumption) into highly nutritious animal protein food.”

Ans :

Poultry farming is raised for domestic fowl for egg production and chicken meat. Poultry birds are not only the efficient converters of agricultural by products, into high quality meat but also help in providing egg, feathers and nutrient rich manure. Due to this reason, it is said that, “poultry is India’s most efficient converter of low fibre food stuff into highly nutritious animal protein food.”

12. What management practices are common in dairy and poultry farming?

Ans :

- (1) **Shelter** : Dairy animals and poultry birds require proper and hygienic shelter.
- (2) **Feeding** : To get good yield of food product, proper feed is provided to dairy animals and poultry birds.
- (3) **Caring for animal health** : Animals and birds must be protected from diseases caused by virus, bacteria or fungi.

13. What are the differences between broilers and layers and in their management?

Ans :

Grooming the poultry bird for obtaining meat is called broiler. The egg laying poultry bird is called layer.

The housing, nutritional and environmental requirements of broilers are different from those of egg layers. Protein rich with adequate fat food is the daily food requirement for broilers. The level of vitamins A and K is kept high in the poultry feeds while layers require enough space and proper lighting.

14. How are fish obtained?

Ans :

There are two ways of obtaining fish. Capture fishing is obtaining fish from natural resources. The other way is by fish farming or culture fishery.

15. What are the advantages of composite fish culture?

Ans :

A combination of five or six fish species is used in a single fish pond in composite fish culture. Selected species should not compete for food among them and should have different types of food habits. As a result, the food available in all the parts of the pond is used. For example : Catlas are surface feeders, Rohus feed in the middle-zone of the pond, Mrigals and Common Carps are bottom feeders and Grass Carps feed on the weeds, together these species can use all the food in the pond without competing with each other. This increases the fish yield from pond.

16. What are the desirable characters of bee varieties suitable for honey production?

Ans :

- (1) The bees should stay in a given beehive for a longer period.
- (2) The bees should have capacity of breeding well.
- (3) The variety of bee should be disease resistant.
- (4) Variety of bee should be able to collect a large amount of honey.

17. What is pasturage and how is it related to honey production?

Ans :

The available flowers to the bees for nectar and pollen collection is called pasturage. In addition to adequate quantities of pasturage, the kind of flowers available will determine the taste of the honey.

2. NCERT EXERCISE QUESTIONS

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

Ans :

Plant breeding is one method used for crop production which ensures high yield. The plant from different areas is picked up with desired traits for hybridisation or cross-breeding.

The high yielding crop shows the following characteristics : High yield, early maturation, less water for irrigation, better quality seeds, less fertilizer required, adaptation against environmental conditions.

2. Why are manure and fertilizers used in fields?

Ans :

Manures and fertilizers are used in fields to enrich the soil with the required nutrients. Manure helps in enriching the soil with organic matter and nutrients. This improves the fertility and structure of the soil. On the other hand, fertilizers ensure a healthy growth and development in plants. They are a good source of nitrogen, phosphorus, and potassium. To get an optimum yield, it is instructed to use a balanced combination of manures and fertilizers in the soil.

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

Ans :

Advantages of using inter-cropping :

- (i) It helps to maintain soil fertility.
- (ii) It increases productivity per unit area.
- (iii) Save labour and time.
- (iv) Both crops can be easily harvested and processed separately.

Advantages of using crop rotation :

- (i) It improves the soil fertility.
- (ii) It avoids depletion of a particular nutrient from soil.
- (iii) It minimises pest infestation and diseases.
- (iv) It helps in weed control.
- (v) It prevents change in the chemical nature of the soil.

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

Ans :

A process of incorporating desirable (genes) characters into crop varieties by hybridisation is genetic manipulation. Hybridisation involves crossing between genetically dissimilar plants. This is done for production of varieties with desirable characteristics like high yielding varieties in maize, wheat, etc. Genetic manipulation is useful in developing varieties which shows :

- (i) Increased yield.
- (ii) Better quality
- (iii) Shorter and early maturity period
- (iv) Better adaptability to adverse environmental conditions
- (v) Desirable characteristics

5. How do storage grain losses occur?

Ans :

The storage grain loss occur due to :

- (i) Abiotic factors like moisture, humidity and temperature.
- (ii) Biotic factors like insects, rodents, birds, mites and bacteria are responsible for loss of grains during storage.

6. How do good animal husbandry practices benefit farmers?

Ans :

Good animal husbandry practices are beneficial to the farmers in the following ways :

- (i) Improvement of breeds of the domesticated animals.
- (ii) Increasing the yield of foodstuffs such as milk, eggs and meat.
- (iii) Proper management of domestic animals in terms of shelter, feeding, care and protection against diseases.

Ultimately it helps the farmers to improve their economic condition.

7. What are the benefits of cattle farming?

Ans :

Cattle farming are beneficial in the following ways :
Milk production is increased by high yielding animals.
Good quality of meat, fibre and skin can be obtained.

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

Ans :

The production of poultry, fisheries and bee-keeping can be increased by cross breeding.

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

Ans :

- (i) **Capture fishing :** It is the fishing in which fishes are captured from natural resources like pond, sea water and estuaries.
- (ii) **Mariculture :** It is the culture of fish in marine water. Varieties like prawns, oysters, bhетки and mullets are cultured for fishing.
- (iii) **Aquaculture :** It is done both in freshwater and in marine water.

3. NCERT EXEMPLAR

Objective Type Questions

1. Which one is an oil yielding plant among the following?
(a) Lentil (b) Sunflower
(c) Cauliflower (d) Hibiscus

Ans : (b) Sunflower

2. Which one is not a source of carbohydrate?

- (a) Rice (b) Millets
(c) Sorghum (d) Gram

Ans : (d) Gram

3. Find out the wrong statement from the following :

- (a) White revolution is meant for increase in milk production
(b) Blue revolution is meant for increase in fish production
(c) Increasing food production without compromising with environmental quality is called as sustainable agriculture
(d) None of the above

Ans : (d) None of the above

4. To solve the food problem of the country, which among the following is necessary?

- (a) Increased production and storage of food grains
(b) Easy access of people to the food grain
(c) People should have money to purchase the grains
(d) All of the above

Ans : (d) All of the above

5. Find out the correct sentence :

- (i) Hybridisation means crossing between genetically dissimilar plants
(ii) Cross between two varieties is called as inter-specific hybridisation
(iii) Introducing genes of desired character into a plant gives genetically modified crop
(iv) Cross between plants of two species is called as inter-varietal hybridisation
(a) (i) and (iii) (b) (ii) and (iv)
(c) (ii) and (iii) (d) (iii) and (iv)

Ans : (a) (i) and (iii)

6. Weeds affect the crop plants by :

- (a) killing of plants in field before they grow
(b) dominating the plants to grow
(c) competing for various resources of crops (plants) causing low availability of nutrients
(d) All of the above

Ans : (c) competing for various resources of crops (plants) causing low availability of nutrients

7. Which one of the following species of honey bee is an Italian species?

- (a) Apis dorsata (b) Apis florae
(c) Apis cerana indica (d) Apis mellifera

Ans : (d) Apis mellifera

8. Find out the correct sentence about manure :

- (i) Manure contains large quantities of organic matter and small quantities of nutrients.
(ii) It increases the water holding capacity of sandy soil.
(iii) It helps in draining out of excess of water from clayey soil.

(iv) Its excessive use pollutes environment because it is made of animal excretory waste.

- (a) (i) and (iii) (b) (i) and (ii)
(c) (ii) and (iii) (d) (iii) and (iv)

Ans : (b) (i) and (ii)

9. Cattle husbandry is done for the following purposes :

- (i) Milk production (ii) Agricultural work
(iii) Meat production (iv) Egg production
(a) (i), (ii) and (iii) (b) (ii), (iii) and (iv)
(c) (iii) and (iv) (d) (i) and (iv)

Ans : (a) (i), (ii) and (iii)

10. Which of the following are Indian cattle?

- (i) Bos indicus (ii) Bos domestics
(iii) Bos bubalis (iv) Bos vulgaris
(a) (i) and (iii) (b) (i) and (ii)
(c) (ii) and (iii) (d) (iii) and (iv)

Ans : (a) (i) and (iii)

11. Which of the following are exotic breeds?

- (i) Brawn (ii) Jersey
(iii) Brown Swiss (iv) Jersey Swiss
(a) (i) and (iii) (b) (ii) and (iii)
(c) (i) and (iv) (d) (ii) and (iv)

Ans : (b) (ii) and (iii)

12. Poultry farming is undertaken to raise following :

- (i) Egg production
(ii) Feather production
(iii) Chicken meat
(iv) Milk production
(a) (i) and (iii) (b) (i) and (ii)
(c) (ii) and (iii) (d) (iii) and (iv)

Ans : (a) (i) and (iii)

13. Poultry fowl are susceptible to the following pathogens:

- (a) Viruses (b) Bacteria
(c) Fungi (d) All of these

Ans : (d) All of these

14. Which one of the following fishes is a surface feeder?

- (a) Rohus (b) Mrigals
(c) Common carps (d) Catlas

Ans : (d) Catlas

15. Animal husbandry is the scientific management of :

- (i) animal breeding
(ii) culture of animals
(iii) animal livestock
(iv) rearing of animals
(a) (i), (ii) and (iii) (b) (ii), (iii) and (iv)
(c) (i), (ii) and (iv) (d) (i), (iii) and (iv)

Ans : (d) (i), (iii) and (iv)

16. Which one of the following nutrients is not available in fertilizers?
 (a) Nitrogen (b) Phosphorus
 (c) Iron (d) Potassium
 Ans : (c) Iron
17. Preventive and control measures adopted for the storage of grains include :
 (a) strict cleaning (b) proper disjoining
 (c) fumigation (d) All of these
 Ans : (d) All of these

Short Answer Questions

18. Match the column A with the column B :

	Column (A)		Column (B)
(a)	Catla	(i)	Middle-zone feeders
(b)	Rohu	(ii)	Bottom feeders
(c)	Mrigal	(iii)	Surface feeders
(d)	Fish farming	(iv)	Culture fishery

Ans :

- (a) – (ii), (b) – (iii), (c) – (i), (d) – (iv)

19. Fill in the blanks :

- (a) Pigeon pea is a good source of _____
 (b) Berseem is an important _____ crop.
 (c) The crops which are grown in rainy season are called _____ crops.
 (d) _____ are rich in vitamins.
 (e) _____ crop grows in winter season.

Ans :

- (a) protein, (b) fodder, (c) kharif, (d) Vegetable, (e) Rabi

20. What is a GM crop? Name any one such crop which is grown in India.

Ans :

GM crops are the crops which have been developed by the introduction of a new gene with a desired trait from a bacterium, with the help of a vector to modify/improve the crop's original characters. These are well known as genetically modified crops.
 E.g. : BT cotton which is a GM crop was developed by the introduction of a new gene.

21. List out some useful traits in improved crop.

Ans :

- (i) Yield is improved to a high level.
 (ii) Resistance developed from biotic and abiotic stresses.
 (iii) Disease resistance is developed.
 (iv) Enhanced nutritional qualities.
 (v) Adaptabilities were improved in the crop.
 (vi) Desired agronomic characteristics were developed, e.g. improved shelf life, more pulpiness, seedless, etc.

22. Why is organic matter important for crop production?

Ans :

The importance of organic matter for crop production are :

- (1) Soil fertility will be improved.
 (2) It enhances soil structure and porosity in soil.
 (3) It also helps in improving water holding capabilities in sand cultivation.
 (4) Organic matter also helps in improving drainage.
 (5) Water logging problems in clay soil will also be improved.

23. Why is excess use of fertilizers detrimental for environment?

Ans :

Excess use of fertilizers is detrimental for environment because when used in excess quantities, the residual and unused part is left behind. This can result in the development of pollution by contaminating water, air, and soil present in the surrounding.

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24. Give one word for the following :

- (a) Farming without the use of chemicals as fertilizers, herbicides and pesticides is known as _____
 (b) Growing of wheat and groundnut on the same field is called as _____
 (c) Planting soyabean and maize in alternate rows in the same field is called as _____
 (d) Growing different crops on a piece of land in pre-planned succession is known as _____
 (e) Xanthium and Parthenium are commonly known as _____
 (f) Causal organism of any disease is called as _____

Ans :

(a) organic farming	(b) mixed cropping
(c) inter Cropping	(d) crop rotation
(e) weeds	(f) pathogen

25. Match the following A and B :

	Column (A)		Column (B)
(a)	Cattle used for tilling and carting	(i)	Local breed of cattle animals
(b)	Indian breed of chicken	(ii)	Broiler
(c)	Sahiwal, Red Sindhi	(iii)	Milk producing female
(d)	Mulch	(iv)	Drought
(e)	Chicken better fed for obtaining meat	(v)	Aseel

Ans :

- (a) – (iii), (b) – (v), (c) – (iv), (d) – (i), (e) – (ii)

26. If there is low rainfall in a village throughout the

year, what measures will you suggest to the farmers for better cropping?

Ans :

The village needs to take necessary measures responsible for water conservation. Some suggestions which could be helpful :

- (1) Use of organic manure and humus increases the water holding capacity of soil for longer time period.
- (2) Cultivating drought resistant and early maturing crops.
- (3) Constructing short canals from rivers.
- (4) Building rain water storage tanks.

27. Group the following and tabulate them as energy yielding, protein yielding, oil yielding and fodder crop. Wheat, rice, berseem, maize, gram, oat, pigeon gram, Sudan grass, lentil, soyabean, groundnut, castor and mustard.

Ans :

- (i) Energy yielding : wheat, rice, maize
- (ii) Protein yielding : pigeon gram, lentil, soyabean
- (iii) Oil yielding : groundnut, castor, mustard, soyabean
- (iv) Fodder crops : barseem, oat, Sudan grass.

28. Define the term hybridization and photoperiod.

Ans :

Hybridization refers to the cross breeding of two genetically dissimilar organisms to produce a hybrid crop consisting of two different traits.

Photoperiod is the duration of sunlight which is available to the plant. This affects growth of plant, flowering, and maturation of crops.

29. Fill in the blanks :

- (a) Photoperiod affect the _____
- (b) Kharif crops are cultivated from _____ to _____
- (c) Rabi crops are cultivated from _____ to _____
- (d) Paddy, maize, green gram and black gram are _____ crops.
- (e) Wheat, gram, pea, mustard are _____ crops.

Ans :

- (a) flowering in plants (b) June to October
- (c) November to April (d) Kharif
- (e) Rabi

30. Cultivation practices and crop yield are related to environmental condition. Explain.

Ans :

Various crops require different conditions for cultivation such as climate, temperature, photoperiod, etc. for their proper growth and life cycle completion. Few crops have the nature to grow only in rainy season (Kharif), or only in winters (Rabi crops). This shows that the cultivation requirements and environmental conditions differ for all variety of crops.

31. Fill in the blanks :

- (a) A total of _____ nutrients are essential to plants.
- (b) _____ and _____ are supplied by air to plants.
- (c) _____ is supplied by water to plants.
- (d) Soil supply _____ nutrients to plants.
- (e) _____ nutrients are required in large quantity and called as _____
- (f) _____ nutrients are needed in small quantity for plants and are called _____

Ans :

(a) 16	(b) Carbon, oxygen
(c) Hydrogen	(d) 13
(e) Six, macronutrients	(f) Seven, micronutrients

32. Differentiate between compost and vermicompost.

Ans :

Compost formation is the process in which decomposition of the organic wastes takes place to produce manures.

Vermi-compost is the degradation of organic matter present in waste to produce manures with the help of earthworms.

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33. Arrange these statements in correct sequence of preparation of green manure.

- (a) Green plants are decomposed in soil.
- (b) Green plants are cultivated for preparing manure or crop plant parts are used.
- (c) Plants are ploughed and mixed into the soil.
- (d) After decomposition it becomes green manure.

Ans :

(b)-(c)-(a)-(d)

34. An Italian bee variety A. mellifera has been introduced in India for honey production. Write about its merits over other varieties.

Ans :

The merits of Italian bee variety (A. mellifera) are as follows :

- (a) It is basically docile and stings are absent.
- (b) It has high honey yielding capacity.
- (c) It has the property of homely, i.e. it stays in the beehive only.
- (d) It breeds well and has no difficulties.

35. In agricultural practices, higher input gives higher yield. Discuss, how?

Ans :

The statement that 'in agriculture, high input means high yield' shows that if more money is invested using good farming practices and high technology then good productive yields will be generated. The purchase of good quality seeds, effective pesticides, fertilizers and manures, allow good cropping system of productivity.

Long Answer Questions

36. Discuss the role of hybridisation in crop improvement.

Ans :

Hybridization refers to the crossing of genetically two dissimilar plants. Inter-varietal, intra-varietal, inter-specific, and inter-generic are the various types of hybridization methods. To obtain a new crop having all the desired characters of both the crops, the crops with desired characters are selected and cross breeding is done. This method not only improves the crop variety as well as disease resistance, stress resistance, crop quality, etc.



These methods are highly beneficial for productivity and are environment friendly in nature.

37. Define :

- (i) Vermicompost
- (ii) Green manure
- (iii) Bio-fertilizer

Ans :

- (i) **Vermicomposts** : These are the products obtained by the process of composting using various earthworms to create a heterogeneous mixture of decomposed vegetables.



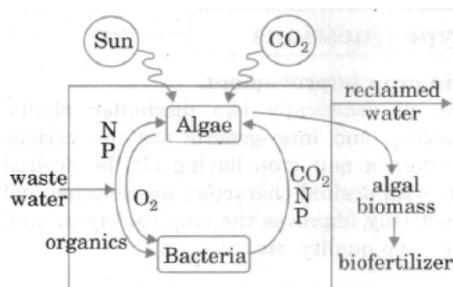
Figure: (a) Bio-fertilizers, (b) Organic byproducts

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Figure: Vermi-composting

- (ii) **Green manures** : These are referred to those fast growing plants which could be sown to cover bare lands to transform them into fertile soil for cultivation. Such manures also prevent soil erosion and add valuable nutrients to the soil which enhance soil quality. For example : sun hemp.
- (iii) **Bio-fertilizers** : Substances which utilize microorganisms to enhance plant growth and nutrient absorption from soil (e.g. blue green algae are effective for nitrogen fixation in soil and rice fields).



38. Discuss various methods for weed control.

Ans :

The various modes of controlling weeds are as follows:

- (i) Hand pulling
- (ii) Proper seedling process
- (iii) Intercropping and crop rotation timely
- (iv) Use of herbicides

39. Differentiate between the following :

- (i) Capture fishery and Culture fishery
- (ii) Mixed cropping and Inter cropping
- (iii) Bee-keeping and Poultry farming

Ans :

- (i) Capture fishery is the method used to obtain fishes from natural resources whereas culture fishery is the method by which fishes can, be obtained through fish farming.
- (ii) Mixed cropping is the method of growing two or more crops simultaneously within the same land piece whereas the inter-cropping is a method of growing two or more crops in the same land but with definite division of growing area, i.e. divided into equal rows.

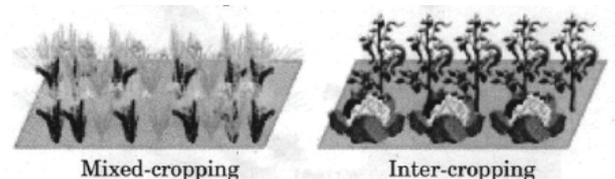


Figure: Mixed cropping

- (iii) Bee-keeping is the practice through which yielding of honey is focused whereas poultry farming is a practice which is done to raise the domestic fowl for the production of eggs and meat.

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40. Give the merits and demerits of fish culture.

Ans :

Merits of Fish Culture :

- (i) Large quantities of desired fishes can be generated
- (ii) Profit earning mode of employment when pain is less than cattle rearing
- (iii) Aquaculture has proved to safe and good source of employment
- (iv) Produces healthy and disease free fishes
- (v) High yield despite of small area covered
- (vi) The natural food chain is not hampered with the increase in population.

Demerits of Fish Culture :

- (i) Only economically valued fishes are cultured
- (ii) Continuous supply of freshwater is required
- (iii) Maintenance of natural habitat is desired
- (iv) Uses of distinct disinfectants are required for diverse variety of fishes
- (v) The target is to grow only a few variety of fishes which could be a threat to biodiversity

41. What do you understand by composite fish culture?

Ans :

Composite fish culturing is a method in which 5 or 6 different species including both the indigenous and exotic fishes are cultured together in a single pond. The species are selected in such a way that they have not to compete for food among themselves. As a result more variety of fishes can be grown together within the same land area with different food habitats. The combination of all these variety of fishes in a single fish pond will be beneficial for the production of variety of fishes.

For example : Catlas are the surface feeders, Rohus are the middle zone feeders, Mrigals and Common Carps are bottom feeders, and the Grass Carp usually feeds on the aquatic weeds.

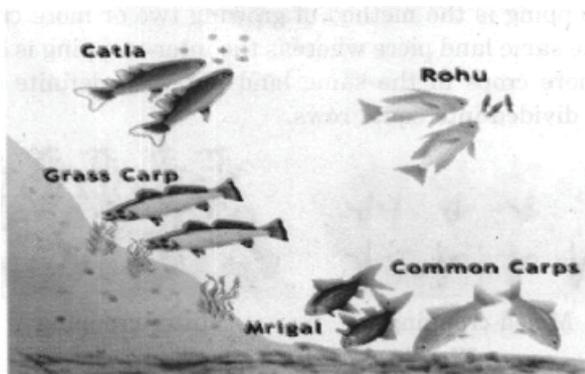


Figure: Composite fish culture

42. Why bee-keeping should be done in good pasturage?

Ans :

Bee-keeping is known as apiculture. It is generally advised to have good pasturage because it provides more quantity and quality of nectar for honey to honeybee. Some good nectar producing plants are like tamarind, morings, neem, eucalyptus, etc. Plants which are like roses, coconut, castor, pomegranate, maize, sorghum and date palm, etc. are sources of pollens. Few plants like banana, peach, citrus, guava, sunflower, berries, mango plum, etc. are good sources of both nectar and pollen.

43. Write the modes by which insects affect the crop yield.

Ans :

There are various parts of plant bodies for insects which can be leaves, flowers, fruits and stems. They cause damage to the plant body and even to the fruits. Thus, this leads to heavy loss for farmers and cultivators. The various ways through which insects can damage crops are as follows :

- (i) Cutting off plant parts through biting and chewing of stems and leaves of a plant.

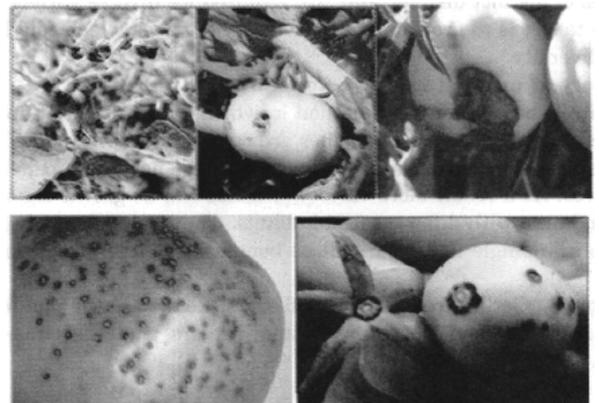


Figure: Ripened fruits

- (ii) Cell sap suction through creating a hole and then sucking or entering in the stem.
- (iii) Few insects feed on the secondary products deposited on tree trunk or insects living on plant stems creating damage to the surface.
- (iv) They could also act as disease vectors transmitting to the plants and further to consumers.
- (v) This will lead to the production of unhealthy crop.
- (vi) The presence of insects on plant bodies also attracts population of birds causing damage to agriculture.
- (vii) Insects like bees have a tendency to fly surrounding the ripened fruits.

44. Discuss why pesticides are used in very accurate concentration and in very appropriate manner?

Ans :

Substances used for the destruction of insects or other organisms harmful for the cultivated agricultural fields are known as pesticides. Pesticides should be used in accurate concentration and in an appropriate manner since it is harmful for the environment and human beings. As pesticides are highly toxic in nature, it is mainly cancer causing for human beings.

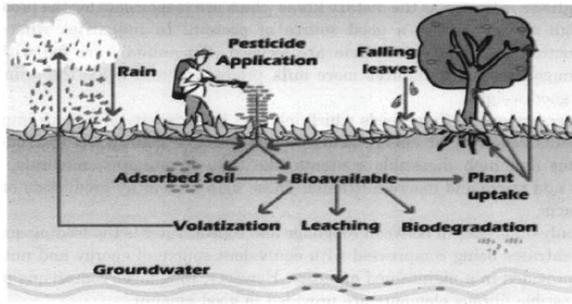


Figure: Causes of water pollution

The various environmental impacts are as follows :

- (i) **Water pollution :** The runoff water from the fields through rain or the drainage system of field causes harm to the surrounding. Mixing of this water to the nearby water bodies can affect the aquatic ecosystem and the edible source of water for the society. This could be hazardous for human health.
 - (ii) **Air pollution :** When the suspended particles are carried away by wind to other areas it contributes in the contamination of those areas as well. This contamination could lead to air borne diseases.
 - (iii) **Soil pollution :** The pesticide works has its adverse effects on the biodiversity of soil as well as in depleting its nourishment capability. The accumulation of chemical substances and the percolated or leached particles inside the soil of distance areas can lead to various diseases affecting the other habitats.
 - (iv) **Biodiversity :** The affected species can develop resistance through the repeated application of pesticides. Also, the degree of chemical toxin present in the pesticide can kill other microorganisms and animals (insects, birds, and grazing animals) found in the farmland.
 - (v) **Human health hazards :** Wide ranges of impacts were observed including both short term and long term disasters. The type of sufferings depends on the type of pesticide usage. They can be acute dangers (such as skin and eye allergies, headache, dizziness, nausea, fatigue, etc.) and chronic symptoms (such as cancer, reproductive damage, endocrine disruption, etc.).
45. Name two types of animal feed and write their functions.

Ans :

Livestock feeds are the feeds which provide the basic nutrients required by the animals along with the various nutrient supplements beneficial for their growth and development. These supplements include nutrients like macro, micro, minerals, vitamins, proteins, and amino acids.

The two types of animal feeds are as follows :

Roughage is known as the dietary fibres which are responsible for the production of high energy and is a good source of protein. In industries where milk production and meat production are focused, the animals are fed with high roughage content. It induces more milk production and helps the animals to gain good weight.

Concentrates are those feeds which includes high density of various important nutrients required for energy generation. These are mainly low in crude fibre content and high digestible contents like that of vitamins, minerals, amino acids and micro and macro-nutrients. These help in healthy production of cattle products.

The only difference in between roughage and concentrates is the feeding quantity. Concentrates being compressed with equivalent source of energy and nutrients, it is provided in a maintained quantity. However, roughages comprising of more indigestible fibrous elements are provided in good amount.

46. What would happen if poultry birds are larger in size and have no summer adaptation capacity? In order to get small sized poultry birds, having summer adaptability, what method will be employed?

Ans :

Egg production is directly influenced by the temperature maintenance of poultry birds. Increased bird size will reduce the adaptability of bird due to its increased surface area.

Therefore, to obtain smaller sized birds with higher summer adaptability capabilities, cross breeding of desired birds should be done. This will also help in better housing and low feed management of poultry farm birds.

47. Suggest some preventive measures for the diseases of poultry birds.

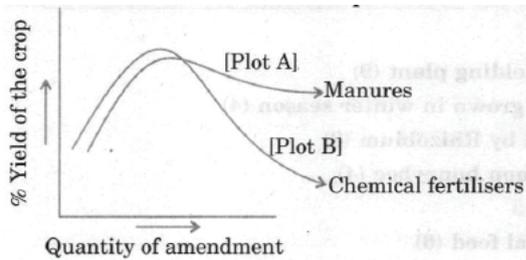
Ans :

Poultry birds usually suffer from various bacterial and viral diseases. When such diseases turn out to be epidemic, then they are known as bird flu. Some of the preventive measures which could be implied on poultry farms are as follows :

- (i) Maintaining the proper sanitation and hygiene of the farm.
- (ii) Regular spray of disinfectant on particular time intervals.
- (iii) Regulation on proper food content and distribution.
- (iv) Maintaining clean water supply.
- (v) Timely vaccination of birds.
- (vi) Temperature maintenance of the farm units.
- (vii) Poultry farm should be of proper land area and the population should not be in excess.

48. Figure shows the two crop fields [Plots A and B] have been treated by manures and chemical fertilizers respectively, keeping other environmental factors same. Observe the graph and answer the following questions.

- (a) Why does plot B show sudden increase and then gradual decrease in yield?
- (b) Why is the highest peak in plot A graph slightly delayed?
- (c) What is the reason for the different pattern of the two graphs?



Ans :

- (a) There is sudden release of nutrients like N, P, and K, etc. in high quantity with addition of chemical fertilizers. Further gradual decrease observed is may be due to continuous use and high quantity of chemical which kills microbes useful for replenishing the organic matter in soil. This decreases the soil fertility.
- (b) Manures supply nutrients slowly to the soil as it contains large amounts of organic matter. It enriches soil fertility continuously.
- (c) The difference among the two graphs indicates that use of manure is beneficial for long duration in cropping as the yield tends to remain high when quantity of manure increases. Whereas in case of Plot B, long term use of chemical fertilizers might influence the soil quality and can lead to various problems as well. Loss of biodiversity, microbial decomposition activity and biogeochemical cycles will be hampered. At the end the soil fertility will be lost completely.

Across

- 1. Sunflower
- 3. Rabi
- 5. Nitrogen
- 9. Apis

Downward

- 2. Fodder
- 4. Boron
- 6. Weed
- 8. Mrigals
- 10. Tuna

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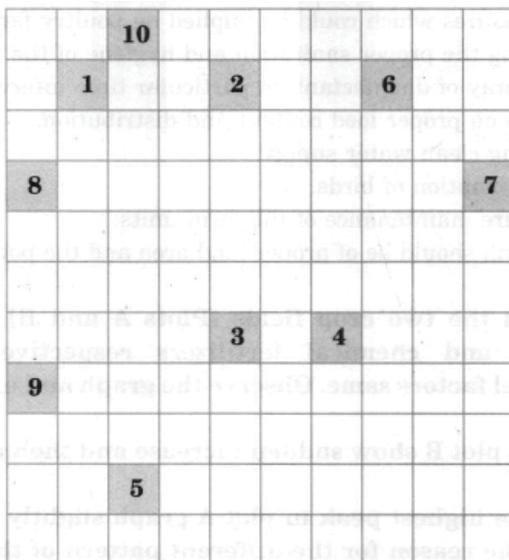
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49. Complete the crossword puzzle (figure) :



Across

- 1. Oil yielding plant (9)
- 3. Crop grown in winter season (4)
- 5. Fixed by Rhizobium (8)
- 9. Common honeybee (4)

Downward

- 2. Animal feed (6)
- 4. A micronutrient (5)
- 6. Unwanted plant in crop fields (4)
- 7. An exotic breed of chicken (7)
- 8. Bottom feeders in fish pond (7)
- 10. A marine fish (4)

Ans :

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Science IX

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