

- Q1.** Why are manure and fertilisers used in fields?
- Q2.** What are the benefits of cattle farming?
- Q3.** For increasing production, what is common in poultry, fisheries and bee-keeping?
- Q4.** What do we get from cereals, pulses, fruits and vegetables?
- Q5.** How do biotic and abiotic factors affect crop production?
- Q6.** What are the desirable agronomic characteristics for crop improvement?
- Q7.** What are macro-nutrients and why are they called macro-nutrients?
- Q8.** How do plants get nutrients?
- Q9.** What factors may be responsible for losses of grains during storage?
- Q10.** What are the advantages of inter-cropping and crop-rotation?
- Q11.** Which method is commonly used for improving cattle breeds and why?
- Q12.** 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."
- Q13.** What are the differences between broilers and layers and in their management?
- Q14.** How are fish obtained?
- Q15.** How do you differentiate between capture fishing, mariculture and aquaculture?
- Q16.** How do good animal husbandry practices benefit farmers?
- Q17.** What is pasturage and how is it related to honey production?
- Q18.** What management practices are common in diary and poultry farming?
- Q19.** What are the advantages of composite fish culture?
- Q20.** Why should preventive measures and biological control methods be preferred for protecting crops?
- Q21.** Which of the following conditions will give the most benefits? Why?
- (a) Farmers use high quality seeds, do not adopt irrigation or use fertilisers.
  - (b) Farmers use ordinary seeds, adopt irrigation and use fertiliser.
  - (c) Farmers use quality seeds, adopt irrigation, use fertiliser and use crop protection measures.
- Q22.** What is genetic manipulation? How is it useful in agricultural practices?
- Q23.** Compare the use of manure and fertilisers in maintaining soil fertility.
- Q24.** What are the desirable characters of bee-varieties suitable for honey production?

**Q25.** Explain three methods of crop production which ensures high yield.

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- S1.** Manure and fertilisers are used in fields to supply plant nutrients to the soil. They increase soil fertility.
- S2.** The benefits of cattle farming are production of milk and draught labour for agricultural work such as carting, tilling and irrigation.
- S3.** For increasing production, use of exotic species is common in poultry, fisheries and bee-keeping.
- S4.** Cereals like wheat and rice give us carbohydrates.  
Pulses like gram (chana) and pea (matar) provide us proteins.  
Fruits provide us mainly vitamins and minerals.  
Vegetables give us different vitamins and minerals alongwith small amounts of carbohydrates, proteins and oils.
- S5.** Crop yield is reduced due to the attack by microbes (like bacteria, viruses, fungi, mycoplasma etc.), insects, rodents and nematodes. It is also affected by various environmental factors like flood, drought, water logging, frost, lodging etc.
- S6.** To achieve high productivity, we should develop plant varieties with desirable agronomic traits. The desirable agronomic characters for crop improvement are:  
(a) The food crops should be dwarf, so that they consume less nutrients and become more stronger as well as withstand strong winds (prevent lodging).  
(b) The fodder crops should be tall and have profuse branching.
- S7.** Nitrogen, phosphorus, potassium, calcium, magnesium and sulphur are macro-nutrients. These six nutrients are required by the plants for their growth in large quantities. Hence, these are called macro-nutrients.
- S8.** Plants get nutrients from air, water and soil. There are sixteen nutrients essential for the growth of plants. Carbon and oxygen are supplied by air. Hydrogen and oxygen are provided by water. The remaining 13 nutrients are supplied by soil, e.g., nitrogen, phosphorus and potassium etc.
- S9.** Food grains produced in our country are lost every year due to improper methods of storage and inadequate storage.  
The various factors responsible for such loss during storage are:  
(a) **Biotic factors:** They include insects, rodents, bacteria, fungi, mites, worms and birds.  
(b) **Abiotic factors:** They include inappropriate moisture, humidity in air and temperature in the place of storage.  
These factors cause poor quality, loss in weight, discolouration of produce, poor germinability and poor marketability of grains.
- S10.** Inter-cropping and crop-rotation are to obtain maximum benefit. Inter-cropping ensures maximum utilisation of the nutrients. It also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. Thus, both crops can give better returns.  
The main advantage of crop rotation is to grow two or three crops in a year with good harvests.
- S11.** Cross-breeding is a commonly used method for improving cattle breeds. The reason for the same may be explained as under:  
Foreign (exotic) breeds such as Jersey and Brown Swiss cows have long lactation period while local (Indian) breeds such as Sahiwal and Red Sindhi show excellent resistance to diseases. The two breeds (foreign and local) can be crossed-bred to get animals with both the desired qualities. Thus, cross-breeding results into the improved cattle breed.

- S12.** The cross-breeding programmes between Indian and foreign poultry have developed improved poultry breeds. The new varieties have low maintenance requirements. The size of the egg laying bird is also reduced and it utilises more fibrous cheaper diets consisting of agricultural by-products. They produce more eggs and broilers for meat. Hence, 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.
- S13.** Broilers are specialised meat producing poultry birds whereas the ones specialised for egg laying are known as layers. The daily food requirement of broilers is rich in protein and fat. Broiler chickens are fed with supplementary feed rich in vitamins A and K for good growth rate. The egg laying birds utilise more fibrous cheaper diets formulated using agricultural by-products.
- S14.** Depending upon the mode of obtaining fish, fisheries are of two types – capture and culture.
- Capture fishery:** The fish is caught from natural water both marine and inland. Modern technology is used in capturing of fish and its storage before marketing. Electronic equipment is used for locating fish in the sea.
- Culture fishery:** It involves cultivating, rearing and harvesting of fish. It is also referred as fish farming or pisciculture. The growing of various types of aquatic organisms in water bodies is called aquaculture.
- S15.** The way of obtaining fish from natural resources is called capture fishing while the fish farming is called culture fishery.
- Fishing can be done both by capture and culture of fish in marine and fresh water ecosystems. The fish production from marine water is called mariculture. The fish production from fresh water resources like canals, rivers and ponds is called aquaculture.
- S16.** Cattle husbandry is done for milk production and farm (draught) labour. Poultry farming is useful to raise domestic fowls for egg production and chicken meat. Fish is a cheap source of animal protein for human food. Bee-keeping is done to get honey and wax. It is used by farmers as an additional income generating activity.
- S17.** The flowers available to the bees for nectar and pollen collection is called pasturage. The value or quality of honey depends upon the pasturage. The pasturage or flora may be different according to geographical locations and sowing season. The type of flora determines the quality as well as taste of honey. For example, honey produced from nectar of almond flowers has good taste. Honey produced from nectar of medicinal plants like neem has more medicinal value.
- S18.** Following management practices are common in dairy and poultry farming:
- Clean and proper shelter.
  - Supply of balanced food.
  - Proper sanitation and spraying of disinfectants at regular interval.
  - Appropriate vaccination to prevent the occurrence of infectious diseases.
  - Cross-breeding programmes between foreign and local varieties.
- S19.** Fish culture (fish farming) in which both local and imported fish species are used is called composite fish culture. In such systems generally a combination of three Indian and three foreign (China) fish species is used in a single pond.
- The advantages of composite fish culture are:
- The fish species do not compete for food among them due to their different types of food habits.
  - The food available in the entire pond is utilised.
  - Fish yield from the pond is increased.

- S20.** Fields crops are harmed by a large number of weeds, insect pests and diseases. Preventive measures and biological control methods are preferred for protecting crops due to the following reasons:
- Weeds compete for food, space and light. They take up nutrients and reduce the growth of the crop. Hence, the removal of weed is essential.
  - Insect pests affect the health of the crop and reduce its yield.
  - The pathogens such as bacteria, fungi and viruses cause diseases in the plants.
- Thus, weeds, insect pests and pathogens should be controlled to get proper yield of the crop.
- S21.** Condition (c) will give the most benefits. It is because the following techniques have to be adopted to get maximum benefit from a crop:
- High quality seeds should be used.
  - Proper irrigation method should be adopted.
  - Fertiliser should be applied in proper dose at appropriate time.
  - Proper crop protection measures should be used.
- S22.** Genetic manipulation is a way of incorporating desirable characters in crop varieties by the process of hybridisation. Hybridisation involves crossing between genetically dissimilar plants. The genetic crossing may be of the following types:
- Intervarietal (between different varieties).
  - Interspecific (between two different species of the same genus).
  - Intergeneric (between different genera).
- The crop can be improved by introducing a gene that provides the desired characteristic.
- Genetic manipulation is useful in agriculture because it results into genetically improved crops. The new variety of crop produces high yields under different condition found in different areas.
- S23.** The use of manure enriches the soil with nutrients and organic matter. It increases soil fertility by supplementing the general requirement of soil.
- Fertilisers supply nitrogen, phosphorus and potassium. They are nutrient specific. Continuous use of fertilisers in a particular soil can destroy its fertility because the organic matter is not replenished in the soil and soil microorganisms are also get harmed.
- S24.** Desirable characters of bee-varieties suitable for honey production are:
- Docile nature and amiable temperament.
  - High honey collection capacity.
  - Can be domesticated easily in artificial hives.
  - Ability to protect itself from enemies.
  - Resistant to diseases
- S25.** Crop production management controls the various aspects of crop production so as to obtain the maximum and best yield. It includes three components - nutrient management, irrigation and cropping pattern.
- Nutrient management:** It involves controlling the selection, timing and amount of nutrient supply to the crops. Crop plants regularly withdraw minerals from soil. Mineral replenishment is done through addition of manure and fertilisers.
- Irrigation:** Crop plants obtain water from soil. Soil obtains water from rain. However, sufficient rain is not always there. Therefore, soil is not able to supply required water to crops. So, assured irrigation is must. The process of supplying water to crop plants through human efforts by means of canals, wells, reservoir, tubewells etc., is known as irrigation.
- Cropping pattern:** Inter-cropping and crop-rotation are to obtain maximum benefit. Inter-cropping ensures maximum utilisation of the nutrients. It also prevents pests and diseases from spreading to all the plants belonging to one crop in a field. Thus, both crops can give better returns.