CASE STUDY QUESTIONS

### Improvement in Food Resources

CASE 1

Different crops require different climatic conditions, temperature and photoperiods for their growth and completion of their life cycle. Photoperiods are related to the duration of sunlight. Growth of plants and flowering are dependent on sunlight. As we all know, plants manufacture their food in sunlight by the process of photosynthesis. There are some crops, which are grown in the rainy season, called the kharif season from the month of June to October, and some of the crops are grown in the winter season, called the Rabi season from November to April. Paddy, soyabean, pigeon pea, maize, cotton, green gram and black gram are kharif crops, whereas wheat, gram, peas, mustard, linseed are Rabi crops.

In India there has been a four times increase in the production of food grains from 1952 to 2010 with only 25% increase in the cultivable land area. This increase in production has been achieved through the practices involved in farming, we can divide it into three stages. The first is the choice of seeds for planting. The second is the nurturing of the crop plants. The third is the protection of the growing and harvested crops from loss. Thus, the major groups of activities for improving crop yields can be classified as: • Crop variety improvement • Crop production improvement • Crop protection management.

(1) What is the kharif season period?

(a) June to July

(b) June to October

(c) June to November

(d) June to December

(2) What is Rabi season period?

(a) November to April

(b) November to March

(c) November to February

(d) November to January

(3) Plants manufacture their food in sunlight by the process called \_\_\_\_\_\_\_\_\_\_

(a) Photosynthesis

(b) Photoperiod

(c) Photolysis

(d) None of the above

(4) Enlist the names of Kharif crops.

(5) Enlist the names of Rabi crops.

Answer key

(1) B

(2) A

(3) A

(4) Kharif crops

Paddy, soyabean, pigeon pea, maize, cotton, green gram and black gram

(5) Rabi crops

Wheat, gram, peas, mustard, linseed .

**CASE 2**

Cattle husbandry is done for two purposes— milk and draught labour for agricultural work such as tilling, irrigation and carting. Indian cattle belong to two different species, *Bosindicus*, cows, and *Bosbubalis*, buffaloes. Milk-producing females are called milch animals (dairy animals), while the ones used for farm labour are called draught animals.

Milk production dependson the duration of the lactation period, meaning the period of milk production after the birth of a calf. So, milk production can be increased by increasing the lactation period. Exotic or foreign breeds (for example, Jersey, Brown Swiss) are selected for long lactation periods, while local breeds (for example, Red Sindhi, Sahiwal) show excellent resistance to diseases. The two can be cross-bred to get animals with both the desired qualities.

Proper cleaning and shelter facilities for cows and buffaloes are required for humane farming, for the health of the animals and for production of clean milk as well. The food requirements of dairy animals are of two types: (a) maintenance requirement, which is the food required to support the animal to live a healthy life, and (b) milk producing requirement, which is the type of food required during the lactation period.

Cattle suffer from a number of diseases. The diseases, besides causing death, reduce milk production. The external parasites live on the skin and mainly cause skin diseases. The internal parasites like worms, affect stomach and intestine while flukes damage the liver.

(1) Identify the exotic breed of cow

(a) Red Sindhi

(b) Sahiwal

(c) Brown Swiss

(d) All of the above

(2) Identify the correct statements

Statement 1 – Milk production depends on the duration of the lactation period.

Statement 2 – Exotic or foreign breeds are selected for long lactation periods.

Statement 3 – Local breeds show excellent resistance to diseases.

Statement 4 – Animals used for farm labour are called draught animals.

(a) Both 1 & 2

(b) Only 3

(c) Both 3 & 4

(d) All of the above

(3) Milk-producing females are termed as

(a) Milch animals

(b) Dairy animals

(c) Draught animals

(d) Both a & b

(4) Enlist any two Indian cattle species.

(5) What are the food requirements of dairy animals?

Answer key

(1) C

(2) D

(3) D

(4) Indian cattle belong to two different species

* *Bosindicus* – cows.  
  •*Bosbubalis* – buffaloes.

(5) The food requirements of dairy animals are of two types

* Maintenance requirement – which is the food required to support the animal to live a healthy life.  
  •Milk producing requirement -which is the type of food required during the lactation period.

**Case 3**

### CASE 3

Poultry farming is undertaken to raise domestic fowl for egg production and chicken meat. Improved poultry breeds are developed and farmed to produce layers for eggs and broilers for meat. The cross-breeding programmes between Indian (indigenous, for example, Aseel) and foreign (exotic, for example, Leghorn) breeds for variety improvement are focused on to develop new varieties for the following desirable traits— number and quality of chicks; dwarf broiler parent for commercial chick production; summer adaptation capacity/ tolerance to high temperature; low maintenance requirements; reduction in the size of the egg-laying bird with ability to utilise more fibrous cheaper diets formulated using agricultural by-products.

Broiler chickens are fed with vitamin-rich supplementary feed for good growth rate and better feed efficiency. Care is taken to avoid mortality and to maintain feathering and carcass quality. They are produced as broilers and sent to market for meat purposes. For good production of poultry birds, good management practices are important. The housing, nutritional and environmental requirements of broilers are somewhat different from those of egg layers. The daily food requirement for broilers is protein rich with adequate fat. The level of vitamins A and K is kept high in the poultry feeds. Poultry fowl suffer from a number of diseases caused by virus, bacteria, fungi, parasites, as well as from nutritional deficiencies. Appropriate vaccination can prevent the occurrence of infectious diseases and reduce loss of poultry during an outbreak of disease.

(1) Identify the incorrect statements

Statement 1 – Broiler chickens are fed with vitamin-rich supplementary feed for good growth.

Statement 2 – The level of vitamins A and K is kept high in the poultry feeds

Statement 3 – The level of vitamins A and K is kept low in the poultry feeds

Statement 4 – Improved poultry breeds are developed and farmed to produce layers for eggs and broilers for meat.

(a) Both 1 & 2

(b) Only 2

(c) Only 3

(d) None of the above

(2) Poultry breeds which are produce for eggs are termed as \_\_\_\_\_\_\_\_\_

(a) Layers

(b) Broilers

(c) Indigenous

(d) Exotic

(3) Poultry breeds which are produce for meat are termed as \_\_\_\_\_\_\_\_\_

(a) Layers

(b) Broilers

(c) Indigenous

(d) Exotic

(4) What are the objectives of cross-breeding programme in Indian and Exotic breed.?

(5) Enlist the name of Indian and Exotic breed.

Answer key

(1) c

(2) a

(3) b

(4) The cross-breeding programmes between Indian (indigenous, for example, Aseel) and foreign (exotic, for example, Leghorn) breeds for variety improvement are focused on to develop new varieties for the following desirable traits— number and quality of chicks; dwarf broiler parent for commercial chick production; summer adaptation capacity/ tolerance to high temperature; low maintenance requirements; reduction in the size of the egg-laying bird with ability to utilise more fibrous cheaper diets formulated using agricultural by-products.

(5) Indigenous or Indian breed – for example, Aseel

Foreign or Exotic – for example, Leghorn

**CASE 4**

### CASE 4

Honey is widely used and therefore bee keeping for making honey has become an agricultural enterprise. Since bee-keeping needs low investments, farmers use it as an additional income generating activity. In addition to honey, the beehives are a source of wax which is used in various medicinal preparations. The local varieties of bees used for commercial honey production are *Apisceranaindica*, commonly known as the Indian bee, A. dorsata, the rock bee and A. florae, the little bee. An Italian bee variety, A. mellifera, has also been brought in to increase yield of honey.

The Italian bees have high honey collection capacity. They sting somewhat less. They stay in a given beehive for long periods, and breed very well. For commercial honey production, bee farms or apiaries are established. The value or quality of honey depends upon the pasturage, or the flowers available to the bees for nectar and pollen collection. In addition to adequate quantity of pasturage, the kind of flowers available will determine the taste of the honey.

(1) Which species of bee is commonly known as the Indian bee?

*(a) Apisceranaindica*

*(b) Apisdorsata*

*(c) Apismellifera*

*(d) Apis florae*

(2) Which species of bee is commonly known as the rock bee?

*(a) Apisceranaindica*

*(b) Apisdorsata*

*(c) Apismellifera*

*(d) Apis florae*

(3) Which species of bee is commonly known as the little Bee?

*(a) Apisceranaindica*

*(b) Apisdorsata*

*(c) Apismellifera*

*(d) Apis florae*

(4) Identify the correct statements

Statement 1 – Beehives are a source of wax which is used in various medicinal preparations.

Statement 2 – *Apisceranaindica* is commonly known as the Indian bee

Statement 3 – *Apisdorsata* is known as the rock bee

Statement 4 -The quality of honey depends upon the flowers available for nectar and pollen collection.

(a) Both 1 & 2

(b) Both 3 & 4

(c) Only 1

(d) All of the above

(5) Enlist the local varieties of bees used for commercial honey production.

Answer key

(1) a

(2) b

(3) d

(4) d

(5) The local varieties of bees used for commercial honey production

* *Apisceranaindica*, commonly known as the Indian bee
* *Apisdorsata*, the rock bee.
* *Apis florae,* the little bee.

**CASE 5**

### CASE 5

Fish is a cheap source of animal protein for our food. Fish production includes the finned true fish as well as shellfish such as prawns and molluscs. There are two ways of obtaining fish. One is from natural resources, which is called capture fishing. The other way is by fish farming, which is called culture fishery. The water source of the fish can be either seawater or fresh water, Fishing can thus be done both by capture and culture of fish in marine and freshwater ecosystems

Popular marine fish varieties include pamphlet, mackerel, tuna, sardines, and Bombay duck. Marine fish are caught using many kinds of fishing nets from fishing boats. Some marine fish of high economic value are farmed in seawater. This includes finned fishes like mullets, bhetki, and pearl spots, shellfish such as prawns mussels and oysters as well as seaweed. Oysters are also cultivated for the pearls they make. As marine fish stocks get further depleted, the demand for more fish can only be met by such culture fisheries, a practice called mariculture.

Fresh water resources include canals, ponds, reservoirs and rivers. Brackish water resources, where seawater and fresh water mix together. Most fish production from these resources is through aquaculture.

(1) Fish obtaining from natural resources are termed as \_\_\_\_\_\_\_

(a) Capture fishing

(b) Culture fishing.

(c) Marine fishing.

(d) Freshwater fishing.

(2) Which of the following are marine fish varieties

(a) Pamphlet

(b) Mackerel

(c) Tuna

(d) All of the above

(3)Oysters are cultivated for

(a) Perales

(b) Meat

(c) Seaweeds

(d) None of the above

(4) Identify the correct statements

Statement 1 – Fish is a source of animal protein for our food.

Statement 2 – Oysters are also cultivated for the pearls.

Statement 3 – There are two ways of obtaining fish – Natural resources & Fish farming.

Statement 4 – Pamphlet is the popular marine fish varieties.

(a) Both 1 & 2

(b) Both 3 & 4

(c) Only 1

(d) All of the above

(5) Enlist the varieties of fishes.

Answer key

(1) a

(2) d

(3) a

(4) d

(5) Varieties of fishes are given below,

•Pamphlet  
•Mackerel  
•Tuna  
•Sardines  
•Bombay duck