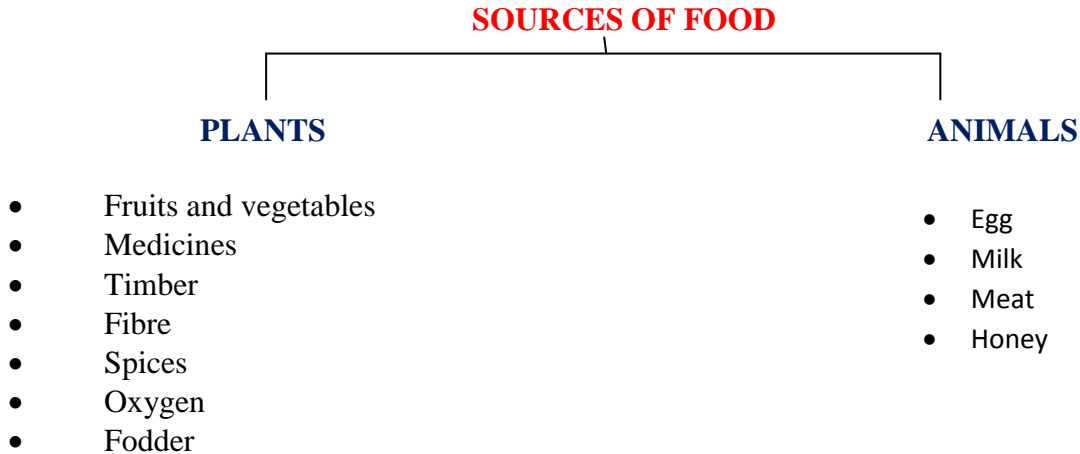


IMPROVEMENT IN FOOD RESOURCES (ANIMAL RESOURCES)

(Notes, mind map and question answers)

(Question answers are to be done in Fair Notebook)



ANIMAL HUSBANDRY

It is the scientific management of livestock to increase yield obtained from them. It includes three procedures:

- a. Feeding and heeding (caring)
- b. Breeding
- c. Weeding (to remove any disease causing animal from healthy group of animals)

I. CATTLE FARMING

There are 2 categories of animals: **Milch Animals** (giving milk) and **Drought Animals** (doing hard laborious work)

In India, cattle belongs to 2 different species: *Bos indicus* (cow) and *Bos bubalis* (buffalo). Various aspects of cattle farming are as follow.

a) **BREEDING:** Amount of milk produced depends upon lactation period of animal i.e. milk production period of female after birth of calf. Better and new breeds of cows and buffaloes have been introduced to increase milk yield and this depends upon following characteristics:-

- They should have a long lactation period.
- They should be resistant to diseases.
- Foreign or exotic breeds are chosen for cross breeding as they have a long lactation period. **Examples of foreign breeds are Jersey and Brown Swiss.**
- Local or indigenous breeds are chosen as they are disease resistant.

Examples of indigenous breeds are Sahiwal, Red Sindhi

Local and exotic breeds are cross breed to obtain a better variety of cattle which shows both the desired characteristics.

b) **SHELTER:** Features of a good shelter are:

- It should be well ventilated to protect animals from rain, heat and cold.
- Shelter must be washed and cleaned regularly to remove left over food and excreta which can lead to many microbial diseases.
- Shed should have a good drainage system and floor should be sloppy so that animals urine and excreta can be removed easily.
- Shed shouldn't have any pointed structure which can harm animals.

c) **CARING:**

Animals should be:

- cleaned, washed and brushed regularly.
- given proper balanced diet.
- vaccinated on time.

All these factors will help to keep animals disease free and will increase milk production.

d) **FEEDING:** There are 2 kinds of foods given to cattle:-

MAINTENANCE FOOD	MILK PRODUCTION FOOD
<ul style="list-style-type: none"> • This is given to animals for a healthy life. 	<ul style="list-style-type: none"> • This food is given to animals to increase milk yield.
<ul style="list-style-type: none"> • Given throughout their life. 	<ul style="list-style-type: none"> • During lactation period.

Cattle feed consists of following components:-

Roughage: This kind of food contains large amount of fibres.

Concentrate: It contains large amount of proteins and other nutrients but has less amount of fibres.

Additive Nutrients: Besides proteins and fibres food must also contain additive foods and nutrients which contain micro nutrients which are important for good health and proper milk production.

DISEASES IN CATTLE

Cattles are affected by variety of parasites which can be worms, micro-organisms, insects, endoparasites and ectoparasites.

ENDOPARASITES	ECTOPARASITES
<ul style="list-style-type: none"> • They live inside the body of animals. 	<ul style="list-style-type: none"> • They live on the body of animals.
<ul style="list-style-type: none"> • These parasites generally cause intestinal and digestive problems. 	<ul style="list-style-type: none"> • They generally cause skin diseases.
<ul style="list-style-type: none"> • E.g. worms, liver fluke, bacteria, viruses etc. 	<ul style="list-style-type: none"> • E.g. ticks, mites, lice, fungus etc.

DISTINGUISHING HEALTHY AND DISEASED ANIMALS

HEALTHY ANIMAL	DISEASED ANIMAL
<ul style="list-style-type: none">• It gives a good yield of milk.	<ul style="list-style-type: none">• Milk yield reduces
<ul style="list-style-type: none">• Posture of animal is straight.	<ul style="list-style-type: none">• It doesn't show a straight posture.
<ul style="list-style-type: none">• Animal has a good and a regular diet.	<ul style="list-style-type: none">• It stops feeding and doesn't show a regular diet.
<ul style="list-style-type: none">• It shows a normal active behaviour.	<ul style="list-style-type: none">• Animal becomes lazy.
<ul style="list-style-type: none">• Coat of animal is shiny	<ul style="list-style-type: none">• Animal's skin or coat starts losing its lustre.

CURE OF DISEASES: Animals can be cured by giving proper rest and medication.

PREVENTION OF DISEASES: Diseases can be prevented by following ways:-

- Vaccinating animals against diseases.
- Keeping sheds and surroundings clean and hygienic.
- Cleaning and brushing animals regularly.
- Providing them with healthy and balanced diet.
- Keeping diseased animals away from healthy ones.

II POULTRY FARMING

It is rearing of hens and ducks for eggs and meat.

Birds which are reared for eggs – **Layers**

Birds which are reared for meat – **Broilers**

a) **BREEDING:** Local and exotic varieties are inter bred to obtain better varieties of birds. Eg. **local variety – Aseel**
Exotic variety – Leghorn

b) **FEEDING AND CARING OF BIRDS:**

Layers:

- They should be provided with food rich in calcium, vitamin A and vitamin K.

Broilers:

- These birds should be fed with food rich in proteins and adequate amount of fats along with calcium, vitamin A and vitamin K.
- Care should be taken to avoid mortality and to maintain good feathering and carcass quality.

Layers and Broilers both:

- Poultry shed should have optimum temperature and proper hygiene.
- Shelter should be well lighted.
- Birds and surroundings should be kept clean to protect them from diseases and pests.

Diseases in poultry:

Poultry mainly suffer from diseases caused due to:-

- Micro – organisms like bacteria, fungi, and virus.
- Nutritional deficiency.

Prevention of diseases: Diseases can be prevented by:

- Vaccinating birds against disease.
- Providing them with a healthy diet.
- Proper cleaning and sanitation of shed.
- Spraying disinfectants which will kill pathogens and pests.
- Birds should be given regular mud bath.

III FISHERIES

Fishes are caught from following sources:

FRESH WATER

- ponds
- rivers
- lakes

MARINE WATER

- seas
- oceans
 - Fishes are cheapest source of animal proteins.
 - There are 2 kinds of fishes which are reared or caught:

TRUE FINNED FISHES

- rohu
- catla
- mrigal
- pomphret

SHELLED ANIMALS

- prawns
- crabs
- lobsters
- oysters

Fishes are caught/obtained using 2 methods. They are:

CAPTURE FISHING - method in which fishes are directly collected from natural water resources using fishing nets.

CULTURE FISHING - In this method, fishes are reared under artificial conditions to increase fish yield.

a) MARINE WATER FISHING

Following animals and fishes are caught and reared exclusively under marine fisheries:-

TRUE FINNED FISHES

- pomphret
- bombay duck
- tuna
- millets
- bhetki - sardines

SHELLED ANIMALS

- prawns
- lobsters
- crabs
- mussels

There are some marine fishes which have high economic value. E.g. mullets, pearl spot, prawns, oysters, lobsters and crabs.

Two methods to catch marine fishes:-

- **CAPTURE FISHING:**

- Fishes are directly caught from seas and oceans using different kinds of fishing nets.
- Large school of fishes are detected in open sea using satellites and echo sounders.

- **CULTURE FISHING:**

Since marine fishes get depleted very quickly demand for more fishes can be met by using culture methods where fishes are reared under artificial conditions and this method is called as **Mariculture**.

- **FRESH WATER FISHING**

Fishes are caught from rivers, lakes, ponds, estuaries and lagoons. E.g. mrigals, catla and rohu. Fresh water fishes can be caught and reared by following methods:-

- **Capture Fishing:** methods by which fishes are directly caught from water using nets.
- **Culture Fishing:** methods to increase yield of fishes by rearing them under artificial conditions and this method of rearing freshwater fishes under artificial conditions is called as aqua culture.

AQUACULTURE	MARICULTURE
<ul style="list-style-type: none"> • Method of rearing fresh water fishes in artificial conditions. 	<ul style="list-style-type: none"> • Method of rearing marine water fishes in artificial conditions.

- There are 2 different methods of culture fishing which are used to improve yield of fishes:-

- Water which is used for cultivating paddy can be used for rearing fishes.

- **Composite Culture System:** system in which 5-6 species of fish are reared on a single pond, fishes are selected in such a manner that they don't compete with each other.

ADVANTAGES OF COMPOSITE FISH CULTURE SYSTEM:

- ★ All food available in fish pond is utilised by fishes without any competition.

- ★ This method helps out to increase yield of fishes in a single pond.

E.g. Following fishes are reared together in a single fish pond:-

Catla – surface feeder

Rohu – middle zone }
 Mrigal }
 Common carp bottom feeder
 Grass carp – feeds on the weeds

DISADVANTAGE OF COMPOSITE FISH CULTURE SYSTEM:

Many of these fishes breed only during monsoons so there is always a lack of availability of good quality seeds (Eggs).

During most parts of the year to **overcome this problem** a new method has been worked out in which fishes are given hormonal injections due to which there is always a supply of pure fish seeds in desired quantities throughout the year.

IV BEE KEEPING

i. Rearing of honeybees is called **apiculture** and they are reared in structure called **as apiaries**.

ii. Honeybees are reared for honey and bee wax(used in medicines)

iii. Some of the local and Indian varieties of honey bees are:

1. *Apis cerana indica* – indian bee

2. *Apis florea* – little bee

3. *Apis dorsata* – rock bee

An Italian/foreign variety has been used to increase production of honey.

Apis mellifera – Italian bee

CHARACTERISTICS

Characteristic features of this Italian bee are:-

- High honey collection capacity

- They sting less

- Live in given beehive for longer period of time

- Breed very well

QUALITY OF HONEY BEE: quality of honey bee depends upon:-

- **Kind of flowers available which determines taste of honey**
- **Amount of quantity of flowers available for pollen and nectar collection and this is called as pasturage.**

Please refer to the given video links for online tutorials.

Animal husbandry : <https://youtu.be/Bc1UJZTcHkc>

Poultry farming : https://youtu.be/PiCY3_wJMvM

Bee keeping : https://youtu.be/7U2_Y4blt-M

Fish production : <https://youtu.be/TSn2sDq5VJE>

IN TEXT QUESTIONS (To be done in fair notebook)

NCERT Page 210

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

Ans : Cross breeding is a process in which indigenous breeds of cattle are crossed with 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(character of exotic breed) and should be resistant to climatic conditions and diseases(character of Indian breed).

NCERT Page 211

1. 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.”

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

Ans. Management practices common in dairy and poultry farming are:

- (i) Shelter : Dairy animals and poultry birds require proper and hygienic shelter.
- (ii) Feeding : To get good yield of food product, proper feed is provided to dairy animals and poultry birds.
- (iii) Caring for animal health : Animals and birds must be protected from diseases caused by virus, bacteria or fungi.
- (iv) Breeding: This practice is followed to get animals and birds with desired characters.

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

Ans : The poultry bird reared 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 layers. Protein rich food with adequate fat 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.

NCERT Page 213

1. 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**.

2. 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 the pond.

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

Ans : The desirable characters of bee varieties suitable for honey production are:

- (i) The bees should stay in a given beehive for a longer period.
- (ii) The bees should be capable 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 nectar for honey production.

4. 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** that decides the quality of honey. In addition to adequate quantities of pasturage, the kind of flowers available will determine the taste of the honey.

EXERCISES

NCERT Page 214,215 (to be done in fair notebook)

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 plants from different areas are 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 and following good management practices.

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, bhetki and mullets are cultured for fishing.

(iii) Aquaculture : It is done both in freshwater and in marine water.