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9TH AVENUE, I. P EXTENSION , PATPARGANJ, DELHI - 92

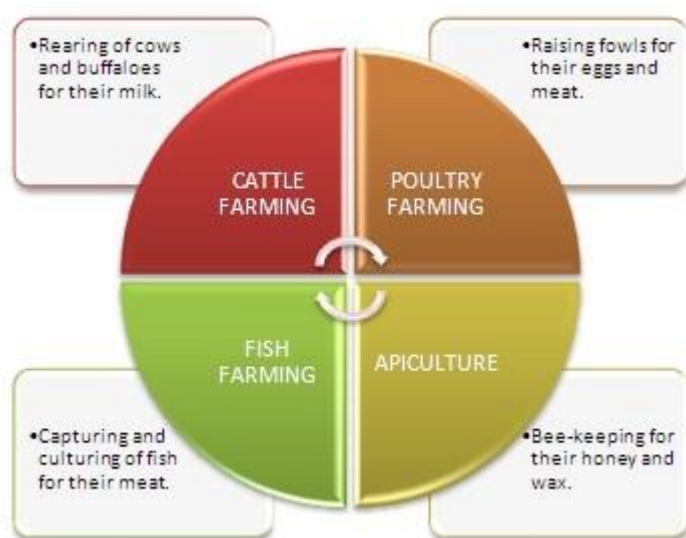
CLASS- IX

SUBJECT- BIOLOGY

NOTES: LESSON 15- IMPROVEMENT IN FOOD RESOURCES (PART -2)

Animal Husbandry-

Animal husbandry is the practice employed to increase the production of animal products by livestock. Animal husbandry includes feeding, breeding, and disease control of livestock animals.



Advantages of animal husbandry:

As animal husbandry is scientific management of farm animals, it serves many uses for human beings.

- It helps in enhancing milk production
- It increases egg production
- It increases meat production
- It increases fish production
- It helps in proper management of agricultural wastes.

Cattle Farming

Cattle farming involves rearing and management of two types of animals- one group for food requirements like milk and another for labour purposes like ploughing, irrigation, etc.



Dairy/ Milch Animals - Animals which provide milk are called milch/dairy animals. For example, goats, buffalo, cows, etc.

Indian milch cattle belong to two different species- Cows (*Bos indicus*) and Buffaloes (*Bos bubalis*).

Drought Animals-Animals which are used for labour are called draught animals.

Lactation Period: Female cattle give milk after birth of calf (baby). The time duration for which she gives milk is called lactation period.

Breeds of Cow

1. **Indegenous/ Local breeds:** They are local or desi breeds show excellent resistance to diseases.

2. For example: Red Sindhi and Sahiwal

2. **Exotic/ Foreign breeds:** They are the foreign breeds having long lactation period

For example: Jersey and Brown Swiss (Disease resistant species).

3. **Hybrid breeds:** They are the offsprings of cross between indigenous and exotic breeds to get desirable character.

4. Some successful cross-breeds are:

(i) **Karan Swiss:** Cross-breed of Brown Swiss and Sahiwal.

(ii) **Karan Fries:** Cross-breed of Holstein-Friesian and Sahiwal

Breeds of cow			Breeds of buffaloes
Indigenous breeds	Exotic breeds	Cross-breeds	Murrah, Meshsana and Surti
Sahiwal, Gir, Red Sindhi, Tharparkar	Jersey, Brown Swiss, Holstein-friesian	Karan Swiss, karan Fries, Frieswal	

Conditions necessary for animal shelter -

In cattle farming, animals are maintained in a strictly hygienic manner with proper housing. For the maintenance, we need to follow some routines.

- Animals and their sheds need to be cleaned at a regular interval.
- Animals should be brushed regularly to remove the dirt and bugs in their body.
- The shed should be well-ventilated and roofed so that animals are protected from rain, heat, and cold.
- A proper drainage system should be there to remove animal waste.
- The floor of the cattle shed needs to be sloping so as to stay dry and to facilitate cleaning.
- The shelter should be spacious enough for animals to stay comfortable and avoid overcrowding.
- The shelter should have proper arrangement for clean drinking water.

Food requirement of dairy animals: It is of two types:

1. **Maintenance requirement:** The food which helps in maintaining normal metabolic activities of the body.
2. **Milk producing requirement:** The food which is required during the lactation period.

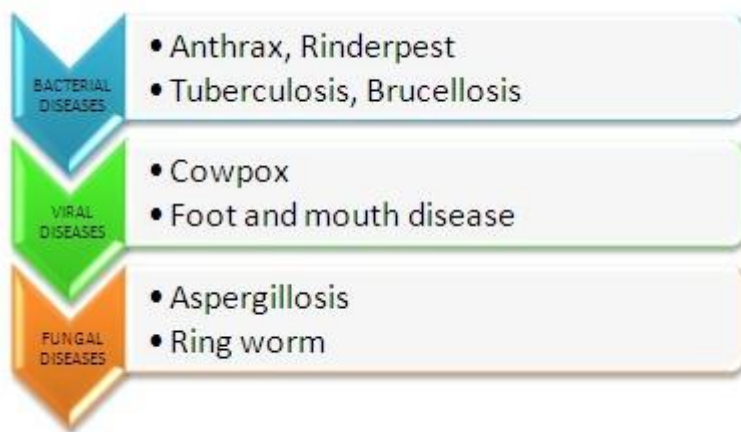
The cattle feed consist of two component- roughage and concentrate.

1. **Roughage:** It largely contains fibres such as green fodder, silage, hay and legumes like berseem, cowpea.
2. **Concentrates:** It is low in fibres but contains relatively high proteins and other nutrients. It includes cotton seeds, oilseeds, oats, barley, gram and their by-products like wheat, beans and molasses etc.

Diseases of cattle:

The diseases of dairy animals are broadly classified into:

1. **Diseases caused by parasites are of two types-**
Ectoparasites- External parasites like tick mite, lice, leech etc.
Endoparasites- Internal parasites like roundworms, tapworm etc.
2. **Communicable (infectious) diseases caused by pathogens like bacteria, viruses, fungi etc.**
3. **Non-communicable (non-infectious) diseases caused due to deficiency of nutrients or malfunctioning of body organs.**



Symptoms of sick animals:

- The animal become inactive and remain isolated.
- It stops eating food.
- It moves slowly or limps.
- The animal may pass loose dung and coloured urine.
- The animal may run temperature and shiver.
- The milk yield or working capacity of animal is reduced drastically.

Prevention of cattle diseases:

- The animal should be kept in spacious, cleaned and airy shelter.
- The animal should be given nutritious feed.
- They should be vaccinated at regular intervals.
- Proper disposal of wastes and isolation of sick animals is very important.

Poultry Farming

“Poultry farming mainly refers to growing and protecting various types of domestic birds commercially.”



Broilers- The specialized meat-producing poultry birds are called **broilers** **Layers**
- Egg-laying poultry birds are called **layers**.

Broilers: For Meat

- Broiler chickens are raised primarily for their meat.
- Chickens can be ready to harvest around 6 weeks of age



Layers: For eggs

- Hens begin laying eggs around 4 months of age
- A good hen lays 1 egg a day
- Lay eggs year round
- Production slows in winter



Poultry breeds	
Indigenous breeds	Exotic breeds
Assel, Burosa, Chattisgarh and kadaknath	White leghorn, Black Minorca, Rhode island red and Light Sussex

Variety improvement:

It is done by cross-breeding indigenous breeds with exotic breeds. The improved varieties are developed for the following desirable traits:

- To improve the quality and quantity of chicks.
- To develop breeds with low maintenance requirements.
- To develop dwarf broiler parents for commercial chick production.
- To develop varieties which have tolerance to high temperature (summer adaptation capacity)

Shelter:

- Shelter for poultry birds should be clean, well-illuminated and well-ventilated.
- Birds of different ages should be housed separately.
- Temperature in their living place should be kept between 34 °C to 38 ° C.

Diseases and pests of poultry birds:

Poultry birds suffer from number of diseases caused by virus (Bird flue disease), bacteria (Tuberculosis, Cholera diseases), fungi (Aspergillosis), parasites as well as nutritional deficiencies.

Preventions:

- By providing proper housing, cleanliness, sanitation and rich diet.
- By timely vaccination against infectious diseases.

Pisciculture-

“Fish production or fish farming is a form of aquaculture in which fish are raised in enclosures to be sold as food.”

Methods of Fish Production

Fish production can be done in two ways:

Capture Fishery

Naturally occurring fish are harvested by capture fishery. Capture fishery is sometimes also known as wild fishery.

Culture Fishery

This is the controlled cultivation of fish in water bodies. It can also be referred to as fish farming or pisciculture. The pisciculture is a form of aquaculture as aquaculture is the scientific rearing and management of all aquatic animals.

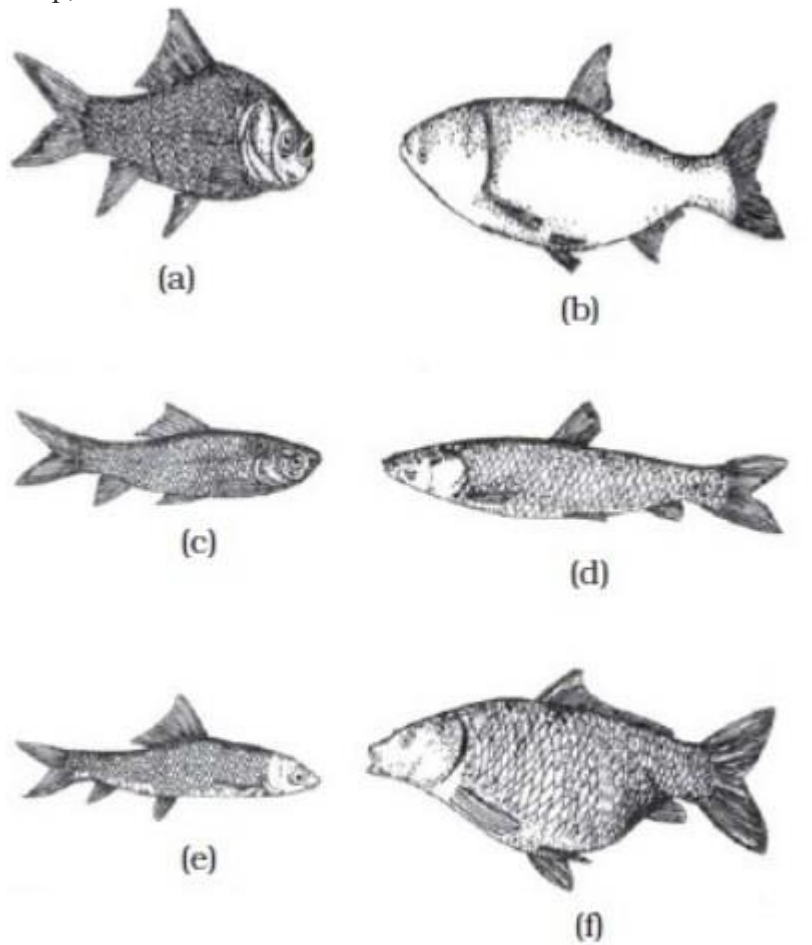
Fishery is further divided into:

- Inland Fishery
- Marine Fishery

Inland Fishery

- In this, fishing is done in freshwater bodies, such as lakes, ponds, rivers, and tanks. Reservoirs where freshwater bodies and seawater bodies join also form inland fisheries.
- The method incorporated here is generally pisciculture, as the yield of capture fishery is not very high.
- 5-6 species are reared in one water body. This selection of species is such that they have different food habits yet there is no competition for food.

- Common varieties reared are Rohu, Catla, Grass Carp, Common Carp,



(a) Catla (b) Silver carp (c) Rohu (d) Grass Carp (e) Mrigal (f) Common Carp

Figure 21 Inland Fisheries

Marine Fishery

- With the Indian landmass being a peninsula, we have been blessed with a coastline of 7517 km. Thus, fishing is a source of livelihood for 14 million people. These 14 million people cast their fishing nets in marine fisheries, i.e. in marine waters- the sea and the ocean.
- These are further divided into coastal fisheries that are near the shore and off-shore or deep-sea fisheries that are deeper in the sea.
- Sardines, mackerel, hilsa, tuna, Pomfret, mussels, prawns, oysters, etc. are some common types.

Composite fish culture:

- Intensive fish farming can be done in composite fish culture system. Both local and imported fish species are used in such systems.
- In such a system, a combination of five or six fish species is used in a single fishpond. These species are selected so that they do not compete for food among them having different types of food habits.
- As Catlas are surface feeders, Rohu feeds in the middle zone of the pond, Mrigal and Common Carps are bottom feeders and Grass Carps feed on the aquatic weeds.
- Composite culture is highly advantageous as:
 1. These fishes do not compete for food.
 2. The food available in all the part of the pond is used.
 3. Six different types of fishes are reared together.
 4. It gives very high yield.

Bee-Keeping (Apiculture) -

The practice of keeping or rearing, caring and management of honey bee on a large scale for obtaining honey and wax is called apiculture.



The place where bees are raised is called apiary. Besides honey, other products of beekeeping are bee wax, bee venom, propolis and royal jelly.

Bee-keeping require low investment and generates additional income, hence it is done by farmers along with agriculture.

Honey bee varieties used for bee-keeping:

Indigenous varieties	Exotic varieties
Apis cerana indica (Indian bee)	

Apis dorsata (Rock bee)
Apis florae (Little bee)

Apis mellifera (Italian bee)
Apis adamsoni (South African bee)



ROCK BEE



LITTLE BEE



INDIAN BEE



STINGLESS BEE

Importance of Beekeeping

The main advantages of beekeeping are:

1. Provides honey, which is the most valuable nutritional food.
2. Provides bee wax which is used in many industries, including cosmetics industries, polishing industries, pharmaceutical industries, etc.
3. Plays an excellent role in pollination. Honey bees are the best pollinating agents which help in increasing the yield of several crops.