

ANIMAL HUSBANDRY

- Animal husbandry is the agricultural practice of breeding and raising livestock.
- Animal husbandry deals with the care and breeding of livestock like buffaloes, cows, pigs, horses, cattle, sheep, camels, goats, etc., that are useful to humans. Extended, it includes poultry farming and fisheries.
- Fisheries include rearing, catching, selling, etc., of fish, molluscs (shell-fish) and crustaceans (prawns, crabs, etc.).
- Since time immemorial, animals like bees, silk-worm, prawns, crabs, fishes, birds, pigs, cattle, sheep and camels have been used by humans for products like milk, eggs, meat, wool, silk, honey, etc.
- It is estimated that more than 70 per cent of the world livestock population is in India and China. However, it is surprising to note that the contribution to the world farm produce is only 25 per cent, i.e., the productivity per unit is very low.
- Hence, in addition to conventional practices of animal breeding and care, newer technologies also have to be applied to achieve improvement in quality and productivity.
- Dairy Farm Management
- Dairying is the management of animals for milk and its products for human consumption.
- In dairy farm management, we deal with processes and systems that increase yield and improve quality of milk.
- Milk yield is primarily dependent on the quality of breeds in the farm.
- Selection of good breeds having high yielding potential (under the climatic conditions of the area), combined with resistance to diseases is very important.
- For the yield potential to be realized the cattle have to be well looked after – they have to be housed well, should have adequate water and be maintained disease free.
- The feeding of cattle should be carried out in a scientific manner – with special emphasis on the quality and quantity of fodder.
- Besides, stringent cleanliness and hygiene (both of the cattle and the handlers) are of paramount importance while milking, storage and transport of the milk and its products.
- Regular visits by a veterinary doctor would be mandatory.

POULTRY FARM MANAGEMENT

Poultry is the class of domesticated fowl (birds) used for food or for their eggs. They typically include chicken and ducks, and sometimes turkey and geese. The word poultry is often used to refer to the meat of only these birds, but in a more general sense it may refer to the meat of other birds too.

As in dairy farming, selection of disease free and suitable breeds, proper and safe farm conditions, proper feed and water, and hygiene and health care are important components of poultry farm management.

ANIMAL BREEDING

- Breeding of animals is an important aspect of animal husbandry. Animal breeding aims at increasing the yield of animals and improving the desirable qualities of the produce.

- A group of animals related by descent and similar in most characters like general appearance, features, size, configuration, etc are said to belong to a breed.
- When breeding is between animals of the same breed it is called inbreeding, while crosses between different breeds are called out breeding.

INBREEDING:

- Inbreeding refers to the mating of more closely related individuals within the same breed for 4-6 generations.
- The breeding strategy is as follows – superior males and superior females of the same breed are identified and mated in pairs.
- The progeny obtained from such matings are evaluated and superior males and females among them are identified for further mating.
- A superior female, in the case of cattle, is the cow or buffalo that produces more milk per lactation.
- On the other hand, a superior male is the bull, which gives rise to superior progeny as compared to those of other males.

INBREEDING INCREASES HOMOZYGOSITY

- Thus inbreeding is necessary if we want to evolve a pureline in any animal.
- Inbreeding exposes harmful recessive genes that are eliminated by selection.
- It also helps in accumulation of superior genes and elimination of less desirable genes. Therefore, this approach, where there is selection at each step, increases the productivity of inbred population.
- However, continued inbreeding, especially close inbreeding, and usually reduces fertility and even productivity.
- This is called inbreeding depression.
- Whenever this becomes a problem, selected animals of the breeding population should be mated with unrelated superior animals of the same breed. This usually helps restore fertility and yield.

OUT-BREEDING:

Out-breeding is the breeding of the unrelated animals, which may be between individuals of the same breed (but having no common ancestors), or between different breeds (cross-breeding) or different species (inter-specific hybridization).

- Out-crossing:** This is the practice of mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generations. The offspring of such a mating is known as an out-cross. It is the best breeding method for animals that are below average in productivity in milk production, growth rate in beef cattle, etc. A single outcross often helps to overcome inbreeding depression.
- Cross-breeding:** In this method, superior males of one breed are mated with superior females of another breed. Cross-breeding allows the desirable qualities of two different breeds to be combined. The progeny hybrid animals may themselves be used for commercial production. Alternatively, they may be subjected to some form of inbreeding and selection to develop new stable breeds that may be superior to the existing breeds. Many new animal breeds have been developed by this approach.

Hisardale is a new breed of sheep developed in Punjab by crossing Bikaneri ewes and Marino rams.

- iii) Interspecific hybridization: In this method, male and female animals of two different species are mated.
- In some cases, the progeny may combine desirable features of both the parents, and may be of considerable economic value, e.g., the mule.
 - Controlled breeding experiments are carried out using artificial insemination. The semen is collected from the male that is chosen as a parent and injected into the reproductive tract of the selected female by the breeder.
 - The semen may be used immediately or can be frozen and used at a later date. It can also be transported in a frozen form to where the female is housed. In this way desirable matings are carried.
 - Artificial insemination helps us overcome several problems of normal matings.
 - To improve chances of successful production of hybrids, other means are also used.
- Multiple Ovulation Embryo
- Transfer Technology (MOET) is one such programme for herd improvement.
 - In this method, a cow is administered hormones, with FSH-like activity, to induce follicular maturation and super ovulation – instead of one egg, which they normally yield per cycle; they produce 6-8 eggs.
 - The animal is either mated with an elite bull or artificially inseminated.
 - The fertilized eggs at 8–32 cells stages, are recovered nonsurgically and transferred to surrogate mothers.
 - The genetic mother is available for another round of super ovulation.
 - This technology has been demonstrated for cattle, sheep, rabbits, buffaloes, mares, etc.
 - High milk yielding breeds of females and high quality (lean meat with fewer lipids) meatyielding bulls have been bred successfully to increase herd size in a short time.

BEE-KEEPING

- Bee-keeping or apiculture is the maintenance of hives of honeybees for the production of honey. It has been an age-old cottage industry.
- Honey is a food of high nutritive value and also finds use in the indigenous systems of medicine. Honeybee also produces beeswax, which finds many uses in industry, such as in the preparation of cosmetics and polishes of various kinds.
- Bee-keeping can be practiced in any area where there are sufficient bee pastures of some wild shrubs, fruit orchards and cultivated crops.
- There are several species of honeybees which can be reared. Of these, the most common species is *Apis indica*.
- Beehives can be kept in one's courtyard, on the verandah of the house or even on the roof. Bee-keeping is not labour-intensive.

The following points are important for successful bee-keeping:

- Knowledge of the nature and habits of bees,
- Selection of suitable location for keeping the beehives,
- Catching and hiving of swarms (group of bees),
- Management of beehives during different seasons, and
- Handling and collection of honey and of beeswax.

FISHERIES

- Fishery is an industry devoted to the catching, processing or selling of fish, shellfish or other aquatic animals. A large number of our population is dependent on fish, fish products and other aquatic animals such as prawn, crab, lobster, edible oyster, etc., for food.
- Some of the freshwater fishes which are very common include Catla, Rohu and common carp.
- Some of the marine fishes that are eaten include – Hilsa, Sardines, Mackerel and Pomfrets.
- In order to meet the increasing demands on fisheries, different techniques have been employed to increase production. For example, through aquaculture and pisciculture we have been able to increase the production of aquatic plants and animals, both fresh-water and marine.
- We now talk about 'Blue Revolution' as being implemented along the same lines as 'Green Revolution'

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