Animal Husbandry

1 Mark Questions

1. Write a professional approach at genetic level that can help the farmer to improve the milk yield of low milk producing cows in his farm.
[Delhi 2013C]
Ans. Out-crossing is the professional approach which will help the farmer to improve milk yield of low milk producing cows.

2. Write the name of the following
(i)The most common species of bees suitable for apiculture.
(ii) An improved breed of chicken. [All India 2012]
Ans. (i) Apis indica is the most common species of bees for apiculture.
(ii) Leghorn is an improved chicken breed.

3. Which one of the following is used in apiculture Hilsa, Apis indica, Sonalika?
[Foreign 2009]
Ans. Apis indica.

4.Mention the strategy used to increase homozygosity in cattle for desired traits. [All India 2009]
Ans. Inbreeding is the strategy used to increase homozygosity. It refers to mating of more closely related individuals of the same breed for 4-6 generations.

5. List any two economically important products for human obtained from Apis indica. [Delhi 2008]

Ans. Honey and beewax are two economically important products obtained from Apis indica.

2 Marks Questions

6. State the disadvantage of inbreeding among cattle. How it can be overcome? [Delhi 2014]

Ans. Continued inbreeding among cattles reduces their fertility as well as productivity, resulting in inbreeding depression.It can be overcome by a single outcross, done by mating of cattle within the same breed, having no common ancestors of their pedigree upto 4-6 generations.

7. Explain the importance of inbreeding in cattle. [2014c]

Ans. The importance of inbreeding in cattle are:

(i) It increases homozygosity and evolve a pureline.

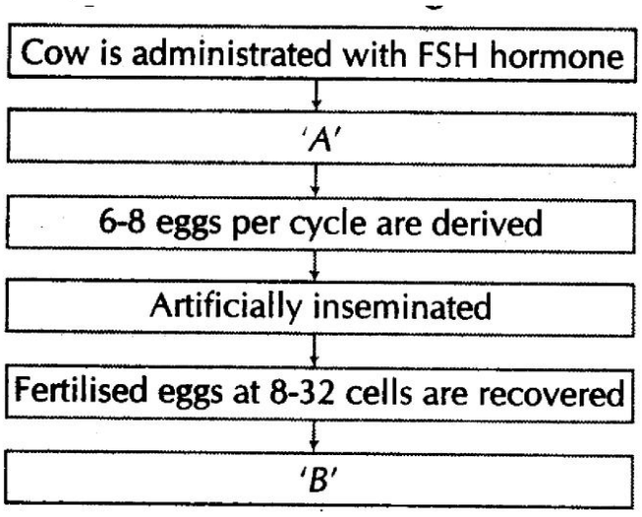
(ii) Accumulation of superior genes and elimination of less desirable genes by selection.

8. Differentiate between out-crossing and cross-breeding. [2014c]

Ans. Differentiate between out-crossing and cross-breeding.

Out-crossing	Out-breeding
This refers to the mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generation.	In this method superior males of one breed are mated with superior females of another breed.
Helps to overcome inbreeding depression.	Develop new stable superior breeds.

9. Study the flow chart given below:



- **Identify the events that take place at stages A'and 'B',**
- **State the importance of the technology explained above.**

[Foreign 2011]

Ans. (i) (A) The hormone induces follicular maturation and **superovulation**, i.e. production of 6-8 eggs per cycle.

(B) Fertilised eggs are recovered and are **transferred to surrogate mother.**

(ii) The technology is called MOET that is used to increase the herd size by mating high milk

yielding breed of females with high quality meat yielding bulls.

10. How is a pureline in an animal raised? Explain. [Delhi 2011c]
Ans. Pureline in an animal is raised by inbreeding as it increases homozygosity.
(i) Mating of more closely related individuals within same breed for 4-6 generations is called inbreeding.
(ii) In this process, superior males and superior females of same breed are identified and mated in pairs.
(iii) The progeny obtained from such matings are evaluated and superior males and females among them are identified for further matings.

11. How does inbreeding depression set in? Mention the procedure you would suggest to reverse this. [All India 2011C]
Ans. Inbreeding depression sets in when there iscontinued and close inbreeding. It reduces fertility and productivity. Whenever, this becomes a problem, selected animals of breeding population should be mated with unrelated superior animals of the same breed. This out cross helps in restoring fertility and yield and overcome inbreeding depression.

12. Honey collection improves, when beehives are kept in crop-fields during flowering season. Explain. [Delhi 2010]
Ans. During flowering season, the honeybees visit a number of flowers in search of edible pollen and nectar. Since, they collect nectar from a large number and variety of flowers, honey collection improves both in quality and quantity.

13. MOET programme has helped in increasing the herd size of the desired variety of cattle. List the steps involved in conducting the programme. [All India 2009]
Ans. Steps involved in MOET programme ere:
(i) A cow is administered hormones with ' FSH-like activity to induce follicular maturation and superovulation.
(ii) The cow produces 6-8 eggs instead of one egg produced normally.
(iii) Mating is done either with an elite bull or artificial insemination is carried out.
(iv) When the fertilised eggs attain 8-32 celled stage, they are non-surgically removed and transferred to a surrogate mother.
(v) The genetic mother can be again superovulated now.

14. List any four important components of poultry farm management.
[Delhi 2009]
Ans. Important components of poultry farm management are:
(i) Selection of disease-free and suitable breeds.
(ii) Proper and safe conditions of farm.
(iii) Proper food (feed) and water should be provided.
(iv) Hygiene and health care of birds is mandatory.

15. Give the scientific name of mostcommon species of honeybee reared in India. Why is it advantageous to keep beehives in crop-fields during flowering periods. [Delhi 2009c]
Ans. Most common honeybee species reared in India-Apis indica.

During flowering season, the honeybees visit a number of flowers in search of edible pollen and nectar. Since, they collect nectar from a large number and variety of flowers, honey collection improves both in quality and quantity.

3 Marks Questions

16. Why are beehives kept in a crop field during flowering period? Name any two crop fields where this is practised. [Delhi 2014]

Ans. During flowering period, beehives are kept in a crop field so as to increase the efficiency of pollination since, bees are pollinators. It also improves the yield and quality of honey and crops as well as, honeybees visit and collect nectar from a large number and variety of flowers.

The two Crop-fields, where bee-keeping is practised are those of Brassica and apple.

17. (i) What is the programme called, that is involved in improving success rate of production of desired hybrid and herd size of cattle?

(ii) Explain the method used for carrying this programme for cows.

[All India 2012]

or

Describe the technology that has successfully increased the herd size of cattle in a short time to meet the increasing demands of growing human population. [All India 2011]

Ans. (I) Multiple Ovulation Embryo Transfer (MOET) Technology.

(II) Steps involved in MOET programme ere:

(i) A cow is administered hormones with ' FSH-like activity to induce follicular maturation and superovulation.

(ii) The cow produces 6-8 eggs instead of one egg produced normally.

(iii) Mating is done either with an elite bull or artificial insemination is carried out.

(iv) When the fertilised eggs attain 8-32 celled stage, they are non-surgically removed and transferred to a surrogate mother.

(v) The genetic mother can be again superovulated now.

18. What is inbreeding depression and how is it caused in organism? Write any two advantages of inbreeding.[Delhi 2011]

Ans. Inbreeding refers to mating between closely related individuals within the same breed for p 4-6 generations. It usually results in reductionof fertility and productivity, when continued for longer time. This is called **inbreeding depression.**

Advantages of inbreeding are:

(i) Increases and evolves a pureline.

(ii) Recessive genes are exposed by inbreeding which can then be eliminated by selection.

19. (i) Write the scientific name of most common species of honey bee reared.

(ii)Mention the kind of areas that are suitable for bee-keeping practices.

(iii) Mention any two uses of beewax. [Delhi 2011C]

Ans. (i) Apis indica.

(ii) It can be practiced in any area, where there are sufficient bee pastures of some wild shrubs, fruit, orchards and cultivated crops.

(iii) Beewax is used in the preparation of cosmetics and polishes of various kinds.

20. What is 'blue revolution'? Name two freshwater and two marine edible fishs. [All India 2011C]

Ans. 'Blue revolution' is the movement launched to increase the production of fish and fish products.

Freshwater fishes are Rohu and catla.

Marine water fishes are Hilsa and Sardines

21. Explain the efforts, which must be put in, to improve health, hygiene and milk yield of cattle in dairy farm. [Delhi 2010]

Ans. To improve health, hygiene and milk yield of cattle in dairy farm
(i) They have to be housed well in proper, well-ventilated sheds.
(ii) Cleanliness and hygiene of both the cattle and the handlers are important.
(iii) Regular visit of veterinary doctor is necessary.
(iv) The feeding should be carried out in a scientific manner with special emphasis on quality and quantity of fodder.
(v) Breeding may be necessary for improving the milk yield and to make it disease resistance.

22. List any three outbreeding practices carried out to breed domestic animals. Explain the importance of each one listed. [Delhi 2010c]
Ans. Out breeding refers to the crosses between different breeds.
It is of following types:
(i) Out-crossing It is a practice of mating of animals of same breeds, having no common ancestors on either side of their pedigree for 4-6 generations.
A single out cross helps to overcome inbreeding depressions.
(ii) Cross-breeding In this method, superior male of one breed are mated with superior females of another breed.
This helps in combining the desirable qualities of two different breeds into the progeny.
(iii) Interspecific hybridisation In this method, male and female animals of two different related species are mated to combine the desirable features of both the parents into one, e.g. Mule is produced by a cross between male donkey and female horse.

23. (i) Inbreeding is advantageous as well as disadvantageous. Explain.
(ii) Differentiate between inbreeding and outbreeding. [Delhi 2010c]
Ans. Advantages of inbreeding are:
(a) It increases and evolves a pureline.
(b) Recessive genes are exposed by inbreeding, which are then eliminated by selection.
(c) Superior genes can be accumulated by inbreeding and thereby eliminating undesirable genes.
(d) By selection at every step, productivity of inbreed population is increased. Disadvantage of inbreeding is that close inbreeding leads to the reduction of fertility and productivity. This is due to inbreeding depression.
(ii) Difference between inbreeding and outbreeding is:

Inbreeding	Outbreeding
It refers to the mating of closely related individuals within the same breed for 4-6 generations.	It refers to breeding of unrelated animals either of the same breed with no common ancestor or between different breeds or different species.

24. Explain the advantages of inbreeding in cattle population. What effect does inbreeding depression have on cattle population and how is it overcome?[Foreign 2008]
Ans. Advantages of inbreeding in cattle population are:
(i) It increases homozygosity, hence evolve a pureline.
(ii) It helps in the accumulation of superior genes and elimination of less desirable genes.
(iii) It exposes harmful recessive genes and their elimination by selection.
Effects of inbreeding depression are:
(i) When continued over a long period of time, it reduces the fertility and over productivity of

animals.

(ii) Inbreeding depression can be overcome by out-crossing, i.e. mating of selected animals with unrelated superior animals of same breed. It helps to restore the fertility and yield in the cattle.

25. Out-crossing and cross-breeding are two breeding practices in animal husbandry. How are the two practices different from each other and what advantages are they do to the breeders? Explain. [All India 2008C]

Ans. Differentiate between out-crossing and cross-breeding.

Out-crossing	Out-breeding
This refers to the mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generation.	In this method superior males of one breed are mated with superior females of another breed.
Helps to overcome inbreeding depression.	Develop new stable superior breeds.

Advantages of out-crossing

(i) It is the best method for animals that are below average in productivity in milk production, growth rate, etc. It helps to overcome inbreeding depression.

Advantages of cross-breeding

(i) It allows the desirable qualities of two different breeds to be combined in a single progeny.

(ii) Progeny may be used for commercial production.

(iii) Many new breeds have been developed by this approach, i.e. Hisardale.

5 Marks Question

26. (i) State the objective of animal breeding.

(ii) List the importance and limitations of inbreeding. How can the limitations be overcome?

(iii) Give an example of a new breed each of cattle and poultry.

[All India 2014]

Ans.(i) The main objective of animal breedingis to increase the yield of animals and improve the desirable and superior qualities in both the animals and theirproducts.

(ii) Importance of Inbreeding-

Differentiate between out-crossing and cross-breeding.

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Limitations of Inbreeding Thecontinued inbreeding in animals forsubsequent generations

reduces theirfertility and productivity, resulting in condition called inbreeding depression.
The inbreeng depression can be overcome by a single outcross, i.e. mating between animals of same breed having no common ancestors up to 4-6 generations.
(iii) An example of new breed of cattle is Hisardale and that of poultry is new hampshire.