ZOS: 504- ANIMAL BREEDING

Teaching Hours 10 /unit

COURSE OUTCOME

1. Expertise on identification of various animal breeds such as cattle breeds, sheep, goat, swine, horse and poultry breeds etc
2. Trained in different animal husbandry practices and known the animal husbandry issues to deal with scientific temper.
3. Students trained to understand different process adopted by various scientific labs and animal breeding centres.
4. To understand inbreeding and crossbreeding effects related to production and conservation of species.
5. To understand complex inheritance and to be able to design a breeding program.
6. To be able to assess animal physical structure and make selection decisions based on that structure.
7. To be able to set goals relevant to overall aims.

UNIT I

Introduction to animal husbandry: Animal husbandry Practices in India. Issues in animal husbandry –Assessing risk, Animal welfare, environmental Issues, consumer issues, marketing issues. Diseases of domestic animal and preventive measures.History of Animal Breeding, Classification of livestock breeds, Traits of economic importance of different species of livestock, Traits of economic importance of different species of livestock, breeding research - Conservation of breeds. Conservation of animal genetic resources. IPR - issues pertaining to animal genetic resources/animal products or by-products.

UNIT II

Selection of animals for breeding-Methods of selection- selection criteria – Artificial selection, Long term artificial selection. Gametic selection, zygotic selection, heterozygous advantage. Heritability and genetic improvements- broad and narrow -sense heritability. Selection differential, generation interval, genetic gain.Evaluation of breeding animals-desirable traits, Identification system. Performance record, Reproductive efficiency, production traits, Selection indices. Selection of superior breeding stock-Breeding value, aids to selection.

UNIT III

Breeding methods –Inbreeding Systematic inbreeding measurement of inbreeding, panmictic index, Advantages and disadvantages of inbreeding. Cross breeding line breeding –Hybrid vigor, advantages and disadvantages. Methods of breeding of farm animals-cattle, swine, poultry, horse. Requirements and methods of breeding small laboratory animals (Rats and mice).

UNIT IV

Definition of breed-Breeds of animals- Cattle breeds-Beef cattle, Dairy cattle, Dairy goats, Sheep, Swine, Poultry and Horse breeds. Practical breeding plans –Dairy cattle breeding-Beef cattle breeding –Sheep breeding- Pig breeding –Poultry breeding. Feeding and managing of Dairy animals, Feeding and managing of swine, sheep poultry and horse breeds.Livestock Products Technology.

UNIT V

Modern trends in animal breeding-artificial insemination: super ovulation-embryo transfer techniques. Animal cloning. Institutional animal ethics committee. Advanced techniques in genetic manipulation for multiplication and improvement of livestock species.Current livestock and poultry breeding programme in country, Current livestock and poultry breeding programme in state.Bio-informatics in animal genetics and breeding.Pharming of Pharmaceuticals.

REFERENCES

1. Brackett B G, 2018: New Technologies in Animal Breeding, 4th edition, Elsver Pub
2. Bulmer MG. (1980) The Mathematical Theory of Quantitative Genetics. Clarendon Press.
3. Crow JF & Kimura M. (1970) An Introduction to Population Genetics. Theory. Harper & Row.
4. Dalton D.C (1980) An Introduction to practical animal breeding, Granada publishing Ltd., London.
5. Falconer DS & Mackay TFC. 1996. An Introduction to Quantitative Genetics. Longman.
6. Fox, J.G. and Cohen B.J (Ed)(1984) Laboratory animal in medicine Academic Press Inc.,
7. Jain, JP. 1982. Statistical Techniques in Quantitative Genetics. Tata McGraw-Hill.
8. Lasley J.F (1987) An introduction to Practical animal breeding, II Edition, Collins Publishing Ltd, London.
9. Ross CV. 1989. Sheep Production and Management. Prentice Hall.
10. Schmidt GM & Van Vleck LD. 1974. Principles of Dairy Science. WH Freeman.