Department of Livestock Production and Management

NU, SASRD, Medziphema

SYLLABI – Ph.D

LPM 601: ADVANCES IN CATTLE AND BUFFALO PRODUCTION AND MANAGEMENT **3(3+0)**

Objective

To acquaint students on latest developments on dairying in India compared with developed countries, problems and prospectus of dairying, detailed aspects of care and management of different classes of dairy cattle and buffaloes.

Theory

UNIT I

Dairy farming in India – Global scenario - Present status and reasons for the same – Avenues for progress – The needs of the nation and how to achieve it.

UNIT II

Advances in housing management of dairy cattle and buffaloes in various agro climatic zone of India - Management systems for cattle and buffaloes.

UNIT III

Establishing Dairy Cattle Enterprise – Characteristics of a successful dairy farm – Choice of the foundation stock – Breeding Management Problems associated with reproduction.

UNIT IV

Advances in Feeding Management of cattle and buffalo, Feed for milking herd, dry cows, bulls and calves, Management of high yielding animals.

UNIT V

Milking Management – Biosynthesis of milk - Factors affecting the composition and yield of milk - milk ejection reflex - Milking systems – Sanitary standards for the f quality milk – Cessation of milking, advances in herd management- raising calves – growing heifers, replacements and culling

marketing, Computerization of dairy enterprises.

UNIT VI

Advance in health management of dairy animals, metabolic diseases of high yielders- advances in preventive measures for production related diseases.

LPM 602: ADVANCES IN SHEEP AND GOAT PRODUCTION AND MANAGEMENT **3(2+1)**

Objective

To educate the students on advances in sheep and goat farming for improving their productivity through different management practices.

Theory

UNIT I

Utility origin – Domestication - Numbers and distribution of meat and dual purpose breeds - Methods of rearing – Range sheep production –

UNIT II

The farm flock – Pure bred flock - Management during breeding season – The sexual seasons and its control - Puberty – Time of the year to breed – Flushing – Ram-Ewe ratio.

UNIT III

Advances in feeding management, Nutrient deficiencies in range forage, Feed to supplement range forage, General feeding practices, Feeding materials, Lamb feeding, Use of antibiotics and hormones, Hand feeding, Self feeding, Pellet feeding , Feeding lambs and ewes during lactation.

UNIT IV

Recent development in sheep and goat management and their relevance under Indian economic conditions, needs and possibilities for future research.

UNIT V

Role of sheep husbandry in dry farming in India, Present development programmes in sheep and goat production, Advances in reproduction, housing, feeding and watering, diseases, Shearing methods and culling of sheep and goat.

UNIT VI

Role of goat in animal agriculture, Goat farming in India, selection of Breeding stock, Breeding problems, Housing, Principles of feeding, Practices, Crops and crop residues for goats, Milking practices.

Practical

Study of population trend and structure - Visit to sheep and goat farms and critical analysis of various farm practices, Analysis of breeding, feeding, housing - Disease control management, management of young ones and maturing systems Estimation of fibre diameter medullation percentage crimps, tensile strength, Grease, pH and moisture content of wool - Score card and grading of wool.

LPM 603: ADVANCES IN SWINE PRODUCTION AND MANAGEMENT 3(2+1)

Objective

To educate about the latest advances of swine farming in India, principles of housing, breeding, feeding and health care of pigs, management practices at different stages of swine.

Theory

UNIT I

The past, present and future of Swine production systems in India and production policies adopted in advanced countries.

UNIT II

Advances in breeding and selection – Prenatal and postnatal development - Growth reproduction and lactation - Economic traits of swine production.

UNIT III

Advances in feeding and nutrition in pigs; automatic feeding and watering techniques, Feed stuffs, Energy, protein, minerals and vitamin sources, metabolic and nutritional disorders – Toxic substances.

UNIT IV

Advances in housing of pigs, environmental physiology - Infectious diseases and parasitism. reduction in new born piglet mortality.

Practical

Marketing - Study of population trend and structure. Analysis of breeding, feeding, housing, health care, farrowing management, summer management and special management principles practiced.

LPM 604: ADVANCES IN LABORATORY ANIMAL PRODUCTION AND MANAGEMENT **1(1+0)**

Objective

To educate the students on the latest advances in problems and prospectus, principles of housing, breeding, feeding and health care of rabbits, rats, mice & guinea pigs, measures to reduce the mortality in young ones at different seasons.

Theory

UNIT I

Importance and limitations of rabbits for meat and fur production, rats, mice & guinea pigs - Common breeds and strains.

UNIT II

Advances in system of housing, Common diseases and their control measure.

UNIT III

Breeding strategies - Age at maturity, litter size, Weaning, Feeding of growers, Selection of replacement stock, transportation of rabbit.

UNIT IV

Transportation of Laboratory animals – marketing of meat and fur.

UNIT V

Management of specific pathogen free and gnotobiotic animals, concepts to related to welfare of laboratory animals.

Practical

Visit to Rabbit farms - Study of the various chores in government farms and private farms - Critical analysis of breeding, feeding, disease control management and housing - Rabbit slaughter technique.

LPM 605: ADVANCES IN POULTRY PRODUCTION MANAGEMENT: 3(2+1)

Objective

To educate the students on advances in housing, feeding, breeding and health care in poultry farming.

Theory

UNIT I

Planning, organization, executive and management of poultry farms and hatcheries of various sizes - alternative in poultry production

UNIT II

Demand, supply, present status of poultry production.

UNIT III

Problems and new management techniques in poultry for egg and meat in India vis-à-vis in other countries of the world, automation in poultry houses, management of specific pathogen free flocks.

UNIT IV

Poultry development policies and planning for higher production constraints in development and solutions, Ethology and entology in relation to poultry production.

Practical

Planning and preparation of research and commercial projects on broiler and layer production management.

LPM 606: ADVANCES IN ENVIRONMENTAL MANAGEMENT : 2(1+1)

Objective

To educate the students on advances in climate, weather, various climatic factors monitoring and their role in production and health of animals in both temperate and tropics, micro and macroclimatic conditions of animal house and environmental influences on the performance of farm animal production.

Theory

UNIT I

The animal Industry and the quality of the environment – Management of the living environment - Microenvironment and macro environment.

UNIT II

Air Pollution: Indoor and out door - Chemical, physical and bacteriological changes - Causes – Standards and the extent tolerated by animals - Effects on animal production.

UNIT III

Fixing standards in relation to CO2 - Air supply in relation to cubic space, temperature, air, velocity, relative humidity, dust particles, bacterial count, effective temperature and cooling power - Methods to get over pollution – Cleaning and washing - Air conditioning.

UNIT IV

Utilisation and disposal of animal waste, Health hazards, Waste utilization, technologies for processing and treatment of animal wastes, Health and economic impacts, Legal constraints, Microbiology of wastes, Waste properties ,Gases and odour.

UNIT V

Water Pollution: Significance, treatment and control - Funding agencies for animal welfare.

Practical

Assessment of various factors in Indoor and outdoor environment- Assessment of CO2, air supply, dust particles and bacterial count in air - Visit to sewage treatment plant - Planning farm waste disposals - Physical chemical and bacteriological examination of water watering of farm animals.

LPM 607: APPLIED NUTRITION **3(2+1)**

Theory

Importance of scientific feeding. Feeding experiments. Digestion and metabolism trials. Norms adopted in conducting digestion trials. Measurements of digestibility. Factors affecting digestibility of feed. Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to Ruminants. Nutrient requirements of livestock-energy and protein requirement for maintenance and production. Methods adopted for arriving energy and protein requirement for maintenance and production in term of growth, production and reproduction. Balanced ration and its characteristics. General principles of computation of ration. Formulation of rations and feeding of animas at different physiological status. Use of NPN compound for ruminants.

Practical

Demonstration of conducting digestion trial in ruminants. Calculation of nutritive value in terms feedstuff in term of digestible crude protein (DCP), total digestible nutrient (TDN), nitrogen retention (NR) and starch equivalent (SE). Calculation of requirements of nutrients in terms of DCP, TDN and metabolizable energy (ME) for maintenance, growth, production and reproduction. Formulation of rations for different categories livestock under different conditions. Demonstration of the methods for improving the nutritive quality of straws and other crops residues. Formulation of ration for feeding of livestock during scarcity periods. Visit to feed factory.