

DEPARTMENT OF LIVESTOCK PRODUCTION MANAGEMENT

SEMESTER- I

LIVESTOCK PRODUCTION MANAGEMENT-I (GENERAL PRINCIPLES AND RUMINANTS)

LPM-111

Credit Hours 3+1=4

THEORY

Livestock in India- association of livestock to Indian society during vedic, medieval and modern era. Demographic distribution of livestock and role in economy. Animal holding and land holding patterns in different agro-ecologies.

Introductory animal husbandry. Common animal husbandry terms. Body conformation and identification. Dentition and ageing of animals. Transport of livestock by rail, road, air and on foot. Common farm management practices including disinfection, isolation, quarantine and disposal of carcass. Introduction to methods of drug administration. Common vices of animals, their prevention and care. Livestock production systems of different agro-climatic zones. Livestock resources and resources management Livestock produce and products and their availability and their role in rural/urban hearth/economy. Organic livestock production. General principles affecting the design and construction of building for housing for various livestock species. Selection of site. Arrangements of the building with special reference to Indian conditions.

Utilisation of local materials. Building materials used for construction of wall, roof and floor of animal houses, their characteristics, merits and demerits.

Demography of cattle and buffalo population. Breeds and breed descriptors of important breeds. Important traits of cattle and buffaloes. General management and feeding practices of calves, heifers, pregnant, lactating and dry animals in bulls and working animals. Draught ability of cattle and buffaloes. Raising of buffalo mates for meat production. Housing systems, layout and design of different biddings for dairy animals inducing backyard dairy and mixed farms. Routine dairy farm operations and labour management Methods of milking and precautions. Factors affecting quality and quantity of milk production. Clean max production. Dairy farm accounts and records. Concepts of input and output cost of dairy farming (small and large holdings).

Demography of sheep and goat population and their rote in economy. Breeds and breed descriptors. Important bans for meat milk and fibre. General management and feeding-practices during different stages of growth, development and production (milk, meat and wool) in small and large holdings. Breeding schedule and management of ram and buck. Weaning and fattening of lambs and kids. Glossaries of terms In wool industry. Shearing of sheep. Physical and chemical properties of wool. Impurities in wool Factors influencing the quality of wool grading. Recovery of wool wax and its use. Housing systems, layout and design of different buildings for small ruminants Judging for the quality and confirmation of body parts of cattle, buffalo, sheep and goat Culling of animals. Preparation of animals for show.

Problems and prospects of dairy, meat and wool industry in India. Animal and animal products market and marketing. Animal Fairs and Melas. Animal pounds and Goshalas.

PRACTICAL

Identification of various breeds of cattle, buffalo, sheep and goat Familiarization with body points of animals. Approaching, handling and restraining of cattle, buffalo, sheep and goat Clipping, shearing, dipping, spraying and spotting sick animals. Detection of vices. Feeding of animals. Methods of identification (marking, tattooing, branding, tagging and electronic chip). Determination of age. Determination of body weight using different measurements. Preparation of animals for show and judging. Layout plans for dairy and sheep/goat farms. Familiarization with routine farm operations. Selection and culling of animals. Milking of dairy animals. Training of breeding mates. Detection of heat Identification and care of pregnant animals. Care of neonatal and young stock. Maintenance, cost accounting, economic analysis and preparation of balance sheet of dairy and sheep/goat farm records. Structure of wool and its differentiation from hair fibre. Determination of staple length, crimps, diameter and strength of wool fibre. Sorting, packaging and grading of wool. Recovery of wax from wool. Scouring and carbonisation of wool. Visit to different animal farms/ demonstration centres/ individual rural, urban and peri-urban animal units/ wool production centres & industries/ wool, meat and live animal markets. Preparation of project proposals.

REFERENCE BOOKS

1. Sastry, N.S.R. and Thomas, C.K. (2005)
Livestock Production Management 4th Ed.
2. Thomas, C.K. and Sastry, N.S.R (1991) Dairy Bovine Production
3. Cockrill, R.W. (1974) The Husbandry and Health of the Domestic Buffalo
4. Ensminger, M.E. (2002) Sheep and Goat Science, 6th Ed.
5. Clutton Brock, J. (2004) A Natural History of Domesticated Mammals, 2nd Ed.
6. Watson, J.A.S. and Mills, W.J. (2005) Farm Animals and their Management
7. Taylor, R.E. and Field, T.G. (1977) Scientific Farm Animal Production
8. Pagot, J. (1992) Animal Production in the Tropics and Sub-tropics
9. Mason, I.L. (1988) World Dictionary of Livestock Breeds, 3rd Ed.
10. Anderson, R.H. and Edney, A.T.B. (1991) Practical Animal Handling

SEMESTER- II

FODDER PRODUCTION AND GRASSLAND MANAGEMENT

LPM -121

Credit Hours 1+1=2

THEORY

Importance of grasslands and fodders in-livestock production. Agronomical practices for production of leguminous and non-leguminous fodders in different seasons. Soil and water conservation and irrigation drainage for fodder production. Farm, power and agro-energy. Farm machinery and equipment Harvesting and post harvest techniques "for fodder preservation. Storage of feeds and fodders. Scarcity fodders. Feed and fodder management for individual animals. Fodder production for small units through inter cropping or back yard cultivation. Recycling of animals washings and wastes in fodder production.

PRACTICAL

Visit to the fodder farm. Familiarisation with the various types of fodder crops utilised in the state and the samples of fodder in India. Fodder cropping routines - familiarisation. Collection, preservation and storage of feed and fodder; possible damages/loss and methods to prevent them. Cost calculations of fodder production. Familiarisations with the back yard fodder cropping and intercropping of fodder.

Livestock waste utilisation and recycling. Calculation on the economic aspects of fodder cropping and procurement of feed.

REFERENCE BOOKS

1. Pathak, N.N. and Jakhmola, R.C. Forages and Livestock Production
2. Chatterjee, B.N. and Das, P.K. Forage Crop Production
3. Reddy, D.V. Fodder Production and Grassland Management for Veterinarians
4. I.C.A.R. Handbook of Agriculture

5. Merkel, J. Managing Livestock Wastes
6. Wiseman, Finch and Samuel. Crop Husbandry including Grassland
7. Sastry, N.S.R. Thomas, C.K. and Singh, R.A. Livestock Production Management
8. Humphreys, L.R. Tropical Forages
9. I.C.A.R. Grasses and Legumes
10. Ranjan, S.K. Animal Nutrition in the Tropics

SEMESTER- II

LIVESTOCK PRODUCTION MANAGEMENT II (MONOGASTRIC AND LABORATORY ANIMALS)

LPM-122

Credit Hour: 1+1=2

THEORY

Introduction and scope of swine farming in the country. Demography of swine population. Breeds and their role in economy. Management of different categories of swine for optimal production: breeding and pregnant sows; sows at farrowing and after farrowing: pig-Ms, growing stock, lactating sows, feed lot stock. Mating technique in swine. Housing of swine. Swine feeds and feeding. Economics of pig fanning. Equine population of India. Horses, donkeys and mules and their utility. Identification of breeds of horses. Dentition and ageing of horses. Handling, restraining, care and routine management of equines including grooming, saddling and exercise. Stable and Its management Feeding routine for horse, donkeys and mules. Vices of horses. Care of stallion. Mating of Horses broodmare and its care. Foaling and care of newborn. Breeding mules. Care of race horses and preparing horses for show. Doping and its detection. Visit to races, polo, horse show.

Importance of laboratory animal breeding care and housing standards of mice, rats and guinea pigs. General considerations on feeding and breeding of laboratory animals. Prophylactic measures for commonly occurring laboratory animal diseases. Concept of production of specific pathogen free (SPF) and germ free laboratory animals.

Scope of rabbit farming in the country, breeds and their distributions In India and abroad. Limitation of rabbit animal production. Selection, care , and management of breeding stock for commercial purpose. Identification. Care and management of landing animals and kindling. Care of new born, growing stock. Harvesting of products. Breeding and selection techniques for optimal production. Feeds and feeding for rabbit production- Housing of rabbit Shearing/slaughtering and preservation of products. Diseases and parasite control, hygienic care. Disposal, utilization and recycling of wastes etc. Economic aspects of rabbit production, accounting their expenditure, income, etc. Manpower- requirements and personnel/labour management Preparing projects for micro (backyard) mini, and major rabbit farms.

PRACTICAL

Identification of Indian and exotic breeds of swine; handling of swine; Routine inspection . Identification of diseases, examination and control of parasites, vaccination, Identification of pregnant animals. Care during pregnancy, isolation and care of farrowing sows, care of pig lings, Castration, culling, tooth cutting. Calculation of profits and preparation of feasibility reports and projects for piggery. Layout plans of swine houses; routine operations of swine farms. Marketing of swine.

Feeding of swines. Preparation of swines for show and judging.

Identification of body parts and handling of laboratory animals. Housing system and space requirements for laboratory animals. Weighing, sexing and weaning of laboratory animals. Marking for identification of laboratory animals for purpose of their individual recording. Computation and compounding of balanced diet for laboratory animal mainly Mice, Rats, Guinea -pigs and Rabbits.

Feeding schedule of laboratory animals for high breeding efficiency. Maintenance of breeding records of laboratory animals. Prophylactic measures against common disease of lab animate. Hygienic care and control of parasites (routines).

Visit to the University Rabbitary. Handling and restraint Body parts. Identification of breeds. Judging. Feeds and feeding. Housing requirement and equipment Farrowing. Care of newly born young ones-tagging, tattooing for identification. Shearing. Dressing of carcass.

Horse riding: walking, trotting, cantering and galloping. Preparation of equines for show and judging. Layout plans for stables.

REFERENCE BOOKS

1. Sastry, N.S.R. and Thomas, C.K. (2005)-Livestock Production Management 4th Ed.
2. Anderson, R.S. and Edney, A.T.B (1991)-Practical Animal Handling
3. Warren, M.D. (2002)Small Animal Care and Management, 2nd Ed. Poole. T. (1994)The UFAW Handbook on the Care and Management of Laboratory Animals, 6th Ed.
4. Lebas, F; Coudert, P; Rouvier, R and Rochambean, H. (1986). The Rabbit – Husbandry, Health and Production
5. Brega, J. (1996)The Horse – Breeding and Young Stock
6. Fielding, D. Tropical Agriculturist – Rabbits
7. Wolfenson. S and Lloyd, M. (1994)Handbook of Laboratory Animal Management and Welfare
8. Holness. D.H. (1993)The Tropical Agriculturist – Pigs
9. Sharda, D.P.(2005)Swine Production

SEMESTER- III

AVIAN PRODUCTION MANAGEMENT

LPM- 211

Credit hours 1+1=2

THEORY

Indian Poultry industry-brief outline of the different segments-poultry statistics.

Classification of poultry, common breeds of poultry including duck, quail, turkey & guinea fowl and their descriptions. Description of indigenous fowls.

Reproduction in fowl, male and female reproduction systems, formation of eggs, structure of eggs. Important economic traits of poultry, egg production, egg weight egg quality, growth, feed consumption and feed efficiency, fertility and hatchability, plumage characteristics and comb types. Scavenging system of management raising of chicks, scavenger feed base of village. Low input technology; backyard and semi intensive unit of various sizes; their description, management and economic achievements.

New colored feathered birds developed in public and private sectors for meat and egg production for rural poultry; their acceptability and assimilation in rural eco-system.

Mixed farming and poultry raising. Concept of self-local market unit

Brooding and rearing practices used for chicken, duck, quail, turkey and guinea fowl.

Economic production of chicken and other classes of poultry.

Hatching and feeding norms for different species of poultry. Marketing of poultry and poultry products. Setting of farms for different classes of poultry. Organic and hill farming.

PRACTICAL

Morphological description of common exotic poultry breeds like White Leghorn (WLH), Rhode Island Red (RIR), Plymouth Rock, Cornish and New Hampshire. Diagrammatic illustration of body parts of chicken, duck, quail, guinea fowl and turkey. Descriptive specialties of indigenous birds, listing of its advantageous value in rural areas. Diagrammatic representation of scavenging, backyard and semi intensive units; with habitats, feed base and shelter. Conservation of indigenous germ plasm; listing of conservation techniques. Demonstration of newly developed breeds in rural environment Housing, equipments, nesting and brooding requirements. Vaccination, medication and incubation requirements. Preparation of projects for rural people on poultry and other species (duck, quail, guinea fowl and turkey).

SEMESTER- IV

COMMERCIAL POULTRY PRODUCTION AND HATCHERY MANAGEMENT

LPM –221

Credit hours 1+1=2

THEORY

HOUSING - Location of poultry. Types of poultry houses. Different types of rearing-advantages and disadvantages. Space requirement for different age groups under different rearing systems. Environmentally controlled housing. **BROODING MANAGEMENT**- Brooding: Types of brooders; preparation of shed to receive chicks; importance of

environment (temperature, humidity and ventilation). Feeding and vaccination in early stage of chicks.

REARING AND MANAGEMENT- Care and management of growing, laying/broiler birds of both breeders and commercial categories of poultry. Battery cage management different types and sizes. Poultry judging.

LITTER MANAGEMENT- Litter materials, litter-borne diseases and control; potential for poultry litter used as fertilizers; recycling for livestock feeding and power generation; Special management care in adverse weather conditions/ stress; summer management modification of housing light reflectors; insulators, sprinklers, loggers and other methods; dietary modification to minimize heat stress; special management during rainy and winter season; other stress management- vices in poultry and its remedial measures.

WATER MANAGEMENT- Standard for drinking water in terms of total solids. pH, minerals levels, sanitizers and water sanitations, diseases spread through water contamination-prevention.

BIOSECURITY- Proactive measures to minimize entry of infections in farm premises-farm fencing, disinfectant pits, personnel management restriction of movement etc. Poultry welfare and behaviour.

FEEDING- digestive system and digestion in chicken. Classification, selection of common feed ingredients and their nutrient composition. Nutrient requirement for different age groups. Feed formulations, economics of feed formulation-cost/, unit nutrient Feeding systems and feeding management economization of poultry feeding. Feed restriction, separate male feeding, non-nutrient feed additives including herbal bio-enhancers; anti-nutritional factors and toxins.

HEALTH CARE- Common poultry diseases: bacterial, viral, fungal, parasitic and nutritional deficiencies. Vaccination schedule for commercial layers and broilers: factors that govern vaccination schedule; vaccination principles type, methods, pre and post vaccination care. Medication: Types of administration-general principles and precautions with emphasis on administering medication through water and feed; commonly used drugs in poultry diseases. Disinfection: Types of disinfectants; mode of action; recommended procedure; precaution and handling.

ECONOMICS- Economics of layer and broiler production; Projects reports layer in different systems of rearing. Projects reports for broilers.-Feasibility studies on poultry rearing- in context of small units and their profitability. Designer meat and egg production. Export/import of poultry and poultry products.

BREEDER FLOCK MANAGEMENT- Layer and broiler breeder flock management housing & space requirements. Different stage of management during life cycle; Light management during growing and laying period, Artificial insemination.

Feeding: Feed restriction, separate male feeding. Nutrient requirement of layer and broiler breeders of different age groups. Healthcare: vaccination of breeder flock; difference between vaccination schedule of broilers and commercial birds. Common diseases of breeders (Infectious and metabolic disorders)-prevention. Fertility disorder- etiology, diagnosis and corrective measures. Selection and culling of breeder flocks. Economic parameters on returns from breeders- for example saleable chick/hen/production cycle etc.

HATCHERY PRACTICES - Management principles of incubation. Factors affecting fertility and hatchability. selection, care and incubation of hatching eggs. Fumigation; sanitation and hatchery hygiene. Disposal of hatchery waste; Sexing, grading, packing and dispatch of day old chicks. Economics of hatchery business; Trouble shooting hatch failure: importance of

hatchery records, break even analysis of unhatched eggs. Biosecurity in the hatchery. Computer applications for hatchery management

PRACTICAL

Male and female reproductive system. Artificial insemination. Selection of breeder flock. Working of hatchery Incubation requirement; incubators working, care. Hatchery layout and equipments. Handing of eggs prior and during incubation. Candling. Fumigation. Project reports of setting up a hatchery. Hatchery records and maintenance.

Exposure to commercial broiler and layer farms-different system of housing.

Demonstration of litter and cage rearing systems. Feed equipments and maintenance; hammer mill, mixture, pellet mill-types, principle of working, comparison of different types, premix preparations, quality control of raw materials. Feed mill operation. Demonstration of different types of feeder, waterer, fogger, sprinklers etc. Maintenance of farm records. Medication-demonstration of routinely employed methods of administration.

Vaccination practice in general and demonstration of different routes of administration in particular.

REFERENCE BOOKS (LPM 211 and LPM 221)

1. Scanes, C.G.; Brant, G and Ensminger, M.E. (2004) Poultry Science, 4th Ed.
2. Sreenivasaiah, P.V. (2006)Scientific Poultry Production – a unique encyclopedia, 3rd Ed.
3. Jull, M.A. (2003)Successful Poultry Management
4. Sainsbury, D. (1984)Poultry Health and Management
5. Roberts, V. (2003)British Poultry Standards
6. Leeson, S and Summers, J.D. (1993)Commercial Poultry Production
7. North, M.O and Bell, D.D. (1990)Commercial Chicken Production Manual, 4th Ed.
8. Murd, L.M. (2003)Modern Poultry Farming
9. Leeson, S and Summers, J.D. (1993)Commercial Poultry Nutrition
10. Johari, D.C.and Hussain, K.Q. (1996)Commercial Broiler Production

SEMESTER-IV

LIVESTOCK PRODUCTION MANAGEMENT (REGIONAL INTEREST)

LPM- 222

Credit Hours: 1+1=2

Course Contents to be developed by the University/Veterinary College on the basis of regional interest.