ANIMAL HUSBANDRY AND VETERINARY SCIENCE

CODE-02

PAPER-I

1. Animal Nutrition Energy sources, energy metabolism and requirements for maintenance and production of milk, meat, eggs, and work-evaluation of feed as sources of energy.

1.1 Advanced studies in Nutrition :- Protein- sources of protein, metabolism and synthesis, protein quantity and quality in relation to requirement. Energy-protein ratio in ration.

1.2 Advanced studies in Nutrition minerals - Sources, functions, requirements and inter-relationship of the basic mineral nutrients including trace elements.

1.3 Vitamins, Hormones and Growth stimulating substances sources, functions, requirements and inter-relationship with minerals.

1.4 Advanced Ruminant Nutrition :- Dairy Cattle-Nutrients and their metabolism with reference to milk production and its composition. Nutrient requirements for calves, heifers dry and milking cows and buffaloes Limitations of various feeding systems.

1.5 Advanced Non-Ruminant Nutrition :-Poultry-Nutrients and their metabolism with reference to poultry meat and egg production. Nutrient requirements and feed formulation for broilers at different ages.

1.6 Advanced Non-Ruminant Nutrition :- Swine-Nutrients and their metabolism with special reference to growth and quality of meat production. Nutrient requirements and feed formulation for baby, growing and finishing pigs.

1.7 Advanced Applied Animal Nutrition :- A critical review and evaluation of feed experiments, digestibility and balance studies. Feeding standards and measure of feed energy. Nutrient requirements for growth, maintenance and production Balanced rations.

2. Animal Physiology.

2.1 Growth and Animals Production - Pre-natal and post-natal growth, restoration growth curves, measures of growth, factors affecting growth, conformation, body composition, meat quality.

2.2 Milk production and reproduction and digestion- Current status of harmonal control of mammary, development, milk secretion and milk ejection, composition of milk of cows and buffaloes. Male and female reproduction organs, their components and functions Digestive organs and their function.

2.3 Environmental physicology physiological relations and their regulation mechanisms of adaption, environmental factors and regulatory mechanism involved in animal behaviour, methods of controlling climatic stress.

2.4 Semen quality Preservation and artificial Insemination- Components of semen, composition of sprematazoe, chemical and physical properties of ejeculated semen, factors affecting semen in vive and in vitre. Factors affecting semen preservation composition of dilents, sprem concentration transport of diluted semen, deep freezing techniques in cows, sheep and goats, swine and poultry.

3. Livestock production and management.

3.1 Commercial Dairy Farming - Comparison of dairy farming in India with advanced countries. Dairying under mixed farming and as a specialised farming, economic dairy farming-starting of a dairy farm, Capital and land requirement, organisation of the dairy farm, Procurement of goods, opportunities in dairy farming factors determining the efficiency of dairy animal, hered recording, budgeting, cost of milk production pricing policy,
personnel management.

3.2 Feeding practices of dairy cattle- Developing practical and economic rations for dairy cattle, supply of greens throughout the year, fields and fodder requirements of dairy farm feeding regimes for day and young, stock and bulls, heifers and breedings animals, new trends in feeding young and adult stock feeding records.

3.3 General problems of sheep, goat, pigs and poultry management.

3.4 Feeding of animals under drought conditions.

4. Milk Technology.

4.1 Organisation of rural Milk procurement, collection and transport of raw milk.

4.2 Quality, testings and grading raw milk, quality storage grades of whole milk, skimmed milk and cream.

4.3 Processing, packaging, storing, distributing, marketing defects and their control and nutritive properties of the following milk- Pasturized, standardized, toned, double toned sterilized, homegonized, reconstituted, recombined, filled and flavoured milks.

4.4 Milk Product Technology- Selection of raw materials, assembling Production, processing staring, distributing and marketing milk Products such as Butter, Ghee, Khoa, Chhanna, Cheese, condensed evaporated dried milk and baby foods, ice cream and kulfi, bye-products, whey products, butter milk, lastage and sasegn, testing grading, judging milk products
and agents specifications. Legal standards, quality control, nutritive properties.Packaging, processing and operational control costs.

4.5 Preparation of cultured milks, cultures and their management. Vitamin-D, soft and other special milks.

4.6 Legal standards, sanitation requirement for clean and safe milk and for the Milk plant equipment.

PAPER-II

1. Genetics and Animal Breeding, Probability applied to Mendelian inheritance. Hardely Weinberg Law. Concept and measurement of inbreeding and heretrozygosity Wright's approach in contrast to Malectot's Estimation of Parameters and Measurements, Fisheries theorem of natural selection, polumorphism polygenic systems and inheritance of quantitative
traits. Casual components of variation, Biometerical modles and covelience between relatives. The theory of patheo efficient to quantitative genetic analysis, heritability repeatability and
selection models.

1.1 Population genetics applied to Animal Breeding- Population vs. individual, population size and factors changing it, gene number and their estimation in farm animals, gene frequency and zygetic frequency and forces changing them, mean and variance approach to equilibrium under different situation, Sub-division of phentypic variance, estimation of additive, non-additive genetic and environmental variances in Animal population. Mendelism and blending inheritance, Genetic nature of differences between specie's races, breeds and other sub-specific grouping and the grouping and the origin of group differences. Resemblances between relatives.

1.2 Breeding systems Heritability, repeatability, genetics and environmental correlations, methods of estimation and the precision of estimates of animal data. Review of biometerical relations between relatives, mating systems, inbreeding , out-breeding and uses. Phenotypic assertive mating. Aids to selections. Family structure of animal population under non-random-mating systems. Breeding for threshold traits, selection index, its precision, general and specific and combining ability, choice of effective breeding plants.

Different types and methods of selection, their effectiveness and limitations, selection indices, construction of selection in retrospect, evaluation of genetic gains through selection, correlated response in animal experimentations.

Approach to estimation of general and specific combining ability, dialete, fractions dialete, fractions dialete crosses reciprocal recurrent selection, inbreeding and hybridization.

2. Health and hygiene - Anatomy of Ox and fowl Histological technique, freezing paraffin enbedding etc. preparation and staining of blood films.

2.1 Common histological stains, embryology of a cow.
2.2 Physiology of blood and its circulation, respiration, excertion Endorine glands in health and disease.
2.3 General knowledge of pharmacology and therapeutics of drugs.
2.4 Vety-Hygiene with respect of water, air and habitation.
2.5 Most common cattle and poultry diseases, their mode of infection, prevention and treatment etc. Immunity, general principles and problems of meat infection jurispurdence of Vety. Practice.
2.6 Milk Hygiene.

3. Meat Hygiene.

3.1 Zoonsis Diseases transmitted from animals to man.
3.2 Duties and role of Veterinations in a slaughter house to provide their meat that is produced under ideal hygienic conditions.
3.3. By-products from slaughter houses and their economic utilisation.
3.4 Methods of collection, preservation and processing of harmonal glands for medicinal use.

4. Extension.

4.1 Extension-different methods adopted to educate farmers under rural conditions.
4.2 Utilisation of fallen animals for profit- extension education etc.
4.3 Define Trysem- Different possibilities and methods to provide self employment to educated youth under rural conditions.
4.4 Cross breeding as a method of upgrading the Local Cattle.