ANIMAL HUSBANDRY AND VETERINARY SCIENCE

PAPER - I

1. Animal Nutrition :

Energy Sources, energy metabolism and requirements for maintenance and production of milk, meat, eggs and work, Evaluation of feeds and sources of energy.

I. Advanced studies in Nutrition—Protein— sources of protein metabolism and synthesis, protein quantity and quality in relation to requirements, Energy protein ratios in ration.

II. Advanced studies in Nutrition Minerals—Sources, functions, requirements and their relationship of the basic mineral nutrients including trace elements.

III. Vitamins, Hormones and Growth stimulating substances, Sources, functions, requirements and inter-relationship with minerals.

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

V. Advanced Non-Ruminant Nutrition Poultry-Nutrients and their metabolism with reference to poultry, meat and egg product. Nutrients requirements and feed formulation and broilers at different ages.

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

VII. Advanced Applied Animal Nutrition—Critical review and evaluation of feeding experiments, Digestibility and balance studies, Feeding standards and measures of feed energy, Nutrition requirements for growth maintenance and production, Balanced rations.

2. Animal physiology :

I. Growth and Animal production — Prenatal and postnatal, growth maturation, growth curves, measures of growth factors affecting growth conformation, body composition meat quality.

II. Milk production and Reproduction and Digestion— Current status of hormonal control of mammary, development milk secret and milk ejection composition of milk of cows and buffaloes. Male and female reproduction organs, their components and function, Digestive organs and their functions.

III. Environmental Physiology—Physiological relations and their regulation, mechanisms of adoption, environmental factors and regulatory mechanism involved in animal behaviour, methods and controlling climatic stress.

IV. Semen quality, preservation and Artificial insemination components of semen, composition of spermatozoa chemical and physical properties of ejaculated semen, factors, affecting, semen, preservation composition of diluents. Sperm concentration transports of diluted semen. Deep Freezing techniques in cows, sheep and goats, swine poultry.

3. Livestock Production and Management:

I. 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 the dairy farm, Capital and land requirement. Organisation of the dairy farm. Procurement of goods, Opportunities in diary farming factors determining the efficiency of dairy animal Herd recording, hudgeting cost of milk production, Pricing policy, Personnel Management.

II. Feeding practices of dairy cattle— Developing practical and economic ration for dairy cattle, Supply of greens throughout the year, Field and fodder requirements of dairy farm, Feeding regimes for day and young stock and bulls, heifers and breeding animals new trends in feeding young and adult stock Feeding records.

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

IV. Feeding of animals under drought conditions.

4. Milk Technology :

I. Organization of milk procurement, Collection and transport of raw milk.

II. Quality testing and grading raw milk, Quality storage grade of shole milk, Skimmed milk and cream.

III. Processing, packaging, storing, distribution, marketing defects and their control and nutritive properties of the following milks — Pasteurized standardized toned, double toned sterilized homogenised reconstituted filed and flavoured milks.

IV. Preparation of cultured milks, cultures and their management, Vitamin D soft curd acidified and other special milks.

V. Legal standards, Sanitation requirement for clean and safe milk for the milk plant equipment.

ANIMAL HUSBANDRY AND VETERINARY SCIENCE

PAPER - II

1. Genetics and Animal breeding probability applied to Mendelian inheritance, Hardy Weiberg Law. Concept and measurement of in breeding and heterozygosity, Wrights approach in contract to Malecots Estimation of parameters and measurements, Fishers theorem of natural selection, polymorphism. Polygenic systems and inheritance of quantitative traits, Casual components of variation. Biometrical models and covariance between relatives. The theory of Pathooefficient applied to quantitative genetic analysis. Heritability, Repeatability and Selection models.

I. Population Genetics applied to animal Breeding— Population Vs individual and population size and factors changing it. Gene numbers and their estimation in farm animals, gene frequency and zygotic frequency and forces changing them, mean and variance approach to equilibrium under different situations subdivision of phenotypic variance, estimation of additive, non additive genetic and environmental variances in Animal population, Mendelism and blending inheritance, Genetic nature of differences between species, races, breeds and other sub-specific grouping and the grouping and the origin of group of differences resemblance between relatives.

II. Breading Systems : Heritability repeatability genetices and environmental corelations, methods of estimation and the precision of estimates of animal data, Review of biometrical relations between relatives. Mating systems inbreeding out-breeding and uses phenotypic assertive

mating aids to selections, Family structure of animal populations under non-random mating systems, Breeding for threshold traits. Selection index its precision, General and specific combining ability. Choices of affective breeding plans.

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

Approach to estimation of general and specific combining ability, Dilate fractional daillete crosses reciprocal recurrent selection inbreeding and hybridirization.

2. Health and Hygiene : Anatomy of Ox and Fowl, Histological technique, freezing paraffin embedding etc. Preparation and staining of blood films.
   I. Common histological stains, Embryology of a cow.
   II. Physiology of blood and its circulation, respiration, excretion, endocrine glands in health and disease.
   III. General knowledge of pharmacology and therapeutics of drugs.
   IV. Vety-Hygienes with respect of water, air and habitation.
   V. Most common cattle and poultry diseases, their mode of infection, prevention and treatment etc. Immunity General principles and problems of meat inspecting jurisprudence of Vet practice.
   VI. Milk Hygiene.
3. Milk Product Technology : Selection of raw materials assembling, production, processing, storing distributing and marketing, Milk products such as Butter, Ghee, Khoa, Chana Cheese. Condensed evaporated died milk and baby foods, Ice cream and Kulfi, by products whey products, butter, milk, lactose and casein, Testing, Grading Judging milk products– ISI and Agmark specifications, legal standard quality control nutritive properties, Packaging, processing and operational control costs.
4. Meat Hygiene
   I. Zoonosis Diseases transmitted from animals to man.
   II. Duties and role of Veterinarians in a slaughter house to provide meat that is produced under ideal hygiene conditions.
   III. By-products from slaughter house and their economic utilsation.
   IV. Methods of collection preservation and processing of hormonal glands for medicinal use.
5. Extension
   I. Extension Different methods adopted to educate farmers under rural conditions.
   II. Utilisation of fallen animals for profit extention education etc.
   III. Define Trysem : Different possibilities and methods to provide self-employment to educated youth under rural conditions.
   IV. Cross breeding as a method of upgrading the local cattle.