

ANIMAL HUSBANDARY AND VETERINARY SCIENCE (CODE NO. 02)

PAPER - I

1. Animal Nutrition

Metabolism of carbohydrates, proteins and fats, Requirements for maintenance, growth and production of milk, meat, work, eggs and wool.

Mineral and trace elements. Metabolism, source and role of minerals and trace elements, their requirements for growth and production, deficiency syndromes.

Vitamins, their sources, requirements, role in metabolism and deficiency syndromes.

Feeding standards and measures of feed energy. Limitations of different feeding systems. Feeding practices in livestock in normal and drought conditions.

Feed additives in the ration of livestock and poultry; antibiotics and hormonal compounds and other growth stimulators their uses and abuse.

Preservation of feed.

Feeding infants and growing. Importance of colostrums.

Feeding and care of expectant and nursing mothers.

2. Genetics and Animal Breeding

Probability applied to Mendelian inheritance. Hardy Weinberg law, Poly morphism. Inheritance of quantitative traits. Casual components of variation. Biometrical models and covariance between relatives. The theory of path coefficient applied to genetic analysis. Heritability, repeatability Estimation of additive, non additive and environmental variance. Genetic and environmental correlations. Mating systems, inbreeding, out breeding. Measurement of inbreeding, Aid to selections, Breeding for threshold traits. Method of selection, Selection index, evolution of genetic gain, correlated response in selection. Reciprocal. Recurrent selection. Hybridization. Choice of effective breeding plan. Importance of breeding records in equines and

wild animals. stud books in wild animals and their utility in captive breeding programme.

Application of computer for statistical analysis in animal farms and veterinary hospitals and epidemiology.

3. Semen quality, preservation and artificial insemination

Components of semen, composition of spermatozoa, chemical and physical properties of ejaculated semen, factors affecting semen in vivo and in vitro. Factors affecting semen preservation. Composition of diluents, sperm concentration, transport of diluted semen. Deep freezing techniques in cows, sheep and goats swine and poultry.

Biochemistry of semen, Care, sterilization and storage of equipments used for artificial insemination.

Selection, care, training and maintenance of breeding bull for A.I.

4. Livestock production and Management

Comparison of diary farming in India with advanced countries. Dairying under mixed farming and as a specialized farming, economic dairy farming, starting of a dairy farm. Capital and land requirement organization of the dairy farm. Procurement of goods, opportunities in dairy farming, factors determining the efficiency of dairy animal. Herd recording. budgeting, cost of milk production, pricing policy; Personnel management.

Wild and zoo animal management

Management of pack animal

Management of laboratory animals & fish production.

5. Milk Technology

Organization of rural milk procurement, collection and transport of raw milk. Quality testing and grading raw milk. Grades of whole milk, skimmed milk and cream.

Defects in processing, packing, storing, distribution and marketing of milk and milk products and their remedial measures.

Nutritive properties of pasteurized, standardized, toned, double toned, sterilized, homogenized, reconstituted, recombined and flavoured milk.

Preparation of cultured milks. Cultures and their management. Vitamin D, acidified and other special milks, Legal standards and sanitation requirements for clean and safe milk and for the milk plant equipments.

Methods of preparation of butter, ghee, khoa, lassi, curd, ice cream and cheese.

6. Hygiene

Veterinary Hygiene with respect to water, air and habitation.

Duties and role of Veterinarians in a slaughter house to provide meat that is produced under ideal hygienic conditions.

By-products from slaughter houses and their economic utilization.

Methods of collection, preservation and processing of hormonal glands for medicinal use.

Sanitation of animal houses. Source of air pollution in animal houses and its effect on animal health and production.

7. Extension

Extension Education: evolution of extension education in India: classification of extension, teaching methods, audiovisual aids, their classification. Role of animals in the economy, health, socio-psychology of rural, semi urban and urban society (role of farm stock, companion animals, sports animals etc.)

Different methods adopted to educate farmers under rural conditions. Utilization of fallen animals for profit extension education, etc.

Design tryzen : Different possibilities and method to provide self employment to educated youth under rural condition.

Cross breeding as a method of upgrading the local cattle.

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PAPER-II

1. Anatomy

Anatomy of ox and fowl. Histological technique freezing, paraffin embedding etc. Common histological stain. Preparation and straining of blood films. Mammalian Histology.

Structure and function of cell and cytoplasmic constituents: Structure of nucleus, plasma membrane, mitochondria, golgi bodies, endoplasmic reticulum and ribosomes. Cell division: Mitosis and Miosis.

Systemic embryology- stage wise study of embryo/ fetus of chicks, cattle, buffalo, sheep, goat and cat.

2. Physiology

Prenatal and post natal growth. Hormonal control of development of udder and milk . Environmental factors affecting reproduction in males and females. methods of ameliorating environmental stress.

Physiological relations and their regulations: mechanism of adaptation, environmental factors and regulatory mechanisms involved in animal behavior. Methods of controlling climatic stress. Physiology of circulation, respiration excretions, digestions and reproduction.

Shock, its mechanism, classification of shock. Fluid and electrolyte balance. Hypoxia role of respiration in acid base mechanism. Respiration in poultry.

3. Pharmacology

Pharmacology of drugs acting on gastrointestinal, cardio-vascular, urinary, respiratory, nervous, genital systems and endocrines. Therapeutic agents against bacteria, protozoa fungi, parasites and insects, including their mechanism of action. Common toxic compounds and plants their effects and treatment.

Use of anticancer agent in animals, pharmacological and therapeutic efficacy of indigenous drugs

4. Diseases

Common livestock and poultry diseases caused by bacteria, fungi protozoa, viruses and parasites pertaining to their causal agents, epidemiology, symptoms diagnostic methods, treatment and prevention. Important zoonotic diseases . Toxicity caused by agrochemicals and environmental toxicity. Methods of collection and dispatch of material for laboratory diagnosis.

Principles of immunity and immunization:

Principles of epidemiology, public health aspects of food products of animal origin (meat. egg. milk and fish) their inspection and marketing.

5. Surgery

Anaesthesia in animals.

Common surgical affections of different systems of the body. Diseases of locomotion system with special reference to soundness, health identification, principles of radiology.

Electrotherapy in veterinary practice.

Familiarisation with fluoroscopic examination and ultrasonography

6. Jurisprudence

Jurisprudence in veterinary practice. Common offences towards animals. Common adulteration practices regarding milk and milk products and meat and their detection.

Laws relating to offences affecting public health.

Laws relating to adulteration of drugs

Evidence procedure in court

Legal duties of veterinarian

Code of conduct and ethics for veterinarian.