

# ANIMAL HUSBANDARY AND VETERINARY SCIENCE

## PART- I

### 1. Animal Nutrition

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

Mineral and trace elements, its metabolism, source and role of minerals and trace elements, their requirements of, growth and production and 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 animals. Importance of colostrums Feeding and care of expectant and nursing mothers.

### 2. Genetics and Animal breeding

Breeds of livestock and poultry, specially Indigenous and Exotic breeds.

Mendelian principles gene and genotype frequency. Inheritance of quantitative traits.

Causal components of variation. Heritability, repeatability Estimation of additive, non additive and environmental variance. Genetic and environmental correlations.

Mating systems, inbreeding, out breeding . Measurement of inbreeding, Aids to selection,

Methods of selection genetic gain, correlated response to selection, Reciprocal Recurrent selection, Hybridization . Choice of effective breeding plan. Field progeny testing.

Application of biotechnology in genetic improvement of livestock. Conservation of animal genetic resources. Importance of breeding record in livestock and poultry.

Application of computer for statistical analysis of data obtained from livestock farms, Veterinary hospitals and epidemiological studies.

### 3. Livestock production and Management

Comparison of dairy 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 of organized 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 animals.

Management of laboratory animal & fish production.

#### **4. Poultry:**

Brooding and rearing practices used for poultry Care and management of growing layer/broiler birds of both breeders and commercial categories of poultry.

Battery cage management .

Poultry Feeding, Litter management, water Management in poultry.

Economics of layer and broiler production, hatchery Management including principles of incubation, sanitation hatchery hygiene.

Factors affecting fertility and hatchability.

Biosecurity in poultry farm and hatchery.

#### **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 flavored 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 house 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, audio-visual aids, their classification.

Role of animal in the economy, health, socio-psychology of rural, semi urban and urban society (role of farm stock, companion animal, sports animals etc.)

Different methods adopted to educate farmers under rural conditions.

Utilization of fallen animals for profit extension Education, etc.

Define TRYSEM : Different possibilities and method to provide self employment to educated youth under rural condition.

Cross breeding as a method of upgrading the local cattle.

# **ANIMAL HUSBANDARY AND VETERINARY SCIENCE**

## **PART-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, golgibodies, endoplasmic reticulum and ribosome's.

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 electrolytes balance. Hypoxia role of respiration in acid base mechanism.

Respiration in poultry.

### **3. Animal Biotechnology**

Recombinant DNA technology. Embryo biotechniques. Marker assisted selection Nutritional biotechnology including bio conversion of lignocelluloses, genetic manipulation of microbes for improved feed utilization and health.

Molecular diagnosis including PCR and DNA probes.

New generation vaccines.

### **4. 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.

### **5. 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.

### **6. Veterinary gynecology and obstetrics:**

Abnormalities of reproductive tracts in domestic animals.

Delayed puberty and sexual maturity, Estrous detection and pregnancy diagnostics.

Infertility, sterility and repeat breeding: causes and therapeutic management.

Dystocia: Types of dystocia, maternal and fetal approach diagnosis and treatment.

Postpartum diseases and complications.

### **7. Veterinary andrology and reproductive techniques:**

Factors causing infertility in male its diagnosis and treatment.

Diseases of male genitalia and coital injuries their diagnosis and treatment.

Artificial Insemination- methods of semen collection. Factors affecting quality and quantity of semen, macroscopic, microscopic, biochemical and biological tests for evaluation of semen.

Extenders used for semen preservation. Preservation of semen at different temperature techniques of it.

### **8. Surgery**

Anesthesia 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.

Familiarization with fluoroscopic examination and ultra-sonography

### **9. 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.

Post mortem and Medico-legal examinations.