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SYLLABUS FOR VETERINARY OFFICER UNDER AH & VETERINARY DEPARTMENT

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 wool, evaluation of feeds as sources of energy.
 - i) Advance studies nutrition – 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 function requirements and inter-relationship with minerals.
 - iv) Advanced Ruminant Nutrition-Diary Cattle-Nutritions 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 systems.
 - v) Advanced Non-Ruminant nutrition Poultry-Nutrients and their metabolism with reference to poultry, meat and egg production. Nutrients requirements and feed formulation and broilers at different ages.
 - vi) 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.
 - 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 Balance 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 secretion and milk ejection composition of milk of cows and buffaloes. Male and female reproduction organs their components and functions. Digestive organs and functions.

12

16

- iii) Environmental Physiology : Physiological relations and their regulation, mechanisms of adaptation, environmental factors and regulatory mechanism involved in animal behaviour, methods of controlling climatic stress.
 - iv) Semen quality, Preservation and Artificial insemination Components of semen. Composition of spermatozoe chemical and physical properties of ejaculated semen, factors affecting semen presevation composition of diluents. Sperm concentration transport of diluted semen. Deep Freezing techniques in cows, sheep and goats, swine and poultry.
3. Live stock Production and Management :
- i) Commercial Dairy Farming : Comparision 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, organisation 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.
 - 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) Organisation of milk procurement, collection and transport of raw milk.
 - ii) Quality testing and granding raw milk. Quality storage grade of shole milk skimmed milk and cream.
 - iii) Processing, packaging storing distributing marketing defects and their control and nutritive properties of the following milks. Pasteurized standardized toned double toned sterilized nomogenized reconstituted recombined file and flavoured milks.
 - iv) Preparation of cultured milks cultures and their management Vitamin D soft curd acidilied and other special milks.
 - v) Legal standards, sanitation requirement for clean and safe milk and for the milk plant equipment.

17

13

PAPER : II

1. Genetics and Animal breeding probability applied to Mendelian inheritance Hardy Weiberg Law. Concept and measurement of in breeding and heterizygoty wrights approach in contrast to male-cots Estimation of paraimeters 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 Patho efficient applied to quantitative genetic analysis. Heriatability Repeatability and selection models

i) Polulation, Genetics applied to Animal Breeding-Polulation Vs. individual 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 situation sub-division of phenotypic variance, estimation of additive, non-additive genetic and environmental variance 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 differences Resemblances between relatives.

ii) Breeding Systems : Heritability repeatability genetics and environmental correlations methods of estimation and the precision of estimates of animal data-review of biometrical relations between relatives. Mating system in breeding outbreeding and uses phenotypic assortive mating Aids to selection. Family structure of animal population under non random mating system. Breeding for threshold traits. Selection index its precision. General and specific combining ability, choice of effective breeding plans.

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, Diallete fractional diallete crosses reciprocal recurrent selection in breeding and hydrization.

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, Embriology 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-Hygiene 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 inspection jurisprudence of Vet practices.

- vi) Milk hygiene.

3. Milk product technology :- Selection of raw material assembling, production processing storing distributing and marketing milk products such as Butter, Ghee, Khoa, Channa, Chees condensed evaporated dried milk and baby foods, Ice cream and kulfi, by products the products butter milk lactose and casein. Testing, Grading judging milk product-ISI and Agmark specification, legal standards 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 slaughter house to provide meat that is produce under ideal hygienic conditions
- iii) By-products from slaughter houses and their economic utilization.
- 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) utilization of fallen animals for profit extension 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 up-grading the local cattle.