U. P. Education Service Selection Commission, Prayagraj

Syllabus

Animal Husbandry & Dairying

(Subject Code- 92)

Unit-1: Present-status & future prospects of livestock and poultry production in India, History and development of livestock industry, significance of livestock in relation to Agriculture, human health and national economy, animal production systems in different agro-climatic zones. Population dynamics of Indian livestock and national programmes for improvement of cattle, buffaloes, sheep, goats, pigs, equine, camel, rabbits, poultry and swine. Importance of Indian and exotic breeds and their conservation.

Unit-2: Improvement of cattle breeds, inheritance of livestock traits. Reproduction behaviours of various species of livestock and poultry, livestock, production system, approaches and methods of breeding and application of biotechnology in animal improvement, maintenance of breeds and breeding records, gene frequency analysis, heritability estimation, semen evaluation, preservation, dilution and artificial insemination and its importance.

Unit-3: Nutritional requirements and feeding programmes for ruminants. Physiology and functions of digestive system of ruminants, Nutrients requirement for milk, meat and wool production. Metabolism of proteins, carbohydrates and fats, in ruminants. Role of vitamins and minerals in Nutrition. Processing of conventional and non-conventional feed ingredients, ration formulation and balanced diets. BIS standards of feeds and marketing.

Forage crop production and conservation, cultivation of irrigated grasses & management of range grass, composition of forage and grasses and role in growth, health, milk production and reproduction. Nutritional Improvement of various Agricultural by-products and non-conventional feeds and their utilization. Analysis of feeds and fodders.

Housing management of Livestock & Poultry: Planning, layout and system of housing, floor systems, litter management, lighting & ventilation of dairy animals cattle, buffaloes, calves, heifers, sire, chicks, growing, laying and breeding of flock. Broiler and layer production, culling of laying flocks, Hatchery management, Brooding and Incubation.

Unit-4: Nutritional requirements and feeding for non-ruminants. Physiology and functions of digestive systems of non-ruminants. Nutrients requirements for egg and meat production in poultry and swine. Protein quality, systems of proteins and energy, metabolism of carbohydrates, proteins and fats in non-ruminants. Vitamins and Mineral nutrition in poultry and swine, ration formulation and balanced dies for various stages in poultry and swine. Use of enzymes and feed additives in poultry & swine rations.

Unit-5: Animal health and diseases, causes, symptoms and preventive measures, livestock and poultry acts and zoonotic diseases, quarantine, management of hygiene and sanitation on animal farm house, vaccination to animal and poultry.

Unit-6: Compositions of milk from different species of animals. Status of dairy industries in India, various national programmes for milk production and dairy development. Technology mission on dairying, national policy of GATT, WTO, MMPO, concepts of GMP, TQM, HACCP, Methods for detection of milk adulteration. Structure of dairy foods representing emulsions, foams and gels; physical structure of fat rich, concentrated, fermented, coagulated and dried products.

Unit-7: Composition of cream, butter, condensed milk, dried milk, cheese, flavoured milk, Paneer, Khoa, Channa, lee creams. PFA, BIS and FSSAI standards for milk and milk products. Properties of whey proteins (WPC & WPI), casein, co- precipitates and UF milk retentate. Preparation/manufacturing of various types of traditional/Indian dairy products. Packaging of dairy products (Modified atmospheric packaging, controlled atmospheric packaging, intelligent packaging, shrink and stretch packaging).

Unit-8: Microbial rennet and recombinant chymosin, characteristics and application in cheese making. Technological requirement of modified microorganisms for production of cheese and fermented milk products; Technological innovations in the development of functional dairy foods with improved nutritional therapeutic and pro-biotic attributes.

Unit-9: Processing technology for different milk products, quality aspects, and storage for better shelf life and good quality, factors affecting the quality of milk and milk products, homogenization, pasteurization, sterilization, bactofugation, Ultra-filtration, Reverse osmosis Nanofiltration, ultra-high temperature (UHT) of milk, filling, packaging, storage, transportation and marketing of milk and milk products. Application of membrane technology; microwave heating for industrial production of traditional dairy products.

Unit-10: Status of market milk industry in India. History of Dairy development in India. Manufacturing of various special milks and its storage. Cleaning and Sanitization of dairy equipments. Physico- chemical properties of Cow and Buffalo milk. Safety standards for milk & concept of safe milk. Distribution and System of Pricing of milk in organized and unorganized sector of dairying in India

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