

ICAR Animal Science Syllabus

Code 14: MAJOR SUBJECT GROUP - ANIMAL SCIENCES

(Sub-Subjects:

- 14.1: Animal Genetics & Breeding
- 14.2: Animal Nutrition
- 14.3: Veterinary Physiology
- 14.4: Livestock Production and Management
- 14.5: Livestock Products Technology
- 14.6: Poultry Science
- 14.7: Veterinary Extension Education)

UNIT-I:

Principles of animal genetics, cell structure, and multiplication. Mendel's laws, principles of population genetics, concept of heredity, heterosis and mutation, principles of evolution, principles of molecular genetics, genetic code, quantitative and qualitative traits. Selection of breeding methods in livestock and poultry. Population statistics of livestock.

UNIT-II:

General nutrition, proximate principles, carbohydrates, proteins, and fats, their digestion and metabolism in ruminants and non-ruminants. Energy partition—measures of protein quality. Water, minerals, vitamins, and additives, feeds and fodders and their classification. Common anti-nutritional factors and unconventional feeds. Hay and silage making. Grinding, chaffing, pelleting, roasting, feed block. Feed formulation principles. Digestion—control motility and secretion of alimentary tract. Mechanism, natural and chemical control of respiration, gaseous exchange and transport, high altitude living, physiology of work and exercise. Cardiac cycle, natural control of cardiovascular system. Smooth and skeletal muscle contraction. Blood coagulation. Physiology of the immune system. Male and female reproduction, including artificial insemination, in-vitro fertilization, cryo-preservation. Excretory system.

UNIT-III:

General concepts of livestock production and management, status of dairy and poultry industry, impact of livestock farming in Indian agriculture. Livestock housing, production and reproduction management, lactation management, breeding programs for livestock and poultry. Composition, quality control, and preservation of livestock products, methods of processing and storage of livestock products. International Trade/WTO/IPR issues related to livestock products.

UNIT-IV:

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Concept of sociology, differences between rural, tribal, and urban communities, social change, factors of change. Principles and steps of extension education, community development—aims, objectives, organization set up, and concept evolution of extension in modern teaching methods. Role of livestock in the economy. Identifying social taboos, social differences, obstacles, and adoption of animal development programs. Concept of marketing, principles of co-operative societies, animal husbandry development planning and programs, key village scheme, ICD, CD programs, role of Gram Panchayat in livestock development. Basics of statistics, data analysis, and computational techniques.