

## **Syllabus for the post of District Sericulture Officer**

### **Introduction to Sericulture**

Overview and importance of sericulture. Sericulture with particular reference to J and K. Temperate and subtropical and tropical sericulture. Origin and history of sericulture - national and international silk organizations, organizational set up in different countries including India - development of sericulture through five year plans, organization of sericulture industry - cocoon markets, silk exchange, export-import policy and laws - laws relating to the production of silkworm seedcocoon, raw silk and transport - price stabilization, Research & Development institutes of CSB, State Government and Universities. Sericulture education.

### **Mulberry Production Technology/Moriculture**

Origin and diversity, taxonomy, botanical description and classification of mulberry, Mulberry germplasm and maintenance, Conventional and non-conventional methods of mulberry breeding. Breeding for leaf quality, resistant against diseases and pests, tolerance for drought, alkalinity and salinity. Role of mineral nutrition on growth yield, application of major nutrients and bio-fertilizer to mulberry, role of nitrogen, phosphorus, potash and secondary nutrients in mulberry, deficiencies of major nutrients and their toxicity. Factors influencing mulberry leaf yield and quality. Mulberry varieties, Raising of mulberry saplings, Kisan nursery and planting, Cultivation practices of mulberry, Harvesting, Pruning, Preservation of mulberry leaves, Mechanization, Mulberry pests and disease and their management. Economics of mulberry production.

### **Silkworm rearing technology**

Systematics of sericigenous insects and morphology of egg, larva, pupa and adult stages of sericigenous insects. Anatomy and physiology of digestive, circulatory, respiratory, excretory, muscular, reproductive and nervous systems (including central, visceral and peripheral) and sense organs of larva, pupa and adult. Endocrine and exocrine glands (including silk glands). Genetics and breeding of silkworms. Hereditary traits of importance in egg, larva, pupa-cocoon and adult stages, E- Group as a tool in developmental genetics,

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Linkage groups in silkworms, Genetics of cocoon colours. Breeding of multivoltine and bivoltine races and hybrids. Breeding for thermotolerance, disease resistance and special characters. Silkworm germplasm and resource potential. Sex linked and sexlimited races, Authorization and release of silkworm races. Requirement of nutrients to silkworm, metabolism and utilization of nutrients, physiology of moulting, egg and pupal diapause in silkworm, biochemical pathways of silk synthesis and biochemistry of haemolymph. Organization of egg production, State Seed Acts and Central Seed Act 2010. Establishment of grainage and grainage operation. Artificial methods of egg hatching and hibernation schedules. Planning for silkworm rearing, disinfectants and disinfection, leaf quality requirements, Chawki and late age silkworm rearing technology, mounting harvesting and marketing of silk cocoons. Silkworm diseases and their management, Silkworm pathogens, disease development and diagnosis, management of silkworm diseases, Silkworm pests and their management, Pesticide toxicity to silkworm. Sericulture Based Integrated Farming System.

### **Silk Technology & Sericulture Biotechnology**

Physical and commercial characteristics of cocoons and defective cocoons, cocoon marketing and transaction, steps in silk reeling, stifling, cocoon cooking and brushing, cocoon reeling and re-reeling. Different silk reeling machines/devices. Classification, sources, properties of silk reeling water and its melioration, Silk testing and grading, Post reeling technology- winding, doubling, twisting and weaving, Marketing of raw silk, Biotechnology in sericulture, mapping and sequencing of mulberry and silkworm genome, tissue culture and recombinant DNA techniques in mulberry and silkworm, Serio-informatics.

### **Vanya Sericulture**

Scope, importance and distribution of Eri, Tropical Tasar, Temperate Tasar and Muga silkworms and their host plants. Cultivation of different Vanya host plants, Economic plantation and Block plantation. Rearing of Eri, Tasar (tropical/ temperate) and Muga silkworms, Economics of non-mulberry silkworm rearing. Sericigenous insects of commercial exploitation, distribution pattern of different host plants. Systematics, morphology and cocoon characteristics of Anaphe, Fagara, Mussel, Coanand Spidersilks.

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### **Sericulture and organic farming**

Definition, Concepts and principles of organic farming, components of organic farming, Strategies for conservation by organic farming, On-farm input production system, Fundamentals of organic farm management and conversion, General principles of plant health management, Ecological strategies for pest management, Biological control, Bio pesticides, Use of botanicals and their formulations for pest management, Composts and microbes in pest management. Biofertilisers, their types including VAM, PSB and PSM etc. Organic silk production. Classification of farming systems, Role of Integrated Organic Farming Systems in organic agriculture, National standards for organic production (NSOP), National and international regulations on quality assurance and certification, Types of On-farm organic inputs allowed under organic farming, soil fertility and nutrient management, Innovative traditional inputs and microbial profiling, Types of plant protection inputs and on farm formulations and pest control.