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Agriculture Syllabus for Uttarakhand State Civil  
Services Main Exam-2011

## **AGRICULTURE**

### **PAPER-I**

#### **SECTION-A**

Ecology and its relevance to man, natural resources, their management and conservation  
Environment factors of crop distribution and production. Climatic elements as factor of crop

growth, impact of changing environment on cropping pattern. Environmental pollution and associated hazards to crops, animals and humans.

Cropping patterns in different agro-climatic zones of Uttarakhand, Impact of high yielding and short duration varieties on shifts in cropping patterns. Concepts of multiple cropping, multistorey, relay and inter cropping and their importance in relation to sustainable crops production. Package of practices for production of important cereals, pulses, oilseeds, fibre, sugar and cash crops grown during kharif and rabi seasons in different regions of Uttarakhand.

Important features, scope and propagation of various types of forestry plants with reference to agro-forestry and social forestry. Weeds, their characteristics, dissemination and association with various field crops; their multiplications; cultural, biological and chemical control of weeds.

Processes and factors of soil formation, classification on Indian soils including modern concepts. Mineral and organic constituents of soils and their role in maintaining soil productivity. Problem soils, extent and distribution in India and their reclamation. Essential plant nutrients and other beneficial element in soils and plants, their occurrence, factors affecting their distribution, functions and cycling in soil. Symbiotic and non-symbiotic nitrogen fixation. Principles of soil fertility and its evaluation for judicious fertilizer use.

Soil conservation planning on watershed basis, Erosion and runoff management in hillyfoot hills and valley lands; process and factors affecting them. Dry land agriculture and its problems. Technology for stabilizing agriculture production in rainfed agriculture area of Uttarakhand.

#### **SECTION-B**

Water use efficiency in relation to crop production, criteria for scheduling irrigations, ways and means of reducing run-off losses of irrigation water. Drainage of water-logged soils.

Farm management, scope importance and characteristics, from planning and budgeting  
Economics of different types of farming systems.

Marketing and pricing of agriculture inputs and outputs, price fluctuations and their cost, role of co-operatives in agricultural economy, types and systems of farming and factors affecting them.

Agricultural extension, its importance and role, methods of evaluation of extension programmes  
diffusion, communications and adoption of innovations, people's participation and motivation

Farm mechanization and its role in agricultural production and rural employment. Training programmes for extension workers and farmers. Extension systems and programmes: Training & Visits, KVK, KGK, NATP and IVLP.

### **PAPER-II**

#### **SECTION-A**

Heredity and variation. Mendel's law of inheritance. Chromosomal theory of inheritance  
Cytoplasmic inheritance. Sex linked, sex influenced and sex limited characters. Spontaneous and induced mutations. Role of chemical in mutation.

Origin and domestication of field crop. Morphological patterns of variations in varieties and related species of important field crops. Cause and utilization of variations in crop improvement.

Application of the principles of plant breeding to the improvement of major field crops, methods of breeding of self and cross-pollinated crops. Introduction, selection, hybridization. Male sterility and self-incompatibility, utilization of mutation and polyploidy in breeding.

Seed technology and its importance, production, processing storage and testing of seeds. Role of national and state seed organizations in production. Processing and marketing of improved seeds. Physiology and its significance in agriculture, physical properties and chemical constitution of protoplasm, imbibition, surface tension, diffusion and osmosis, absorption and translocation of water, transpiration and water economy.

#### **SECTION-B**

Enzymes and plant pigments. Photosynthesis-modern concepts and factors affecting the process, aerobic and anaerobic respiration. Growth and development, photoperiodism and vernalization. Plant growth regulators and their mechanism of action & importance in crop production.

Climatic requirements and cultivation of major fruits and vegetable crops; package of practices and the scientific basis for the same. Pre and post harvest physiology of fruits and vegetables. Principal methods of preservation of fruits and vegetables. Processing techniques and equipments. Landscape and Floriculture including raising of ornamental plants. Design and layout of lawns and gardens.

Diseases and pests of vegetable, fruits and plantation crops of Uttarakhand and measures to control plant diseases. Integrated management of pests and diseases. Pesticides and their formulations, plant protection equipment, their care and maintenance.

Storage pests of cereals and pulses. Hygiene of storage godowns; preservation and remedial measures.

Food production and consumption trends in India. National and international food policies. Procurement, distribution, processing and production constraints.