

## Syllabus

### TSPSC Agriculture Officer Syllabus

#### Paper-I: General Studies and General Abilities

1. Current affairs; Regional, National and International.
2. International Relations and Events.
3. General Science; India's Achievements in Science and Technology.
4. Environmental issues; Disaster Management- Prevention and Mitigation Strategies.
5. Economic and Social Development of India and Telangana.
6. Physical, Social and Economic Geography of India.
7. Physical, Social and Economic Geography and Demography of Telangana.
8. Socio-economic, Political and Cultural History of Modern India with special emphasis on Indian National Movement.
9. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.
10. Indian Constitution; Indian Political System; Governance and Public Policy.
11. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc. and inclusive policies.
12. Society, Culture, Heritage, Arts and Literature of Telangana.
13. Policies of Telangana State.
14. Logical Reasoning; Analytical Ability and Data Interpretation.
15. Basic English. (10th Class Standard)

## Paper-II: Agriculture

**1. Historical developments in Agriculture;** Agro climatic zones of India and Telangana; Agricultural Meteorology - Weather and Climate, Rainfall patterns, Monsoons, artificial rain making, Weather forecasting - Crop Production and Productivity in India and Telangana, cultural practices; cropping systems & patterns; Yield and yield attributes of Cereals, Millets, Pulses, Oilseeds, Forage, Fibre, Sugar and commercial crops; Dry land Farming; Contingency crop planning; Cropping Systems and pattern in Telangana; Integrated Farming Systems; Farm implements.

**2. Important Weed flora and their management in different field and Horticultural crops;** Forestry in India and Telangana; Silviculture, Agro Forestry, Social Forestry, Afforestation, Energy Plantations, Deforestation and its Implications; Soil Plant Water relations; Principles of irrigation - Irrigation methods and problems; Micro irrigation; Water Management in different crops, Watershed Management, Water use efficiency, water conservation; water harvesting: Sustainable Agriculture; Land degradation and conservation of natural resources; Waste lands and their development, Organic Farming; Bio-diversity. Geo-informatics and Nanotechnology for precision Farming. Statistical methods. Agri-informatics.

**3. Ultra Structure of Plant cells, organelles and their functions - cell division;** Fundamentals and principles of Genetics - Mendel Laws; Plant Breeding - scope and importance - Breeding methods for self pollinated and cross pollinated crops; Different types of selections and types of Hybridization - Heterosis - Inbreeding - varietal improvement; Major breeding procedures for development of hybrids / varieties of different crops. Protection of Plant varieties and Farmers Rights Act. Intellectual Property Rights. Plant Genetic Resources their utilization in crop improvement, Ideotype concept, Breeding for resistance to biotic and abiotic stress - Genetic basis of adaptability.

**4. Tissue culture and Plant Genetic Engineering - Methods and Applications in crop improvement;** Seed Production methods and processing; Seed Certification - Seed act - Seed drying - Seed Storage - Seed physiology. Growth and development of crop plants; Crop plant water relations, Neutrophysiology, Photosynthesis, Respiration; Source and sink concept;

Photoperiodism. Plant growth regulators: Post harvest technology -types of ecosystems; Biotic and abiotic stresses; Climate change; Pollution, global warming and controlled environment.

**5. Types of Soils** - Soil Taxonomy, Soil genesis, Physical, Chemical & Biological properties of Soil- Soil fertility and productivity. Movement of nutrients in soil and plants. Essential elements (macro & micro) and their functions, deficiency symptoms and toxic effects on plants and their corrective measures; Problem soils and their management. Quality of irrigation water. Methods of analysis of soils & fertilizers. Methods of fertilizer recommendations to crops. Fertilizer use efficiency; Types of Manures and Fertilizers. Soil quality and soil health. Fertilizer control order - Soil pollution. Integrated Nutrient management.

**6. Different types of land surveys;** Methods of soil and Water conservation; Plant Protection Equipment and farm machinery, Concepts of Green Houses; Renewable energy sources - Solar energy, wind energy and Bio-energy-biogas, bioethanol and biodiesel.

**7. Insect morphology, Taxonomy, Insect Ecology, Importance of Sericulture, Apiculture and Lac culture; Integrated Pest Management** - concept and Principles; Different groups of Plant Pathogens; Fungi, Bacteria, Viruses, Viroids, Phytoplasma, Spiroplasma and Nematodes - their characteristics and classification; Classification of Plant Diseases - Diseases, disorders, Symptoms; Disease cycle - Survival of Pathogens, dispersal and infection; Pests and diseases of important field and Horticultural crops and their management, Stored grain pests and management; Integrated plant and disease management, Concept and Principles; Plant Protection Chemicals - Insecticides and Fungicides - Classification. Non-Insect Pests and their management.

**8. Concepts and principles of Agricultural Economics; Agricultural Finance; Agricultural credit-** Banking institutions, Kisan credit cards; Micro finance and Self help Groups; Crop insurance; Assessment of crop losses; Principles of Cooperation; Cooperative credit structure, Farm management, nature and scope; Farm planning and budgeting -Types and systems of farming-Agricultural Production economics-Risk and uncertainty in agriculture; Agricultural marketing - structure and function; International trade- World Trade Organization; Trading by government agencies-Agricultural price policy; Risks in agricultural marketing: Agribusiness management; Capital management, Financial management of agribusiness; Agro based industries.

**9. Importance of Horticulture in Telangana;** Fundamentals of Horticulture like importance in Human nutrition, layout, training, pruning, propagation and growth regulators; Cultivation practices for fruits, vegetables, flowers, spices, plantation, medicinal, aromatic and other Horticultural crops; Landscaping, Ornamental gardening, Protected cultivation and Commercial Floriculture; Post Harvest technology and value addition of Fruits and Vegetable crops.

**10. Extension Education-** concepts, principles and scope; Rural Development - concepts and importance; Community and Women Development Programs; New trends in Extension; Rural Sociology- concepts and importance in Agricultural extension; Social groups; concept of Educational Psychology, Extension methodology - Transfer of Agricultural technology; Role of different agencies viz., KVK, DAATC etc; Concepts of Entrepreneurship Development Program.

**11. Cell structure and function of prokaryotes and eukaryotes;** Major microbial groups, Role of microorganisms in soil, food and water, Structure and function of bio-molecules - amino acids, sugars, carbohydrates, lipids, nucleic acids, proteins and enzymes; Major metabolic pathways; Bio-fertilizers, microbial bio-control agents, microbial bio-insecticides - their role in INDPM and sustainable agriculture; Renewable and non-renewable resources - Sustainable management of natural and bio-resources; Environmental Pollution and Prevention.

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