

UPSC AGRICULTURE OPTIONAL SYLLABUS 2026

FOR CSE MAINS EXAMINATION



Complete Syllabus
Paper I & Paper II



Detailed Topics
Unit-wise Breakdown



Exam Pattern
Marks & Structure



Preparation Tips
Strategy & Resources



UPSC Agriculture Optional Syllabus for CSE Mains

Paper 1

1. Ecology and Environment

- Principles of ecology, human-environment interaction
- Agro-ecosystems, agro-biodiversity, impact of cultivation
- Environmental pollution, global warming, climate change
- Soil-plant-water relationships, soil degradation

2. Agronomy

- Definition, scope, relationship with allied sciences
- Cropping patterns, systems, and farming practices
- Dryland agriculture, watershed management
- Organic farming, precision farming techniques
- Package of practices for cereals, pulses, oilseeds, fibers, sugar, commercial, fodder crops

3. Weed Science

- Weed characteristics, dissemination, crop association
- Principles of weed management (cultural, biological, chemical)
- Herbicide classification, selectivity, resistance

4. Forestry

- Forest types, importance, management systems
- Social forestry, agroforestry, natural forests
- Propagation methods, forest products, conservation
- Forest flora, fauna protection, value addition

5. Soil Science and Nutrient Management

- Soil properties (physical, chemical, biological)
- Soil formation, classification, soil fertility evaluation
- Essential plant nutrients, deficiency symptoms
- Slow-release fertilizers, micro-nutrients, soil testing

6. Soil and Water Conservation

- Soil erosion causes, types, control measures
- Watershed management, water harvesting
- Irrigation types, efficiency, crop water requirements
- Drainage systems, salinity/sodicity management

7. Agricultural Economics

- Basic principles, farm management concepts
- Farm planning, budgeting, cost concepts
- Market structure, price determination, risk management
- Agricultural finance, insurance schemes
- Agricultural marketing, cooperatives, WTO issues

8. Agricultural Extension

- Extension education principles, rural development programs
- Extension teaching methods, audio-visual aids
- Diffusion of innovations, training programs
- Role of KVKs, ATMA, NGOs in extension

Paper 2 - UPSC Agriculture Optional Syllabus for CSE Mains

1. Cell Biology

- Cell structure, cell division (mitosis, meiosis)
- Chromosome structure, numerical/aberrational changes
- Mendelian genetics, gene interactions, cytoplasmic inheritance

2. Plant Breeding

- Origin, evolution, domestication of crop plants
- Centers of origin, law of homologous series
- Breeding methods: pure-line, pedigree, backcross, hybrid
- Heterosis, combining ability, molecular markers
- Mutation breeding, polyploidy, distant hybridization

3. Seed Production and Technology

- Seed quality characteristics, certification standards
- Seed production techniques, storage methods
- Seed testing, dormancy, germination enhancement
- Seed village concept, hybrid seed production

4. Plant Physiology

- Photosynthesis (C3, C4, CAM pathways), photorespiration
- Respiration, nitrogen metabolism, growth regulators
- Photoperiodism, vernalization, seed physiology
- Stress physiology (drought, salinity, temperature)

5. Horticulture and Landscape Gardening

- Fruit, vegetable, plantation, spice, flower crops cultivation
- Package practices, high-density planting, rejuvenation
- Protected cultivation, micropropagation techniques
- Post-harvest management, value addition
- Medicinal/aromatic plants, landscaping principles

6. Plant Protection Techniques

- Pests/diseases diagnosis, economic threshold levels
- IPM strategies, biological control agents
- Pesticides classification, modes of action, resistance
- Plant quarantine, epidemiology, forecasting
- Nematode management, stored grain pest control

7. Food Production and Nutrition Management

- Food production trends, consumption patterns
- Food security, Vision 2020, nutrition security
- Food processing technologies, fortification
- Food safety standards, GM foods regulatory framework