



AGRICULTURE OPTIONAL TEST SERIES 2024

For UPSC CSE 2024 and IFS Mains 2024

Thorun Patel,
MSc (Agri),
IARI

DATE	SUBJECT	SYLLABUS
<p>01-07 -2024 (Monday)</p>	<p>Test 1: ECOLOGY + AGRONOMY</p>	<ol style="list-style-type: none"> 1. Ecology and its relevance to man 2. Natural resources, their sustainable management and conservation 3. Physical and social environment as factors of crop distribution and production. 4. Agro ecology; cropping pattern as indicators of environments. 5. Environmental pollution and associated hazards to crops, animals and humans. 6. Climate change - International conventions and global initiatives. 7. Greenhouse effect and global warming. 8. Advance tools for ecosystem analysis - Remote sensing (RS) and Geographic Information Systems (GIS). <p>Agronomy:</p> <ol style="list-style-type: none"> 1. Cropping patterns in different agro-climatic zones of the country.

		<ol style="list-style-type: none"> 2. Impact of high yielding and short-duration varieties on shifts in cropping patterns. 3. Concepts of various cropping and farming systems. 4. Organic and Precision farming. <p>Package of practices for production of important cereals, pulses, oil seeds, fibres, sugar, commercial and fodder crops</p>
<p>08-07-2024 (Monday)</p>	<p>Test 2: WEED SCIENCE + FORESTRY</p>	<p>Weed science:</p> <ol style="list-style-type: none"> 1. Weeds - their characteristics. 2. Dissemination and association with various crops; their multiplications; 3. Cultural, biological, and chemical control of weeds. <p>Forestry:</p> <ol style="list-style-type: none"> 1. Important features and scope 2. Various types of forestry plantations such as social forestry, agro-forestry, and natural forests. 3. Propagation of forest plants. 4. Forest products. Agro forestry and value

		<p>addition.</p> <p>5. Conservation of forest flora and fauna.</p>
<p>15-07-2024 (Monday)</p>	<p>Test 3: SOIL SCIENCE + SOIL WATER CONSERVATION</p>	<p>Soil science and nutrient management:</p> <ol style="list-style-type: none"> 1. Soil- physical, chemical and biological properties. 2. Processes and factors of soil formation. 3. Soils of India. 4. Mineral and organic constituents of soils and their role in maintaining soil productivity. 5. Essential plant nutrients and other beneficial elements in soils and plants. 6. Principles of soil fertility, soil testing and fertilizer recommendations. 7. Integrated nutrient management. 8. Biofertilizers. 9. Losses of nitrogen in soil, nitrogen-use efficiency in submerged rice soils, nitrogen fixation in soils. 10. Efficient phosphorus and potassium use. 11. Problem soils and their reclamation. 12. Soil factors affecting greenhouse gas emission.



		<p>Soil and water conservation:</p> <ol style="list-style-type: none">1. Soil conservation2. Integrated watershed management.3. Soil erosion and its management. Dry land agriculture and its problems.4. Technology for stabilizing agriculture production in rain fed areas.5. Water-use efficiency in relation to crop production,6. Criteria for scheduling irrigations,7. Ways and means of reducing runoff losses of irrigation water.8. Rainwater harvesting.9. Drip and sprinkler irrigation.10. Drainage of waterlogged soils,11. Quality of irrigation water12. Effect of industrial effluents on soil and water pollution.13. Irrigation projects in India.
<p>22 – 07 – 2024 (Monday)</p>	<p>Test 4: AGRI ECONOMICS + AGRI EXTENSION</p>	<p>Agricultural economics:</p> <ol style="list-style-type: none">1. Farm management, scope, importance and characteristics, farm planning.2. Optimum resource use and budgeting.



		<p>3. Economics of different types of farming systems.</p> <p>4. Marketing management - strategies for development, market intelligence.</p> <p>5. Price fluctuations and their cost; role of co-operatives in agricultural economy;</p> <p>6. Types and systems of farming and factors affecting them.</p> <p>7. Agricultural price policy.</p> <p>8. Crop Insurance.</p> <p>Agricultural extension:</p> <ol style="list-style-type: none">1. Agricultural extension, its importance and role,2. Methods of evaluation of extension programmes,3. Socio-economic survey and status of big, small and marginal farmers and landless agricultural labourers.4. Training programmes for extension workers5. Role of Krishi Vigyan Kendra's (KVK) in dissemination of Agricultural technologies.6. Non-Government Organization (NGO) and self-help group approach
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		for rural development.
29-07-2024 (Monday)	Test 5: AGRICULTURE PAPER 1	FULL SYLLABUS OF PAPER 1
06-08-2024 (Tuesday)	Test 6: GENETICS/CELL BIOLOGY + FOOD PRODUCTION AND NUTRIENT MANAGEMENT.	<p>Cell biology:</p> <ol style="list-style-type: none"> 1. Cell structure, function and cell cycle. 2. Synthesis, structure and function of genetic material. 3. Laws of heredity. 4. Chromosome structure, chromosomal aberrations 5. Linkage and cross-over, and their significance in recombination breeding. 6. Polyploidy, euploids and aneuploids. 7. Mutations - and their role in crop improvement. 8. Heritability, sterility and incompatibility, classification and their application in crop improvement. 9. Cytoplasmic inheritance, sex-linked, sex-influenced and sex-limited characters. <p>Food production and nutrition management:</p> <ol style="list-style-type: none"> 1. Food production and consumption trends in India. 2. Food security and growing population - vision 2020.



		<ol style="list-style-type: none">3. Reasons for grain surplus.4. National and international food policies.5. Production, procurement, distribution constraints.6. Availability of food grains, per capita expenditure on food.7. Trends in poverty, Public Distribution System and Below Poverty Line population, Targeted Public Distribution System (PDS), policy implementation in context to globalization.8. Processing constraints.9. Relation of food production to National Dietary Guidelines and food consumption pattern.10. Food based dietary approaches to eliminate hunger.11. Nutrient deficiency –<ol style="list-style-type: none">1. Micro nutrient deficiency , Protein Energy Malnutrition or Protein Calorie Malnutrition (PEM or PCM),2. Micro nutrient deficiency and HRD in context of work capacity of women and children.12. Food grain productivity and food security.
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13-08-2024
(Tuesday)

Test 7:
PLANT BREEDING + SEED SCIENCE

Plant breeding :

1. History of plant breeding.
2. Modes of reproduction, selfing and crossing techniques.
3. Origin, evolution and domestication of crop plants, centre of origin, law of homologous series, crop genetic resources conservation and utilization.
4. Application of principles of plant breeding, improvement of crop plants.
5. Molecular markers and their application in plant improvement.
6. Pure-line selection, pedigree, mass and recurrent selections, combining ability, its significance in plant breeding.
7. Heterosis and its exploitation.
8. Somatic hybridization.
9. Breeding for disease and pest resistance.
10. Role of interspecific and intergeneric hybridization.
11. Role of genetic engineering and biotechnology in crop improvement.
12. Genetically modified crop plants.

Seed production and technology:

1. Seed production and processing



		<p>technologies.</p> <ol style="list-style-type: none">2. Seed certification, seed testing and storage.3. DNA finger printing and seed registration.4. Role of public and private sectors in seed production and marketing.5. Intellectual Property Rights (IPR) issues, WTO issues and its impact on Agriculture.
<p>20-08-2024 (Tuesday)</p>	<p>Test 8: CROP PHYSIOLOGY + PLANT PROTECTION</p>	<p>Plant physiology:</p> <ol style="list-style-type: none">1. Principles of Plant Physiology with reference to plant nutrition, absorption, translocation and metabolism of nutrients.2. Soil - water- plant relationship.3. Enzymes and plant pigments;4. Photosynthesis- modern concepts and factors affecting.5. C3, C4 and CAM mechanisms.6. Factors affecting aerobic and anaerobic respiration;7. Carbohydrate, Protein and fat metabolism.8. Growth and development; photoperiodism and vernalization.9. Plant growth substances and their role in crop production.10. Physiology of seed development and



		<p>germination; dormancy.</p> <p>11. Stress physiology - drought, salt and water stress.</p> <p>Plant protection techniques:</p> <p>1. Diagnosis of pests and diseases of field crops, vegetables, orchard and plantation crops and their economic importance.</p> <p>2. Classification of pests and diseases and their Plant protection techniques:</p> <p>1. Diagnosis of pests and diseases of field crops, vegetables, orchard and plantation crops and their economic importance.</p> <p>2. Classification of pests and diseases and their management.</p> <p>3. Integrated pest and disease management.</p> <p>4. Storage pests and their management.</p> <p>5. Biological control of pests and diseases.</p> <p>6. Epidemiology and forecasting of major crop pests and diseases.</p> <p>7. Plant quarantine measures.</p> <p>8. Pesticides, their formulation and modes of action.</p>
<p>27-08-2024 (Tuesday)</p>	<p>Test 09: HORTICULTURE</p>	<p>Horticulture and landscape gardening:</p> <p>1. Major fruits, plantation crops, vegetables, spices and flower crops</p>

		<p>2. Package practices of major horticultural crops.</p> <p>3. Protected cultivation and high-tech horticulture.</p> <p>4. Post-harvest technology and value addition of fruits and vegetables</p> <p>5. Landscaping and commercial floriculture.</p> <p>6. Medicinal and aromatic plants.</p> <p>7. Role of fruits and vegetables in human nutrition.</p>
03-09-2024 (Tuesday)	Test 10 PAPER 2 FULL LENGTH	FULL PAPER 2 FULL SYLLABUS
08-09-2024 (9:00 am to 12:00 pm) (Sunday)	Test 11: AGRI OPTIONAL FULL-LENGTH TEST	FULL OPTIONAL SYLLABUS
08 – 09 – 2024 (2:00 pm to 5:00 pm) (Sunday)	Test 12: AGRI OPTIONAL FULL-LENGTH TEST	FULL OPTIONAL SYLLABUS

NOTE:

1. Kindly attend the tests with the same mood and intensity as you attend in examination hall.
2. Be honest to yourselves. Adhere to the time limits strictly.
3. Prepare the subject thoroughly before taking tests.
4. Main intension of the tests is to enable you to complete the syllabus of the optional before UPSC notification, by covering even the less emphasized areas and to bring value addition to your answers.



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