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ARUNACHAL PRADESH
AGRICULTURE
SERVICE EXAMINATION
(APASE)

- syllabus -

Prepared by:-

THE DEPARTMENT OF AGRICULTURE
GOVERNMENT OF ARUNACHAL PRADESH

**SYLLABUS FOR ARUNACHAL PRADESH AGRICULTURE
SERVICE EXAMINATION (APASE)**

Part-I

1. AGRONOMY

Agro climatic zones of India and Arunachal Pradesh. Factors affecting distribution of crops, classification of crops. Tillage operation and its objectives, different types of tillage operation and tillage implements. Importance of cultural practices in crop production system, crop variety- definition, seed selection and method of seeding- its definition, seed selection and method of raising seedlings. Definition and objective of crop rotation, intensity of cropping, multiple cropping, inter cropping, rainfed cropping, mixed cropping system. Details of rice crop production, production technology of oil seeds, other cereals, pulses, fiber crops, cash crops, tuber crops, with special emphasis on potato, sugarcane, ginger, turmeric, onion, soyabean, millet, sunflower, sesamum, mustard, black gram, green gram. Advantages of Crop rotation and Integrated farming system

Weeds and their classification, harmful and beneficial effect of weeds. Introductory meteorology, weather and climatic characteristics and conditions, green house effect, different meteorological instrument and their measurements.

2. HORTICULTURE

Definition of Horticulture, its scope, importance, classification of horticultural plants. Fundamental principles of plant propagation, layout of orchard, system of planting and planting of crops. Management of orchard soil, irrigation of horticultural crops and drainage system, practices of different horticultural operation. Planning and management of nurseries and orchards, Scope and importance of fruits with special reference to their classification use varieties of soil and climate requirement, cultural practice and production problems.

Classification of vegetables, production of important vegetables crops grown in Arunachal Pradesh. Tuber crops, their origin, distribution, cultivation of tapioca, sweet potato and colocassia.

Elementary principles of processing and preservation, scope of landscaping and floriculture in Arunachal Pradesh.

3. PLANT PHYSIOLOGY

Absorption of water and its movement inside the plant. Factors affecting solute absorption and transpiration, evapo-transpiration, mineral nutrition, enzymes and enzymic activity in different physiological process, carbon assimilation, respiration and photorespiration, nitrogen and fat metabolism. Growth hormone and their importance in Agriculture/Horticulture photoperiodism and vernalization and their importance in Agriculture/horticulture.

4. GENETICS AND PLANT BREEDING

Cell component, concept of cytoplasmic inheritance, mutation, evolution, Elementary concept of genes, gene action, DNA, RNA. Principle of inheritance, interaction of gene and modification of F_2 ratio, linkage and crossing over.

Plant breeding & modern science, classification of crops according to breeding behaviour. Application of breeding methods. Application of principle of plant breeding to the improvement of major crops like rice, wheat, maize, vegetable, pulses, oil seeds.

5. SOIL SCIENCE

Composition of soil, soil texture, soil structure, soil water. Soil colloids-minerals and organic minerals, their natures and properties. Concept of soil pH. Development/reclamation of Acid/Alkalic soils.

Organic matter-humus, its formation, nature and properties, CN ratio in soil and its significance. Important biological process in soil, amination, amminification, nitrification, denitrification and nitrogen fixation.

Concept of soil productivity and fertility, essential elements for plants, their forms, availability and functions. Deficiency symptoms of nutrients in plants. Fixation and release of nutrients in soils, classification of nutrients. Factors affecting loss of plant nutrient.

Nitrogen fixation, symbiotic and non-symbiotic nitrogen fixation. Biofertilizers and their use. Chemical fertilizers, organic manures-their composition, classification, method of application. Different types of soil microorganism, decomposition of organic matter in soil. Concept of soil profile, details study of soil profile. Land capability classification, soil survey definitions, purpose and types.

Part-II

1. PLANT PATHOLOGY

Concept of disease in plants, importance of plant diseases. Classification of plant disease, various parasitic and non-parasitic causes of plant diseases. Diagnosis of plant disease, stages of disease development i.e, inoculation ,penetration, infection, invasion, growth and reproduction, affect of environment including adaphic factors in plant disease. Principles of disease management. Concept of integrated control measures.

Common disease of major field crops, vegetables, fruit crops, major pulses, oil seeds, commercial crops like sugarcane, potato, chillies etc. their casual organism, disease symptoms and control measures.

Importance of microbiology, classification of micro organism, different types of bacteria, brief classification of bacteria structure and classification of moulds and viruses. Antibiotics and antibodies. Microbiology of soil, water, air and food.

2. ENTOMOLOGY & NEMATOTLOGY

Nematodes-Thier pathogenecity, relationship with other micro-organisms. Different types of harmful and useful insects. Identification, nature and extent of damage caused by insect, life history, seasonal occurrence, management practices of major pests of field crops, fruits and vegetables. Productive insect with special reference to sericulture, apiculture and lac-culture.

Stored grain pest and their control, rodent and their control measures.

Different methods of pest control with special reference to IPM, classification of pesticides and their physical, chemical and biological properties. Types of formulations, Insecticide and their precautionary measures. Different types of plant protection equipments, their maintenance and their use in

3. EXTENSION EDUCATION

Definition, meaning and objective of extension education .
Extension organisation in India, importance of extension education in
agriculture and rural development. Teaching-learning process, classification
and characteristics of extension reading method. Factors influencing
selection, combination and use of extension teaching method. Role of
Audio Visual aids in extension programme planning and evaluation.

4. AGRI. ECONOMICS AND FARM MANAGEMENT

Basic concept like want goods, wealth, welfare, value price,
consumption, exchange factors of production, law of diminishing return.
Farm of business organisation. National income, per capita income.

Basic concept of economics and Agril.Economics, Division of
Agril.economics, importance of the subject.

Farming system and types of Farms, diversified farming and
mixed farming. Intensity of cropping. Hazards in agriculture and economic
developments.

Importance of farm management, its relationship with
other sciences and advantages of farm records and accounts.

System of book keeping, types of firman record and act-
physical and financial . Principals involved in farm management decision.
Management of farm labour and wage record.

Planning labour, use for higher efficiency estimation of
different kind of labour required in farm. Cost of production and return to
farm. Cost of fencing, irrigation, farm layout. Agriculture marketing
cooperation.Problems of acquisition and organisation of farm.

5. AGRI. ENGINEERING

Scope of farm mechanisation-its benefits and limitations, Sources of farm power, Internal Combustion engines, elementary knowledge about tractors, types and systems of soil tillage implements, inter-culture implements/equipments, harvesting and threshing equipments. Soil-plant-water relationship, drainage engineering, surveying and levelling. Introduction of post harvesting technology, grain storage and processing. Field structures and practices to control erosion by water. Different system of soil and water conservation.