AGRONOMY

PRINCIPLES OF AGRONOMY

1. **INTRODUCTION**
   Agriculture and Agronomy; History of Agriculture; Agricultural Science, Meaning of Agronomy; Content of Agronomy; Scope of Agronomy

2. **CLIMATE**
   Atmosphere; Structure of Atmosphere; Weather element and their effect on crop; Hydrologic Cycles; Monsoon; Seasons; Abnormalities in Weather --- Floods, droughts, etc.; Weather forecasting; Forecasting information, Types and methods of Weather forecasting.

3. **CLASSIFICATION OF FIELD CROPS**
   All types of classification of field crops

4. **TILLAGE**
   Objectives of tillage, Influence of tillage on soil physical properties; types of tillage; Preparatory cultivation, after cultivation; Tillage implements --- Primary and Secondary tillage implements; Implements for layout of seedbed and sowing and intercultivation; Tilth; Modern concepts of tillage; Puddling.

5. **SEEDS AND SOWING**
   Introduction, characteristic of good quality seed; Selection of seed, seed production, vegetative propagation ; Micro propagation, Types of Pure seed, other types of seed in agronomic use; Real value of seeds seed dormancy. Viability of seeds, Seed treatment; Types of sowing; Direct sowing, transplanting: time of sowing/ planting; Depth of sowing.

6. **PLANT POPULATION**
   Yield of individual plant and community; Plant population and growth, and yield, Biological and economic yield, Optimum Plant population and environment, Factors affecting optimum plant population; Maintaining optimum plant population, planting pattern, gap filling and resowing.

7. **CROP ROTATION**
   Concepts, Reasons for crop rotation; Essentials of a good rotation, planning the rotation; Examples of good rotation.

8. **NUTRIENT MANAGEMENT**
   Mineral nutrition – Essential elements, Functions of nutrients, Nutrient availability; Soil fertility and productivity; Manures --- different types; Fertilizers: Classification, Micronutrients, Biofertilisers. Method and time of Fertilizers application, Integrated nutrients management.

9. **WATER MANAGEMENT**
   Importance of water, in crops. Soil-Plant atmosphere system, soil water, water requirement of crops, factors influencing ET, ET and crop yield, irrigation requirement. Scheduling of irrigation, Method of irrigation; measurement of irrigation water. Qualities of irrigation water; Drainage – excess water, Agricultural drainage.

10. **DRYLAND AGRICULTURE**
    Concept, Importance of dryland agriculture, problems of crop production in dryland. Moisture stress – Development of moisture stress – Constraints associated with dryland agriculture, Management practices and management techniques for dryland farming areas.

11. **WEED MANAGEMENT**
    Concept, Weed problem, classification of weeds, crop weed competition, Establishment of weed, Weed control measures; chemical weed control, classification of herbicides, Herbicides formulation, mode of action, method, time and dosage of application, Effect of herbicides on crop, Fate in Soil, Interaction with other agro-chemicals, Integrated weed management.

12. **CROPPING SYSTEM**
    System approach, Efficient cropping system, Interactions between different component crops; Assessment of yield advantage and land use, Economic evaluation, Management of cropping system.