

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; Tillage; 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.