

UNIT I

Agronomy and its scope, seeds and sowing, tillage, land configuration and sub soiling, crop density and geometry. Agro-climatic zones of India and Gujarat.

UNIT II

Growth and development of crops. Classification of field crops and Factors affecting on crop production. Drought – definition – types of drought – effect of drought on crops – management of drought. Cropping systems – monocropping – definition and principles of crop rotation – mixed cropping – intercropping – relay cropping – multistoried cropping – sole cropping. Weeds: definition, classification and characteristics.

UNIT III

Crop nutrition, manures and fertilizers, nutrient use efficiency. Soil fertility and soil productivity – fertility losses – maintenance of soil fertility – soil organic matter. Introduction and importance of organic manures, properties and methods of preparation of bulky and concentrated manures. Green/leaf manuring. Fertilizer recommendation approaches. Integrated nutrient management. Chemical fertilizers: classification, composition and properties of major nitrogenous, phosphatic, potassic fertilizers, secondary & micronutrient fertilizers, Complex fertilizers, nano fertilizers Soil amendments, Fertilizer Storage, Fertilizer Control Order.

UNIT IV

Irrigation – Introduction, Importance, Definition and Objectives. Physical classification and Biological classification of water. Irrigation efficiency and water use efficiency, conjunctive use of water, field capacity, permanent wilting point, irrigation requirement and hydraulic conductivity. Approaches for scheduling of irrigation; Methods of irrigation including micro irrigation system. Quality of irrigation water and water logging.

Practical(s)

1. Identification of crops, seeds, fertilizers, pesticides and tillage implements,
2. Lay out and types of seed bed preparation.
3. Practice of different methods of sowing
4. Study of yield contributing characters and yield estimation of major crops,
5. Seed germination and viability test,
6. Numerical exercises on plant population and seed rate.
7. Use of tillage implements-reversible plough, one way plough, harrow, leveler,
8. Study of sowing implements/equipment.
9. Measurement of field capacity, bulk density and infiltration rate
10. Field layout of various irrigation methods
11. To work out the labour unit and unit of work for various field operations