B. Voc. in Agriculture Farm House Management
Second Semester

Introduction to Soil Science

Theory:

Soil: Pedological and edaphological concepts. Origin of the earth, Earth's crust; Composition, Rocks and minerals. Weathering, Soil formation factors and processes. Components of soils. Soil profile, Soil physical properties, Soil texture, Textural classes, Particle size analysis, Soil structure, Classification, Soil aggregates, significance, Soil consistency, Soil crusting, Bulk density and particle density of soils &porosity and their significance and manipulation. Soil colour. Soil water, Retention and potentials, Soil moisture constants, Movement of soil water, Infiltration, Percolation, Permeability, Drainage. Methods of determination of soil moisture. Thermal properties of soils, Soil temperature. Soil air, Gaseous exchange, Influence of soil temperature and air on plant growth. Soil colloids : Properties, nature, types and significance; Layer silicate clays, and sources of charges. Adsorption of ions, Ion exchange, CEC & AEC, Soil reaction and buffering capacity. Factors influencing ion exchange and its Significance. Problem soils – acid, salt affected and calcareous soils, characteristics. Reclamation – mechanical, chemical and biological methods. Irrigations water – Quality of irrigation water and its appraisal. Indian standards for water quality. Use of saline water for agriculture.

Practical:

Collection and processing of soil sample. Identification of rocks and minerals. Determination of bulk density and particle density, Soil moisture determination, Soil moisture constants – Field capacity, permanent wilting point, Water holding capacity Infiltration rate, Soil texture and mechanical analysis, Soil temperature, Soil analysis for CEC, pH, EC, soluble cations & anions.

Production Technology of Fruit and Plantation Crops

Theory:

Importance, introduction and scope of horticulture. Classification of fruits according to climate.Selection of site, planning, establishment and layout of orchard. Propagation methods of fruit crops. Methods of training and pruning in fruit crops. Use of growth regulators in fruit production. Package of practices for the cultivation of major fruits with the emphasis on botanical name, family, origin, distribution, climate, soil, varieties, propagation, planting ,manures and fertilizers, irrigation, training and pruning, intercultural operation, harvesting, yield and plant protection measures including physiological disorders –mango, banana, citrus, grape, guava, sapota, apple, papaya, pineapple, pomegranate, ber, aonla, date palm;

Practical:

Identification of fruit and plantation crops. Study of horticultural tools and implements and theiruses; Plant propagation methods, by seeds, cuttings (soft wood, hard wood and semi-hardwood), budding and grafting, layering (simple layering, Air layering,); Layout and planting systems, Methods of pruning and training of important fruit crops .Irrigation methods in fruit crops including drip – Micro irrigation methods for establishment of orchard; Methods of fertilizer application in fruit crops. Visit to local commercial orchards with in state; Preparation of growth regulator solutions for propagation; Application of growth regulators for improving fruit set, fruit size and quality.

Field Crops- II (Rabi)

Theory:

Origin, geographical distribution, importance, production in Rajasthan and India, soil and climatic requirements, varieties, cultural practices viz. seed and sowing , intercultural operations, fertilizer, water and weed management, plant protection measures; harvesting and yield of wheat, barley; chickpea, rapeseed and mustard, potato, sugarcane and lucerne; Package of practices of tobacco, sunflower, safflower, linseed, sugarbeet, isabgol, lentil, berseem, oats, opium poppy, frenchbean, taramira and peas.

Practical:

Identification of seeds of rabi crops, Seed bed preparation and sowing of wheat and sugarcane; Calculations on seed rate; Top dressing of nitrogen in wheat and study of fertilizer experiments on rabi, crops ; Identification of weeds in wheat and other rabi crops; Application of herbicides and study of weed control experiments; Morphological characteristics of wheat, barley, oats, rapeseed and mustard ; Yield contributing characters of crops, Judging sugarcane maturity and quality tests .