

AGRI 213 SOIL, PLANT NUTRIENT AND WATER MANAGEMENT 3(2+1)

UNIT I

Soil - Definition, types of soil, soil physico-chemical characteristics, soil fertility and productivity, agronomical measures to maintain soil fertility and productivity, Soil problems and amelioration methods/techniques

UNIT II

Essential nutrients, Criteria for essential elements, Function of nutrients in plants

UNIT III

Fertilizer- Broad classification of fertilizers- properties of major fertilizer – time and methods of fertilizer application and factor influencing fertilizer application; Deficiency symptoms and toxicity symptoms on plants, Manure – Classification (Bulky and concentrated organic manure), Integrated Plant Nutrient Management (IPNM), Bio-fertilizers.

UNIT IV

Irrigation in Indian agriculture; biological and physical classification of water, water requirement of major crops, Measurement of irrigation water, various methods of irrigation, concept of advanced irrigation methods – water management devices – fertigation.

UNIT V

Water management in different crops – Irrigation efficiency and water use efficiency, Irrigation practices of major crops; Quality of irrigation water and its management

Practical

1. Collection and processing of soil samples for chemical analysis
2. Identification of manures and fertilizers
3. Working out fertilizer requirement/unit cost
4. Observation of different methods of irrigation and visit to irrigation cafeteria
5. Determination of soil moisture by thermo-gravimetric methods and other equipments
6. Demonstration of irrigation methods
7. Micro irrigation techniques and computer application
8. Visit to farmer field and cost estimation of drip irrigation system

Reference Books

1. Introductory of Soil Science – by D. K. Das, Kalyani Publishers, New Delhi
2. Manure and Fertilizers – by Yavalkar
3. Efficient use of irrigation water – by Reddy and Reddy