

Horticulture

Importance, history, origin, area, distribution, production and culture of major tropical and subtropical fruit crops. Botany, taxonomy, varieties and their classification; climatic influences, soil requirements; propagation and root stocks and problem of multiplication; establishment of commercial orchards; propagation, planting and after care; nutrition – disorders; training and pruning; irrigation and intercropping; pests – diseases and their management; vegetative and reproductive phases of fruits and fruiting; techniques for high productivity; post-harvest handling of mango, banana, citrus, papaya, grape, guava, sapota, pineapple and jackfruit. Special problems – Mango-irregular bearing and malformation, citrus decline and developments done. Problems and prospects of crop improvement by hybridization and results obtained.

Importance, history, origin, area, distribution, production and culture of commercial vegetable crops; taxonomy and improved varieties / hybrids; climatic and soil requirements; sowing/planting; after care; water and nutrient requirements; Interculture; plant protection; intercropping and use of growth regulators; harvesting and post-harvest technology; seed production; specific problems associated with different crops and prospects of improvement through breeding in tomato, potato, eggplant, hot and sweet peppers; okra, beans, cowpea and cluster bean; cucurbitaceous crops; carrot, radish and beetroot; onion and garlic; cabbage and cauliflower; green leafy warm season vegetables.

Importance, history, origin, area, distribution and culture of major commercial flower crops. Botany, taxonomy, varieties, classification and crop improvement; climatic influences and soil requirements; propagation, rootstocks and problems of multiplication; planting and after care; nutrition, training, pruning, irrigation, intercropping and use of growth regulators; pests/diseases and their management; harvesting, grading, storing, packing, marketing, and economics; vase life of cut flowers of jasmine, chrysanthemum, rose, marigold, gladiolus, crossandra, tuberose and anthuriums, antirrhinum, carnations and orchids.

Role of spices and plantation crops in national economy, export potential, IPR issues, clean development mechanism, classification and varietal wealth. Plant multiplication including *in vitro* multiplication, systems of cultivation, multi tier cropping, photosynthetic efficiencies of crops at different tiers, rainfall, humidity, temperature, light and soil pH on crop growth and productivity, high density planting, nutritional requirements, physiological disorders, role of growth regulators and macro and micro nutrients, water requirements, fertigation, moisture conservation, shade regulation, weed management, training and pruning, crop regulation, maturity indices, harvesting of coffee, cocoa, tea, cashew, rubber, oil palm, coconut, areca nut, black pepper, cardamom, turmeric, ginger, clove, cinnamon, nutmeg and allspice. Cost benefit analysis, organic farming, management of drought, precision farming.