



### **Physiology of Plant Growth and Development**

Growth and Development, Factors affecting plant growth and development. Plant cell growth and differentiation. Plant cell totipotency. Plant Growth Regulating substances- Phytohormones, modes of action, and their effects on plant life phenomena. PGRs' uses and applications in horticulture. Auxins, Gibberellins, Cytokinins, Abscisic acid, Ethylene, Brassinosteroids, Polyamines, Salicylic Acid, Jasmonic Acid, Stringolactones. Photomorphogenesis. Phytochromes and other photoreceptors. Physiology of flowering, Photoperiodism, Vernalization, Control of flowering. Physiology of seed and bud dormancy. Physiology of germination. Physiology of adventitious root production, bulb and other reproductive organ formation. Senescence. Apoptosis of leaves and fruits. Secondary substances of metabolism and their role. Plant defense mechanisms in pathogens, insects, and plants. Physiology of plants under environmental stresses. Salinity, extreme temperatures, water deficit or excess.