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Dr. Usman Sayeed is an academician, researcher, and educator specializing in Agricultural Informatics (Agriinformatics), with expertise in integrating information and communication technologies (ICT), artificial intelligence (AI), bioinformatics, geospatial technologies, and data analytics into modern agricultural systems. His work focuses on harnessing digital technologies to enhance agricultural productivity, sustainability and evidence-based decision-making. His research interests encompass Artificial Intelligence and Machine Learning in Agriculture, Precision Agriculture, Bioinformatics, Remote Sensing and GIS, Internet of Things (IoT), Decision Support Systems (DSS), Agricultural Databases, Climate-Smart Agriculture, Crop Modeling, and Digital Agriculture. He is particularly interested in developing data-driven approaches for crop monitoring, resource optimization, disease prediction, and sustainable farm management.



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Sustainable Agriculture: An Update



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An Update



Prof. Saba Siddiqui

Dr. Deepti Srivastava

SUSTAINABLE AGRICULTURE: AN UPDATE

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CHAPTER -7

Organic farming of Horticultural crops for sustainability

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Abstract

The sustainable production of horticultural crops is increasingly challenged by rapid population growth, urbanization, climate change, resource overuse, and environmental degradation. Horticultural crops produced organically play a pivotal role in human nutrition, health, and well-being by providing essential nutrients, medicinal compounds, aromatic substances, and aesthetic benefits. Beyond their nutritional value, these crops significantly contribute to economic development and livelihood generation across rural and urban areas. Conventional high-input farming practices, reliant on synthetic agrochemicals and fertilizers, have led to soil degradation, biodiversity loss, water pollution, and food safety concerns due to chemical residues. In contrast, organic horticulture offers a sustainable alternative that emphasizes natural inputs, ecological balance, and resource conservation. Although organic systems may initially yield lower outputs during the transition phase, they ultimately enhance soil health, biodiversity, and food quality, while offering economic benefits through premium pricing and growing consumer demand. By reducing chemical dependency and promoting agroecological resilience, organic horticulture aligns with long-term goals of environmental sustainability, food safety, and public health, making it a viable solution for future agricultural development.