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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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Prof. Saba Siddiqui

Dr. Deepti Srivastava

SUSTAINABLE AGRICULTURE: AN UPDATE

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TABLE OF CONTENTS

S. NO.	TOPIC	PAGE NO.
1.	Introduction to Sustainable Agriculture: Economic and Environmental Impact <i>Ruqaiya Bano</i>	1 - 18
2.	Propagation and Nursery Management for Sustainability <i>Muzeev Ahmad</i>	19 - 28
3.	Role of Biofertilizer in Sustainable Agriculture <i>Dr Pallavi Srivastava</i>	30 - 42
4.	Integrated Nutrient Management for Sustainable Agriculture <i>Khalid Habib and P. Smriti Rao</i>	43 - 55
5.	Integrated Pest Management for Sustainable Agriculture <i>Kalpana Bisht and Sunil Kumar Yadav</i>	56 - 75
6.	Organic farming of field crops for sustainability <i>Dr Abhineet</i>	76 - 137
7.	Organic farming of Horticultural crops for sustainability <i>Sanket Kumar</i>	138 - 171
8.	Precision Agriculture: An update <i>Ambreesh Singh Yadav</i>	172 - 190
9.	Role of Agroforestry for Sustainability <i>Dr Ayush Bhushan</i>	191 - 254

10. The role of Extension Education in Sustainable Agriculture 255 - 269
Akanksha Singh and Sunil Kumar
11. Soil microbial diversity and agricultural sustainability 270 - 288
Faria Fatima, Saba Siddiqui
12. Sustainable Agriculture and Climate Change 289 - 304
Nitish Kumar
13. Innovations and Future Directions in Sustainable Agriculture 305 - 233
Sunil Kumar, Mustafa Hussain

CHAPTER -2

Sustainable Approaches to Plant Propagation and Nursery Management

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Introduction

India is enriched with a remarkably heterogeneous area characterized by a diversity of agroclimatic zones, allowing farmers to cultivate a wide variety of horticultural crops like fruits, vegetables, ornamental flowers, spices, plantation crops, root and tuber crops, and medicinal and aromatic crops. Plant propagation and nursery management play pivotal roles in ensuring the availability of healthy and diverse plant species for various purposes, including agriculture, fruit crops, landscaping, and conservation. However, conventional practices often carry environmental and economic costs. In response, sustainable approaches have emerged, focusing on minimizing resource use, reducing environmental impacts, and promoting long-term viability. Plant propagation is the process of creating new plants from existing ones with desired traits. The production of true-to-type progeny from the mother plant is the prime objective of propagation. It has been a useful tool for centuries, which has made it possible for generations to pass through and sustain production. Plant propagation depends on the plant species, variety, method of propagation, and climatic and growth conditions. Nursery management is effectively growing and caring for plants in a