Advanced Technologies Transforming Horticultural Science

Advanced Technologies Transforming Horticultural Science

Dr. Tejraj Singh Hada
Assistant Professor (Horticulture)
Balwant Vidyapeeth Rural Institute, Bichpuri, Agra
Dr. B. R. Ambedkar University, Agra, U.P.

Manisha Kashyap
Assistant Professor (Floriculture & Landscape Architecture)
College of Horticulture & Research Station, Saja, Bemetara
MGUEVV, Durg, Chhattisgarh

Dr. Medha Saha
Assistant Professor (Floriculture & Landscaping)
College: Pt. KLS College of Horticulture & Research Station
Rajnandgaon, (C.G) MGUEVV, Durg, Chhattisgarh

Dr. Pawan Kumar Anand
Subject Matter Specialist (Agroforestry)
KVK, Azamgarh-II (ANDUAT, Ayodhya) UP

VITAL BIOTECH PUBLICATION
Kota, Rajasthan, India
http://www.vitalbiotech.org/bookpublication/

An International Publishers

VITAL BIOTECH get Accredited by following International organization

https://www.portico.org/publishers/vital/
101 Greenwich Street, 18th Floor
New York, NY 10006

Published by Vital Biotech Publication
First Edition: 2026

Product Form:

Digital download, online and hard bound

Edition:

ISBN: 978-93-48793-61-4

Head, Production (Higher Education and Professional) & Publishing Director

Dr. Jitendra Mehta

Product Manager

Dr. Manoj Kumar Jhariya

General Manager

Jaya Mehta

Graphic Designer

Ghanshyam Rawal

Office Address:

VITAL BIOTECH PUBLICATION

772, Basant Vihar, Kota,
Rajasthan-324009 India
Visit us at: http://www.vitalbiotech.org
Contact No. +91-9784677044

Printed at: Vital Biotech Publication, Kota

Preface

Horticultural science is undergoing a remarkable transformation driven by rapid advances in technology, innovation, and interdisciplinary research. In an era marked by climate variability, resource constraints, and the growing demand for high-quality fruits, vegetables, flowers, and ornamental plants, traditional horticultural practices alone are no longer sufficient. The integration of advanced technologies has emerged as a powerful catalyst for improving productivity, sustainability, precision, and resilience in horticultural systems worldwide.

Advanced Technologies Transforming Horticultural Science is conceived as a comprehensive and forward-looking volume that explores the role of modern tools and techniques in reshaping horticultural research and practice. The book brings together contemporary knowledge on precision horticulture, sensor-based monitoring, Internet of Things (IoT) applications, artificial intelligence and machine learning, biotechnology, nanotechnology, protected cultivation, and digital decision-support systems. These technologies are enabling site-specific management, efficient resource utilization, real-time crop monitoring, and enhanced quality and post-harvest management.

This book is designed to serve students, researchers, academicians, extension professionals, and progressive growers by bridging the gap between fundamental horticultural principles and cutting-edge technological applications. Each chapter has been structured to provide clear concepts, practical insights, recent developments, and future perspectives, making the content both accessible and scientifically robust.

We hope this volume will inspire readers to adopt innovative approaches, foster interdisciplinary collaboration, and contribute to the sustainable intensification of horticulture. By embracing advanced technologies, horticultural science can play a pivotal role in ensuring food and nutritional security, environmental stewardship, and economic viability in the years to come.

Dr. Tejraj Singh Hada **Dated - 01 Jan. 2026**
Manisha Kashyap
Dr. Medha Saha
Dr. Pawan Kumar Anand

CONTENTS