

PRECISION HORTICULTURE

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VITAL BIOTECH PUBLICATION

Kota, Rajasthan, India

<http://www.vitalbiotech.org/bookpublication/>

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VITAL BIOTECH get Accredited by following International organization



<https://www.portico.org/publishers/vital/>

101 Greenwich Street, 18th Floor
New York, NY 10006

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Published by Vital Biotech Publication

First Edition: 2026

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Product Form:

Digital download, online and hard bound

Edition:

ISBN: 978-93-48793-45-4

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Printed at: Vital Biotech Publication, Kota

Preface

The field of horticulture is undergoing a remarkable transformation with the integration of advanced technologies, data-driven decision-making, and innovative crop management practices. *Precision Horticulture* emerges as a modern approach that combines digital tools, automation, remote sensing, artificial intelligence, Internet of Things (IoT), Geographic Information Systems (GIS), drones, and sensor-based technologies to enhance productivity, quality, sustainability, and resource-use efficiency in horticultural crops.

This book has been designed to provide students, researchers, academicians, extension workers, and professionals with comprehensive knowledge of precision technologies and their applications in fruits, vegetables, plantation crops, floriculture, and protected cultivation systems. The chapters included in this book cover fundamental concepts, technological advancements, smart irrigation and nutrient management, precision pest and disease monitoring, climate-smart horticulture, post-harvest management, and future innovations in smart farming.

The rapid challenges of climate change, shrinking natural resources, labor scarcity, and increasing food demand have made precision horticulture an essential component of sustainable agricultural development. By adopting precise and site-specific management practices, growers can optimize inputs, reduce environmental impacts, and improve economic returns.

The editors sincerely hope that this book will serve as a valuable academic and practical resource for readers interested in modern horticultural technologies and sustainable crop production systems. We express our gratitude to all contributors, researchers, and institutions whose support and expertise made this publication possible. It is our expectation that this book will inspire further research, innovation, and adoption of precision-based horticultural practices worldwide.

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Dr. Ashok Kumar
Dr. Amit Kumar
Dr. Sunil Kumar
Dr. Gaurav Verma

Dated - 15 April, 2026

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