

CURRENT TRENDS AND ADVANCES IN AGRICULTURAL SCIENCES



Vol I

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Volume I

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PREFACE

"**Current Trends and Advances in Agricultural Sciences Vol. 1**" delves into the forefront of agricultural innovation, offering a comprehensive exploration of cutting-edge methodologies and technologies shaping the field. Divided into chapters, the book encompasses a diverse array of topics crucial to modern agricultural practices. It consists of chapters on Geographic Information Systems (GIS) and Remote Sensing (RS) which elucidates how these technologies revolutionize agricultural management by providing precise spatial data for decision-making. It highlights their role in optimizing resource utilization, monitoring crop health, and mitigating environmental risks. Hydroponics and aquaponics, another featured chapter, spotlight sustainable cultivation methods. It unveils the potentials of soilless farming and integrated aquaculture, offering insights into maximizing yield while minimizing resource consumption and environmental impact. Artificial Intelligence emerges as a transformative force in agriculture, driving efficiency and productivity. This chapter explores AI applications ranging from predictive analytics for crop management to autonomous machinery for precision farming, ushering in a new era of smart agriculture. Genetically Modified (GM) crops take centre stage in the book, addressing controversies and advancements in genetic engineering. It discusses the potential of GM crops to enhance resilience, nutritional content, and yield, alongside ethical and regulatory considerations. Moreover, the exploration of hydrogels presents innovative solutions for water management and soil conditioning, crucial for sustainable agriculture in the face of climate change. Moreover, many important trends and advances in the field of agriculture have also been mentioned here in the form of book chapters. Hence, "Current Trends and Advances in Agricultural Sciences Vol. 1" serves as a beacon for researchers, practitioners, and policymakers, offering invaluable insights into the evolving landscape of agricultural sciences and paving the way for a more sustainable and resilient future in food production.

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