# Smart Farming Technologies and Emerging Agricultural Trends

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# Preface

Agriculture is undergoing a profound transformation driven by rapid advancements in science, engineering, and digital innovation. The growing challenges of climate change, resource scarcity, population growth, and the demand for sustainable food systems have made it imperative to rethink traditional farming practices. *Smart Farming Technologies and Emerging Agricultural Trends* has been conceptualized to present a comprehensive overview of how modern technologies are reshaping agriculture into a more efficient, resilient, and data-driven sector.

This book explores the integration of smart technologies such as precision agriculture, Internet of Things (IoT)–based monitoring systems, artificial intelligence, robotics, remote sensing, and decision-support tools in agricultural production and management. It also highlights emerging trends including climate-smart agriculture, sustainable and regenerative practices, vertical and urban farming, digital marketplaces, and agri-entrepreneurship. Together, these innovations are redefining how crops are grown, resources are managed, and value chains are strengthened.

The chapters are written in a clear and structured manner to bridge the gap between theoretical concepts and practical applications. Emphasis has been placed on real-world relevance, recent developments, and future prospects, making the content useful for students, researchers, academicians, extension professionals, policymakers, and progressive farmers.

It is hoped that this book will serve as a valuable reference for understanding the evolving landscape of modern agriculture and inspire readers to adopt, innovate, and contribute to smarter and more sustainable farming systems. By embracing technological advancements and emerging trends, agriculture can move toward a future that ensures food security, environmental stewardship, and improved livelihoods for farming communities.

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