



75
Azadi Ka
Amrit Mahotsav

Indian Agriculture after Independence

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Indian Council of Agricultural Research
New Delhi

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नरेन्द्र सिंह तोमर
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कृषि एवं किसान कल्याण मंत्री
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संदेश

हमने अपने देश के लोकतंत्र को दृढ़ निश्चय से पोषित और पल्लवित किया है तथा अभूतपूर्व प्रगति भी की है। स्वतंत्रता के बाद, हम "आज़ादी का अमृत महोत्सव" के रूप में आज़ादी के 75 वें वर्ष का आयोजन कर रहे हैं। यह देश और इसके सुयोग्य नागरिकों, जिन्होंने इसके लिए बहुत योगदान किया है, के लिए बहुत गर्व और सौभाग्य का अवसर है। प्रत्येक समारोह भोजन और पोषण से तथा हमारे जीवन में खुशी लाने से जुड़ा होता है। भारत की आज़ादी की वर्षगांठ का अवसर आज़ादी के बाद की अवधि में भारतीय कृषि की यात्रा का पुनर्अवलोकन, आकलन, वर्णन और प्रलेखन करने का एक शानदार और प्रसन्नता का अवसर है।

भारतीय कृषि जिसकी शुरुआत लगभग 11000 वर्ष पहले हुई, ने सदियों के दौरान महत्वपूर्ण प्रगति के कई आयाम तय किए हैं। भारतीय कृषि विश्व की सतत उत्पादन प्रणालियों में से एक है, जोकि अपनी विविधता और विभिन्नता के लिए जानी जाती है। विज्ञान आधारित कृषि विकास ने भारत को 1950 के दशक तक खाद्यान्न अल्पता वाले देश से 2010 तक खाद्यान्न निर्यात करने वाला देश बना दिया है। हमारा खाद्यान्न उत्पादन जो वर्ष 1950 में 50 मिलियन टन था, वर्ष 2022 में बढ़कर 316 मिलियन टन से अधिक हो गया है। आज, भारत विश्व में दूध, दलहन और जूट का सबसे बड़ा उत्पादक है और धान, गेहूँ, कपास, फलों और सब्जियों का दूसरा सबसे बड़ा उत्पादक है। हम मसालों, मछली, मुर्गीपालन, पशुपालन और बागान फसलों के अग्रणी उत्पादक भी हैं। तथापि, भारतीय कृषि बढ़ती आबादी, सिकुड़ रहे प्राकृतिक संसाधन आधार और गंभीर होते जलवायु परिवर्तन की पृष्ठभूमि में बढ़ती उत्पादकता, लाभान्वयता, बदलाव की अनेक चुनौतियों का सामना कर रही है।

"स्वतंत्रता के बाद भारतीय कृषि" नामक पुस्तक भारतीय कृषि की विशिष्टता, विविधता, विशालता, इतिहास, उपलब्धियों और आकांक्षाओं; विशेषकर आज़ादी के बाद की उपलब्धियों को दर्शाती है। यह हरित, श्वेत, नीली और अन्य कृषि क्रांतियों सहित क्रमानुसार उपलब्धियों को दर्शाती है; जिनके कारण, भारत खाद्यान्न के आयात करने वाले देश से आज खाद्यान्न निर्यातक देश के रूप में बदल गया है। यह उदयोन्मान विज्ञान एवं प्रौद्योगिकियों का इस्तेमाल करके आय, साम्यता, टिकाऊपन, जलवायु अनुकूलता और अपने मानवीय पक्ष को सुधारने के लिए भारतीय कृषि की आकांक्षाओं को भी प्रस्तुत करती है।

में, पुरातन काल से भारतीय कृषि की यात्रा और आज़ादी के बाद की विशेष उपलब्धियों को रेखांकित करने वाली इस पुस्तक के प्रकाशन के लिए भारतीय कृषि अनुसंधान परिषद को बधाई देता हूँ। यह पुस्तक विद्यार्थियों, शिक्षाविदों, अनुसंधानकर्ताओं, नीतिनिर्धारकों और कृषि क्षेत्र में कार्य करने वाली सार्वजनिक एजेंसियों के लिए उपयोगी होगी।


(नरेन्द्र सिंह तोमर)



**Prime Minister Shri Lal Bahadur Shastri interacting
with a farmer**



त्रिलोचन महापात्र, पीएच.डी.

सचिव एवं महानिदेशक

TRILOCHAN MOHAPATRA, Ph.D.
SECRETARY & DIRECTOR GENERAL

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FOREWORD

Commemoration of 75th year of India's Independence 'Azadi Ka Amrit Mahotsav' is the moment of great pride, joy and honour. India is among the few fortunate democratic countries in the world, which is celebrating the Platinum Jubilee of its Independence. Agriculture is one amongst the few sectors that made progressive growth after independence and marched well with the need of the country. Success in agriculture since Independence has been the backbone of India's success. The successful transformational narration of independent India, therefore, is incomplete without the narration of the agricultural transformation from 'ship to mouth' to 'self-sufficiency and export'. The agricultural imperative and achievements of India has been appreciated globally. The book 'Indian Agriculture after Independence' narrates the journey of agriculture in the last 75 years of post-independent India.

The progress of Indian agriculture has been quite impressive despite several limiting factors such as uncertainties of weather, declining soil health, increasing atmospheric temperature and emergence of virulent pest and pathogens. The transformation from an acutely food-scarce to food-exporting country could be realized with the concerted efforts by ICAR as frontal organization through development and dissemination of technology, building human capital and establishing the rural farm centres to serve the farmers. In this book, we presented this challenging but successful journey of Indian agriculture.

The book captures the uniqueness of Indian agriculture and depicts the various revolutions in staple food, livestock and fisheries making India a food scarce country to food surplus and food exporting nation. The book also presents the aspirations of Indian agriculture for improving income, equity, sustainability, climate resilience and its human face using the emerging technologies.

I compliment the editors and authors for bringing out this publication that shall be useful for students, academicians, researches, policymakers and public agencies to take the task of agricultural development. The book will serve a treatise of milestones, achievements, impacts and lessons of Indian agriculture during the last 75 years to guide the future path.

Trilochan Mohapatra



**Prime Minister Smt. Indira Gandhi visiting IARI,
New Delhi**

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Agriculture is the foundation of the civilization, culture and heritage of India. Agriculture in India is a complex mosaic of distinct agro-ecosystems, differentiated by climatic, soil, vegetation and other natural features. About half of the Indians derive their livelihood from agriculture and allied activities. It is one of the oldest systems of the world characterized by its diversity and heterogeneity, unorganized and stressed on account of natural and anthropogenic vagaries from 'seed to market'. Historically, stressed natural resources due to unfavourable weather, monsoon and natural calamities resulted in crop failures leading to food shortage that made serious impacts on the civilization. Post-Independence, the Indian agriculture transformed from a food-scarce to food-exporting country primarily due to science led innovations that caused multifold increase in the agricultural production from 135 million tons in 1950/51 to over 1300 million tons in 2021/22 in spite of increasing abiotic and biotic stresses and depleting alongwith deteriorating natural resources.

The book 'Indian Agriculture after Independence' portrays the uniqueness, diversity, vastness and history; and captures the aspirations of Indian agriculture to develop a road-map for agri-food system matching with the 4th Industrial Revolution and the global commitments on food security, nutrition and sustainability. The first chapter provides an overview of Indian agriculture with its achievements and aspirations. The following three chapters detail out the crop and animal husbandry and natural resource management in the pre-independent India starting from the Vedic to British period. The subsequent chapters present the achievements of Indian agriculture after independence in the areas of field crops, horticulture, livestock and poultry, fisheries and aquaculture, crop and animal health, mechanization and post-harvest processing, natural resources management, agricultural education and extension, as well as policy, investment, collaboration and organizational leadership.

The book is an outcome of a sincere exercise by about 60 leading scientists and science-leaders of ICAR, from a range of disciplines. In the course of preparing the book, the authors and editors have received help and support from different individuals. We are extremely grateful to each one of them. Our sincere gratitude to the distinguished reviewers namely Dr. RB Singh, Dr. SP Ghosh, Dr. JC Katyral, Dr. Mruthyunjaya, Dr. MP Yadav, Dr. SL Mehta, Dr. P Das, Dr. VM Mayande and Dr. AG Ponnaiah for their constructive suggestions and guidance. The editors take this opportunity to express their gratitude to

all the authors for developing the chapters in a comprehensive and time-bound manner. We sincerely thank Hon'ble Minister of Agriculture and Farmers' Welfare, and Hon'ble Ministers of State of Agriculture and Farmers' Welfare, Govt. of India and Secretary, DARE & DG, ICAR for their guidance and support in bringing out this publication. We are thankful to the ICAR-Directorate of Knowledge Management in Agriculture, New Delhi for its support in forming, developing the cover page and printing of the book.

We hope that the publication would be useful to the students, researchers, teachers, policy makers, planners, administrators and the farmers.

Editors

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