Sustainable Agriculture:

A Vision for Resilience Future

Volume I

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SUSTAINABLE AGRICULTURE:

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About the Editors

Dr. M. H. Chavda

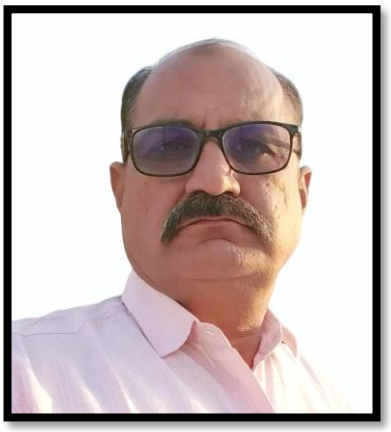
Dr. M. H. Chavda is currently working as a Research Associate in Department of Agronomy, B. A. College of Agriculture, Anand Agricultural University, Anand, Gujarat. He has received his B.Sc. (Agri.) degree from Anand Agricultural University, Anand, Gujarat. Subsequently completed his M.Sc. (Agri.) and Ph.D. (Agri.) in Agronomy from Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat. Dr. Chavda has garnered extensive experience in the field, having previously worked as a Senior Research Fellow at the Centre for Research on Integrated Farming Systems for over six months. His current responsibilities include teaching, training, and farm management activities. His outstanding contributions to Agronomy have been recognized with the Best Ph.D. Thesis Award and the Young Agronomist Award at an international conference. He has published 15 research papers in prestigious international and national scientific journals, authored one book, and contributed ten book chapters, 14 abstracts, and 15 popular articles. He has actively participated in numerous state, national, and international level seminars, conferences, workshops and training programs, where he has presented both posters and papers. Dr. Chavda also serves as a reviewer for a scientific journal and a magazine and is a member of five esteemed professional societies. His research expertise in organic and Natural farming including intercropping highlights his comprehensive and advanced understanding of agronomy, establishing him as a distinguished and versatile professional in the field.

Mr. Y. B. Vala

Mr. Y. B. Vala is currently working as a Young Professional-II in the ICAR-NICRA Project at Krishi Vigyan Kendra, S. D. Agricultural University, Banaskantha-I, Deesa, Gujarat. He is also pursuing his Ph.D. in the Department of Agronomy at C. P. College of Agriculture, SDAU, Sardarkrushinagar, Gujarat. He has received his B.Sc. (Agri.) degree from Anand Agricultural University, Anand, Gujarat and M.Sc. (Agri.) in Agronomy from Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat. With over 3 years of outstanding experience in agricultural research, teaching and extension, Mr. Vala is actively involved in research, teaching, training and general extension activities. His primary focus is on developing climate-resilient villages under the ICAR-NICRA Project. He has published 12 research papers in international and national high repute scientific journals. Also he has published 25 abstracts, 1 lead paper and 1 success story in international and national conferences/seminars. His published works include 3 books, 18 book chapters, 14 leaflets/Folders and 23 articles in English/Hindi/Gujarati languages. He has also prepared 3 training manuals, 2 practical manuals and 4 annual reports. As a member of 5 professional societies, he has also serves as reviewers for one journal and one magazine. Additionally, he has participated and attended in numerous seminars, conferences, conclave, workshop, trainings and symposium at state, national and international level, where he has presented various papers and posters. He has also served as a convener and co-convener for state and national level agricultural events. Recognition of his contributions includes many prestigious awards such as Young Professional Award and Best Research Scholar Award for his outstanding contribution in the field of Agronomy. Additionally, he has received best oral and poster presentation award at several national and international agricultural events. He has well experience of research in Organic, Biodynamic and Natural farming, Turmeric cultivation, NRM and Climate Change. His innovative practices, extensive publications, numerous awards and impactful training programs have significantly advanced youth empowerment in agriculture. Through his visionary leadership and steadfast dedication, He has significantly shaped the future of youth in agriculture, promoting sustainable practices and innovative approaches.

Dr. C. K. Patel

Dr. C. K. Patel currently holds the esteemed position of Associate Director of Research at Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat. Also, he served as Research Scientist at the Centre for Natural Resources Management at SDAU and he is currently the Nodal Officer for Organic and Natural Farming at the University. With an extensive experience of more than 30 years in Teaching, Research, and Extension in the field of Agriculture, he has successfully executed more than 15 projects. He published 80 research papers in international and national high repute scientific journals. He has published 04 books, 25 book chapters, 20 leaflets/Folders, 55 abstracts and 22 articles in English/Hindi/Gujarati languages. He has attained/participated in several state/ national/ international level seminar/conference/workshop/training/symposium and presented many of posters, papers and delivered lead lectures. He is an also organizing secretary of such state level event also conveners and members in national level agricultural events. He broadcasted 30 TV talks on prestigious TV channels. He had guided more than 12 masters and 03 Ph. D. Students. Recognition of his contributions includes many prestigious awards such as the Royal Netherlands Fellowship International Award, which he has been honored with twice in 2002 and 2010. He had various positions with diversified roles and responsibilities in several committees/councils of SDAU and SAUs. He has well experience of research in organic and natural farming, Rainfed and Dry land Agriculture, Pulses, Cotton, Potatoes and Turmeric cultivation, MIS, NRM and Climate Change. As Principal Investigator (PI) and Co-PI, he has led more than 15 projects, offering valuable insights and several recommendations to the farming and scientific communities, thereby shaping agricultural practices and policies. His steadfast commitment and holistic approach continue to inspire and advance agricultural research and development.



Dr. P. P. Chaudhari

Dr. P. P. Chaudhari is currently serving as the Research Scientist at Agro Forestry Research Station, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Gujarat. With over 23 years experience of Teaching, Research and Extension in the field of Agronomy, He has received Associated scientist in the Best AICRP (Potato) Centre Award for the year 2009 for outstanding contribution in the field of Potato Research in Gujarat. He published 38 research papers in international and national high repute scientific journals. He has published 01 books, 05 book chapters, 14 booklet/Folders, 5 abstracts in International Conferences, 16 abstracts in National Conferences/Symposiums. He has attended 5 international conferences, 9 seminars, 4 Institute Trainings, 11 workshops, 7 national conference/symposium. He has guided several PG students of Agronomy including 16 M. Sc. (Agri.) and 3 Ph.D. students. As Principal Investigator (PI) and Co-PI, Dr. Chaudhari has spearheaded over 08 recommendations for farming community. His unwavering dedication and comprehensive approach continue to drive and elevate advancements in agricultural research and development.

Dr. D. K. Patel

Dr. D. K. Patel currently holds the position of Associate Professor and Head, State Council of Agricultural Universities, Krishibhavan, Gandhinagar, Gujarat. With over 33 years of dedicated experience in teaching, research, and extension Dr. Patel is a leading figure in the field and Administration. From his role as an Agriculture Supervisor to his advancement to Associate Professor, he has been instrumental in various key areas of agricultural development and university administration. His significant contributions include All India Coordinated Research Project (AICRP) for Dryland Agriculture and pioneering research on drip irrigation techniques for arid fruit crops. He also developed and secured approval from the Government of Gujarat for the "Project on Floriculture," enhancing the state's agricultural initiatives. As a Technical Officer of Joint/Additional Secretary of the Government of Gujarat, he played a crucial role in establishing and strengthening a separate Agriculture Council office and managing a wide range of responsibilities, including scheme approvals, project planning, new constructions, and the establishment of a new colleges. He oversaw PG admissions, participated in Universities Board meetings, and coordinated with other State Agricultural Universities. He held various roles in committees and councils at SAUs, KU and Gujarat Natural Farming Science University. He has received best thesis award for his Ph. D. Thesis by GAAS, Gujarat. He published 20 research papers in international and national high repute scientific journals. He has published 02 books, 07 book chapters, 15 booklets/ Folders, 12 abstracts in International and National Conferences/ Symposiums/ Seminars. He has attended 17 international and National conferences/seminars. He has guided several PG students of Agronomy including 09 M. Sc. (Agri.) and 01 Ph.D. students. He has well experience of research in Intercropping, Rainfed and Dry land Agriculture, Pulses, Arid fruits and Fodder production. As Principal Investigator (PI) and Co-PI, he has spearheaded over 08 recommendations that have influenced farming community. Overall, his contributions have been vital in advancing both agricultural research and university administration.

PREFACE

In the face of accelerating environmental challenges and a growing global population, the imperative for sustainable agriculture has never been more pressing. As we stand at the crossroads of agricultural development, we are compelled to rethink our approach to food production and land stewardship. **"Sustainable Agriculture: A Vision for Resilience Future"** emerges as a beacon of hope amidst these uncertainties, offering a roadmap towards a harmonious coexistence between humanity and nature.

This book is not merely a compilation of practices or theories; it is a manifesto for change, a call to action for all stakeholders in the agricultural ecosystem. Grounded in the principles of ecological balance, social equity, and economic viability, our vision for sustainable agriculture transcends conventional boundaries. It embraces innovation while honoring traditional wisdom, fostering collaboration across disciplines and generations.

Within these pages, you will encounter diverse perspectives, from seasoned agronomists to indigenous knowledge keepers, each contributing a unique thread to the tapestry of sustainable agriculture. We delve into the intricacies of regenerative farming, agroecology, and permaculture, exploring how these methodologies can nurture both the land and the communities that depend on it.

Moreover, this book is a testament to resilience, a quality indispensable in navigating the uncertainties of the future. Through case studies and success stories from around the globe, we witness the transformative power of sustainable agriculture in building resilient food systems capable of withstanding shocks and stresses, be they climatic, economic, or social.

As editors of this book, we are deeply moved and humbled by the collective wisdom and commitment of the dedicated contributors who have poured their passion into these pages. We invite you, dear reader, to embark on this sustainable journey with us. A journey towards a future where agriculture thrives in harmony with nature, where every seed sown is a promise of abundance for generations to come.

May this book serve as a guiding light for policymakers, farmers, educators, research scholars and consumers alike, inspiring us all to cultivate a more sustainable, resilient, and equitable world through the transformative power of agriculture.

"Together, let us sow the seeds of change and reap a harvest of hope."

M. H. Chavda
Y. B. Vala
C. K. Patel
P. P. Chaudhari
D. K. Patel

Acknowledgment

The journey of bringing **"Sustainable Agriculture: A Vision for Resilience Future"** to fruition has been one marked by the collaboration, inspiration and unwavering support of many remarkable individuals and organizations. It is with deep gratitude that we acknowledge their contributions, which have been instrumental in shaping this work.

First and foremost, we wish to extend our heartfelt thanks to our family for their unwavering support and encouragement throughout this period. To the esteemed experts, researchers, educators and practitioners in the field of sustainable agriculture, your pioneering work and tireless efforts have laid the groundwork for this book. A special thank you goes to the reviewers and contributors who provided invaluable feedback and constructive criticism. Your suggestions have helped refine and enhance the vision presented here.

We are profoundly grateful to the Sardarkrushinagar Dantiwada Agricultural University, Gujarat for its pivotal role in the development of this book. SDAU unwavering commitment to advancing sustainable practices and research has been instrumental in shaping the vision presented here. We're truly grateful.

To all chapter authors and publishing team, your professionalism and attention to detail have ensured that this book reaches its full potential. We sincerely appreciate your dedication and hard work. Thank you.

Lastly, we would like to acknowledge the broader community of individuals and communities working towards sustainable agriculture. Your passion and resilience continue to inspire and drive positive change in the world.

Finally, to you, the readers, who embark on this journey with us, we extend our deepest appreciation. Your interest and engagement are the driving forces behind this work. This book is a testament to the collective effort of many, and we honored to contribute to the ongoing dialogue on building a resilient and sustainable future.

[Editors]

CONTENT

ABOUT THE BOOK

Welcome to a journey into the heart of sustainability. A journey that transcends the mere cultivation of crops to embrace a profound ethos of stewardship and resilience. **"Sustainable Agriculture: A Vision for Resilience Future"** is not just a book; it's a manifesto for change, a testament to our collective commitment to nourishing the planet while safeguarding its future.

In the pages that follow, we embark on a journey of exploration and discovery. A journey that transcends the boundaries of conventional farming to embrace a holistic vision of sustainability. Here, sustainability is not merely a buzzword; it is a guiding principle, a moral imperative, and a beacon of hope in a world beset by environmental challenges and social inequalities. This book is more than just a compendium of practices and techniques; it is a call to action—a call to reimagine agriculture as a force for positive change in the world. So, dear reader, I invite you to join us on this journey—a journey towards a future where agriculture is not just sustainable, but regenerative; not just productive, but enriching; not just a means of survival, but a celebration of life in all its diversity and abundance.

For policymakers, farmers, students, educators, researcher and consumers alike, **"Sustainable Agriculture: A Vision for Resilience Future"** offers inspiration, guidance, and a roadmap towards a brighter tomorrow one where agriculture becomes a beacon of hope and healing for the planet and all its inhabitants.

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