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# Advances in Research on Vegetable Production Under a Changing Climate Vol. 2

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**Editors:** [Shashank Shekhar Solankey](#), [Meenakshi Kumari](#)

This book presents up to date studies in Olericulture  
Contributions from expert researchers in the field  
Covers climate change, carbon sequestration,  
greenhouse gasses

**Part of the book series:** [Advances in Olericulture](#)  
(ADOL)

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## About this book

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This second volume on the topic will be extremely useful for the researchers and postgraduate students working on vegetable crops with a special focus on climate change.

Today, the entire world is suffering from global warming and its consequent, climate change. This has emerged as the most prominent global environmental issue and there is an urgent need to mitigate its impact on agriculture. Over the past 20 years South Asia has had a robust economic growth, yet it is home to more than one fourth of the world's hunger and 40% of the world's malnourished children and women. Persistent climatic variability, which results in frequent drought and flood, is among the major reasons for this phenomenon. Vegetables are in general more succulent (have 90% water) and more sensitive to climatic vagaries and sudden changes in temperature, as well as irregular precipitation at any phase of crop growing, can affect the normal growth, flowering, pollination, fruit setting, fruit development and fruit ripening which eventually decreases the yield. The irregular precipitation also causes the soil salinity and is a major challenge in many vegetable growing areas. To mitigate the harmful impact of climatic change there is an urgent need to develop adequate adaptation strategies for adverse effect of climate change and preference should be given to the development of heat, cold, drought, flood and salinity stress tolerant genotypes along with climate proofing through conventional and non-conventional breeding techniques, as well as exploiting the beneficial effects of CO<sub>2</sub> enhancement on crop growth and yield. Available evidence shows that there is high probability of increase in the frequency and intensity

of climate related natural hazards due to climate change and hence increase the potential threat due to climate change related natural disasters in the world. At present protected cultivation and grafted seedlings are also popularizing among vegetable growers because of the huge scope as well as, molecular breeding, emerging insect-pests & diseases and postharvest quality of vegetables under this climate change scenario. Moreover, underexploited vegetables, perennial vegetable and tuber crops have a more tolerant ability to climate vagaries compare to major vegetables which are also discussed in this book.

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## Keywords

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**Olericulture**      **Climate change**

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**Dr. Shashank Shekhar Solankey** is presently working as Assistant Professor–*cum*–Jr. Scientist (Vegetable Science) at Agricultural Research Institute, Patna (Bihar Agricultural University, Sabour, Bhagalpur, India). He has completed his Master's Degree in Vegetable Science from Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya (India) in 2006 and Doctorate in Horticulture from Banaras Hindu University, Varanasi (India) in 2010. Dr. Solankey has served as SRF as well as RA at ICAR-Indian Institute of Vegetable Research (IIVR), Varanasi (U.P.) from 2010 – 2012. He has joined as Assistant Professor–*cum*–Jr. Scientist (Vegetable Science) at Bihar Agricultural University, Sabour on 17<sup>th</sup> September, 2012. He has been involved in teaching, research, extension and training activities at the university. Thereafter, he was deputed at newly established Dr. Kalam Agricultural College, Kishanganj under the umbrella of BAU, Sabour on 7<sup>th</sup> September, 2015 and acted as Nodal Officer of newly established Horticulture Research Centre, Kishanganj, Bihar from May, 2021 to June, 2022. He has handled four research projects on vegetable crops as P.I./ Co-P.I. with the objective of biotic and abiotic stress management as well as quality improvement in solanaceous vegetables and okra at B.A.U., Sabour. He has been associated with development of two brinjal varieties (Sabour Sadabahar & Sabour Krishnakali) and one technology on 'Management of sucking pests in okra'. He is now handling two State Non-plan research projects on "Improvement of okra genotypes for YVMV tolerance" and "Collection, evaluation and assessment of feasibility of promising

vegetables for Bihar". Dr. Solankey has supervised 4 M.Sc. students and also acted as member of advisory committee of 7 M.Sc. and 3 Ph.D. students. He has published 56 research papers, 07 review papers, 01 souvenir paper, 08 edited books, 01 authored book, 50 book chapters and 30 popular articles. He is also life member of Horticulture Society of India, New Delhi; Indian Society of Vegetable Science, IIVR, Varanasi; International Society for Noni Science, Perungudi, Chennai; Society for Scientific Development in Agriculture & Technology, Meerut and Bihar Horticulture Society, BAU, Sabour, Bihar. He is also reviewer of International Journal of Plant & Soil Science as well as *Scientia Horticulturae*. Dr. Solankey has been awarded with Best Teacher Award (2016) as well as Best Researcher Award (2016) by Bihar Agricultural University, Sabour. Beside these, he has also been recipient of 13 other awards and recognitions.

**Dr. Meenakshi Kumari** is presently working as Assistant Professor in Department of Vegetable Science at Shree Guru Gobind Singh Tricentenary University, Gurugram, Haryana, India. She has specialization in Vegetable Science. She acquired Masters in Horticulture (Vegetable & Floriculture) from Bihar Agricultural University, Sabour (Bhagalpur), Bihar in 2016 and Doctorate in Vegetable Science from Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, Uttar Pradesh (India) in 2019. She got first rank in both Masters and Doctoral degree programme. She has qualified ICAR-ASRB NET examination in the Discipline of Vegetable Science in 2017 and qualified CAR-SRF exam in 2016. She has also been selected for the DST- Inspire fellowship for her Doctorate programme, by the Department of Science & Technology, Govt. of India. Presently, Dr. Kumari is guiding 3 Master's Students. She has published 27 research papers (national & international), 05 review papers, 31 book chapters, 03 books, 01



manual, 15 popular articles and above 35 abstracts/ extended summary. Dr. Kumari has been awarded with Best Oral Presentation Awards (2018), Best Article Award (2018) and Best Thesis Award (2018) as well as has 07 other awards/ recognitions. She is also life member of Horticulture Society of India, New Delhi and Indian Science Congress, Kolkata, India.

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