COMPREHENSIVE DISEASE MANAGEMENT OF ROOT AND TUBER CROPS

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PREFACE

A vital source of food for millions of people worldwide, especially in tropical and subtropical areas, are root and tuber crops like cassava, yam, sweet potato, and potato. Both smallholder and commercial agriculture depend heavily on these crops for food security, income, and calories. The cultivation of these crops is therefore essential.

Even so, nematodes, bacteria, viruses, and fungi can cause a variety of illnesses that can significantly lower yields and quality in root and tuber crops. In ideal environmental circumstances, several of these diseases can spread quickly and cause disastrous crop losses. It is more important than ever to successfully manage these diseases as agricultural systems continue to change as a result of population development, climate change, and changes in land use.

Providing an integrated approach to understanding, preventing, and managing the primary diseases affecting root and tuber crops is the goal of this guide on **Comprehensive Disease Management of Root and Tuber Crops**. It offers useful techniques for farmers, researchers, and other agricultural professionals by fusing conventional wisdom with state-of-the-art plant pathology, biotechnology, and agronomy research.

Lots of people can benefit from increased production, enhanced livelihoods, and improved food security by putting into practice comprehensive disease control strategies, which range from choosing resistant cultivars to using sustainable agricultural systems. In an ever-evolving agricultural landscape, this guidance is a step toward ensuring the continued cultivation of root and tuber crops.

Editors.

Foreword Message

Dr. D.K. Srivastava
Director

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D. O. No. Memo
Date 04-10-2024

I was enchanted and hounered to be invited to foreword this book entitled *"Comprehensive Disease Management of root and Tuber Crops"*. Edited by Mr. Deepak Mourya, Dr. Amit Kumar Maurya, Dr. Vinny John and Dr. Mahesh Singh and published by Kripa Drishti Publications, Pune, India.

Roots and tuber crops like cassava, potato, sweet potato, etc. provide millions of people around the world with food. Teses crops, which are uasally grown by smallholder farmers in areas that are heavily dependent on their yield, provide both urban and rular people with carbohydrates, nutrition, and income. Root and tuber crops are vital, but disease pressures can ruin yields, ruin food security, and reduce livehoods. Diseases like bacterial wilt, nematodes, and viral infections can hurt harvests by up to 50% in some areas, and they can also put food supply chains around the world at risk in developing nations, loss of these crops often causes economics difficulties and prolongs cycles of poverty and malnutrition. Thus, managing these disease is a mtter of both social equity and human well-being, not just an agricultural issue.

"Comprehensive Disease Management of root and Tuber Crops" is a book that combines cutting-edge research, field-tested management strategies, and holistic approaches that go beyond traditional methods. It emphasizes how important it is to combine sustainable practices like crop rotation, improved pathogen-resistant varieties, and biological control agents with contemporary innovations like molecular diagnostics, digital surveillance, and precise forecasting tools.

I am confident that this book will serve as a helpful resource for Plant Pathologists, Scientistis, Professors, and students who are attentive in Plant Pathology.

(Dr. D. K. Srivastava)

CONTENT

ABOUT THE EDITORS

Mr. Deepak Mourya (Silver medalist): Currently pursuing Doctor of Philosophy in Department of Plant Pathology at Shri Khushal Das University, Hanumangarh (Rajasthan). He completed his Bachelor of Science (Hons) Horticulture from Banda University of Agriculture and Technology, Banda (U.P.) and Master of Science (Agriculture) in Plant Pathology from Department of Plant Protection, Aligarh Muslim University (A Central University) Aligarh (U.P.). He was awarded the Vice-Chancellor Silver Medal in the UG Programme. He has attended numerous national and international conferences and symposiums, where he has garnered best poster presentation prizes. He has contributed to numerous publications, including 01 Book, 01 Practical Manual, 07 Research Articles, 08 Book Chapters, 23 Popular Articles, and 07 Abstracts in a variety of reputable national and international journals/Magazines.

Dr. Amit Kumar Maurya has done his Ph.D. in Plant Pathology from SHUATS, Prayagraj, and passed NET in 2018. Dr. Maurya has 10 years' research experience in mushroom cultivation, field crops, and their disease management. Dr. Maurya's 8 books, 20 research papers, 72 (Hindi and English) popular articles, and 24 book chapters have been published. Dr. Maurya has delivered 02 radio talks and he is editor of a popular Hindi magazine (Grameen Vikas Sandesh). Along with this, Dr. Maurya has received a total of six honours from various institutions. Dr. Maurya is currently working as Assistant Professor in College of Agriculture Sciences at Teerthanker Mahaveer University, Moradabad, U.P. India.

Dr. Vinny John has done her Ph.D in Plant Pathology, under a UGC fellowship from SHUATS, Prayagraj, U.P. Dr. John has 10 years of research experience in diseases of field crops, post-harvest diseases of onions, and their management. Dr. Vinny has published 05 books, 18 research papers, 67 (Hindi and English) popular articles and 22 book chapters in various reputed journals. Dr. Vinny has received a total of six awards from various institutions and two radio talks. Dr. Vinny worked as an SRF at UUHF Uttarakhand, and at present she is working as an Assistant professor in the Department of Agriculture, Mangalayatan University, Jabalpur, M.P., India.

Dr. Mahesh Singh has completed his Ph.D. in Agriculture (Plant Pathology) from the Acharya Narendra Deva University of Agriculture and Technology in Kumarganj, Ayodhya, Uttar Pradesh. Additionally, he holds an MBA in Human Resources from Sikkim Manipal University. Dr. Singh qualified the ICAR NET exams in 2013 and 2014. With over 14 years of experience, he contributes significantly to both academic and professional agriculture sectors. He has published 48 research papers and articles in reputed international and national journals and magazines. Dr. Singh has delivered 12 radio as well as TV talks on different platforms. Along with this, Dr. Singh has received various honours from different universities and institutions. Dr. Singh is currently working as a Professor, College of Agriculture Sciences at Teerthanker Mahaveer University, Moradabad, U.P. India.

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