

# Disease Problems in Vegetable Production

S. K. GUPTA

T. S. THIND

**2<sup>nd</sup>**  
Edition



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# **Disease Problems in Vegetable Production**

**2<sup>nd</sup> Revised and Enlarged Edition**

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## **PREFACE**

### **(2nd Edition)**

India has diverse climatic conditions which are suitable for cultivation of various crops like cereals, millets, pulses and horticultural crops. Agriculture still accounts for about 54.6 per cent of total employment and contributed approximately 17 per cent Gross Value Added (GVA) at current prices during 2014-15. During cultivation, these crops are attacked by various diseases of fungal, bacterial and viral nature causing 10 -16 per cent losses of global produce. However, timely and effective management of these diseases has played a key role in making India self sufficient in food production.

For the integrated development of agriculture in the country, diversification of cropping systems is must and cultivation of vegetables plays an important role in this direction. However, vegetables are highly perishable commodity and are ravaged by various diseases that cause substantial yield losses both during cultivation and at post harvest stages. The production of good quality vegetables can only be obtained if the ravages of diseases are kept under check. Moreover, new diseases are emerging and the diseases which were earlier less important are becoming major constraints due to changing climatic conditions. Keeping in view the large scale acceptance of the first edition of the book published in 2006 and suggestions received from the reviewers and also the advances in the subject it was considered imperative to bring out the revised and updated second edition of the book for the benefit of readers, especially post graduate students. In the revised edition, two new chapters on 'Diseases of Ginger' and 'Diseases of Vegetables under Protected Cultivation Conditions' have been incorporated. Some new diseases like bacterial canker of tomato, French bean rust, cauliflower mosaic, Dasheen mosaic of colocasia, blue mold and brown rot of onion etc. have also been added under the respective vegetables. Overall, the book will provide a comprehensive account of all aspects of diseases of commercial vegetables for both under graduate and post graduate students, teachers, extension workers and elite growers.

The help rendered by Dr. (Mrs.) Monika Sharma, Asstt. Professor, College of Horticulture and Forestry, Neri, Hamirpur (HP) and Ms.

Banita and Dr. (Ms.) Adhikshita, Research Fellows in the Department of Plant Pathology in updating the text of this book is gratefully acknowledged. We are thankful to Dr. YSP University of Horticulture & Forestry, Solan and Punjab Agricultural University, Ludhiana for granting permission to revise this book. We are also indebted to our family members for allowing us to take up this time consuming task.

**S.K. Gupta**

**T.S. Thind**

## **PREFACE**

### **(1st Edition)**

India is endowed with varied climatic conditions suitable for the production of various vegetables in different areas round the year. Vegetables occupy an important place in Indian economy and are grown on about 30 million ha area. Globally, India is ranked second after China as far as production of vegetables is concerned. In recent years, the trend of commercialization of horticulture sector has been found to be increasing due to opening up of the world economy. Vegetables being a rich source of vitamins, minerals and the much-needed fibre in our daily diet constitute a major component in balanced nutrition. There is considerable increase in consumption of fresh and processed vegetables in India due to improved economy of its people and the estimated demand in future can only be met by increasing productivity through greater technology adoption. Vegetables like other crop plants are affected by various diseases, which result in both qualitative and quantitative losses. The introduction of hybrids and various high yielding varieties of vegetables has resulted in epidemics of many diseases. These have also added to the introduction of several new disease problems and some of the earlier minor diseases have become more important. It is essential that one should have knowledge about the causes of plant diseases, their perpetuation and spread so that timely management practices are implemented. Knowledge of various factors leading to epidemic build-up of diseases is necessary for prediction and timely application of various management methods. Without proper knowledge of diseases, farmers are indiscriminately using agrochemicals to combat the ravages of insect-pests and diseases, which may lead to an increase in the environmental pollution. In the WTO regime, for the export of vegetables and fruits to the other countries, care has to be taken to keep the pesticide residues below the permissible limits. Keeping this in view, it is necessary to use integrated disease management practices involving most effective and economical methods so that quality produce without pesticide residue is obtained.

Over the past decade, a lot of information has been generated by plant pathologists on different aspects of diseases of vegetables and their management options. The present book on *Disease Problems in Vegetable Production* is an effort to compile available information on the latest developments in the symptomatology, etiology, epidemiology and

management including host resistance, cultural, biological and chemical methods. The integration of more than one management practice, where ever feasible, has been suggested to make their use more effective, economical and eco-friendly. A total of seventeen chapters dealing with important diseases of vegetables like potato, tomato, crucifers, cucurbits, pea, French bean, chilli and bell pepper, onion and garlic, egg plant, carrot, sugarbeet, colocasia, okra and leafy vegetables have been compiled in this book. The book chapters also include common pathogens of vegetable crops, disease problems in nurseries, post-harvest diseases and nematode disease problems of vegetables. The information has been augmented with coloured photographs of disease symptoms to provide an easy way of identification of different diseases. Disease cycles of important diseases further help in understanding the perpetuation and spread of these pathogens. The book has been written in simple and easily understandable language. It is hoped that the information contained in this book will prove useful to researchers working on vegetable diseases, teachers and students of plant pathology, extension workers and elite growers.

The help rendered by Dr. K.R. Shyam, Professor of Plant Pathology (Retd.) in preparing various disease cycles is gratefully acknowledged. Our sincere thanks are also due to Sh. Mohinder Singh Chauhan, Artist, for drawing diagrams of various disease cycles. We are also thankful to Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan and Punjab Agricultural University, Ludhiana for the permission to write this book. We are indebted to our family members for allowing us to spare time for this arduous task.

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