



Integrated Disease Management and Plant Health

V.K. Gupta • R.C. Sharma



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PREFACE

The human civilization depends completely on the presence of healthy plants for survival on this globe. Human greed has resulted in the exploitation of whole ecosystem leading to the destruction of natural balance. Since our needs increased, intensive agriculture reached the present stage so as to get maximum out of a small piece of land. Excessive monoculture has resulted in the emergence of different plant diseases. Plant health thus attains a great importance in the field of agriculture and can be achieved only by following integrated disease management systems.

The subject of integrated disease management in the present context should be understood as an ideal combination of biological, agronomical, chemical, physical and other methods of control against the entire complex of diseases of a crop resulting in the growth of healthy plants. It results in bringing down the losses to economically insignificant level. The concept of integrated control was first articulated by entomologists which was later replaced by the term integrated pest management. Although this concept was earlier advocated by entomologists but elements of integrated pest management are deeply rooted in plant pathology. The early methods developed by plant pathologists to control diseases with the manipulation in cultural practices were not found very satisfactory due to lack of detailed knowledge. As a result, chemicals to control plant diseases were developed. Unfortunately chemical measures were not used to supplement cultural practices but to supplant them. The intensification and complexity of disease management coupled with the associated environmental, financial and health hazards due to excessive chemical usage, have combined to stimulate more research work in integrated disease management. The concept is unique because it is based on ecological principles in developing agroecosystems and management strategies are practical, cost effective and protective of both environment and human health.

Many of the contributors of the present volume have emphasized that the risks of spreading plant diseases have recently greatly increased because of monoculture, using varieties and cultivars having narrow genetic base and development of resistant pathotypes. This strategy has to be reversed in the larger interest of plant health and human welfare by making use of resistant varieties and using techniques of disease avoidance, exclusion, eradication and chemical sprays.

Looking into these problems, a symposium was planned by the Indian Phytopathological Society, New Delhi (North Zone) on Integrated Disease Management and Plant Health in September, 1992. Participants from different states discussed common plant disease problems of the region to find out concrete steps to manage these diseases. The present volume is a proceeding of research papers discussed during the symposium. The book is divided into different sections to facilitate the reader to get in touch with the subject of his interest. The sections though self explanatory have been divided cropwise with further classification according to causal organisms. Since mushrooms are a developing industry a chapter has been added on that too. This book we hope will provide an insight into the pathological problems of different crops and help the reader to have broader view of different scientific methods being used to manage them. This will be equally useful to plant pathologists, plant breeders, geneticists, plant protection consultants and students in plant pathology besides farmers and mushroom growers.

On behalf of Indian Phytopathological Society we thank all the contributors for their scientific contributions. We are greatly thankful to the authorities of the Dr. Y.S. Parmar University of Horticulture and Forestry for allowing the symposium to be held in the campus and publication of the proceedings. We express our sincere thanks to the staff members of the Department of Plant Pathology especially the members of the publication committee namely, Drs. J.L. Kaul, R.L. Sharma, N.P. Dohroo and V.S. Thakur. The production of the book dependent greatly on the efforts of Sh. K.K. Sharma by typing the same.

V.K. Gupta
R.C. Sharma

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