

ROLE OF TRANSGENIC PLANTS

Advances in Insect Control: The Role of Transgenic Plants, N. Carozzi & M. Koziel (eds.), Taylor & Francis Ltd., London, 1997, 301 pp., hardcover, ISBN 0-7484-0417-1.

Advances in Insect Control is a book about transgenic plants tolerant and resistant to insect predation. The editors, field leaders working at Novartis, N.C., have pulled together 15 chapters from 34 contributors, both from industry and university. The central purpose of the book is to provide a state-of-the-art report on genetically engineered insect resistant crops that have been recently commercially introduced into a marketplace alongside prospects and strategies for the future research. The audiences for the volume include those experts in plant pathology, molecular biology, biochemistry and others concerned with maximizing plant productivity.

Advances in Insect Control is one of the first books to review comprehensively the knowledge to date of the engineered plants for increased insect and disease resistance, and it is an impressive effort with the foremost specialists and an international flavour. Although one of its messages, as might be expected, is that there is still much to learn, a good indicator of the pace of this field and its recent acceleration into a marketplace is the plain fact that this book could not have been written ten years ago.

It develops novel approaches on transferring various bacterial, insect or plant genes encoding insecticidal proteins to confer plant resistance against insects. The text includes a preface and an introductory chapter that explain the context of the book and address overarching concepts that link breeding and transgenic technology to plant resistance and productivity. Chapters 2 to 5 cover expression of *Bacillus thuringiensis* toxin crystal protein genes in transgenic potato, maize, rice and other crops. Chapters 6 to 12 provide a detailed view on enhancing insect resistance mediated by

cholesterol oxidases, vegetative insecticidal proteins, lectins, α -amylase inhibitors, proteinase inhibitors, chitinases, and peroxidases. Chapters 13 and 14 integrate information and ideas on the biosynthesis of insecticidal compounds through engineering of cytokinin overproduction and plant secondary metabolism. The last chapter outlines scenarios for managing resistance to transformed crops and it is a very suitable end to the book, as it serves to remind us that, despite of the huge advances that have been made, we still have a way to go before we fully reach a success in the management of plant resistance.

Editors and their contributors have worked hard to make this a polished, well-edited book with text, figures and tables that are easy to read and that provide clear examples of important ideas. The references are found at the end of each chapter. A major strength of the book lies in the breadth of its coverage and the way it links diverse topics. Yet the various chapters are not isolated units. The authors frequently refer to other chapters and give short accounts of topics that are discussed in detail elsewhere, providing the reader with a sense of continuity.

Advances in Insect Control is thorough enough and as such, it is an invaluable aid to those in research in specialized areas of plant protection against insects and transgenic technology, as well. This thoughtful, stimulating and informative volume is recommended reading for a perspective on these and many other issues from the field of insect resistance in crops.

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