



Book reviews

Transgenic Plants and Crops

G.G. Khachatourians, A. McHughen, R. Scorza, W.-K. Nip, Y.H. Hui; Marcel Dekker, Monticello, NY, 2002, \$225, ISBN 0-8247-0545-9

The book edited by G. Khachatourians et al. “Transgenic plants and crops” is an ambitious undertaking. Its aim is to present a summary of the general problems associated with transgenic plants and to survey the individual advances made in a wide number of plants of economic interest. The size of the volume is impressive with more than 800 pages, and the number of references at the end of each chapter represents an invaluable source of information even though the more recent articles were published in 1999 at the latest—an unavoidable problem for this kind of exercise.

The book focuses on genetic transformation of plants but interestingly describes in the first chapters different facets of plant biotechnology including bases of genomics and in vitro culture, doubled haploid technology, molecular markers and so on. In addition, it presents different topics which are not usually gathered in one and the same volume: socio-economic problems of the agrifood industry, historical origin of the main crops, their relative importance and ways of utilisation, regulatory issues and industrial property problems.

I think that these general aspects which are representative of an interdisciplinary approach will be of interest for a large number of scientists.

The core of the book is focused on the state of art in matters of genetic transformation of a wide number of crops and plants of economic interest (about 40 independent chapters). After a presentation of the plant species, of its origin and of its practical interest, each chapter comprises a description of the transformation procedures and of the main practical results including commercial products of any.

Beyond this common structure the organization and relative interest of the individual chapters may vary considerably. Some chapters, e.g. that on Chili pepper, look like an article in a journal, others are rather superficial (rice) or in contrast present a comprehensive and critical analysis (sunflower). Surprisingly tobacco, which is the model plant for genetic transformation, is not considered.

In addition the rationale of the order of presentation of these different chapters is not clear (maize is between lettuce and onion?). Nevertheless the sum of information is considerable, experts in the individual areas having cooperated for this unprecedented task. Although some critical technical issues for the future development of safe and accepted transgenic crops are presented in a limited number of individual chapters, a specific chapter dealing with these important aspects (silencing, stability of transgenes, random insertion, use of specific promoters, safe selectable genes) is missing.

However, in addition to interesting chapters dealing with general problems such as the control of flowering, strategies for engineering resistance...prospective views are also presented (e.g. epigenetic regulations). It is thus proposed that the characterization of key genes that affect the epigenetic control of developmental or agronomic traits, may open new avenues for crop improvement. Other informative chapters mark out the limits of classical breeding for some species due to the length of reproductive cycles or limited genetic resources. The book also points out the fact that the wider and longer-term acceptance of TG food crops should be secured after the unintended or intended effects are known following the long term (5 to 15 years) collection of experimental data.

In summary this book provides a huge amount of useful and interesting information broadly related to the techniques and practical application of transgenesis. One can wonder who the best targets among the potential readers would be? I feel that for teachers and students in schools of agronomy the book is a must. More widely, while scientists focusing on specific areas may not find enough detail or up to date data, they will benefit from a multidisciplinary approach positively illustrated in this book will find an invaluable source of information. Despite its relatively high price (\$225.00) I strongly recommend this volume for purchase by libraries of agronomical schools and plant science Universities and Institutes.

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