

Book review

**Technology Transfer of Plant Biotechnology**

Edited by Peter M. Gresshoff

CRC Press, Boca Raton, 1997, 228 pages

ISBN 0-8493-8265-3, \$69.95

This book holds 13 chapters as well as an extensive glossary and an index.

Of the 13 chapters one (the first) handles the problem of technology transfer with respect to information available in several agencies of the US federal government for researchers in the area of biotechnology. One additional chapter describes the "history" of the first transgenic tomato cultivar (FLAVR SAVR™) from its conception to the market place. It is not merely the first transgenic tomato that reached the market but also the first "whole fruit" developed by genetic engineering. The two words in parentheses were possibly being used by the author (B. Martineau of Calgene Inc., the company that developed the Flavr Savr) to differentiate this tomato from another transgenic tomato cultivar, produced by the competitor company, Zeneca, but for the manufacture of tomato concentrate. The history of Flavr Savr is rather interesting and teaches us what kinds of hurdles are expected on the way from an idea to a commercial product. Although different products may pass quite different hurdles. Moreover, it is possible that there exists an additional obstacle for Flavr Savr at the market place, not visualized by the author in 1996: the consumer was possibly less enthusiastic than hoped by Calgene.

Several chapters describe important techniques in plant biotechnology as DNA Diagnosis in Horticulture (by Baird et al.), Negative Selection Markers for Plants (Czako et al.), Commercial Applications of DNA Profiling by Amplification with Arbitrary Oligonucleotide Primers (Gresshoff and Caetano-Anolles) and Confocal Laser Scanning Light Microscopy with Optical

Sectioning: Applications in Plant Science Research (Saha et al.). The Chapter on negative selection markers deserves special attention because it constitutes a very good updated review. Other chapters handle genetic and molecular-genetic topics, such as: Phylogenetic Relationships in the Tribe Triticeae (Reddy and Soliman) and Isolation of Plant Peptide Transporter Genes from *Arabidopsis* by Yeast Complementation (Steiner et al.). Three chapters are devoted to specific topics involved in protecting plants against pathogens: Biotechnological Applications of Inheritable and Inducible Resistance to Diseases in Plants (Tuzun et al.), The Role of Antifungal Metabolites in Biological Control of Plant Diseases (Hill et al.) and Genetical Engineered Protection of Plants Against Potyviruses (Maiti and Hunt).

One specific chapter should be of interest to those considering the use of plant cells for the manufacture of high-value products: Considerations for Development and Commercialization of Plant Cell Processes and Products (Goldstein). While this chapter focuses on only two products, vanilla flavor ("Phyto Vanilla") and taxol (an anti-cancer drug), the basic considerations involved in the manufacture of high-value products through plant cell cultures are of general relevance.

The last chapter of this book is titled Field Testing of Genetically Engineered Crops: Public-Private Institution Comparisons (Steward and Sorensen). It shows that at the early stages of the production of transgenic crops universities and public (US federal) institutions played a major role. The private companies increased their involvement up to the stage that almost all permits for field release of transgenic crops were given (in the USA) to commercial companies. The authors have some concern that this strong shift to private companies may not always be in the interest of the general public.

In summary, this book contains a number of good reviews in different areas of plant science and biotechnology. However, only a few of them are dealing directly with technology transfer.

This compilation of reviews has one, non-scientific, feature that caused me to smile: 10 out of the 13 chapters were written by authors located south of the Mason-Dixon line; and so are the editor and the publisher of this book.

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