
Preface

Cotton is the most important textile and cash crop and is widely cultivated in more than 70 countries, including the United States, China, and India. Because its long life cycle and complicated genetic background, it is hard to improve cotton using traditional breeding techniques; although, it has made much progress in the last several decades. Currently, transgenic techniques have become a powerful tool to improve cotton. Transgenic cotton is among the first commercially genetically modified crops. Since it was adopted by the cotton farmers in the middle of 1990s, transgenic cotton has been widely adopted around the world. Transgenic cotton not only provides huge benefits to cotton farmers, including increasing yield and reducing cost and labor, but also brings lots of environmental and societal impacts, such as reducing environmental pollution by reducing usage of pesticides. Transgenic cotton is also employed in basic research, such as investigating cellulose biosynthesis as well as gene expression and regulation.

This book provides a comprehensive collection of the cutting-edge methods for creating and monitoring transgenic cotton and its application on agricultural and basic research. Worldwide experts contributed to this book and presented their firsthand methods in the field of transgenic cotton. This book is divided into five major parts. The introduction part describes the current status and perspectives of transgenic cotton. The transformation part presents the principle and methods for making transgenic cotton. The detection part provides a comprehensive collection on the methods for detecting foreign gene copy and expression in transgenic cotton plants. The application part describes the improvement of cotton using transgenic technology. The risk assessment part presents the method for monitoring the potential impact of transgenic cotton on environment, including gene flow. This book provides a good resource for scientists as well as graduate students who work on transgenic plants, plant genetics, molecular biology, and agricultural sciences.

I greatly appreciate all the authors who have contributed excellent chapters to this book. Their expertise makes the book a valuable resource for scientists and aspiring graduate students interested in transgenic plants, particularly in transgenic cotton. I also want to express our sincere appreciation to Professor John M. Walker, the Methods in Molecular Biology Series Editor, and Mr. David Casey from Humana Press for their help, support, and commitment during its preparation.

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