Gene Flow between Crops and Their Wild Relatives

Meike S. Andersson, M. Carmen de Vicente
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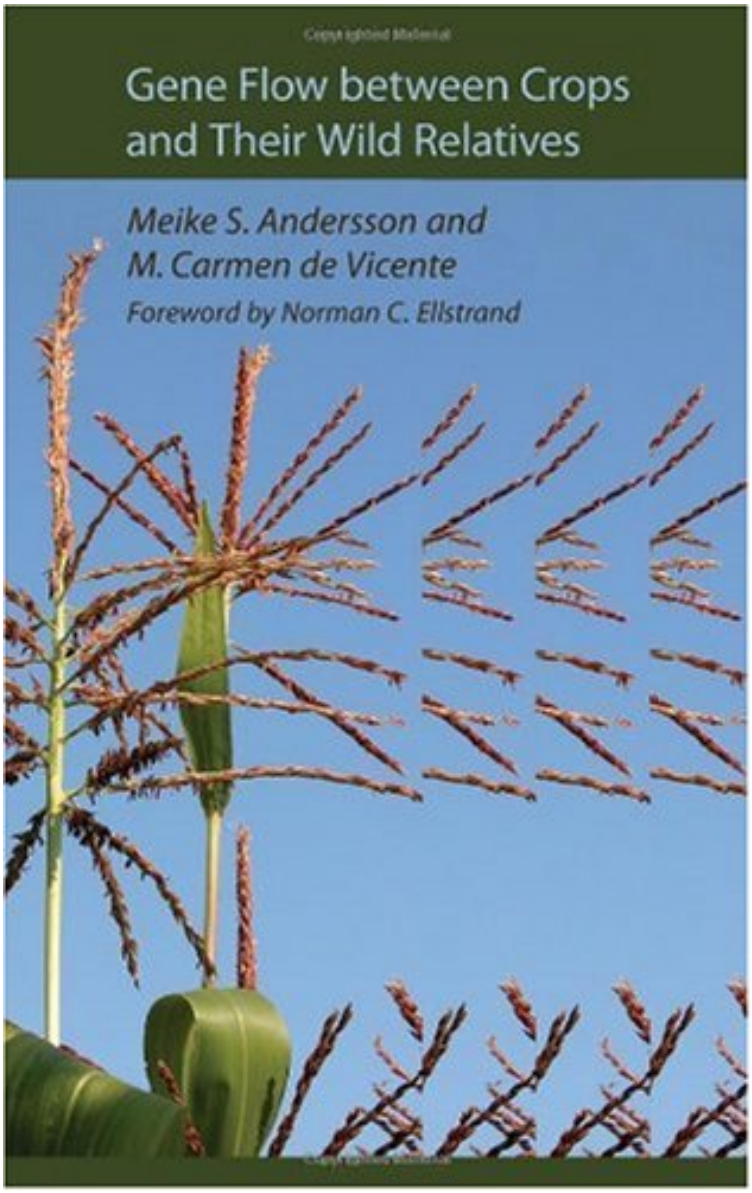

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Meike S. Andersson, M. Carmen de Vicente : Gene Flow between Crops and Their Wild Relatives before purchasing it in order to gage whether or not it would be worth my time, and all praised Gene Flow between Crops and Their Wild Relatives:

3 of 4 people found the following review helpful. An excellent overviewBy Dr. Lee D. CarlsonFor anyone interested

in understanding the risks involved with the genetic engineering of crops this book will serve as a good introduction to the subject and the research literature. Although the book presupposes an advanced knowledge of genetics and botany, it can be approach by those, such as this reviewer, who do not have such a background but are willing to consult monographs and textbooks on botany as they are being confronted with the terminology used in the book (a very helpful glossary is included at the end of the book). Studying this book may thus be time-consuming for such readers, but it is worth the effort for anyone who is serious about understanding the possibility of deleterious effects of the genetic modification of crops. The press has spread much hype regarding these types of risks, and so an in-depth study of their claims is necessary. In addition, it is necessary to understand to what extent scientific research needs to increase to fill the gaps in the understanding of the risks and benefits of genetic engineering.As the title implies of course, the authors' emphasis is on the likelihood that foodstuff crops, genetically engineered to be resilient to lack of water, heat, or pesticides can indeed exchange their genes with their "wild relatives", namely those plants that of the same species but are not the focus of human cultivation. There are introduction and methodology chapters to the book that are excellent and detail how the book is organized and the strategy that the authors will use to classify the risks, along with the existing research gaps. Twenty crop species are examined: plantains and bananas, barley, canola/oilseed rape, cassava/yuca/manioc, chickpeas, common beans, cotton, cowpeas, finger millet, maize/corn, oats, peanuts, pearl millet, pigeonpeas, potatoes, rice, sorghum, soybeans, sweetpotatoes/batata/camote, wheat/bread wheat. The authors give a qualitative classification of the likelihood of gene flow and introgression between crops and their 'crop wild relatives' (CWR): Very high, high, moderate, low, and very low. Of the twenty species studied the authors classified two as 'very high": between canola and cultivated and wild field mustard and between sorghum and its annual and perennial wild weedy relatives shattercane and Johnson grass.While studying the book, one will no doubt be amazed about how easy it is for humans to unintentionally scatter seeds, as well as how difficult it is for plants to exchange genes, even if they are genetically "close". At the same time it is easy to feel some sense of foreboding when thinking about how a particular weed, such as the pesky "Johnson grass" (a CWR of sorghum) might proliferate to such a degree as to actually become a serious danger when taking on (pesticide-resistant) genes from its crop relative. The discussion on rice is particularly interesting, even more so because of the reports from the press on "golden rice", many of these being quite extreme and lacking scientific support.

This comprehensive volume provides the scientific basis for assessing the likelihood of gene flow between twenty important crops and their wild relatives. The crops discussed include both major staples and minor crops that are nonetheless critical to food security, including barley, corn, cotton, cowpea, wheat, pearl millet, and rice. Each chapter is devoted to one of the crops and details crop-specific information as well as relevant factors for assessing the probability of gene flow. The crop-specific reviews provide insights into the possible ecological implications of gene escape. For each crop, a full-color world map shows the modeled distributions of crops and wild relatives. These maps offer readers, at a glance, a means of evaluating areas of possible gene flow. The authors classify the areas of overlap into three "gene-flow categories" with respect to the possibility of genetic exchange. The systematic, unbiased findings provided here will promote well-informed decision making and the conservation of wild relatives of crops. This book is particularly relevant to agriculture in developing countries, where most crop biodiversity is found and where current knowledge on biodiversity conservation is limited. Given the ecological concerns associated with genetically modified crops, this reference is an essential tool for everyone working to feed a growing world population while preserving crop biodiversity.

"A must-have book for anyone who is developing or regulating a transgenic crop." (Norman C. Ellstrand, author of Dangerous Liaisons? When Cultivated Plants Mate with Their Wild Relatives)"A solid initial reference book for anyone dealing with, or interested in, the transfer of genes between cultivated and free-growing plants. This book will undoubtedly promote awareness on biodiversity in the context of plant domestication and cultivation." (Marie-Jose Simard Evolutionary Applications)"This valuable work will serve as an important resource for biosafety regulators, crop breeders, and others involved in decision making for managing crop plants to preserve genetic diversity, particularly in developing countries that are centers of diversity for crop species." (Choice)"This is a timely, well-edited compendium of information on major crops and gene flow between them and their wild relatives." (Lytton John Musselman Plant Science Bulletin)"A useful compendium and a starting point for someone wanting detailed information on globally and economically important crops." (Conservation Biology)"I highly recommend this book. It is a valuable resource that will draw the reader's attention to many issues." (Mary Eubanks Economic Botany)"A reference guide that should be essential reading for any agriculturist who is interested in the utilization and conservation of agrobiodiversity." (Laura R. Lewis Quarterly of Biology)About the AuthorMeike S. Andersson is the project manager at Ecoagriculture Partners and is coeditor, with Dr. de Vicente, of DNA Banks: Providing Novel Options for Genebanks. M. Carmen de Vicente is a program leader with the Consultative Group on International Agricultural Research's Generation Challenge Program. Both worked at Bioversity International while writing this

book.