Book Review

Achieving Sustainable Cultivation of Apples

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Apples are considered the king of tree fruits with more literature and scientific research about this commodity than any other tree fruit crop. This is the first new comprehensive textbook in nearly 15 years on the latest scientific information on apple production. The book is edited by Dr. Kate Evans from Washington State University. The contributing authors are recognized leaders in their fields of expertise. The book is divided into four major parts; physiology and breeding; cultivation techniques; diseases and pests; and lastly as embedded in the title, sustainability.

The first part consists of eight chapters. The first two are devoted to information on the apple genome; what is known about the genome and potential new techniques impacting future cultivar development. The remaining six chapters present the information on changes that are occurring and have occurred in tree and fruit growth, flowering, fruit development, rootstocks and marker-assisted breeding. The chapter on flowering and pollination was exceptionally interesting.

Part 2 is devoted to innovations in cultivation techniques. There is a chapter on tree growth and influence of training systems including the importance of the use of plant growth regulators. Part of this chapter has a discussion on the growth habits of different cultivars and their impact on pruning techniques. Interestingly, the author mentions 'Cosmic Crisp' which is an apple cultivar that for the seeable future can only be produced by growers in the state of Washington (USA). Another chapter on plant nutrition stresses emerging issues affecting nutrient management. The tree fruit industry is currently struggling with labor availability and producers are moving toward increased mechanization techniques. Harvest assist mechanization is addressed specifically in the text. Postharvest handling and storage is an area that is rapidly changing and the extensive reference list at the end of the chapter is invaluable.

Part 3 is devoted to disease and pest problems in apple production including information on new disease and insect resistant apple cultivars. Chapters in this section specifically address fungal pathogens, virus and virus-like problems and bacterial diseases, especially fire blight. Arthropod management is broken down into primary and secondary pests. The chapter on development of pest and disease resistant apple "varieties" is a little too much European focused and would have benefited with a broader scope.

The final Part 4 covers the issue of sustainable apple production including economics, consumer trends and the impact on the environment. This latter part reflects the increasing trend in the industry to quantify environmental impacts and consequences of traditional orchard production practices. Although this book is part of the Sustainable Series by the publisher, this part of the book is the smallest section. It does however provide interesting chapters. One chapter in this part of which most production scientists may have little background covers consumer trends in apple sales. This is an area that many of us have little experience and can serve to put all the scientific break throughs in perspective.

Individual chapters in the textbook are

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uniformly laid out into similar sections beginning with an introduction that generally describes what attributes will be covered and their importance. As with any scientific text, the moment it is released changes have occurred in the field of study. However, *Achieving* makes up for this common problem by providing in each chapter extensive current references and more importantly a section titled "*Where to look for further information."* The latter takes the form of internet links to organizations, conferences or scientific societies that specialize in the topic of the chapter. Another important feature of some chapters is the section devoted to "*Future trends and conclusions."* Here the authors attempt to predict areas that researchers and educators will (or should) be working to develop.

I did find that in some instances the ordering of the chapters seemed a little misplaced. The chapter on sustainable approaches to postharvest diseases seemed out of place. It should have been either in Part 3, Diseases and Pests, or in Part 4, Sustainability. The chapter on growing organic apples in Europe may also have been better placed in Part 2 in cultivation techniques. One major item that would add great value to this text would be the inclusion of information on sustainable production practices in the People's Republic of China since that country is the leading producer of apples.

However, I think all the chapters did provide valuable information. United together they make this a good reference or college level text. This would be a good text to accompany a second level undergraduate or graduate level course in fruit production. Commercial apple growers and industry members would also benefit from this text to provide an interesting concise view of the current state of the industry and its future direction. This book represents the most recent source of the current status of apple production in the Western world. There is liberal use of color images and graphs throughout.

Correction:

In volume 71(4), in the article by Amanda J. Aance, Bernadine C. Strik, and John Clark "Table grape cultivar performance in Oregon's Willamette Valley", there has been a cultivar designation change for the new cultivar referred to in the paper as 'Passion'. It will not be called 'Compassion'.