

## Are Organic and Genetically Engineered Ag Compatible?

In their 2008 book, *Tomorrow's Table, Organic Farming, Genetics and the Future of Food*, published by the Oxford University Press, the husband and wife team of **Pamela C. Ronald** and

**Raoul W. Adamchak**, make a strong case that organic and genetically engineered practices can together play a vital role in an ecologically sustainable agriculture.



The authors are not just any couple. They are a very special couple. Pamela is a Professor of Plant Pathology at the University of California, Davis, and is in the middle of a distinguished career in science. She is one of the world's leading experts on genetic engineering of rice. Among her many honors is having been elected as a fellow of the prestigious American Association for the Advancement of Science. Adam is a long-time organic farmer and currently manager of the student organic farm at UC Davis.

### Genetic engineering Ongoing for Thousands of Years

The book makes the point that genetic engineering has been going on for thousands of years, as long as humans have been domesticating plants for their own uses.

Newer techniques allow a gene carrying a carefully

selected trait to be transferred from one plant or species to another, whereas the old process of cross-breeding meant that one could not control what other traits might be transferred along with the desired trait.

In a simple chart on page 49, the authors show the relatively simple process involved in genetically engineering a plant. They argue (page 37), that "GE has the potential to increase resistance of plants to insects, diseases, and nematodes, and help plants to adapt to environmental stresses like drought, flooding, cold, and salt. In the same way that the introduction of genes from wild species through breeding revolutionized farmers' management of pests, so can the introduction of genes through GE revolutionize control of diseases, insects and nematodes for which there is presently no organic solution."

Among the many benefits of GE crops that they cite are environmental benefits (less need to use toxic chemicals), human health benefits (e.g. less mycotoxins in GE corn), slower development of resistance, and the ability to protect rice harvests in areas in Asia and Africa that are subject to untimely flooding.

They credit genetic engineering of papaya as having saved the Hawaiian papaya industry from a devastating ringspot virus. Reduced risk of that virus allowed organic papaya to flourish when surrounded by GE papaya. In the deciduous fruit industry, the USDA has developed a GE plum that is resistant to the deadly Plum Pox Virus.

### **Unfounded Fears of GE**

They argue convincingly that most of the fears of GE crops are unfounded, whether health hazards to humans, or cross-pollination of non-GE crops, or the possible escape of some renegade gene into the wild. Many of the current restrictions on GE are scientifically indefensible, but hurt poorest countries the most. High regulatory costs are preventing universities and other non-profit organizations from advancing the science in many areas that would be most beneficial to society.

### **Closing the Communication Gap**

In their concluding chapter, they say, "There appears to be a communication gap between organic and conventional farmers as well as between consumers and scientists. It is time to close that gap. Dialogue is needed if we are to advance along the road to an ecologically balanced, biologically based system of farming." Amen.

### **Delightful, Informative, Whimsical Read**

While the book has some serious messages, it is also a delightful, informative, and whimsical read. The different perspectives of the husband and wife author provide much food for serious thought about the future shape of agriculture. Everyone who wants to express an opinion on GE crops should first read this book.

**First published in the World Apple Report, Volume 18, Number 5, May 2011, page 7.**