



## Book review

### **Genetically Modified Foods: Debating Biotechnology.**

Edited by Michael Ruse and David Castle. Amherst, New York: Prometheus Books, 2002, 355 pp., ISBN 1-57392-996-4

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David A. Cleveland's research focuses on the sustainability of small-scale, third-world agriculture, most recently on the knowledge and practice of plant breeding by farmers and scientists and its relevance to collaborative plant breeding, and on the potential impact of transgenic crop varieties and transgenes.

Agricultural biotechnology, is the subject of intense global debate, especially transgenic crop varieties and the foods made from them – commonly known as genetically modified or GM foods), most of which is polarized between proponents and opponents, with little middle ground for reasoned consideration of relevant theory, empirical data, and values. A collection of recent articles facilitating such reasoned evaluation would be welcome, both by the general public and by teachers. At first sight, Ruse and Castle's *Genetically Modified Foods* appears as though it might meet this need. The blurb on the back cover states that it is a "comprehensive introduction to the controversy," and the editors promise in the General Introduction that "... it is not our aim to give you any prepackaged answer to anything. Rather, we want to introduce you to some of the main issues and then to let you make up your own mind" (p. 25). Unfortunately, if you delve further into this book, you will find that this promise is not kept — their bias in support of GM foods is quite evident both in their own writing in the introductions to the sections of the book, as well as in their choice of selections, culled from a limited range of sources, and dominated by authors whose biases reflect their own.

The editors believe that GM foods are the logical continuation of humans' manipulation of nature to their own ends, using the "best" of science, and they use an epigram from the Bible to illustrate that humans have always "striven to mold their crops and their animals to their own ends" (p. 22), and that genetic engineering has led to a situation where "developing countries

would be able to custom-tailor their agricultural output to their specific needs" (p. 23). Perhaps, their most egregious breach of any pretense of editorial balance is when they state, "Surely it is not God's will that we turn our backs on the possibilities of organic change when these possibilities are directed for the good of all? Does God really want us to eschew using genes inserted into bacteria to make something like insulin? Clearly not!" (p. 109). The implication that they have special access to divine will is not supported by data.

While implying that support of GM foods is scientifically and ethically rational, Ruse and Castle imply that opposition to GM foods is based primarily on emotions, irrational fears, and a misunderstanding of science. For example, they state that objections of critics of GM foods "go from general distrust of anything supported and produced by big business or big science, to a deep conviction that any tampering with the natural is a violation of God's ordinance ..." (p. 24). In other words, the editors generally ignore the possibility that empirical data scientifically analyzed supports any concerns about negative impacts of genetic engineering in agriculture – a position contrary to fact, as reported in a number of recent publications (e.g., Ellstrand, 2003; Gepts, 2002; Latourneau and Burrows, 2002; Martineau, 2001; NRC, 2002). This bias is epitomized in the first pair of selections in the Prologue, by Prince Charles and Richard Dawkins, meant to illustrate the conflicting views on GMOs. Prince Charles's objections are characterized as based on faith – creation is sacred and should not be altered, while Dawkins support is seen as based on "science."

The rest of the book is divided into 10 thematic sections. Many of the selections are essays or editorials with few or no references, and the authors' affiliations and acknowledgments from the original articles have been removed and replaced with a minimal statement of affiliation in a list of authors at the back of the book. The first section is on golden rice, and reprints the original scientific paper from *Science*, along with commentary and criticism. It is by far the best section of the book because it provides an original scientific paper and commentary by both opponents and proponents. Unfortunately, most of the other sections of this book are unabashedly pro-GE. Let me give a few examples. Part 3 on religion has three articles (from Roman Catholic, Anglican, and Jewish perspectives), all of which support the use of GE, and Part 4, on labeling, has three articles, which are all advocacy pieces by GE

proponents arguing against labeling of GM foods. Part 9, "Developing Countries," consists of three essays all with the same message that agricultural biotechnology and GM foods have immense potential benefit for the poor, with no discussion of potential risks, or of alternative ways of meeting needs. In their introduction to this section, the editors set the stage by characterizing the choice between "gloom and doom" if biotech is not used by "developing countries," and the "many" who are "optimistic that the wise use of biotechnology will improve conditions" (p. 299).

The debate about TGVs and GE foods is in need of a middle ground, and students would be well served by a collection of articles that (1) includes those on the biology, ecology, sociology, politics, and ethics of TGVs and foods made from them, and (2) reflect the broad range of data, theory, methods, values, and attitudes in research and discussion. Unfortunately, Ruse and Castle's book does neither. In summary, there is no way for readers to "make up their own minds" because in general (1) only one side of the argument is given, (2) unsupported opinions rather than data are the basis for most of the selections, and (3) no substantive information on the funding and intellectual network of the authors is provided.

It would be nice to have an inexpensive, edited volume, regularly updated, on this topic. Unfortunately, Ruse and Castle's book is not it. Fortunately,

for those teaching courses who have access to electronic media, it will not be difficult to find a much broader range of publications on GM foods, even some of them that provide more of a middle ground perspective, where the empirical data, scientific theory, and values critical to the issue are discussed in a relatively objective way (see references cited above).

### References

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