Book Review

Irradiation for Quality Improvement, Microbial Safety and Phytosanitation of Fresh Produce. Rivka Barkai-Golan and Peter A. Follett. 2017. Academic Press, London, UK. 286 pages, with illustrations. \$127.50, eBook ISBN: 9780128110263, paperback ISBN: 9780128110256

This book is a review of the literature on irradiation of fresh fruits and vegetables. It is essentially two books; the first nine chapters written by Rivka Barkai-Golan focus mostly on the use of ionizing radiation to extend the shelf life of fresh produce by controlling pathogens, inhibiting sprouting, or delaying ripening and senescence. One chapter reviews the safety of consuming irradiated produce as well as the use of ionizing radiation to control food-borne pathogens that may contaminate produce. An impressive number of broad-ranging papers are referenced in these chapters, and the author has provided a thoughtful overview, distilled from these many sources. It provides a worthwhile review but would be even more useful if it were to include information on commercial

uses of the technology as well as a discussion of why it is not used more widely and how to remedy that situation. This need is substantial because although these uses for fresh produce have been researched for many decades, commercial use is minor and not increasing appreciably.

There is no synthesis between the first nine chapters and the final four. The last four chapters written by Peter Follett deal with ionizing radiation as a phytosanitary treatment to disinfest fresh commodities of quarantine pests that might be present before the commodities are shipped to areas free of the pests but possibly susceptible to their establishment. These four chapters repeat much of what the author has written elsewhere; e.g., chapter 12 is virtually copied word-for-word from a review paper published two years earlier. A weakness of this part of the book is that it fails to draw on the wider scientific literature available, and therefore a number of key references are missing. It relies heavily on the literature of the author to illustrate concepts even when other authors have published more accurate and useful information.

Although replete with material, the book pays scant attention to the important roles of international organizations, such as the Food and Agriculture Organization of the United Nations, the International Atomic Energy

Agency, and the World Health Organization in irradiation of fresh produce.

We disagree with some of the terminology and recommendations in the book. For example, we consider it possibly inaccurate or at least unwise to use “quality improvement” in the title and elsewhere, as it gives the impression that irradiation can make fresh produce better than it naturally is. This expression has been a valid bone of contention for those who oppose the technology. In this situation, we suggest simply writing “quality” or perhaps “quality maintenance”. The phytosanitary research guidelines could be improved; e.g., mortality is recommended as the objective in tests confirming efficacy, although mortality has never been the objective for any phytosanitary irradiation schedules yet developed. Although the research guidance is generally positive, researchers would do well to also consult other available guidance for optimum research methodology in phytosanitary irradiation.

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