

Book Review

Edited by DENIS HAMILTON and
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**Pesticide residues in food and drinking
water: human exposure and risks**

John Wiley and Sons, 2003,
378 pp; price £105.00, €157.50
ISBN 0-471-48991-3 (hardcover)

As a reference for human health risk assessment of pesticide residues, this is a concise and well-organized work; Hamilton and Crossley have managed to cover all of the bases on this topic. The chapters are written clearly enough to benefit the neophyte, and provide enough detail to benefit professionals in the field.

After an introductory chapter by the editors, Chapter 2 'begins at the beginning': How do pesticide residues find their way into food a drinking water? There are sections discussing the transport and degradative processes that occur in air, water and soil; including a brief discussion of bioaccumulation. This chapter gives a good overview of transport and fate processes as they apply to pesticides, including several examples using common compounds. Moving from macro-scale fate, Chapter 3 takes on transport and fate within crops and livestock. It

begins with a primer on absorption, distribution, metabolism and elimination (ADME) processes that occur in plants and in mammalian systems. There is a good discussion of Phase I and Phase II metabolism with examples and a description of the types of study that are conducted in support of pesticide regulation. In keeping with the theme of exposure assessment, Chapter 4 is an interesting discussion of the effects of food preparation and processing on the residue levels on non-animal commodities. It would have been nice to have a similar discussion for animal commodities.

Chapter 5 is really the only chapter that deals directly with the toxicity assessment phase of risk assessment. This chapter gives a description of the 'six-pack' battery of tests for acute toxicity, as well as descriptions of other testing methodologies, such as reproductive and neurotoxicity testing. Chapter 6 is back on to exposure assessment; it discusses dietary modeling for exposure assessment. The discussion of this topic is quite exhaustive and discusses various methodologies from different countries, as well as some example calculations. The next two chapters discuss risk characterization for chronic (Chapter 7) and acute exposure (Chapter 8). There is some overlap in these

chapters of material discussed in other chapters; however, this is unavoidable in a work such as this. Chapter 9 discusses the topic of natural toxins as pesticides. It covers some regulatory considerations and the relative risks of natural versus synthetic pesticides. Although the topic is very interesting, it feels a bit out of place in this book. With that said, perhaps it feels out of place because it is an often overlooked source of toxicant exposure.

The final two chapters of the book provide an excellent capstone for the book. Chapter 10 discusses efforts at international harmonization of standards for pesticide residues in food and drinking water. This chapter discusses the work of the Codex Alimentarius Commission, as well as the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), on Maximum Residue Levels for pesticide residues. The final chapter is a welcome discussion of risk communication. Performing complex risk analyses on pesticides is for naught if one cannot adequately explain the relative risks to the public at large.

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DOI:10.1002/aoc.947