

PREFACE

The homily, attributed to Will Rogers, “if it ain’t broke, don’t fix it”, though applicable to some aspects of life, does not apply to books on pesticides. Updates, amendments and fixes are always needed on a revolving basis. Competitors merge, sell products or product lines, and divest or buy other companies. New products appear as old standbys disappear, regulations change and new ones are promulgated. New discoveries are made about old products and advances in understanding performance or safety of new products unfold, and occasionally entirely new technologies appear. In fact, the rate that new information is generated is such that annual updates, though impractical, could be valuable.

In this edition, the sixth since 1978, there are updates, many changes and some cogent additions of relevant materials. After creating the book and flying solo with it through five editions spanning 25 years, George has been joined by a coauthor and former Ph.D. student, David Whitacre. Past readers of this book will find that in this, the sixth edition, the first and last chapters are new, most of the others have been extensively rewritten and all have been updated. Certainly, there has been no shortage of changes facing pesticides since the last edition was published in 2000.

The travails of the pesticide industry have continued since the last edition of this book was published: Agrevo/Rhone Poulenc merged to form Aventis (1999), Sumitomo bought Abbott’s pesticide business (1999), DuPont bought Pioneer, the world’s largest seed company (1999), Zeneca and Novartis united to form Syngenta, the largest pesticide company to date (2000), BASF bought American Home Products’ pesticide business (2001), Dow purchased Rohm & Haas’s agrichemical business (2001) and Bayer purchased Aventis (2002). In addition, the rest of Monsanto was spun-off by Pharmacia which was itself bought by Pfizer.

Since the last edition was published, low agricultural prices and stiff competition resulted in tough times for the pesticide industry. Despite flat sales, in real terms, during the decade ending in 1999, global performance has since actually declined. The global decline in 2001 exceeded 7% in sales and there was no recovery in 2002. Accordingly, employment in the industry declined, Research and Development (R&D) budgets were reduced, at least for conventional products, and the pesticide industry and agriculture in general are hoping for better times.

Without a doubt, the most striking change is the continuing dramatic growth in introduction and sales of transgenic crops, both those conferring insect resistance as well as herbicide tolerance. The growth of biotechnology is an increasingly central component of the pesticide industry and constitutes a genuine paradigm change. In the U.S., sales of transgenic products now exceed the sales of agricultural insecticides! Their success is coming at the expense of conventional products, both cotton and corn insecticides as well as soybean and corn herbicides. Although sales of conventional products

have languished in recent years, the marketplace for biotechnology products has been booming. The first significant sales of such products in 1995 were less than \$100 million worldwide. In 2002, the comparable number approached \$4 billion, of which the U.S. enjoyed about a two-thirds share.

A number of changes designed to assist readers have been made in the new edition. Two new appendices have been added. The first (Appendix A) is a chronology of events important to pesticides, which formerly appeared as a large table in the first chapter. The second (Appendix B), included for the first time, is an extensive assembly of websites useful in quickly finding additional pesticide data or information. Additionally, readers will find websites listed in the narrative, in context, for many chapter topics. The purpose is to make it easier to retrieve additional information on the subjects being covered.

Despite knowing that this book cannot be complete, it has been our aim to provide as thorough an overview of pesticides as possible in the space allowed. It is neither intended, nor can it be an exhaustive study of any particular class of pesticides.

As in the past, the primary audiences we have had in mind in preparing this update are students of agriculture, ecology, toxicology, integrated pest management (IPM), state and federal regulatory or research personnel wishing to expand their knowledge, and members of the Peace Corps; agricultural pest control advisors, structural pest control specialists, groundskeepers, gardeners, and for interested lay people, whether urban householders or weekend gardeners.

It will be of special value to those preparing for applicator certification and licensing in the field of pesticide usage.

A great many ideas and some data are presented in various sections of the book without direct citation of the underlying sources. The bibliography lists the contributors whose work or writings were used, and it should be a guide for readers who wish to pursue specific topics.

During this revision, we received advice and inputs from many people. We want to particularly thank Ed O'Keefe for guidance in layout and design, making it all come together in a highly professional manner. In addition, we wish to thank the Syngenta Crop Protection Library for their help in securing certain obscure references.

Finally, to Doris and Trudy, our patient and understanding wives, who sacrificed days, evenings, and weekends of sharing time, thus enabling us to complete this very difficult revision, we owe a great debt of appreciation.

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