

## Crop Protection CroLife International

How does Britain get its food? Why is our current system at breaking point? How can we fix it before it is too late? British food has changed remarkably in the last half century. As we have become wealthier and more discerning, our food has Europeanized (pizza is children's favourite food) and internationalized (we eat the world's cuisines), yet our food culture remains fragmented, a mix of mass 'ultra-processed' substances alongside food as varied and good as anywhere else on the planet. This book takes stock of the UK food system: where it comes from, what we eat, its impact, fragilities and strengths. It is a book on the politics of food. It argues that the Brexit vote will force us to review our food system. Such an opportunity is sorely needed. After a brief frenzy of concern following the financial shock of 2008, the UK government has slumped once more into a vague hope that the food system will keep going on as before. Food, they said, just required a burst of agri-technology and more exports to pay for our massive imports. Feeding Britain argues that this and other approaches are short-sighted, against the public interest, and possibly even strategic folly. Setting a new course for UK food is no easy task but it is a process, this book urges, that needs to begin now. Tim Lang has performed a public service! Simon Jenkins, Sunday Times

Return to Resistance: Breeding crops to reduce pesticide dependence Resulting from the premier forum for pesticide development and use, this volume provides comprehensive coverage and even captures emerging technologies within the industry. All facets of pesticides are addressed here, including agriculture, agrochemicals, and environmental health aspects, as well as such global issues as food quality and safety. Biology, Economics, and Prediction Measuring Food Security Using Household Expenditure Surveys The Last Hunger Season

Return to Resistance Adopted by the Hundred and Twenty-third Session of the FAO Council in November 2002 *Biopesticides have readily available sources, they are effective and easily biodegradable, exhibit various modes of action, cheaper, inherently less toxic to humans and the environment. They do not leave harmful residues, and are usually more specific to target pests. The use of biopesticides is markedly safer for the environment and users, and more sustainable than the application of chemicals, and are therefore used as potential alternatives to synthetic pesticides, especially as components in Integrated Pest Management strategies. The book Biopesticides: Botanicals and Microorganisms for Improving Agriculture and Human Health is a collection of articles, up to date reviews and research contributions from both developed and developing countries. It emphasises the current issues of importance and the progress made in the fields of agricultural, environmental and soil microbiology, plant pathology and ethnobotany, and aims to bring together all available and relevant information on biopesticides. It comprises 12 Chapters on emerging issues on biopesticides from important and useful botanicals to beneficial microorganisms that show great potential in both agriculture and human health. The book will be of immense help to both the undergraduate and postgraduate students, biologists and agricuturists, who would like to broaden their knowledge and gain substantial experience about biopesticides in agriculture and health, this will enable them to contribute significantly in making the world a safer and healthier place. About neglected crops of the American continent. Published in collaboration with the Botanical Garden of Córdoba (Spain) as part of the Etnobotánica92 Programme (Andalusia, 1992)*

*The book deals with the present state and problems of integrated pest management as relating to stakeholder acceptance of IPM and how integrated pest management can become a sustainable practice. The discussions include using less pesticides and the possibility of eliminating pesticides from agricultural practice.*

*A History of Pesticides From Agriscience to Agribusiness 1492 from a Different Perspective Working together to tame the globe! threat Second edition Insect Resistance Management Guidelines for the Safe and Effective Use of Crop Protection ProductsGuidelines for Personal Protection when Using Crop Protection Products in Hot ClimatesGuidelines for the Safe Transport of Crop Protection ProductsGuidelines for the Safe Warehousing of Crop Protection ProductsInternational Code of Conduct on Pesticide ManagementGuidelines on Highly Hazardous PesticidesFood & Agriculture Org. This publication is the first based on a joint FAO/WHO programme to establish international standards for pesticide quality, and it supersedes all previous FAO or WHO manuals and guidance documents published previously. It provides the standard process, unified requirements and procedures, harmonised definitions and nomenclature, technical guidelines and standards applicable to pesticides for use in agriculture and public health. These specifications apply only to the products of manufacturers whose technical materials have been evaluated. This book provides a synthesis of the key issues and challenges facing agriculture and food production in Southern Africa. Southern Africa is facing numerous challenges from diverse issues such as agricultural transformations, growing populations, urbanization and climate change. These challenges place great pressure on food security, agriculture, water availability and other natural resources, as well as impacting biodiversity. Drawing on case studies from Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe, the chapters in this book consider these challenges from an interdisciplinary perspective, covering key areas in constraints to production, the most important building blocks of good farming practices, and established and emerging technologies. This book will be a valuable support for informing new policies and processes aimed at improving food production and security and developing sustainable agriculture in Southern Africa. This informative volume will be key reading for those interested in agricultural science, African studies, rural studies, development studies and sustainability. It will also be a valuable resource for policymakers, governmental and nongovernmental organizations, and agricultural practitioners. This title has been made available as Open Access under a Creative Commons Attribution-Non Commercial-No Derivatives (CCBY-NC-ND) license and can be accessed here: https://www.taylorfrancis.com/books/e/9780429401701 International Code of Conduct on Pesticide Management Legislation to implement the POPs, PIC, and LRTAP POPs agreements Feeding Britain Sustainable Intensification 21 Selected Crops, 1960-2008*

*Guidelines for Personal Protection when Using Crop Protection Products in Hot Climates* The understanding that some pesticides are more hazardous than others is well established. Recognition of this is reflected by the World Health Organization (WHO) Recommended Classification of Pesticides by Hazard, which was first published in 1975. The document classifies pesticides in one of five hazard classes according to their acute toxicity. In 2002, the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) was introduced, which in addition to acute toxicity also provides classification of chemicals according to their chronic health hazards and environmental hazards.

This book presents experiences and successful case studies of integrated pest management (IPM) from developed and developing countries and from major international centres and programmes. It contains 39 chapters by many contributors addressing themes such as: emerging issues in IPM, including biotechnology, pesticide policies and socioeconomic considerations (8 chapters); country experiences from Africa, Asia, North and South America, Europe, Australia and New Zealand (20 chapters); and regional and international experiences, including those of FAO, USAID, ICIPE, CIRAD, the World Bank and CGIAR Systemwide IPM Program (9 chapters). This book will be of significant interest to those working in the areas of crop protection, entomology and pest management.

The leading reference on this topic has just gotten better. Building on the success of the previous two editions, all the chapters have been updated to reflect the latest developments in the field, and new chapters have been added on picolinic acids, oxathiapiprolin, flupyradifurone, and other topics. This third edition presents the most important active ingredients of modern agrochemicals, with one volume each for herbicides, fungicides, and insecticides. The international team of first-class authors from such renowned crop science companies as Bayer, Syngenta, Dow AgroSciences, DuPont (now Corteva Agriscience), and BASF, address all crucial aspects from the general chemistry and the mode of action to industrial-scale synthesis, as well as from the development of products and formulations to their application in the field. A comprehensive and invaluable source of timely information for all of those working in modern biology, including genetics, biochemistry and chemistry, and for those in modern crop protection science, whether governmental authorities, researchers in agrochemical companies, scientists at universities, conservatians, or managers in organizations and companies involved in improvements to agricultural production.

Pesticide Problems, Vol.3 Integrated Pest Management Constraints, Technologies, Policies and Processes GMO Food: A Reference Handbook, 2nd Edition Protocol on Persistent Organic Pollutants (POPs) Implementation Act Pesticide Chemistry

**GMO Food: A Reference Handbook offers an in-depth discussion of genetically modified food. It discusses the history of, opposition to, regulation of, and labeling of genetic modifications, along with the potential benefits and harm involved. GMO Food: A Reference Handbook is intended to serve as a research guide for young adults in high school and beyond. Students at all grade levels should be able to use the book as an introduction to the history of genetic engineering of organisms and the use of this technology for the development of new forms of crops and foods. They will learn briefly about historic methods of plant and animal modification (such as cross-breeding) and, in more detail, how discoveries since the late nineteenth century have greatly changed the process of plant and animal modification. These discoveries include important steps forward in genetics, biochemistry, molecular biology, genetic engineering, and related fields. They will also learn about the variety of social, political, philosophical, economic, and other issues that have arisen alongside these scientific advances, as well as about some of the laws, regulations, and other solutions that have been developed for dealing with the range of attitudes about genetically modified foods. The second edition covers developments since 2014. Provides readers with the basic background they need about genetically modified foods in order to understand current issues Includes additional readings, a comprehensive chronology, a glossary, and other features to aid students' understanding of current issues and guide them in designing and conducting their own research Offers ideas for additional research from a list of important individuals and organizations Rounds out the author's expertise in perspectives essays that show readers a diversity of viewpoints This volume presents a state-of-the-art overview of the rapidly evolving field of agrbiusiness, highlighting the most current issues, concepts, trends and themes in research, practice and policy. With a particular emphasis on technology, product and process innovation, the authors cover a wide array of topics relating to such issues as research and development, technology transfer and patents and licensing, with particular respect to the roles of academic institutions, private organizations and public agencies in generating and disseminating knowledge. Featuring case studies of innovative initiatives across the industry, this book will appeal to researchers, business leaders, university administrators and policymakers concerned with the multi-faceted implications of this dynamic and controversial sector.**

This widely respected and frequently consulted reference work provides a wealth of information and guidance on industrial chemistry and biotechnology. Industries covered span the spectrum from salt and soda ash to advanced dyes chemistry, the nuclear industry, the rapidly evolving biotechnology industry, and, most recently, electrochemical energy storage devices and fuel cell science and technology. Other topics of surpassing interest to the world at large are covered in chapters on fertilizers and food production, pesticide manufacture and use, and the principles of sustainable chemical practice, referred to as green chemistry. Finally, considerable space and attention in the Handbook are devoted to the subjects of safety and emergency preparedness. It is worth noting that virtually all of the chapters are written by individuals who are embedded in the industries whereof they write so knowledgeably.

S-metolachlor Biopesticides Theories, Policies and Practices in Technology Transfer and Commercialization Neglected Crops

**Advanced Fermentation and Cell Technology A Year in an African Farm Community on the Brink of Change** Continued population growth, rapidly changing consumption patterns and the impacts of climate change and environmental degradation are driving limited resources of food, energy, water and materials towards critical thresholds worldwide. These pressures are likely to be substantial across Africa, where countries will have to find innovative ways to boost crop and livestock production to avoid becoming more reliant on imports and food aid. Sustainable agricultural intensification – producing more output from the same area of land while reducing the negative environmental impacts – represents a solution for millions of African farmers. This volume presents the lessons learned from 40 sustainable agricultural intensification programmes in 20 countries across Africa, commissioned as part of the UK Government's Foresight project. Through detailed case studies, the authors of each chapter examine how to develop productive and sustainable agricultural systems and how to scale up these systems to reach many more millions of people in the future. Themes covered include crop improvements, agroforestry and soil conservation, conservation agriculture, integrated pest management, horticulture, livestock and fodder crops, aquaculture, and novel policies and partnerships.

**ADVANCED FERMENTATION AND CELL TECHNOLOGY** A comprehensive and up-to-date reference covering both conventional and novel industrial fermentation technologies and their applications Fermentation and cell culture technologies encompass more than the conventional microbial and enzyme systems used in the agricultural, biochemical, biotechnology and pharmaceutical industries. New technologies such as genetic engineering, systems biology, protein engineering, and mammalian cell and plant cell systems are expanding rapidly, as is the demand for sustainable production of bioingredients, drugs, bioenergy and biomaterials. As the growing biobased economy drives innovation, industrial practitioners, instructors, researchers, and students must keep pace with the development and application of novel fermentation processes and a variety of cell technologies. Advanced Fermentation and Cell Technology provides a balanced and comprehensive overview of the microbial, mammalian, and plant cell technologies used by the modern biochemical process industry to develop new and improved processes and products. This authoritative volume covers the essential features of advanced fermentation and cell technology, and highlights the interaction of food fermentation and cell culture biopharmaceutical actives. Detailed chapters, organized into five sections, cover microbial cell technology, animal and plant cell technology, safety issues of new biotechnologies, and applications of microbial fermentation to food products, chemicals, and pharmaceuticals. Written by an internationally-recognized expert in food biotechnology, this comprehensive volume: Covers both conventional and novel industrial fermentation technologies and their applications in a range of industries Discusses current progress in novel fermentation, cell culture, commercial recombinant bioproducts technologies Includes overviews of the global market size of bioproducts and the fundamentals of cell technology Highlights the importance of sustainability, Good Manufacturing Practices (GMP), quality assurance, and regulatory practices Explores microbial cell technology and culture tools and techniques such as genome shuffling and recombinant DNA technology, RNA interference and CRISPR technology, molecular thermodynamics, protein engineering, proteomics and bioinformatics, and synthetic biology Advanced Fermentation and Cell Technology is an ideal resource for students of food science, biotechnology, microbiology, agricultural sciences, biochemical engineering, and biochemistry, and is a valuable reference for food scientists, researchers, and technologists throughout the food industry, particularly the dairy, bakery, and fermented beverage sectors.

This report includes the outcomes of the workshop discussions, as well as the overall workshop conclusions (Section 4) and recommendations (Section 5) targeted at governments, all stakeholders and OECD. Handbook of Industrial Chemistry and Biotechnology Information Resources in Toxicology The National Agricultural Directory 2009 The Global Action for Fall Armyworm Control: Action framework 2020-2022 Integrated Pest Management in the Global Arena Pesticide Use in U.S. Agriculture

*Can a writing textbook inform and entertain? Can a very brief rhetoric also function as a stand-alone guide to college writing? Yes and yes. Speaking of Writing is a concise yet comprehensive rhetoric with readings. Informed by scholarship in Writing Studies, this book follows four college students from diverse backgrounds as they face the challenges of reading, writing, and critical thinking in first-year writing and across the disciplines. Each chapter engages students in relatable, often humorous scenarios that focus on key challenges. Through its story-based approach, Speaking of Writing enacts student-centered and process-based pedagogy, showing students learning to address fundamental questions: How can I apply my own strategies for success to new assignments? How can I maintain my own voice when asked to compose in an academic style? What do college professors mean by a "thesis," and how is this different from what my high-school teachers meant? Why is this argument weak, and how can I make it stronger? The book's narrative vividly dramatizes a draft-and-revision process that includes instructor feedback, peer review, and careful research.*

*Sittig's Handbook of Pesticides and Agricultural Chemicals is specifically designed for use by those engaged in the agricultural and food processing industries, both vital to our nation's health and economy. People in every phase of food production, from the farm to the fork, will find a wealth of material here. It will also be of interest to professionals in the pharmaceutical, cosmetics, and personal care industries who use agricultural products as ingredients. It provides crop, chemical, regulatory, health and safety information on nearly 800 pesticides, fertilizers, and other agricultural chemicals. These chemicals are organized with unique identifiers so that all who may have contact with or interest in them can find critical information quickly.*

*This latest version of Information Resources in Toxicology (IRT) continues a tradition established in 1982 with the publication of the first edition in presenting an extensive itemization, review, and commentary on the information infrastructure of the field. This book is a unique wide-ranging, international, annotated bibliography and compendium of major resources in toxicology and allied fields such as environmental and occupational health, chemical safety, and risk assessment. Thoroughly updated, the current edition analyzes technological changes and is rife with online tools and links to Web sites. IRT-IV is highly structured, providing easy access to its information. Among the "hot topics covered are Disaster Preparedness and Management, Nanotechnology, Omics, the Precautionary Principle, Risk Assessment, and Biological, Chemical and Radioactive Terrorism and Warfare are among the designated. • International in scope, with contributions from over 30 countries • Numerous key references and relevant Web links • Concise narratives about toxicologic sub-disciplines • Valuable*

*appendices such as the IUPAC Glossary of Terms in Toxicology • Authored by experts in their respective sub-disciplines within toxicology Guidelines for the Safe Transport of Crop Protection Products Speaking of Writing: A Brief Rhetoric*

*Herbicides Botanicals and Microorganisms for Improving Agriculture and Human Health Sittig's Handbook of Pesticides and Agricultural Chemicals*

*Guidelines for the Safe Warehousing of Crop Protection Products* Fall Armyworm (FAW), or Spodoptera frugiperda, is a plant pest originating in the tropical and subtropical regions of the Americas. Over the last few years, FAW has rapidly spread around Africa, Asia and and, most recently, Oceania. Coordinated action is essential to prevent this pest from threatening the food security and livelihoods of millions of smallholder farmers. FAO ' s new initiative, the Global Action for Fall Armyworm Control, aims to mobilize USD 500 million over three years, from 2020 to 2022, for radical, direct and coordinated measures to strengthen monitoring and pest control capacities at global level. FAO developed its Global Action to improve food security and the livelihoods of millions of smallholder farmers, and reduce environmental pollution through sustainable management and control of FAW. To achieve this, the Global Action will ensure a strong, coordinated approach at country, regional and global levels to massively scale up current worldwide efforts against FAW through multiple mechanisms, such as Farmer Field Schools, partnerships with research institutions and the private sector, South-South Cooperation, regional and national plant protection organizations, and specific national FAW task forces. The Global Action has three key objectives: 1. Improve global, regional, national and local coordination and collaboration on FAW control, leading to implementation of ecosystem-friendly Integrated Pest Management (IPM) practices and policies; 2. reduce crop yield losses caused by FAW; and 3. reduce the risk of further spread of FAW to new areas.

The 'International Code of Conduct on the Distribution and Use of Pesticides' is the worldwide guidance document on pesticide management for all public and private entities engaged in, or associated with, the distribution and use of pesticides. The Code is designed to provide standards of conduct and to serve as a point of reference in relation to sound pesticide management practices, in particular for government authorities and the pesticide industry. This publication contains the revised (2002) version of the Code. In 2001, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) agreed to develop specifications for pesticides jointly, thus providing unique, robust and universally applicable standards for pesticide quality. This joint programme is based on a memorandum of understanding between the two organizations. This 2021 second edition of the manual on development and use of FAO and WHO specifications for pesticides, which is only available online, supersedes the March 2020 third revision of the first edition and previous manuals and guidance documents published by either FAO or WHO on this subject. This manual provides the standard process, unified requirements and procedures, harmonized definitions and nomenclature, technical guidelines and standards applicable to pesticides for use in agriculture and public health. FAO and WHO specifications for pesticides based on this manual are developed through the FAO/WHO Joint Meeting on Pesticide Specifications (JMPS) and published on the web sites of the two organizations.

Crop Protection, Public Health, Environmental Safety Guidelines for the Safe and Effective Use of Crop Protection Products Crop Protection Research Manual on Development and Use of FAO and WHO Specifications for Pesticides International Code of Conduct on the Distribution and Use of Pesticides (revised Version) Increasing Productivity in African Food and Agricultural Systems

**At 4:00 am, Leonida Wanyama lit a lantern in her home made of sticks and mud. She was up long before the sun to begin her farm work, as usual. But this would be no ordinary day, this second Friday of the new year. This was the day Leonida and a group of smallholder farmers in western Kenya would begin their exodus, as she said, "from misery to Canaan," the land of milk and honey.Africa's smallholder farmers, most of whom are women, know misery. They toil in a time war, living and working essentially as their forebears did a century ago. With tired seeds, meager soil nutrition, primitive storage facilities, wretched roads, and no capital or credit, they harvest less than one-quarter the yields of Western farmers. The romantic ideal of African farmers—rural villagers in touch with nature, tending bucolic fields—is in reality a horror scene of malnourished children, backbreaking manual work, and profound hopelessness. Growing food is their driving preoccupation, and still they don't have enough to feed their families throughout the year. The wanja!—the annual hunger season that can stretch from one month to as many as eight or nine—abides.But in January 2011, Leonida and her neighbors came together and took the enormous risk of trying to change their lives. Award-winning author and world hunger activist Roger Thurow spent a year with four of them—Leonida Wanyama, Rasoa Wasike, Francis Mamati, and Zipporah Biketi—to intimately chronicle their efforts.**

**In The Last Hunger Season, he illuminates the profound challenges these farmers and their families face, and follows them through the seasons to see what, with a little bit of help from a new social enterprise organization called One Acre Fund, they might transcend lives of dire poverty and hunger.The daily dramas of the farmers' lives unfold against the backdrop of a looming global challenge: to feed a growing population, world food production must nearly double by 2050. If these farmers succeed, so might we all. These guidelines are intended to provide guidance on pesticide risk reduction through reduced exposure by effective personal protection with special attention to the use of Personal Protective Equipment (PPE). First, they provide technical information on personal protection and on the selection and use of PPE. Second, in line with the FAO/WHO International Code of Conduct on Pesticide Management, they address policy issues and recommend measures to improve personal protection and specifically the use and availability of adequate quality and affordable PPE. They are primarily aimed at government authorities in charge of pesticide management and risk reduction, but are also considered useful to public and private sectors such as pesticide industry, non-governmental organisations (NGO) and other relevant entities. More specifically, these guidelines are targeted at stakeholders in low and middle income countries (LMICs) where it is acknowledged that there is limited legislation, compliance and enforcement, and PPE availability. These Guidelines were developed by the FAO/WHO Joint Meeting on Pesticide Management (JMPPM) to provide guidance on provisions in the Code of Conduct on Pesticide Management that are related to personal protection of pesticide users. They are meant to enhance current national legislation and regulations on personal protection and personal protective equipment (PPE) or where there is none, to provide guidance. They reflect the FAO/WHO joint approach on pesticide management, thus addressing personal protection of both agricultural and public health operators/applicators, the latter being engaged in using insecticides for vector control.**

Pesticides-including herbicides, insecticides, and fungicides-have contributed to substantial increases in crop yields over the past five decades. Properly applied, pesticides contribute to higher yields and improved product quality by controlling weeds, insects, nematodes, and plant pathogens. In addition, herbicides reduce the amount of labor, machinery, and fuel used for mechanical weed control. However, because pesticides may possess toxic properties, their use often prompts concern about human health and environmental consequences. The examination of pesticide use trends is critical for informed pesticide policy debate and science-based decisions. This report analyzes pesticide use trends using a new pesticide database compiled from USDA and proprietary data, focusing on 21 crops. Our Food Problems and How to Fix Them Breeding Crops to Reduce Pesticide Dependence Series on Pesticides and Biocides Report of the OECD workshop on Integrated Pest Management (IPM) - Strategies for the adoption and Implementation of IPM in Agriculture Contributing to the Sustainable Use of Pesticides and to Pesticide Risk Reduction Guidelines on Highly Hazardous Pesticides Hearing Before the Committee on Environment and Public Works, United States Senate, One Hundred Seventh Congress, Second Session on S. 2118, a Bill to Amend the Toxic Substances Control Act and the Federal Insecticide, Fungicide, and Rodenticide Act to Implement the Stockholm Convention on Persistent Organic Pollutants and the Protocol on Persistent Organic Pollutants to the Convention on Long-Range Transboundary Air Pollution, May 14, 2002 Report of the 13th FAO/WHO Joint Meeting on Pesticide Management, 20-21 October 2020

*Neither pest management nor resistance management can occur with only an understanding of pest biology. For years, entomologists have understood, with their use of economic thresholds, that at least a minimal use of economics was necessary for proper integrated pest management. IRM is even more complicated and dependent on understanding and using socioeconomic factors. The new edition of Insect Resistance Management addresses these issues and much more. Many new ideas, facts and case studies have been developed since the previous edition of Insect Resistance Management published. With a new chapter focusing on Resistance Mechanisms Related to Plant-incorporated Toxins and heavily expanded revisions of several existing chapters, this new volume will be an invaluable resource for IRM researchers, practitioners, professors and advanced students. Authors in this edition include professors at major universities, leaders in the chemical and seed industry, evolutionary biologists and active IRM practitioners. This revision also contains more information about IRM outside North America, and a modeling chapter contains a large new section on uncertainty analysis, a subject recently emphasized by the U.S. Environmental Protection Agency. The final chapter contains a section on insecticidal seed treatments. No other book has the breadth of coverage of Insect Resistance Management. 2e. It not only covers molecular to economic issues, but also transgenic crops, seed treatments and other pest management tactics such as crop rotation. Major themes continuing from the first edition include the importance of using IRM in the integrated pest management paradigm, the need to study and account for pest behavior, and the influence of human behavior and decision making in IRM. Provides insights from the history of insect resistance management (IRM) to the latest science Includes contributions from experts on ecological aspects of IRM, molecular and population genetics, economics, and IRM social issues Offers biochemistry and molecular genetics of insecticides presented with an emphasis on recent research Encourages scientists and stakeholders to implement and coordinate strategies based on local social conditions*

*In this fascinating book, Graham Matthews takes the reader through the history of the development and use of chemicals for control of pests, weeds, and vectors of disease. Prior to 1900 only a few chemicals had been employed as pesticides but in the early 1940s, as the Second World War raged, the insecticide DDT and the herbicide 2-4-D were developed. These changed everything. Since then, farmers have been using a growing list of insecticides, herbicides and fungicides to protect their crops. Their use has undoubtedly led to significant gains in agricultural production and reduction in disease transmission, but also to major problems: health concerns for both users of pesticides and the general public, the emergence of resistance in pest populations, and environmental problems. The book examines the development of legislation designed to control and restrict the use of pesticides, the emergence of Integrated Pest Management (IPM) and the use of biological control agents as part of policy to protect the environment and encourage the sustainable use of pesticides. Finally, the use of new technologies in pest control are discussed including the use of genetic modification, targeted pesticide application and use of drones, alongside basic requirements for IPM such as crop rotations, close seasons and adoption of plant varieties with resistance to pests and diseases.*

*Modern Crop Protection Compounds Transforming Agriculture in Southern Africa Guidelines for personal protection when handling and applying pesticides*

*hearing before the Subcommittee on Environment and Hazardous Materials of the Committee on Energy and Commerce, House of Representatives, One Hundred Ninth Congress, second session, March 2, 2006 Manual on the development and use of FAO and WHO specifications for chemical pesticides*