

BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

# Pesticides and agriculture

Profit, politics and policy

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# Introduction

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This book aims to unveil the history of both agricultural pesticides and the industry that evolved around them. The book is divided into chapters that review discreet periods in history within which pesticides, agriculture and human societies evolved.

Each chapter is structured in a similar way to both facilitate comparisons between chapters and provide a familiar format to aid digestibility. Chapters begin with an outline of the key characteristics of the farming systems, which sets the background against which pesticides evolved. This is followed by an overview of the key external drivers that catalysed the development of pesticides. Next the reader is provided with the key characteristics of pesticide development processes and the manufacturers who began producing pesticides. Detailed analysis is provided for the most important pesticides and pesticide manufacturers and the processes in which pesticides came into, and remained in, common usage. The concluding section of each chapter focuses on the key outcomes of pesticide development and application. This includes both intended outcomes such as increased agricultural production and unintended outcomes linked to environmental pollution and human health.

Chapter 1 discusses the evolution of agriculture and the early development of the pesticide industry through to the early twentieth century. The chapter describes the evolution of agriculture from traditional to revolutionary and international phases in the face of forces such as urbanisation and the increased demand for food, and the increase in the global food trade. It reviews the consequent intensification of agricultural production, in which the emerging pesticides industry played an increasingly important role.

Chapter 2 moves onto discuss developments in the 'Productivist Period' from the 1930s to the 1970s, influenced by Fordist models of mass production. Supported by governments concerned about food security, agriculture in developed countries became even more intensive, reliant on mechanisation and extensive use of chemical inputs such as fertilisers and pesticides to achieve dramatic increases in production. This period was also one of major expansion of pesticide industry that became increasingly embedded both in agriculture itself and the broader policy/regulatory framework around agriculture, building on the development and widespread use of synthetic organic pesticides such as organophosphates, carbamates and pyrethroids, as well as a new generation of herbicides and fungicides.

The next group of chapters are unusual in that they cover different aspects of the same period: 1974-2017. Chapter 4 sets the scene for this 'Divergent Period' which saw the collapse of the Productivist paradigm and what has been

called the Second Food Regime. Chapters 4-7 look at different responses to this crisis, from Residual Productivism and Neo-Productivism to Post-Productivism and the emergence of a new 'Sustainability Paradigm' for agricultural production. In each case, the chapters chart the various ways the pesticide industry sought to manage and adapt to a more challenging environment, whether by developing new products in such areas as biotechnology, broadening their global operations, seeking to influence debate about the role of pesticides or repositioning themselves through horizontal and vertical mergers. The final chapter speculates as to how the global food system is likely to evolve during the next 10-15 years and the role that science and technology, especially pesticides and biotechnologies, may play.

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