

BOOK REVIEW

ROBINSON R.A.: RETURN TO RESISTANCE. agAccess, Davis, California, 1996, 460 pp. + index. ISBN 0-932857-17-5. Softcover. Price USD 29.95.

This book is mainly aimed at readers, both unprofessional and professional, that are concerned about the world food supply and environmental pollution by chemicals used in agriculture. Those who lack detailed scientific knowledge will gain insight into these matters, but it is also stimulating to specialists because of untraditional approaches to these problems. It is written in plain English with logical sequence of statements. The book also addresses all people willing to contribute to the solution of both topical problems. It presents suggestions and shows possible ways of implementing them in practice.

The book consists of an introduction and of three main parts: 1. Explanations, 2. Examples, 3. Solutions, and is divided into 29 chapters. There are a glossary and an appendix, both particularly useful for non-professionals.

In the introduction the author points out the main problem of modern crop husbandry: pests and diseases destroy about one-fifth of all crop production in spite of an immense application of chemicals in plant protection. In industrial countries the use of such chemicals has increased nearly tenfold since World War II. According to the author, the solution to this problem is breeding for horizontal resistance, i.e., durable, unspecific, mostly polygenic resistance.

In the first part of the book the author presents a history of crop breeding, though simplified and reduced to a bipolar scheme which classifies plant breeders into biometricians and mendelians. The former stress quantitative, the latter qualitative resistance. The bipolar scheme is adhered to in most chapters of the book. The author deals with pedigree breeding versus population crossing, vertical versus horizontal resistance, allo- versus autoinfection, matching versus non matching host-parasite interactions, discontinuous versus continuous

epidemics, genetically uniform versus genetically diverse population, genetic flexibility versus genetic inflexibility. The author tries to demonstrate all the advantages of the breeding for horizontal resistance.

In part two, examples of successful breeding for horizontal resistance and failures of vertical resistance are presented. The author has a profound knowledge of breeding for disease and pest resistance in many crops, particularly tropical and subtropical in which he was personally involved and achieved remarkable success. Most examples deal with plant diseases, a few with pests, e.g., leaf hoppers or Colorado beetle.

In part three, solutions to the problem of increasing use of chemicals and, in most cases, the only temporary success of breeding for disease and pest resistance are suggested. Plant breeding clubs, i.e., groups of active people interested in breeding for horizontal durable resistance, are expected to help in solving the problem. Detailed activities of these clubs, on both the administrative and scientific-technical level are outlined. Ninety pages are devoted to techniques and procedures arranged in alphabetic order. This part and the glossary on 45 pages represent a useful encyclopaedia on various aspects of plant breeding, especially disease resistance breeding.

To some readers the book may give the impression that it is too critical of modern plant breeding. Not so: success in improving yield and quality as well as agronomical suitability is freely and frequently admitted, but the author mainly and justly points out the many failures in improving pest and disease resistance. Specialists may object to some, inevitable, oversimplifications in the book. However, it certainly fulfils one of the author's "...most carefully considered objectives in writing this book: What crop science needs now is a healthy dose of public scrutiny".

P. Bartoš