

Book review

R.K.S. Wood & G.J. Jellis (Editors), 1984. *Plant diseases: infection, damage and loss*. Blackwell Scientific Publications, Oxford. 327 pp. Price £ 25.

'By the year 2000, . . . world food production will probably need to increase by about 40%. Between 1950 and 1969, world agricultural production increased 1.7 times. . . , slightly more rapidly than world population (1.5 times). In the 1970s, the two are no more than keeping pace with each other'. These sentences, quoted from the introductory chapter of section 4 of this book, indicate the important tasks for plant pathologists. Better control of diseases and pests is necessary to increase food production. And to obtain better control, a good understanding of the biology of the agents that cause damage is essential, as are the reactions of the host plants when they become diseased. On this topic, the British Society for Plant Pathology held a symposium in December 1982, with participants from various parts of the world. This book contains the proceedings of the symposium.

The first section of the book deals with factors causing disease, such as toxins, cell wall-degrading enzymes and growth regulators. Whether toxins are determinants of pathogenicity is briefly discussed and examples are given on the involvement of cell wall-degrading enzymes in pathogenicity, as well as on the role of growth regulators in plant disease. Together, these chapters present a very good introduction to the theme of the book.

The second section deals with physiological responses of plants to pathogens, with information on effects on photosynthesis, respiration, transport systems, root functioning and tolerance (endurance) to parasitic infection. This part discusses experimental data that are not always considered by plant pathologists. For example, in Chapter 6, experimental data are discussed related to respiration of plant tissue infected by biotrophic fungi. These data indicate that enhanced oxygen uptake results from increased biosynthesis by which the host supplies the fungus with nutrients, rather than being part of the pathogenesis. There is strong evidence that incompatibility is associated with intense energy-dependent metabolic activities and with increases in the rate of respiration of the plant. It is, however, questionable, whether saprophytic micro-organisms lead to energy-requiring and thus to yield-reducing physiological reactions. I believe that the information, given in these chapters could be "eye openers" for plant pathologists, and not only for those working in the field of disease control.

The third section of the book gives information on infection and host damage. It includes an introductory chapter and examples from a wide variety of diseases: foot and root pathogens, foliar pathogens, bloom infections, vascular pathogens, gall development and host damage caused by viruses.

The fourth section of the book deals with damage and loss, the main topic of the symposium. After a good overview on world crop losses, several diseases are described as examples to demonstrate how damage can occur and how this can be prevented. It is interesting to note, that the data given by Cramer (Cramer, H.H., 1967. *Pflanzenschutz-Nachrichten Bayer, Leverkusen*) still form the basis for estimates of loss from diseases, pests and weeds. But new information is given, e.g. on market losses of fresh produce and on the economics of fungal control for cereal diseases.

Because of the purpose of the symposium, with 26 different aspects treated, the chapters had to be rather short. Some of them present a broad overview, others give more detail: the majority are well written and easy to read. Specialists may find the book superficial, especially since no attempt has been made to integrate the information. However I find the information presented and combined into one book highly relevant to plant pathologists, especially for those not directly working in the field of damage and loss. The book is well worth reading and should get a place in all libraries of agronomy and plant pathology. The price will be somewhat prohibitive for students to obtain their own copy, but it should be recommended for them to read it; some basic knowledge of plant pathology is essential to understand what is written.

K. Verhoeff