

Scheffer, P.R.: **The Nature of Disease in Plants.** - Cambridge University Press, Cambridge - New York - Melbourne 1997. IX+325 pp. USD 64.95, GBP 45.00. ISBN 0-521-48247 X.

This book is about how disease develops in plants, from the origins and evolution of parasites to how the great plant epidemics developed. This is not an encyclopaedia of plant disease; instead, the purpose is to give a broad general understanding, especially of the effects of human activities on plant disease.

After the first chapter "Perspective", the following 16 chapters are arranged into two main parts. The purpose of Part I is to provide a brief, analytical discussion of the basic biology of plant disease. Five chapters entitled Causes and spread of plant disease, How pathogens attack plants, How plants defend against pathogens, Ecological considerations, Disease control and their limitations, discuss our present understanding of how pathogens attack plants, how plants resist infection, and the origins, ecology, and evolution of pathogens and diseases. The background provided in Part I is especially helpful for the nonspecialists to better understand and appreciate the ideas and themes that are developed in Part II. The effects of human activities on incidence and severity of plant diseases form an integrating thesis of Part II. Foreign pathogens were brought to virgin areas, where the aliens encountered plant populations with no tolerance (Chapter 7). Foreign plants were brought into new areas, where they were exposed to virulent pathogens that previously existed in tolerant endemic plants (Chapter 8). Some crop plants were moved to new areas without their endemic pathogens; over time, cultivation and selection in the absence of such pathogens created a uniformly susceptible crop. Eventually, pathogens overtook their hosts (Chapter 9), and the results were devastating. Changes in agriculture and forest management created new epidemic situations (Chapter 14). Annual

reintroduction of some diseases, by human activities, to an area has had serious consequences (Chapter 15). Some abiotic diseases resulted from direct effects of human activities (Chapter 16). Monoculture has had great impacts on disease in crops. Spread of plant pathogens was favoured when agriculture adopted monoculture; the trend was accelerated with modern use of crops with genetic uniformity (Chapters 10, 11, 12, and 13). Pathogens are adaptable, and we have, in effect, bred pathogens as we developed agriculture (Chapters 11, 12, and 13). Monoculture undoubtedly is a factor in many serious plant disease problems. Included in the book are the natural histories of some of the most damaging plant diseases, worldwide, with discussions of why each became destructive. Diseases are grouped according to the most significant factors in the development of epidemics; in every case, this is due to a human factor. Discussion of each model disease proceeds from observable facts to more complex concepts; thus, the reader with little knowledge of plant pathology should have no trouble with the text. Special terminology and jargon are avoided as much as possible (a glossary of special terms is included). This book is valuable for people with an interest in plants, especially biologists and agricultural specialists: students, researchers, teachers, and practitioners. Text discussion proceeds from observable phenomena to more complex scientific concepts; thus, the nonspecialist reader should have no trouble with much of the discussion. This book contains background information that should be useful for molecular biologists that work with plant disease problems.

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