
BOOK REVIEWS

Diseases of Sugarcane: Major Diseases, (eds) C. Ricaud, B. T. Egan, A. G. Gillaspie Jr. and C. G. Hughes, (Published by Elsevier Scientific Publishers, Amsterdam, The Netherlands), Price: Dfl. 250.

The International Society of Sugarcane Technologists (ISSCT) brought out two volumes on 'Sugarcane Diseases of the World'. The first volume appeared in 1961, and the second one in 1964. The publication reviewed here is the updated version of the first volume, with some alterations. In this book three new chapters, on, rust, grassy shoot and white leaf diseases, and plant quarantine, have been added, while three chapters in the earlier version, on *Fusarium* sett rot, root rot, and *Sclerophthora* disease, have been deleted as the editors felt that these diseases are now of minor importance.

The book has 22 chapters and a collection of coloured photographs. These chapters have been written by individuals with vast experience in the field of their specialization. The introductory chapter is devoted to sugarcane—its botany and physiology—and highlights those aspects of sugarcane that are of utmost importance to sugarcane workers. The physiology of sugarcane has been dealt with in a masterly fashion.

The remaining 21 chapters have been divided into four parts. The first part deals with bacterial diseases like gummosis, leaf scald, ratoon stunting and red stripe. The second part covers fungal diseases like brown stripe, downy mildew, eye spot, leaf scorch, pineapple disease, Pokkah boeng, red rot, smut, rust and yellow spot. The third part deals with viral diseases like chlorotic streak, mosaic, Fiji, streak and grassy shoot and white leaf diseases. The fourth part (general) has only two chapters, one on sugarcane quarantine and the other on sugarcane diseases and their world distribution. Each chapter on diseases has been suitably divided into introduction, and sections on symptomatology, causal organism, epidemiology (survival, transmission, role of environmental factors, host range, etc.), economic importance and control, and at the end of each chapter a Spanish summary is also provided.

Some of the unique features of the book are: (i) Latest techniques have been described to aid the diagnosis of a disease. (ii) Recent taxonomic development has been taken into account to describe

pathogens, and to avoid possible confusions, equivalent names are given in parenthesis. (iii) Excellent illustrations in the form of black and white photographs as well as colour photographs and beautiful camera lucida drawings have been included. (iv) Complete references instead of only abbreviated ones are provided.

There are also some shortcomings in the book: (i) The book does not cover some of the important findings of Indian research workers; for example, the Indian work on leaf scald has been completely left out; similarly, some of the important findings on red rot, pineapple disease and smut have also not been included. (ii) The taxonomic details of perfect stage of *Colletotrichum falcatum* have not been provided; this is essential in view of the existing controversy between *Physalospora tucumanensis* and *Glomerella tucumanensis*. (iii) Grassy shoot and white leaf diseases have been classified under viral disorders, which is not proper as the causal organisms of these diseases are supposed to be mycoplasma-like organisms. The usefulness of the book would have been even greater if a chapter on wilt, which is a severe problem in south-east Asia, had been included.

The cost of the book is Dfl 250.00 (= Rs. 2,000.00), which is quite exorbitant. It is not only beyond the reach of Indian research workers but also of small libraries. However, it is a welcome addition to big libraries of universities and research organizations. The editors are to be congratulated for elegant editing and for bringing out this informative publication on sugarcane pathology.

V. P. AGNIHOTRI

Principal Scientist
Indian Institute of Sugarcane Research
Lucknow 226 002

Ecophysiology of Desert Vertebrates, (eds) P. K. Ghosh and Ishwar Prakash, (M/s Scientific Publishers, Ratananda Road, Maan Bhawan, P. O. Box 91, Jodhpur 342 001), 1988, pp. 475, Price: Rs. 425.

The desert ecosystem, despite its natural adversities, supports a good variety of fauna and flora.

Life in the desert calls for an array of adaptations befitting the characteristic, demanding environment. A wide range of adaptations, from mere classical behavioural patterns to highly synchronized physiological events, are a prerequisite to desert life.

Several books have been published in the general field of desert biology. Most of the contributions either include 'natural history' observations on individual desert species or project the environmental profile offered by this peculiar life-support system. For a long time a need has been felt for a compilation covering the ecological as well as functional aspects of desert animals, and the present book fulfils this need to some extent. The book contains articles from many authors and gives a fair idea of the strategies adopted by a few desert vertebrates in colonizing harsh habitats.

Twelve useful articles are included in the book. Except one, in which the physiological adaptation to cold deserts is dealt with in a general manner, the articles provide information on the life-style of one or the other vertebrate in relation to its environmental complex. The article on the role of dung beetles in relation to a herbivore community inhabiting an African desert environment is highly interesting and projects the important role played by these frail, detritivorous arthropods in nutrient cycling, soil elevation, aeration and water penetration. Of the three contributions pertaining to Indian deserts, one refers to vertebrate remains from archaeological sites, the second is on the haematology of the Indian camel, and the third details the ecological characteristics of two wild ungulate species populations. Inclusion of more examples from Indian deserts would have been appropriate and useful to Indian readers.

All the contributors have provided interesting and comparative information and the book would be a valuable addition to institutional libraries.

KATRE SHAKUNTALA

Department of Zoology
Bangalore University
Bangalore 560 056

Perspectives in Phytopathology, Dr R. S. Singh Festschrift volume, (eds) V. P. Agnihotri, N. Singh, H. S. Chaube, U. S. Singh and T. S. Dwivedi, (Published by Today and Tomorrow's Printers and Publishers, 24B/5, D. B. Gupta Road, Karol Bagh, New Delhi 110 005), 1989, pp. xiii+523, Price: Rs. 595.00; \$85.00.

This Festschrift incorporates original research papers as well as review papers contributed by distinguished scientists from all over the world, reflecting the reputation of Dr R. S. Singh, who has contributed immensely to the important field of plant pathology, and to the study of the fascinating soil-borne pathogens in particular.

The volume has 35 papers providing the latest information on both fundamental and applied aspects of plant pathology. The subjects have been chosen with care. One paper emphasizes various facets of the use of fungicides, an essential component of inputs for increasing plant productivity without which it is difficult to control many important diseases in modern agriculture. Other papers are devoted to immunological, ELISA and dot blot hybridization techniques for the detection as well as characterization of mycoplasmas, viruses and viroids respectively. The role of plasmids in phytopathogenic bacteria and the molecular mechanism of pathogenicity are the subject of another paper. Subsequent papers deal with mycotoxins, including aflatoxin, which has caused considerable alarm in recent years; biotrophic plant parasites and symbionts in tissue culture, focusing attention on techniques for the establishment of dual culture of biotrophic fungi and nematodes as well as their hosts; and screening germplasm of a wide variety of crops, such as cereals, legumes, oilseeds and medicinal plants, to salvage varieties resistant to various diseases.

Of special significance are the papers pertaining to bunts and smuts, the most destructive diseases of wheat and rice not only in India but in large parts of the world. These papers highlight the epidemiology of the diseases and the mode of perpetuation of the pathogens, and contain high-quality illustrations. The papers on diseases of economic significance caused by fungi, bacteria, viruses and mycoplasmas in cotton, cowpea, pigeonpea, triticale, coconut, potato, tomato and safflower are up-to-date and consolidated accounts. They contain information on the occurrence, physiological specialization and variation of the pathogens, disease cycle, epidemiology, disease resistance, host range, yield losses and

disease management methods. Other papers examine biological control and soil solarization for the control of many plant diseases as alternatives to the excessive use of hazardous pesticides.

A clear message is that there is ample proof of ability to safeguard the interest of and protect Indian agri-horticulture from exotic pests and diseases by adopting suitable plant quarantine measures while importing a large variety of germplasm and planting material from different parts of the world with a view to incorporating desired genes and improving existing varieties.

Although the book has many glaring spelling mistakes most of the papers are good. The book is expensive, but certainly a fine volume for students, teachers and plant pathologists.

J. L. VARSHNEY

Central Seed Testing Laboratory
Indian Agricultural Research Institute
New Delhi 110 012

Brief notes on books

We hope to publish brief notes on books that may interest readers. We invite readers also to contribute.

—Editor

The Papers of Thomas A. Edison, vol. 1, edited by R. Jenkins and others, Johns Hopkins University Press, 708 pp., \$65.

Funded by two government agencies, two individuals, one labour union and forty-three corporations this is the first of a twenty-volume project that will finally emerge in the form of 16,000 large printed pages containing 7000 documents culled from a cache of a quarter million original sketches and three million pages of documents left by one of the most prolific inventors humanity has ever produced. Price of the entire set 1300 US dollars, weight 35 kg, shelf space of one metre!

Inventions are of two types—those like the cotton gin, the reaper, the telegraph, the telephone, the aeroplane or the lowly sewing machine, which heralded technological breakthroughs and are in a minority; and those that are just improvements or variations of existing technologies. Edison had inventions of both types—the incandescent lamp, the phonogram, the storage battery and motion pictures were instruments of change and therefore belong to the first type, while others, which are in this book, represent his early period and belong to the latter class.

Yes, he had a plethora of ideas: 'I have also in the process of manufacture 12 Universal Printing Machines, a Regulating Temperature Machine, Two other Perforating Machines, a New screw slotting machine, a wire straightening Machine, Polishing Machine and other things which also takes thinking.'

This edition retains the inventor's idiosyncratic punctuation, capitalization and his sometimes atrocious grammar and spelling.

We are told that headnotes are provided for sketches and the commentary is lavish. Each chapter is preceded by a biographical sketch illustrated with contemporary prints and photos and Edison's own autobiographical notes of this period are also reproduced—what a feast!

All the depository libraries of India must have copies of this remarkable set of books for young hopefuls to thumb through and see how an unusually inventive mind works.

We read with interest the review, in *New Scientist*, of the remarkable book *Molecular Sieves: Principles of Synthesis and Identification* (by Rosemarie Szostak Van-Nostrand Reinhold, 1989, pp. 524, £ 53.95), by L. V. C. Rees, Professor in the Department of Chemistry, Imperial College, London.

The following remarks he makes would be of some interest to Indian scientists.

'I received *Molecular Sieves* (for review) just before departing on a three-week visit to the National Chemical Laboratory in Puna [*sic*], India. The laboratory has a large group working on the synthesis of many materials discussed by Szostak. The value of her book is exemplified by the fact that it was in continuous demand by all members of the group—I saw little of it during my stay.'

It is strangely coincidental that some of the best natural zeolites of India are to be found near Pune.