

Book Reviews

PIRONE'S TREE MAINTENANCE. 7TH ED. 2000. John Hartman, Thomas P. Pirone and Mary Ann Sall. Oxford University Press, 198 Madison Ave., New York, NY 10016-4314. 560 p. \$49.95. hardcover. ISBN 0-19-511991-6.

Pirone's Tree Maintenance was a classic work, originally published in 1941 and for many years a definitive reference in arboriculture. P.P. Pirone authored the first five editions and coauthored the sixth. Now in this latest seventh edition, the name remains the same, but Pirone's son, D. Thomas Pirone, and John Hartman both professors of plant pathology at the University of Kentucky, are joined by Forest Pathologist Mary Ann Sall as its new authors.

The new edition is substantively changed from earlier editions with a heavy emphasis in over half the book on recognizing and treating insect and disease pests.

The book is organized in three large sections: General Maintenance Practices, Diagnosis and Management of Tree Problems and, Abnormalities of Specific Trees.

The first section covers everything from the value of trees, their structure and function, selection, transplanting, soil issues, fertilizing, pruning and tree preservation. These issues are treated in a fairly general way with very few references to support statements made. Even when specific research is mentioned, few references are given to back up the statement. Tree selection is an area in which there is much more detailed information than is included in this text. For the practitioner with limited experience,

this text introduces many important issues but does not go into depth. Likewise the sections on transplanting and tree preservation go through these sections in a cursory way with the section on tree hazard evaluation, arguably one of the most important jobs for the arborist, needing a more in-depth treatment. Major references in this area are given at the end of the chapter.

Where this book excels however is in the sections on diagnosing tree problems, and describing specific insects and diseases that affect individual genera. This section is especially accessible to novices in the area who might be intimidated by a more detailed treatment.

The diagnosis sections may be the most immediately useful to the tree manager faced with an ailing plant. Similarly, the chapter Coping with Tree Pests and Diseases covers all methods of managing pests from plant health care and IPM to the use of biological controls and cultural practices to chemical means. The authors emphasize the need for clear management objectives before launching into a pest management program.

This book gives the practitioner and teacher a new tool to use in the field and classroom. When the first edition came out, it was the classic text in the field of tree management. However, there are other texts now that cover some issues in more depth. I recommend this book as a sound introduction to the field with a very good section on managing tree pests.

NINA BASSUK
Cornell University
Ithaca, N.Y.

PRACTICAL DRAINAGE FOR GOLF, SPORTSTURF, AND HORTICULTURE. 2000. K. McIntyre and B. Jakobsen. Sleeping Bear Press, 310 North Main Street, P.O. Box 20, Chelsea, MI 48118. 224 p. \$59.95. ISBN 1-57504-139-1.

This book presents some basic concepts and theories regarding soil water relations and drainage in golf course greens, athletic fields, and horticultural plantings. In moderate detail, it adds to the practical reference of water movement in soils used for recreational purposes. The book compliments Edward Pira's book, *A Guide to Golf Course Irrigation System Design and Drainage*, published in 1997 by Ann Arbor Press. As with Pira's book, the focus of this book pertains primarily to golf course putting greens and athletic fields. Shrub beds and plantings are infrequently mentioned, and therefore this book applies more to the turfgrass manager than to the landscape horticulturist.

In the first and third chapters, some basic soil science, such as particle size distribution, pore space relationships, and bulk density are reviewed. Chapters 2, 4, 5, and 6 discuss soil-water relationships in moderate detail with a degree of clarity that the practitioner can understand. From an applied approach chapters 7 through 11 cover drainage theory and calculations. The final chapter covers the authors' methods of measuring hydraulic conductivity. Also, an index details the United States Golf Association (USGA) recommendations for a method of putting green construction and is a useful reference.

The book has many illustrations with the preponderance being line drawings. The figures are neatly presented, easy to read and interpret, and are well used to convey related concepts and ideas. Due to the nature of the material, it is necessary to use graphs, tables, and equations. Graphs, all being line graphs, are well presented and compliment the text. Tables also are clear and appropriately used to reinforce the subject matter. Compared to a soil physics text, this book contains very few equations, none of which require math skills beyond basic algebra. However, the equations are adequately used and explained. The authors also use presented equations in examples with step-by-step solutions such that the reader can easily follow and apply the equations in practice.

The authors use practical examples, often from observed experiences, to emphasize concepts. Many of these examples revolve around preparation of athletic fields to be used for the 2000 Olympics in

Sydney, Australia. The general practitioner can relate to these examples and learn from the successes and mistakes of others. Also, McIntyre and Jakobsen use rules of thumb type of examples to provide useful guidelines. This too reinforces presented concepts and ideas.

As admitted by the authors, this book is intended to be a lay person's soil physics text. This book should not be confused or substituted for a soil physics text, it lacks the depth and full spectrum of the subject. The authors admit to loosely using terminology that they know to be of complex states in order to preserve the broad parameters of their audience.

This book is written with the practitioner in mind. Often for the sake of simplicity, very complex theories are over simplified, leaving the academic unfulfilled. Due to its simplicity, this book would not be adequate for upper level soils courses. However, the practical examples and basic calculations can be used to introduce concepts that allow an instructor a starting point for more in depth exploration. A basic soils course and/or extensive experience and background reading are suggested requirements before fully benefiting from this book.

F.C. WALTZ JR. AND L.B. McCARTY
Clemson University
Clemson, S.C.

SEASHORE PASPALUM: THE ENVIRONMENTAL TURFGRASS. R.R. Duncan and R.N. Carrow. 2000. Ann Arbor Press, a subsidiary of Sleeping Bear Press, 310 South Main Street, Suite 300, P.O. Box 20, Chelsea, MI 48118. 281 p.; 16 color photos; 10 b/w illustrations and photos; 47 tables. \$65 hardcover. ISBN 1-57504-141-3.

Nearly 100 turfgrass scientists and practitioners from the U.S. and abroad were consulted by authors Duncan and Carrow to produce this book. A primary objective was to create an operational manual for site-specific management situations involving seashore paspalum.

The authors provide a sound linkage between natural history of seashore paspalum, its evolution in coastal ecosystems of the tropics and subtropics (including parts of eastern North America), and its emergence as the most salt tolerant warm-season turfgrass in use today. The species is discussed in reference to its

multiple stress tolerance, including tolerance to salinity (seawater, wastewater, and effluent, gray, and brackish irrigation waters), drought, waterlogging, low light, acidity, and alkalinity. The coverage on abiotic stress, particularly the tailoring approach to site-specific management for multiple stress situations, is a novel aspect of the book. Coverage on physiological and biochemical phenomena is light, and this is appropriate for the management-related focus of the book.

The book's 19 chapters are reasonably specific to seashore paspalum, with notable and well-placed references to other species. The chapters are divided among four major sections: background and description of seashore paspalum, environmental stress resistance, management practices, and principles for using alternative water resources. The latter section includes plantings on environmentally-sensitive sites (e.g., wetlands), and metal hyperaccumulation tendencies of the species. A chapter on genetics includes modern plant genomic techniques for seashore paspalum.

The book is well organized and the index is user-friendly. References support each chapter and are sectioned at the end of the book. The chapters on taxonomy, history, edaphic and biotic stress resistance, and bioremediation/reclamation are particularly well-cited. The authors consider the stress resistance of seashore paspalum, its minimal need for pesticides, and lower nitrogen requirement than other warm-season turfgrasses, and appropriately suggest that seashore paspalum will play an important role in turf systems of the 21st century. For good measure (in case we are not keeping up with the daily news), the authors kindly remind us that the turf industry, as with all areas of horticulture, is becoming increasingly regulated in its use of fresh water supplies and agrochemicals. Thus, as they point out, seashore paspalum is a logical turfgrass selection for the future, and this makes *Seashore Paspalum* a good reference for environmental horticulturists.

Seashore Paspalum would make a good supplement as a library reserve reading text for an upper or lower division course in turfgrass management or environmental horticulture, but probably not as a sole text for such courses because of its species specificity. However, species specificity is the very nature of the book and by every means should be considered as a positive aspect. There is a separate chapter on golf course case studies involving seashore paspalum. Because of the shortness

of the case study chapter, an instructor-reader could make a case for its expansion, especially in view of the increasing importance of decision case education. This deficiency should be viewed in a positive light in that the book could have used a little more of a good thing here. Instructors could use creativity by looking at the book's case study examples and then building similar cases relevant to their own situations, maybe on other turfgrass species.

As a comprehensive reference to seashore paspalum, the book would undoubtedly serve well all turfgrass scientists and practitioners. It would also provide a good reference to those working in the area of plants and the environment, especially in reclamation and remediation programs.

Seashore Paspalum is a refreshing change from traditional horticultural texts. The cover photo is a soft, breezy landscape of the ocean in the background fronted by an infinitely green, undulating golf course. It would be a pleasant addition to any desktop, but the gentle and more salient message goes to remind both scientists and practitioners alike of the vast but underexploited potential for horticulture to actively solve serious environmental concerns of the present day and years ahead.

G.A. PICCHIONI
NEW MEXICO STATE UNIVERSITY
LAS CRUCES

TURF MANAGERS' HANDBOOK FOR GOLF COURSE CONSTRUCTION, RENOVATION AND GROW-IN. C. Bud White. 2000. Ann Arbor Press, 310 North Main, Chelsea, MI 48118. 312p. 130 black & white photographs and line drawings, 16 color photographs. hardcover, \$65.00. ISBN 1-57504-110-3.

Turf Managers' Handbook for Golf Course Construction, Renovation and Grow-In is an excellent reference and guide, which addresses questions and issues that face golf course superintendents and managers before, during and after construction. This is the first handbook that discusses both concepts and procedures for proper grow-in management. This book details numerous quality control issues and troubleshoots problems during the critical phase from final construction to grow-in. The author's rich field experience offers the reader an 'in the field',

walk-through guide.

The book is divided into 12 chapters. Chapter 1 outlines the major issues facing superintendents and owners during the critical phase from finishing construction to grow-in. The author emphasizes the importance of setting a realistic opening date and the coordination of course construction manager, superintendent, director of golf, and golf developer. Chapter 2 provides guidelines for quality control monitoring as the owner representative. Guidelines for finishing construction details as they relate to agronomic concerns and playability are presented in Chapter 3. Chapter 4 discusses the preparation for establishment, turf selection, and seeding and planting. Chapters 5 and 6 outline turfgrass management programs, including fertilization, mowing, and irrigation. How to anticipate, control, and repair erosion and sediment problems are discussed in Chapter 7. Chapter 8 outlines the various aspects of first-year maintenance and cultural programs, including topdressing, aeration, vertical mowing, brushing, grooming, and rolling. Chapter 9 provides first-year budget advice. Chapter 10 discusses the particulars of renovating an existing golf course. Chapter 11 and 12 briefly discuss specialized areas of concern (ponds in particular) and sports field grow-in. Also provided are 10 appendices, which are valuable assets to the book. They cover many complementary check sheets and tables and are easy to follow. The book is logically organized following the grow-in sequence, and richly illustrated with in-field photographs with clear captions. However, I found that chapters 10 and 11 were too brief and could perhaps be integrated into other chapters.

While there are several books on golf course management already published, this is the first to concentrate on grow-in period, and the only to go into such depth on the subject. This book is of specific and applied value to golf developers, turf managers, golf course superintendents, turf educators, and turf students. It could be used as a reference book for classes or seminars. In fact, I have already included this book as a reference for an undergraduate turfgrass management class that I am teaching.

YALING QIAN
Colorado State University
Fort Collins, Colo.

MAGNOLIAS: A GARDENER'S GUIDE. Jim Gardiner. 2000. Timber Press, Inc. 133 S.W. Second Avenue, Suite 450, Portland, OR 97204. 329 pages, 155 color photos, 6 line drawings. \$39.95 + S & H. hardcover. ISBN 0-88192-446-6

Even though small in number of species when compared with maples or rhododendrons, magnolias have a very faithful group of enthusiasts around the world. It is the unquestionable appeal of magnolia flowers, among the largest found in woody flora of the temperate zone, that can be credited with the horticultural success of these trees. A series of excellent books on magnolias have appeared in past years, beginning with Neil Treseder's *Magnolias* in 1978, the original Jim Gardiner's *Magnolias* in 1989, and Dorothy Calaway's *The World of Magnolias* in 1994.

Since the last decade was a time of great activity on the part of magnolia collectors and breeders, there was an urgent need for an up-to-date treatment of this genus. Enter Jim Gardiner, a leading authority on these plants, who has thoroughly revised and expanded his 1989 work. Increased numbers of photographs, reorganized contents, and new sections (such as those on the cultivation of magnolias in South Korea and China) make this work worth consulting for everyone with a serious interest in magnolias.

The book begins with a concise review of the magnolia's natural history. It also touches on the cultural history of this genus, including its place in herbal medicine, art and folklore. The most recent advances in botanical classification of *Magnolia* are presented in a well-balanced manner, including issues that are still vigorously debated among magnolia experts.

Gardiner follows with Cultivation, a generous description of the climatic and soil conditions where magnolias are grown successfully worldwide. The casual reader might find these descriptions too lengthy, but those who strive to keep magnolias alive and flourishing in their gardens will appreciate the detailed presentation. The chapter Magnolias in the Garden offers many practical tips and suggestions for growing specimens in the landscape. Even specialty uses such as wall espalier and growing trees in containers are presented. A chapter on propagation may be beyond what many readers would ever attempt, but the brave ones who dare to try rooting softwood cuttings or chip-budding will find detailed and tested information within.

The chapters on individual species

and hybrids of magnolias are the core of this book and they truly shine. The selection of taxa reflects the wide range of plants in cultivation. Superb close-up photographs of flowers are placed among the text to make reading more enjoyable, a noticeable improvement over the first edition. A wealth of information is present, without being excessively technical. The author's use of names of cultivars, cultivar groups and trademarks is exemplary throughout the book, not surprising since Gardiner has worked for many years as Curator of the Royal Horticultural Society garden at Wisley. The book concludes with several helpful appendices listing recommended magnolias, Royal Horticultural Society award winners, champion specimens, and collections/nurseries specializing in these plants.

The book is not without imperfections. A chapter on pests and diseases is missing several notable maladies of magnolias, such as armored scales, mealybugs, *Botrytis* blights of tepals, and sapsucker damage. Although the book is richly illustrated, some photographs illustrating growth habit or garden use are not effective and the line drawings by Pauline Dean are not as refined as were David Ashby's in the first edition. The careful reader will discover occasional inaccuracies, such as a quote from the *Gardener's Dictionary* (1731) in which Englishman Phillip Miller supposedly gives the height of a tree in meters even though it predates Britain's unification with continental Europe by two centuries.

However, the greatest asset of the book lies in Gardiner's wealth of personal experience with magnolias. It is transparent throughout the book that readers receive firsthand information coming from the author himself or from one of many world-renowned magnolia experts. Overall, the book has conspicuous merit as casual reading or as a serious reference for gardeners, designers, and horticultural scientists alike.

TOMASZ ANISKO AND CASEY SCLAR
Longwood Gardens
Kennett Square, Pa.

VEGETABLE SEED PRODUCTION. 2ND ED. Raymond A.T. George. 1999. CABI Publishing, CAB International, 198 Madison Ave., New York, NY 10016-4314. 328 p. \$90.00, hardcover. ISBN 0 85199 336 2.

This book is a second edition of

Vegetable Seed Production by R.A.T. George that was first published in 1985. In the majority of vegetable species, the production of seeds is a distinct agronomic operation from production of the marketed commodity. In addition, vegetable seed production is often handled primarily by proprietary breeding companies, at least in the developed countries, making it difficult to obtain detailed information on seed production practices. Thus, a collection of information on seed production of the major families of vegetable species is a valuable contribution. While some books have appeared recently on seed production of both agronomic and horticultural crops, this remains the only book dedicated solely to the production of vegetable seeds. The author has extensive experience in establishing seed production programs around the world, particularly in developing countries. This was evident in the first edition, where the descriptions and illustrations were predominately from small-scale production systems. The scope has been broadened in the second edition with the inclusion of more information on hybrid seed production and larger scale techniques. The overall look of the book has also been modernized, largely by elimination of many of the black and white photographs present in the first edition; unfortunately, relatively few of these were replaced with updated illustrations.

The book is organized in two parts. The first six chapters give overviews of the organization of the seed industry, principles of seed production, agronomy, harvesting, processing, storage, handling, quality control and distribution. The remaining ten chapters give more detailed information on seed production techniques in vegetable species organized by taxonomic families: Chenopodiaceae, Compositae, Cruciferae, Cucurbitaceae, Leguminosae, Solanaceae, Umbelliferae, Alliaceae, Gramineae, Amaranthaceae and Malvaceae. The first half of the book is a succinct survey of the essential principles of seed production, whether of horticultural or agronomic seeds. Considerable information is provided on the structure of the seed industry, varietal identity and maintenance, international regulatory bodies, plant breeders' rights, etc. The seed production chapters are concise, but most essential topics are mentioned. The reader often is referred to other sources for detailed information; these references generally are appropriate and have been updated. The descriptions of seed production practices for each species follow a

standard format of a general botanical and horticultural introduction, cultivar description criteria, soil, nutrition and irrigation requirements, crop husbandry, flowering, pollination, isolation and rouging requirements, hybrid seed production methods (if relevant), basic (stock) seed production, harvesting, threshing, cleaning, and important seedborne pathogens. These descriptions are a good introduction to the requirements of the various species for producing and maintaining high seed quality.

This second edition of the book is improved and updated from the first edition. It provides a concise overview of the principles of seed production and specific information on seed production requirements of vegetable species. It retains the slant of the first edition toward the needs of developing countries and the establishment of quality national seed programs, although the information is certainly applicable and essential in all seed production systems. The breeder or seed production specialist will not find much new here, but as a text for training programs or undergraduate vegetable breeding and seed production courses, it has much to recommend it. The price, while not exceptional for a book these days, is high enough that it may be a deterrent to use as a classroom text, particularly since few courses focus solely on vegetable seed production. The dedicated academic or industry scientist who has need of this information, however, should consider purchasing it, as the previous edition has been out of print for a number of years and this specialized information is not easy to obtain.

KENT J. BRADFORD
University of California
Davis

COMPENDIUM OF CITRUS DISEASES. 2ND ED. L. W. Timmer, S. M. Garnsey, and J. H. Graham (eds.) 2000. APS Press, 3340 Pilot Knob Road, St. Paul, MN 55121-2097. 92 p. \$42.00. 8¹/₂" x 11" softcover. ISBN-0-89054-248-1.

In 1988, noted plant pathologists, Jack Whiteside, Steve Garnsey, and Pete Timmer, edited the first edition of the *Compendium of Citrus Diseases* published by APS Press. Twelve years later, as a result of the discovery of several new citrus diseases, new forms or strains, and the need to generally expand the text,

Timmer and Garnsey with Jim Graham have developed an improved version of this excellent and practical book. The authors, now all located at the University of Florida's Citrus Research and Education Center in Lake Alfred, have substantially expanded the contents of this handsome paper bound book by assembling 47 citrus experts from around the world to contribute to this all inclusive collection of citrus diseases and disorders.

After a brief but comprehensive introduction orienting the reader on the citrus tree, its fruit, and general concepts of citrus diseases, the book is separated into three parts: (I) infectious (Biotic) diseases; (II) diseases of uncertain or complex etiology; and (III) noninfectious disorders. In Part I, major sections include bacterial diseases, nematodes, foliar and fruit diseases, branch and twig diseases, post-harvest fungal diseases, stem end rots, graft-transmissible systemic diseases, viroid disease, and major virus diseases. Specific diseases are presented under the topics of symptoms, causal organisms, disease cycle and epidemiology, control, and selected references. Part II addresses tree collapse and diebacks, and Part III, mineral deficiencies and toxicities, nutritional problems, environmental problems, chemical injury, and inherited abnormalities.

Several new citrus diseases have been added to the book, specifically citrus variegated chlorosis (CVC), mancha foliar, citrus chlorotic dwarf, postbloom fruit drop, and witches' broom of lime. Of special importance in adding to its quality is the inclusion of 207 high quality color photographs and 30 black and white illustrations. The color plates are available separately as slides for \$340.00. Missing from the second edition is the useful glossary that Dr. Whiteside developed for the first edition. This section on field diagnosis has been simplified and improved. Although the authors have not included every disease ever reported on citrus, they cover nearly 90 diseases and over 50 other disorders. Emphasis is placed on several major diseases found worldwide, such as citrus tristeza virus, phytophthora, greasy spot, melanose, and others.

This is a most informative collection of descriptions of citrus diseases and is a valuable resource for all horticulturists, but especially for citrus

growers, extension agents, research scientists, teachers, and all students of citrus. I highly recommend it for all this audience.

WALTER J. KENDER
University of Florida
Lake Alfred

GARDEN STRUCTURES. Linda Joan Smith. 2000. Workman Publishing Co. 708 Broadway, New York 10003. 246 p., 300+ color illustrations and line drawings. \$35.00 ISBN: 0-7611-1406-8.

"Without structures of some sort, there is no garden, only unmarked field, meadow or unbroken lawn," the author explains in the introduction. Structures are further defined as simple to grand, usually filling a specific practical need, helpmates that make the garden a better place. We as gardeners are grateful for their company and their power to alter a garden's mood. Filled with many photos for ideas and inspiration, *Garden Structures* is as much a wish book as it is a guide to practical information for building structures.

The text is divided into four sections: Garden Boundaries: gates, doorways, fences, walls and edging; Garden Above: trellises, arbors, pergolas and arches; Garden Underfoot: paths and walkways, patios, decks and terraces; and the Living Garden: hedges and espaliers, potting sheds and greenhouses. Within each section, there are many examples of materials and their advantages and disadvantages. Practical information includes how to make a twig trellis, a wattle fence, or a basic gate. Unusual features, such as clairvoyees (decorative usually circular windows in a wall) and detail, such as a list of plants for between the cracks add to the amount of information included. The section of greenhouses was however, too brief, better to find another book on this entire subject.

Smith includes quotes from historical gardening books that show the importance of garden structures over the years. She quotes Thomas Hill, from *The Gardener's Labyrinth*, 1577: "The owner may set a Jasmine tree bearing a fragrant flower, the musk rose, damask rose, and privet tree, to shoot up and spread over this herbar, which...not onely defendeth the heat of the Sun but yieldeth a delectable

smell, much refreshing the sitters under it."

Numerous photographs clearly illustrate the different moods structures can create. This is a fun book for anyone planning a garden, or those interested in adding definition and further enhancement to an existing garden. It has many ideas, and a great deal of practical information.

MARY HOCKENBERRY MEYER
University of Minnesota
Chanhassen

ORCHIDS. Joyce Stewart. 2000. Timber Press, Inc., 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-3527. 124 p., 57 color photo, 18 line drawings, hardcover, \$19.95. ISBN 0-88192-481-4

This is an updated revision of the very popular *Orchids* published in 1988 as one of the Kew Gardening Guides. The author Joyce Stewart, now Director of Horticultural Science and Education, Royal Horticultural Society, London, is one of the top orchidologists of our time. She writes in a manner that is not overwhelming and not too technical so it is easily understood by both the very beginner and the experienced grower.

The topics covered include history and conservation, cultivation, propagation, pest and diseases, which are discussed with both the greenhouse grower and those who grow on the window sills in their homes in mind. Stewart also devotes a chapter to acquaint the reader with how orchids grow in the wild. A section Orchids A to Z, covering about one third of the book, lists a wide variety of genera and species of the more commonly grown varieties. There are tables in the back of the books listing various cultural situations and orchids that will grow best under those conditions.

The main change in the revised edition is a completely updated Bibliography, as some of the volumes listed in the earlier edition are hard to find today. There are minimal changes in updating nomenclature much of which is being proposed today as the result of DNA studies. Since little of this has filtered down to the grower level retaining the older names for the time

being makes good sense, as these are the names under which hybrids are registered and sold by growers today.

This small easy to read and understand book is an ideal volume for all orchid lovers and to have in their library. I highly recommend it to anyone interested in orchids.

TOM SHEEHAN
University of Florida
Gainesville

PERSPECTIVES ON NEW CROPS AND NEW USES. Jules Janick (ed.). 1999. ASHS Press, 600 Cameron St., Alexandria, VA 22314-2562. 528 p., hardcover. \$119.95 (\$99.95 for members) plus shipping and handling. ISBN 0-9615027-0-3.

Perspectives on New Crops and New Uses reports the Proceedings of the Fourth National Symposium, New Crops and New Uses: Biodiversity and Agricultural Sustainability, held in November 1998 in Phoenix, Ariz. Proceedings of the previous three symposia were published under the titles *Advances in New Crops in 1991*; *New Crops in 1993*; and *Progress in New Crops in 1996*. This volume is dedicated to the late Anson Ellis Thompson "in recognition of his impact on the development of new industrial crops." The objectives of the symposium were 1) to discuss the relationship of new crops to global biodiversity, sustainability, and new uses of conventional crops; 2) to stimulate dialog among farmers, public and private researchers, industry, and policy makers on the issues of new crops.

The book is divided into three parts and each part is further subdivided into sections. In all, the book contains a total of 90 papers from 179 contributors. Part I: Programs and Policy (20 papers) has three sections: Biodiversity, New Crops, New Uses; Policy; and Public Funding. Part II: Conservation and Information (8 papers) is divided into two sections: Germplasm Conservation and Crop Information Systems. Part III: Status of New Crops and New Uses (62 papers) has eight sections: Cereals and Pseudocereals; Legumes; Oilseed and Industrial Crops; Fiber and Energy Crops; Fruits; Vegetables; Floral and Landscape Crops; and Medicinal, Aromatic, Spice, and Bioactive Crops.

These papers cover a wide range of plants from a variety of perspectives. Some of the papers, especially in Parts I and II, are broad reviews or lists of various crops

and their potential uses as food, biofuel, animal feed, or as raw materials for industries.

In Part III, several papers contain information on the effect of plant nutrition on a single crop, regional evaluation of fruit cultivars, accumulation of biologically active compounds in plants under various environmental conditions, and economical analyses of new crops.

Many of the papers are well referenced and the book is well indexed for author list with addresses, contributing authors, and over 2000 entries for species, crops and products.

The book is a valuable reference for students, teachers and researchers in horticulture and in agronomy and is well worth the price.

ALEXANDER A. CSIZINSZKY
Gulf Coast Research and Education
Center
University of Florida
Bradenton

PRACTICAL HORTICULTURE. Laura Williams Rice, Robert P. Rice, Jr. 1999. Prentice-Hall, Inc. Upper Saddle River, NJ 07458. 455 p. hardcover. \$89.00 ISBN 0-13-020610-5.

This is the 4th edition of *Practical Horticulture*, and there have been some additions and improvements since the 1st edition published in 1986. Some of the improvements have involved the format of the text with headings more prominently displayed in color. Additions include text boxes in color describing career options associated with various topics being presented. For example, when discussing plant physiological processes, a text box describes what plant physiologists do and the training generally required. The inside front cover contains a Plant Heat-Zone Map in full color. Five of the color prints used in inside front cover of the 3rd edition are included in the back inside cover of the 4th edition. All other illustrations in the book are black and white.

Any book using the word practical in its title raises questions about its intended use. In the first edition, the authors state that “. . . The book was developed for college students and gardeners to supply basic information on the aspects of the science of horticulture which are relevant to the average North American.” No statement could

be found in the 4th edition on its intended audience, while the third edition stated a “. . . hope that the effort that went into revision will result in a more up-to-date and useful text for both teachers and students of horticulture.” This reviewer concluded that the intent was to target home gardeners as well college horticulture students, an objective which can be very difficult to attain without compromising clarity of content. The difficulty of this task was most noticeable in the first third of the book under the heading of ‘Fundamentals of Horticulture’, which appeared to be aimed at providing the scientific understanding of plant structure and growth processes. As a text for college students, the other two major sections contained topics dealing with ‘Growing Plants Outdoors’, and ‘Growing Plants Indoors’, which are usually handled in upper level courses with specific texts for those purposes.

At least two criteria are generally sought when searching for a course textbook; readability and accuracy of content. *Practical Horticulture* is written in an easy to read style for both home gardeners and college horticulture students. However, in attempting to provide a text which was simplified, readily comprehensible and enjoyable to read, some other problems were created.

Of particular concern to this reviewer, in the book section dealing with ‘Fundamentals of Horticulture’, were instances in which descriptions or explanations were less than complete, or separated into different paragraphs which were a page or two apart.

In the Introduction, there is good coverage of the Cooperative Extension Service and the Agricultural Research Service, but when describing professional areas, omitted mentioning arborists, sports turf, or vocational skills taught in horticultural therapy programs. Chapter 2 deals with plant structure and function, and discusses the seed plants by introducing the reader to the terms monocot and dicot, describing the latter as being frequently woody plants. The term herbaceous is first mentioned 15 pages later in the text. A definition or description of stipules was not found in this chapter or listed in the index. The fruit of raspberry and blackberry, along with pineapple, are described as ‘berry’ when actually the first two are aggregate fruits originating from many enlarged ovaries of a single flower

on a single receptacle, whereas the latter results from the ovaries of many flowers coalesced into a mass and is identified as a multiple fruit. The term ‘berry’ is more correctly used to describe a fleshy fruit arising from a single pistil which contains several sections (carpels), i.e. tomato. Although only three illustrations of basic flower types are provided, there are at least five other structures exhibited by horticultural plants. In discussing metabolism, it may be adequate to describe respiration as the process which “. . . breaks carbohydrates down into energy.” . . . for home gardeners, but for college horticulture students, this simplistic definition will be inadequate and inconsistent with what is taught in other courses. In a discussion of plant life cycles in a practical horticulture text, the introduction of the term ‘monocarp’, which is poorly defined and not extensively used or useful, along with the terms annual, biennial and perennial, only increases confusion. In a comparison of monocot and dicot seed germination using illustrations, the authors provide a figure caption for a corn seedling which reads “. . . Note the absence of the cotyledon leaves found on the bean.”, instead of illustrating and identifying the young seedling’s single cotyledon (scutellum) located in the seed (caryopsis), which is still located below ground.

Some other examples of wording which is cumbersome and unclear include “. . . Senescence is the aging past its prime of a plant or any of its parts”; In describing cross pollination by hand with the bagging of the female flower and then transferring pollen, it is stated that “. . . In several days the pollen will fertilize the eggs, and the pistil will shrivel and fall.” In discussing plant nutrients, the primary (fertilizer elements—N, P, K) are lumped together with the secondary elements (soil amendments—Ca, Mg, S), manganese is not mentioned, and the wrong symbol is used for molybdenum (Mb instead of Mo).

The illustrations, including both drawings and photographs of plant materials, are acceptable, however there are some photos with poor resolution or that appear blurry. In lieu of the color plates included on the inside back cover, quality color photos, although adding to the book’s cost, would greatly enhance the learning value, especially in the chapter describing pest problems.

Although *Practical Horticulture* may be acceptable for Master Gardener or home gardener use, and possibly for students at community colleges where one or two horticulture courses are taught and the emphasis is on vocational training, any university instructor of an introductory horticulture course would be well advised to carefully review this book to assure it will complement and supplement the lecture/lab materials.

PAUL H. JENNINGS
Kansas State University
Manhattan

CREeping BENTGRASS MANAGEMENT—SUMMER STRESSES, WEEDS AND SELECTED MALADIES. Peter H. Dernoeden. 2000. Sleeping Bear Press, 310 North Main Street, P.O. Box 20, Chelsea, MI 48118. 133 p. \$49.95. ISBN 1-57504-143-X.

This is the first book to my knowledge solely dedicated to managing bentgrass, *Agrostis palustris* = *A. stolonifera*, (a C-3 grass often grown outside its naturally adapted area) on golf greens, the most intensively managed agricultural area in the United States. It begins in moderate detail on basic management practices used by golf course superintendents in growing bentgrass under summer stress conditions. This includes things like mowing, aeration, irrigation, fertilization, drainage, and other useful techniques. The second chapter is the 'meat and potatoes' of the book. The author is a well-respected plant pathologist and this chapter emphasizes that renown. The major disease complexes golf courses face during the summer stress period are described and many tips and dos and don'ts when managing diseases on this tender grass are provided. Excellent color photographs provide good visual descriptions of these often misdiagnosed diseases as well as other abiotic and biotic stresses.

The third chapter introduces and explains in adequate detail current and future trends in biological approaches to turf disease management. This includes organic fertilizers and amendments, biological inoculants (a current hot topic), and the evolving genetic transformation arena and how this may influence future turfgrass management practices.

The fourth chapter also is more of

what is new and what to expect. It covers new fungicide technologies involving microbial organisms, another hot topic in the golf course arena.

Chapters five and six are dedicated to weed management and control using traditional and new herbicide technologies as well as integrating the use of plant growth regulators. These chapters emphasize the most difficult-to-control weed in bentgrass, *Poa annua*. This chapter, as the rest, emphasizes pesticides as only a tool and that success and failure in growing bentgrass is more dependent on following sound, agronomic practices.

The book has many illustrations, with most in color, and black and white figures. The figures are neatly presented, easy to read and interpret, and are well used to convey related concepts and ideas. The author also uses Summary of Key Points in table format throughout the text which provides a nice recap of important steps and procedures to use in growing bentgrass.

The authors do an admirable job in this first edition on a very complex subject matter. One should have previous experience and/formal training on bentgrass management or many of the key points will not be clear to the reader. The book is relatively short (133 pages) and easy to read. It would be most suitable to anyone trying to understand and expand their knowledge on growing bentgrass in stressful environments.

BERT McCARTY
Clemson University
Clemson, S.C.

Books in Brief

by Donald N. Maynard

AGAVES, YUCCAS, AND RELATED PLANTS. A GARDENER'S GUIDE. 2000. Mary Irish and Gary Irish. Timber Press, 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 384 p., 100 color photos. \$34.95 + S & H. hardcover. ISBN 0-88192-442-3.

Use of drought-tolerant plants for ornamental purposes is on the increase everywhere because of water shortages and costs. Most of the plants discussed in this book are native to

arid and semiarid regions and are well-suited to the needs of less water consumptive designs and gardens.

Information provided for each plant includes synonyms, common names, size, leaves, bloom, distribution, propagation, cultural requirements, similar or related species and uses. For those living outside of arid areas, a listing of plants suitable for gardens in the humid areas is provided.

LEWISIAS. 2000. B. LeRoy Davidson. Timber Press, 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 238 p. 68 color photos. \$34.95 + S & H. hardcover. ISBN 0-88192-447-4.

Lewisias were first discovered as an unpleasant dining experience by Meriwether Lewis. On the westward-bound leg of the Lewis and Clark expedition, Lewis heated and ate dried roots that had been abandoned by some startled natives; he recorded that they were "bitter and naucious to the pallatte." Lewis found the plant itself on the return trip, in what is now Missoula County, Mont. Of course, the genus is named for Lewis. A genus of succulent plants numbering approximately twenty species, *Lewisia* has been adopted as a favorite by rock gardeners throughout the world. Dozens of hybrids and selections have advanced the ornamental characteristics of the genus, and many new varieties have proven to be tough charmers for the perennial border. For all their forays into exotic places, however, lewisias will always be at their best in the thin air and snowbeds of the Continental Divide.

PROCEEDINGS OF THE INTERAMERICAN SOCIETY FOR TROPICAL HORTICULTURE. VOL. 42. 1998. 2000. Jonathan H. Crane (ed.) ISTH, Fairchild Tropical Gardens, 11935 Old Cutler Rd., Miami, FL 33516. 493 p.

The Proceedings for 1998 includes papers presented at the ISTH annual meeting at Barquisimeto, Venezuela on 27 September - 2 October. The Ornamental Section contains 15 papers, the Fruit Section has 31 papers, and the Vegetable Section includes 24 papers. Most papers are in Spanish. All horticulturists concerned with subtropical or tropical horticulture should be aware of this fine organization and participate in its annual meetings.