

# Marginal problems of the past becoming more insidious

By MARK LESLIE

YORK, Maine—Turfgrass diseases not previously diagnosed or dismissed as the cause of minor damage are becoming more and more menacing as golf courses are subjected to increased play and more intensive management practices, according to Dr. Noel Jackson.

The University of Rhode Island plant pathologist told a Maine Golf Course Superintendents Association meeting here that the added stress of today's management has exacerbated problems that once were minimal — such as summer patch, anthracnose and pythium root diseases.

Summer patch "has assumed importance over the past 10 to 15 years on greens," Jackson said. Once called the Pittsburgh Plague because it was found there on *poa annua* greens and no one knew its cause, summer patch attacks *poa* species and some fescues, leaving bentgrass alone.

"The lower you mow, the more summer patch you're going to have on *poa annua* greens," he said.

Meanwhile, when *pythium* blight strikes, it can cause disaster. "It works with high temperatures and plenty of water, and it works with a vengeance. In 12 to 24 hours it is devastating," Jackson said. "Most superintendents are familiar with pythium blight but other pythium problems, particularly pythium root diseases, are cropping up. These infections occur at much cooler temperatures than pythium blight. Often these are associated with old pushup soil greens with poor air flow. Sometimes spanking new USGA-specification greens show symptoms because, once introduced, pythium species can grow quickly through sand."

*Pythium* root rot problems on new greens, he said, invariably start on the perimeter and move into the green. Installing barriers to separate the greens mix from existing perimeter soils will help arrest fungal spread, but "I have a sneaking suspicion pythium spores can pole vault," Jackson said. "More and more damage is being caused by cool-season pythium," he said. "These cool-season *pythium* are slower acting and much more insidious than normal *pythium* blight. The infection takes place through the roots and it's a slow progression to the crown."

In the case of anthracnose, it is a stress-related fungus disease that affects all grasses. "We have known it for a long time, but usually it was a leaf infection," he said. "And generally, leaf in-

fections occurred in stressed plants at high temperatures and especially on *poa annua*."

Now it is seen at cooler temperatures as a basal stem rot on *poa annua* and bentgrass.

Factors bringing on anthracnose, the professor said, are compaction, low fertility and

low cutting heights.

What to do?

For all these diseases, raising the height of cut is a primary recommendation. Jackson also advises:

- using systemic fungicides preventively to combat summer patch;

- judicious nitrogen applications and preventive fungicide combinations for anthracnose; and

- drenching appropriate contact fungicides, followed by systemics against pythium root rot.

"The problem with the

pythium root rot," Jackson said, "is how to get fungicides down into the root zone. The answer is, with difficulty. Where possible, treat following mechanical treatment (coring, etc.) and drench it in. I recommend Koban or Teremec SP (4 or 6 ounces to

Continued on page 32

## GOLF COURSE NEWS BOOKSHELF

### The Confidential Guide to Golf Courses

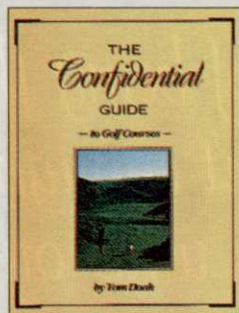
By Tom Doak

Written in the inimitable style of *Golf Magazine's* golf course design editor, this book describes, uncovers and rates more than 1,000 courses worldwide that the author has visited and photographed.

With more than 180 four-color photographs, it might be the best collection of worldwide photos ever published. It starts with a "Gourmet's Choice" selection of 31 of Doak's personal favorites, each by a different designer, followed by brief reviews of

courses from Pebble Beach, Calif., to Kebo Valley, Maine, and from St. Andrews, Scotland, to Joondalup in Western Australia.

**\$45.00, 400 pages, hardcover.**



### Color Atlas of Turfgrass Diseases on Golf Courses

By Dr. Toshikazu Tani

Contributing Author, Dr. James B. Beard

The *Color Atlas of Turfgrass Diseases on Golf Courses* presents more than 540 high-quality color photographs of all the major turfgrass diseases that occur on both warm-and cool-season grasses. It is international in scope. This book will likely become the standard color-guide to disease diagnosis and pathogen identification for golf course superintendents and turfgrass practitioners. No other book contains as many color photographs of this detail and quality. Helpful maps are included to assist in disease identification by providing geographical locations where each disease/pathogen is likely to occur. A unique feature of this easy-to-use field guide is that it also provides color photos of step-by-step guidance on diagnostic techniques for laboratory analysis which can be used by practitioners.

**\$79.95, Approx. 250 pages, hardcover.**

**\$79.95, Approx. 250 pages, hardcover.**

### The Course Beautiful

By A.W. Tillinghast

This is a fascinating collection of original articles and photographs on golf course design by one of the masters. A prolific writer, Tillinghast delves into his philosophies on golf course design and maintenance, and his thoughts on what makes a championship course. It is loaded with vintage photographs and original Tillie sketches of such of his creations as San Francisco, Winged Foot and Baltusrol golf clubs.

**\$34.95, 120 pages, hardcover.**

### The Captain — George C. Thomas Jr. and His Golf Architecture

By Geoff Shackelford

The creator of Riviera and Los Angeles country clubs and author of the classic book, "Golf Course Architecture in America, Its Strategy and Construction," George Thomas has deeply affected the golf industry even since his death in 1932. Thomas worked on single projects with Donald Ross and A.W. Tillinghast, learned from friends Hugh Wilson and George Crump, and designed more than two dozen courses on his own. At the same time he was recognized worldwide for his books about and breeding of roses, his first love. Call him brilliant, or enigmatic, but in his last years his work was on a book about Pacific game fish. Shackelford reveals the man behind the work.

**\$35.00, 207 pages, hardcover, limited edition of 1,200 copies.**

### Human Resource Management for Golf Course Superintendents

By Robert Milligan and Tom Maloney

This practical guide provides basic management principles and techniques which view people as the most important asset in golf course management. Five basic management functions are detailed throughout the book, using everyday situations to illustrate the key points.

Designed to serve as a quick reference, or as a self-teaching guide, *Human Resource Management for Golf Course Superintendents* features numerous techniques and practical examples.

Every aspect of management is covered. Learn how to improve your planning abilities, build leadership and communication skills, maximize employee performance, select and train new employees, avoid the mistakes that cause low morale and poor performance, and conduct employee performance evaluations.

Use of the methods and principles presented in this book will ensure the effective management and operation of any golf facility.

**\$34.95, 150 pages, hardcover.**

### Turfgrass Management Information Directory

By Dr. Keith Karnok

A 1,700-entry reference for turfgrass and green industry professionals, the *Turfgrass Management Information Directory* compiles the latest information and gives an at-your-fingertips list, complete with names, addresses and useful material you need every day.

The directory covers academic programs and key contacts, instructional resources including slide sets and videos, software and much more.

The section on related books provides a definitive guide to pertinent titles on diseases, weeds, insects, irrigation, pesticides and general information. Industry services such as diagnostic labs and soil-testing facilities are included.

A guide to green industry organizations gives addresses and contact names.

**\$19.95, 115 pages, softcover.**

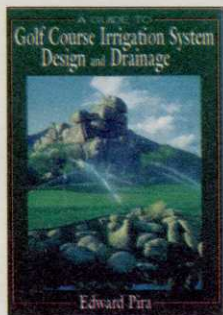
### Guide to Golf Course Irrigation System Design and Drainage

By Edward Pira

As a working reference or as a textbook, the *Guide to Golf Course Irrigation System Design and Drainage* covers every important aspect of the subject in an easy-to-understand format. It is perfect for the practicing turfgrass manager, superintendent, consultant, sales representative, and student. Used in numerous academic courses for years, this is the first commercially-available version of a perennial best-seller, and is completely revised with new exercises, practical examples, numerous new figures, and expanded sections covering a wide variety of irrigation system components. A hands-on manual, it guides

the reader through every phase of an irrigation program. Turfgrass managers and golf course superintendents will refer to this handy book often to plan effective irrigation systems, ensure appropriate capacity, easy installation, and practical operation and maintenance.

**\$59.95, 400 pages, hardcover.**



Title _____	Quantity _____	Unit Price _____	Total Price _____
Title _____	Quantity _____	Unit Price _____	Total Price _____
			Subtotal _____
			Shipping( \$3.50 per book) _____
			Total Amount Enclosed _____

### THREE WAYS TO ORDER FROM THE GOLF COURSE NEWS BOOKSHELF

Mail: Golf Course News, P.O. Box 997, Yarmouth, ME 04096 • Fax: 207-846-0657 • Phone: 207-846-0600

#### ORDERED BY:

Name \_\_\_\_\_  
 Organization \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

#### SHIP TO:

Name \_\_\_\_\_  
 Organization \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Note: Only orders prepaid in U.S. funds can be accepted. Please do not send cash.**

Payment method:  Visa  Mastercard  American Express  Check/Money Order  
 Account # \_\_\_\_\_ Exp. date \_\_\_\_\_ Name on Card \_\_\_\_\_ Signature \_\_\_\_\_

## New stresses

Continued from page 31

the thousand), then follow with Aliette or Banol four to five days later."

The most efficient systemic fungicide against root infections, he said, is Aliette because it is the only one that will move downward in the plant. Other systemic fungicides mainly move up.

In the meantime, other cool-season diseases are also increasing, Jackson said, singling out take-all patch and necrotic ring spot.

Take-all patch is lurking at golf courses, particularly where new courses are being built on new woodland sites. The antithesis to summer patch, which attacks poa annua and leaves bentgrass alone, take-all patch kills bentgrass and leaves poa annua.

"It is a pernicious disease," Jackson said, causing the grass to die as first the roots then the crowns succumb. New sites are infected by airborne spores, going wherever the air currents carry them.

Take-all patch occurs where there are bentgrasses, the soil pH is higher than 6.2 or so, and there is plenty of surface moisture.

To combat take-all patch, a superintendent should lower the pH with ammonium sulfate and apply organic amendments such as Milorganite, Lawn Restore and Sustain to build up a good microbial population, Jackson said.

Necrotic ring spot, he said, "is a real pain on sodded Kentucky bluegrass lawns ... and we're seeing it in golf greens on poa annua."

Cool, wet weather favors the disease. He suggested supplementing the turf with organic amendments such as those for take-all patch, topically or preferably incorporated in the soil prior to sodding or seeding. Jackson said Heritage fungicide has activity against all these diseases and is "a powerful new weapon for our arsenal" for turf-disease control agents.

•••

Hot summer, or cool seasons, the diseases can be interrelated, Jackson said. "Fusarium blight is still out there; occasionally we see it in hot, dry conditions. Summer patch is certainly out there and increasing under hot, wet conditions. Necrotic ring spot is out there with a vengeance in cool, wet conditions.

"All produce the same conditions in, say, Kentucky bluegrass turf. They occur at different times of the year, but since they are root pathogens, when do the symptoms show up most? When they get heat stress. It doesn't matter if it is necrotic ring spot: the damage has started probably in March and April."

## Super-dwarf Bermudas

Continued from page 1

Bermuda that plays as well in the South as bent does in the North."

Citing the vegetative Bermudas Champion (from Coastal Turf Inc. in Bay City, Texas) and TW72 (from Dr. Wayne Hannah's breeding program at the University of Georgia), Snow said, "These two grasses and probably several others look like they may do that."

Indeed, owners of the new wunderkind Champion said 10 18-hole courses have converted to their turf and another 40 will do so this year, including former bentgrass tracks. One of those is Barton Creek Club and Conference Center, where superintendent Dale Miller has been able to compare Champion to the standard dwarf Bermudas as well as bentgrass: "There is noticeable difference — density mainly — between normal dwarf Bermuda and Champion," Miller said. "The old standard dwarf averages 1,000 to 1,200 shoots per decimeter. Champion averages

3,000. It's as dense as every bentgrass except the new Penn State A and G series that run around 3,500 shoots."

Miller installed Champion on his Fazio Course two years ago, replacing Penncross bentgrass, and in July will begin replacing the bent with Champion on the Arnold Palmer-designed Lakeside Course.

"You can mow this stuff so low," he said. "It makes a lot of difference on a tee where you can cut it at 1/8 inch as opposed to 3/8 to 1/2 inch. It's a major improvement."

Continued on next page

*If 15 years of being the foremost fungicide isn't enough, might we snare you with our drum?*

