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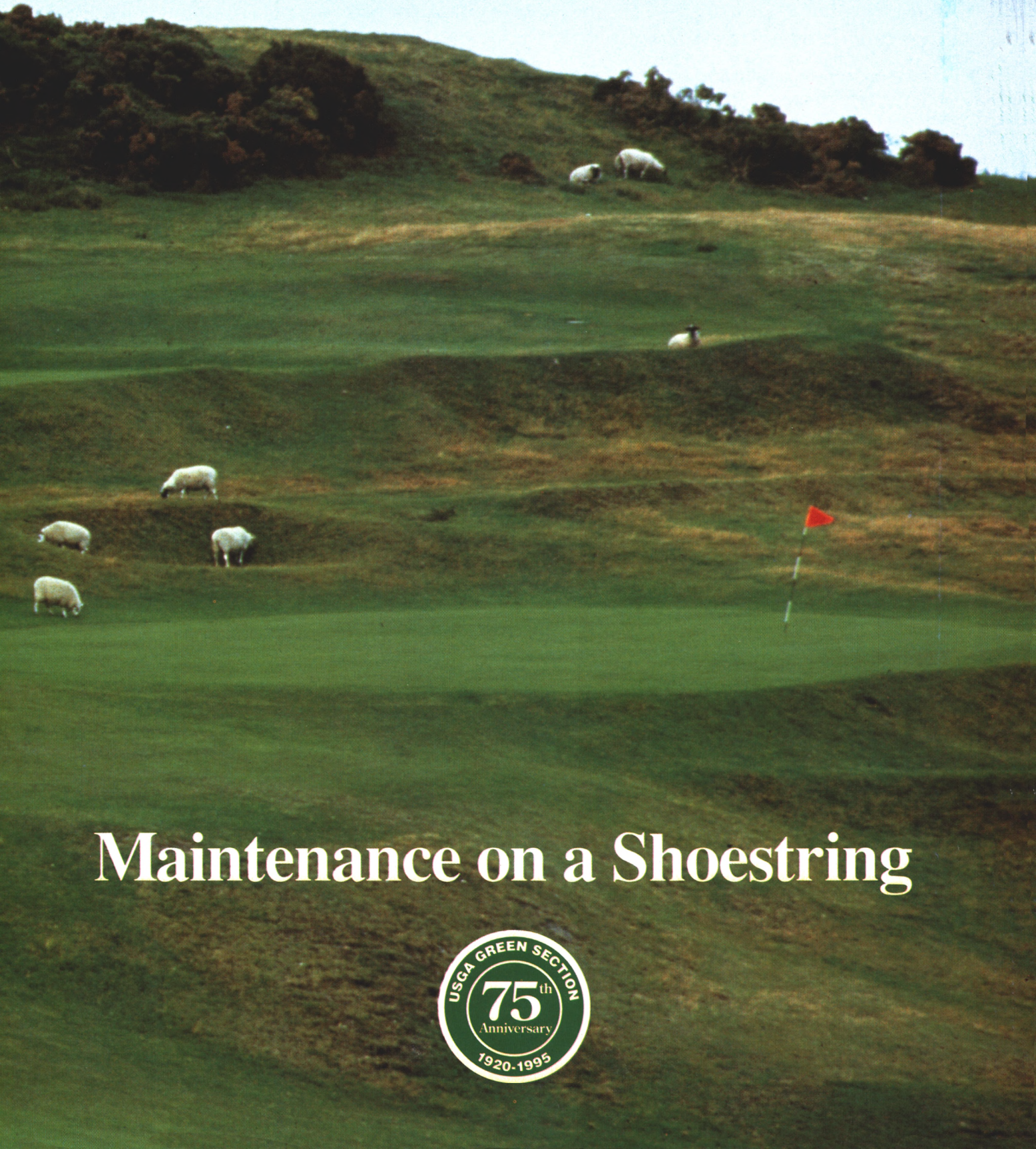

Maintenance on a Shoestring

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Cover Photo:
These combination lightweight mower/fertilizer spreaders provided everyday playing conditions in days gone by. Lothinanburn Golf Club, Edinburgh, Scotland.

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Ordering and applying fertilizer in bulk applications saves money in the long run. Bulk purchases do require adequate storage space, which can be a disadvantage.

Maintenance on a Shoestring

by PATRICK M. O'BRIEN
Director, Southeastern Region, USGA Green Section

"A man who says something can't be done, should get out of the way of the man doing it."
— Chinese proverb

GOLF COURSE maintenance costs are skyrocketing, according to the latest information from Pannell, Kerr, Forster (PKF), an accounting firm that has been tracking these figures for over two decades. In 1993, the average maintenance cost per hole in the United States was $34,671 (Table 1). That's an average annual budget for an 18-hole golf course of just less than $625,000. These cost figures vary by region, with the highest cost generally being in the far west and eastern regions, and the lowest cost being in the south and midwest regions. For example, in the midwest region, which has an eight- to nine-month golf season, lower labor costs and water expenditures reduced the average cost per hole to $25,045 in 1992, or approximately $450,000 for an 18-hole golf course. In the far west region, which has a 12-month golf season, higher labor costs, and expensive water, the average cost per hole was $48,793 in 1992, or approximately $875,000 at an 18-hole facility. The percentage cost difference between the highest (far west) and lowest (midwest) regions is almost 95%. Operational maintenance costs have been rising approximately 8% annually over the past 10 years, compared to an average inflation rate of approximately 4%.

Table 1
1990 to 1992 Average Maintenance Costs per Hole in the U.S.

	U.S. Average Cost Per Hole	Far West Region Average Cost Per Hole	East Region Average Cost Per Hole	South Region Average Cost Per Hole	Midwest Region Average Cost Per Hole
1992	$34,671	$48,793	$30,330	$29,628	$25,049
1991	$30,870	$37,945	$27,991	$28,737	$23,529
1990	$28,114	$35,396	$24,814	$26,633	$21,293

Source: Pannell, Kerr, Forster, 1993

Despite these numbers, many golf courses are being operated with budgets far below industry averages. These represent golf courses that can get by with what can be termed *Maintenance on a Shoestring*. At what level does *Maintenance on a Shoestring* begin today? According to a fall 1994 survey of 16 USGA Green Section agronomists, annual golf courses with maintenance budgets of $300,000 or less could be considered in this category. A *Maintenance on a Shoestring* designation does not necessarily mean that a course is without resources or has an inferior maintenance program, but

because of their chosen budget, they could be considered in this category. To make up for the smaller budget, it is essential to operate these facilities with superior management and expertise.

Golf was first played on sites that required very little maintenance. The first Scottish links courses were shaped at no cost by the wind, rain, and the burrowing activities of sheep. Golfers played on these sandy sites only where the grass grew best on its own, and sheep maintained the turfed areas. However, maintenance standards have come a long way since the days of sheep-kept grasses. Today's park-like surroundings require a reasonable budget and a labor force to keep them up to standard. If a course sets a budget of $300,000 or less, certain priorities must be established to make best use of available dollars.

Following are the most often expressed concerns of course owners, club officials, and golf course superintendents regarding budgeting priorities at golf facilities with operational budgets at or below $300,000. Basic ideas on operational budget preparation, establishing priorities, and opportunities for maintenance cost saving ideas will be shared.

Table 2
1992 Major Operational Budget Line Item Percentages

Line Category	U.S. Major Line Item %	Far West Region Major Line Item %	East Region Major Line Item %	South Region Major Line Item %	Midwest Region Major Line Item %
Payroll Expenses & Benefits	60%	52%	67%	65%	66%
Course Supplies & Contracts	22%	25%	21%	20%	18%
Equipment & Irrigation Repairs, Water, Drainage System	9%	10%	8%	11%	7%
All Other Items	9%	13%	4%	4%	9%

Source: Pannell, Kerr, Forster, 1993

Table 3
Moccasin Bend Golf Club Maintenance Budget Categories, Showing Percentage of Each Budget Line Item

Categories	% Total Budget
Payroll Expenses	
Wages	51%
Taxes	5%
Benefits	3%
Operating Expenses	
Fertilizer & Chemicals	15%
Equipment & Irrigation Repair	10%
Shop Supplies	5%
Utilities	4%
Verti-Drain Expense	2.5%
Gas & Oil	2%
Miscellaneous	2%
Green Section Turf Advisory Service	0.5%

Hire a Knowledgeable Golf Superintendent

From the informal 1994 fall survey of the Green Section staff, every agronomist agreed that hiring an experienced golf superintendent is a key to success at low-budget facilities. Experience counts, because with it comes knowledge of short-cuts and *how* to spend available money. A good superintendent can optimize the agronomic program, including product purchases, staff training, and chemical applications. Savings accrued because of sound decisions will more than make up for the higher salary required for an experienced individual in this critical position.

This qualified superintendent doesn't necessarily need to have strong academic credentials, such as a B.S. Degree or certified golf course superintendent (CGCS)status, but a combination of education and experience is a plus. The person should be a well-trained and experienced individual who will prevent waste, spend funds wisely, and make good daily decisions.

The Plan

The first step in predicting the maintenance costs of a golf course for the next fiscal year is to develop a plan. A meeting can be held between the golf course superintendent and the owner or green chairman, for example, to determine maintenance objectives, policies, and planned improvements for the next golfing season. Based on these priorities, the superintendent can estimate the funds needed for each line item of the operational budget.

One public course that meets the criteria for *Maintenance on a Shoestring* is the Moccasin Bend Golf Course, Chattanooga, Tennessee. Owner Wesley G. Brown and golf superintendent Lee Roy Webb include these priorities in their plan:

- Level and intensity of maintenance
- Predicted fertilizer and pesticide use
- Anticipated equipment and irrigation parts
- New bunker sand
- Tee leveling projects
- Gasoline and other power costs
- Meeting and travel expenses
- Miscellaneous

With a plan, it is now possible for the golf course superintendent to establish a budget.

Establishing a Budget

The budget is the financial map for the golf course maintenance department. There are two types of budgets needed at a golf course: operational and capital. The operational budget details the anticipated expenses for the upcoming year. Most operational budgets are divided into two simple categories, termed payroll and operating expenses. Labor costs usually represent 50% to 65% of a budget. They generally include wages, payroll taxes, medical insurance, and other benefits. Operating costs make up the remainder of the budget, and can include a host of categories, such as fertilizers, chemicals, bunker sand, equipment and irrigation repairs, etc. Table 2 compares the U.S. major operational line item percentages with several regional averages from a PKF survey.

Capital budgets include expenditures for large equipment and items with a life expectancy of more than one year. Two categories, called capital improvements and capital expenses, may be included in this budget. Capital improvements improve the value of the golf course and could include a new irrigation system, bridges, tree plantings, new greens, maintenance facility, etc. Obviously, these items typically require large financial outlays. Long-range plans for five years or more are usually developed, setting priorities for these expenditures and establishing target dates for project completion, and are updated annually. Capital expenses usually refers to any new equipment purchases, but also can include office furniture, new computers, office lockers, and many other items. Buying a few new pieces of equipment annually, even if only a modest amount of money is available, helps to meet the long-range goals. It is better to *stretch out* equipment replacement by making a few key purchases every year, rather than getting hopelessly behind and eventually facing the need for significant expenditures.

Employee training is critical in any golf course operation, but it is especially important where small staffs necessitate more independent work.

The Flexible Operational Budget

Most golf courses operate on a *flexible*, rather than a *fixed* budget, which once approved cannot be changed. *Flexible* means the budget is not exact and is subject to change as the year progresses. Golf course superintendents strive to budget conservatively and not exceed planned expenditures for the fiscal year. However, anyone who has been involved in the golf business knows it is wise to be flexible with a maintenance budget. Line item categories cannot always be predicted. Some years' budget priorities sometimes have to be changed. For example, all of the bermudagrass fairways and tees winterkilled at the Moccasin Bend Golf Course in 1994, causing an unexpected sprig and sod expenditure of more than $30,000.

Usually, the budget runs from January through December, although the fiscal year can run for any convenient 12-month period. Budget recordkeeping can be done easily today on a computer. Off-the-shelf spreadsheet or data base software, or custom software written for golf course operations, such as TRIMS, SCMS, Par-plus, or GCS for Windows, are popular choices for this task. Expenditures should be allocated to a specific line item and coded correctly. If a category has been overspent one month, an explanation can be included in the narrative. Also, management should never set a rule that if a category is below budget for a month, those funds are lost. Some golf superintendents are forced to spend money at the end of the month just to avoid losing it. Additionally, include only line items that relate to golf course maintenance in the budget. Other line items, such as golf cart maintenance and repair, should be part of another budget. Table 3 is an example of a line item budget used at the Moccasin Bend Golf Club.

Table 4
Total Golf Course Linear Edging Lengths at the Royal Lakes Golf & Country Club, Flowery Branch, Georgia

Course Feature	Edging Length (linear feet)
5.1 miles of Cart Paths	53,856 linear feet
61 Bunkers	7,996 linear feet
Mulched Areas	2,673 linear feet
TOTAL LINEAR EDGING	64,525 linear feet or 12.2 miles

The High Cost of Mowing

"Mowing costs may be as high as 70 to 80% of the total budget at a low-budget course," according to Dr. Joseph DiPaola of the Ciba-Geigy Corporation. "Labor, fuel, equipment depreciation, and equipment costs all contribute to the total cost of mowing. This figure not only includes the actual mowing operation, but also the cleanup after mowing, which involves blowing or removing the excess clippings. This cleanup may involve just as much time as the actual mowing," says Dr. DiPaola. Applying a growth regulator, such as Primo, to reduce clippings and mowing frequency to primary play areas, such as green banks, fairways, tees, and secondary roughs, can save money. This "liquid labor" saves money by reducing the need for mowing, clipping cleanup, edging, and mower cleanup. With less time spent mowing, it may be possible to increase time spent on other activities of your choice.

Significant mowing costs also can be associated with maintenance of steep slopes, bunker edging, curbing, mulched areas, cart path edges, etc. Hand mowing, string trimming, and flymowing also significantly increase total mowing costs. At the Royal Lakes Golf & Country Club, near Gainesville, Georgia, golf course superintendent Frank Siple has measured the total golf course linear edging lengths (Table 4). It came to a total of 12.2 miles of linear edging, but did not include trimming and edging around trees, which isn't done at this course. The use of non-selective herbicides, such as Roundup or Finale, or growth regulators to reduce trimming along these borders saves money.

Other money-saving tips for reducing mowing costs include:

Mowing requirements can be a high-cost line item in the maintenance budget. Minimize areas that require expensive hand maintenance.

• Allowing natural grassy areas to develop in out-of-play rough areas. However, give the golfers plenty of margin for error on fairways to keep play moving and *most* players happy.

• Reducing mowing acreage, such as around tees, pond banks, etc. Reducing frequently mowed fairway turf by contour mowing to reduce fairway area.

• Eliminating ropes and stakes, which slow mowing efficiency. Use other, more efficient traffic-control measures, such as 4-foot-tall movable indicator posts, permanent curbing, movable barriers, etc.

• Using rotary mowers to mulch leaves, twigs, and other debris.

• Naturalizing tee surrounds and carry areas to the fairways.

• Providing good drainage so that larger mowers can operate more effectively on fairways and roughs.

Judicious Use of Fertilizer Saves Money

One very important cost-cutting strategy is the competitive bidding of seed, fertilizer, and pesticides. Don't buy all materials from just one company. Bid sheets with the quantities of these items needed should be prepared. Many companies offer significant discounts by pre-ordering materials in bulk and paying early in the spring season. However, bulk purchases only work if an adequate storage building is available.

If need be, develop an annual supply contract, with delivery as needed. That keeps just one or two applications of pesticides on hand.

Bulk spreading of fertilizers, lime, and other services can save labor hours. Many low-budget courses contract all fairway and rough fertilizations and spring preemerge herbicide applications.

Fertilize the turfgrass only as needed, and base nutrient applications on annual soil test results. Concentrate on the major turfgrass nutrients, including nitrogen, phosphorus, and potassium, in the fertilization program. Avoid costly *quick cure* products for what ails the turf. Instead, stick with a few simple programs that will help the grass grow.

Maximize Labor, Equipment, and Irrigation

Employee training is especially important at a low-budget course, since assistant superintendents usually aren't on staff to provide additional expertise and supervision. Invest in key staff employees by sending them to turf conferences, seminars, and turfgrass field days. Also, hire a qualified mechanic. Don't cut corners on this key staff position. Equip the maintenance staff with two-way radio communications to increase the efficiency of staff and equipment.

Purchase labor-saving equipment such as power bunker rakes, large gang units, and rotary mowers, triplex mowers, etc. To reduce wear and tear at some sites, lightweight five-gang mowers are preferred over large gang units. Regular yearly investment in new maintenance equipment is essential, even if only a modest amount. Daily maintenance equipment repairs and record-keeping will save money in the long run. It is the key to avoiding breakdowns and costly repairs. An 8' × 10' sign at the maintenance facility at Summit Chase Country Club in Snellville, Georgia, reminds employees daily that "Preventive Maintenance Means Finer Performance."

A good, dependable irrigation system is a top priority. Monitor soil moisture to help establish irrigation schedules. Decrease electrical pump costs by irrigating between 11:00 p.m. and 6:00 a.m. Ask the power company about *load management* plans. These plans alert golf course superintendents about high power use days, and significant savings occur by irrigating at certain times specified by the power company. In most instances, only minor irrigation scheduling adjustments are required to participate.

Investigate the use of effluent water, but don't buy water without sizable help from the sewage district. Be sure that processing standards are high and that the supply can be turned off when the sewage plant is not operating properly. Set up *Irrigation Conservation Areas* and native landscape areas for water conservation. Use new, low-water-use turfgrasses where possible.

Reducing the Effects of Bunkers and Trees on the Course Saves Money

It is desirable to have a few well-placed bunkers, especially around the greens rather than in the fairways. Bunkers are very expensive to maintain. They are costly to rake, mow around, keep filled with sand, and keep well drained. Remove bunkers that impede traffic flow to key areas, and reshape bunkers so that it's more convenient to mow. Sod any sand bunker faces that wash out after rains.

Trees affect turfgrass growth by causing shade, restricted air movement, and tree root competition. Maximize morning sunlight and provide for adequate air flow at greens and tees. Remove trees and brush that interfere with grass growth, especially on the eastern side of tees and greens. To improve a poor turf-growing environment, remove low-branched tree limbs to increase mowing efficiency and air movement. Prune tree roots to prevent competition for moisture and nutrients. The use of shredded hardwood bark or pine needles under trees will reduce mowing, speed play, cover tree roots, and improve soil conditions for the trees. Periodic chemical mowing with non-selective plus preemergent herbicides, such as Roundup and Surflan, will help reduce weeds at mulched sites.

Conclusion

There is no established standard for a golf course maintenance budget. Tremendous variability exists in how costs and expenditures are categorized. However, implementing as many of these tips as possible will help your course save money on a tight budget. Careful maintenance planning can make a big financial difference for any golf course that lives by the standard *Maintenance on a Shoestring.*

Providing a better root zone for the bentgrass or bermudagrass putting surface is one of the most popular reasons for greens renovation. Blue Heron Hills Country Club, Macedon, New York.

Avoiding the Hazards of Golf Course Renovation

by GEORGE B. MANUEL
Superintendent, Pine Forest Country Club, Houston, Texas

WEBSTER defines *renovation* as ". . . a restoration to an earlier condition or to impart new vigor to; to revive." In many ways, this definition can be related to golf courses. Putting surfaces are revived by replacing the root-zone mix and planting improved bentgrass varieties. Bunkers are restored when faces are rolled down and fresh new sand replaces old contaminated materials. In parts of the Midwest, uniformity is brought to green surrounds by stripping the mixes of bluegrass, *Poa annua*, bentgrass, and even bermudagrass, and then resodding to an improved bluegrass blend.

Anyone who ever attempted to sell such a renovation project to a green committee or membership is well aware of the positive implications of the project. Improved bentgrass varieties, better drainage, level tees, consistent surrounds, new sand in the bunkers, etc., are all benefits one can expect from renovation. Any of these issues can lead to better playing conditions for your golfers. This should lead to fewer worries, happier times, and more job security for the superintendent . . . right?

Unfortunately, no . . . at least not immediately. In fact, one can probably plan on the hard work and long hours involved with renovation paying off for the next superintendent at the course. I believe more superintendents have lost their jobs (and sometimes their families) in the midst of, or soon after, a renovation project than for almost any other reason.

High Expectations

Why is this unfortunate occurrence becoming more commonplace at courses throughout the country? Perhaps because the positive aspects of a project are promoted too aggressively while ignoring, or in some cases even concealing, the negative aspects. Expectations become very high during the project and then become deflated for any one of several reasons. Projects not being completed on time, new sand in the bunkers being temporarily unplayable, or, perhaps most common, "the new greens just aren't as good as the old ones were" can all contribute to unfulfilled expectations.

Members or players need to be reminded that renovation on a golf course is much different from renovating a 1955 Thunderbird. When restoration is completed on the car, it is at its absolute best. In time, dirt, scratches, dings, and dents begin to detract from its appearance. A renovated golf course reverses this timeline; it must heal from the process and mature over time.

In other words, one might better relate the renovation of the golf course to plastic surgery. There will be scars from the renovation that take time to heal. Roads used for trucks hauling sand and gravel to the site will be extremely compacted and need repeated aerification over several years before they are back to normal. New rootzones must mature before providing a stable growing environment for the recently planted bentgrasses. Fresh sand in bunkers may be fluffy for six to 12 months or longer before it stabilizes and "fried egg lies" are eliminated. Irrigation trenches will settle and will need supplemental backfilling. Mother Nature will not be rushed in spite of the best efforts of the superintendent and his staff, or pressure from the golfers. To help ensure the success of the project, the knowledgeable superintendent needs to not only communicate the benefits that will be realized from the project, but the hazards and risks as well. Let's take a closer look at two of the most common areas of the course targeted for renovation.

Greens

Renovation of greens is sweeping the country. Memberships and superintendents are making the decision to improve both

drainage and putting quality by replacing old rootzone mixes and planting new bentgrass or bermudagrass varieties. When the old rootzones are removed and a new mixture of laboratory-approved sand and organic matter is added, drainage improves dramatically. But as the water quickly drains through the new rootzone, so do the nutrients. The new mix is normally very sterile and has little nutrient content or nutrient-holding capacity. In many cases, it will take the mix at least a year, or sometimes two, before it matures. It's imperative that the golfers understand that until then they can expect wide swings in appearance and putting quality.

Another common scenario is starting the project too late and then seeding or planting the greens after the ideal time. Missing this "planting window" is just like gambling. Occasionally, the weather will stay warm, the greens grow in well, and those in charge will feel like they hit the jackpot. However, when playing Mother Nature's casino, one must remember that the odds are in her favor, and an early, cold fall and winter may leave your greens' surfaces completely bankrupt of grass.

When considering greens renovation, determine the ideal window for planting and growth of the new grass. For example, when planting bentgrass in the Midwest, mid-August to mid-September would be considered the optimum time for seeding. Therefore, construction should begin 60 to 90 days prior (depending on the scope of the project) to the seeding dates. This means losing a summer's worth of golf and revenue, and many players and managers will balk at that possibility. However, late planting dates can spell disaster for the project and the superintendent.

Generally, late planting means more downtime and expense to the club. To extend the growing season as long as possible when bentgrass is planted late, covers are often purchased to retain heat and minimize erosion. They also add about $10,000 to the cost of the project. Is your course willing to spend these extra dollars for covers that may never be needed? If the renovation work is started after Labor Day, more delays from inclement weather can be expected. Cooler temperatures mean slower germination and growth. Remember that the water from a heavy rain will dry out or evaporate much more quickly in late summer's hot temperatures than in the cooler ones of late fall. The important planting windows cannot be overemphasized and should be strongly stressed to the membership. Finally, late planting usually means late opening and upset memberships. Avoid these headaches and heartbreaks . . . plant on time!

Improving drainage is just one of many reasons why bunker renovation is popular. It's important to be sure the membership understands that the new sand may be "soft" for several months.

Bunkers

Bunker restoration projects can range from replacing the old sand, rechanneling drainage elsewhere, reworking internal drainage to refacing the bunker. However, from the members' standpoint, the most important characteristic was not mentioned. In their minds, how the new bunker sand ultimately plays is their foremost thought.

The new sand will likely be loose in nature and produce *fried egg lies* for months after the bunkers have been renovated. Most sands firm up within six months to a year after renovation. If proper testing has not been conducted, the sand could stay soft for an indefinite amount of time. It is critical to educate the members on these points. Include enough money to test the new sand on several occasions, and make your membership aware that the sand has to weather or season for several months before good playability is returned.

The Need for a Strong Finish

So often the bulk of the construction project is performed in good order, but the "finishing off" phase is poor. Therefore, the overall perception of the project becomes tainted. Almost every contractor can get 80% of the job completed; however, it is the exceptional companies that finish the last 20%. In many cases, the contractor is anxious to get to the next job and simply does not have the staying power to finish the job properly. This really separates the top-notch building contractors from the rest of the pack. Be sure to state clearly in the contract exactly how all facets of the golf course renovation work are to be completed. Once an agreement has been reached, the superintendent or club liaison needs to make the contractor finish the job in a timely and professional manner. Remember, any work the contractor fails to finish properly will have to be completed by the existing maintenance staff. These added tasks take unnecessary time and money out of the budget.

Conclusion

There is an old saying in the real estate business that the three keys to successful business ventures are location, location, and location. Successful renovation projects may hinge on communication, communication, and communication. Those desiring renovation will most assuredly expound on the positive aspects of the project. However, the potential downside or negative aspects must also be explained even if it risks the approval of the renovation. There is nothing more taxing (mentally or physically) for a superintendent or membership than renovating their golf course. By playing the devil's advocate and making sure every aspect of the project is well understood, the likelihood of a potentially disappointing experience will be significantly decreased.

THE RED-COCKADED WOODPECKER: *An Endangered Species in Golf Country*

by DR. J. H. CARTER III
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and
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THE AREA around the Village of Pinehurst, North Carolina, and in particular the Sandhills region, is home to the endangered red-cockaded woodpecker *(Picoides borealis)*. The Pinehurst golf courses and surrounding residential area have seven active colonies of woodpeckers and approximately 15 inactive colonies.

The red-cockaded woodpecker (RCW) is a federally endangered species endemic to the pine forests of the southeastern United States. This species was formerly common in old-growth pine forests from Maryland to southern Florida, west to eastern Texas, and north to southeastern Missouri and eastern Kentucky.

The RCW excavates its roost and nest cavities in living pine trees that are usually 100 or more years old. An average cavity takes six years to complete. RCWs live in families or *groups* that typically consist of a mated male and female, one or more male *helpers*, and the year's offspring. Helpers are usually sons of the dominant male. They aid in defending the group's territory, incubating eggs, feeding young, and excavating cavities.

Ideally, each group member has his or her own cavity. The cavity trees used by a group are termed a *colony* or *cluster,* and are normally located close together. A typical group of RCWs has a home range of 200 or more acres of pine forest.

Historically, old pine trees occurred on tens of millions of acres in the

Pinehurst golf courses provide habitat for red-cockaded woodpeckers to excavate their nesting cavities. An average cavity can take up to six years to complete.

The endangered red-cockaded woodpecker is a treasured sight to the tenacious birdwatcher.

Southeast. These forests were perpetuated by frequent, low-intensity fires, which maintained the forests in an open, park-like condition. The RCW underwent precipitous population declines as pine forests were cleared for agriculture or converted to short-rotation industrial forestry. The successful suppression and exclusion of woodland fires in the Southeast allowed aggressive hardwood trees to begin to compete with and replace the native forests. RCWs do not persist in hardwood-choked pine forests.

Most RCWs are now found in southern national forests and large military bases. Only 3,000-4,000 groups remain scattered over 13 states. Fifteen viable populations are needed for recovery of the RCW and its removal from the endangered species list, and only one population (in the Appalochicola National Forest) is now considered viable.

Although most RCWs now exist on large tracts of government-owned land, some persist on private lands. The largest such population is centered in the golf country around Pinehurst and Southern Pines, in the Sandhills of south-central North Carolina. RCWs occur on several golf courses in this area, as well as in the adjacent residential areas. The woodpeckers have survived, and sometimes thrive, in the golf environment because of the presence of residual old pines, protection from logging, and the maintenance of open forest edges along fairways, all of which simulate the open, old pine forests in which this species evolved.

More than 25 RCW groups live on golf courses in and around Pinehurst. This number represents more than two-thirds of the RCWs on private lands in this area. Cavity trees are found on tees, next to greens, and even within fairways. These birds have developed a tolerance for low-impact, transitory human activity. Some golf courses have more RCWs residing on them today than occurred in the same area prior to development.

Though the woodpeckers and their cavity trees are strictly protected, they do face some challenges associated with their human-altered environment. The number of existing cavities is limited and competition for them is fierce. Bird feeders in yards attract unnaturally high numbers of flying squirrels, starlings, and other woodpeckers, all of which are very effective cavity competitors and potential predators on RCW eggs and nestlings. Researchers at N.C. State University have developed metal cavity "restrictors" that prevent access to RCW cavities by larger species. They have proven successful in controlling cavity competition in Sandhills' golf courses.

Another critical innovation in RCW management is the drilled artificial cavity, also developed at N.C. State University. Trained personnel using a drill with special bits can excavate a functional cavity in less than three hours, a big improvement over the six *years* a RCW would need. Artificial cavities have actually increased RCW populations when placed on golf courses, and will play a critical role in the recovery of this species.

Because the golf environment is relatively stable once construction is complete, the RCW has a future on golf courses throughout the region, particularly where existing populations are close by. Obviously, management must favor retention of the open pine habitat crucial to this species. Landscaping should utilize native pines when replacing trees lost to lightning, wind, or old age. The area around cavity trees should be kept free of all brush and small trees, and care should be used when applying certain pesticides. Periodic cavity and competitor management may be required.

Safe Harbor Plan

The golf courses at Pinehurst Resort and Country Club will be the first site in the country to participate in the Department of the Interior's "Safe Harbor" habitat conservation plan (HCP) for the red-cockaded woodpecker. This innovative program — officially known as the North Carolina Sandhills Habitat Conservation Plan — will help red-cockaded woodpeckers find safe haven on private lands in the region. It offers landowners an incentive to become good stewards of their property by providing habitat for threatened species like the red-cockaded woodpecker through actions such as installing artificial nest cavities in pine trees. In exchange, landowners receive an ironclad guarantee they will not be subject to restrictions under the Endangered Species Act after they succeed in attracting threatened species to their land.

This Sandhills HCP differs from other habitat conservation plans because it is designed to encourage positive habitat improvements in advance of any specific project that could adversely affect an endangered species. Other plans traditionally have intended to offset some adverse impact to endangered species that occurs as a result of a development already planned. Landowners must sign a cooperative agreement with the U.S. Fish and Wildlife Service to participate.

Golf courses in the Pinehurst area represent an excellent example of how an endangered species can survive and prosper in a highly developed private landscape with minimal conflict with ongoing activities.

In the upcoming months, under the U.S. Fish and Wildlife's "Partners in Wildlife" program, the grounds at the Pinehurst Resort will be audited in a baseline study of RCWs. Recommendations will be made relative to removing undesirable hardwood understory and to locating and installing artificial cavities throughout the golf courses.

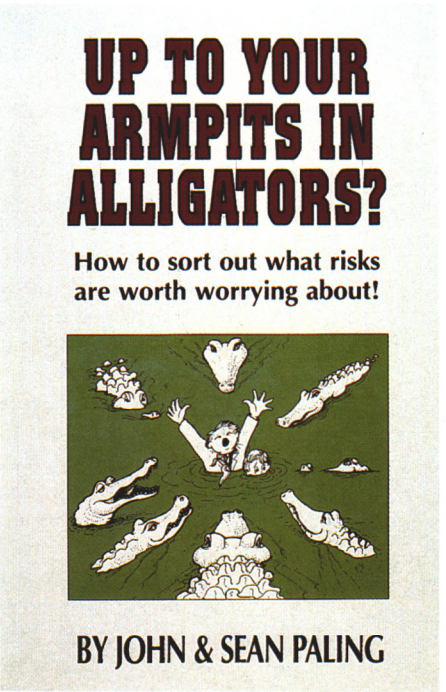
Through discussions that began less than a year ago, representatives of the U.S. Fish and Wildlife Service, Department of the Interior, the Environmental Defense Fund, Dr. Jay Carter and Associates, and the Pinehurst Resort and Country Club have put together a program that will enhance the environment for the red-cockaded woodpecker. This program is destined to spread to other golf courses throughout the Southeastern United States and increase viable colonies of RCW for years to come.

What's Worth Worrying About in Life?

by DR. MICHAEL P. KENNA
Director, USGA Green Section Research

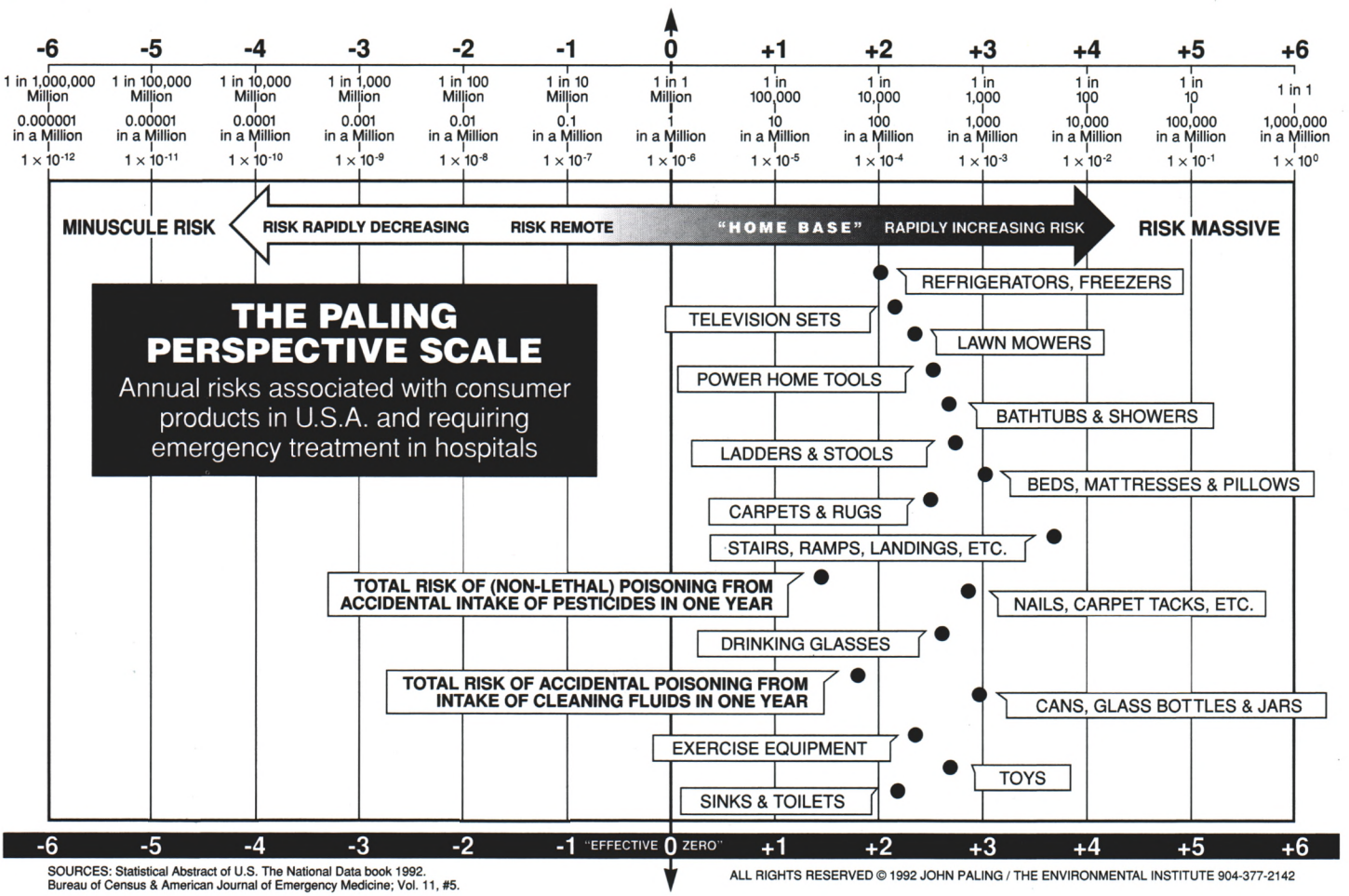
IN RECENT YEARS, the public has become increasingly overwhelmed by the growing number of news reports announcing health hazards that seem to threaten our lives daily. We know all too well that the game of golf has been dragged into this environmental debate. Until now, citizens, legislators, and even the media had no simple way of sorting out the relative importance of new risks and putting them into perspective with other environmental and public health hazards. This article offers a brief summary of an effective communications tool that can help people make sense out of all their environmental worries.

Dr. John Paling and his son, Sean, have developed an objective, comparative scale that reflects the relative levels of risk from different hazards. The *Paling Perspective Scale*[sm] presents these relative risks in a manner than can be readily understood, yet is based on sound risk assessment practices. If someone has done a risk assessment calculation and claims to have estimates of the level of risk for a particular hazard under certain circumstances, then this scale can easily show how it stacks up to other risks we face each day. It answers the public's wish to cut through all the technical stuff and get a simple answer to the question, "What's the bottom line?"

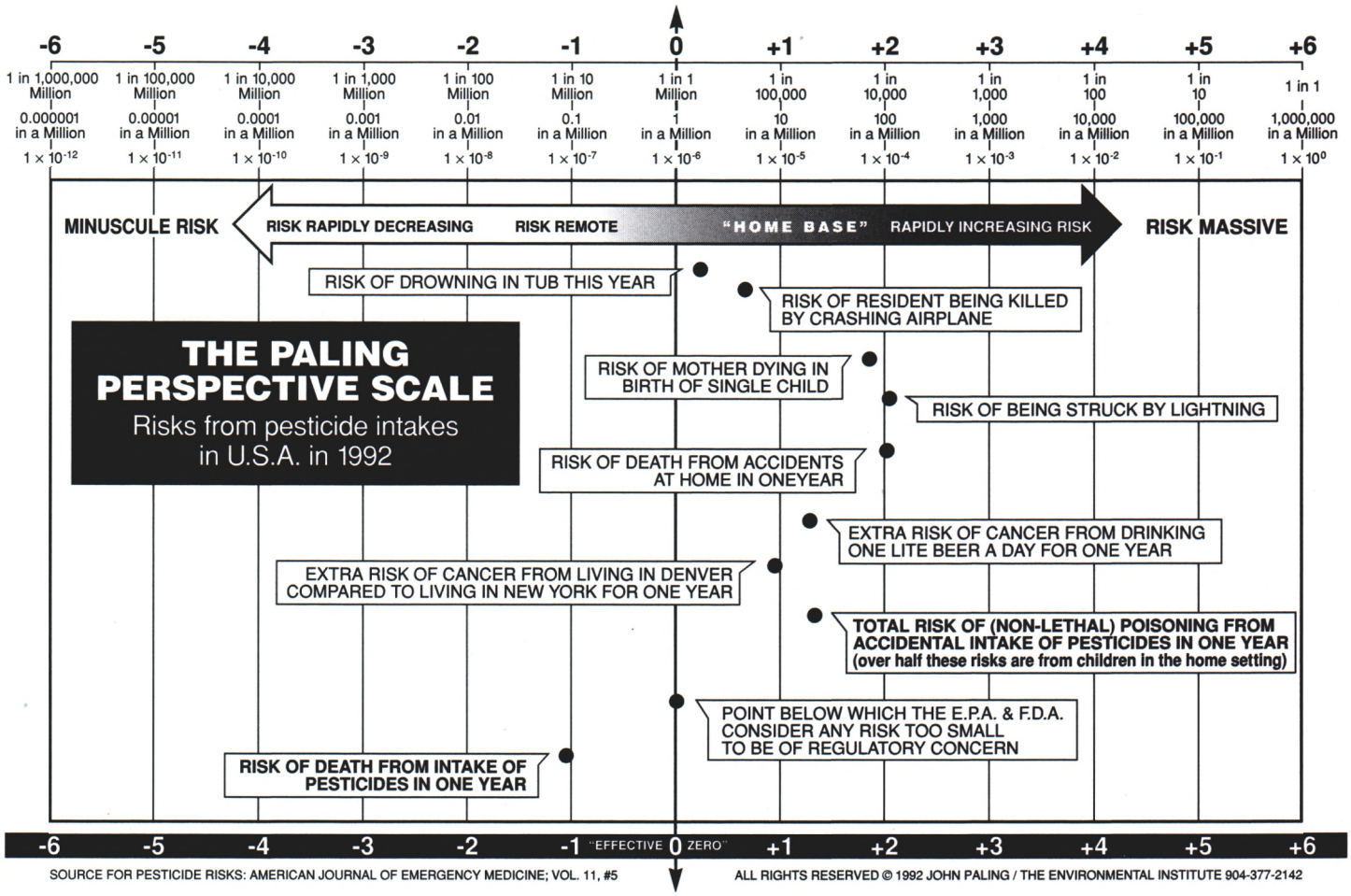


The "bottom line" of the scale displays simple numbers for all the levels of risk that could ever be important to the life of any individual on the planet earth (see figures). The scale ranges from a "-6" through "zero" to "+6," and every single risk that we know of can be effectively positioned on this one scale!

When you follow each of these numbers upwards to the top of the chart, the same risk level is expressed in three different ways. In other words, a "+6" on the scale is the same as a risk of 1 in 1, which is the same as a risk of 1,000,000 in a million, and is the same as what mathematicians call a risk of 1×10^0. Similarly, the bottom line risk level of a "+2" is the same as an estimated risk of 1 in



SOURCES: Statistical Abstract of U.S. The National Data book 1992.
Bureau of Census & American Journal of Emergency Medicine; Vol. 11, #5.



10,000, which is the same as a risk of 100 in a million, and in mathematical jargon is the same as a risk of 1×10^{-4}. Numbers in the "minus" zone to the left of center become rapidly less risky or less likely to occur, while those in the "plus" zone to the right of center become rapidly more serious or more likely to occur.

Communications Tool

There are many reasons why a scale such as this would be a valuable communications tool for the golf industry. First, the scale answers the need of frustrated superintendents, architects, and golfers who have tried to communicate risks associated with pesticides and fertilizers to people bombarded with a constant stream of unquantified claims of public health hazards. Second, there is a need to reassure the public about the relative safety of our modern lifestyle. Third, everyone involved in environmental and public health matters recognizes that some scale of comparative risk assessment has to be accepted as an integral part of decisions concerning regulations and cleanup processes. Finally, even though purists will regret it, we desperately need an all-embracing, *USA Today*-style scale to help people sort through and understand all the various methods of comparing risks.

With the *Paling Perspective Scale*, relative levels of risk quickly become intuitive based on a simple scale. This scale offers an irresistible improvement on anything else out there, and it moves us all toward a much sought-after goal of simplification, yet still is based upon available published science. The lack of such a "Richter Scale for Risks" has led to a string of undesirable consequences that extend from economic extravagance to public paranoia.

It should no longer be *news* that people are exposed to toxic or cancer-causing chemicals. Since the equipment and techniques used to detect chemicals are so sensitive, we now can detect such minute quantities that just about everything contains "toxic chemicals" at some level or another. We are all exposed to "cancer-causing" chemicals, and, most important, many have nothing to do with industrial activities. We now know that the healthy fruits and vegetables we eat contain minute quantities of natural poisons to protect them from disease and insects. It is ironic that if these naturally occurring chemicals were produced by industry, they would be banned as unsafe! So, the plain and undisputed truth is that we are surrounded by hundreds of potential but infinitesimal chemical hazards. It is the *dose that makes the poison*, and for the vast majority of our life, minute doses are simply not poisonous. The general public needs to understand that even distilled water will kill you if you drink 15 gallons a day!

Everything we do in life has some associated risk. In fact, just staying in your own home for a 70-year lifetime holds 7,700 chances in a million of you incurring a fatal accident! From the moment you wake up to your morning coffee (cancer risk from dioxin in the bleached coffee filter) to the time you finally retire under your electric blanket at night (possible harmful effects of electromagnetic forces), your life is in danger. The undeniable truth is that there is really no such thing as "zero risk"!

In order for the *Paling Perspective Scale* to work, risks that intuitively "mean something" to the general public were first identified. These are the risks that people are comfortable in accepting and consider not worth worrying about based on their real life experiences. The odds quoted for some of these real risks associated with daily life fall into the *Home Base* range (see figures).

The *Home Base* range of risks falls between one in a million and about one in 10,000. When this is translated into the bottom line risk levels of the scale, *Home Base* for fatalities and very serious injuries at home turns out to be between "0" and

around "+2." To be on the overly cautious side, the figure of one in a million was selected as being the *Effective Zero* point for levels of risk. This is the same point chosen by the U.S. Food and Drug Administration as the risk point below which any risk from a food additive is considered too small to be a regulatory concern.

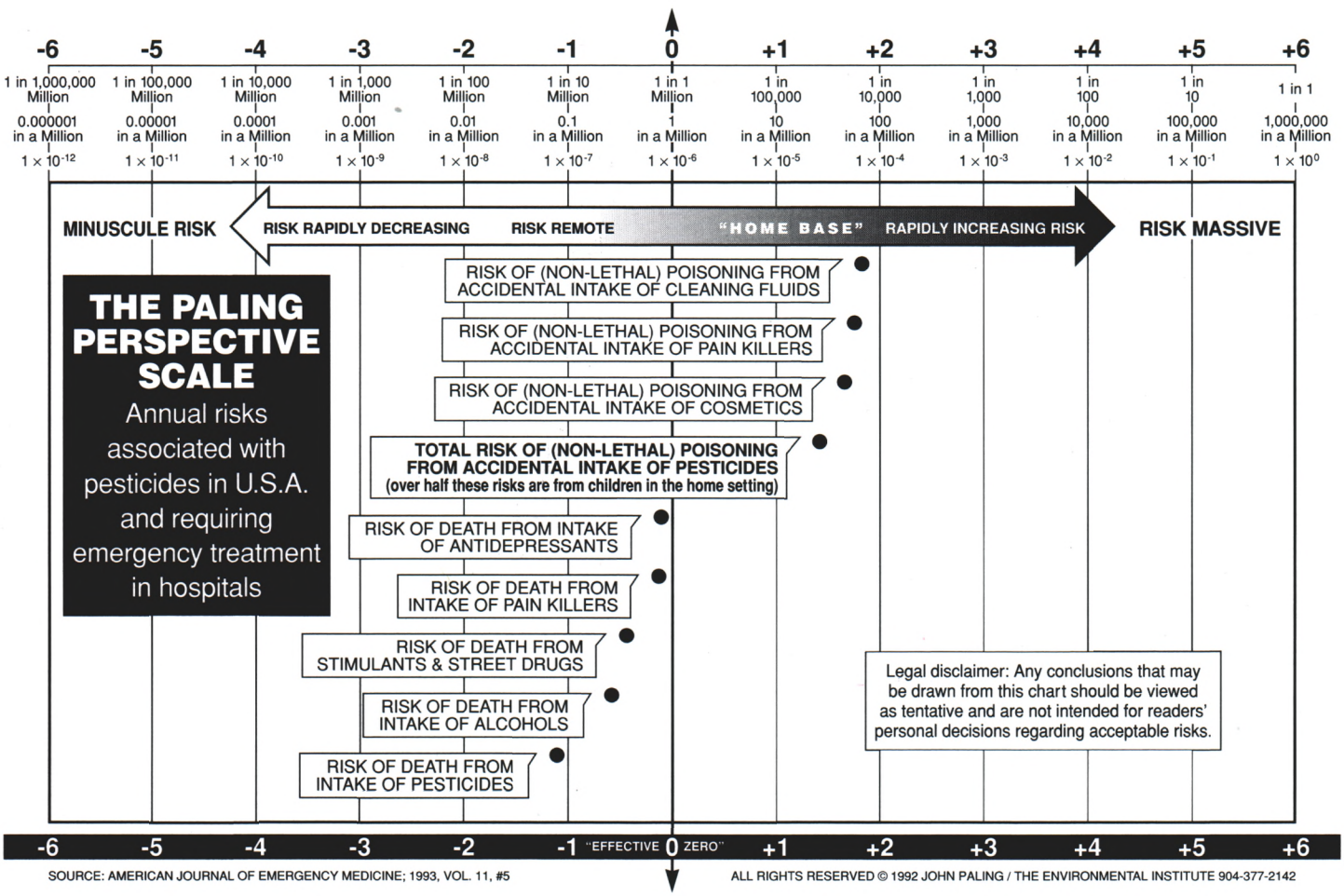
By the nature of things, there will always be some people who are exceptionally sensitive to a particular chemical, even though it has little or no effect on the rest of society. Good examples of this situation are those people extremely sensitive to bee stings or pollen. No scale, or regulation for that matter, can protect them! It is their *personal responsibility* to act upon what they know are real risks for them and to take sensible precautions. The *Paling Perspective Scale* represents a framework that makes it easier for the public to intuitively sense the relative seriousness of reported risks and to quickly recognize that *all worries are not equal*.

Golf, in many respects, has been unnecessarily pressured by some environmental organizations and uninformed citizens because they are worried about the pesticides and fertilizers used to maintain the golf course. The *Paling Perspective Scale* is progress toward developing a level playing field, which challenges all parties to establish the relative strengths of their different positions. Everyone who plays golf or benefits in some way from the game is encouraged to use this scale as a key communication tool to identify *relative risks* and thus provide a much-needed perspective to the widespread alarm generated by the large number of reported hazards in modern life.

A goal of the USGA is to establish the relative risk of golf to individuals playing the game, maintaining the grounds, or living next to a course. The pesticide and nutrient fate information from the USGA's Environmental Research Program will serve as a basis for estimating risk assessment numbers and then placing them on the *Paling Perspective Scale*. This goal cannot be accomplished overnight, due to the relative complexity of performing risk analysis studies. But no one can deny that golf needs a simple communication tool that helps establish the relative risks associated with the game and sheds some perspective about what is really worth worrying about in life!

The Paling Perspective Scale is a versatile communications tool that:

- Allows the recording of all calculable risks on a scale of "-6" to "+6," with zero being perceived, for all practical purposes, as totally safe for the vast majority of all people on the planet.
- Identifies its "zero" point based on levels of risk that the public knowingly recognizes, yet chooses to ignore by not changing existing behaviors materially.
- Compares many different types of risk by expressing them all as chances in a million — immaterial of the original chemical/nuclear/electromagnetic or medical units in which the concentrations and risk were initially measured.
- Enables communicators to show the relative levels of risk associated with different hazards against a bottom line number that the public easily becomes intuitively familiar with.
- Serves as a platform for risk assessment professionals to communicate with the public on the relative positioning of relative hazards under different circumstances.
- Has very wide application, yet immediately is most useful in the area of public health risks from industrial and business pollution.
- Is a major improvement on the situation that we face in the absence of such a perspective scale.



The long shadows of late afternoon gradually give way to a long night of fairway aerification at Coldstream Country Club in Cincinnati, Ohio.

FAIRWAY AERIFICATION AROUND THE CLOCK

by BOB WEAVER
Superintendent, Coldstream Country Club, Cincinnati, Ohio

AERIFICATION continues to be one of the most important ingredients in a golf course maintenance program. Despite this agronomic fact, most golfers despise the inconvenience that aerification brings. Everyone would agree that the ultimate combination would be to get the aerification work done at the proper time while avoiding golfer inconvenience. At Coldstream Country Club in Cincinnati, Ohio, we have come up with a fairway aerification program that is helping us both get the work done and minimize disruption/inconvenience to golfers.

Our fairway aerification program begins late Sunday afternoon and continues through Sunday night and all day Monday, a day when the club is normally closed. This approach allows us to complete fairway aerification in approximately 28 hours. Previously, before we worked around the clock, it would take 40 or more hours to complete all the fairways. Our present strategy has shortened the fairway aerification process, helped save time and money, and noticeably reduced golfer inconvenience.

Advance preparation and planning are very important to the success of our program. Calendar dates must be decided upon and coordinated with our course officials. Residents living around the golf course need to be contacted and informed about our plans. Work-shift scheduling for our staff must be determined carefully. The equipment needed has to be made ready and double-checked. It is also very important to mark fairway sprinkler heads before starting.

The actual date for the fairway aerification work to be done is first discussed with the green committee and then, per committee recommendation, is sent for approval by the board of directors. We try to aerify as early

in the fall as possible. This ensures the best possible agronomic value for our efforts. With early, advanced scheduling, there are no surprises for those participating in golfing events planned just before or after the work. In fact, the best approach is to get the aerification work scheduled before golfing activities are actually placed on the club's calendar.

We inform all of our neighbors of the aerification time and date, so no one panics when they see lights out on the golf course at night. In addition to the obvious practical benefits, this has also improved community relations with the club. Our neighbors have appreciated knowing what is going on in our maintenance program, especially when it directly affects them.

It is important to schedule work shifts well in advance of the actual aerification. An employee must be willing to work at night, and must have a proven track record (familiar with the equipment and the golf course, and be dependable) to go with his/her willingness. Since we do not add additional staff for this work, balancing the night shift with Monday staffing is important. Some of those working a shift during the night will need to come back on Monday to assist with core processing and cleanup.

All equipment needed for fairway aerification is checked and adjusted ahead of time to minimize the potential for breakdown. Lights mounted on our utility vehicle, used to pull the GA-60 aerifier, are checked and adjusted. The four floodlights, along with the headlights on the truckster, create good visibility 30 degrees around the unit. Aerification tines are installed, set to a depth of four inches, and tightened. All fluid levels are carefully checked. In addition, our two-way radio communication system is double-checked.

On Sunday afternoon, before we actually start punching holes, all fairways to be aerified during the night are mowed, and sprinkler heads and valve boxes are marked with small flags. Indicator flags work much better for night visibility than simply using paint. After sprinkler heads are marked, the aerification can begin.

Aerification is started at around 5:00 p.m. on Sunday, following the final group of golfers. Although neighbors are notified in advance, we try to aerify those fairways closest to homes early in the evening to minimize noise disturbance. Employees work a six-hour shift, starting with the advance mowing of fairways. This allows those working Sunday afternoon and early evening to get some sleep before returning on Monday.

We are fortunate at Coldstream that my assistant lives on the property. Through two-way radio communication, he is available to the GA-60 aerifier operator should a problem occur. This adds an element of security and safety to the operation.

Fluid levels are rechecked after each six-hour shift as aerification continues through the night. Normally, 10 or 11 fairways are aerified by early Monday morning. Fairways not mowed Sunday afternoon, prior to aerification, are completed first thing on Monday morning. In addition, core processing is started early Monday morning on fairways that were aerified during the night.

We use two core-destroyers to process the aerification plugs. Fairways are then dragged with a metal dragmat to work the soil into the turf. The debris is blown to the center of the fairway with a blower mounted on a truckster and then picked up with a leaf sweeper.

Holes are aerified in numerical order of play. By Monday evening the only work remaining is the cleanup on holes 16, 17, and 18. This is easily completed on Tuesday morning before the first group of the day reaches these holes.

There are a number of clear advantages to fairway aerification around the clock, as compared with the traditional daytime approach.

Golfer Convenience

First of all, golfers are not faced with playing on aerified fairways. They do not get mud/soil on their shoes, and the routing of golf carts is not a factor. Since the primary purpose of the golf course is player enjoyment, we feel this first advantage is a major one.

Agronomic Benefit

With the inconvenience to golfers virtually eliminated, we can schedule fairway aerification earlier in the fall. Early fall (just after Labor Day) aerification produces an excellent environment for grass growth throughout the fall season, as compared with what occurs when pushing the work to a later date in the season (often done in an effort to reduce golfer inconvenience). The turf also will recover from aerification more quickly in early fall as compared with later. Smaller staff size and shorter days also make late fall aerification less than ideal.

Dry weather conditions allow aerification and core processing to be done more easily with better results. Aerification around the clock reduces the chances of delays due to bad weather.

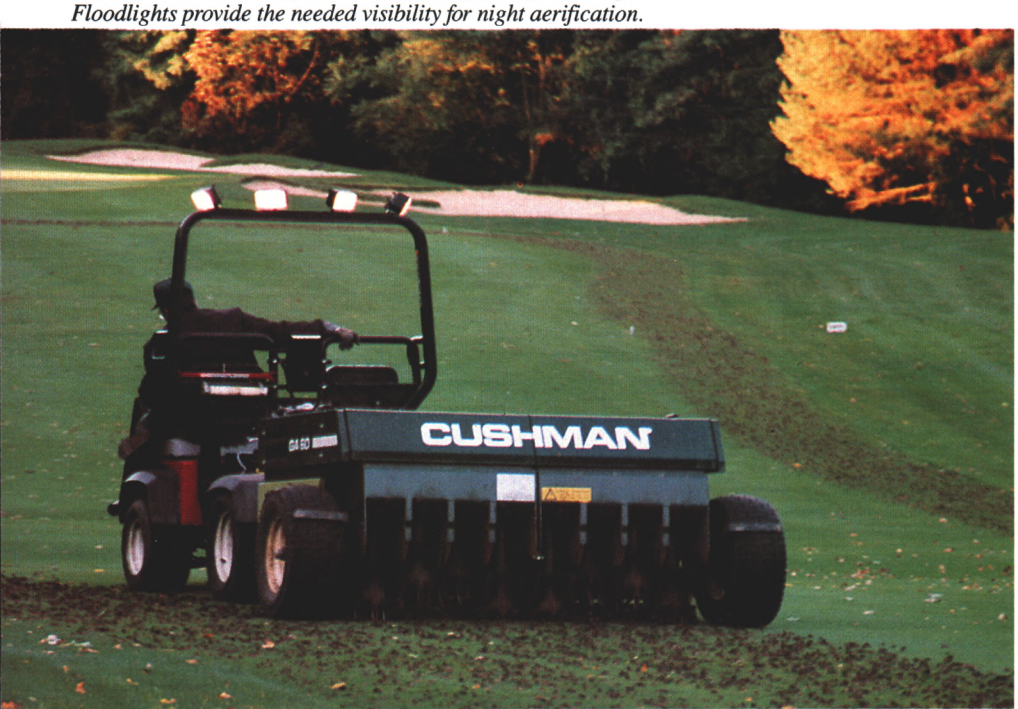
Time Saving

Time saving is another significant advantage. My staff does not have to wait on golfers with this approach, and as a result the work gets done much more quickly. We save at least 12 hours as compared to doing the work during the daylight hours, spread over a four- to seven-day period. In addition, with proper staff scheduling there is no time spent waiting for the aerifier to finish before the core processing and cleanup can be done. Everyone stays busy.

Conclusion

Like most golf course superintendents, I never looked forward to aerification. However, this approach has allowed us to do both what is right for the turf and keep the course as enjoyable as possible for our membership. The end result has been better turf, less disruption to play, and happier members and staff. Not a bad combination.

Fairway aerification begins Sunday evening just after 5:00 p.m. Floodlights provide the needed visibility for night aerification.



ON COURSE WITH NATURE

"EGO-SYSTEM" MANAGEMENT

by RONALD G. DODSON
President, Audubon Society
of New York State, Inc.

Communication and understanding are the first steps in dealing with golf course concerns.

EGOS: they're everywhere — golf courses are full of them; perhaps they are a natural part of the habitat. Everybody's got one and very few of us know how to deal with them. Most of the time we can't even deal with our own, let alone attempt to deal with someone else's.

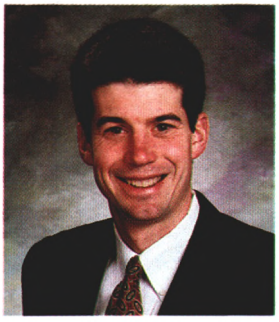
Managing a golf course with the environment and wildlife in mind occasionally sets egos against each other. If you play the game of golf, you probably have ideas, opinions, and expectations about the game. For instance, there are a full range of opinions and expectations about the speed of the greens, the depth of the rough, the "interference" or enjoyment of wildlife inhabitants. But occasionally the frustration of that last high score or the lost golf balls in the "naturalized" habitat may expose egos that are connected to the "I'm really a pro golfer, and the only reason I hit that bad shot was somebody else's fault" ego. If a golfer takes his or her frustration out on the golf course superintendent ("The course isn't manicured enough!"), we may see exposed the "I am a professional turfgrass manager and you really don't know anything" ego. For the good of the game, the superintendent profession, the environment, and blood pressure, we should all take a deep breath. Remember, it is only a game, but we are talking about real people who have legitimate concerns.

We all want to feel important. We all want to be recognized for our talents, efforts, concerns, hard work, or commitment. The problems usually begin, however, when one ego meets another ego. If both of the egos are determined to be the *expert*, one ego has to yield or a conflict will result.

The seed of many conflicts is a lack of communication and understanding. Golf course managers will tell you that many potential collisions of egos take place every day. These collisions may be with management, golfers, members, employees, concerned citizens, government employees, and others. They will also tell you it takes a lot of time and energy to resolve some of those conflicts. If all of us would make an honest effort to **listen** for the needs of **others**, help them define what they're really looking for, and then help them understand what **we** are looking for, many conflicts might be avoided or more efficiently resolved. But, it also takes perseverance, a sense of perspective, and a reasonably decent sense of humor.

My Dad gave me a piece of advice once that is very appropriate. He said, "In the environmental area (and possibly in life generally), you have to be willing to do a lot of hard work and be prepared to give everyone else all the credit." Let me tell you, it doesn't cost very much to treat people with respect and to recognize their efforts and contributions. The results of a positive attitude and well-managed "ego-system" may surprise you. You may find life more satisfying both personally and professionally, not to mention finding a little extra energy to enjoy your job, the environment, **and** the game of golf.

NEWS NOTES FOR SUMMER



Christopher E. Hartwiger

Hartwiger Appointed to Staff

The Southeastern and Florida Regions of the Green Section are pleased to welcome a new agronomist, Christopher E. Hartwiger, to their staff. Hartwiger replaces Chuck Gast, who has accepted a position as golf course superintendent at Jupiter Hills Country Club, in Tequesta, Florida.

Chris possesses an outstanding background in turfgrass management and recently received his M.S. degree from the Crop Science Department at North Carolina State University. While studying there, he worked closely with Dr. Charles H. Peacock, a member of the USGA Turfgrass and Environmental Research Committee, and this spring he completed a golf course internship program at Pinehurst Resort and Country Club, in Pinehurst, North Carolina.

An accomplished writer, Hartwiger's master's thesis addressed a topic of great interest today, namely "Lightweight Roller Use on Bentgrass Putting Greens." He won first prize in this year's GCSAA Student Essay Contest after finishing as runner-up the previous year. In addition, Hartwiger received first-prize recognition in the 1994 Turf and Ornamental Communicators Association Essay Contest for his paper entitled "Golf Courses and the Environment: Where Are We and Where Are We Going?" *Golf Course Management* later published this essay in its November 1994 issue.

Chris is an avid golfer whose USGA Handicap Index wavers between 5.0 and 10.0. His wife, Kathy, is an accomplished player who advanced to the second round of match play at the 1994 U.S. Women's Amateur Championship, where her husband caddied for her. The couple will relocate to the Birmingham, Alabama, area, where Chris will report to Pat O'Brien, Director of the Southeastern Region, and also assist John Foy, Director of the Florida Region, in making Turf Advisory Service visits in the states of Alabama, Mississippi, Tennessee, and northern Florida.

The Green Section joins in welcoming Chris Hartwiger as a member of its staff.

Chuck Gast Leaves Staff

Chuck Gast, who served as an agronomist for the USGA Green Section since 1990, has left the staff to assume the duties of golf course superintendent at Jupiter Hills Country Club, in Tequesta, Florida. During his years with the USGA, Gast conducted Turf Advisory Service visits and made many presentations on a wide variety of topics in both the Southeastern and Florida Regions.

Chuck and his family will continue to reside in the Hobe Sound area of Florida. The Green Section thanks him for all his fine work on the USGA's behalf, and wishes him all the best in his new duties at Jupiter Hills.

The Spirit of St. Andrews

DR. ALISTER Mackenzie is known by all for using the natural surrounds, in combination with his expertise in camouflage, to develop golf courses with a unique architectural style. The golfing public also recognizes Mackenzie for his world-famous layouts: Cypress Point, Augusta National, and Royal Melbourne in Australia, to name just a few. He also is recognized for his ingenious ability to design courses that are challenging to both high- and low-handicappers. What the public is not aware of, however, is the keen understanding that Mackenzie had of the far-reaching corners of the golfing industry. Perhaps this was one of his most notable attributes.

A unique twist of fate resulted in the discovery in 1993 of a manuscript written by Mackenzie in 1933. Mackenzie entitled it *The Spirit of St. Andrews*, which included the foreword written by his friend and golfing legend Robert Tyre "Bobby" Jones, Jr. The text is still appropriate for today's golfers and superintendents, with some stinging words for green committees and clubs as well. In *The Spirit of St. Andrews*, Dr. Mackenzie dives into topics such as the United States Golf Association and its Green Section, golf course committees, maintenance, and construction — topics that are still the backbone of the golf industry today. This is what makes *The Spirit of St. Andrews* such an wonderful discovery.

Understandably, one of the biggest concerns of the USGA and golf course superintendents today is environmental research. Mackenzie, himself, was a consultant at more than 400 golf clubs, where he did a significant amount of research before and after each project. In this book, there is reference to Mackenzie's support of USGA research programs. "Scientific research and the experience gleaned from our mistakes is the only way we shall solve these problems, so that the more money provided for the Green Section to continue their research the sooner we shall arrive at the truth of the matter. The Green Section should be allowed sufficient money not only to conduct experimental stations on different parts of America, but also to enable them to play golf and to study courses all over the world."

Mackenzie did not support committees as he did research. He viewed committee politics and their inconsistencies as cumbersome distractions to running a smooth operation. "The history of most golf clubs is that a committee is appointed, they make mistakes, and just as they are beginning to learn from their mistakes they resign office and are replaced by others who make still greater mistakes. We would strongly recommend every club to have a permanent committee. It is the only way a policy or continuity can be adopted, and this is particularly important in the case of green committees."

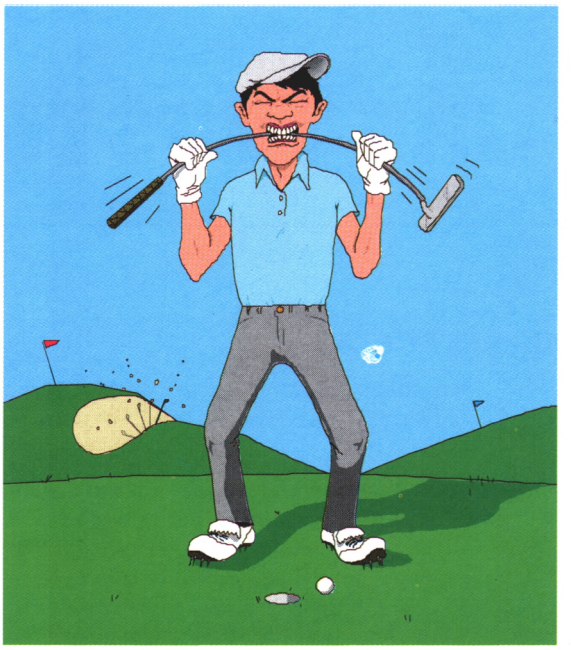
Because of his vast experience with golf course construction, Mackenzie considered himself knowledgeable in the art of greenkeeping. In the book, he talks about this difficult job. "A good greenkeeper keeps a careful watch on his turf, and has sleepless nights until he has overcome everything that may be the matter with it. The best greenkeepers are not necessarily those trained on Scotland courses, they are invariably honest, hardworking, and reliable, but not always receptive of new ideas. It is essential that a greenkeeper should grasp the fundamental principles, and above all realize that golf is a game and that it is played for fun."

In *The Spirit of St. Andrews*, Mackenzie tells stories about Bobby Jones, Walter Hagen, Harry Colt, C. B. Macdonald, and Robert Hunter. He talks in detail about the great courses of the world such as St. Andrews (the book includes a four-color map of the Old Course), Cypress Point, Sunningdale, Pine Valley, Augusta National, and Pebble Beach. He writes about construction, ideal holes and golf courses, general principles of architecture, the evolution of golf, and the golf swing. *The Spirit of St. Andrews* is a book that every golfer must read, not only to learn the legend of Dr. Alister Mackenzie, but to enjoy this wonderful game of golf even more.

Steven J. Hammon,
Assistant Superintendent,
Crystal Downs Country Club,
Frankfort, Michigan

***The Spirit of St. Andrews**, by Dr. Alister Mackenzie, is available at bookstores or direct through Sleeping Bear Press, P.O. Box 20, Chelsea, MI 48818; (800) 487-2323.*

It's Still Just a Game



by JAMES FRANCIS MOORE
Director, Mid-Continent Region,
USGA Green Section

I don't know about you, but I'm beginning to fear
That much has been lost from the game we hold dear.
The players, it seems, have made the decision,
The course must be made a thing of precision.

Each line must be perfect, greens pool table true,
The bunkers "consistent," the sand white and new.
Each hazard once different, must now play the same,
There simply can't be any luck in this game.

The rub of the green, bad hops and tough lies,
Are signs of bad care in today's golfer's eyes.
"Let's fire the course super, and hire one we know
Has control over Nature, who can force grass to grow."

I think I can prove my point to you all,
By briefly discussing a visit last fall.
To a course, I am sure, you would all recognize,
It's been on TV — the ultimate prize.

As an agronomist for the USGA, my routine was the same
On this fine autumn day,
The group was assembled, for the tour of the course,
The superintendent and me, and the Committee in force.

One lady, two seniors, three flat bellies and more,
I'd have to be careful, I could start a war.
There were few shared opinions in this group I could see,
So with great trepidation, I stopped at one tee.

"Just look!" they exclaimed, "our tee's thin and bare."
Well, it's too small, don't you see, and just look up there.
While the tree is truly a beautiful sight,
The grass on your tee doesn't get enough light.

They gasped and fell back — why, one nearly died.
"Are you saying that we should commit arborcide?"
I promise the memory of this tree will soon pass
When you once more can tee up your ball on the grass.

They scowled and they glared, all down in a hunker,
"To heck with the tees, let's look at a bunker."

"The traps all play poorly," said Flat Belly Three,
This sand must be bad — it couldn't be me."
"Our sand is just fine," the lady next said,
The seniors agreed it was all in his head.

No feathers were smoothed when I tried to explain,
That the bunkers are hazards, and that part of the game
Is to develop a "feel" for sand dirty or clean —
But the committee had already left for the green.

"They're too slow."
"They're too fast."
"They're too soft."
"They're too hard."
"They're too steep."
"They're too flat."
"They're worse than my yard!"

I tried to explain, their greens were quite good.
In fact, the ball rolled just as it should.
And that actually, their course was much better than most.
When it came to the game, they surely should boast.

Of conditions that offered a great deal of fun,
For mother or daughter, for father or son.
But this fell on deaf ears, for they just couldn't see,
That it's still just a game, and always will be.

The visit then came to an uncomfortable close.
I fear all I did was add to their woes.
They just couldn't see the good things that they had,
They'd lost their love of the game, and that's pretty sad.

My kids are just starting to learn how to play,
A game that has given me much through this day.
They'll learn to enjoy a shot that's hit well,
They'll learn that short putts can be living hell.

But they'll also learn that golf is much more,
Than a four-hour walk and posting a score.
Sure they'll beat it around, but when they are done,
I hope that like me, they'll find it's great fun.

TURF TWISTERS

YOUR BEST CHOICE

Question: I have just started working at a new course with a history of heavy crabgrass infestation on the fairways. What is the best way to evaluate the numerous products available for crabgrass control in my area? (Kansas)

Answer: There is always a great temptation to use the product that is the least expensive per treated acre. In this age of new environmental awareness, however, you may wish to evaluate products based on their environmental hazard. This would include a careful examination of a product's volatility, solubility, soil sorption, half-life, SCS (Soil Conservation Service) rating, and GUS (Groundwater Ubiquity Score) rating. The January 1995 issue of the *Green Section Record* provides an excellent table as a good starting point for some of this information. If your research leads you to an unfamiliar product, consult with local or regional authorities regarding product performance before application.

FOR OLD GREENS

Question: My greens are primarily *Poa annua* and have become a management problem through the stressful periods of the summer months. Would it be helpful to overseed with new creeping bentgrass varieties? (California)

Answer: Overseeding with creeping bentgrass during the ideal growing months may improve your greens significantly. Initially, seeding on monthly intervals with one-half to one pound per thousand square feet of creeping bentgrass will be required to establish a noticeable population. To insure seed-to-soil contact, schedule overseeding in conjunction with vertical mowing, spiking, sand topdressing, and/or aerification, if possible. For a fair evaluation of this program, overseeding should be carried out for a minimum of one complete growing season.

COULD BE *POA ANNUA*

Question: I have 18 *Poa annua* putting greens and my green committee just gave me authorization to build a putting green nursery. If I establish the nursery with creeping bentgrass I'm afraid that the turf will not match the texture and consistency of my greens. Also, I won't be able to use the nursery to accurately evaluate fertilizers or pest control materials prior to wholesale application. Is it possible to establish a *Poa annua* nursery? (Washington)

Answer: It has been reported that some distributors are selling *Poa annua* seed. However, we are not aware of a source of good quality, certified *Poa annua* seed. Therefore, there is a risk that the seed you purchase will be inferior in quality, consistency, weed seed content, and general performance. After building a root zone, the best method to establish a representative nursery would be to collect aerification cores from the existing 18 greens and spread them over the nursery site two cores deep and then roll the area. If you are currently overseeding your greens with creeping bentgrass, you may also wish to overseed the nursery with 1 or 2 pounds per thousand square feet before rolling the cores.