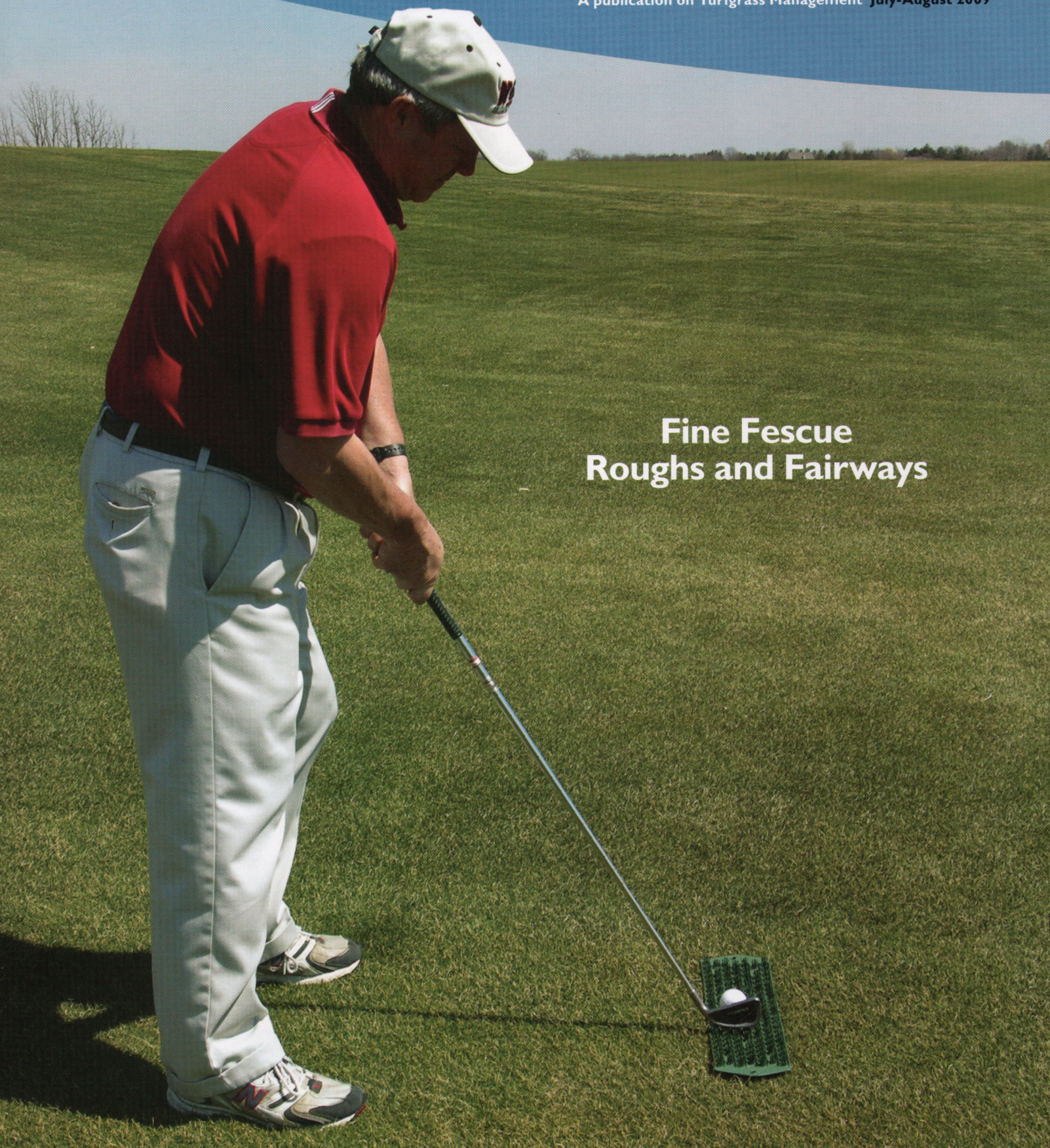


**USGA GREEN  
SECTION**

# RECORD

A publication on Turfgrass Management July-August 2009

**Fine Fescue  
Roughs and Fairways**





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July-August 2009 Volume 47, Number 4

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### Cover Photo

Fine fescue is slow to recover  
from damage, especially when  
turf is dormant or semi-dormant.  
Many highly regarded Scottish  
links courses mandate the use of  
small artificial turf mats during  
winter play to protect dormant  
fairways from divots. Would  
American golfers be as  
accommodating?





Fine fescue performs quite well in unmowed roughs where cart traffic is prohibited and where the irrigation management, soil type, and climate favor this species. Pay attention to its needs and fine fescue can greatly enhance the appearance and playability of a golf course.

# Fine Fescue Roughs and Fairways

Green alternative or niche grass?

BY ROBERT VAVREK

**W**ho doesn't want to be green these days? The concept has become quite fashionable and downright patriotic.

Going green includes, but is not limited to, modifying our lifestyles to rely more on alternatives to fossil fuel, to conserve water/electricity, and recycle/reuse natural resources as much as possible. Perhaps in its simplest and most idealistic form, going green will help save the planet with the added bonus of saving you money. The presence of an entire cable television channel dedicated to a "green" lifestyle is a good indication that this concept is firmly entrenched in today's society.

Ironically, an effective way to go green on a golf course is to go brown. Keeping the course as dry as possible is beneficial to the budget, the players, and the environment. Limiting irrigation conserves water and electricity. Dry, lean, dormant, or semi-dormant playing surfaces require fewer mowing operations and are less susceptible to disease activity, thus reducing

inputs of plant protectants, fuel, and labor. Moreover, dry fairways provide golfers a firm, consistent playing surface and the additional roll coveted by novice and expert players alike.

Sounds easy, but turning a course brown to go green isn't quite as simple as switching to fluorescent light bulbs or installing a low-flow shower head in your bathroom. The species of cool-season grasses commonly used in the U.S. for fairways and roughs vary in their ability to survive the risky process of limiting inputs of irrigation, plant protectants, and fertilizer, especially during the stressful heat and high humidity of midsummer.

Be stingy with irrigation applied to mature creeping bentgrass or Kentucky bluegrass fairways and the turf remains relatively healthy. Granted, overstressing these grasses with inadequate irrigation during hot, dry weather may occasionally result in turf injury, but most of the time the brown, dormant grass can be nursed back to health. In contrast, this same





Seedheads flowing in the gentle breeze is the idyllic perception of a naturalized rough. In reality, a thick stand of grass can be knocked over by heavy wind or rain and not recover.

midsummer management philosophy applied to a predominantly *Poa annua* fairway can easily result in severe losses of turf. Go brown on a *Poa annua* fairway and you will realize the true meaning of *annual* bluegrass while waiting a year for it to recover.

### THE FINE FESCUE OPTION

At first glance, fine fescue turf is ideally suited for a golf course desiring low-input playing surfaces. The term "fine fescue" describes a group of at least five closely related, fine-bladed grasses in the genus *Festuca* that have similar desirable characteristics, such as persistence under low fertility and tolerance to shade and drought. Many plant breeders categorize the fine fescues into two groups based on growth habit. Chewings fescue, sheep/blue fescue, and hard fescue have a bunch-type growth habit. Strong creeping red fescue and slender creeping red fescue are rhizomatous.

Within the past 20 years or so, several breeding programs have developed varieties of fine fescue that have improved disease resistance and the ability to maintain acceptable density at fairway heights of cut. In addition, plant breeders have released varieties of fine fescue that possess high levels of symbiotic endophytic fungi that, among other benefits, greatly increase resistance to insect pests and diseases such as dollar spot and red thread.<sup>1,2</sup>

Historically, fine fescues have been used to establish golf course roughs in blends with Kentucky bluegrass and perennial ryegrass.

The fescue component of the mixtures dominates in sites where sunlight, irrigation, and fertilizer inputs are limited. Naturalized areas of unmowed fine fescue provide the trademark wispy roughs of familiar classic golf clubs such as Shinnecock Hills and Pine Valley.

Contemporary golf course architects have designed courses with vast acreage of unmowed fescue roughs to help define the strategy and enhance the appearance of the layout. Perhaps spurred on by the desire to produce the ultimate environmentally responsible courses in America, a small, but increasing number of architects have gone one step further by specifying pure stands of fine fescue for unmowed roughs, mowed roughs, and fairways. But have they gone too far, expecting a species of low-input grass to perform at a high level that meets the ever-increasing expectations of golfers, and are the significant limitations of fine fescue being obscured by "green" colored glasses?

### FINE FESCUE PERCEPTION

To the avid American golfer, the thought of fine fescue playing surfaces conjures up idyllic images of St. Andrews Golf Links, Carnoustie, and other legendary venues of the British Open Championship. They watch in awe during the wee hours of the morning as the competitors shape low line drives into the teeth of the ever-present wind and marvel as the ball ricochets sharply off the brown turf in a puff of dust and then rolls an additional 50-75 yards toward the hole. These firm, brown fairways make them green with envy when they recall how their last solid contact with a driver at the local course yielded only a net 239 yards when the 240-yard drive plugged in soft, moist turf and then backed up a foot.

Many avid golfers desire the playing conditions they perceive exist for day-to-day play on a Scottish links course. The perception is based on television coverage and, if fortunate, a rare golf excursion to play a round or two overseas. This supports an erroneous assumption that similar conditions can exist on courses throughout the United States by simply planting fine fescue and then turning off the water. However, there are more than an ocean of differences between the average golf course and golfer in the U.K. and their counterparts in the U.S.

Why is fescue so successful on U.K. courses? Keep in mind that what we perceive as pure fine



fescue turf in the U.K. is typically a mixture of fine fescue and browntop (Colonial) bentgrass. This duo produces a relatively uniform stand of turf, though the ratio of fescue to bentgrass will vary throughout the sward, according to growing conditions. Fescue will dominate where the turf is driest and subjected to the least amount of wear, and the bentgrass will dominate where more water and traffic exist. For the sake of argument, let's assume a high percentage of fine fescue exists on a Scottish links course and discuss factors that favor fine fescue.

## ENVIRONMENT, ECONOMICS, AND ATTITUDE

The courses in the U.K. most familiar to Americans are located adjacent to or very near the ocean. The maritime climate at, for example, St. Andrews Golf Links, is mild and relatively consistent throughout the year compared to our weather. The native soil is infertile dune sand that drains extremely well. Many days are cloudy and turf is rarely stressed by heat or high humidity. These growing conditions that favor fine fescue are rarely found in this country, with the exception of a few coastal locations in the northeast or northwest and perhaps the localized area of sand dunes immediately adjacent to Lake Michigan.

Green fees and the cost of memberships at a high-quality links course are very reasonable in the U.K. The average Joe can join a parkland course for summer play and a coastal links course for winter play and not break the bank. Golf is a walking game in the U.K. Few courses have any riding carts and, consequently, cart revenue is nonexistent. Relatively little annual cash flow into a club provides equally little opportunity for high-cost maintenance or high-input grasses.

Finally, the average golfer in the U.K. has a completely different attitude regarding the game compared to the typical serious American player. Green fees there are reasonable and so are the expectations. Perfect, "cookie cutter" conditions on every hole are not required or desired for day-to-day play. Rarely do you detect our incessant obsession for consistency. Bunkers are hazards to be avoided and a good lie in the sand with an opportunity to advance the ball toward the hole is generally considered good fortune. They look forward to playing the same course under the same conditions experienced by their

fathers and grandfathers. Call it tradition, which is a far cry from our players' irrational "blame it on the course" attitude and never-ending efforts to elevate a particular course up to a higher level of conditioning.

Many American golfers believe they are entitled to a perfect lie in a fairway, a perfect lie in a bunker, a perfectly level tee, an easy recovery from an errant shot from a uniform rough, and putting on a green having the consistency of a receptive billiard table with incredible speed that varies no more than six inches throughout the season. It begs the question of whether we are capable of accepting a low-input grass for fairways or roughs.



Yet, the fact remains that fine fescue performs quite well in the U.K., Denmark, Sweden, and other countries where climate, soil type, economics, golfer attitude, and environmental restrictions/regulations favor its use. A low-input turf can provide consistent playing conditions in the U.S. as long as the needs of the grass are addressed and take precedence over expectations for perfection. Avoid the following pitfalls to give fine fescue a fighting chance to survive and thrive on our fairways and roughs.

## DRAINAGE AND IRRIGATION

Fine fescue requires a well-drained soil for optimal performance. It will survive in heavier soils but has difficulty competing with other grasses and weeds where plenty of moisture is available. Fine fescue has no chance of being the

Western spotted knapweed, milkweed, thistles, and other aggressive weeds can quickly choke the life from slowly growing turf in a natural rough. Keeping weeds at bay with herbicides, hand removal, or annual mowing operations is an important component of a successful natural rough management program.



dominant turf species in a chronically wet area of the course.

It should come as no surprise that fine fescue fairways and roughs established on heavier silt loam or clay loam soils in the U.S. have not performed to expectations. Where rainfall is plentiful, simply reducing irrigation across heavy soils generally won't produce the consistently dry conditions required for fescue to successfully compete with grasses such as Kentucky bluegrass, creeping bentgrass, *Poa annua*, and *Poa trivialis*.

Any species of turf growing in chronically wet, compacted soil versus well-drained soil will be more susceptible to problems, including winter injury, wet wilt, rutting from carts/maintenance equipment, and diseases such as summer patch and Pythium blight. Fine fescue has a slow rate of growth compared to bentgrass and other species commonly found on fairways and roughs. As a result, any significant damage or divots will be very slow to recover.

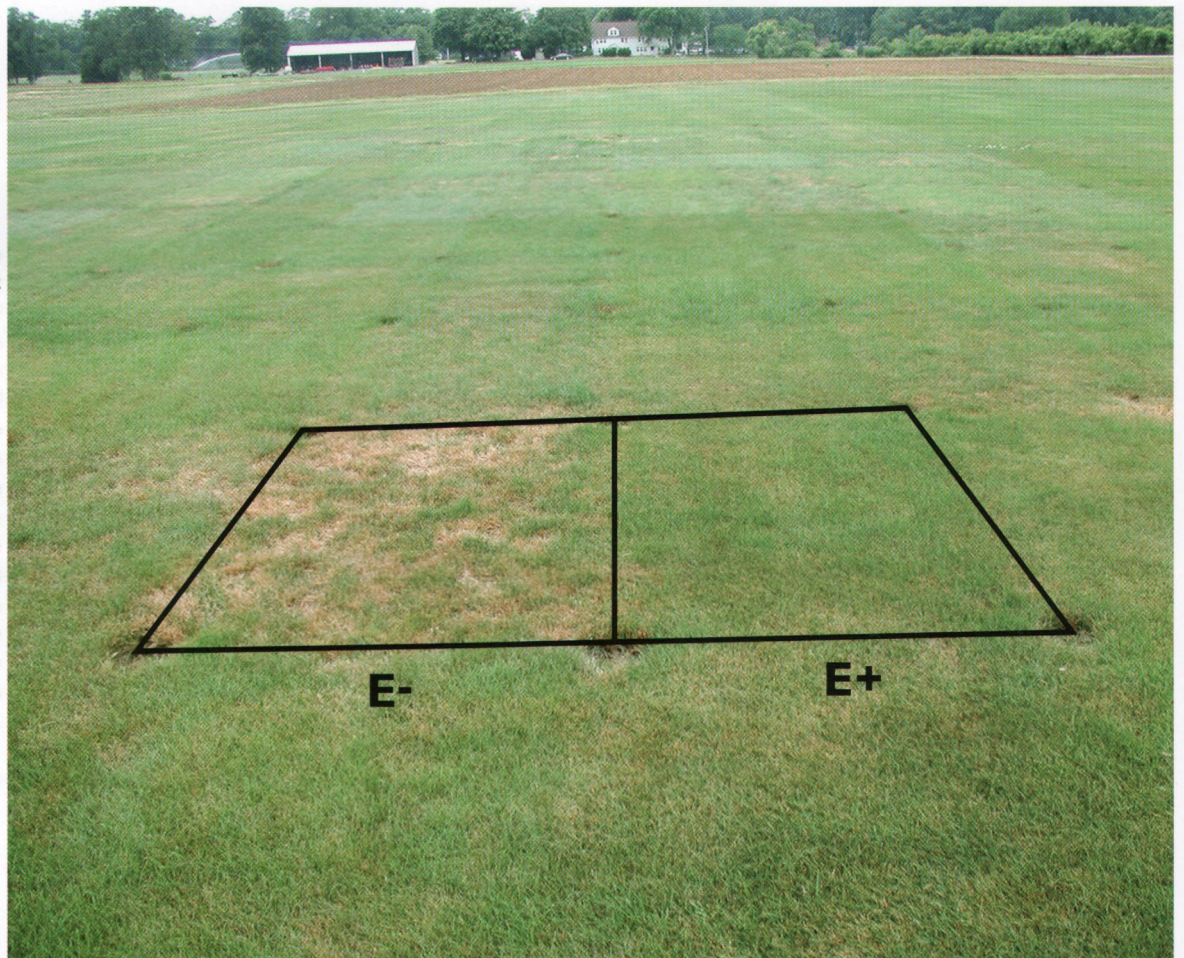
The presence of suitable soil conditions does not guarantee success with respect to fescue management; it only provides the opportunity.

There must be willingness and commitment to greatly reduce supplemental irrigation once the turf becomes well established. Golfers embrace 20 to 30 yards of additional roll and firm footing, but they can be slow to accept the color of brown turf. If you are convinced that emerald green turf is necessary to attract and retain golfers, then fine fescue fairways are not for you. The bottom line is that nothing ruins a high-quality stand of fescue faster than excessive amounts of water, regardless of whether the water comes from frequent rainfall, overwatering, heavy/poorly drained soil conditions, or any combination of these factors.

### TRAFFIC, DIVOTS, AND THE FINE FESCUE PARADOX

American golfers will never reap the full benefits of low-input, fine fescue fairways and roughs until the issue of slow recovery from divots and cart traffic is acknowledged and addressed. We strive to establish a lean, firm playing surface with minimal encroachment from undesirable grasses and weeds. Then we literally wear the

Fine fescue varieties are available with sufficient levels of beneficial endophytes that can increase resistance to diseases such as red thread and make the turf unpalatable to insect pests. The research turf plot on the right with little injury from red thread disease has endophytes, but the turf on the left does not. Photo courtesy of Rutgers University.





grass off the course with 200+ rounds of motorized cart golf per day and have the unreasonable expectation for the turf to recover overnight from traffic and divots.

Golf is a game, but the management of a public or private golf course is a business. Motorized cart fees are a significant and essential source of revenue to the vast majority of courses in the U.S. In fact, courses exist in resort areas that were purposely designed to be played from a riding cart, and walking is neither practical nor permitted. Thus the paradox . . . we want carts and the revenue they provide and then expect a semi-dormant, slowly growing grass to accommodate our desire for perfection.

Golfers and greenkeepers of the coastal links understand, accept, and address the needs of low-input turf. A case in point: when the fairway turf is dormant for several months during winter, golfers at many links courses are required to lift a ball from the fairway and place it on a small square of artificial turf prior to hitting the next shot. This widely accepted practice protects the turf from divots at a time when recovery occurs very slowly. No doubt, we have much to learn regarding low-input turf.

### FESCUE-FRIENDLY TIPS: CHOOSE WISELY

Consult National Turfgrass Evaluation Program (<http://www.ntep.org/>) information to determine the appropriate varieties and species of fescue to use for your particular location. Use fine fescues that have a high level of endophytes for improved resistance to insect pests and diseases. Try to use fine fescue seed within six months of harvest, because the percent of seed germination and the level of endophytes in seed rapidly decline with age.<sup>3</sup> Mixtures of fine fescue and Colonial bentgrass are preferred to seeding straight fescue. The bentgrass will dominate in



The American perception of firm, fast fairways dominated by fine fescue often comes from television commentary at the British Open Championships held at coastal, links courses in the United Kingdom. The climate, soil type, low-input management practices and absence of motorized cart traffic all contribute to their ability to maintain exceptional playing surfaces that have a high percentage of fine fescue.

areas that receive more water and traffic, while the fescue will dominate in the high, dry sites. When it comes to low input, two species are better than one.

### ESTABLISHMENT

Fine fescue has the same critical needs for timely irrigation and fertilizer during grow-in as bentgrass, Kentucky bluegrass, or any other cool-season grass species. Do not limit inputs of water and nutrients during establishment. Use a standard soil test to determine pre-plant fertility needs.

Fescue germinates quickly but is quite slow to tiller and mature. Reduce water and nutrients only after the stand of turf has become well established. Avoid the far too common mistake of opening for play before the turf can accommodate the traffic and wear associated with day-to-day play. Excessive wear on immature fescue can result in rapid encroachment by weeds and undesirable grasses.



## TURN THE WATER OFF

Once an acceptable level of turf density is achieved, the only way to maintain a high percentage of fine fescue in the sward is to limit irrigation. Choose another grass if you are not willing to shut the water off. Take into account the potential relationship between soil type and the rate/frequency of rainfall when considering the use of a grass that must be kept as dry as possible throughout the season. Attempts to maintain fine fescue on heavy soils, especially soils subjected to frequent rainfall, will likely fail. Don't force a round peg into a square hole.



Turning off the water is an absolute necessity when managing fine fescue. Something as simple as the extra water seeping into this dry, unirrigated hillside from a drain exiting an adjacent housing development, has transformed pure fine fescue into a dense tangle of weedy grasses.

## THATCH MANAGEMENT

Thatch management may be necessary, especially if you have difficulty with the concept of cutting way back on inputs of water and fertilizer to fairways and roughs. Recovery from aggressive cultivation will be slow due to the inherent slow growth rate of this species, so less disruptive cultivation techniques, such as vertical mowing, slicing, spiking, and small-diameter coring may be more effective to address a thatch problem than large-diameter coring operations. Limiting fertilizer inputs to 1-1.5 lb. N/1,000 sq. ft. per year will help prevent excessive thatch accumulation.

## DISEASES, INSECTS, STRESS

Be prepared to diagnose and address a few somewhat unfamiliar diseases and insect problems. Keep in mind that symptoms for the same disease may vary between species of cool-season

grasses. Diseases common to fine fescues, such as red thread, summer patch, dollar spot, and leaf spot, can crop up quickly under low fertility. Symptoms of damage from chinch bugs would be unfamiliar to most superintendents.

Fine fescue's strength is its tolerance to drought, shade, and low fertility, but an often overlooked weakness is its sensitivity to heat and high humidity. Never mow the turf when it is under heat/drought stress. Fescue can still be very susceptible to *Pythium* blight during extended periods of hot, humid weather, despite limited supplemental irrigation. Some varieties of fine fescue have experienced injury when treated with chlorothalonil. Make it a habit to check for herbicide or fungicide discoloration or injury by treating a small area of turf before applying plant protectant to the entire playing surface.

## TRAFFIC

Encourage the architect to design a pedestrian-friendly course, and limit motorized cart use. Where carts are an absolute necessity, construct a paved cart path and restrict carts to the path during periods of heat stress. In lieu of a paved path, use ropes/stakes and signs as needed to reduce excessive traffic across localized areas of turf. Those 50 carts that explore every inch of the course during a hot, windy Monday afternoon outing can cause considerable damage to crispy fescue fairways.

Be careful what you wish for. Golfers will notice that green grass plays and looks very different from brown grass, and they ultimately pay the bills. Are your members purists who will readily accept extra firm, off-color fairways and roughs for daily play, or do they simply long for an enjoyable afternoon in a lush, park-like setting? An extra 50 yards of bounce and roll is great, assuming, of course, that the ball rolls down the middle of the fairway. The same golfers who grouse about soft, wet turf and plugged balls will also complain about a slightly errant drive to the perimeter of a firm fairway that caroms beyond the primary rough or settles into a bunker that never seemed reachable when the turf was green and more "receptive."

Regardless of what they want or think they want, the golfers' expectations for intense golf course conditioning may soon take a back seat to the mandate for more environmentally friendly turf maintenance as regulations and restrictions



regarding the use of water, pesticides, and fertilizers become more stringent. It's a good time to keep a step ahead of regulations and develop a plan to establish low-input species on at least a few areas of the course to determine whether or not your soil type, climate, and clientele can accommodate these grasses.

## GREEN ALTERNATIVE OR NICHE GRASS?

Heavy cart traffic, heavy soils, and several weeks or months of hot, humid weather each summer will severely limit the performance of pure fine fescue fairways on the vast majority of U.S. golf courses. A few exceptions exist in sandy sites with a less stressful maritime climate, but other cool-season grass species are generally more appropriate for fairways.

On the other hand, improved varieties of fine fescue can and should be utilized more for naturalized areas of the course and for primary

roughs subjected to relatively little cart traffic. The answer to the question of niche grass versus green alternative lies somewhere between the two extremes.

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BOB VAVREK *discusses the facts, fallacies, and finer points of fine fescue management during Turf Advisory Service visits to Wisconsin, Michigan, and Minnesota.*

Motorized golf carts and fine fescue don't mix. The tire tracks from just one wayward cart could affect the appearance of the course for an entire season. Limiting irrigation to keep fescue fairways dry, firm, and brown will make the turf susceptible to cart damage.







Good communication with the superintendent is an important responsibility of the green chairman so that mutual trust and respect can be established.

# The Role of the Green Chairman

Lessons learned while being on the green committee for more than 30 years.

BY DR. PAUL ROWE

**T**he green committee is charged with the responsibility and given the privilege of maintaining and nurturing the golf course property. Those asked to be the chairman of the green committee must be up to the task. It's not an easy job. It's not a high-paying job. But it is a job that can be very rewarding. I have enjoyed being a part of that process for more than 30 years, and during that time I have accumulated some ideas that may be helpful to others.

## THE COMMITTEE

Basic considerations for membership on the green committee are:

- Who should be on the committee?
- How many people should be on the committee?
- How long should these members serve on the committee?

A small committee seems to work best. One should consider not more than seven. The committee members should represent variation in handicap, gender, and age. Most important is the committee member's ability to communicate the concerns of the membership to the committee as well as from the committee. In other words, appoint members who are well respected and approachable.

The tenure of the members should be long enough to allow them to acquire a basic knowledge of how the property is maintained. It is important to acknowledge that mistakes are part of the process, and committee members should be afforded the benefit of learning the process, making mistakes, and learning from the experience. In addition, the superintendent should not be expected to educate a new

group each year on his role in maintaining the golf course. His time is better spent with a core of knowledgeable members concerning long-range planning and current operational issues. With these factors in mind, I would suggest terms of not less than five years, and the chair should serve at least that long.

## DEVELOP A MISSION STATEMENT

The mission statement should be fashioned from input and reviewed by the green committee, governing board, and management, and should be published to the membership. It should reflect a broad yet definitive image. It should become the focal point and benchmark of any considered modification to the golf course property. Staying focused on the statement will



lessen overzealous “personal preference” discussions.

## DEVELOP A POLICY

The common thread in good policy is *consistency*. The best way to be consistent is to establish a written standards manual for the golf course. The goal of the policy should be to fulfill the obligation of the committee to the property, to the membership, and to the game of golf by creating the intended image set forth in the mission statement. The golf course should reflect that *image* in its *substance*. An effort should be made to allow the membership to enjoy each round while giving them every opportunity to improve their game. Keeping this in mind, the committee should strive to produce a course that can provide a good test for the better player and allow ample opportunity for the higher handicapper to enjoy every round.

## THE BUDGET

The budget should reflect and support the desired level of maintenance and conditioning. As a starting point, 65%

of golf membership dues and net profits related directly to golf (i.e., green fees, carts, range, etc.) should all be allotted to the operations and capital budget of the golf course property. The golf course is the most important asset of any club; therefore, it should receive the lion's share of fiscal investment.

Within the operational budget, the payroll should hover at 65% of the total budget, as the upkeep of golf course property is very labor intensive. Keep in mind that the *quality* of the labor should come before the *quantity*.

## AGRONOMY

It is not necessary for committee members to know all the scientific names, nuances, and uses of the various chemicals and agents employed by the superintendent. Keeping pace with changes in the areas of golf course applications and agronomic practices would require unusual time and talent, and it is simply not necessary. In my opinion, there are three simple things one needs to know about agronomy that will aid in understanding the majority of turf-related programs:

1. Water
2. More than eight hours of sunlight
3. Drainage

**Water:** When observing an area of turf that is not doing well, one can ask, “Is this area getting too much water? Not enough water? Is the water quality good, bad, indifferent?”

**More than eight hours of sunlight:** Is the area getting at least eight hours of full sunlight? If not, why not?

**Drainage:** If water or sun exposure is not the problem, then find out if the area has adequate drainage.

If you find that these basic questions can be answered satisfactorily in the affirmative, then the problem must be elsewhere. My experience has been that the solution to the majority of problems can be answered by first asking those simple questions.

## COMPLAINTS

The pecking order for complaints is historical in nature. The progression is typically greens, fairways, roughs, bunkers, tees, and so on. Establishing standards in these areas is tantamount to reducing, if not resolving, many



Above left: Water has a memory like an elephant; it will tend to go where it has always gone. The importance of adequate drainage is a key issue that the green chairman and committee need to understand. Above right: Bunkers should rank fourth in the pecking order for complaints. Establishing realistic maintenance standards for bunkers and other areas of the golf course is tantamount to reducing and resolving many disputes.



disputes. The following is a brief summary of some of the standards we have established at my home club that may serve as a guideline for the development of your own standards:



Turf requires eight hours of sunlight for healthy growth and development. Prune trees anytime; remove trees any other time when no one else is around.

## GREENS

**Pace:** Establish a minimum variation in the Stimpmeter readings. As an example, my home course has a standard of 10 feet  $\pm$  3 inches as measured by the Stimpmeter. Be sure that your practice putting green is consistent in pace with those on the golf course. Remember that the Stimpmeter was developed to compare the grooming of the greens so as to make them consistent in pace. This information is best left unpublished.

**Smoothness:** Probably more important than pace. Achieving a goal of smooth-rolling greens is possible through many methods: brushing, rolling, frequent topdressing, etc. Keep in mind, golf is played on the surface, not in the rootzone. Do not confuse the agronomic condition of the turf with good playability.

**Hole Placements:** The slower the green pace, the more hole placements

are available. Watch diligently for traffic patterns on and off the green complex. Wear patterns can effectively be reduced by frequent changing of hole placement, and the more place-

ment areas there are, the better! The USGA has published guidelines for pace and slope as they relate to fair hole placement that can be very helpful in this regard.

## FAIRWAYS

**Rollout:** The distance a ball rolls once it lands on the fairway is a function of the fairway firmness, height of cut, and moisture content. Somewhere in the vicinity of 15 to 25 yards is ideal.

**Height of Cut:** As well as affecting rollout, height of cut can vary ball spin. Smooth, tightly cropped fairways can give the illusion of having the ball "sit up" and also produce a more controllable ball flight. Higher heights of cut appeal to some players; however, ultimately they produce a compromised playing condition.

**Width:** Utilizing the architectural design of the course is primary to fairway width. A pleasing bilateral

sightline should supersede any width requirements.

## ROUGH

Allow for definition between the fairway and rough. Try to avoid grass length that lends itself to frequent lost ball searches.

## BUNKERS

Remember that these are hazards. Try to maintain some consistency with like sand and proper depth. By placing rakes outside the bunkers, less foot traffic disturbance occurs.

## TEES

Establish turf that is of apron texture and height of cut. When establishing the direction of tees, stand approximately 20 to 30 yards behind the tee to sight the fairway line, and then determine the direction of cut. Remember that par-3 tees quickly mound in the middle due to frequent divot filling. Leveling should be a constant concern.

## THE SUPERINTENDENT

The green chairman should communicate frequently with the superintendent and make written notes of items to be discussed. There are certain tenets that I believe to be universal. The most important golfer to the superintendent is the one who is playing *today*. This idea translates into fixing problem areas *now*! I want our superintendent to use a white line around a problem area. This practice indicates two things to me: 1) the superintendent has seen the problem, and 2) he or she intends to *do something* about it! The superintendent should see the golf course through the eyes of the golfer. Sound agronomic practices can be appreciated only if they favorably affect the quality and "texture" of the playing surfaces.

Establish trust and mutual respect with the superintendent. Get to know his or her personal side. Keep up with events in his or her family life. Try never to disappoint each other. Advocate publicly; criticize privately. Never



surprise the superintendent in a green committee meeting. Allow him or her to preview the agenda. Continue to remind the superintendent that *awareness* can easily give way to *routine*. Make certain the superintendent has all the tools to succeed, such as equipment, budget, and time, and be willing to support the things that are needed. Enjoy your relationship and, most importantly, have fun.

## THE CREW

Aspire to convert the technician into a skilled worker. A basic knowledge of golf is the key ingredient to understanding why chores are performed in specific ways. A good way to develop this understanding is to give the crew golf lessons and allow them to play “their” course. Keep the maintenance facility clean and healthy — it is the crew’s *home away from home*.

## THE ASSISTANT

It is my general feeling that an assistant who strives to become a superintendent should be employed not more than three years. After all, this period of employment should be a learning experience. During this time, the superintendent has to be a teacher, which in itself is a good exercise for the superintendent. Keep in mind that it is more important for the assistant to ask the right questions than to know any of the answers.

## CONSULTANTS

Good advice is never cheap and cheap advice is never good. Outside consultants are very helpful, especially with issues related to water, tree problems, irrigation, and special projects. The USGA Turf Advisory Service and many of their publications are wonderful resources. It also is important for the superintendent to actively maintain continuing education activities and certifications.

## PRIVILEGE VS. POWER

The members of the green committee should provide stewardship and leader-



The green chairman and committee members should keep abreast of vital environmental issues that affect the club, such as opportunities to eliminate turf in out-of-play areas to reduce water use.

ship by being aware and keeping abreast of local activities, such as water requirements and other vital environmental issues. They should attend local and regional meetings and seminars related to all issues concerning the golf course property.

Finally, the reward for your service to the green committee will come from the satisfaction of being a good steward to the land *and* to the game of golf. If you develop a parental concern for the property, you will have done a good job!

## ADVICE TO GREEN COMMITTEE MEMBERS


Being on the green committee for more than 30 years has given me an interesting perspective on our golf course and what it takes to have a functional, productive green committee. Over the years I have collected what I refer to as *truisms* that apply to our golf course and being on the committee. Some are mine, some I have heard along the way, and I hope that current and future committee members can benefit from these simple truths:

- Most superintendents over-water and under-fertilize.

- Water has a memory like an elephant; it tends to go where it has always gone.
- Mother Nature is no lady.
- We do not play golf in the trees; we play it on the ground. Prune trees anytime; remove trees any other time when no one else is around.
- If someone complains about the lack of shade on the golf course, tell them to take a cart with a roof on it!
- The only “color” on a golf course should be flowers and flagsticks.
- Sodding is rarely a solution.
- Golf is played on the surface, not in the rootzone.
- Agronomy is science; green keeping is an art.
- Try on your hat once in a while; make sure it still fits.
- Good greens make the hotdogs taste better.
- When in doubt, do nothing.

DR. PAUL ROWE *has served for more than 30 years on the green committee of The Arizona Country Club in Phoenix, Arizona, where he continues to be an active golfer and member of the committee.*



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*Research You Can Use*

# Summer Irrigation and Aeration on Creeping Bentgrass Putting Greens

Research at the University of Maryland reveals important insight for managing bentgrass greens during summer.

BY JINMIN FU AND PETER H. DERNOEDEN





## OBJECTIVES

- Evaluate physiological processes and rooting of putting-green-height creeping bentgrass in response to two irrigation management and three core aeration regimes.
- Determine the effects of core aeration and irrigation frequency on creeping bentgrass summer performance and root longevity during periods of high temperature stress.
- Provide information on the effects of soil temperature and soil water content on carbohydrate metabolism and its relationship to summer bentgrass decline.

Start Date: 2005

Project Duration: Three years

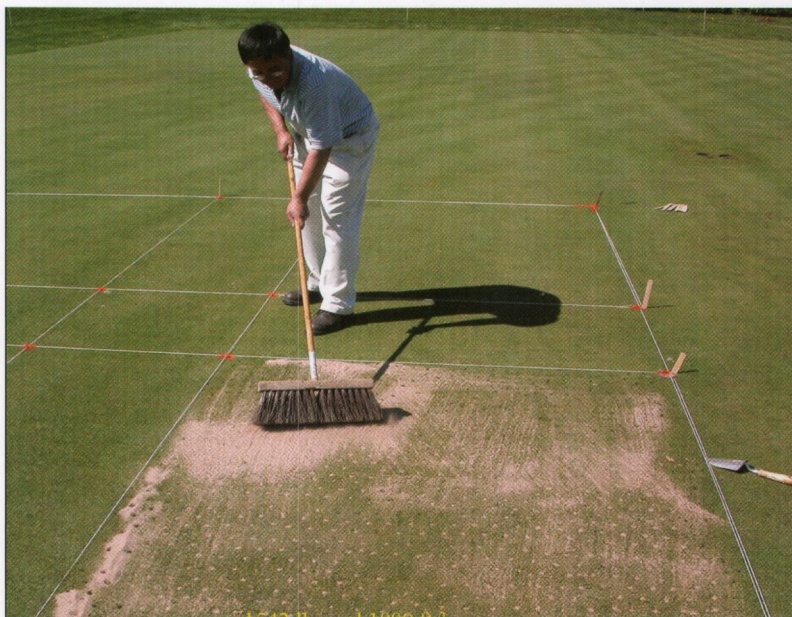
Total Funding: \$90,000

There has been little study on the impact of irrigation and core aeration management on rooting in creeping bentgrass grown in a sand-based rootzone under field conditions. Research conducted at the University of Maryland adds insight into these vital management tools.

Providence creeping bentgrass was grown on a sand-based rootzone meeting USGA recommendations. Plots were subjected to two irrigation programs: light and frequent versus deep and infrequent. Lightly/frequently irrigated plots were irrigated daily on rain-free days to maintain a moist condition in the upper 1.5-2.5", whereas deeply/infrequently irrigated plots were irrigated at leaf wilt to a depth > 9.5".

A majority of roots (55%) were found in the upper 2.4" of soil at the end of the summer, regardless of irrigation regime. Deeply/infrequently irrigated bentgrass produced a greater number of roots, longer roots, and a larger root surface area and a smaller root diameter (2007) versus lightly/frequently irrigated bentgrass.

Soil temperatures were on average 1.4°F greater in lightly/frequently irrigated bentgrass. Deeply/infrequently



Spring core aeration holes were filled to the surface with topdressing, but in summer, aerated plot cores were brushed to reincorporate the soil, and no additional topdressing was applied.



Photosynthesis and whole plant respiration were determined by enclosing the turf canopy in a transparent plexiglass chamber attached to a carbon dioxide analyzer.



Spring plus summer treatments involved coring in April, combined with three summer corings using hollow tines.



Data indicated that summer core aeration should be avoided during the first summer of establishment. If necessary, core aerate only to the depth of the thatch-mat layer.



Deeply/infrequently irrigated bentgrass produced a greater number of roots, longer roots, a larger root surface area, and a smaller root diameter versus the lightly/frequently irrigated bentgrass.



Rooting tubes were inserted into each plot to measure rooting as affected by different irrigation and aeration regimes.



irrigated bentgrass had lower canopy photosynthetic rates, but respiration was similar to lightly/frequently irrigated bentgrass. Canopy temperatures were 4.0°F higher in deeply/infrequently versus lightly/frequently irrigated bentgrass.

Deeply/infrequently irrigated bentgrass had lower color and quality and lower chlorophyll levels in 2006 and most of 2007. By late summer, however, color and quality and higher chlorophyll levels were detected in deeply/infrequently versus lightly/frequently irrigated bentgrass. Deeply/infrequently irrigated bentgrass developed a less thick thatch-mat layer, which contained less organic matter versus lightly/frequently irrigated bentgrass.

Deeply/infrequently irrigated bentgrass leaves had higher water-soluble carbohydrate and total non-structural carbohydrate levels in 2006, but higher storage carbohydrate levels in both years. Deeply/infrequently irrigated bentgrass had higher storage carbohydrate and non-structural root carbohydrate levels than lightly/frequently irrigated bentgrass in both years. Deeply/infrequently irrigated bentgrass accumulated proportionately more non-structural carbohydrate in roots versus leaves. Nearly twice as much water was applied to lightly/frequently versus deeply/infrequently irrigated plots in both years.

Regarding core aeration, three regimes were assessed: spring only, spring plus three summer corings, and a non-cored check. Spring core aeration holes were filled to the surface with topdressing, but in summer, aerated plot cores were brushed to re-incorporate soil and no additional topdressing was applied. The study was conducted in a mature stand of Southshore in 2005, but a new site of Providence was established in 2005 and rooting was assessed in 2006 and 2007.

In 2005 in the mature Southshore, total root counts and total root length were increased by summer coring versus spring coring. In 2006, summer



# CONNECTING THE DOTS

An interview with DR. PETE DERNOEDEN regarding research on the effects of irrigation and coring strategies for maintaining creeping bentgrass putting greens.

**Q:** Do your results suggest that superintendents who use a light, frequent irrigation strategy produce greater organic matter in their greens (i.e., thicker thatch layer)?

**A:** The study clearly showed that light, frequent irrigation enhanced organic matter production in the thatch-mat layer. This was attributed to the ability of plants to produce more tissue in the presence of plentiful soil moisture versus less growth that occurred in drier soils of deeply/infrequently irrigated plots in summer.

**Q:** Superintendents need to be aware of how cultural practices affect turf carbohydrate levels. How important is an irrigation regime in affecting the turf's carbohydrate levels, and are there implications for the turf's overall health and ability to recover from damage?

**A:** Both coring and deep, infrequent irrigation resulted in improving the carbohydrate status of plants. Coring improved soil aeration and nutrient availability, while deep, infrequent irrigation limited growth and thus reduced carbohydrate usage. The trade-off was reduced quality for two weeks after coring, and lower green color ratings in bentgrass that was frequently subjected to wilting.

**Q:** How do light/frequent versus deep/infrequent irrigation strategies compare in terms of overall (i.e., seasonal) water use? Are there implications for leaching potential, nutrient efficiency, and fungicide activity for disease control?

**A:** We quantified the amount of water applied to lightly/frequently and deeply/infrequently irrigated plots, and twice as much water was applied to lightly/frequently irrigated plots. The increased amount of water applied to lightly/frequently irrigated plots would be expected to increase leaching and microbial competition for nutrients and possible enhanced degradation of some pesticides. Furthermore, light/frequent irrigation would be expected to promote moss, algae, annual bluegrass competitiveness, and some diseases such as Pythium blight and brown patch. Also, wet greens hold a lofted shot better, but they are damaged more by ball marks.

**Q:** What is your message to superintendents who are convinced that light/frequent irrigation produces a better playing surface than deep/infrequent irrigation?

**A:** There is no question that light/frequent irrigation promoted a more aesthetic surface. From a playability perspective, light/frequent irrigation also would contribute to more shots staying/holding on greens and slower green speeds and thus lower scores and perhaps happier golfers. From an agronomic perspective, however, deeply/infrequently irrigated turf would be expected to promote a more stress-tolerant turf with fewer pest problems, and it would result in increased green speed.

**Q:** Your studies indicate that spring and spring plus summer cored plots develop a thicker thatch layer than non-cored plots. Isn't this contrary to popular belief that coring speeds up thatch breakdown?

**A:** Coring is performed for several reasons, including improving air and water infiltration, promoting rooting and root longevity, and presumably to reduce thatch. In fact, most studies show that coring alone has little or no impact on reducing thatch. The current study evaluated spring and summer coring without routine topdressing (although spring cored holes were filled and sand was reincorporated following summer coring). Data clearly showed

that coring alone had no impact on organic matter formation. These findings were similar to coring studies conducted by Dr. Murphy and Dr. McCarty and co-workers in Michigan and South Carolina, respectively. Research conducted by Dr. McCarty and co-workers also demonstrated that an aggressive program of coring combined with verticutting and frequent topdressing is required to stay ahead of thatch production.

**Q:** One conclusion was that coring should be avoided during the first summer after establishment. True?

**A:** First and foremost, the study indicated that coring the summer following establishment not only does not affect thatch production, but that it reduces root number and length compared to one spring coring and no coring. Also, quality ratings were much lower in cored plots in the first summer following establishment versus the second year when turf was more mature. In short, coring was harmful to the immature green, and there were no benefits to counterbalance the first summer negatives.

Just think about it for a minute. One very important reason for coring is to alleviate compaction and improve aeration and water movement into and through a rootzone. In a new, sand-based green built to USGA particle size specifications, poor drainage and aeration should not be an issue the first year. Hence, there really should be no compelling need to core the first summer. Since grow-in involves very high inputs of nitrogen, thatch formation will be a concern. If levels become excessive, then a superintendent may consider less invasive coring and light topdressing. That is, coring tines should be cut to equal the depth of the thatch layer. Less deep and invasive coring would be expected to have less of an impact on the young root system as well as leaves and sheaths, and turf recovery should be more rapid versus deeper coring an immature green the first summer of establishment. Thus, one of our recommendations for future research projects was to consider evaluating tines of shorter length and different diameters for their effect on thatch accumulation in greens in the first year of establishment. Since coring alone would not be expected to impact organic matter production, future studies should incorporate a topdressing program as well. If anything, the topdressing will dilute the organic matter and improve the growing environment for plant stems and roots near the surface.

**Q:** What were the results when you investigated tine diameter, and what are your recommendations?

**A:** We did use larger diameter tines in spring than summer, but we did not critically evaluate different tine diameters or types. Data showed that the carbohydrate status of plants is higher and more favorable for turf recovery in spring than summer. Thus, the greater damage from the wider diameter tine in spring is balanced by the greater levels of carbohydrates (used in recovery) at this time of year. In summer, plants are not growing as rapidly as in spring or autumn, and bentgrass carbohydrate levels are at their lowest levels in July and August. Thus, plants would have more difficulty recovering from injury induced by larger than smaller diameter tines in summer.

**Q:** Most often, turfgrass research projects are two to three years in duration and are conducted on newly established sites. Do you think the results of your study would have been different if the study had been conducted on putting green turf that was more than 10 years old?

**A:** I think one of the most important findings of this study was to establish where living roots exist in the profile and how many there are during the summer from the year of establishment to

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maturity. There was a much greater root system in the first year of establishment versus the second year. For example, between September of the first and second year of establishment, there were 68% and 32% fewer roots in lightly/frequently irrigated versus deeply/infrequently irrigated plots in 2007 than were observed in 2006, respectively. While I think many superintendents have made a similar observation, this finding has not been previously quantified or reported in the literature. This study clearly indicated that while rooting was promoted by coring and deep, infrequent irrigation, the actual magnitude of the differences was largest in the uppermost 6 cm of the rootzone.

Regardless, even small increases in root number and length and total root surface area deeper in the profile would be an asset during periods of stress and would be expected to scavenge more water and nutrients. However, most roots, regardless of irrigation method and coring versus not coring, were found in the upper 6.0 cm of this well-drained and aerated rootzone. Roots need oxygen to live, and a poorly drained rootzone is a prescription for trouble in the summer. In older greens, as soils become more compacted and plugged, the result will be slower water drainage and less favorable soil aeration. This is the Achilles heel of older greens, since these conditions would likely result in a more diminutive and poorly functioning root system. Hence, a root system in an older green would be expected to respond favorably to both summer coring and lower overall levels of soil wetness associated with deep, infrequent irrigation.

**Q:** Although this was an excellent look at managing creeping bentgrass during summer, if you had the opportunity to redesign this experiment,

are there aspects that you would change? What questions need further investigation?

**A:** Every research project creates new questions and a need to further pursue the unknown. If a scientist had the time, funding, skilled and devoted labor, and patience, there is much that could be done to improve on our study. One thing you have to keep in mind is that the minirhizotron imaging technique that we used to quantify rooting parameters is labor intensive, extremely time consuming, and tedious. For example, the roots in each image (and there were over 14,000 photographed images involved in this study) must be traced, and no two people are likely to do this the same. Hence, to preserve accuracy, it is a one-person job, requiring months of time. Hopefully, a less labor-intensive method will be developed to enable scientists to monitor living roots in the field. It would be interesting to conduct a study in a push-up green versus one that was sand-based and in greens of various ages. Researchers' imaginations often run away, but reality sets in on what can be reasonably accomplished. But it also would be interesting to consider different growing environments, such as shaded sites. Since the nature and hydraulics of any push-up green are likely to vary greatly from one golf course to the next, the findings may be more difficult to interpret. Hence, it would be more prudent to evaluate rooting in sand-based rootzones since they are the preferred method of putting green construction, and sand particle sizes can be reasonably standardized. One could also correctly argue that region, species, cultivar, and many other edaphic and environmental factors should be addressed. The bottom line is that a group of collaborators could spend their careers on such a project and more questions would still arise.

JEFF NUS, PH.D., manager, Green Section Research.

core aeration reduced rooting in the immature Providence. Total root counts and total root length generally were greater in the entire profile in spring plus summer cored versus spring or non-cored bentgrass in the more mature Providence in 2007.

Data indicated that summer core aeration should be avoided in the first summer of establishment. If necessary, only core aerate to the depth of the thatch-mat layer. The percent total root counts in the 0-2.4" of soil ranged from 61% to 74%, from 58% to 59%, and from 62% to 77% among all three coring treatments in late summer of 2005 (mature Southshore), 2006 (immature Providence), and 2007 (mature Providence), respectively.

Spring and spring plus summer cored plots developed a thicker thatch layer than non-cored bentgrass. The amount of organic matter (loss on ignition) in the thatch-mat layer increased in all three regimes, but

the levels remained the same among regimes. However, the organic matter concentration (gravimetric organic: dry weight of cores) was lower in cored plots. Organic matter concentration less than 110 g kg<sup>-1</sup> was associated with better turf performance.

Spring and spring plus summer coring reduced quality for about two weeks, but generally coring resulted in higher color ratings than non-cored bentgrass. Late summer quality was better in cored plots. Chlorophyll a and a+b levels were higher for spring and spring plus summer cored bentgrass in both years.

### SUMMARY POINTS

- Deep, infrequent irrigation produced a greater number of roots, longer roots, a larger root surface, lower soil temperatures, less thatch, and generally higher water-soluble and total non-structural carbohydrates than light, frequent irrigation.

- Data indicated that summer core aeration should be avoided in the first summer of establishment.
- Spring and spring plus summer cored plots exhibited reduced quality for about two weeks, but generally had higher color ratings and chlorophyll a and a+b levels than non-cored plots by late summer.

### RELATED INFORMATION

<http://usgatero.msu.edu/v08/n06.pdf>  
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<http://turf.lib.msu.edu/ressum/2008/10.pdf>  
<http://turf.lib.msu.edu/ressum/2007/13.pdf>  
<http://turf.lib.msu.edu/ressum/2006/17.pdf>

JINMIN FU, PH.D., horticulture professor, Wuhan Botanical Garden, The Chinese Academy of Science, Wuhan City, Hubei, China; and PETER H. DERNOEDEN, PH.D., professor, Department of Plant Science and Landscape Architecture, University of Maryland, College Park, Maryland.



# The Perfect Complement

Merging two private clubs has increased member value and improved operational efficiencies.

BY BRENT PALICH

**O**n March 1, 2006, the governing boards of Mayfield Country Club and Sand Ridge Golf Club stunned the Cleveland, Ohio, country club world by announcing their intention to merge operations and memberships. Within two months, both memberships voted in favor of the merger by more than 90 percent and commenced operation of the Mayfield Sand Ridge Club.

These two clubs were entirely different. Mayfield was a prominent family club with numerous club activities and services, while Sand Ridge's reputation evolved solely from its fantastic golf experience. The thought of having these two different but complementing identities combining to create one dynamic club became a reality. The merger was made with the premise that members and prospective members would now enjoy unparalleled amenities in comparison to other area private clubs. Thus, member retention and recruitment would be enhanced.

## THE FAMILY CLUB

Mayfield Country Club originally opened in 1909. The golf course was designed by local golf talent W. H. "Bertie" Way, who became the club's Head Professional for 51 years. During that time the club hosted the 1915 and 1919 Western Opens, and more recently, the 1990 and 2005 Women's State Amateur Championships.

By 1960, Mayfield Country Club was a complete "family club." It offered an array of amenities for the entire family — swimming, tennis (grass and hard surface), platform tennis, and curling, which are still offered to this day.



The Sand Ridge Course includes 160 acres of wetlands. Sand Ridge is recognized by Audubon International as a Bronze Signature Sanctuary.

## THE GOLF CLUB

The property where Sand Ridge Golf Club is located was originally slated to become a sand and gravel quarry. The land was previously owned by Fairmount Minerals (Best Sand), a company based in Chardon, Ohio, that processes and distributes silica sand to golf courses nationwide. The property consists of 160 acres of wetlands, which Fairmount Minerals deemed too difficult to mine, so company chairman and avid golfer William Conway decided to build a golf course. World-renowned architect Tom Fazio was given 370 acres to design 18 holes around the native wetlands.

The "golf-only club" opened in 1998 to rave reviews. It became Ohio's first golf course to receive "Signature Sanctuary" distinction from Audubon International. *Golf Digest* recognized Sand Ridge as the Runner-up Best New Private Course in 1999, and it is

currently among *Golf Digest's* "100 Greatest Golf Courses." The course has played host to numerous USGA qualifiers and NCAA events in its brief ten-year history.

## EMBRACING DIFFERENCES

In addition to the cultural differences between the two clubs, there are plenty of physical differences between the two courses. The Mayfield course has the feel of classical architecture. The soil-based greens are composed of the same mixture of bentgrass and *Poa annua* that is found on the tees and fairways. The turfgrass species in the rough are numerous, ranging from bluegrass and ryegrass to fescue and *Poa annua*. The course was crafted through a dense oak forest with generous rolling fairways and small greens. In general, it is well received by all levels of golfers.





The director of golf course operations and the superintendents of the golf courses coordinate projects and events at weekly meetings.

Sand Ridge is a modern-style course that boasts L-93 creeping bentgrass greens, tees, and fairways. The rough consists of a very dense monostand of Kentucky bluegrass, and because of its proximity to the neighboring sand quarry, there are a copious number of bunkers. Its picturesque routing around the wetlands is equally difficult and fair.

The differences are plentiful between Mayfield and Sand Ridge, but that has ultimately created one unique club. The board of governors and the membership embrace these differences. The numbers, in terms of golf rounds, speak for themselves. Before the merger, both clubs were averaging 12,000 rounds per year. Currently, the number of rounds at each course is virtually equal; however, the new club combines for 26,000 annual rounds. The interesting fact is how the play is distributed between the two courses. Nearly 70% of the club's 10,000 annual guest rounds are played at the Sand Ridge course, while more member play takes place on the Mayfield course.

## INTEGRATING OPERATIONS

From the first year of the merger, the club has operated with one general manager, and all accounting and human resources were combined, while all other operations, including the golf course grounds, remained separate. Now, all departments are working closer together, including the golf course grounds at the two locations.

Our goal in merging the grounds departments can be stated simply: "To become more efficient without compromising member satisfaction." As if that goal is not difficult enough to achieve, it must be accomplished by synergizing two grounds staffs that are 17 miles apart.

So how do we accomplish our goal? Most importantly, we have to understand that each individual employee and department is equally important to the overall success of the club and that no individual employee or department is larger than another. If the club fails, each employee and department fails alike.

The restructured grounds department embraces this ideal. We now have superintendents overseeing the daily operations at each course and a director of golf course operations working closely with both superintendents. The role of the director is to guide budgeting, project management, member communication, implementing best practices, and most importantly to make sure that the two courses are working efficiently and effectively.

When combining grounds departments, we take extreme caution not to jeopardize our clubs' historical presence. We want to keep the integrity of each facility and not alter their previous identity. Each superintendent is chal-



The mechanics at both courses work closely to maintain and service the equipment.





Prior to the merger, aeration was completed with the assistance of contractors and temporary labor. Now the two golf courses have the ability to complete all aeration in-house by transferring labor and equipment.

lenged to develop a strategic maintenance program that is unique to the individual property. The variations in turf, soils, and even the type of golf rounds (member vs. guest) play an instrumental part in preparing the varied programs. When programs are finalized, we can take more of a synergistic approach with expenses and labor.

The two grounds departments continue to operate with their own staff and equipment for daily procedures. Labor and equipment are transferred for special projects and events. The grounds management team meets at least once per week to discuss a number of topics. In these meetings we elaborate on weekly plans, staffing, and equipment requirements, course conditions, and budgets. It is important that the entire management team understands how a project or event at one course can directly affect the operation at the other course.

Our management team discusses best practices throughout the week. When making purchases, whether large or small, we always consult with each other. We try to purchase similar items and in bulk as much as we can, providing us with a substantial savings. Now that our purchasing quantities have doubled, we are rewarded for buying in bulk. Doing so sometimes

forces us to make compromises; however, we will never buy a product if it's not going to be effective.

We refrain from having both courses closed on the same day. By altering outings, maintenance days, and projects, the membership is assured of having at least one course open at all times. Mayfield has a maintenance day on Monday, while Sand Ridge's weekly maintenance day is on Tuesday. Sometimes this can be very challenging, but through good communication and prioritization, we can ensure that all tasks are completed on both courses.

We alternate aeration not only as a member service, but also to allow us to better utilize our equipment and labor. By sharing equipment and transferring labor, we now can finish aeration in the same amount of time it took before the merge, using contractors and temporary labor. We can utilize half the number of transferred employees, as compared to the previous use of temporary labor, because of their familiarity with the aeration process and the golf course itself.

In order for our operation to be successful, not only does the management team have to work together, but the entire staff must understand the importance of becoming more efficient. Our philosophy is to hire, train, and retain employees who are proud of

their job and the organization, and who are willing to take ownership of their positions. Several of our full-time employees have either a college education or, at the very least, experience in the industry and are devoted to a career in the golf business. Some of our key positions at each course are assistant superintendent, spray technician, irrigation technician, horticulturalist, and equipment technician. Other key positions that have specialized duties shared between courses are arborist and office administrative assistant.

## SUMMARY

Three years into the merger, the club is doing well. Members and staff alike have come together to form a unique bond. We continue to embrace our differences and we are dedicated to preserving our traditions. However, our unbiased approach keeps us searching for improvements. The vision that the board and upper management developed will continue to evolve. With proper planning, prioritizing, and open minds, we will continue to provide our membership with great service and equally great value.

*BRENT PALICH is the director of golf course operations at the Mayfield Sand Ridge Club.*



# Communication in the Workplace

Say what you mean and mean what you say!

BY DAVID OATIS



There is no substitute for straightforward, face-to-face communication!

USGA agronomists field all kinds of questions during the course of a Turf Advisory Service visit, just as superintendents do every day. The successful agronomist/superintendent must learn to consider carefully the questions posed during a visit. Some questions are harder to interpret than others, and at times there also may be language barriers. Agronomic terms are used by superintendents, whereas course officials may use terms or jargon from their line of work. Not surprisingly, this can produce confusion, misunderstandings, and frustration. The end result can be unhappy/unsatisfied golfers, or worse yet, an unwanted change of employment.

One would think that with all of our modern communication aids (phone, voicemail, email, texts, etc.) we would communicate more effectively than ever. You could certainly argue that there is more communication going on now than ever before, and on the surface, that would

seem like a positive. Unfortunately, communication sometimes is conducted so quickly and haphazardly that it raises more questions than it answers. Some communication is so filled with jargon and cliché that a translator is needed to decipher the message. Here are a few tips aimed at making you a more effective communicator.

## WRITE CLEARLY AND SUCCINCTLY

Remember the email question you recently sent? The email was not read carefully, so the response was not thorough. A follow-up email then had to be sent, but this too was read quickly and another incomplete answer was fired off. Now a third email was sent, rewording the original question. Since the person receiving the email clearly was distracted or in a hurry, he did not take the time to read the chain of emails that preceded your third try, so this, too, was unsuccessful. Both parties are speaking different languages and both are becoming aggravated. Worse yet, the third attempt was copied to others who did not take the time to read the first email or the preceding chain. They now weigh in on what they think the question is, or, being confused, elect to just ignore it. In either event, more time has been wasted and the frustration level goes up another notch!

In this example, plenty of communication has occurred, but it was done so haphazardly that it created more confusion than it dispelled. Everyone now seems to have a PDA or smart phone, and while these tools can make communication faster and easier, they also make it easy to respond too quickly and from locations that are not conducive to thoughtful communication. With a hand-held device, it also can be tougher to thoroughly assimilate the information in longer email messages. As the saying goes, "Haste makes waste."

## TIPS

- Take the time to email clearly. Keep messages short and to the point, leaving no doubt as to the intent of your communication.





Few golfers or committee members understand the relationship between winter shade and winter injury. It can be tough to get golfers out on the course during the colder months, so a picture can tell the story.

- Set off questions in bullet points for clarity and organization.
- Read email carefully and completely before responding. If the intent is not clear, you may need to ask for clarification.
- Make sure you are answering all of the questions posed.
- If you do not have the time to do a thorough job, do it later when you have the time. You may want to send a quick email acknowledging receipt of the message and stating that you will respond as soon as you are able.
- Some questions are so involved that they cannot be answered easily on a PDA, so avoid the temptation to fire off that quick answer “just because you can.” Responding quickly, but inaccurately or incompletely, saves no time.
- Email and text messages are handy forms of communication, but they cannot replace a phone call. If the question is too complex, you’re better off picking up the phone and discussing it, rather than writing multiple lengthy emails that do not adequately resolve the issue.

### BE DIRECT

For some individuals, being direct and confronting others about a problem or important issue is an uncomfortable proposition. Some avoid confrontations like the plague and unintentionally try indirect forms of communication to get around their difficulty. For instance, they may

talk about a problem or issue they are having with an individual behind that individual’s back. In addition to being highly unprofessional, the discussions inevitably get back to the individual, but not before many other people hear about it. The problem or issue usually grows in significance as this happens, and bad feelings are virtually assured. This indirect form of communication undermines confidence and respect.

In an effort to avoid a confrontation, some may skirt the controversial points or just hint at the problem, hoping the other party will “get the hint.” The extremely perceptive communicator may pick up on this, but most will not. Usually, the two parties end the discussion with very different views of what transpired. One will think the message is sufficient to effect change; the other will think something very different. Both will be disappointed.

- The solution is to be direct, but not rude. Express your desires and give concrete examples of the problem or the types of things you want to see upgraded, changed, or accomplished. Confronting an employee or employer and working through the problem may be uncomfortable, but it is effective and necessary.
- Consider putting your thoughts in writing, or at least making an outline or a list of the issues you want to discuss. This action will help you organize your thoughts and ensure that nothing is left out or forgotten.





Getting committee members out on the course and showing them the progress on construction projects, or how maintenance operations are accomplished, can reduce confusion.

- Do not beat around the bush or make vague and ambiguous statements. For example, golfers are famous for saying, “We want to take the course to the next level.” It is understood that you want to upgrade the course; it is not clear what specific areas you have in mind. Is it playability, aesthetics, or agronomics, or are you thinking about service or presentation issues? Time and money are precious, and both can be conserved by being direct and clear.
- Avoid requests or directives that are subject to interpretation. If you do not get the results you desire, it may be the result of a misinterpretation. It is impossible to respond appropriately to requests when they are not fully understood, so save time and money and communicate clearly.

Do not become aggravated if clarification is requested; take it as a sign that you are not speaking the same language. Never assume!

## KEEP MEETINGS SHORT

People are busy and have short attention spans. If you want to hold everyone’s attention, keep the meeting on track and moving. This does not imply that discussion should be stifled; it just means keeping the discussion focused on the matters at hand.

## AVOID BEING A “BOTTOM LINE” PERSON OR COMMITTEE

This is the individual or committee that makes demands (e.g., reduce/increase the budget, cut labor, fix this, take care of that, etc.) but refuses to participate in the decision-making process. This person/committee chooses not to listen to why a certain course of action may or may not be a good idea, or what the potential ramifications might be. This person/committee may also play the “brinkmanship” game, taking the “do this or else” approach. While this type of communication usually gets results, the results often are much less than desired.

Many courses currently are trying to reduce their maintenance budgets because of the current economic downturn. Most maintenance budgets can be cut in many different areas to generate cost savings. However, each cut produces an effect, so the wise

superintendent and committee will discuss options and mutually agree where cutbacks can have the biggest impact on the budget and the least impact on the golfers.

## BEFORE YOU HIT “SEND”

Okay so far? All fired up to be direct? Stop and take a deep breath. Before you hit “send” and fire off that direct (read angry) memo, walk away from your desk. Wait until you calm down and are thinking rationally. Better yet, have a trusted friend or colleague read it over first. Toning down a first attempt at a “very direct” communication is wise. Your message may need to be firm, but it should not be emotional.

## SAY IT WITH A SMILE!

Moods and attitudes are contagious, so be aware of the messages you are sending with your



attitude and demeanor. If you frown a lot or have a worried look on your face, it will be transferred to others. If you are negative, your negativity also will be transferred. Keeping a positive, friendly, and professional attitude makes other people feel good. Doing so will help you communicate more effectively.

### USE OF CLICHÉ OR JARGON

There are many examples of this “failure to communicate.” Do you find yourself using these types of expressions?

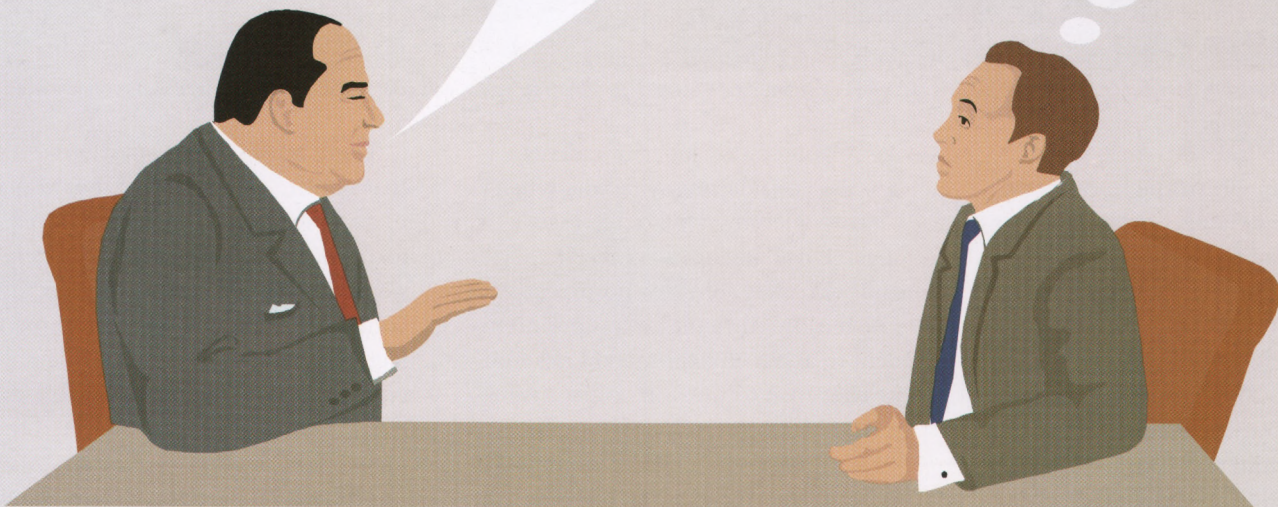
- Lying in the weeds.
- Please provide a brief top-line summary of things.
- I will be sure to loop back with you.
- The real nuts and bolts of putting things together.
- Turn the key on.
- This may be a better option if things go dark.
- The committee needs to break down the silos.
- Should we regroup to get our ducks in a row?
- I’ll be out of pocket for a while.
- Etc.

People in your line of work or in your social circle may understand some of these expressions, but to others, they may seem like a foreign language. These types of expressions, just like analogies, can be effective communication aids, but only if they are understood. Jargon has its place, but do not assume everyone understands yours. To be fair, golf course superintendents and Green Section agronomists use plenty of “turf jargon” and acronyms. Golf course management is a very technical and specialized field, so it has its own vocabulary. But as a committee or board member, it is up to you to interrupt and ask questions to make sure you understand what is being discussed and recommended.

We all are constantly communicating with our words, our actions, and our attitudes. Make sure you are sending the message you want. Be sure you “say what you mean and mean what you say.”

DAVID OATIS joined the USGA Green Section in 1988 as an agronomist in the Mid-Atlantic Region and has been director of the Northeast Region since 1990.

**Let’s get cracking before I’m out of pocket. This GASD edition, like the IGA version, needs updating before we sunset this session. Soak on this a bit, then move things to the top-line premier label so subsequent issues go dark.**





# Developing a Database Tool to Guide Environmentally Responsible Pesticide Selection

The goal of this collaborative project is to assist superintendents in their efforts to protect the environment.

BY STUART COHEN, JENNIFER GRANT,  
BRUCE BRANHAM, AND THOMAS FERMANIAN



Several projects have been funded by USGA's Turfgrass and Environmental Research Program to assess golf courses' effects on surface and ground water.

## OBJECTIVE

To create an electronic resource to help superintendents optimize their environmental stewardship by better understanding the environmental characteristics of golf course pesticides.

Start Date: 2006

Project Duration: Two years

Total Funding: \$100,000

(\$80,000 from the USGA,  
\$20,000 from the GCSAA)

Golf course superintendents consider many factors when selecting a pesticide for a specific use, including cost, efficacy, and turf safety. However, currently it is much more difficult for a superintendent to assess environmental risk and its relevance to the golf course. What is the risk to groundwater supplies when a particular pesticide is applied? What is the risk to surface water, fish, amphibians, or bees?

These are complex questions that require not only data, but also a method to integrate the data into a form that allows meaningful conclusions. The first step of this project is to collect relevant data on environmental fate, toxicology, and environmental endpoints from publicly available databases. To date, we have collected the majority of the data needed.

The second part is to create a model, or software program, that calculates





Careful use of golf course pesticides protects fish and other aquatic populations.

the relative risk to specific environmental features from the application of a specific pesticide active ingredient. Consider a golf course with a stream flowing through the property. The golf course superintendent may want to know the probability that a particular pesticide could reach the stream, and if it does, what is the likelihood that it will cause problems for fish in the stream? A rudimentary risk assessment determines the likely concentration of the pesticide in the stream and whether this concentration is high enough for concern.

Integral to our process of building this resource has been the solicitation of feedback from the following groups:

- End-users of the resource — golf course superintendents.
- EPA staff with expertise in pesticide fate assessment and modeling, regulatory enforcement, and economic impact.
- The scientific community via presentations at scientific meetings.
- Scientists from pesticide manufacturers represented by Crop Life America and Responsible Industry for a Sound Environment.

The challenge of this project is to develop a tool that is easy to use, while retaining a sound scientific basis for estimating potential environmental risks of using a particular pesticide. At this point, several components of the final model have been selected. We expect the model to yield information on risks to groundwater, surface water, birds, and non-target invertebrates for each of the more than 100 pesticide active ingredients in our database. The risk determination will be based on risk ratios and presented in a format that is easy to interpret.

Recommendations for best management practices to minimize environmental risk of an application and maximize environmental stewardship will be provided. The resource will help superintendents make better informed environmental decisions on the pesticides they choose to use.

### SUMMARY POINTS

- A database of pesticide properties needed for risk assessment is being compiled.
- The database will serve as a foundation to predict the potential

environmental risk of a pesticide active ingredient.

- The result of this research will be a resource for superintendents in making informed decisions about pesticide applications.

### RELATED INFORMATION

<http://turf.lib.msu.edu/ressum/2008/54.pdf>  
<http://turf.lib.msu.edu/ressum/2007/44.pdf>  
<http://turf.lib.msu.edu/ressum/2007/54.pdf>  
<http://turf.lib.msu.edu/ressum/2006/40.pdf>  
<http://turf.lib.msu.edu/ressum/2006/51.pdf>  
<http://turf.lib.msu.edu/ressum/2005/43.pdf>  
<http://turf.lib.msu.edu/ressum/1997/84.pdf>

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"We received many good comments from the golfers. They thought the Green Golfer pledge was informative and made them more conscious of their own activities on the golf course. The Green Golfer™ Challenge was a great way to get information out there without having to speak with each individual golfer," says Paul Carter, superintendent at The Bear Trace at Harrison Bay.

## On Course *With Nature*

# Display Your Way to Success

Informational displays help achieve goals in the Audubon Green Golfer™ Challenge.

BY PAUL L. CARTER AND JOSHUA CONWAY

**T**he Bear Trace at Harrison Bay is an 18-hole Jack Nicklaus Signature Golf Course operated

by the State of Tennessee and located 25 miles from downtown Chattanooga, Tennessee. The golf course is located

on Tennessee State Park property, with 11 holes touching water. Although the golf course is home to a multitude of



wildlife, insects, and plant life, there are no residential units located on golf course property.

The Bear Trace at Harrison Bay, a Certified Audubon Cooperative Sanctuary, has participated in the Audubon Green Golfer™ Challenge since its inception in 2007, with 61 participating golf courses, and was among 107 golf courses that participated in the 2008 Green Golfer™ Challenge. The Bear Trace at Harrison Bay was awarded third place, with 521 pledges, in the 2008 Green Golfer™ Challenge. Below is an account of what Paul L. Carter, CGCS, did to achieve his success in the Challenge.

### IN PAUL'S WORDS

We decided to participate in Audubon International's Green Golfer™ Challenge to help The Bear Trace at Harrison Bay fulfill requirements for certification in Education and Outreach in the Audubon Cooperative Sanctuary Program for Golf Courses. We thoroughly enjoyed being participants in the Green Golfer™ Challenge. I think the Challenge is an easy and effective way of presenting the environmental elements of golf to golfers and guests.

Our display table was the best part of our Challenge program. I borrowed the idea from a previous Green Golfer™ Challenge participant. I spent about two hours with a local graphic designer and was able to put together a display that cost us \$216.89 for the tri-fold poster and printouts.

Once we got the display up, we saw the attention and participation in the program pick up dramatically. I was surprised by how many of the handouts, which were Audubon International fact sheets, were taken weekly. I saw many people during the year reading these fact sheets while eating their lunch or waiting out a weather delay.

We chose to place a display table in the clubhouse where nearly all who came to play at the course would see it

at some point during their visit. Clubhouse and operational staff encouraged golfers and guests to become involved in the Challenge. They told our guests about the Challenge and the Green Golfer™ sign-up table and greatly supported our efforts.

Our display table was also set up within 15 feet of the area we normally



The Bear Trace at Harrison Bay, Chattanooga, Tennessee, has actively participated in the Audubon Green Golfer Challenge since its 2007 inception.

use to register participants for outings and tournaments. We spoke with the people who were checking in the golfers for the outings and tournaments, explained the Challenge to them, and asked them to direct their participants to the Green Golfer™ sign-up table after they had registered. This request was always met with approval, and I think we got some great numbers from this approach.

I feel that, overall, the Challenge was a great, subtle way to reach golfers about the importance of being environmentally sensitive while playing their rounds. In the future, I would like to have monthly drawings for prizes from the golf course (shirts, hats, a round of golf, etc.). I don't think it would cost much to do, and it would increase interest in our environmental efforts.

### FOR MORE INFORMATION

If you would like more information about the Audubon Cooperative Sanctuary Program, please visit <http://acspgolf.auduboninternational.org>. For more information about the Audubon Green Golfer™ Challenge, including how to get involved, please visit <http://www.audubongreengolfer.com>.

PAUL L. CARTER, GCSAA certified golf course superintendent, led the effort to obtain certification in the Audubon Cooperative Sanctuary Program for Golf Courses at The Bear Trace at Harrison Bay. The environmental program he helped to initiate already has garnered positive results for both staff and golfers at The Bear Trace at Harrison Bay. Members, guests, and staff have a greater appreciation for the natural beauty of the golf course and better understand how actions — both direct and indirect — impact wildlife, waterways, and other aspects of the environment.

JOSHUA CONWAY is the education and communications manager for Audubon International. He can be contacted at [jconway@auduboninternational.org](mailto:jconway@auduboninternational.org). For more information about Audubon International, please visit [www.auduboninternational.org](http://www.auduboninternational.org).



# When the Going Gets Tough, Go Back to Basics

Basic turfgrass management costs less.

BY STANLEY J. ZONTEK

In today's uncertain economic times, ask yourself this question: "What are the basic needs of my golf course?" Don't be swayed by emotion or by a small group of golfers. What are the basic needs of the grass, and how can you save money while not compromising either the needs of the grass or how the golf course is presented?

What will sustain you and your course through these tough economic times? When all is said and done, it probably will be . . . a good golf course. A well-conditioned golf course. A golf course with good grass. The golf course may not be perfect, but the challenge is to do more, or at least the same, *with less*. How can this be done?

In my opinion, go back to *basics*. For one thing, basics cost less and probably will, in the end, help you grow better grass for the golfers to enjoy. What are the most important basics, in my estimation?

**Sunlight:** No matter who you are, where your golf course is located, and what type of grass you are growing, without enough sunlight your turf will not be healthy. Huge amounts of money can be spent and all sorts of different products, programs, and techniques can be tried, *but there is no substitute for sunlight*. If sunlight is limited, you have a problem. The solution is obvious. Tree removal, limb pruning, and underbrush clearing also improve air circulation, which is good for the grass as well.

**Water:** In simple terms, too much water kills grass faster than too little water, and playing conditions suffer. Water is a precious commodity. Water and the electricity needed to pump it are expensive. Study your water management program. Are your best people managing your water, and do they really know how important water management is? Always remember, if you have a choice, stay on the dry side. You can always add more.

**Nitrogen:** What fertilizer nutrient really is the most important? Where should you spend your fertilizer dollars? The answer is very simple. While the grass plant needs a long list of nutrients, absolutely the most important is nitrogen. Our industry seems to be focused on, if not consumed with, maintaining all nutrient levels and how they are balanced in the soil. Does this make the grass plant any healthier? Not necessarily. Nitrogen is the nutrient the grass plant needs the most. Nitrogen is the nutrient that allows the turf to recover from ball marks, divots, and traffic. Nitrogen is the nutrient that makes grass turn green and grow. It is the ultimate biostimulant. Golf courses in the British Isles have been fertilizing with nitrogen *only* for decades. The grass is just fine.

Also, buy fertilizer on the basis of the cost per pound of nitrogen. Be a good consumer.

**pH:** Grass grows best in soils with the proper pH. It's just that simple.

Add lime if your soil is too acid. Lime is cheap. Equally, if your pH levels are high, acidifying fertilizers like ammonium sulfate are relatively inexpensive. Huge amounts of money can be spent on bulking up soil with macro- and micronutrients, but if the pH is off, money can be wasted and the grass won't benefit. We were all taught pH basics; they remain the same: high 5s to low 7s, with slightly acid preferred. Get your pH right. It allows the soil to take care of itself.

**Set Priorities:** Each and every turf manager, course official, golf professional, and club manager at every golf course needs to sit down, think clearly, put emotions aside and *set priorities*. What is necessary for your golf course to survive? Remember, the beauty of the game of golf is that every golf course is different. It is imperative to determine what is important for *your facility* and the golfers who play there. In these tough economic times, there are no more important decisions to be made than to achieve the goal of a well-conditioned golf course. This is what golfers want.

STANLEY J. ZONTEK is the director of the Mid-Atlantic Region.



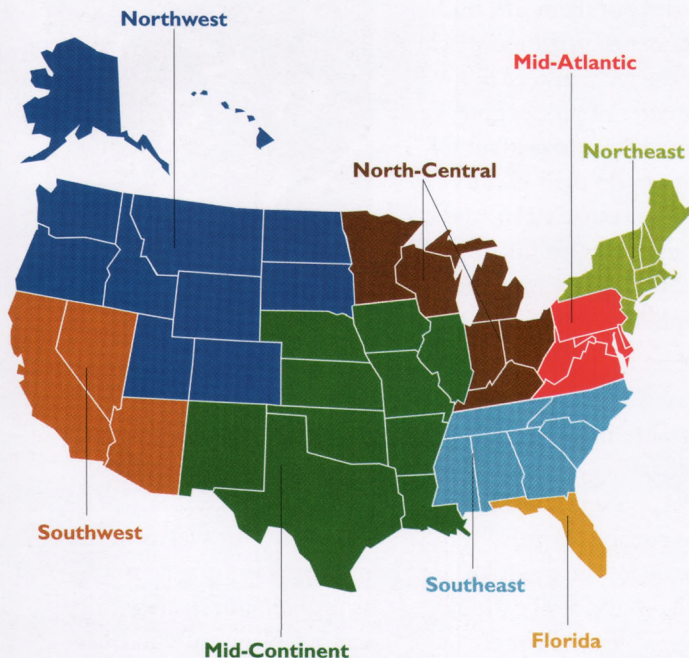


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# Turf Twisters

**Q:** On our course, the teeing grounds are cluttered with broken tees. Do these broken wooden and plastic tees cause damage to mowers when left on the surface? Some of our golfers say to just leave them on the ground and let the mowers take care of them. What is the most common practice? (Arizona)

**A:** Broken tees (both plastic and wood) can damage reel mowers and negatively impact mowing quality. To repair the damage, the mechanic must remove the cutting units, grind the reels and bedknives, and remount the cutting units — all of which takes a significant amount of time. Ideally,

golfers should pick up broken tees and put them in a trash container or small receptacle near the tee markers. This is a matter of proper golf etiquette. It is important for golfers to do their part to keep the course clean, and in the process, minimize damage to mowing equipment.



**Q:** Can you share some ideas on cutting costs to maintain rough? We are a public facility with a moderate budget. (Iowa)

**A:** Desperate times call for desperate measures, but there are several cost-saving ideas that should not impact playability or the desired level of course conditioning. Some of those ideas include:

1) limit the amount of nitrogen applied to rough that is largely shaded, as it needs only about half that required by areas in full sunlight; 2) thin trees to provide adequate sunlight and air movement for healthier turf that is less expensive to maintain; 3) reduce the costs of water and electricity by limiting the use of outer rows of triple-row irrigation systems

so that fairway edges and rough are irrigated only as is necessary, i.e., to avoid turf loss; 4) go without intermediate cuts or courtesy walks; 5) evaluate the grade of fertilizer and application program for the rough, as inexpensive options may fulfill basic turfgrass nutritional needs; 6) transition out-of-play areas to naturalized or minimal maintenance areas

that are infrequently mowed; and 7) review the herbicide application program (particularly pre-emergent) for weeds in the rough, as some may not be as problematic as they once were — especially in out-of-play areas, in between tree lines, or along course boundaries or property lines.

**Q:** Our course recently regrassed our greens to creeping bentgrass. The greens have performed superbly, but our collars have struggled, especially during the summer months. Why do our collars thin out, and are there any strategies that will help to prevent these problems? (Pennsylvania)



**A:** Creeping bentgrass collars continue to provide challenges, and the primary

reason is mechanical stress. Newer bentgrasses require aggressive mowing, rolling, light topdressing, etc. This leads to increased turning on collars, which causes the collar turf to thin and decline. These problems are most severe where turning area is limited because of steep slopes, or where a bunker or water feature limits equipment turning options. The use of plywood,

plastic sheets, and even plastic lattice has become popular for protecting collars during maintenance. This is labor intensive, but effective. Site-specific fertilization of collars also has provided improvement. Another option that has worked well is to aggressively overseed collars with perennial ryegrass because it is more resistant to traffic in these sometimes difficult-to-maintain areas.