



Natural Variation in Putting Green Speed

By Mario Tiziani

The most important part of the game of golf is putting. A good putter can contribute immensely to his game by having complete knowledge of the putting surfaces used in any round of golf. The speed the putting surface allows the ball to travel is the most important aspect of putting.

I begin my preparation for any round of golf by spending as much allowable time as I can on the practice putting green. My assumption is the putting green has the same texture as the golf course proper. I go so far as to ask the golf course superintendent if the practice putting green was constructed at the same time the golf course was constructed. My concern in knowing these facts is to help determine the speed of the various greens. The speed or pace of the green dictates the amount of break, or borrow, one must ultimately be aware of in making the putt.

Every putt is a straight putt; only the contour of the ground and the texture of the putting surface causes the ball to curve. As a golfer I must therefore dwell on not only the high spots on the green, but I must also consider factors such as cutting height and, most of all, grain.

Once you have command of the speed of the green, you can begin to have confidence in not only your putting, but also in club selection as you begin to approach the putting surface. Hence, knowledge of the speed of the greens is a determining factor in the success or failure of all golfers.

There are many cultural practices that affect green speed. These have been researched and reported on numerous occasions. The main factors are:

A. Fertilization

Reduction in the amount of nitrogen applied will cause a thinning of turf and, therefore, an increase in speed. The side effects of weed encroachment and disease make the practice less than desirable.

B. Topdressing

Applying a light layer of sand every 2-4 weeks will make for a smoother, truer, and faster putting surface. Actually, the sand reduces the amount of leaf that is exposed to the surface. The ball rolls on the tips of the plant offering little friction to the rolling ball.

C. Cutting Height

A generally accepted height for cutting in our area is $\frac{1}{32}$ -inch. Cutting lower tends to increase speed, but with the heat and humidity that exist during our golf season, this can cause excessive loss of grass and damage to turf. Double cutting starting a week before the desired time of increased speed also increases the amount of time a golfer spends on the putting surface.

D. Aerification

Aerifying actually removes grass, stolons and thatch from the greens. This process alone reduces the amount of grass the ball rolls over and allows the ball to move faster over the putting surface. The most sig-

nificant aspect of aerification is that the process really improves the root system of the grass and contributes to the overall health of the turf so that management practices such as fertilization, topdressing, and cutting height can be used more effectively to regulate speed.

One aspect of green speed that has not been well documented is variation resulting from factors that are beyond the control of the golf course superintendent. Weather and time of day are prime examples. An accomplished golfer is one who correctly anticipates time of day and day-to-day variations in green speed during tournament play. It is also important that club members come to understand that green speed is not a function of cultural practices alone.

To enhance my understanding of how green speed varies as a result of uncontrollable factors such as weather, I used a stimpmeter to measure speeds of four greens at the Cherokee Country Club over a 4-week period during which cultural practices did not change. The greens were single cut at a constant height, no fertilization occurred just prior to or during the measurement period and, as luck would have it, no disease problems arose that demanded treatment.

A circular logo for Medalist Turf Products. It features a stylized medal hanging from a ribbon. The text "MEDALIST TURF PRODUCTS" is written across the medal, and "NORTHROP KING" is written below it.

The sign of a proven winner

At Northrup King, we're as uncompromising about turf-grass as you are. That's why every Medalist® Brand Turf Product goes through years of pre-testing in the lab and in the field.

Our grasses establish fast, mow well and stand up to weather and disease. And each one is specially formulated for your climate and geographic area.

If you want to seed with a proven winner, talk to your Northrup King distributor today. For more information call (612) 593-SEED. Or write Northrup King Medalist Turf Products, P.O. Box 959, Minneapolis, MN 55440.

The Northrup King logo, consisting of the letters "NK" in a bold, stylized font, with "NORTHROP KING" written in a smaller font below it.

OBSERVATIONS

The more than 100 stimpmeter readings taken according to USGA Green Section procedures were first examined from the standpoint of day-to-day variation in green speed. To do this, a statistical analysis of variance was run using the speeds of the four greens as replicate determinations. I then examined differences in speeds of individual greens measures at 180° to each other. This particular aspect of green speed is being referred to here as directional speed. On two different occasions, the speeds of two greens were measured at approximately 9 a.m., noon, 3 p.m., and 6 p.m. to provide an indication of how green speed varies with time of day. The final green speed factors examined were direction of ball roll with respect to mowing direction and grain and speed around and away from the cup after a half-day of fairly intensive play.

Day-to-Day Speed

Statistical analysis was used to establish whether or not changes in green speed from one day to the next were systemic or just the result of random variation. What I discovered was that unless the speed change from one day to the next was greater than 9 inches, the change was purely random. In other words, it was a result of non-reproducible variation in green speed.

When averaged over the four greens, day-to-day variations in green speeds were not significant. However, speeds of individual greens did occasionally vary significantly from one day to the next. Whether or not this variation was significant seemed to depend on the average speed of the green and air temperature. The faster the green, the greater

the number of successive days when speed changed significantly. This is illustrated in Figure 1. The speed of green #5, the fastest of the four greens examined, had significant day-to-day changes in speed for 5 of the 13 dates observed. In contrast, speed of the relatively slow green #17 never changed significantly from one day to the next.

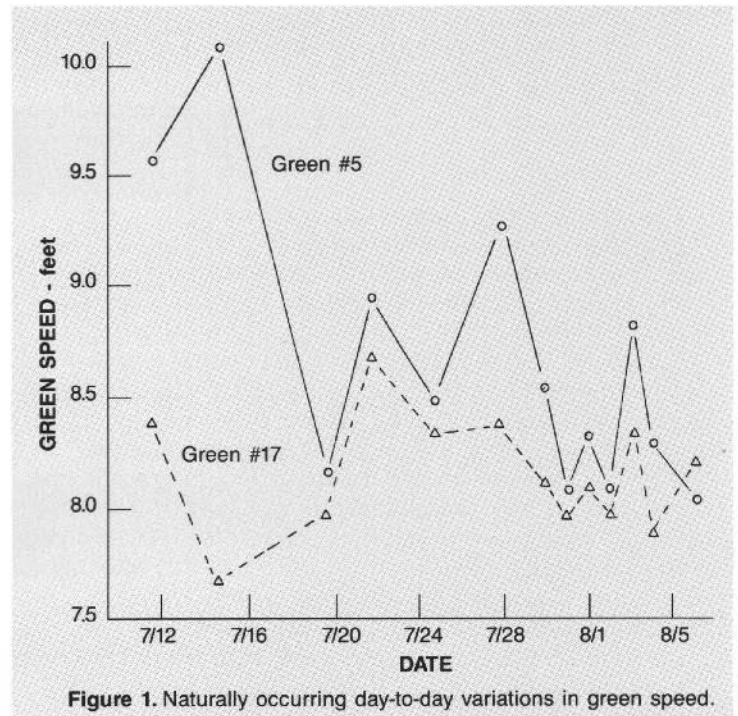


Figure 1. Naturally occurring day-to-day variations in green speed.



**the
bruce
company** OF WISCONSIN, INC.

(608) 836-7041

LEE BRUCE
GOLF COURSE CONSTRUCTION

2830 W. BELTLINE HWY. • P.O. BOX 330
MIDDLETON, WI 53562

WAUPACA MATERIALS / GREENSMIX
can provide...

**DECOMPOSED GRANITE
RIVER ROCK
WHITE MARBLE**

...for your Golf Cart Path needs.

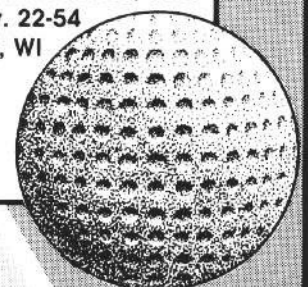
These materials are natural and more aesthetically pleasing than asphalt. Their easy installation and maintenance make them cost effective and versatile to the changing needs of your course.

**READY FOR IMMEDIATE SHIPMENT
FROM OUR QUARRIES**



WAUPACA MATERIALS, INC.
E3481 Hwy. 22-54
Waupaca, WI
54981

Call 1-800-537-1796
In Wis.: 715-258-8566
Fax: 715-258-8750



Significant day-to-day changes in green speed were confined to periods when maximum daily air temperatures were less than 80°F. Once air temperatures were consistently above this level, significant changes in green speed disappeared. In Figure 1, these conditions prevailed between July 30 and August 6.

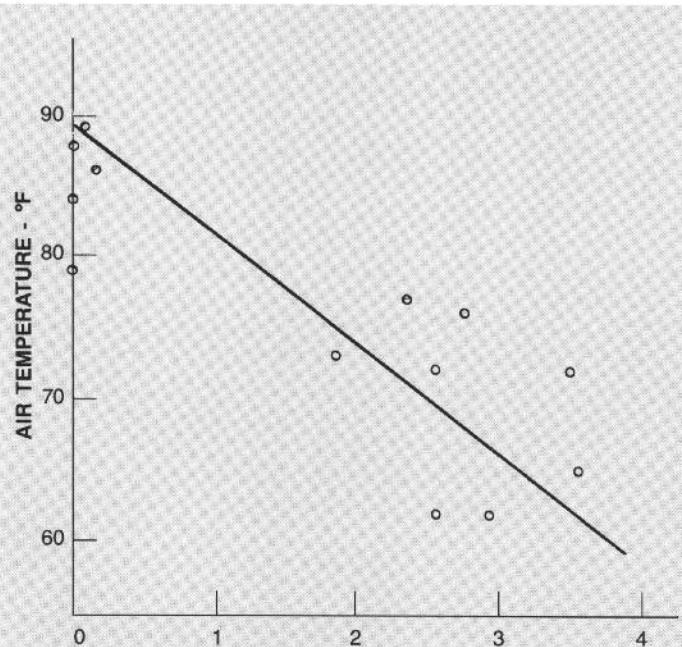


Figure 2. Relationship between directional green speed and air temperature.

I was unable to find any consistent relationship between day-to-day changes in green speed and rainfall, cloud cover, or humidity. The reason for this is the fact that each green tended to behave independently as far as weather was concerned. For example, between two successive days in August, the speeds of greens #5 and #12 decreased, #10 remained the same, and #17 increased in speed.

Directional Speed

Differences in speeds measured in opposing directions on the individual greens ranged from 0 to as much as 3 feet 7 inches. Just as in the case of day-to-day variation in green speed, variation in directional speed was greatest on the faster greens, but became insignificant on all greens when maximum daily air temperatures exceeded 80°F (Fig. 2).

Time of Day Speed

Change of speed with time of day was observed on two greens on different dates. Changes in speed were confined to the hours of 9 a.m. to 3 p.m. (Fig. 3). The type of change that occurred depended on weather conditions. Between 9 a.m. and noon, both greens underwent drying, a circumstance that would normally expect to increase speed. That did occur on green No. 12 on July 22, but not on green No. 10 on July 25. The reason for these conflicting influences of drying on green speed is believed to be weather. Turfgrass growing conditions were considerably more favorable on July 25 than on July 22. I believe that on green No. 10 a very rapid turfgrass growth rate offset the effects of drying on green speed. The noon to 3 p.m. reduction in the speed of green No. 12 (Fig. 3) coincides with the fact that a light drizzle began during this time and continued throughout the remainder of the day.



BULK OR BAG • AIRFLOW APPLICATION

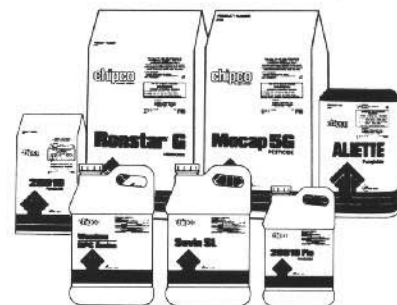
- DRY SOLUBLES •
- LIQUID FERTILIZER •
- PREMIUM GRANULAR BLENDS •

Call Ray Knapp
at

Spring Valley

1891 Spring Valley Rd. • Jackson, Wisconsin 53037
1-800-635-2123 or 414-677-2273

Protect your turf with Chipco®



RHONE POULENC AG COMPANY
P.O. Box 12014, 2 T. W. Alexander Drive
Research Triangle Park, NC 27709
919/549-2000

Grain and Mowing Direction vs. Speed

One of the faster greens was used to assess the impacts of grain and mowing direction on green speed. Grain was found to have a major impact. Ball roll against the grain was 21 to 28 inches less than roll with the grain. The average reduction in green speed attributable to grain was 20%.

Mowing direction had considerably less influence on green speed than did grain. The single measurements made against and with mowing direction yielded a difference of only 7 inches, or about a 6% reduction in ball speed when rolled against rather than with the mowing direction.

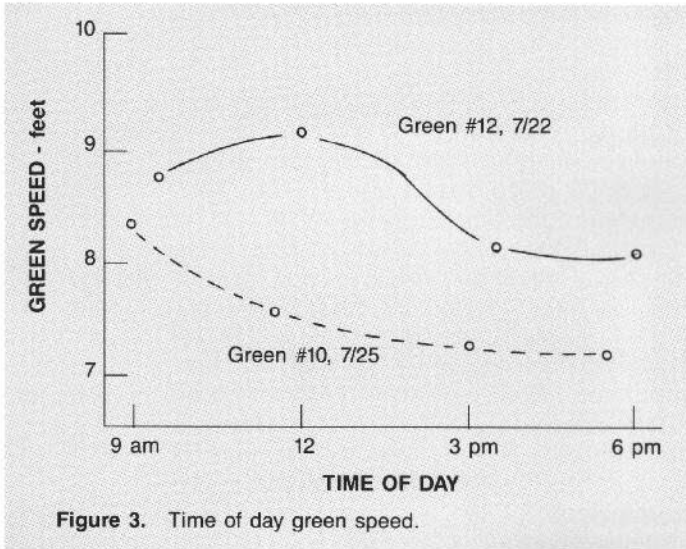


Figure 3. Time of day green speed.

Foot Traffic vs. Speed

On one date, stimpmeter readings were taken around the cup on one green and again some 20 feet from the cup. By noon of that day, green speed near the cup was 5.5 inches less than away from the cup. While not a major change in speed, this observation raises the question of what foot traffic does to green speed near the end of a day of intensive tournament play.

SUMMARY

This was a 1-month study of the variations over time that naturally occur in the speed of golf greens subjected to uniform, unchanging cultural practices. From my perspective as a serious golfer, correctly anticipating these variations

is vital to my putting ability and to my ultimate success in the game itself. To the golf course superintendent, these speed variations signify the degree to which uniformity in green speed can be achieved with standard, uniformly imposed cultural practices.

The most important findings in this study were:

1. Uncontrollable, naturally occurring variations in the environments of golf greens and changing weather can induce substantial variations in golf green speeds even under uniform cultural practices. In this study, the maximum green-to-green variation in speed was 2.5 feet. Day-to-day speed variation on a given green ranged from 0 to a maximum of 1.25 feet.
2. The faster a green and the better the conditions for turf-grass growth, the greater the green-to-green and day-to-day speed variation that occurred. When air temperatures exceeded 80°F for several days in succession, these speed variations diminished to 9 inches or less and were then no longer statistically significant. In other words, uniformity in green speed was greatest during periods of heat stress and superintendents should not be concerned when green speeds vary by approximately 9 inches or less. Uncontrollable natural forces rather than cultural practices are responsible for this variability.
3. Slower green speed and elevated temperatures also reduce differences in the directional speed of golf greens.
4. Daytime drying increased green speed, but only if the bentgrass was not growing rapidly. Rapid growth during the day reduced green speed by approximately the same amount as did precipitation.
5. Grain had a much greater impact on green speed than did mowing direction. The implication here is that reduction of grain by way of verticutting, grooming, top-dressing, etc. is an effective means for substantially reducing speed variability on a green.
6. Spike marks left by heavy foot traffic reduce green speed. I measured a 5.6% reduction in speed over one-half day of play.

EDITOR'S NOTE: Mario Tiziani is a sophomore at the University of Wisconsin-Madison and a member of the UW golf team. He was named outstanding freshman golfer in the Big 10 for 1989 and won the Madison City Golf Tournament this past summer. This study was conducted under the direction of Dr. Wayne Kussow, UW-Madison, and Michael Semler, Superintendent, Cherokee Country Club.

LEIBOLD IRRIGATION COMPANY

Professional Installation of Complete Golf Course Irrigation Systems.

“Satisfaction Guaranteed”

Excellence in Irrigation®

John Leibold
 (815) 747-6817 Bus.
 (319) 582-9351 Home
 620 Sinsinawa
 East Dubuque, IL 61025

Color it green with

Nursery Company

PLEASE CONTACT:

Jerry Draeger OR
 Tim Flood
 box 185
 Waterloo, WI 53594-0185
 PHONE (414) 478-2121

ESTABLISHED 1897

OFFERING:

- Site Consultation
- Tree Planting Programs
- Quality Wisconsin Grown Plants
- History of Successful On-going Programs



RELAXATION AT SPYGLASS

By Rob Schultz

Pebble Beach was full of weekend hackers who were playing the course of their dreams. Poppy Hills was full of weekend hackers who couldn't get on Pebble Beach. The folks in both pro shops laughed at me when I requested a tee time at any golf course located on the idyllic peninsula called Monterrey.

I had just spent two days stumbling through the earthquake-ravaged Nimitz Freeway wreckage in Oakland and the strangely twisted homes in the Marina District in San Francisco and writing about my observations and interview, for my paper. I had one day off until the Green Bay Packers played the 49ers in what would be the Packers' turning point of the season.

I needed to relax. I needed a golf course. And despite making the two-hour drive north on Highway 1 that included the most beautiful views of the ocean and mountains that I've ever seen, it looked like I would fall short of my objective.

I made one last stop. Spyglass Hill. Hmm. Maybe.

"You can tee off in 10 minutes. Can you get ready?"

I wanted to hug the assistant pro behind the counter in the Spyglass pro shop. After I concluded my round, I wanted to buy him dinner for giving me the opportunity to play a course that gave me chills every step of the way.

Spyglass Hill is the sometimes forgotten cousin of the Big Three courses of Monterrey. Pebble Beach and ultra-private Cypress Point draw all the attention.

But Spyglass is a treasure all its own. And it can be equally as difficult.

The course begins so majestically as it extends itself out to the sea. The picturesque setting is displayed well on the foreword pages of Geoffrey Cornish's book *The Golf Course*. But you can't truly appreciate it unless you've been there.

As I walked the first few holes on a beautiful autumn afternoon, the sound of the waves pounding on the shore was broken only by the constant barking from hundreds of seals who were

resting on rocks just a few yards away from those crashing waves.

At times I forgot that I was there to golf. If I wasn't spending time cherishing the Robert Trent Jones layout that is so similar to those found in Scotland, I watched the deer, the birds, or those crazy seals. They were all in incredible abundance.

When I did remember to golf, I got this incredible surge of adrenaline. One shot that sticks in my memory was at the tee of the first par-3. It was an elevated tee and the green was located 150 yards out with the ocean as a backdrop. I was so pumped up I drilled a perfect 9-iron. It sailed against a deep blue sky right at the flag stick, then dropped about two feet from the cup.

Making a good shot against such natural beauty is the ultimate for me. It's my Super Bowl, my U.S. Open. Give me just a few of those shots every 10 years and I'm happy.

Spyglass gracefully moves from the sea inward through tall timber and rolling hills. In its own way, the course remains equally beautiful.

On the seventh fairway, I was about to hit an 8-iron shot when I was interrupted by the presence of a fawn. Its mother had scurried across the fairway moments earlier, but the fawn hesitated and now nervously awaited its chance to rejoin its family.

Crazy as it seems, but the fawn, like a member of some gallery, waited for me to hit my shot before it crossed the fairway.

It stood just five feet away from me as I backed off to take a practice swing. Its eyes remained fixed on me as I stood over the ball. I backed off and tried to persuade the young deer to take a hike. It moved a few feet further away, but otherwise it didn't budge.

Finally, I hit my 8-iron, began my walk to the green and kept an eye on that fawn. Slowly it began its walk toward its mother, completely unafraid of the skinny golfer who had just hit that fat 8-iron shot.

I could swear that fawn was laughing.

No round of golf is ever perfect. In

this case I was paired with a buffoon who spent every minute of the round trying to diminish all the wonders that the rest of the group was enjoying.

He failed miserably. But he did have his moments.

On the second tee we divulged what we did for a living. Billy Bob Buffoon was a Monterrey lifer living off the cash left to him by his parents. He was a 365-days-a-year golfer who had a 25 handicap and cheated like a banshee.

Anyway, when I admitted that I was a sportswriter, Billy Bob whipped his driver at me from point-blank range. I ducked as the driver whizzed by my head.

"I HATE SPORTSWRITERS. I HATE YOU!" he screamed.

It seems he once had a run-in with a sportswriter. Or maybe he dreamed about a sportswriter once. I don't know. But I spent the rest of the round ignoring him.

It wasn't hard considering my surroundings. I still relaxed. I still had the time of my life.

When I returned home from the west coast everybody wanted to talk to me about the earthquake damage or the Packers' exciting victory. I wanted to talk about Spyglass, those seals, those first few holes, that 9-iron shot, that near chip-in from a difficult sand trap at the 9th hole.

As I thought about the 1980s and all the wonderful golf courses I played, I rate Spyglass as the best.

I have a deep appreciation for courses around Wisconsin like Lawsonia, Oneida, North Shore and Maple Bluff.

And Hazeltine Country Club was a blast, so were the TPC at Sawgrass and the courses at Hilton Head Island and Palm Springs.

But none of the state courses had a setting that compared to Spyglass. And courses like the TPC at Sawgrass and PGA West are so artificial compared to Spyglass.

In fact, after walking off of PGA West last March I vowed to never empty my wallet on a course that wasn't at least 50 years old. Spyglass doesn't fit that requirement, but its natural setting makes it appear that way.

I was upset that I couldn't play Pebble Beach that beautiful day in November. It truly is a national treasure. But as I drove away from Spyglass I wasn't thinking about Pebble.

I was too relaxed. I was too comfortable. I fulfilled my mission at Spyglass. For that I'll forever be grateful.

Certain death for the dinosaurs.

The new Jacobsen Tri-King 1684D makes heavy cumbersome 84" mowers things of the past.

Jacobsen ushers in a new age in heavy-duty 84" triplex mowing with a truly lightweight, highly maneuverable package. So now you can say goodbye for good to those costly, one-ton monsters the competition turns out.

Lightweight and compact, this agile, rear-wheel steering machine maneuvers around trees and other obstacles in a hurry. A foot-controlled hydraulic lift with automatic reel shutoff makes cross-cutting fairways and striping sports fields quick and easy. Plus, the wide 10" overhang simplifies trimming around traps, while optional on-demand 3-wheel drive smoothes out tough hills. And the Jacobsen Tri-King maintains a productive mowing speed in 3-wheel drive, so it trims circles around bulky, sluggish would-be competitors.

Simple, cool-running hydraulics deliver exceptional control of cutting

frequency. This smooth, consistent power and a choice of 5- or 10-blade fixed or floating reels produce a uniform, carpet-like cut — even in dense, wet grass. Unlike heavier competitors, the 1684D's balanced, lightweight design and wide tires minimize turf compaction. And optional easy-on/easy-off grass catchers make clean-up a breeze.

A liquid-cooled 16.5 hp diesel provides plenty of power with longer life, simpler maintenance and better fuel economy.

Or choose the 1671D, a unique, durable 71" triplex with all the same quality features of the 1684D. Yet smaller reels cleanly cut tricky undulating terrain and those really tight spots.

Don't be saddled with a dinosaur of a triplex when you can have the advanced new 1684D. Ask your Jacobsen distributor for a demonstration today. Attractive lease and finance plans available.

Jacobsen Division of Textron Inc.,
Racine, WI 53403.

**JACOBSEN
TEXTRON**

Jacobsen Division of Textron Inc.

©Jacobsen Division of Textron Inc. 1989

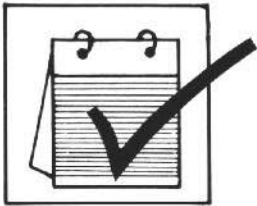
J-2-9



HORST DISTRIBUTING, INC.

P.O. Box 110, 444 N. Madison St., Chilton, WI 53014-0110 Phone 414-849-2341

Turf Maintenance Equipment & Supplies Serving N.E. Wisconsin & Upper Michigan



Drinking Water on the Golf Course

By Monroe S. Miller

Rodney and I never have any trouble thinking of a question for the survey. We try to narrow our choice to a topic of interest among all of us, whether it is a problem or merely a curiosity.

We chose drinking water as a subject. The choice this time may be a little bit selfish because each of us is mildly aggravated by the time providing drinking water to golf players is starting to consume.

Both of us have noticed an increase in the demand for water. Players are nearing the demand for water on every tee. They want it ice cold. They want it fresh at least once a day.

Hand pumps and wells, once quite commonly seen on Wisconsin golf courses, are losing favor. Soon, the old Baker "Monitors" will be gone because:

- 1) "the water isn't cold;"
- 2) "it's too much work;" and
- 3) "the well might be contaminated."

The latter is a concern to superintendents, too. To relieve such fears, water testing becomes necessary. It's getting a little too involved.

What started out with a single cooler in a somewhat central locale has mushroomed. For some of us, it is taking 20 man hours a week to satisfy this demand. The small 4 oz. cups provided at each cooler frequently aren't large enough; they are bringing 12 oz. and 16 oz. cups from the clubhouse with them.

And more than one golf course superintendent has wondered how a 10 gallon Igloo cooler could be empty at 2 p.m. when it was full at 9 a.m. and yet there are only a dozen cups in the waste container. Wondered, until he saw a player on the next tee soaking a bath towel with water from the cooler.

The complaining from players is aggravating, but not nearly as much as having to send an employee back to the golf course on Saturday and Sunday afternoons — to fill coolers. That's aggravating because there are employees on the property already —

clubhouse and pro shop employees. But, for us at least, filling coolers "isn't their job." So we send someone in, at overtime pay and usually for a three hour minimum, to fill the _____ coolers.

Familiar to you? Understanding why we chose this subject?

I'm using the word "subject" instead of "question" because we asked our colleagues three questions. Those questions were:

1. Number of locations where a player can get a drink of water. **DO NOT COUNT THE CLUBHOUSE; A SINGLE COOLER SERVING TWO TEES COUNTS AS ONE LOCATION.**

2. What are the sources of the water — fountains, bubblers (well), coolers?

3. Who is responsible for the coolers?

THE RESULTS

Twenty golf course superintendents were interviewed. Here's what we learned.

1. Locations: The average number of locations was five. The range was from two locations to seven locations where water was available. Also, remember we did NOT include the clubhouse. Many of those interviewed pointed out that the location of the water was strategic so players from two or more holes were served by that single location. For example, the location of the shelter at Maple Bluff covers either the green or tee of eight holes. The Bluff and Quit-Quit-Oc each reported just two locations. Cherokee reported seven and four courses responded with six locations.

It would appear that water is available at either the tee or green of most golf holes on those courses surveyed.

2. Sources: Coolers are the most common source of drinking water on the 20 courses surveyed. Each one averaged three coolers although two golf courses didn't have any because they depended on bubblers or fountains.

Most courses had a mix of sources and all but four had bubblers and fountains. Carl Grassl at Blue Mound has

all piped water. Butte Des Morts doesn't use coolers, either. Nakoma, West Bend, Quit Qui Oc and Bull's Eye depend exclusively on the Igloo coolers.

3. Responsibility: On all but three of the courses in this survey, the golf course superintendent was responsible for providing the water. In two cases, the clubhouse staff were required to take care of the coolers. The pro shop handled these duties in the other instance.

This is the question Rod and I had hoped for different results. But we conclude it makes too much sense having either the pro shop or clubhouse handle these duties and, therefore, they don't. Tom Harrison doesn't return to the course on weekend afternoons to fill coolers with ice or water; he simply places spare coolers (filled) at that location (a double tee with three Igloo ten-gallon coolers and three spares!) before leaving in the morning. The saving in labor (and aggravation) quickly pays for the spares.

That does make sense.

To Keep Your Course In Classic Condition, Use These High-Quality Products from NOR-AM

- **NITROFORM® SLOW-RELEASE NITROGEN**
Releases by slow bacterial action to provide consistent 38% nitrogen
- **TURCAM® W.P. INSECTICIDE**
Controls a wide range of turf and ornamental pests, especially white grubs
- **TURCAM® 2 1/2 G**
All the benefits of regular TURCAM® in convenient granular formulation
- **BANOL® TURF AND ORNAMENTAL FUNGICIDE**
Controls pythium and phytophthora
- **PROGRESS® HERBICIDE**
For the establishment of perennial ryegrass turf, or on established perennial ryegrass turf, Kentucky bluegrass or creeping bentgrass for control of *Poa annua* and broadleaf weeds
- **PROXOL® 80SP INSECTICIDE**
Controls white grubs, sod webworms, cutworms and armyworms in fine turf

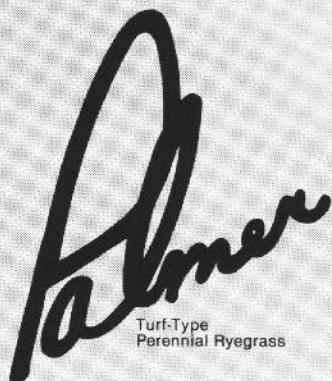


NOR-AM

NOR-AM CHEMICAL COMPANY
3509 Shavano Road P.O. Box 7095
Wilmington, DE 19803

THE FAIRWAY CLASSICS to keep your course in top condition

IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical. Copyright 1988 NOR-AM Chemical Company. All rights reserved.



Turf-Type
Perennial Ryegrass

Still the Best

That's right. For the second year in a row Palmer turf-type perennial ryegrass scored number one in the National Ryegrass tests conducted by the U.S.D.A. coast to coast:

U.S.D.A. National Perennial Ryegrass Test Turf Quality 1-9 (9 = Best)

Variety	2-Yr. Avg.	Variety	2-Yr. Avg.
Palmer	5.9	Derby	5.5
Gator	5.9	Yorktown II	5.4
Prelude	5.8	Cowboy	5.4
Repell	5.8	Pennfine	5.3
Tara	5.8	Diplomat	5.3
Premier	5.7	Regal	5.3
Citation II	5.6	Barry	5.2
Manhattan II	5.6	Delray	5.2
Blazer	5.6	Omega	5.1
All Star	5.6	Elka	5.1
Ranger	5.6	Manhattan	5.1
Birdie II	5.5	Citation	5.0
Fiesta	5.5	Linn	3.4
Pennant	5.5		

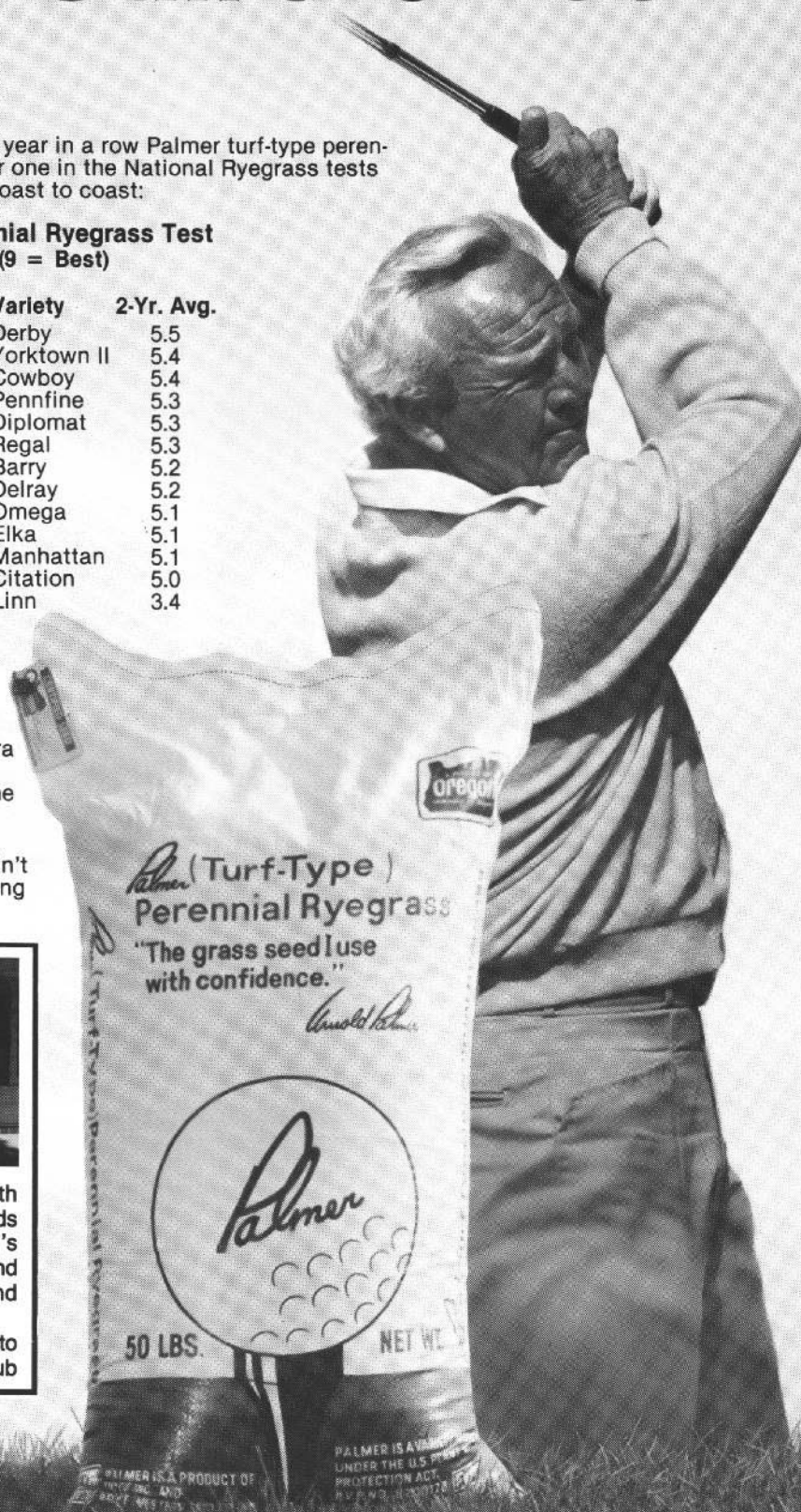
It's no wonder courses like Bay Hill in Florida, Shinnecock in New York, PGA West in California and Sahara in Nevada are only a few of those that are demanding the excellent performance of Palmer.

As a turf professional wouldn't it be nice to know you're using the best? Use Palmer.



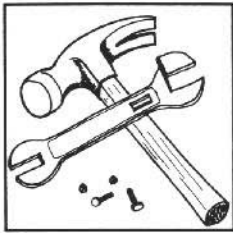
"Kellogg's supplied us with Palmer and other quality seeds that we needed. Kellogg's personnel are experienced and their recommendations and service is excellent."

—Wayne Otto
Supt. of Ozaukee Country Club



Kellogg Inc.
Seeds & Supplies
322 East Florida Street
Milwaukee, Wisconsin 53204
(414) 276-0373

1-800-792-3504 ext. 492



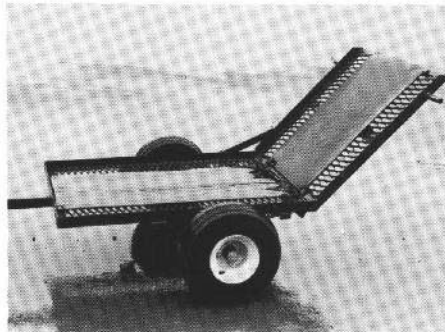
SMALL TRAILERS

By Joel Bruggink
Golf Course Mechanic
Blackwolf Run Golf Course
Kohler, Wisconsin

More and more golf courses are starting to hand mow greens and tees, which creates the problem of transporting these mowers. Walking the mowers to the area is too time consuming. As a mechanic for a major golf course, I knew there had to be an easier way of dealing with this problem.

First we tried loading the greens-mowers up a ramp onto a utility vehicle. This failed because the vehicle was too high and it was difficult to push the mower up the ramp. This also resulted in damage to the utility vehicle and to the greensmower.

I had in mind a trailer that would transport mowers and enable us to utilize the vehicle for removing clippings. I talked to other golf courses to see how they handled it, but none of these ideas appealed to me. I started searching for trailer companies that might have one to fit our needs. I did try a few



The Blackwolf trailer.

trailers, but they did not live up to our standards for quality and durability.

So I checked into the cost of materials and decided to build my own. I designed the trailer out of 3/16" gauge steel and a full axle for strength. It also has leaf spring suspension to give this expensive mowing equipment an easy ride. I also added complete roller bear-

ing hubs for durability and a longer ramp for easy loading.

Since the construction of these trailers and putting them to the test, we have found that they have met our needs. We have also used this trailer for transporting other heavy equipment, such as sod cutters and small trenchers.

I believe trailers like these are going to be of great use to other golf courses.

Editor's Note: Joel has started to build trailers like those he built for Blackwolf Run and is offering them for sale. If you are interested, contact him at:

Joel Bruggink
B & B Custom Trailers
273 N. Main Street
Cedar Grove, WI 53013
(414) 668-8678 after 4:00 p.m.

SUPPORT THE NOER CENTER

ROY G. ZEHREN PH: (414) 242-5740

NATURAL ATHLETIC TURF INC.

GOLF COURSE RENOVATION & NEW CONST.

Specializing In

Green & Tee Renovation & Rebuilding
USGA & "Purr-Wick" Systems

"TERRA FLOW" & Regular Drainage Systems

Also: ASTROTURF CH-4 "DRAG MATS"

BY CONTRACT OR "T & M" BASIS

11040 N. Buntrock Ave. Mequon, WI 53092

We dug into the tall fescue control problem. So now you don't have to.

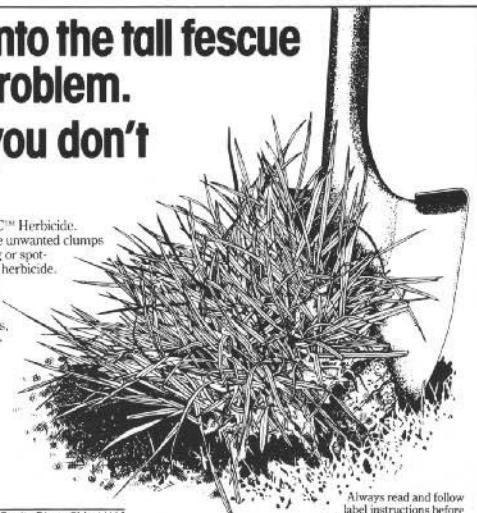
Introducing LESCO TFC™ Herbicide. The new, easy way to remove unwanted clumps of tall fescue without digging or spot-treating with a non-selective herbicide.

LESKO TFC is the first product to provide selective spot control of tall fescue in Kentucky bluegrass, bentgrass, fine fescue, bahiagrass and bermudagrass, while allowing desirable grass to fill in. This water dispersible granule offers convenience and accuracy.

Order today!
Nationwide • (800) 321-5325
In Ohio • (600) 686-7413



LESKO, Inc. 20005 Lake Road, Rocky River, Ohio 44116
(216) 333-9250



Always read and follow label instructions before using any chemical product.



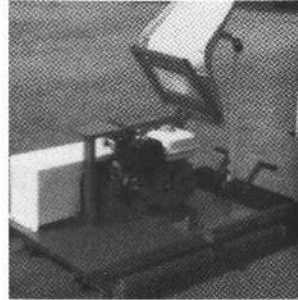
A New Tool From Down Under

By Fred D. Opperman

Editor's Note: Fred Opperman is the long time and highly successful editor of "The Bull Sheet", official publication of the Midwest Association of Golf Course Superintendents. In 1987, Fred visited Australia and happened to see a machine being used to roll bowling greens; it seems bowlers are as fussy as golfers.

These two articles were written by Fred and appeared in the June 1988 (Volume 42, No. 1) and the December 1988 (Volume 42, No. 7) issues respectively and are reprinted here with his permission.

A year ago when I was visiting Australia and stopped at a golf course, I saw an interesting tool that I thought might have a use here on our putting



greens. The machine was a roller that was being used at the time on a bowling green. The bowling green that I watched this machine roll was Penn-cross cut as low as any of our golf greens. This machine was/is used daily after each mowing to help "iron" the surface. The bowlers are as fussy as

our golfers on the quality of their bowling greens and the speed of their bowls.

After returning to the states, I wrote to the company asking if their machine was used on putting greens and if anyone in the states handled this machine. It wasn't too many days, that one evening I received a long distance phone call from John Ellul of the Golf & Bowling Machinery PTY. LTD. John was enthusiastic over my inquiry and questioned me more on how the machine could or would be used in the states on putting greens. Well, this discussion and interest in this type of a roller led to many more phone calls and letters over the past eight months.

(Continued on page 21)

From one professional to another...

