

# KILLER COURSES ANGERS SUPERS

Executive Editor  
GOLF Magazine  
380 Madison Ave.  
New York, NY 10017

Dear Sir:

I am writing to you to offer, free of charge, some sound business advice: expand your title to GOLF ENQUIRER and begin marketing your magazine in supermarket checkout counters. After reading your special report entitled "Killer Courses", I feel this strategy is the only feasible way to maintain sales, as most knowledgeable golf business people have written you off as a serious golf publication.

If you haven't received thousands of letters from Golf Course Superintendents and other club officials protesting your publication of this erroneous and misleading article, it is probably only because they were too busy explaining to their members that they weren't indifferently and systematically trying to poison them.

Did anyone in GOLF magazine stop to think of the potential damage this article could do? Did anyone take the time to do even a little research on the subject, or did you just jump on the bandwagon with the other sensationalistic rag sheets and television shows? This is inexcusable from a magazine such as yours which is supposedly dedicated to the promotion of golf.

In general, the media has deservedly earned a reputation similar to that of politicians and used car salesmen. Why hasn't anyone questioned the deceased Lt. Prior's involvement in top-secret biological warfare and the possibilities of its contribution to his death? Why hasn't anyone questioned the Navy's motives for conducting a closed-door autopsy and investigation, and then conveniently pointing fingers at the Army Navy Golf Club and the fungicide Daconil 2787? No Daconil was found in any of Lt. Prior's tissue or body fluid - just on his shoes, clubs, and golf balls.

I have personally used Daconil 2787 for 13 years as a golf course superintendent, and have never experienced, seen, or heard of any problems associated with its use, and that included splashing pure concentrated on myself on more than one occasion. Checking my pesticide toxicity chart, I find that Daconil 2787 is the least toxic pesticide that I commonly use on the golf course. This chart also lists a few common items for comparison, and it shows that aspirin is at least 13 times more toxic, and table salt is at least 3 times as toxic, than Daconil 2787.

With this evidence and my experience, I still would not say absolutely and without question that Daconil 2787 did not cause Lt. Prior's death, though I believe it overwhelmingly unlikely. I leave such omniscience to such "experts" as the Dr. Samuel Epstein quoted in your article. Some people die from bee stings; others hardly have

a reaction. If we were all exactly alike and reacted to all substances exactly the same way, there would be no need of the word "allergy" in our vocabulary.

This brings me to your next "expert," Mr. Billy Casper. First of all, it is a well-known fact that Mr. Casper has a history of unusual personal allergy problems. Second, many of the pesticides used during Mr. Casper's prime four years are no longer used on golf courses. Third, from exactly which pesticide or pesticides did his doctor diagnose acute pesticide poisoning? Mr. Casper particularly singles out South Florida, which is where I have made my home now for nearly 8 years, and I also have experienced more allergy problems since living here, but I attribute it to melaleuca pollen or other natural phenomena rather than pesticides. In Florida, we probably do use a greater volume of pesticides than courses in the North because of the longer growing season, but northern courses generally are sprayed heavier for the time they are open. At Tam O' Shanter in 1964, he did so on some of the most heavily sprayed greens the golf business has ever seen. A disease was attacking the grass during this tournament and the greens were sprayed heavily on almost a daily basis to try to save them, and the fungicides used were some of the mercury compounds that have since been taken off the market. Funny that all that pesticide "exposure" did not affect his performance during this tournament.

Your statement that "a chemical similar to Daconil allegedly killed a Florida family after it was used to fumigate their house" is another ridiculous statement. Responsible publications don't inflame public passions with statements based on "similar" and "alleged" evidence. What is similar to Daconil 2787? Daconil is a fungicide used on turf and ornamentals, and under the name Bravo is used on fruits and vegetables. It is not a fumigant, and no one I've contacted associated with pesticides can figure out what "similar" chemical you are alluding to - not even a good guess.

Returning to your "expert" on environmental toxicology, Dr. Samuel Epstein, I highly recommend that you check with respected authorities, such as: Sir Richard Doll and Dr. Richard Peto, University of Oxford cancer researchers and epidemiologists; Dr. Elizabeth Whelan, epidemiologist and author of 12 books on health issues, including Toxic Terror; Dr. J. Gordon Edwards, a professor of entomology and counselor for the National Council for Environmental Balance; or Dr. Keith C. Barrons, author of Are Pesticides Really Necessary? Ask them or any other reputable scientist about Dr. Epstein's scientific methods and motives. Dr. Epstein makes quite a good living feeding on society's environmental paranoia and is time and again called in as the "expert" on environmental issues more diverse than any one man could possibly be an authority on. At the EPA hearings on the banning of DDT, Dr. Epstein was the only scientist to contend that DDT presents a high cancer-causing risk in humans, citing data from

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abotched laboratory experiment on mice.

To put things in perspective, let us try to think logically and consider the following points:

- 1.) Golf Course Superintendents, their spray technicians, and other maintenance personnel take the greatest risk using pesticides. They are exposed to the pure concentrated pesticide when mixing and handling; they are exposed to the diluted spray mixture before it is watered in; and they spend 2 to 3 times as many hours on the golf course as golfers do.
- 2.) A golf course crew is generally a small close-knit group, and it would be very difficult to look another member of that group in the eye if you felt you were exposing him to unnecessary or unusual hazards.
- 3.) Thanks to the efforts of the media and environmental groups, pesticides with residual activity (mostly chlorinated hydrocarbons like DDT) have been taken off the market, and the replacement chemicals (mostly organophosphates and carbamates) are more dangerous to man (especially those who mix, handle, and spray them), and must be used more often and at much higher cost to deliver the same level of control.
- 4.) The only reason golf course maintenance people support the use of pesticides is because it is a necessary tool for doing their job of providing the fine playing conditions that golfers have come to expect and demand. None of us like using pesticides. We receive no "kick-backs" or other compensation from chemical companies. Without pesticides there would be no golf as we know it today.
- 5.) Every year we lose one or more pesticides for use on golf courses, usually because of accidents, excesses, or false allegations in the agricultural industry. Golf Course Superintendents must pass examinations to obtain and retain licenses to use restricted pesticides and are head and shoulders above the ag industry and the general public concerning pesticide use and safety.

It is time that golfers realize that they had better get behind their Superintendents and support the responsible use of pesticides. There is little incentive for a chemical company to invest the huge sums of money necessary to get a new pesticide tested and registered for use on golf courses. If present trends continue, many of today's golfers may not be able to afford being one of tomorrow's golfers. When your Superintendent asks for your financial support for turfgrass research projects (some of which involves finding biological controls to replace pesticide controls), give generously. If every golf course gave just \$500 a year for turf research, most of the serious problems facing Golf Course Superintendents would be solved in a few short years.

The pesticide controversy is an issue of vital concern to the golf industry, and presents a challenge that should be met head-on by everyone who cares about the great game of golf.

Sincerely,

Mark Jarrell, CGCS

Chairman, Superintendent Promotions, Florida GCSA  
Director, Florida Turf-Grass Association  
Past-President, Palm Beach Chapter GCSA

## From . . .

## OUR SIDE

I would expect this type of article from a publication like "National Enquirer" but not from a magazine that is in the business of promoting.

I admit that you did lend some credibility to golf course superintendents in the closing paragraphs of your article buried in the closing pages of your magazine but to entitle the article "Killer Courses" and to put a large skull and crossbones in a poison bottle on the first page of the article is inexcusable.

A little research goes a long way-consider the following facts:

— Daconil 2787, also called BRAVO, is used on nearly all vegetables and fruits.

— Considerably more people suffer from allergies to seafood, milk, grains pollen, and grass itself than they do to Daconil 2787 on golf balls.

— In laboratory tests it took three times as much Daconil 2787 than table salt to kill test animals and thirteen times more than aspirin.

— One alleged death due to Daconil 2787 is negligible compared to golf course deaths that occur due to insect attacks, lightning, heat stroke, heart attacks, and even golfers being struck by balls.

— Diazinon, also called Spectracide, which you have also mentioned in your article will probably soon be prohibited from use on golf courses but will still be permitted for use on almost all agricultural crops, in home gardens, and even in homes themselves for control of roaches, stored food pests, and other insects.

Golf course superintendents in Florida raised over \$35,000 this year to support research efforts.

Wouldn't it be more responsible for you to publish an article encouraging golfers to support these fund raising efforts rather than telling them in bold skulls and crossbones that superintendents are poisoning them?

I don't know if the damage you have already done can be corrected but I can assure you that your magazine has lost credibility with golf course superintendents and other knowledgeable people throughout the nation.

I hope that you now realize that "Killer Courses" was a mistake.

Sincerely,

Cecil C. Johnston

External Vice President

Florida Golf Course

Superintendent's Association

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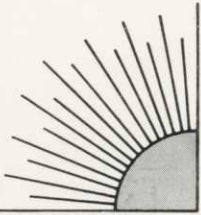
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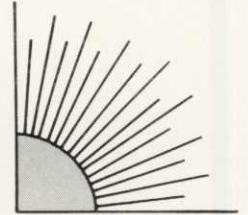
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# South Florida Sunshine



By George Jones, Golf Course Manager  
Earl Morrall's Arrowhead C.C.

## OLD PROBLEMS, NEW APPROACHES (What's New In Our Marketplace)

It's exciting to see a product with a fresh approach to an old problem. A product that in its simplicity is easy to maintain, and is apparently better than any approach to date.

Well, hang on to your hats; I believe at least one of the following products will blow your mind:

- Pro Cart Computer
- RD600 Cable Locater
- Swing-Joint, "That Really Swings"

### PRO CART COMPUTER

Imagine sitting in a golf cart and looking up at a computer screen. Touch the button for #1 Tee and see the shape of the fairway, green and layout of traps, trees, etc. Read the distance from blue, white or red tee markers. Make your first shot and when you go to your lie, move a dot on the computer screen to match the area of your ball. Read the distance to the green for your next shot. When your group has completed the hole, enter their scores.

When the game is over, take the computer's cassette-type cartridge to the pro shop. The scores are put into the printing station and entered with the touch of a button. A score card is printed for the golfer to take home. Handicap stroke calculations have been computed and everything has been stored in the memory of the printing station.

All types of golf games can be played. All types of tournaments can be played, recorded and calculated. Mountains of record keeping are eliminated along with the human error that goes with this tedious task.

You don't have to imagine it. It's here. It has already been refined to the point of player I.D. codes and handicaps, warnings when the player's golf cart is running on low batteries and reverse clock indicating time of play. There are many more features of this unique system.

Contact: PRO CART COMPUTER  
2331 Thomas Street  
Hollywood, FL 33020  
(305) 922-3133

### RD 600 CABLE LOCATER

We were about to dig a trench across the side of our practice green when Earl Morrall, the owner of Arrowhead Country Club, mentioned the underground cable carrying the clubhouse power may be in the same area. I called Florida Power and they scheduled a troubleshooter to check it out. When Buck, the Florida Power technician, showed up on schedule, he pulled out a three foot long plastic instrument shaped like a trombone case. He called it a CAT SCANNER and promptly located the buried high power cable. He showed me how the bottom end was worn off from five years of constant use and it had been dropped many times, yet still worked good as new. Well, with my engineering background I had to find out more. I wrote down the info from the heavy plastic instruction card in the case and promptly called the Radiodetection Corp. in New Jersey, the American Sales Company for the English Mfg. Company, Radiodetection Ltd.

The following day, I received a call from the sales rep. in Chicago and he said he would be in Florida in about a week. This appointment turned out to be a life saver for me because, during the week before he came, we had a tremendous thunder storm. Three irrigation time clocks were burned out even though they had lightning protectors and grounding. The telephones were knocked out, and as I checked the irrigation system, which is electric, not hydraulic, I discovered seven of the 23 clock stations at five and six fairways were out. Witnesses at the clubhouse including my assistant, Melody Staton, reported at least one of the lightning strikes to be the longest they had ever observed.

For the next few days we managed to get our phones working and the clocks repaired. But, in the 20 acres or so at fairways five and six we didn't know where to dig first to locate our problems. We used good detectors borrowed from neighboring courses. Although they located wires, we didn't know where our breaks were.

When the sales rep. for Radiodetection arrived, I quickly talked him into a demonstration at the problem area. He obliged with the RD600, the latest version. He explained that this solid-state electronic tool is much more sensitive than anything to date and produces peak noise and

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reading as it passes across the wire. Not only did we find wires and breaks, deteriorating current, and ground signal wires, but the depth within half an inch. We also saw where wires dropped from nine and one-half inches to two feet in depth. To find the depth, he held the RD600 over the strongest signal and with the push of a button, the depth was read on a meter.

The RD600 should be seriously considered where any significant amount of buried cable presents a problem. Also, for help in finding dead cables, a signal generator is available.

Price of the RD600: About \$1,200.00

Contact: Radiodetection Corp.  
P.O. Box 623  
Ridgewood, N.J. 07451

### SWING-JOINTS THAT REALLY SWING

As I looked through my trade show literature, I came upon a flyer on a flo-SEAL swing-joint that was obviously different than any I had seen before. I checked the business card attached and noticed flo-SEAL is made by Flo Control, Inc., a manufacturing company with facilities in both Florida and California.

Since their Florida plant was conveniently located in Pompano Beach, I decided to give them a call. I talked with Stafford McCarthy, the sales manager, and asked as the South Florida Reporter, if I could meet with him and learn more about the new swing-joint.

As I toured their large factory and warehouse, I realized this company is definitely well established. Most of their production is geared toward institutional water and sewage fittings, involving high standard engineering specifications. The swing-joint also meets applicable engineering specs.

Next, he introduced me to the flo-SEAL swing-joint and how it's made (since it's a factory assembly and cannot be taken apart). Looking at a swing-joint cut-away, I saw an "O" ring seal to prevent leakage and to allow 360° turning. Behind this, in its own separate groove, is a nylon snap-ring to lock the two PVC parts together. The section with the "O" ring and snap-ring are pressed into the remaining piece. The snap-ring locks into a groove. As water pressure is applied, the snap-ring tightens locking and holding the assembly by its special wedge shape, becoming tighter as more pressure is applied.

### NO WAITING FOR PVC CEMENT TO CURE

Still another feature is the use of a threaded nipple (not supplied) instead of a slip fitting. The threaded female parts of the swing-joint are reinforced with a stainless steel collar to prevent damage from overtightening. After the swing-joint is installed, water pressure can be applied immediately.

The swing-joint is 1½" and can be purchased with one 90° swing-joint equipped with a service tee. This is available

in 2" through 8", or with a 1½" male thread to go into an existing line tee. A second swing-joint that connects to the irrigation head, consists of two female threaded 90° elbows connected with a swing-joint. It can be purchased separately.

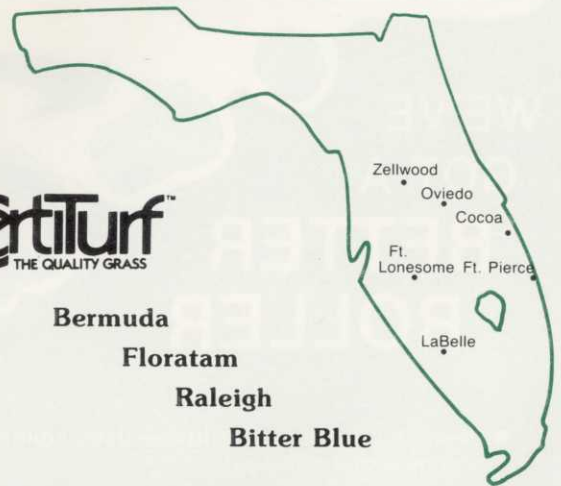
Tom Jones (no relation), at Melrose Distributors in Ft. Lauderdale, says they carry the line. It's a flo-SEAL swing-joint made by Flo Control, Inc.

Flo Control, Inc. will send product information by calling:  
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Ron Keegan, Product Manager for Ronstar, said "we didn't offer the product for sale immediately after registration because we chose to wait for additional EPA registrations that expanded the varieties of ornamentals on which Chipco Ronstar 50 WP can be used. These registrations have now been received. It also gave us an opportunity to add another year of closely supervised field trials to our data base."

Chipco Ronstar 50 WP is a companion product to the widely-used preemergent herbicide, Chipco Ronstar G. According to Keegan, "The two formulations of Chipco Ronstar give turf grass managers and nurserymen the option of either spraying on the product or applying the dry granules."

Chipco Ronstar 50 WP is another product in the well-known Chipco line of turf and ornamental products that have been serving the industry for over 30 years. ■

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## Things Pesticide Users Can Do To Protect Against Pesticide Liability Complaints

*Edited by Tom Teets  
Urban Horticulturist  
Palm Beach County*

Increasingly, the routine use of pesticides is generating complaints of illness by those who believe they may have been exposed. Complaints usually include immediate ill effects (nausea, vomiting, runny nose, diarrhea, headaches) and, occasionally, long-term concerns (cancer, birth defects). Responding to complaints received is important. Even though you may believe a complaint to be unfounded, a sensitive response is important. It's simply good business, and your approach can make a big difference in a person's reaction to your future use of pesticides. Sometimes, however, no matter what you do, a concerned citizen may pursue regulatory or legal actions against you. It is absolutely vital, then, to always be prepared for a worst-case occurrence.

For every complaint you receive, certain immediate steps should be taken — for your own protection and to reassure the complaining citizen.

1. Demand that the complaining person(s) immediately see their physician or be taken to a clinic or emergency room for blood and urine samples. If immediate analysis of the samples is not required, label them and store them in a freezer. (The samples will remain good for a long time, allowing later analysis if, for example, a lawsuit is filed six months down the line.) Be certain that the taking of the samples and their analysis or storage is documentable by a reliable third party. (Be able to accurately trace the chain of events.) If the complaining party refuses to allow the taking of samples, document the refusal.
2. The day a complaint is received, collect environmental samples from the spraying area. Spray-site samples of leaves, litter and soil should be collected. Also, similar samples from the complaining party's property should be gathered. Again, immediate analysis may not be necessary, so proper storage should be arranged. **IMPORTANT:** When collecting environmental samples, be

certain to include a credible third-party witness (e.g., off-duty policeman). This will permit corroboration of time, place and procedure if a subsequent regulatory or legal action arises.

3. If particular advice or assistance is needed, the best resource for help is your State Department of Agriculture. (Oregon Farm Bureau News, May, 1986. NERR July, 1986, p 3.) ■

*from Chemically Speaking, July, 1986*

## EVERGLADES ANNOUNCES POA ANNUA

The Everglades Golf Course Superintendents Association announces the 13th annual Poa Annuia Classic. The Naples Beach Club will host the event which will be held May 16-18. A half-day seminar from 8:30 to 12:00 on Sunday the 17th will feature Mr. Jim Robertson of Sports Enhancement Associates. Mr. Robertson's topic will be "The Other Side Of Golf."

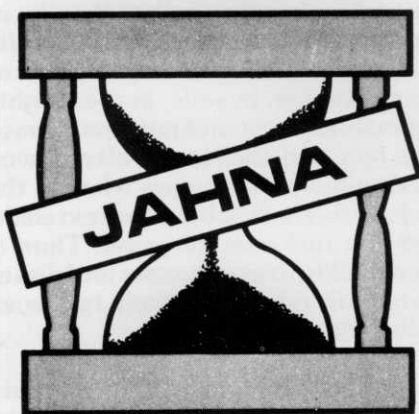
Along with the usual Sunday afternoon practice round of golf, there will also be a beach party for those who don't wish to play golf. The beach party will include volley ball, horse shoes, shuffle' board, and lawn croquet.

Sunday evening will be the scene of the usual outdoor dinner. However, the theme for this year's banquet will be "50's night" and entertainment is promised to be outstanding.

The tournament on Monday begins with an 8:00 shotgun start and will be followed by a golf clinic. This year Mike Calbot will be demonstrating the trick shot.

Cost per entry for the tournament is \$65.00 and will include one ticket for the banquet. Additional tickets for the banquet are \$35.00. The Beach Club is offering special rates for superintendents and their families who wish to spend the weekend. Rooms are \$50.00 for double occupancy. However, reservations must be made by April 15 to qualify for the special rates.

Proceeds from the event will be donated to turf research.



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# — BETTER TURF — A World Concept

FRED V. GRAU

Director, United States Golf Association Green Section  
Plant Industry Station, Beltsville, MD

Editors Note: The following article was presented at the 6th International Grasslands congress in August 1952. See letter on page 10.

Grass has many uses. The use of grass for turf purposes has no relation to forage or pasture; yet this use has the greatest direct appeal to the majority of civilized peoples. Turf, in our world concept, refers to sod of grasses used primarily for appearance—for instance, of a lawn—and for a wearing surface on sports fields, airfields, roadsides and other areas. Turf combines beauty with utility. Regardless of the main purpose for which turf may be established, the control of soil erosion becomes a natural consequence. Good turf on sports fields reduces injuries to players. Turf controls dust and wind erosion, which are so very important in areas where aircraft operate. A good lawn turf helps the housewife keep her home

clean. Good lawns around factories and offices raise morale and property values. Indeed, the value of turf to many millions of people cannot be denied.

Official recognition of turf management as a true function of the agriculture of a nation or a state or other political subdivision long has been delayed. A survey of the development of research in turf management reveals that a large part of the progress in the last half century has been the result of private funds. The pioneer among the states in the study of turf grasses has been the little State of Rhode Island, U.S.A. Turf plots at Kingston, R.I., have been operated continuously for over 50 years. Pennsylvania and New Jersey rank second and third, respectively, in the development of State turf programs. The private organization which has done much to develop turf knowledge in the United States is the United States Golf Association Green Section, organized in 1921. Scattered efforts to develop turf work at a few agricultural experiment stations before World War II subsided during the conflict. It must be recorded, however, that the cause of turf management was advanced during the Fourth International Grasslands Congress even though the subject was not officially recognized. The greatest expansion in turf work has occurred since 1945. One reason for the development is the American Society of Agronomy's recognition of turf management as a true function of agriculture and it has provided a section for turf within its corporate body. Since that action was taken, nearly half of the 48 States have developed a turf program. The largest of these include Pennsylvania, Georgia, Rhode Island, New Jersey, Indiana, and California.

The development of turf programs in England, New Zealand, and South Africa have been marked by significant achievements and excellent publications. A free interchange of information has helped to create a valuable fund of knowledge and the establishment of sound principles underlying the science of turf management. May the Seventh International Grasslands Congress give further recognition to this highly important, nonforage branch of agriculture!

## Classification of Types of Turf

A natural method of classifying and identifying turf seems to be that related to use.

Lawn turf describes turf by location rather than by any particular grass or quality of turf. Probably in no other turf is it possible to find such a wide diversity in sun and shade, in the choice of grasses, in soils, in the height of cut, and in degree of management and mismanagement. The reason lies in the fact that the law problem is world wide, that uncounted millions of laymen who do their own cultural research, resident teaching, and extension, largely have ignored the turf uses of grass. Thus the institutions have been unable to accumulate and disseminate accurate information on turf to their taxpayers, students, and constituents.

Putting green turf immediately involves the concept of closely cut, immaculately groomed turf of the finest texture. It may be composed of any one of several grass

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species, but in order for a golf ball to roll smoothly to the cup when stroked, the quality must be of the highest order.

Fairway turf is familiar to most people as a smooth expanse of green grass which is the envy of many who would like to have a lawn like it. The golfer demands also a certain playing quality which may be described as a firm, closely cut cushion of turf which provides a good lie for the ball.

Other types of turf include cemetery, park, tennis, athletic field, golf-course tees, and golf-course roughs. Each type is bounded by a particular set of requirements which are similar in many respects.

### Basic Attributes of Turf Grasses

#### Close Mowing

The true value of any grass for turf is determined first by its ability to thrive without injury under a system of management which includes close, frequent mowing. For this reason the height of cut is an important consideration in the testing of species and strains of turf grasses. Any grass, to be useful for putting greens, must perform satisfactorily when it is mowed daily at 3/16 of an in. There is no real compromise. Some of the best fairways are mowed at 1/2 inch. Therefore, any new fairway grass must perform well when it is cut at 1/2 inch on a three-times-a-week schedule. Lawn turf may include height of cut from 1/2 to 3 inches. Beyond that nearly any forage or pasture grass will survive if no premium is placed on quality. Some of the grass species which are included in turf-seed mixtures fail to qualify as turf grasses because they cannot tolerate close, frequent mowing.

#### Disease Resistance

The next important consideration in selecting and devel-

oping turf grasses is resistance to disease. Close, frequent mowing of any grass tends to reduce its ability to resist a disease attack or to recover from one. When water is applied artificially the problem is complicated further by providing conditions in the microclimate that are favorable to the growth of organisms. Add to this the effect of traffic on the grass blades and of soil compaction on root growth and it should be apparent that a grass, to survive the punishment of turf uses, must be rugged indeed. The diseases of turf grasses have been studied in a very limited way for more than a quarter of a century. This characteristically identifies the progress and development of turf research in the United States. The first publication on turf diseases appeared in 1932 by Monteith and Dahl. A more recent bulletin by Howard of Rhode Island amplifies the earlier work.

#### Drought Tolerance

Many types of turf in various parts of the world demand that the turf grasses be resistant to drought. The artificial application of water to supplement natural rainfall is utterly impossible in many locations and is inadvisable in others. The true value of a turf grass lies in its ability to produce satisfactory turf under natural rainfall conditions or with only the minimum of applied water where grass will not grow under natural precipitation. This attribute is a necessity not only to economize in operations but to preserve ground water supplies for agricultural, domestic, and industrial uses. It is important to use only minimum quantities of applied water even where the supply is abundant. Many areas of turf virtually have been ruined (unnecessarily and at great cost) by applying too much water! Only in recent years have been learned the evils of using too much water. Still more recently we have begun to correct the effects.

The ability of a grass to resist or to recover from attacks of various insects is a mark of superiority. The development of low-cost efficient insecticides, together with rapid methods of application, means that insect resistance is not of the first order of importance. Therefore, when performance records are being compared the grasses that are insect tolerant or resistant must be given preferences when other considerations are equal.

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*"Keeping Golf Courses Green"*

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Color and texture frequently are given value far greater than can be justified under a plan of judging grasses by their performance under play. If two grasses should perform in identical fashion, preference naturally would be given to the one which developed the more pleasing color and texture is highly personal in character and can not be reduced to scientific terms capable of statistical analysis.

Resistance to weed invasion is a measure of the adaption and vigor of a grass which is affected by other attributes such as resistance to close mowing, diseases, drought, and insects. Weeds invade when turf density is lacking or when growth is checked or retarded. Weeds are the symptom or the effect. Too often we design elaborate systems of control for weeds in turf (treating the symptoms) before we seek the cause and devise a means of preventing weed invasion by producing turf that is capable of natural resistance through competition. Only in the past few years has any attention been given to weed control by competition under a system of generous fertilization, using superior strains of grasses. This represents a very fertile field for further development.

### Major Turf Grasses

The principal turf grasses of the world are included within a surprisingly limited number of species. These have been reviewed adequately in *Grass*, the 1948 USDA Yearbook of Agriculture; and *Turf Management*, a book sponsored by the United States Golf Association, H. B. Musser, author. For the purposes of this discussion I shall name only the major ones.

In the warm-season group we find the Bermuda grass (*Cynodon spp.*), Zoysia grasses (*Zoysia spp.*), centipede grass (*Eremochloa ophiuroides*), St. Augustine grass (*Stetaphrum secundatum*), Bahia grass (*Paspalum notatum*), buffalo grass (*Buchloe dactyloides*).

Among the cool-season turf grasses are bluegrasses (*Poa spp.*), bent grasses (*Agrostis spp.*), fescues (*Festuca spp.*), and rye grasses (*Lolium spp.*).

### Superior Strains of Turf Grasses

It is the considered opinion of most turf workers that the cause of better turf will be advanced most rapidly when superior strains of turf grasses are produced and made available to the consuming public. Crab grass, the curse of turf in many countries, and other weeds represent simply an expression of the failure of the grasses we use to compete successfully with weed pests. The impact of disease, insects, wear and tear, poor soils, and indifferent management has been too much for the common pasture grasses which have been harvested and sold as turf grasses. The super-turf that is needed to overcome these hurdles has not been produced as yet, but important advances have been recorded. Here are some of the significantly superior types of turf grasses used in the United States:

### BENTS

Arlington (C-1)  
Cohansey (C-7)  
Congressional (C-19)  
Dahlgren (C-115)  
Polycross seed

### CHEWINGS FESCUE

Penn State Chewings fescue

### BLUEGRASS

Merion

### BERMUDA GRASS

U-3  
Tifton 57  
Tifton 127  
Gene Tift

### CREEPING RED FESCUE

Polycross seed (synthetic blend)

### ZOYSIA

Meyer (Z-52)

The list of superior varieties is meager indeed. Much work lies ahead of us in the field of genetics and plant breeding so as to develop the superior qualities which are needed in all of our turf grasses. Until we have the right grasses, much of our work with fungicides, herbicides, and insecticides represents a "marking time" in doing the best we can with what we have.

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## NEW TEE CONSOLE with a TRADITIONAL LOOK

The new Traditional Console from Standard Golf Company combines function and style for your tee area with traditional look. Simulated wood grain tee information signs in natural brown or weathered gray finishes give your course a more natural look without the maintenance problems associated with wood. Or if you prefer, a silk-screened metal sign can be used to highlight your course logo. This rugged console includes a Professional Ball Washer, Litter Caddie, and Spike Kleener, in your choice of color, and your choice of two distinct Information Signs. The Tee Data Information Sign has up to four color coded yardages to match the course's tee markers.

The Traditional Console is built with 2", 16 gauge, square steel tubing, and finished with a polyester-thermosetting powder coating for a long lasting finish. All Standard Ball Washers, Spike Ball Washer, Spike Kleeners and Litter Caddies are interchangeable between styles of consoles. This Console is solidly built, yet can be easily moved for mowing and to prevent heavy traffic patterns. If permanently mounted, it can be easily mowed around as it has a 2" clearance. ■