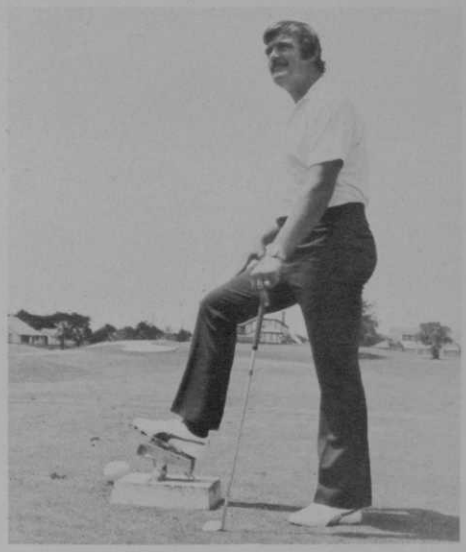
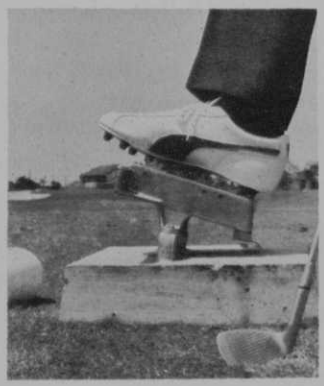
"For a good game, firm footing is important, and that means clean cleats."

DON TALBERT
DALLAS COWBOYS



No More Expensive Brush Replacement with Kurts Kleet Kleener



Mounted in concrete at easy access foot level, "Kleet Kleaner" lets the player effectively clean his cleats. The hollowed bottom on unit allows it to "self clean" with no splatter on pants or shoes.

The unit is shipped complete with all legs, nuts and bolts for easy mounting in concrete, on wood floors or when your present brush wears out, attach it easily to old brush mounting. (Mounting instructions included in each box.)

Warranty

FREE REPLACEMENT ON ANY PART THAT WEARS OUT CAUSED BY USE, DEFECTIVE WORKMANSHIP OR MATERIAL BREAK-DOWN OCCURING WITHIN A 24 MONTH PERIOD FROM DATE OF PURCHASE.

Priced Now at $34.50 FOB Your Distributor.

Golf Mart, Inc.
31119 Greenfield
Burmingham, Michigan 48012

Great Lakes Golf Co.
4527 S.W. Highway
Oak Lawn, Ill. 60453

E.J. Smith Co.
Box 10838
Charlotte, N.C. 28201

R.J. Shepherd Co., Inc.
132 S. Ave.
Whitman, Mass. 02382

Denver Golf and Tennis Co.
4575 Joliet
Denver, Colo. 80239

Frank E. Stasenko Co.
American Legion Country Club
Mt. Union, Pa. 17066

E.H. Griffith, Inc.
2250 Palmer St.
Swissvale, Pa. 15218

Eastern Golf Co.
2537 Boston Rd.
Bronx, N.Y. 10467

Western Golf Co.
1831 Colorado Ave.
Santa Monica, Calif. 90406

Professional Golf Supply of Hawaii
2001 - C Kahal St.
Honolulu, Hawaii 96819

Scott Fairchild Co.
5639 Dyer
Dallas, Texas 75206

Golf Accessories of America, Inc.
Box 35677
Houston, Texas 77035

GRAFFIS *from page 10*

money in this area alone has accounted for savings and improvements in golf turf maintenance exceeding the $1.8 million National Golf Day has raised over 20 years.

I have heard intelligent men question the amount National Golf Day allows to the 26 caddie scholarships funds around the country. The money is about 20 per cent of the National Golf Day revenue and is given as aid to ambitious, energetic kids, who are carefully screened.

Tournament pros who get $5,000 or more for exhibition performances for charities or get $22,000 to $40,000 as tournament prize money should blush for what they give to National Golf Day, the public relations gift of the sport that makes them rich. Just think of it, there are more than 11 million American golfers, and National Golf Day doesn't raise $150,000 any year.

The recent ruling of the United States Golf Assn. allowing camp counselors to devote 10 per cent of their time to teaching golf to kids without the counselors losing USGA amateur status, is a pleasant innovation. It shows that the USGA has quit worrying about the risk of an amateur school teacher becoming professionally pregnant by helping school youngsters get educated in golf.

The Royal and Ancient was years ahead of the USGA in liberalizing the amateur status rule, as it applied to school teachers whose sports instruction included teaching golf.

We never heard of anyone ever giving a slight damn about the risk of being tossed out of amateur classification, nor do we recall any official action being taken. Maybe some school teacher told the USGA about the birds and the bees. Anyway the USGA got realistic and nobody was hurt.

What a bright feature story *Jack Flowers* did in the St. Petersburg (Fla.) Times on *Buddy*, son of Stewart (Skip) *Alexander*, professional at Lakewood CC, St. Petersburg. Young Buddy has been mowing them down at Florida interscholastic kid events and surveying modestly the next step before the tournament circuit journeymen's bracket.

Second-guessing about car paths now is being done by superinten-

dents, green chairmen and golf course architects.

Some experienced men say aeration, topdressing, fertilizing and drainage possibly required in the heavier traveled areas could be done for several years at the cost of a hard surface car roadway and provide turf the course needs.

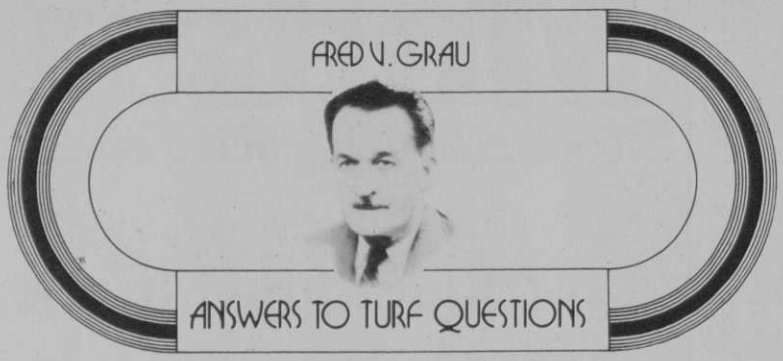
A beautiful course and faster play would be other desirable results of maintaining the turf for car traffic, the second-guessers say.

Several superintendents and architects believe that on fairways and roughs, well-built and maintained car traffic is distributed, so it does no harm to turf. Bordering greens car traffic should be prohibited. Hence, the fewer car paths, the better.

Michigan's PGA's National Golf Dinner is one of the year's largest PGA affairs. It had 560 this year. Honored as Michigan's Club Pro of the Year was *Gregg Matthews* of the Kalamazoo Elks GC. He lost his sight a year ago, but stays on the job and is learning to play again. Also honored were veteran caddiemasters *Harry Hilton* at Oakwood Hills 32 years, *Bill Langau* at Plum Hollow 26 years and *Sam Moore* 27 years at Knollwood and *Doug Mintline,* the sports editor of the Flint Journal for years.

Robert W. Schroko, now manager, Engineers CC, Roslyn, N.Y. . . . *Fred R. Seitz Jr.* to Shaker Heights, CC, Cleveland, as general manager, coming from Country Club of North Carolina, Pinehurst . . . *James Popovich,* now general manager, La Quinta (Calif.) CC. Popovich moved from general manager, Woodland Hills (Calif.) CC . . . *Gilbert Andujar* named manager Forest Hills G&CC, Chesterfield, Mo. He formerly was assistant to Dewey Kennon, manager of the Meadowbrook CC in Baldwin, Mo.

Chester Horton died recently at Portland, Ore. He was 92. He was at Edgewater GC, Chicago, as professional and encouraged a kid named Chick Evans, who became one of golf's greatest. Horton was the first to write a widely syndicated golf column. He and his brother, Elijah, also a pro, had indoor schools in Chicago in the early 1920s. □



Q's AND A's

Q—*The statement concerning "no mower pickup" (of powdered UF) in your Q & A in May's issue of* GOLFDOM *seems to be inaccurate based on tests conducted in Wisconsin and Florida. These tests showed that greens mowers picked up more N from powdered UF than from granular UF. The pick up from a dark granular sludge product was negligible. May we have your comments? (Wisconsin)*

A—In the words of a respected research colleague and I quote, "Concerning mower pickup of fertilizer . . . common sense should prevent most fertilizer pickup." My experience tells me that it is much easier to rinse a fine-grained powdered N material into close-grained turf to reduce mower pick-up than a coarse-grained granular material. This is only common sense. In the final analysis, it is the way that the materials are handled that determines the outcome. This discussion in no way is intended to favor or to discredit any single material. The watch word is commonsense.

Q—*At our club we built a green with eight inches of a prepared mix over a six-inch bed of sand. The mix consisted of about 65 per cent coarse river sand and 35 per cent of composted sawdust. Penncross was seeded at 1½ pounds of 1,000 square feet. We have a good stand of grass, but the green is soft and spongy. It footprints badly and the mower scalps many places. Can you offer a suggestion that would help eliminate the problem? (South Africa)*

A—Because I know a little about conditions in your country, my analysis is that the high percentage of sawdust is responsible for the puffy conditions of the green. There is a possibility that the sawdust has been incompletely composted and is still undergoing decomposition in the green. By using a mixture of 85 per cent river sand and 15 per cent composted sawdust, you should be able to provide a firm surface that will not be subject to scalping. Try a mixture of 85 per cent sand, 10 per cent sawdust and 5 per cent clay to provide a reservoir for holding nutrients.

Q—*We need sod for several areas on our golf course. We have made inquiries of several sod growers, but their answers are vague and varied. How can we be sure that we will get the right kind of sod for each use? (Indiana)*

A—The principle of "certification" has become increasingly important for the very reason that you indicate—getting what you pay for. You will be well advised to seek the advice of the turfgrass specialists at Purdue to learn: 1) just what you can expect from certified sod and 2) what kinds of sod are grown under the certification label. It is regrettable that a hard-and-fast specific answer cannot be given. Regulations differ from state to state. In every sod-producing state there are specialists at the universities who can give you some excellent guidance.

Q—*When, 2, 4-D first came on the market there was a recommendation to dissolve the powder in Carbowax. Isn't Carbowax used anymore? If not, why? (New York)*

A—The principal difficulty with Carbowax was its high melting point. Temperatures had to be above 70 degrees F in order to use it. In one instance, 2, 4-D in Carbowax was sprayed on fairways in October on a warm day. By the time the job was finishing, the temperature had dropped into the 50s. The Carbowax hardened in the spray nozzles, which created considerable difficulty.

The temperature never got up to 70 degrees until the following July. Everyone wondered why the weeds were not dying. In hot July, the Carbowax melted and released all the 2, 4-D. Result? *Poa annua* started dying wherever the spray had hit; nothing could stop it. It took some sleuthing to analyze the problem. Now you know one reason why Carbowax soon became unpopular.

Q—*Would you like to come out to see our irrigation setup? We have been watering the turf at our recreation center with effluent water for the past five years. Our course is within 10 miles of where you live. The flow of water from the extended aeration treatment plant to the irrigation pond (chlorinated) is small, but during dry periods every gallon helps out. (Maryland)*

A—Your question is the easiest one I've had to answer in a long time. Yes, I want to see the setup. Also, I've given your name to a firm that is developing an 18-hole course, which will have effluent irrigation. They, too, are interested. Odd that you've been doing this for five years and we didn't know about it. Thanks for writing. □

Congratulations to Dr. Fred Grau and to his bride, the former Frances Holyoke McCoy. They were married July 1 and will live in College Park, Md. They were classmates at the University of Kansas. He continued in turf research and she became a newspaper woman.

San Vicente C. C./Ramona, California
Ready for play one year after start of construction.

Choosing an automatic controlled system should be like going to a good smorgasborg: the more you have to choose from, the greater your satisfaction will be.

That's why it's important to get together with Buckner during your initial planning stage. Because Buckner makes seven different types of controllers—more than anybody else.

And that means that Buckner can work with these seven systems to deliver exactly the control system your course should have. These systems range from sophisticated two-wire, solid-state set-ups to basic units where cost is the prime requisite:

Binar® offers the ultimate in two-wire central control. Eliminates field controllers and miles of costly wire. Solid state circuitry provides trouble-free performance. You can scramble individual control valves for maximum program flexibility.

CP-2 provides advanced central programming where field controllers are needed for on-course inspection and maintenance. Syringe and omit cycles. Watering of fairways, tees and greens can be completed in less than nine hours.

711 is the perfect automatic in-field controller for large turf areas. This 11-station system features 0-60 minute control. Waters fairways, greens and tees in less than nine hours.

The ICM series offers three systems: The 12E has 12 control stations, the Dual 12E has two 12E units with two clocks, and the 24E has 24 control stations and one clock, where longer watering times are permissible.

The BR-10 delivers dependable performance at a rock bottom price for a dual program with ten stations.

If you're planning new watering systems, now's the time to get together with the Buckner Agri-turf Division of Johns-Manville. We'll take the time to figure out exactly what you should have. Then we'll supply it. Because we have more kinds of controllers, heads, valves and pipe than anybody in the business.

Buckner®

Agri-turf Division, Johns-Manville, P.O. Box 232, Fresno, Ca. 9370

Now you can get exactly the automatic control you need:

Because we make more automatic controllers than anybody else.

Buckner Agri-turf Division, Johns-Manville can do more for you. Because we have more to work with. GD

☐ I'd like information on Buckner automatic control systems.
☐ I'd like to talk to a Buckner expert about a Buckner system.

Name_____ Title_____

Address_____

City_____ State_____ Zip_____

Telephone_____

For more information circle number 140 on card

Preferred stock.

Last year, more new E-Z-Go fleets were put on more courses than ever before.

Surprising? Not when you consider the reputation of excellence they've earned in ride, performance and profits.

For example: our four wheel model X-444 has a lower center of gravity, higher ground clearance and shorter turning radius than any other golf car. Resale value? Traditionally the highest in the industry.

But no matter what your requirements call for—three wheel, four wheel, gas or electric powered—you're assured of the highest return on investment that you can make in a fleet of golf cars.

In short, preferred stock.

For further information write:
E-Z-Go Car, A division of Textron Inc., P.O. Box 388, Augusta, Georgia 30903.

E-Z-Go.

The finest golf car made.

For more information circle number 144 on card

FIRST PLACE WINNER

PENNCROSS SUCCESS STORY CONTEST

OFFICIAL PENNCROSS STORY CONTEST ENTRY FORM

On May 22, 1972, we started construction of a new 8000 sq. ft. sod nursery here at Rancho Bernardo. It was completed on June 20, and given the final touches before seeding. Penncross Bent was chosen for several reasons, one being the success our new Executive course was having with it. The nursery was seeded on June 30, 1972, at a heavy 2½ pounds per 1000 square feet.

We watched until there was a very even green cast on the complete nursery and then, on July 11, we used a starter fertilizer. When the Penncross reached approximately ¾ of an inch we made our first cut with a ½" bench setting and continued on a daily mowing schedule until putting green height was reached.

Unbeknownst to me, some Japanese people had been watching the operation very closely. It came on with amazing speed, and sixty days from seeding we had a very good putting surface and about 4" depth on our root system. Before the sod was 90 days old we had cut and moved most of the 8000 sq. ft. to some problem greens.

This brought to my office the Japanese who had been watching the sod nursery since its conception. They asked what I had done in construction and what grass was used. They also asked if I thought I could repeat the nursery operation in Osaka, Japan? Sounds good! The only catches being: they wanted the recommendations by phone and mail and the greens had to be ready for play in early November for an American Pro Tournament. It was now August 10, 1972. I contacted my friend who had supplied the fertilizers and seed, and work began.

Fertilizer samples were sent to Japan to be inspected by the Japanese government. Fertilizer spreaders were shipped air freight, the government approved shipment of fertilizers and the move was on. The greens had already been roughed in and were ready for mix, final grade, and seeding.

After numerous meetings, letters, and phone calls to Osaka, the greens were seeded at 2 pounds per 1000 sq. ft. on September 1. The Penncross came up as predicted, was fertilized as planned, cut as soon as it was ready and progress was almost identical to our nursery here at Rancho Bernardo. They were ready by tournament time in mid-November 1972, and I'm told "better than any of the other greens at Ikeda Country Club." My new friends are very happy that they went with Penncross and claim to have the "Showplace" of Osaka, Japan.

This was all done gratis, but it was a very fulfilling experiment. Mr. Araki, President of Ikeda Country Club, flew to San Diego to give his personal thanks to my friend and myself They favored us with some small gifts, took us out for a lovely dinner and we talked of our success with their new greens and their plans for more.

They are a very grateful people and I'm satisfied that my choice of Penncross is not only working for me in Rancho Bernardo, California, but also for my new friends in Osaka, Japan.

Gary A. Silor

Signed: GARY A. SILOR

Address: 500 So. Chestnut, Escondido, Calif. 92025

Golf Club: Rancho Bernardo East & West Courses

PENNCROSS BENT GRASS

FOR YOUR FREE COPY
OF OUR NEW BOOKLET, WRITE

CHAMPIONSHIP TURF GUIDE

1349 CAPITOL ST. N.E. SALEM, OREGON 97303

WHEN IS NITROGEN DETRIMENTAL TO TURF?

Fertilization studies on bentgrass. *G. V. Johnson and W. R. Kneebone. 1972. Proceedings, 1972 Arizona Turfgrass Conference. pp. 13-21. (from the Department of Soils, Water, and Engineering and the Department of Agronomy and Plant Genetics, University of Arizona, Tucson, Ariz. 85721).*

This paper is a preliminary report on investigations of nitrogen fertilization of Penncross creeping bentgrass putting greens in the warm climatic region. The nitrogen fertility treatments involved one-half pound per 1,000 square feet applied in the form of ammonium nitrate in the following four schedules: (a) applied weekly throughout the year; (b) applied weekly from September through May; (c) applied every two weeks throughout the year, and (d) applied every two weeks from September through May. There were four replications in a randomized complete block design.

Clipping yields, collected after two days' growth, revealed that more frequent nitrogen applications and continuous annual applications throughout the year resulted in increased shoot growth. Variations in shoot growth throughout the year appeared to be influenced more by temperature and evapotranspiration rate than the fertilizer treatments. Root growth, as measured in terms of both length and dry weight production, showed that the more frequent nitrogen fertilizations as well as those applied throughout the year resulted in decreased root growth. The turfgrass color evaluations, both visual estimates and actual chlorophyll analysis, showed no large differences, although turfs receiving nitrogen applications throughout the summer tended to be somewhat darker green.

Only one disease infestation occurred during the year, this was the result of *Pythium* activity in early August. Extensive observations revealed that the severity of *Pythium* incidence increased as the level of nitrogen fertilization increased and also that the disease occurred only in those plots which received nitrogen fertilization during the summer.

The authors concluded that bentgrass greens can be maintained quite well in Arizona on one-half to one pound of nitrogen per month during the cooler part of the year and that the hazard of disease is minimized by using minimal to no nitrogen fertilization during the summer months. They also pointed out that this is a preliminary report on a continuing study in which additional information and some changes in results may occur as the study is continued over the next few years.

Comments: Turfgrasses require nitrogen in larger amounts than any other plant nutrient. It is involved in many physiological reactions within the plant, including chlorophyll synthesis which in turn provides the green turfgrass color. A certain minimal amount of nitrogen is required to maintain the over-all health, vigor, rooting depth, shoot density and hardiness to environmental stresses and disease. As nitrogen is increased above this level certain detrimental as well as a number of beneficial turfgrass quality responses occur. Shoot growth, shoot density and turfgrass color increase as the level of nitrogen fertilization increases. But this stimulation in shoot growth and density results in decreased carbohydrate reserves, which can become limiting. At this point shoot growth has priority over the roots to the extent that loss of the root system may occur.

Associated with reduced root depth at higher nitrogen levels is an increase in the succulence of the tissue and a general reduction of the over-all health and vigor of the turfgrass plant. Consequently, tolerance to heat, cold and drought stress is reduced. The turf is more prone to wilting during the summer as well as to winter desiccation.

The final detrimental aspect of excessive nitrogen fertilization is the loss in recuperative potential associated with a lower carbohydrate reserve. Turfs that are more prone to injury from environmental stress and certain diseases under higher nitrogen fertility levels also have a reduced recuperative potential.

As has been shown in this paper, excessive nitrogen fertilization may result from (a) too much nitrogen applied in one application, (b) excessively frequent nitrogen fertilization and (c) nitrogen applied at the improper time. A few additional comments are warranted on the latter. A creeping bentgrass putting green requires less nitrogen during the midsummer heat stress period, because the rate of shoot and root growth has been substantially decreased. In addition, decomposition of any organic material in the soil also is enhanced by the warm temperature, which causes greater release of nitrogen to the soil solution for potential uptake by the bentgrass root system. Thus, nitrogen fertilization during periods of heat stress is more likely to result in detrimental than in beneficial effects unless an obvious nitrogen deficiency exists. It should also be kept in mind that tolerance to heat stress is enhanced by lower nitrogen levels. This alters the physiological condition and water content of the bentgrass leaves so that they are best able to survive the heat stress. □

BUILDING A GOLF COURSE WITHOUT BUYING LAND

by STEPHEN W. BYERS

Skyrocketing land prices in the more desirable areas of the country have severely limited the recent expansion of golf facilities not connected with some other type of development. Though it may sound too good to be true, and despite the several qualifications that bear heavily on its accomplishment, it has been possible since 1897 to lease Federal land for golf course development. That there are only eight cases of private parties leasing Federal ground for this purpose might lead one to conclude that the process is too difficult, that too many obstacles must be hurdled, else many more instances of this highly desirable arrangement would attest to its possibility. We urge the reader not to be dissuaded. We submit that so few have availed themselves of this alternative to buying land because only a few investors are familiar with the ABC's of the Federal use permit and that, until recently, the United States Forest Service, the Federal agency empowered to dispense these permits, had not considered the golf course to be congruent with forest oriented recreational activities. This attitude was based on the fact that the majority of national forest land is unsuitable for golf courses due to heavy tree

ILLUSTRATION BY LIAN ROBERTS