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First, you have a choice of a 50" or 60" deck. (They're interchangeable.) Fully articulated, they closely follow ground contours so you get a smooth, even cut with practically no scalping.

Deck design lets you trim close, and also gives super clipping dispersion. The deck raises and lowers hydraulically for curb climbing and transport. And you can adjust cutting height from 1" to 4".

Then, the three-wheel, wide track design gives the Turfcut great stability on slopes. And the foot-operated hydrostatic drive lets you steer and maneuver while changing speeds or going from forward to reverse.

How about hill climbing? It's a breeze with the power delivered by the husky 18-HP Kohler overhead valve engine. And you can expect a long engine life filled with good fuel economy.

Plus, the Turfcut is quiet. All controls are within easy reach. And it might very well be the most comfortable riding rotary in the world.

Ask your Jacobsen distributor for a Turfcut demonstration. And have him explain about the many fine features that customers want.

The more you listen to what he has to say, the more you'll know we've been listening.

We hear you.

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Clippings

Brief bits of news from in and around the golf business. . .

Superintendents often are confronted with unusual maintenance problems, but we doubt if many are more unusual than a problem the Bayou Golf Club in Texas City, Tex., had a few months ago. It seems four persons on horseback drove **eight head of cattle across the golf course**, damaging one green and several fairways. One of the cowboys told police they were trying to transfer the cattle from one pasture to another when the cows got loose and played through the course, it was reported in *Texas Golf*. Course manager Jim Bott reportedly said, "I wouldn't want to guess how much damage was done. That's the first time I've ever had any cattle on the green."

On a happier note, **Michael Wells**, formerly of Grand Traverse GC, Traverse City, Mich., told GOLF BUSINESS, "After serving as golf course superintendent at both public and private clubs for the past 10 years, I'm pleased to announce I've finalized a purchase agreement on the St. Joe Valley Golf Club, near Centreville, Mich. It is an 18-hole public facility, and my family and I are anxious to begin our first year of operation during the month of April 1979."

In other recent changes of employment, **Steve Badger** took over the superintendent's post at Bel Air CC in Los Angeles after **Art Twombly** retired. . . **Bob Steele** resigned as superintendent at Santa Barbara (Calif.) GC to take over a new course being completed for the city of Atascadero. . . **Steve Carlton** resigned from Los Coyotes CC in Buena Park and was succeeded by **Dan Smitley**. Carlton will take over a new course that golf architect Pete Dye is building in Carmel Valley.

Also in California, **Al Glaze** moved from San Luis Obispo CC to San Luis Bay CC, Avila Beach. . . **Mike McCrow** is now superintendent at Santa Maria CC. . . **Ben Kern** is now at Yorba Linda CC.

In the midwest, **C. Thomas Brehob**, CGCS, is moving from Indiana to be superintendent at the Hyde Park G&CC in Cincinnati. . . **Gary Campbell** replaced **Dick George** as superintendent at Valley View Clubs, Inc., Lancaster, Ohio, after George retired.

Down south, **James Norby** moved to the superintendent's job at Hilton Head GC from Sea Pines Plantation; both are in South Carolina. . . **Randy Allen** is now superintendent of Camden (S.C.) CC; he had been at Cleveland CC in Shelby, N.C.

Also in South Carolina, **Rodney Day** moved from Carolina Springs CC, Fountain Inn, to Holly Tree CC, Simpsonville.

Two new regional directors recently joined the field staff of the National Golf Foundation. **Mark DePalma** will cover the North Central region: Minnesota, Iowa, Missouri, Nebraska, and North and South Dakota. His background

includes working in a golf pro shop, and he is currently serving a 3-year term as a director of Highland Park Men's GC, a municipal facility operated by the city of St. Paul, Minn.

John LaPoint will be NGF director for the Northeast region: the New England states and New York. Previously an administrator with district golf associations in New York, Ohio, and Michigan, LaPoint will be based in North Grafton, Mass.

The PGA Tour has hired **Terry Buchen**, former superintendent of Denver (Colo.) CC, as associate agronomist. He will assist Tour staff agronomist Allan MacCurrach.

In company news, the Golf Car Dept. of Yamaha Motor Corp., USA appointed **Jim Estill** regional sales manager for the Eastern United States. Estill was previously Yamaha district manager for motorcycles and snowmobiles. Yamaha also named **Rick Johnson** assistant manager, marketing and sales of golf cars. He will also serve as western regional manager for the Golf Car Dept. and continue as product manager for Yamaha's New Product Division.

Ron E. Burkland has been named district sales manager for OMC-Lincoln's Cushman and Ryan professional grounds maintenance equipment. He previously was sales order supervisor for OMC, Lincoln, Neb.



Burkland Lindsay Beatty

Safe-T-Lawn, Inc., an irrigation equipment company based in Hialeah, Fla., has announced the appointment of **B. R. Lindsay** as chief executive officer. Lindsay replaces W. G. Muschett, who retired.

Roy L. Beatty has been appointed manager of communications for Jacobsen Division of Textron Inc., Wisconsin-based manufacturer of turf maintenance equipment. He will be responsible for all Jacobsen advertising, sales promotion, and public relations for consumer and commercial products.

Frank Guolee has been named Southern California sales representative for Applied Biochemists, Inc. Residing in Fullerton, Guolee is responsible for sales of the firm's specialty chemicals for surface water and pools.

TUCO, Division of The Upjohn Co., promoted **Donald J. Maske** to North Central district manager, agricultural chemical sales.

In a series of promotions and new assignments of responsibility, The Charles Machine Works, Inc., offices in Perry Okla., now have this lineup: **Dwaine Goldsberry**, marketing manager; **Bill Haynes**, sales manager; **Etsell Emde**, marketing services manager; **Jarrett Cowden**, marketing research manager; **Roger Layne**, sales and

service training manager; and **Leonard Brannen**, technical services manager. The company manufactures Ditch Witch trenchers, vibratory plows, and related equipment.

Richard J. Dittoe was named vice president, marketing, of the Jacobsen Division of Textron, Inc., Racine, Wis. He was previously marketing manager for Jacobsen Turf Products.

Robert J. Moeller has been named vice president and general manager of The Toro Co.'s Outdoor Appliance Division. He had been vice president of sales and marketing of Toro's Outdoor Power Equipment Group since joining the company in 1977.

Irrigation, Inc., Cudahy, Wis., a subsidiary of Kujawa Enterprises, Inc., has been selected the Master Rainbird Sprinkler distributor in Wisconsin and Michigan's Upper Peninsula.

At the recent Michigan Turfgrass Conference, TUCO Division of The Upjohn Co. presented 1979 **TUCO turf scholarships** to Stephen Brown and Allan Nielsen; both are seniors in turf management at Michigan State University.

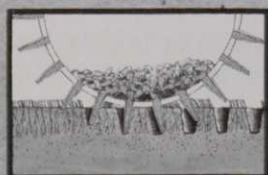
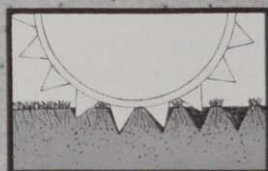
Jacobsen Division of Textron Inc. ran a contest in conjunction with the GCSAA International Turfgrass Conference & Show to celebrate the 10th anniversary of the Greens King mower. At the show in Atlanta, Superintendent Dean Sime accepted a certificate on behalf of Interlachen CC, Edina, Minn., for owning the **oldest extant Greens King**. The certificate is redeemable for a brand new Greens King II from Jacobsen.

Automatic Rain Co. of Menlo Park, Calif., and **Lawn & Turf Co.** of Conyers, Ga., were selected as the best of more than 90 distributors of irrigation equipment by the Turf Division of the Rain Bird Sprinkler Mfg. Corp.

The annual **Southern California Spring Turf & Landscape Institute** will be held April 18-19 at the Anaheim (Calif.) Convention Center. The institute is co-sponsored by the Southern California Turfgrass Council and the University of California Cooperative Extension. Theme for the 1979 meeting is "Economics and Maintenance." Full two day registration is \$37, basic registration (no meals) is \$15, and student fee is \$5. For further information contact Ed McNeill, 1000 Concha St., Altadena, CA 91001 or call 213/798-1715.

The 1979 **Arizona Turfgrass Conference** will take place May 8-10 on the University of Arizona campus in Tucson. Speakers will include Tom Mascaro and Bruce Shank, editor of WEEDS TREES & TURF magazine. For details, contact William R. Kneebone, College of Agriculture, The University of Arizona, Tucson, AZ 85721.

On May 15-17, Ohio State University, The Ohio Agricultural Research and Development Center, and ChemLawn Corp. will jointly sponsor a **Symposium on Turfgrass Diseases** at the University Holiday Inn in Columbus. About 20 leading turfgrass disease specialists from the U.S. and Canada will be on the program. For further information, write to Symposium of Turfgrass Diseases 1979, 2865 East Orange Rd., Galena, OH 43021 or call Dr. P.O. Larsen (614/422-6987) or Dr. B. G. Joyner (614/885-9588).



AS THE SEASONS CHANGE, SO DOES THE GREENSAVER® AERATOR.

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Now you can, with the Cushman Greensaver aerator. Three interchangeable drums let you pick the type of tines that are right for the soil and the season, while you aerate up to ten times faster than walk-behind aerators.

The Greensaver attaches easily to any Cushman Turf-Truckster chassis equipped with the hydraulic system

and dump set. You travel between areas quickly, raising and lowering the Greensaver without leaving the driver's seat.

The standard ½" coring drum provides maximum soil removal for normal aeration. In the fall, during slow-growth periods, you can use the ⅜" coring drum to remove less soil. And for the hot stress periods of summer, you can use the slicing drum.

With the coring drums you can collect the cores as you aerate, or leave them on the turf. Either way you

get an accurate 3¼" x 4" pattern of holes up to 2½" deep.

Ask your Cushman Turf dealer to show you a Turf-Truckster® vehicle equipped with the Greensaver aerator. And find out how you can get fast, easy, accurate aeration that changes with the seasons.

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Sand topdressing: Would it work for you?



Few cultural practices have been the subject of as much attention and discussion in recent years as has sand topdressing of putting greens. Practically every turfgrass conference and seminar in the past 6 months has devoted part of the program to sand topdressing, and these sessions have consistently been the best-attended by golf course superintendents. Many superintendents now seem to be topdressing their greens with sand, and still more are wondering, "Would it work for me?"

William B. Davis, extension environmental horticulturist at the University of California, Davis, has done extensive research on sand topdressing, including experiments on the campus experimental green over a period of several years. Realizing the interest and the practical needs of golf course superintendents in deciding whether to try sand topdressing on their greens, Davis recently prepared answers, based on his research, to questions commonly asked by superintendents:

Will just any sand or topdressing mix give basically the same results?

"No, for several reasons. Coarse sand particles do not work readily into the surface grass. Golfers do not like to putt on greens that have just been topdressed. Coarse, sharp sands dull mowers and are abrasive to the grass. Sands that are too fine can seal the surface of a green and reduce infiltration."

What type of sands do you recommend?

"A relatively fine narrow range of particle size. Round sand particles are best. The table on page 19 gives the particle size ranges we presently suggest for construction and topdressing."

Are suitable sands readily available?

"Yes and no. For the past 10 years, we have tested sands from many areas of our state as a service to golf course superintendents. We find them in coastal deposits and dredge them from the San Francisco Bay. Some come from deposits on individual golf courses, and some come from many, varied river deposits."

"The nearest local sand and gravel company has been of little help. They produce concrete and plaster sands

that may be washed but are too coarse. They basically are producing sands with a wide range of particle sizes so that when a little clay (cement) is added they produce an impermeable, dense medium. Some sand companies now produce what we want because we have specified the grade of sand we desire and will no longer buy their standard grades. Most major sand suppliers can screen and wash to a specific grade range if you create the demand and will not accept second best."

Do you mix any amendments with the sand?

"No. Amendments must be uniformly and evenly mixed if they are to measure up to their potential, and this greatly increases the cost of the topdressing medium. Topdressing is difficult to apply when moist. When dry, mixes will separate. Typical sand and organic mixes become thin layers of organic matter and sand by the time they are brushed into the turf surface, and irrigation further separates them. Very fine organic matters can seal the surface, and coarse organic matter does not readily work down into the grass. Most greens already are producing more organic matter than we want, so why should we add more?"

How frequently do I need to topdress to achieve the maximum benefits of this type of program?

"How fast is your grass growing? It is very likely that 20 applications a year (year-round play) would be too many. Fifteen applications was just about right for our Penncross green. At some periods of the year, topdressing every 2 weeks is just right, but you may well go for 8 weeks between some applications."

Can I apply topdressing too frequently?

"Yes. It is important to maintain some organic cushion. Excessive turf damage can result from ball marks where sand is applied too frequently, too heavily, or both."

How much sand should I apply at each topdressing?

"Assuming your only objective is topdressing and not quick buildup of a new surface, you should be applying from 1/32 to a maximum of 1/16 inch."

How do I apply such small amounts?

"It takes good equipment and a

skilled operator. Topdressing machines set at almost closed application settings have done a good job. Some superintendents have found broadcast fertilizer equipment to be the answer."

Can these uniform medium fine sands be applied at the higher rates typically used when aerating and topdressing once or twice a year?

"No. These finer sands are not as easy to move and push around over the green. If heavy amounts are desired, it would be best to make several uniform fine applications."

Do you tend to build up the depth of the green much faster than typical aerating and topdressing practices?

"There is very little difference. At the frequencies that produced our best putting surface, the difference was less than 1/4 inch per year, when compared to standard practice. On golf courses, we have not seen an observable difference."

Do you recommend limiting aeration and verticutting once you start a topdressing program?

"No. The condition of your present green will, in part, govern how fast topdressing can become a major management program. It is best to increase aeration at first to ensure a good transition between your old and new surface. Some courses have found that a double aeration, deep aeration, or both, work best for them. During the first year, some courses have gone from two basic aerations to a maximum of six. Tines of 5/8 inch are used to start, then only 1/2- or 1/4-inch tines. Their topdressing might be much heavier at first, but they are soon on the 1/32- to 1/16-inch application rates. Verticutting may or may not be used, but with present-day equipment many superintendents have found it beneficial."

Once on the program, is aerating completely eliminated?

"No. But we no longer use aeration as our basic and most effective means of relieving compaction and removing thatch. Once we have a new uniform surface with a depth of 2 to 3 inches, late spring or early summer aeration, or both, may be in order. Even though we do not have a buried thatch layer, we may want to reduce the density or firmness of the surface."

"Verticutting the plugs on the

How Roundup® helped Jim Siegfried renovate this fairway in days, without closing it for one minute.



Take a good look at this good-looking fairway.

Last fall, Jim Siegfried found a way to clean it up, without tearing it up—at the height of his club's busy season. With Roundup® herbicide by Monsanto.

Jim is the Greens Superintendent at Losantiville Country Club, Cincinnati, where bermudagrass had become a serious problem on the 18th fairway. To control it, Jim applied Roundup once—while the weeds were still actively growing—right at the start of the Labor Day weekend.

"That's really 'prime time' here," Jim told us. "But after we applied Roundup, we kept the fairway in play the whole weekend, and after. The members played right over it, with no problem."

Since Roundup has no residual soil activity, and won't wash or leach out of treated areas to injure desirable plants, Jim simply took normal precautions against spray drift—and didn't worry about damaging desirable vegetation along the fairway.

Even better, he was able to re-seed right into the dying bermudagrass only 7 days after applying Roundup—without loss of playing time or inconvenience to the membership.

Reinfestation won't be a big problem for Jim, either. He knows that Roundup destroyed the rhizomes of the treated weeds, helping prevent their regrowth.

Jim thinks he'll use Roundup again this year—and apparently some club members hope so, too. "As soon as they saw how good this fairway looks, some of the members started asking when I'm going to do the same for #10, where we have some more bermuda. I'll probably tackle that with Roundup this fall."

If controlling many tough emerged weeds and grasses is a problem for you, see your local Monsanto representative or chemical dealer soon for your supply of Roundup.

Roundup. It worked for Jim Siegfried. It can work for you.



There's never been a herbicide like this before.

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irrigates the majority of U.S. courses. And that includes over half of *Golf Digest's* top-100 list.

Put in TORO automatic sprinklers and at the crack of the day's first drive you know your course is ready. Greens have been watered in their own special way. Fairways, tees and rough got customized sprinkling. Frost or dew has been syringed off the greens. Yet nobody has been near the course all night long.

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100 golf courses. Let that soak in.

automatic sprinkler systems is that the cost is less than ever. For example, our new hydraulically-controlled MPC system brings automatic within reach of just about everybody. Because we don't have to dig up your turf, you don't have to dig down into your pocket to afford the conversion.

And the solid-state VT 3 system we've just introduced bucks the rising tide of inflation with more control for less money. It's pushbutton irrigation nobody

else can touch.

You don't have to be in Pebble Beach or Augusta to have a great golf course. Just call our Golf Course Marketing Manager John Skidgel today. His 24-hour number is 714-359-0701. It could be the biggest step you ever took toward *Golf Digest's* top 100 list. Did that soak in?

The TORO Company, Irrigation Division, P.O. Box 489, Riverside, CA 92502. International Telex: 676-490.

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The Number One Controlled Release Nitrogen Fertilizer



CIL Sulphur Coated Urea is being tested against other controlled release nitrogen fertilizers at 14 different universities in the U.S. and Canada. Photo above shows one of the test sites with CIL Sulphur Coated Urea treated grass in foreground.

Efficient

- Release of nitrogen is controlled by moisture. Temperature and bacterial activity are not important factors. Excess moisture however, **does not** markedly speed up the release of the nitrogen.
- Soil pH does not alter pattern of release.

Background photo:
CIL Sulphur Coated Urea prills
actual size.

Efficient Effective Economical

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- Tested on grass plots under scientifically controlled conditions, CIL Sulphur Coated Urea outperformed all conventional slow release nitrogen fertilizers tested, in both the appearance and growth of grass obtained.
- CIL Sulphur Coated Urea releases nutrients as soon as it is applied and continues to do so evenly over 4 to 5 months. Result is more complete utilization of nitrogen applied, and no build up of nitrates in the soil.

Economical

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green will separate the sand from the organic matter. By removing the organic matter and brushing the sand into the green, you will have topdressed without the need for adding extra sand. Some superintendents feel that of their 12 to 18 topdressings per year, two or three would be verticutting their aeration plugs."

If you aerate, aren't you opening up the green for greater Poa annua invasion?

"Yes and no. It depends on the time of year. We recommend only aeration in the late spring and early summer when *Poa annua* germination is at a minimum."

How long before a topdressing program will make a major difference in the surface of the green?

"This again depends on the condition of your green when you start the program and how soon you are developing a uniform surface. Considerable improvement has been noticed in greens before the end of the first year. More typically, it takes about 18 months."

Will golfers like the new putting surface?

"Maybe yes, maybe no. If your golfers want a true firm green, the answer will be yes. If they expect a poor shot or an improperly played shot to stick on the green, they will be unhappy. Some players will have to take a few golf lessons and learn how the game is played."

Can this program be easily incorporated into my present turf management program?

"Yes. But it is a poor practice to go into any new program without first testing it on your practice green. Your sand source is critical. Do you need new storage bins for your sand? Do you need to relocate or add sand storage bins to reduce the time it takes to move sand to your greens? Is your present topdressing equipment in excellent condition, and will it evenly apply the right amount of sand? Does your crew know what is expected from the program and what they must do to make it work?

"No doubt there are many other questions we might ask and answer. Here they should be unnecessary, because this program is not for the nonprofessional superintendent.

"The true professional can make it work, and results will be quite predictable. Tournament golf every day is possible. Less reliance on fungicides and herbicides is possible. You also may find that height of cut will be increased and frequency of mowing reduced. If the primary function of

your putting green is for putting and not just for a lush green carpet appearance, a properly developed sand topdressing frequency program could be the answer to great golf for your golfers and fewer problems for you."

Of the superintendents we know have been topdressing with sand, most would agree in general with Davis' positive remarks, though individual practices vary with climate, type of green construction, and turf variety. Most of these superintendents would agree that sand topdressing eliminates thatch, reduces or eliminates aerification and verticutting, and provides fast and true putting on a green that holds a ball well.

Ray Knapp of Tuckaway Country Club in Wisconsin began topdressing his greens with sand in 1975. He found that once his thatch problem was eliminated, he could cut back to topdressing three or four times a year.

Even those superintendents who are satisfied with the results they have achieved caution against starting sand topdressing unless you have problems with your greens. Once you

start using sand, you can't switch back to a regular topmix; if you do, you will create layers of different soil materials. As Dr. Douglas Hawes pointed out after his research at the University of Maryland, "Layers impede water, air, and roots. Regardless of what you decide to do about topdressing, avoid layers of fine materials on coarse materials. Layers may cost you your turf and also your job."

Louis Miller, superintendent at Louisville (Ky.) Country Club, has had good results with sand topdressing, but he cautions, "If you've got something that works and you've got the money to pay for it, why screw it up?"

Marvin Laird, who corrected heavy clay and compaction problems at Lincoln Greens (see cover photo), adds, "If you've got a successful program and you change to sand, you ought to be fired."

But Ray Knapp probably provided the best summary: "Sand topdressing is just another maintenance tool, but it has eliminated many problems for us." □

SUGGESTED PARTICLE SIZE RANGES FOR SAND USED IN GOLF GREEN CONSTRUCTION AND TOPDRESSING

Sieve opening (mm)	U.S. standard sieve number	U.S.D.A. class	Construction		Topdressing	
			Desired	Accepted	Desired	Accepted
2.38 2.00	8 10	Fine gravel				
1.68 1.41 1.19 1.00	12 14 16 18	Very coarse sand		0-10%		↑
.841 .707 .595 .500	20 25 30 35	Coarse sand	↑ 0-15%	80-90%		0-15% ↓
.420 .354 .297 .250	40 45 50 60	Medium sand	↑ 80-95%		100%	↑ 75+%
.210 .177 .149 .125 .105	70 80 100 120 140	Fine sand	↓			↓
.088 .074 .063 .053 .044	170 200 230 270 325	Very fine sand	↑ 4-8%	5-10%		↑ 0-8%
.037	400	Silt and clay	↓			↓

NOTE: The proportions proposed are tentative guidelines only. Individual sands should be considered in terms of the infiltration rate when compacted and the moisture release curve. These will be affected by the particle size distribution within the limits proposed. The shape of the sand particles also must be considered, because round sand particles do not compact as readily as sharp sand particles.

Congratulations! You have just accepted the position of golf course superintendent of Bayview Country Club — a big job with an awesome responsibility. After the customary congratulations and cocktails you find yourself sitting alone in an office sur-

rounded by mounds of papers, magazines, and miscellaneous irrigation heads, broken valves, bent golf clubs, and three empty Coors cans. So you start, sweep off the top of your desk to see if there is a bottom to the paper when the phone rings and the club manager informs you that the pumps by the clubhouse are making a noise like they are gargling marbles. And if that isn't enough, the pro walks in and informs you in the King's best

You wonder why you left the army. Did they say "congratulations," or was it condolences?"

Now that things are back to normal, let's set up a pump and equipment maintenance program for the club that will make your job a lot easier. I will only talk about pumps, but what is said will be applicable to

Maintenance records are invaluable in preventing costly repairs. A typical pump like the one on the left will carry most of the information you need to fill in at the top of the maintenance record card (below).



PUMP NO. _____		LOCATION _____		DATE INSTALLED _____	
Service	Primary <input type="checkbox"/>	Mfg. _____	Construction _____	GPM _____	
	Secondary <input type="checkbox"/>	Ser. No. _____	Casing _____	Head _____	
Driver No. _____		Fig. No. _____	Impeller _____	Liquid _____	
H. P. _____		Size _____	Shaft _____	Sp. Gr. _____	
RPM _____		Imp. Dia. _____	Sleeves _____	Temp. _____	
		Rotation _____	Seals _____	NPSH _____	

[illegible]