

WHEN YOU'RE OUT OF ANSWERS, TRY THIS.



Because old-fashioned chemicals and plain organics just don't work like Ringer Turf Restore®. For those tough, recurring turf problems you need Ringer's unique combination of soil micro-organisms and organic proteins. It actually reduces thatch and attacks the conditions that lead to necrotic ring spot and other patch diseases. And Turf Restore nourishes grass plants naturally so it's safe for the environment. Ringer's a breakthrough in turf care!

But don't just listen to us. Ringer natural products are used and recommended by the Arnold Palmer Golf Management Company. These experienced golf course management professionals are recognized worldwide for their high standards. And you can see the dramatic results of their Ringer Turf Restore programs on top courses like Bay Hill, Latrobe, Turtle Bay and more.

So don't let turf problems ruin your professional reputation. Because there's no reason for anything less than perfection. Now that you know about Ringer Turf Restore, you have the answers.



Call 1-800-654-1047.

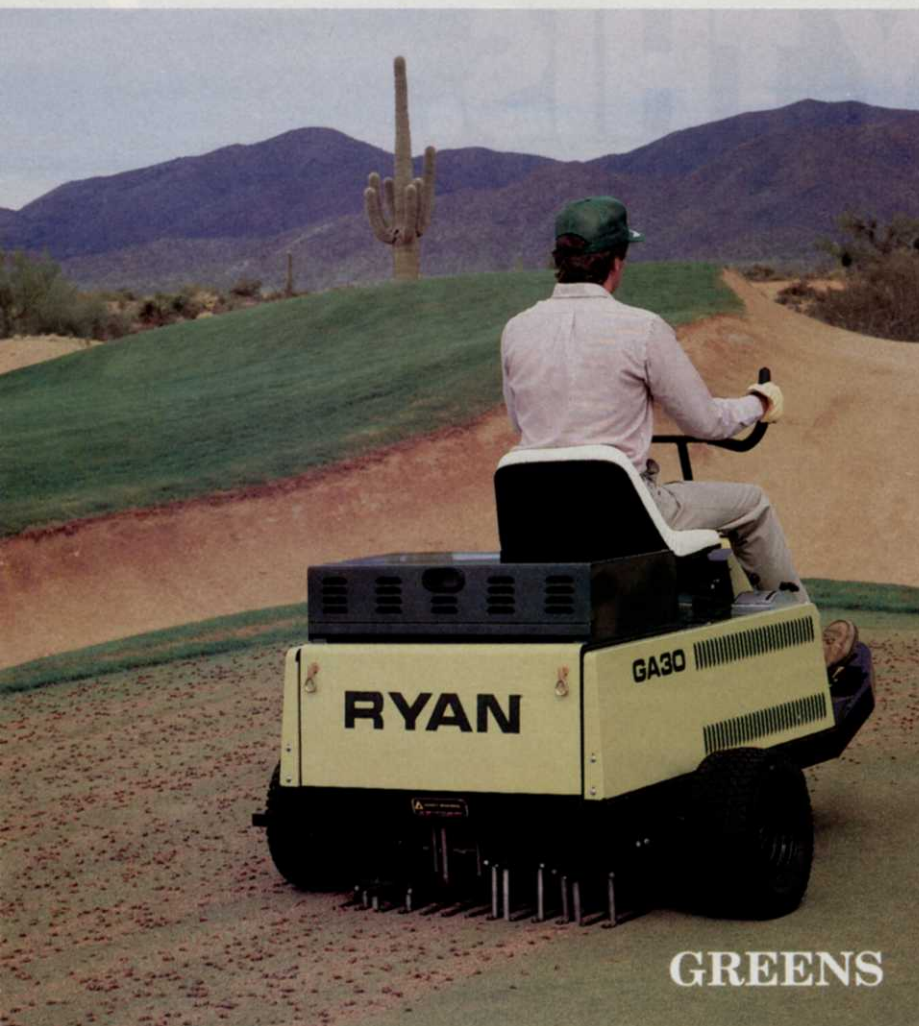
RINGER

Natural Solutions For Turf Problems.

Ringer Corporation
9959 Valley View Road
Minneapolis, MN 55344-3585
Distributed by Shemin Nurseries Inc.

Circle No. 151 on Reader Inquiry Card

Introducing the first full-course aerator.



GREENS

Ryan's new GA™ 30 aerates on the greens and in between.

Now you can deliver green-quality aeration to your entire course with a single piece of equipment. From tee to green, fence to fence. The new GA 30 aerator combines the versatility of variable core spacing, the speed of a riding machine, and the precise coring of

Ryan's unique crank and return mechanism.

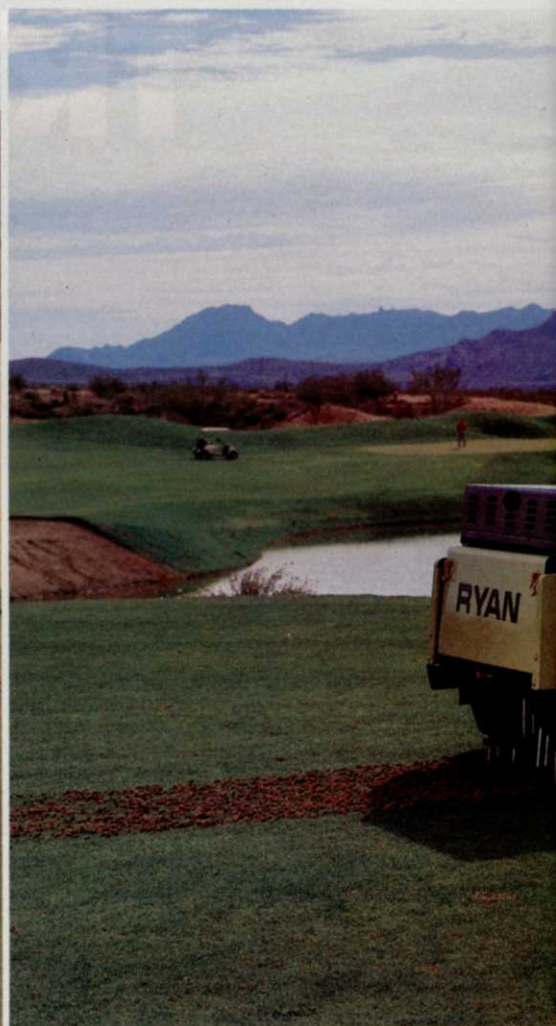
It's the beginning of a revolutionary era in aeration.

No other aerator is as versatile.

Variable core spacing makes the GA 30 aerator as good on fairways as it is on greens. Simply move the spacing adjustment control to the desired setting, lock it in

place, and you're ready to go without leaving your seat. And just look at how the GA 30 aerator produces.

SPACING 2.50 in. x () in.	PRODUCTION sq. ft. per hr.	YIELD holes/sq. ft.
1.00	5,625	57.6
1.50	8,440	38.4
2.00	11,250	28.8
2.25	12,660	25.6
2.50	14,060	23.0
2.75	15,470	20.9
3.00	16,875	19.2
3.50	19,690	16.5
4.00	22,500	14.4
4.50	25,310	12.8
5.00	28,125	11.5

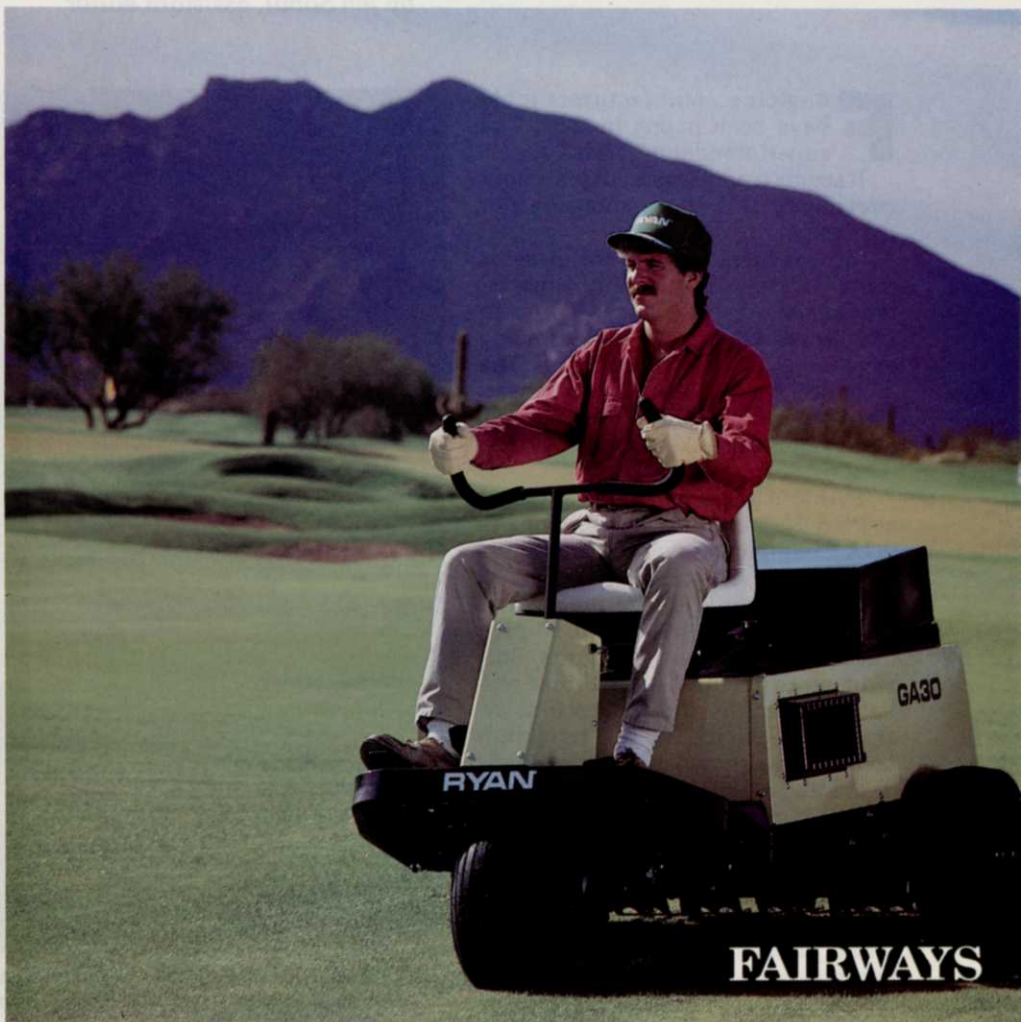


A STRONG RECOVERY

Golf course superintendents weathered a disease-filled year in 1987. But the new year holds promise for better health.



TEES



FAIRWAYS

No other aerator is as fast.

The GA 30 aerator not only helps you aerate in less time, it also helps you get on and off the course more quickly. Its 18 hp engine produces a six mph transport speed that's two-three times faster than other aerators. So why waste time walking when you can ride to work?

No other aerator delivers Ryan quality.

No matter what the spacing, the GA 30 aerator's coring tines penetrate straight in — at a depth of up to $3\frac{3}{4}$ inches. And then Ryan's proven crank and cam action pulls the cores straight out to better protect your turf from damage.

Better penetration. Higher quality cores. Exactly what you'd expect from Ryan.

Test drive the GA 30 aerator today.

For a feel of the most cost-efficient, turf-effective aerator money can buy, contact the Ryan dealer nearest you for a free demonstration and test drive. Or call toll free:

1-800-228-4444.

RYAN®

BUILT TO LAST

A CUSHMAN Product Group

6185-Ryan, P.O. Box 82409, Lincoln, NE 68501

Circle No. 115 on Reader Inquiry Card

JANUARY 1988/LANDSCAPE MANAGEMENT 63

A STRONG RECOVERY

Golf course superintendents weathered a disease-filled year in 1987. But the new year holds promise for better health.

by Jeff Sobul, assistant editor

Fungicide manufacturers must have been happy in 1987. The superintendents? Well. . .

It seems turf diseases hit just about everybody this year, some harder than usual.

"It was ideal weather for diseases this year," says Joseph Baidy, superintendent at Acacia Country Club in Lyndhurst, Ohio. "We had so many extremes this year with all the moisture we had and then dryness. The grass really couldn't tolerate it." Baidy notes that take-all patch did the most damage at Acacia.

Pythium blight reared its ugly head at PGA National just in time for the PGA Championship and the national media. Nearly 20 straight days of temperatures above 90 during the day and 70 at night, combined with 90-plus humidity, ravaged the bentgrass/Bermudagrass greens. The pythium was helped along by the presence of an aquatic herbicide in the irrigation water, unbeknownst to superintendent Luke Majorki.

At Quail Hollow in Painesville, Ohio, the presence of diseases was constant this summer. Along with leaf spot, dollar spot and pythium, among other things, superintendent Jim Loke found brown patch on some greens, tees and fairways. "That was a first," he comments. The cause for the diseases was a combination of high temperature and humidity and weakened turf. "In general, everybody had problems with pythium this year," he concludes.

Dan Pierson, superintendent at Cherry Hills Country Club in Englewood, Col., reports that his course was one hit by pythium this year. It should be noted that the Denver area's climate is usually not conducive to turf diseases. The humidity is low and the summer temperatures generally drop down far enough at night to keep diseases at bay. In fact, the course only has a \$6,000 chemical budget.

However, one Friday night it happened. "I was out Saturday morning and was not cognizant of what the humidity had been the night before. One of the tees had pythium running



Though high-priced, lightweight mowing is making bentgrass fairways a reality on many courses, reducing compaction and cutting water use.

through it pretty badly," Pierson says. "A lot of guys around here have never seen pythium."

Pierson says they had enough fungicide in house to spot spray, then bought enough material from a local distributor to treat the greens and tees and put a preventive down. He says the par-three eighth hole was hit particularly bad, but it was mostly *Poa annua* that was killed. "It was kind of a Godsend," he says.

Speaking of poa

Is there control in sight? Possibly.

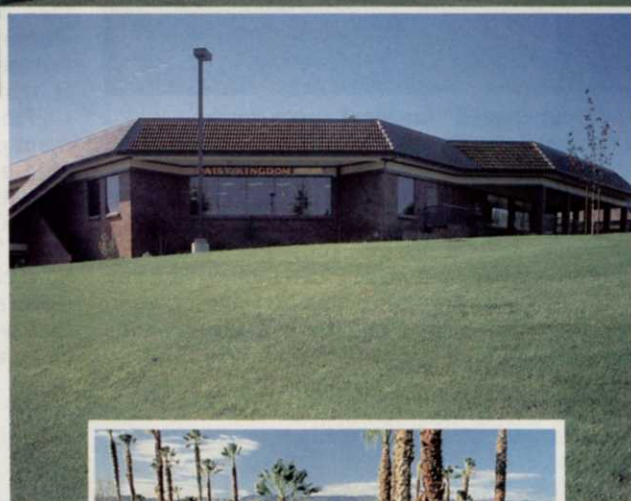
"The tools are at hand to perpetuate poa or remove it to the extent wanted," says Tom Watschke, Ph.D., Penn State University.

The decision then is whether to keep the poa or eventually convert

greens, fairways or tees, usually to bentgrass. New growth regulators are entering the market which will perform one of those two tasks.

The host of new regulators include Cutlass from Elanco, O.M. Scott's TGR, and Embark, marketed by PBI Gordon. Nor-Am's Prograss herbicide and Elanco's Rubigan fungicide have also been tested as poa reducers. Researchers at Michigan State University may have discovered a biological control for poa (see Research Update in this issue for more information).

To strengthen annual bluegrass, Watschke says Embark will inhibit seedheads but improve the stand of existing turf when at seed. In addition, poa benefits because Kentucky bluegrass shows signs of weakening when treated, Watschke says, and



WHY USE ANYTHING BUT THE BEST PERENNIAL RYEGRASS?

Across the country, Pennant's performance in turf trials speaks for itself. Pennant is a true champion. Pennant has rated best over other varieties of perennial ryegrass, including overseeding dormant Bermuda grass, extreme heat-drought stress, resistance to sod

web worm, red thread and brown patch disease and winter injury.

Pennant was also found to maintain its excellent turf color and quality late into the season. Pennant will impress you with its rich, moderately dark green color, its fine leaf blades and its improved mowing properties.

When your reputation counts on the turf you grow ... the obvious choice is Pennant.

PENNANT
PERENNIAL RYEGRASS

"The Trophy Turf"

Circle No. 110 on Reader Inquiry Card



E.F. Burlingham & Sons.

P.O. Box 217 • Forest Grove, OR 97116
(503) 357-2141 • Telex: 36-0274
Cable: Burlingham





Pythium won the "Disease of the Year Award" for most appearances by a pathogen on different golf courses in 1987.

thus is more susceptible to disease.

Ohio State's Karl Danneberger, Ph.D., has also seen this reaction from both the annual and Kentucky bluegrasses, but has no hard data. However, when Embark is applied regularly to an area, he seems to notice more annual bluegrass.

Cutlass and TGR also inhibit poa seedheads but selectively reduce poa to aid conversion to desired species, usually bentgrass since these products are used mainly on golf course fairways. (The only side effect is some discoloration of the bent.) From there, Watschke says, cultural practices can help to speed the conversion: strict water management and lower cutting heights. Danneberger suggests using these in conjunction with overseeding of desired species.

Stan Zontek, Mid-Atlantic Region director of the USGA Green Section agrees. "A single chemical or management practice rarely controls *Poa annua* by itself," he says. "The best results are obtained when all the programs are meshed together."

There are some cautions in using Cutlass, TGR, Prograss and others to reduce poa, especially if the percentage of poa in the treated turf isn't exactly known.

"The problem is sometimes you really don't know how much poa you

have," Danneberger says. He notes that annual bluegrass and Kentucky bluegrass can look pretty similar when cut at, say, two inches. The key then is to assess the turf closely when going in to kill the poa. Zontek adds that the chemicals should first be

tested on a limited basis to avoid massive annihilation of poa.

Danneberger says Prograss, a herbicide registered to kill annual bluegrass, has been most successful killing annual bluegrass in Kentucky blue and perennial ryegrass.

Despite these successes—and they are successes—Danneberger says, "it's always going to be there; it's always going to be a problem." When Kentucky bluegrass weakens or dies, it's replaced by annual bluegrass. When annual bluegrass dies, it's replaced by annual bluegrass.

"I'm not ready to write it off," Danneberger concludes. "It's going to be here long after I'm gone."

Muirfield Village Golf Club superintendent Michael McBride concurs. "I don't think you'll ever get rid of poa. People have been trying to get rid of it for 50 years. You can keep it under control, to a certain point, but I don't think you can totally eliminate it and keep it out effectively and economically."

Lightweight

One of the cultural practices that shows hope for propagating bent on fairways, thus helping to reduce poa, is lightweight mowing.

This is one of the newest management practices to be developed, starting about eight years ago at Coldstream Country Club in Cincinnati, Ohio. As with other "inventions," this was discovered somewhat by accident, and then by experiment: using a greensmower on an approach that was compacted by a heavy fairway mower.

Continued on page 68



The lightweight five-gang mower from Lesco could increase lightweight equipment quality and bring prices down to the budget of the public course.

Nourish Your Turf With **NITROFORM**

Nourishing your turf with NITROFORM[®] assures better root development and healthier turf by providing six important benefits.

- 1** Consistent 38% nitrogen.
- 2** Sustained, predictable release by soil bacteria to provide nitrogen when needed most by roots and vegetative parts.
- 3** Provides organic nitrogen and carbon to enhance bacterial activity, even in sandy soils.
- 4** Non-burning to turf, trees, or ornamentals when used as directed.
- 5** Environmentally sound... resists leaching, even in porous soils.
- 6** Fewer applications a year are required.



For a complete information kit on nourishing and protecting your turf, join the NOR-AM Turf Management Program. Write to the Communications Department, NOR-AM Chemical Company, 3509 Silverside Road, P.O. Box 7495, Wilmington, DE 19803.

NITROFORM[®] is available as BLUE CHIP[®] or GRAY CHIP[™] for dry application, or as POWDER BLUE[®] or POWDER GRAY[™] for liquid application.



NOR-AM CHEMICAL COMPANY

3509 Silverside Road, P.O. Box 7495
Wilmington, DE 19803



IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.

Circle No. 137 on Reader Inquiry Card

JANUARY 1988/LANDSCAPE MANAGEMENT 67

As the turf improved, experimentation spread to a par-three fairway, and then the rest of the course. It has now spread to numerous cool-season courses where bentgrass is the dominant or desired species.

It is not a fad, says Kevin Dushane, superintendent at Bloomfield Hills (Michigan) Country Club, where he has used lightweight mowing for six years. It is a general shift in cultural practices that improves bentgrass noticeably. Those who use it rave about its effects. Lighter-weight machines, such as the Toro 84 triplex, reduce compaction and improve root zone development and drainage.

"I think the biggest thing is compaction," Dushane says. His lightweight mowing has resulted in improved playability and aesthetics. "When the program first started," he says, "the membership was really pleased with it."

"It's amazing," says Acacia's Baidy. "You don't know what you

have in the fairway until you start mowing with a triplex." On one fairway, he says, bent now covers 90 percent of the turf because of lightweight mowing.

"You can cross-cut and do anything you want with the triplex and go different angles and it helps the grass," he says, "and it gets rid of deep gullies."

As with many good things, there is a flip side. Lightweight mowing is expensive. New machinery can run \$30,000 to \$50,000 for sufficient equipment (three triplexes or two five-gangs). Many public courses have little hope of affording the equipment at this time.

Also, because the units are smaller, they take more time and labor. Dushane estimates it takes three triplexes 15 to 18 man-hours to cut 18 holes, plus picking up clippings if so desired. One man on a seven-gang, he says, can do the same job in perhaps six man-hours.

However, Dushane feels that the expense balances out in less water use, sometimes as much as one-third, and healthier grass requiring less fertilizer. Plus, he says, "If you're going to have a better golf course the members will pay for it." And anytime you can make such an improvement on 25 to 30 acres, it can't be all bad.

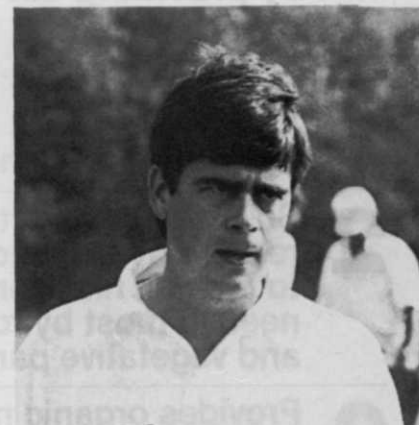
And there is hope for lower-budget courses. Dushane feels the recent introduction of the less-expensive Lesco five-gang lightweight mower will lead to an opening of the market and a reduction in overall equipment prices and an improvement in equipment quality.

In conclusion

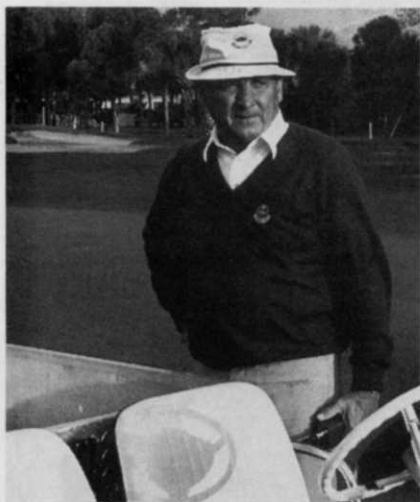
It may sound from this report like 1987 was a down year for golf courses. On the contrary, it has been a year far and above anyone's expectations (see lead



McBride: poa can be controlled but never eliminated economically.



Danneberger: know how much poa is in the turf before treating.



Luke Majorki and PGA National were hit by massive pythium right before the 1987 PGA Championship.



Despite Denver's arid climate, Dan Pierson and Cherry Hills Country Club had to deal with pythium.

article this section). There seems no reason to believe 1988 won't be at least as good.

The black layer issue has died down some, mainly because speculation on the cause and nature of the disease is giving way to some hard data, most notably by Joe Vargas, Ph.D., at Michigan State University and Clint Hodges, Ph.D., Iowa State University (see October and November, 1987, *LANDSCAPE MANAGEMENT*). There is some hope that a solution to the problem will be found this year or next.

Turf diseases will be around as usual, and there seems no catch-all solution, except maybe to get an earlier start on preventive applications. (Danneberger has been recommending April or May.) But things probably won't be much worse than in 1987.

As long as the economy remains strong, the golf course industry should follow right along. The only problem with that is a shortage of seasonal labor because of lower unemployment, which the industry can probably live with for now.

So, happy disease-hunting, and have a good 1988. **LM**

For the long run.



Introducing a powerful new force in riding rotary mowers.

Now there's more to Cushman® Front Line® Mowers than top cutting performance. More power. More operator comfort. More endurance.

Now there's the new diesel-powered model Cushman 807.

Its totally integrated power train and new hydraulically-powered steering gives you unmatched performance over the long run. The 807 dispatches thick, wet grass on tricky maneuvers around obstacles without losing

ground speed. No other rotary mower gives you a cleaner cut.

At the heart of the new, four-wheel 807 is a powerful 21.5 horsepower, 3-cylinder Kubota 950 diesel engine. We've also included a heavy-duty Donaldson air cleaner and a new, heavy-duty Cushman PTO clutch to keep your new Cushman Front Line running longer. A complete family of Cushman Front Lines and a wide range of accessories are available to meet all your needs all

year 'round.

Choose a 3 or 4 wheel design with 60- or 72-inch side or rear discharge mower deck. Or add the exclusive Cushman Grass Caddy™ system, which lets you cut, catch, and hydraulically dump 16 bushels of clippings without leaving the seat.

For a convincing demonstration contact your Cushman dealer today. Or call toll-free: 1-800-228-4444.

CUSHMAN®
BUILT TO LAST

3305 Cushman, OMC-Lincoln, P.O. Box 82409, Lincoln, NE 68501

© Outboard Marine Corporation, 1987. All rights reserved.

GOLF PRODUCTS

Fluid overflow systems stops leaks and streaks

Standard Golf's improved Professional Series Ball Washer features a fluid overflow system that prevents leaking and streaking of the case.

The overflow tube keeps the fluid level below the crank shaft opening in order to prevent soap from building up on the outside of the case. It cannot be overfilled.



A drain plug makes it easy to drain and can't be overtightened. The washer can handle up to four balls at a time, comes in eight colors and can be mounted on a number of stands.

Circle No. 190 on Reader Inquiry Card

Limb chipper features 90-degree in-feed angle

Promark Products has introduced the model 400 brush and limb chipper to handle tough brush and limb jobs.

The 400 chipper uses a 90-degree in-feed angle to let both knives cut the full diameter of the limb. The chipper



provides a fixed hydraulic feed rate of 152 F.P.M.

A safety bar on each side and over the top of the hopper can instantly start, stop or change the direction of the feed rollers. The feed table is located at the rear of the chipper to keep

operators away from moving parts. The two 14 1/2-inch knives and 14-inch bed knife will cut limbs as large as 10-12 inches in diameter.

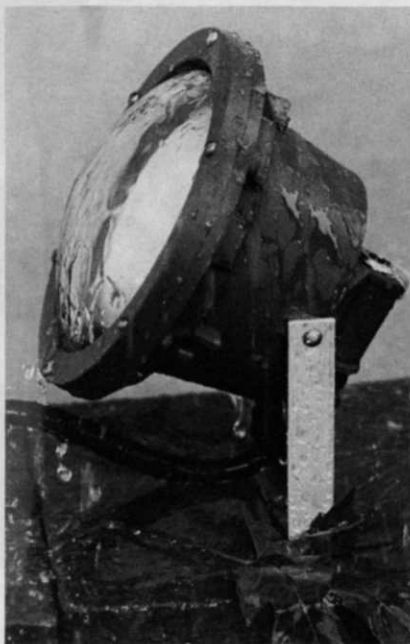
Circle No. 191 on Reader Inquiry Card

LV lighting system brightens floating aerators

A high-intensity, low-voltage lighting system from Barebo, manufacturer of Otterbine floating aerators, is designed for use in conjunction with Otterbine floating aerators.

However, the light's universal mounting bracket allows its use on any type of fountain such as those around pools.

The light meets national electric code requirements and passes testing standards of the electrical test-



ing laboratories, according to the company.

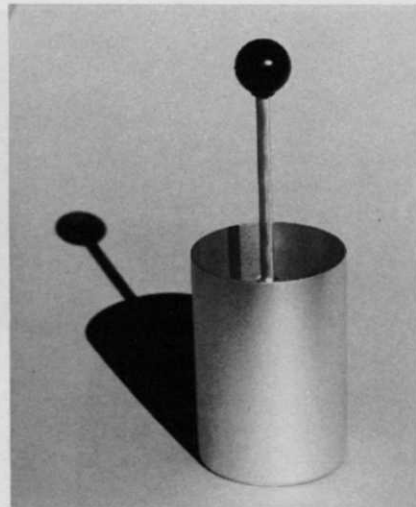
Circle No. 192 on Reader Inquiry Card

Simple device removes water from cup holes

The Model 950 Cup Hole Cleaner from Par Aide removes water from cup holes before turf plugs are replaced. In doing so, it helps eliminate unsightly turf damage resulting from plugs replaced in water-filled putting green holes.

When placed in the hole, water rises through a center tube and flows into the outer holding section of the cup cleaner, which is lifted out and emptied.

Par Aide will display this and other products at booth 2053 of the Golf Show.



Circle No. 193 on Reader Inquiry Card

Custom flags emblazoned with course logo or number

Custom flags from J.D. Ober are made of 100 percent nylon and sewn with sun-resistant Dacron thread and double hems.

Personalized logos or numbers are screened with long-lasting epoxy ink. The flags are mounted on double-sided grommets or plastic tubes.

Circle No. 194 on Reader Inquiry Card

Portable sprayer comes with or without wheels

Falkenberg's Spotlyte portable sprayer is available with pneumatic tires for towing or without wheels for easy mounting on trucks, tractors or ATVs.



The Spotlyte comes with a 20-gallon polyolefin tank with an eight-inch vented lid. The tank also has a 20-year U.V. protection. The sprayer comes with a 30-foot nylon reinforced hose and lightweight gun with an adjustable conejet nozzle.

Available options include addi-