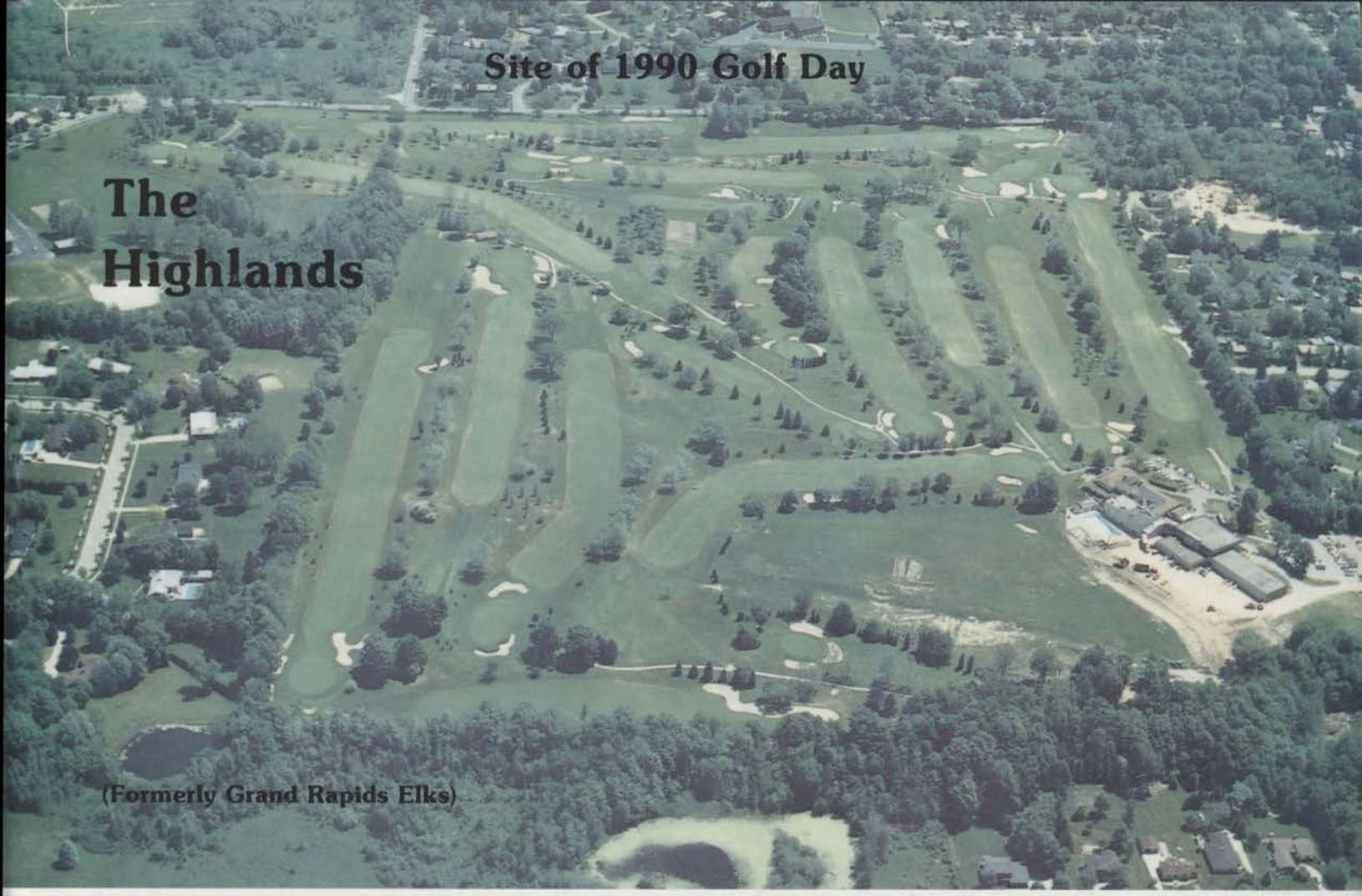

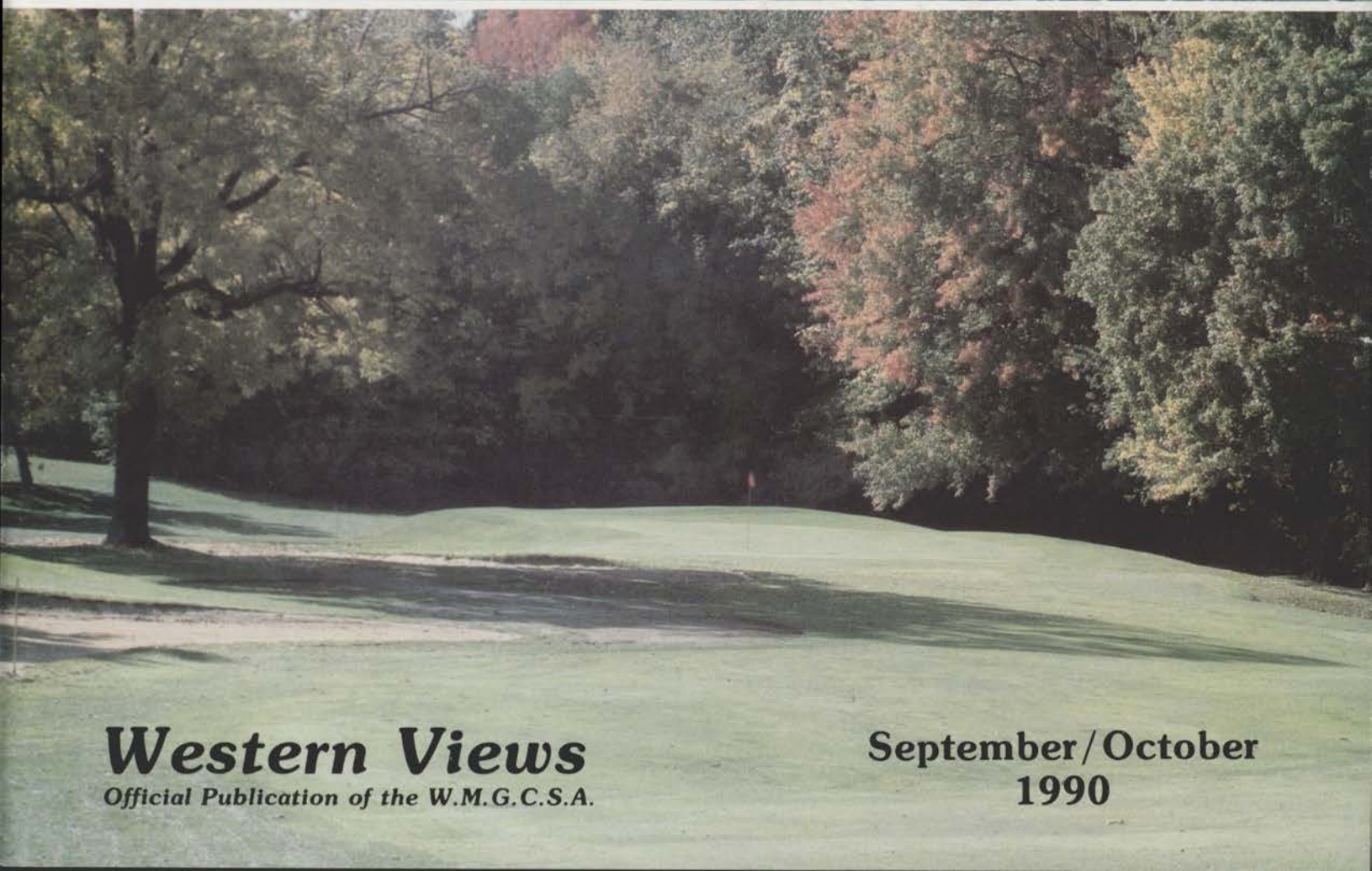

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September/October 1990

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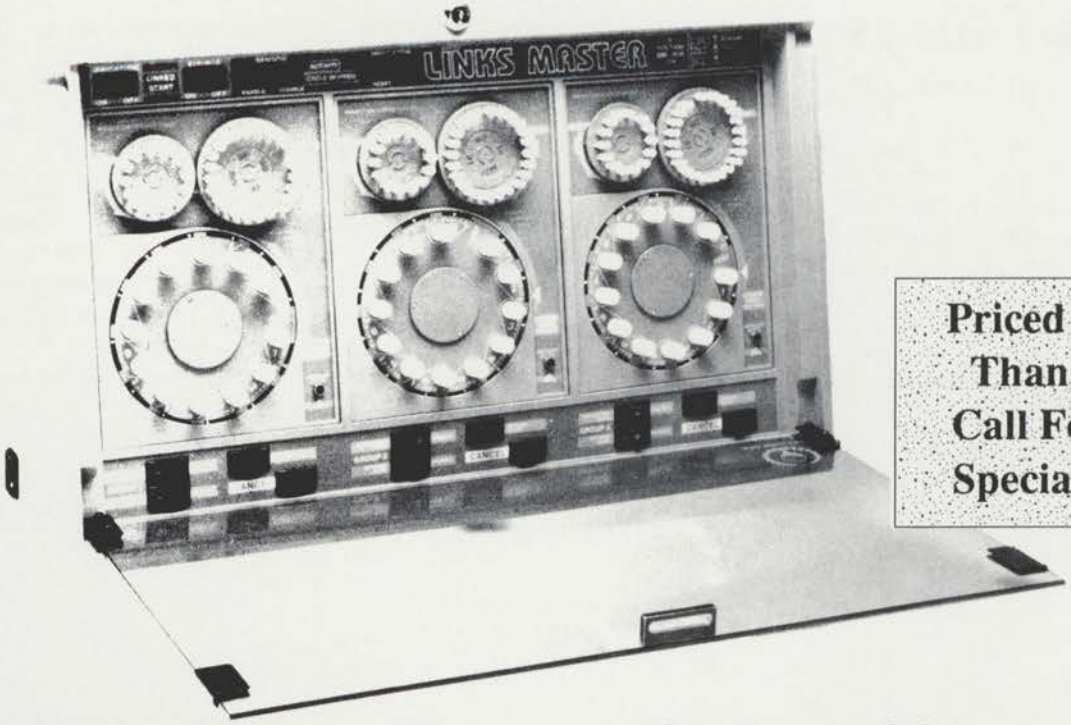

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WMGCSA NEWS

Monthly Meetings - Professionalism

These monthly meetings are designed for gaining and sharing turf knowledge and experiences as well as a social and recreational event. But first and foremost should be the growth and development of our members. Therefore, playing golf and not attending the general business meeting and speaker will not be permissible.

The Reservation Policy . . . Deadline dates for reservations MUST be honored.

The dress code for each monthly meeting will be determined by the host superintendent. Our Secretary-Treasurer will advise each host superintendent as to the Association's standards. Proper attire for golfing and dining is mandatory and will be specified in each monthly meeting notice.

Non-compliance to any of these policies by any member will result in denial by our Board of Directors to participate in that meeting's activities.

RICHTER RAMBLINGS

It has been a quiet summer in West Michgian. The weather was a real roller coaster with hot periods of 3 or 4 days and then Autumn type weather for 2 or 3 days. At the end of August the warm days and nights provided some excellent conditions for seed germination. Steve Adamczyk tells me that he germinated Kentucky bluegrass seed in seven days. In all it was a tough summer when the rough mower is earning overtime.

As golf continues to grow, so do our local golf courses. Dan Sruba at West Ottawa added nine holes to bring their total to twenty-seven holes. Chris Fochtman formerly at Green Ridge County Club has moved into the new 36-hole Egypt Valley Country Club. Bill Fountain moves from Timber Ridge in Lansing to Railside in Byron Center, a Jerry Matthews and Associates creation, that is due to open in 1991.

If you are looking for some good public golf that is a little off the beaten path, try Yankee Springs Golf Course near Wayland. Evan Siefert maintains some of the best bluegrass fairways anywhere. The turf is simply outstanding. Dave Gamble is the superintendent/owner at The Pines (formerly Lake Isabella), between Mount Pleasant and Remus, an excellent test of golf.

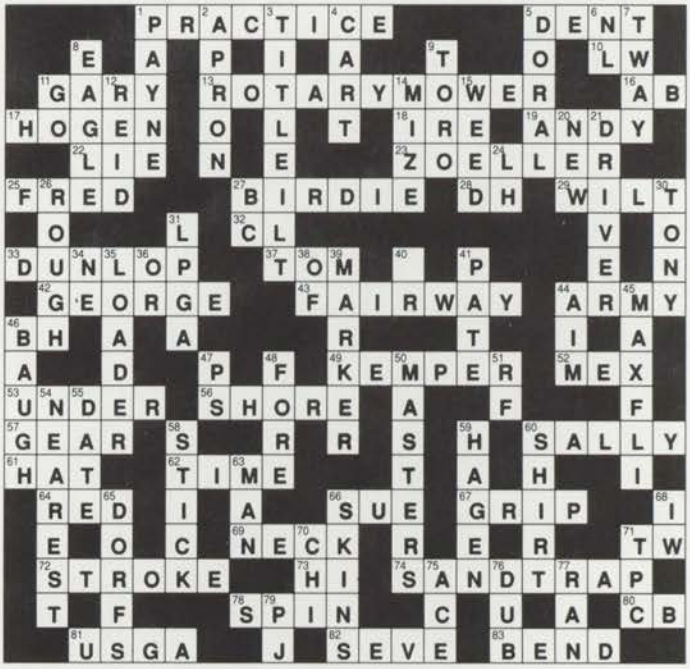
The Fall Party will be at the new Egypt Valley Country Club. Chris Fochtman and Steve Pastoor will host the event. Our Fall Party will be the first big party held at the new club, so please mark your calendar for November 3 and attend.

Still looking for locally written articles, comments, questions, etc . . .

ANSWER TO LAST ISSUE's CROSSWORD PUZZLE

Supers Crossword

by Mike Schindbeck, Asst. Supt. Spring Lake C.C.



FACTS ABOUT UST INSURANCE FROM GCSAA

Are golf courses required to demonstrate financial responsibility for underground storage tanks? Yes.

How much financial responsibility must a golf course be able to demonstrate? $500,000 per incident and $1,000,000 in the aggregate per year.

By what date is it required by law to demonstrate financial responsibility? October 26, 1990.

Will a golf course's general liability policy cover the cost of a leak from an underground storage tank? No. Virtually all general liability policies exclude cleanup costs, third-party liability claims and legal defense costs resulting from pollution.

Will a state trust fund meet the EPA requirements and protect a golf course's liability in the event of a leak? Not necessarily. Most state trust funds do not include third party-liability, a crucial element in EPA requirements. In addition, state trust funds generally have very high deductibles - $25,000 and higher. Finally, most state trust funds are undercapitalized, meaning it could be years (if ever) before you could receive payment.

What factors affect the premium of GCSAA underground storage tank policy? Type, age and size of tank. Type of piping. Type of tank monitoring. Environmental factors.

Are above-ground tanks available for coverage? Yes. Any above-ground or underground storage tank containing petroleum, diesel or heating oil could qualify for coverage.

Are tanks used for the storage of pesticides, herbicides, propane or other hazardous materials eligible for the GCSAA program? No.

Are closed tanks eligible for the GCSAA program. Yes, if there is written documentation that they were closed according to EPA guidelines.

If a golf course has an incident, what type of costs are covered by the GCSAA program? Cleanup (both on-site and off-site), third party (bodily injury and property damage) and legal defense, up to the limits specified in the policy.

Can the agent currently writing coverage for a golf course handle the GCSAA program? Yes. The agent can place the GCSAA program within the course's existing coverage. (Operations without a designated insurance agent can work directly with financial Guardian.)

Why is the GCSAA sponsored program better for golf courses than another type of coverage? The pollution liability market is very limited. Most companies that offer this type of coverage also insure gasoline retailers. Retailers produce a much greater pollution liability risk because of larger tanks, higher volume and more densely populated sites - resulting in higher cleanup costs and third party liability exposure. The GCSAA program, on the other hand, is designed only for golf facilities.

The factor means lower premiums and smaller deductibles because of the lower risk generally associated with storage tanks located at golf facilities.

Are pre-inspection tests required before coverage can begin? Yes, depending on the type and age of tank. Costs for these tests range from around $60 per tank for an inventory analysis (for newer tanks) to $350 and up for tightness tests or soil boring.

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If a golf course is fined by EPA for not upgrading a tank when required, does the GCSAA program cover the fine? No. Fines and penalties are rarely covered by liability insurance.

If a pollution incident occurred prior to the effective date of the GCSAA insurance coverage, will the policy cover the incident? No. Prior pollution is not covered.

Is today too early to begin filling out an application for the GCSAA program? Absolutely not. Insurance company requirements can take anywhere from 60 to 90 days. To meet the October deadline, proper planning is essential. In addition, the sooner coverage begins the sooner a golf facility has the peace of mind that comes with having financial security in the event of a leak.

For further information write to: Financial Guardian, 12122 Merchants Bank Building, P.O. Box 3519, Topeka, KS 66601-3519, or call 800/727-0250 and ask for the pollution coverage department.

GCSAA GIVES $35,000 FOR RESEARCH

GCSAA presented a record $35,000 contribution to the joint USGA/GCSAA Turfgrass Research Committee to support research into turfgrass breeding and environmental consideration. The presentation was made in Chicago on June 13 at the Golf Writers Assoc. of America awards.

Last year GCSAA donated $25,000 in June to the committee for turfgrass research, and another $25,000 in December to fund a full review of all scientific literature on the environmental impact of golf course management practices. Results of the review will be the "starting point" in the development of a comprehensive manual of best management practices, according to Dr. Mike Kenna, USGA research director.

"This will be a pivotal book," Kenna said. "It's the third leg of the stool: Here's the pest; here's the environment; and here's how to control the pest, taking the environment into account." He explained that, although many superintendents already consider the environmental consequences of their pest management practices, the management manual will provide needed documentation of environmentally responsible pest control.

Kenna also said that a summary of current research

priorities, gleaned from the literature search, already has been sent to 180 turfgrass researchers. Three-page preliminary proposals are due in July. After those are evaluated, complete proposals will be solicited and evaluated for funding recommendations. The USGA Executive Committee appropriates the funds for turfgrass research.

"We certainly appreciate the support that GCSAA has shown us—not just the financial support, but also the moral support that golf course superintendents have given us," Kenna said. "Some of the members have allowed us to take some of the (experimental) grasses onto their courses, cooperating with the experimental effort.

Kenna adds that he feels confident the USGA will be able to meet the challenges of the 90s.

This article originally appeared in Newsline, the GCSAA newsletter.

THREE-LEVEL SUPERVISORY SYSTEM PROPOSED

EPA expects to issue proposed regulations on certification and training of applicators of restricted-use pesticides in late August or early September, according to agency staffers. FIFRA, the federal act governing the registration, application and use of pesticides, currently allows products classified as "restricted use only" to be bought and applied by certified applicators or by people under their supervision. The proposed regulations set out specific definitions for levels of supervision that would appear on the label of restricted-use products. Proposed levels include: Level 1 - use only by a certified applicator; Level 2 - use by a certified applicator, or by a trained non-certified applicator with a certified applicator available on-site within five minutes; and Level 3 - use by a certified applicator, or by a trained non-certified applicator with a certified applicator off-site. Watch future issues of *Briefing* for more details about this proposed labeling requirement.

DATES TO REMEMBER

November 3 — WMGCSA Fall Party at Egypt Valley C.C.

November 8-9 — GCSAA Regional Seminar - Managerial Productivity, East Lansing, MI

December 10-13 — Ohio Turfgrass Conference - Cincinnati, OH

February 5-12 — International Golf Course Conference & Show, Las Vegas, NV

Once when I was golfing in Georgia I hooked the ball into the swamp. I went in after it and found an alligator wearing a shirt with a picture of a little golfer on it.

— Buddy Hackett

A SUPER JOB

by Frank Hannigan
Golf, August 1990

We live in society of declining standards. It's not easy to put your finger on anything that's better today than it was 20 or 30 years ago. Our air is lousy, our politics disgraceful, and our music appalling. Golf courses, though, are in better shape than they used to be.

That's partly because there is more knowledge about how to maintain delicate turfgrass under conditions never intended by nature, but mostly because today's turfgrass managers are better at their jobs.

If somebody gave me a new golf course to manage along with a decent budget, the first thing I'd do would be to hire the best golf course superintendent money can buy.

After that, I'd probably get a little cheap. But so what? The only part of the operation that matters — the course itself — would be in the best of hands.

Golf course superintendents historically have been the game's forgotten servants because they were hidden behind compost piles two miles from the clubhouse and wore old clothes.

If the clubhouse manager and the pro stopped showing up for work, the club members would be inconvenienced. But if the course superintendent and his staff go on strike, the game is over. In two weeks, you would have what's known as a "passive recreational park" with a lot of tall weeds.

The superintendent's relatively low station in life was mirrored by his income — traditionally lower than his colleagues, the clubhouse manager and the pro.

Superintendents are no longer hurting in the financial department. Their salaries soared during the 1980s. The national average for an 18-hole course is close to $60,000, but salaries of $100,000 are not uncommon, and the superstars of the trade earn $125,000 and more.

Any why not? The job has become increasingly technical and demanding. Annual maintenance budgets of $500,000 are commonplace, and that figure doesn't include the cost of new equipment. The machines used to maintain a golf course are complicated. A fancy modern fairway unit costs as much as a Mercedes. And when it busts, you don't get a loaner.

The suprintendent also is a personnel manager with a year-round staff or 10 or more, supplemented in the summer by college students who have to be watched continually lest they make a break for the beach.

Most superintendents are college-trained. Many have four-year degrees in agronomy from such universities as Penn State and the University of California at Davis. Others have two-year associate degrees from various state institutions. Still others train by taking two 10-week winter programs, a specialty of Rutgers University in New Jersey. Graduates usually start out as assistant superintendents. The better ones are running their own shows by the mid to late 20s.

Despite the favorable trends, the maintenance of American golf courses continued to be beset with some basic flaws. Foremost among these is the tendency to overwater. Overwatering is a cop-out on the part of superintendents who know better, but react to the pressure of golfers who want everything a rich green. ("Joe Dey, former executive director of the USGA, once labeled this hue "cemetery green.")

Overwatering is a short-term fix and a long-range disaster. It weakens the root system of the grass, causes compaction, invites plant diseases and certainly encourages the spread of the annual bluegrass called Poa annua—which is okay for golf courses until it's subjected to high heat and humidity. Then it tends to die. When you see a brown golf course in the summer, you're looking at dead Poa annua.

Superintendents will also tell you they dump water on courses to achieve that phony green look because televised golf tournaments push them in that direction. The look of the Augusta National GC during the Masters telecast has become the standard, not only in this country but throughout the world.

There is also increasing pressure to produce putting greens that are superfast, like those at the Masters or at a U.S. Open. Golfers don't understand that those greens have been specially prepared for one week. They can't possibly be maintained at such speeds throughout the year.

Superintendents also have a problem with the high priests of modern golf course architecture. The complaint is that the sexiest looking courses, those built to attract attention when photoraphed from helicopters, are difficult and expensive to maintain becuse of their slopes and overall artificiality.

I heard a superintendent from Austin complain to a conference of his peers that he is expected to maintain an "agronomic zoo" because the architect, in a frenzy of false creativity, installed seven varieties of grass, only three of which made any sense in the middle of Texas.

The hot new topic among superintendents is the environment. People who take care of golf courses are, by their very nature, pro-environment. They wouldnt have gravitated toward their line of work if they were indifferent to the look and feel of the outdoors.

But they find themselves on the defensive and accused of being chemically careless. In a profession of 10,000, there are bound to be a few bad apples. But, by and large, superintendents—who have to be state-licensed to apply pesticides—are sensitive and careful. If they aren't they can go to jail.

The superintendent tends to be invisible until something goes wrong. Then he becomes a celebrity. That's true in both recreational golf and on the Tour.

Take the case of Fred Klauk, the man in charge of the TPC Stadium Course at Ponte Vedra, FL, where there was a monumental flap earlier this year becuase the greens were not up to snuff during The Players Championship.

All of a sudden, he became a media figure, including a live television interview.

So his greens were a little thin and bumpy during the 1990 Players Championship. The world didn't come to an end. The fact is, when the temperature hit zero in the Jacksonville area last winter, it was ordained that the TPC greens were not going to be dense and smooth for a golf tournament in March.

Superintendents get fired. As a rule of thumb, if the superintendent has two bad years in a row, even if the climate has produced nothing but fire and brimstone in that time, he's gone—and he goes without a golden parachute.

At private clubs, superintendents are subject to the whims of volunteer green committee chairmen, many of whom haven't the remotest idea what they want or why. A very successful and expensive lawyer said to me not long ago that his would be the best of all professions if only there weren't clients. Many golf course superintendents feel the same way. It would be a great job—if only there weren't any golfers.

At resort courses, superintendents often take the hit for disappointing bottom lines. There is an inherent conflict between quality golf and the profit motive. That conflict is almost never resolved. That's why a place like Pebble Beach changes superintendents so often.

Still and all, the lot of the superintendents is to be envied—if he survives. The single most exhilarating experience in the game is to be on a golf course at dawn—alone.

GOLF COURSE MANAGEMENT IN THE U.S.

Golf is booming! World-wide! Today, there are 65 million golfers in the world and growing at a rate of four percent per year. By the year 1995, experts are predicting 80 million golfers world-wide!

Europe comprises about 16 million golfers, the Far East 20 million, and North America has 26 million and growing at a rate of seven percent annually. With an average of 1700 golfers per course in the U.S., in order to keep up with the expected growth it has been estimated that 400 new courses need to be opened each year between now and the year 2000 to keep up with the present day ratio of golfers per course. What has caused this surge in the popularity of golf?

In the 20th century there have been three major "golf booms". The first was in the late twenties and thirties when most of the great courses were built by the likes of MacKenzie, Tillinghast, Ross, C.B. McDonald, and the influence of Bobby Jones. The advent of Arnold Palmer and televised golf encouraged the second "boom" in the late fifties and sixties. The current surge in golf's popularity is the aging of the population coupled with a shift from urban to suburban lifestyles by the "baby-boom" generation and the increased participation by women. An increase in disposble income and the improvements in golf equipment, no doubt, play a part also.

Through all of golf's development, the golf course superintendent has been required to remain in the mainstream by meeting, and even exceeding, the demands of the golfer. Golf course superintendents have been challenged to expand their horizons and stretch their innovative capacity to be ever-competitive in the market. In fact, the quality of conditioning on today's finest courses is a result of more than the demands of the golfer; it is the professional superintendent's enthusiastic motivation to produce the best turf possible.

The Superintendent hasn't done this alone. The challenge and demands of the superintendent have been supported by the equipment manufacturers, researchers, universities, golf associations, and the Golf Course Superintendents Association of America (GCSAA). A number of developments have occurred in the industry during each golf boom which has significantly shaped and driven the development of golf course management. These have been developments in the equipment industry, and in the advanced knowledge and professionalism of the golf turf manager.

The Equipment Industry

Once upon a time, golf courses were tended by sheep and anything significant that a rabbit could do. The sheep worked for a while and, though the distribution was sporadic and uneven, contributed to the turf fertility. The greenskeeper chose to provide a better product for those that played the game, and in a more efficient manner.

Someone decided to motorize the commonly used push greensmower, and it wasn't much later that a tractor was put in front of a pull reel gang mower in place of horses. Over the early years, from the teens to the 1940s, equipment manufacturers working together with superintendents slowly refined the ways things were done. Wheelbarrow type topdressers replaced hand shoveling; pressurized sprayers with tank mixes sprayed the chemicals onto the turf rather than their being spread with shovels in sand or topdressing; fairway irrigation with "traveling sprinklers" gave way to underground snap valves and snap-on sprinklers; and motorized tractors with rubber tires rather than spiked steel wheels were really

---

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8. Half Bovine-Half Man
9. Henry's First Compact
10. Credit Card User
11. WiseSunbather
12. Seven Square
13. Indians Leader
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becoming commonplace. Not far behind were motorized aerifiers. Aerifiers? Spikers? Vertical Mowers?

Turf conditions continued to improve. It was not only common to have green turf on greens throughout the summer, but also the turf could be kept alive most of the summer on fairways at clubs having fairway systems. In the early 60s automatic irrigation systems made their way into use. The cost was initially high, but to the clubs that could afford it, thoughts of the hefty price tag were soon washed away by the astoundingly improved conditions. The superintendent was a hero! More efficient water use, no undependable night waterman, and lush, green turf.

Not far behind automatic irrigation, was the motorized truckster. At some clubs there was one for each greensman. Talk about improved efficiency! And soon followed the riding triplex hydraulic greensmower. Now the work of three or four greensmen could be accomplished by one. Only time would reveal that continued use of these machines on greens would result in increased grain, thatch and wear, not to mention the resulting disaster caused by a hydraulic leak. That problem was overcome briefly in the early 1970s with the introduction of the Hahn triplex with its flexible cable reel drive as opposed to the hydraulic drive.

Further equipment innovations had a dramatic effect on the quality of the end product provided by the "modern superintendent". The mechanized sand trap rake, enabled daily bunker raking by one individual improving grooming conditions. Triplex mowing had progressed from green and tee areas to fairways. This was time-consuming. Along came the five-plex with hydraulic drive and lift capabilities. The popular tractor-driven hydraulic gang mower was parked. Now 40 acres of fairway turf could be mowed by two individuals in four hours without creating the turf stress and eventual turf loss resulting from tractor use. Quality of cut and, of course, final product was greatly improved. Nearly all equipment used to groom greens has now been adapted to fairway use, including sprayers, mowers and aerifiers (some clubs topdress fairways!). Through the cooperation of superintendents and equipment manufacturers, maintenance techniques and the quality of the product have been improved significantly.

Turf Research And Pesticide Regulation

References can be found to turfgrass culture and grooming as far back as biblical times. The first investigations of turfgrasses and their culture were initiated in the United States at Michigan State University at the Michigan Agricultural Experiment Station by noted botanist W.J. Beal in 1880. Within the next ten years, experiment stations were instituted in Connecticut and Rhode Island, and the USDA became involved in turfgrass problems on a sand growing medium on Long Island in 1908. Then noted scientists C.B. Piper and R.A. Oakley became involved in that research. Piper and Oakley were charged with the research at the UDA's Arlington Experiment station in 1916, where the research work was carried out until its move to Beltsville, Maryland in 1942.

Piper and Oakley later set up research stations in several other states throughout the U.S. Dr. Fred Grau became National Director of the USGA in 1935. Turfgrass maintenance and culture has come a long way since those early days and the quality of the surfaces that we enjoy as golfers today is a product of the efforts of these early pioneers and the greenskeepers who believed that they could create the best. They not only invested their own sweat, but also inspired golfers to invest in the financial support that was necessary for this evolution.

Significant over the past twenty years in the development of improved grass species, pesticides and turfgrass cultural practices, has been the regulation by the Environmental Protection Agency and other government agencies. As recently as the 1970s, successful turf management relied on DDT, Chlordane, 2,4—D, 2,4,5—TP, and cadmium and mercurial-based fungicides. Through the increased regulation and awareness raised by governmental agencies and environmentalists alike, researchers in every discipline related to turf culture have had to develop new materials which are safer to the envionment and user. This has been at a greater financial expense in all cases.

Today, the modern superintendent has a myriad of grass varieties from which to choose, most of which are more resistant to pests, have improved color, are drought resistant, can withstand closer mowing, have improved texture and are easier to mow. Turf chemicals are now both selective as well as non-selective, have a broader use, don't wash away easily, are biodegradable, are either systemic, contact, or both. They are also more persistent, and they are even packaged in soluble containers.

The need for an ever improving turf cultural system has been demanded by the golfer and together with the efforts of university researchers, manufacturers, golf course superintendent and golf driven associations such as USGA, GCSAA, and Turf Advisory and Support groups, that demand has been met. The golf course superintendent is the individual who is ultimately responsible for the condition of the product provided for the golfer. He has also evolved.

The Professional Superintendent

In the early days of golf in the U.S., the individual charged with caring for the condition of the golf course was a local farmer, perhaps the individual who owned or managed the farm on which the golf course was built. If not a local farmer, a landscaper or gardener was hired. The first authentic training program for golf turf managers was started in 1929 at Penn State University. This program later evolved through the efforts of the late Joe Valentine, long-time caretaker of Merion Golf Club; Marshall Farnham, in charge of the Spring Mill Club (now Philadelphia Country Club), and the now retired superintendent, fire marshall and police chief of Pine Valley Golf Club in New Jersey, Eberhardt Steiniger.

Turf training programs began cropping up around the country at state supported universities as the need for more technical knowledge on fine turf culture grew. The inherent ability of the farmer/gardener/landscaper was now being strengthened by the increased technical knowledge that could be gained in college courses and university field days and conferences.

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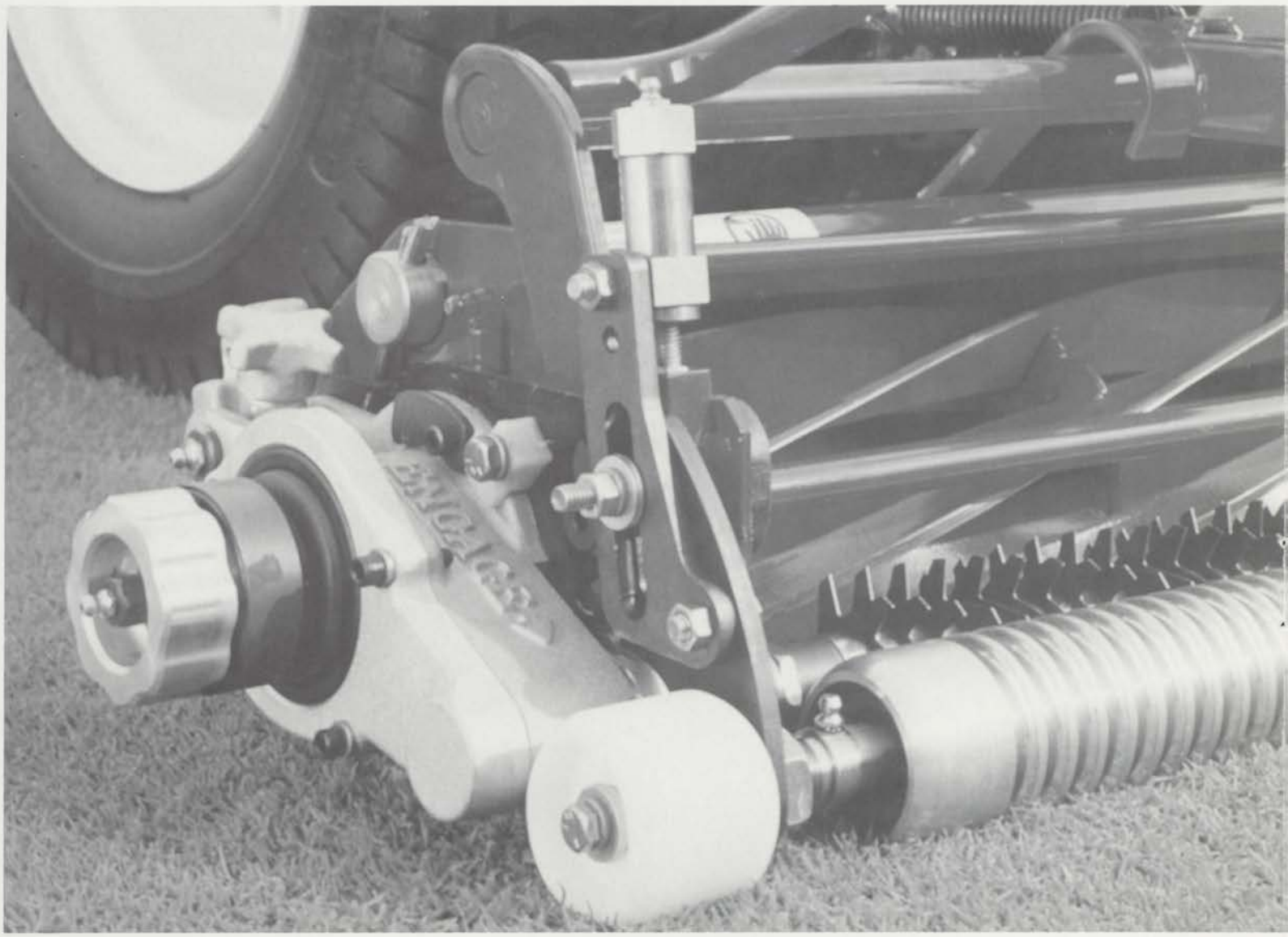

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Professor H. Burton Musser, through the urgings of Joe Valentine and other Pennsylvania superintendents, began the first two-year training program for golf course superintendents in 1958. Requirements for acceptance in the course was on-the-job experience at a golf course for at least one year and a high school diploma. The success of the Penn State program inspired similar degree programs throughout the country, and many universities now offered four-year turf management degrees directed at training future golf course superintendents. Today, it is difficult to get accepted into the two-year program at Penn State as well as similar progams at other universities without several years experience on a golf course and a college degree.

The superintendents' professionalism, presence in the golf community, and enhanced knowledge has also resulted in the formation of the Golf Course Superintendents Association of America. The GCSAA was founded in 1926 and has more than 100 affiliated chapters today. Golf associations such as USGA, PGA, CMAA, governmental agencies, universities and other related bodies has resulted in a positive public relations program and has also raised the level of professionalism of the golf superintendent immensely. The increase in the volume of televised golf tournaments over the years and the quality of the courses that tournament superintendents have prepared, is in itself a statement.

The Future

The golf course superintendent has accepted the challenge over the years, met that challenge head-on, and has developed his profession into what it is today. This has not been easy. The superintendent, in improving his image, has had to recognize that he is no longer the stereotype of the farmer, gardener or even greenskeeper. He is a professional businessman responsible for a considerable investment. Having changed his image of himself through the evolution of the aforementioned, he has been able to successfully change his image in the public eye and the golf community.

Golf course management in the U.S. today has reached its pinnacle through the gradual process of evolvement of the golf course superintendent supported by the accompanying evolvement process in equipment innovation and technical know-how. The rest of the world is quickly being drawn into golf's third "boom" and, as this occurs, this country is being looked to for guidance in developing the professional, first-class product that is so evident. How much better can the conditioning of golf courses become?

The nature of the superintendent has been to strive diligently to enhance the golfing conditions of the property for which he is responsible. With the conditions possible today, it is difficult to believe that they could be much better.. The greatest improvements in the future will probably be in the areas of efficient and cost savings means of producing what already exists. Computers will permit more efficient use of time and resources; moisture sensing equipment and diagnostic tools will be perfected.

With no limits on imagination and innovation, the conditions enjoyed by the masses flocking to swipe at and chase golf balls through nature will be nothing short of what they expect. Golf will continue to boom!

IS THE SUPERINTENDENT OUT TO GET YOU?

by Guy Yocum

The watchwords of the Golf Course superintendents Association of America (GCSAA) are, "We keep golf green." In truth, they make us see red. The superintendents drench us with sprinklers as we stand in the fairway. They make us play to hideous "winter" greens. They invoke frost delays. They punch holes in our greens. They demand that we keep our golf carts in the rough, or worse, on paths. They won't even let us chip around the practice green, for heaven's sake.

Reactions to these crimes can be violent. Jim Snow, national director of the U.S. Golf Association's Green Section, recounts many instances where superintendents were fired for merely prohibiting the use of carts in wet weather. He pleads for understanding. "Sometimes the superintendent can't win," he says. "When he restricts or prohibits cart use, he's doing it to save the course, but if he gives in and lets the carts out, the course suffers and he gets fired anyway. We've seen it happen many times."

Golfers are a highly demanding lot who do not accept having their enjoyment infringed upon. The GCSAA, distressed by the public's lack of knowledge of its mission, recently poured $250,000 into an ad campaign designed to upgrade the superintendents' image and increase public awareness. "That kind of money is a little hard for us to justify," says Pat Jones, communications director of the GCSAA. "But it's important to educate the public about what we do."

Part of that education is changing the stereotyped image of the superintendent as a hired hand in bib overalls. Of the GCSAA's approximate 10,000 members, some 8,000 have two-or four-year college degrees in fields such as turfgrass management or agronomy. Many learn advanced computer skills in order to work sophisticated irrigations sytems, monitor chemical usage and record climate trends.

John Gallagher, superintendent at Race Brook Country Club in Orange, CT, is a typical GCSAA member. A superintendent for five years, he obtained a B.S. degree in Plant and Soil Sciences at the university of Massachusetts. Despite his background, he fights a never-ending battle to make his members see reason in policies such as confining carts to the rough or leaving greens a little long in spring.

"Most of our members support what I do, but only about 2 percent understand why I do it," he says. "Why I program the sprinklers to come on in the middle of the afternoon, for example. These things deserve explaining, but not all golfers want to listen. They want a nice golf course, period."

So, in addition to serving as an agronomist, insecticide and fertilizer expert, mechanic, plumber, carpenter, administrator and supervisor, your golf course superintendent also must know a few things about public relations. "Golfers must understand that courses need lots of care," says Gallagher. "Imagine mowing your front lawn down to one eighth inch, then having 200 people walk over it every day while taking divots with their irons. How would it look?"

Although golfers tolerate high-profile maintenance tasks such as mowing greens and fairways, others strike them as niggling, not worth the inconvenience they cause. Several of the nation's most respected superintendents addressed those tasks and explained why they must be performed.

Aerated Greens: The Hole Truth

Few acticvities raise a golfer's blood pressure faster than discovering the day they have guests out to play that the greens have been turned into giant cribbage boards. Aerated greens, punched with thousands of holes, make putting an unpredictable adventure. The question is, why can't the superintendent save aeration for spring and fall?

"Heavy, constant walking on greens in the summer compacts the soil, making it too dense for grass roots to penetrate," says Gallagher. "A poor root system means sparse, sickly grass. Even when a good root system is established, compacted soil makes it impossible for water to percolate down deeply enough to moisten them. Frequent aeration is the answer."

After the holes are punched in the green, sand and top dressing (a mixture of materials compatible with the surrounding soil) are spread into the holes. Grass roots flourish in this porous, nourishing environment. It takes about a week for the green to come back better than ever.

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"Aeration really has to be done during the heavy-play season", says Gallagher. "We aerate at our club three times per year, and I'd do it more often if we could. The more often you do it, the more likely you are to get rid of the compacted soil."

Syringing: A Cool Idea

Have you ever set up over a shot in the fairway when all of a sudden the sprinklers go on, scare the daylights out of you and douse you and your bag? Why is it necessary to water perfectly green grass in the middle of the day? "If you didn't," says Gallagher, "the grass would quickly turn dry and brown. Heat and direct sunlight can cause even healthy grass to wilt," he says. "Spraying a little water on the leafy part of the grass cools it off so it can survive."

The process, known as "syringing", is typically done twice a day, usually early in the afternoon when sunlight is more direct and intense. "It's tricky," says Gallagher. "You can't do it for more than a few minutes at a time, or the water will penetrate the ground and saturate the roots, leading to a condition called "wet wilt" where the grass basically drowns. There are problems with syringing. You can't syringe late in the day. There are hundreds of diseases that thrive on heat and humidity, and by syringing late in the afternoon you create a perfect environment for them to take hold."

Gallagher points out that particularly lush, hardy grass requires syringing less frequently. If the grass is exceptionally thick and healthy, it may not need it at all. "Unfortunately, most courses don't have that kind of healthy grass," he explains. "You have to syringe or else you risk losing the grass."

The 90-degree Cart Rule: Go With The Flow

Many golfers loathe having to take carts to begin with. Add to that the directive that they confine carts to paths, and they get even more agitated. The USGA's Snow sympathizes with the players, but says there are cases where it simply must be done. "In 1976, the average number of carts used per day at a typical club in the Northeast was 30. Today it's closer to 120, sometimes more than that. That puts a lot of stress on the turf and requires various cart rules to give it some relief," he says.

Adds Gallagher, "Carts can cause a lot of damage when the course is wet. They skid, spin their wheels and leave tire ruts. They can be hard on fairways where the crass is cut really short. But unless the course is soaking wet, I can't see any reason why carts should be confined to paths. It slows down play, causes golfers to lose clubs and detracts from their enjoyment.

"I prefer a compromise where golfers keep carts in the rough. All I ask is that golfers keep carts in the rough until they need to cross the fairway. They then should cross at a 90-degree angle. It's a fair compromise."

Snow points out that factors such as climate, amount of traffic, soil profiles (some compact more easily than others) and grass types must be considered. The superintendent then determines which cart policy is best.

Frost Delays: Don't Give Them The Cold Shoulder

Like human beings, grass is compromised mainly of water. When frost forms on grass in the early morning hours, ice crystallizes within the plant. "Part of the grass actually freezes and it becomes brittle," says Gallagher. "When you walk or drive a cart on it, the plant actually shatters. In many cases, the grass doesn't recover. You have to delay play until it melts."

Gallagher doesn't allow his workers to drive maintenance equipment on the grass until the frost melts. "Sometimes frost causes delays of several hours," he says. "One solution is to syringe (water) the first few fairways and greens, thereby melting the frost and allowing golfers to tee off. By the time golfers reach the fourth hole, the frost on the other holes has melted."

Winter Greens: The Jury Is Still Out

Superintendents are divided on the subject of temporary "winter" greens. Snow, Gallagher, and the GCSAA's Jones believe in them. "Courses that get fairly heavy winter play should definitely use temporary greens," says Snow. "There's a lot of damage done to greens in winter that isn't apparent to the naked eye. Your're tromping on a dormant plant that can't heal itself. You increase soil compaction and wear the green thin. When spring arrives, these worn areas are more prone to weeds and unwanted grasses such as poa annua and crabgrass.

"One club in Pennsylvania tried to split the difference," Snow adds. "When winter came they left the front half of each green open for play and fenced off the back half. When spring came, the front halves were thin and filled with weeds. The back halves were perfect. I rest my case."

Says Gallagher, "Make no mistake, the greens will recover in the spring even if you use them in winter. But it takes longer and requires more maintenance."

Gentlemen, Stop Your Engines

Many things are present to assault one's poise on the links, but one of the most annoying is having a rotary mower or green mower idling while you're standing over a six-foot putt for par. Why can't the superintendent and his crew shut the blasted motor off?

"There are two reasons," says Gallagher. "First, the engines in most hand-operated power mowers are air-cooled, meaning air is blown over the motor to keep it from overheating. When you shut the engine off, the air stops blowing and the motor overheats briefly. Continually turning the engine off and on has a bad cumulative effect on the engine.

"Second in the case of green mowers, if we shut the green mower off for every group that came through early in the morning, we'd never get the mowing done. It's as simple as that."

Slow, Bumpy Greens: A Hairy Dilemma

Why are some greens slow and bumpy? According to Stan Zontek, director of Mid-Atlantic Region of the USGA Green Section, it almost always stems from allowing play during the winter and early spring, when the green soil is saturated with water. "Traffic on wet greens leaves foot and heel prints that aren't eradicated until the greens are aerated and top-dressed," he says. "When mowers glide over the surface, they cut the elevated portion around the footprints but don't penetrate the footprint itself. The result is bumpy, irregular greens.

"Setting the mower blades lower is not the answer," says Zontek. "You'll scalp the high parts around the footprints and damage the grass. Golfers need to be patient. By allowing a little higher mower setting early in the year, you let the root systems get established so the grass can flourish in late spring and summer."

Sand Too Soft? Don't Blame The "Super"

Most golfers like their fairway bunker sand firm, the greenside bunker sand a little softer. That isn't always the case, but Zontek claims it isn't always the superintendent's fault."

"Hard bunker sand that resembles hardpan is due to the sand getting 'dirty'," he says. 'When rain washes sand from the face of the bunker into the middle, it brings a certain amount of soil and clay along with it. The superintendent throws the sand back onto the face, of course, but as the process is repeated the percentage of soil in the sand increases and its texture becomes more and more firm. Eventually the superintendent is required to redo the face of the bunker by resodding and replacing the soil, but that costs money.

"Excessively soft sand is due to either putting too much sand in the bunker, not using the right type of sand, or it not having enough time to settle," he says. "Some types of sand consist of small, round particles of about the same size. It doesn't compact well. That type of sand may look nice because it's white, but it doesn't perform well. But if the members demand pretty sand, there's not much the superintendent can do.

"On the other hand, some brown sand may not look very nice, but the particles have irregular edges that compact well. It's called 'angular' or 'sub-angular' sand. It may be, however, that this type of sand isn't easily available at a particular course.

"In some cases where the sand is too soft and hasn't settled, the superintendent can remedy that by using a large 'vibrator' that fits atop a sled-like device you pull over the surface. It makes the sand settle until the texture is just right."

Tough Pin Placements Are A Tough Proposition

Golfers may holler about difficult, "unfair" pin placements, but the superintendent is in a precarious position, too. As Jim Latham, Director of the Great Lakes Region of the USGA Green Section points out, they often must resort to unusual pin placements to save wear and tear on the green.

"Ideally, a green should have several satisfactory pin placements where the hole isn't cut on too steep a slope or near the edge of the green," he says. "That way the green is worn uniformly and each pin poistion has an adequate time to recover between settings. Unfortunately, the small size of some greens combined with unusually heavy traffic forces us to cut the hole in an unlikely spot.

"When you use the same ideal pin placements all the time, the grass in that local area gets worn and the soild gets compacted," says Latham. "It doesn't drain water properly. What's more, the unused portion of the green suffers a thatch buildup and the green as a whole is inconsistent, both in the speed of the surface and its receptiveness to approach shots.

"If you look carefully, you'll usually see the hard pin placements on weekdays, when play isn't as heavy. The easy, middle-of-the-green positions usually come on weekends, when it's important to expedite play when the course is crowded."

Everyone agrees that the keys to easing golfer/superintendent relations are patience, understanding and compromise from everyone. "We're in this thing together," says Gallagher. "If everyone just kept that in mind, our world would be a happier place."

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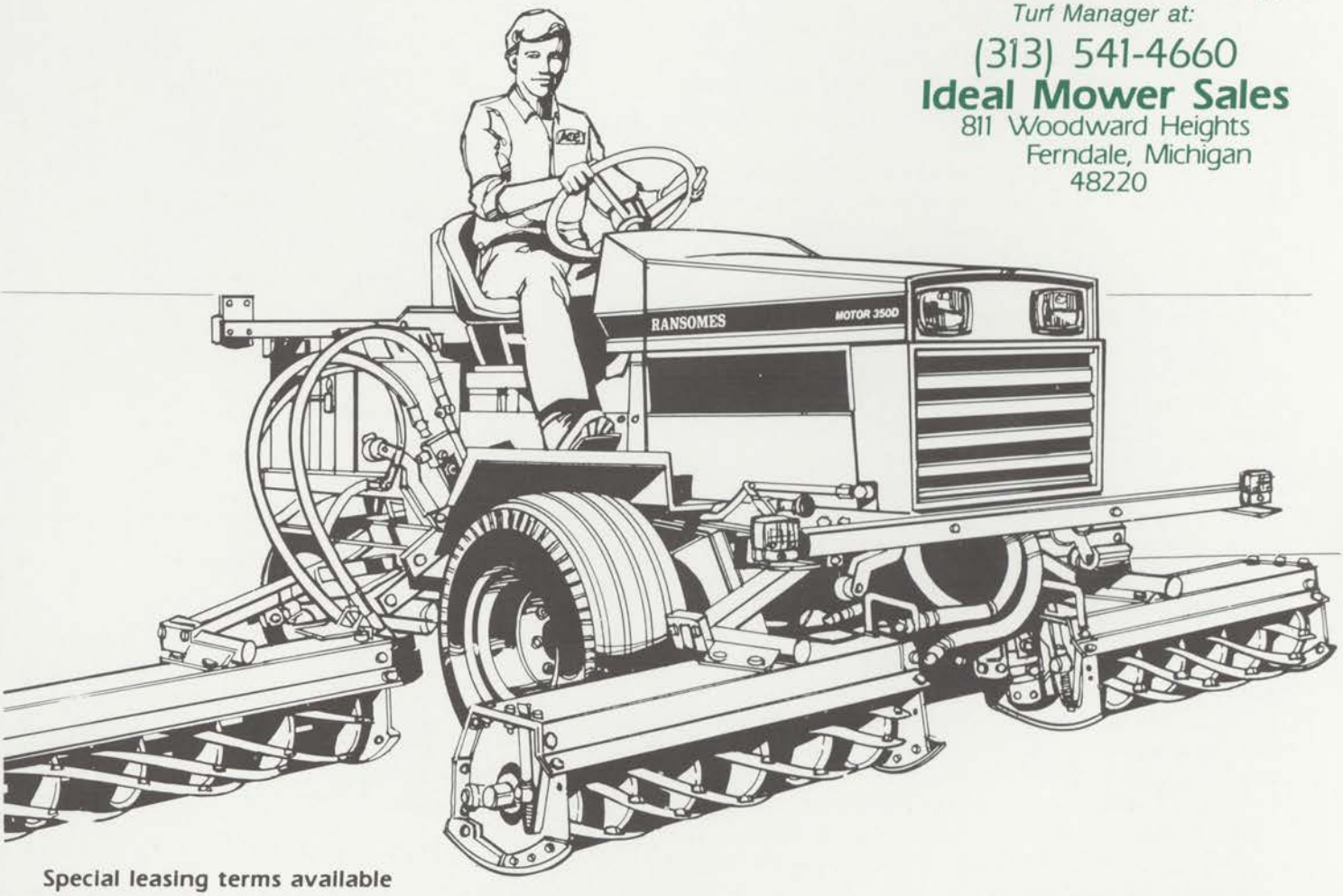

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MISDIRECTED GOOD INTENTIONS CAN SPELL TROUBLE: ARE YOU CHEMICALLY DEPENDENT?

by James F. Moore
Director, Mid-Continent Region, USGA Green Section

The greatest challenge ever to our careers, our industry, and our game is racing toward us with the speed and power of a bolt of lightning. That challenge is the concern for the environment. And these thoughts are directed toward representatives of every aspect of the golf industry—club leaders, superintendents, golf professionals, managers, architects, golf course builders, trades people, researchers, and players.

I take great pride in calling myself an optimist. I admire people who, when you ask them how things are going, answer with an emphatic "Good!" Perhaps it is this optimism that leads me to believe that the entire environmental issue (which many of you may see as a threat at this time), will actually benefit our game and industry in the long run.

However, I also believe that we are in for some very tough times at first. While optimism is wonderful, pessimism suggests that many of us will not be up to the challenge. Let me share my perception of the near future that is blended with optimism, pessimism, and what I hope you will agree is a great deal of realism.

In the near future, the number and amount of pesticides available will decrease tremendously. No amount of lobbying will prevent this. Public perception, whether right or wrong, is growing that **all** pesticides are bad, and those who use them are harming the environment. Once this occurs, some superintendents will find the "tools" they have relied on so heavily in the past are no longer available.

Not all superintendents are good turf managers. There are those who are able to keep their courses in good condition because they can apply enough pesticides and spend enough money to compensate for a lack of turf management skills. There are also many who actually cause more problems on their courses than they correct. Some apply chemicals as nonchalantly as they do water. Their "preventative program" includes applying products to protect against virtually every known turfgrass pathogen. Imagine what would happen to your health if your physician used this same logic.

Invariably, it is this superintendent who finds his greens suffering one crisis after another. His response is to apply even more chemicals on a curative basis. This superintendent and his course are truly chemically dependent. When allowed to progress far enough, this vicious cycle of events often results in the failure of large areas of turf and eventual replacement of the superintendent.

Because the science of our industry has not yet progressed to the point that we can completely eliminate pesticide use while meeting the demands of the player, even the best turf managers are likely to experience problems when pesticide restrictions are significantly increased. However, their courses will fare much better than most and will serve as a clear indication of the value of a skilled superintendent. His stock will rise significantly. Those of you who fall into this category will gain from the demise of your less-skilled colleagues.

Soon a superintendent will not be able to apply pesticides based only on his perception about when they should be applied. The leadership of golf clubs will determine when and if applictions can be made. Their decisions will be based upon reducing the club's liability to the extent possible. The risks of lawsuits will be given much higher priority than the superindendent's assessment of the risk from pythium and brown patch. The first reaction to reduce the club's legal exposure will very likely be to require all pesticide applications to be made when the club is closed. While this may seem a blessing at first, since more superintendents would love to see their courses closed one day each week, it is likely that such a restriction would actually backfire in terms of reducing pesticide use.

Superintendents would find themselves applying pesticides based strictly on the calendar rather than on actual need. If brown patch pops up on Wednesday, how many superintendents will be able to wait until the following Monday to treat? Since most will feel they cannot, the natural reaction will be to treat every Monday to ensure problems do not arise during mid-week.

In the not-too-distant future, the cost of applying pesticides will skyrocket. The products will cost more due to testing expenses, labeling requirements, and lawsuits against the manufacturers. Pesticides and the rinsate will require special handling and storage containers. Insurance akin to malpractice insurance carried by physicians will be required by superintendents. To compensate, clubs will be forced either to increase the maintenance budget or accept a reduction in the overall appearance of the course. Realistically, most clubs will choose a combination of these two options.

The application of fewer pesticides on golf courses will result in courses that are less immaculate than the average golfer has come to expect. While the perceived quality of most courses will suffer, those courses managed by a superintendent who has relied too heavily on pesticides will deteriorate the most. Without the equalizer of unlimited pesticide availability, the varying abilities of turf managers will be highly visible to all.

You may not accept all of these predictions. However, if you accept even one, you must also accept that our industry and the game of golf will be strongly affected. Many will choose to ignore the inevitable until it is too late. You assume the industry associations will handle your public

relations, the researchers will develop grasses that don't need pesticides, and the chemical companies will develop chemicals that are so safe they will have Rachel Carson's picture on the label. You will not be up to the challenge and you will not survive.

If you are a superintendent, you might blame your demise on the USGA and the Stimpmeter. The architect can blame the golf course builder who did not follow his plans. The builder can blame the superintendent who can't properly "grow" in the course. The USGA agronomist can blame the architect who made the course too difficult to maintain. What a party we can have. Ironically, the only thing that may keep us all from cutting each other's throats will be shared dislike of the organizations we consider environmental radicals, along with their lawyers.

Or. . .

We can each take steps right now to prepare ourselves. Let's become "survivalists" not by stockpiling guns and ammunition but by reducing our exposure to the threat.

Immediate options are available to each branch of our industry.

To the superintendent: Learn to be a better turf manager. Emphasize your skills in water management, disease identifications, soil cultivation, and fertilization. Review the principles you learned in Turfgrass 101 and simplify your programs as much as possible. A strong, healthy turf is unquestionably your best defense. You have a history of being the greatest and boldest experimenters with new products. It is time to begin to experiment more while doing with less. Use every skill you have to reduce your chemical needs.

To players and club officials: Realize that you will be affected by these changes in the industry. Understand that absolute perfection on the course is no longer a realistic goal. Greater emphasis should be given to playing quality and the agronomic needs of the turf. Quit judging a superintendent's worth based on the speed of the greens. Realize that nature cares very little about your tournament schedule and that maintenance practices must be given higher priority than they have in the past. Consistent management is vital. Develop long-range plans and quit changing green chairmen every year.

To the architect and golf course builder: All those involved with the development of new courses must make major changes. Stop selecting grasses with total disregard of local climate. Just because a turf can be grown (with enough pesticides and a big enough budget) does not mean it should be. Stop cutting corners on green construction. Stop building greens in holes where air movement is non-existent. Pay greater attention to drainage throughout the property.

To the researcher: Give us facts. Prove that what we are presently doing is not harmful, if that is the case. However, of equal value and even greater need in my eyes is the identification of what to expect and do under low or no pesticide use. And of course, the continued development of superior turfgrasses is critical.

To the golf professional: Emphasize playing quality to the golfer. Remind players that golf is a game to be enjoyed, not an exercise in frustration or an opportunity to be critical. Emphasize the positive aspects of your course. With the help of a good pro, even the shortest nine-hole course with the smallest budget can give great enjoyment to the player.

To my colleagues in the USGA: Let us avoid the temptation to offer quick but short-lived fixes to problems. While solid agronomic advice may not be glamorous or offer instant improvement, it is what is needed most of all. We are perhaps in the best position to gather the facts from other groups and disseminate them to the entire golf industry.

To the leadership of the USGA: I hope our organization will use its tremendous influence to educate golfers and make them more receptive to changes that are coming. Equally important will be the continued funding of turfgrass research.

To those who are not a part of golf: Realize that golf is an industry that does care for the environment. Golf courses have tremendous positive effects on both the land and the people who use it. This should not be a case of you versus us. We will stand a better chance of achieving common goals if we work together.

As I said, I am an optimist. I see the significant challenges we face as an opportunity to better our industry, our game, and ourselves. Let's make the power of the lightning bolt work for us instead of against us.

Reprinted from *USGA Green Section Record (March/April 1990.)*

OHIO STATE CONVERTS TO GRASS

The artificial turf and pad at Ohio Stadium were rolled up last November as Ohio State University began to convert its field to a Prescription Athletic Turf (PAT) system. This May, thousands of Ohio State students walked across Kentucky bluegrass to receive their diplomas during graduation ceremonies at the stadium.

Turf Services, Inc., of Spring Lake, MI, installed the new sand-based field. The company was the contractor for the PAT systems at the University of Iowa's Kinnick Stadium and Soldier Field in Chicago. The Buckeyes are the third big team to convert to natural turf. The recent addition of Pennsylvania State University to the Big Ten brings the total of natural turf fields in the conference to four.

Ohio State is constructing three new fields on campus to handle many of the intramural sports previously played at Ohio Stadium. The decision to return the stadium to natural turf hinged on finding other fields for the university's busy athletic department.

The Ohio Turfgrass Foundation, which has been a major proponent of converting the stadium to natural turf, donated the sod for the stadium field. The school decided not to include a field heating system.

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The entire system, loader, backhoe, power steering and traction drive operate through a tandem hydraulic pump mounted directly to the engine crankshaft with a flexible coupling. A built in oil cooler and reservoir keeps the system operating at top efficiency. Trouble free and highly reliable.

AERIFICATION AND TOPDRESSING PLAY IMPORTANT ROLES

BY Frank Dobie, CGCS

WHAT IS AERIFICATION?

Aerification is the process of cultivating the soil of an established turfgrass area with a minimum of disruption to the turf cover. The basic reason for soil aerification is to relieve soil compaction, so that air, water and nutrients can move through the soil profile. This is necessary for healthy grass roots. Soil compaction is caused by concentrated foot or vehicle traffic. To relieve this compaction, a machine was developed in the late 1940s called an "Aerifier". Today, there are a number of different types of machines available. The most widely used machines for greens and tees have cylindrical hollow tines that extract cores of soil and thatch with a vertical punching motion. The tine sizes range from 3/8" to 5/8" in diameter, are about 3" long and are spaced about 2" apart. The soil cores extracted may be removed if the soil or thatch is undesirable. Otherwise, the cores are broken up and mixed with added topdressing. For fairways and roughs, the larger wheel and drum type aerifiers are normally used because they are faster and can hold up to adverse soil conditions. These machines also use hollow tines which penetrate the soil as they turn on the wheel or drum.

WHY AERIFY?

All soils naturally contain pore spaces that serve as passageways for air, water and nutrients. These pore spaces are also tiny reservoirs to store these elements. When soil is compacted, soil particles are squeezed together, thereby reducing the pore spaces and the ability of that soil to move and store air and water. All this diminishes plant's root system and vigor. In this condition, turf cannot withstand the stresses of traffic high temperatures, high humidity and fungus diseases. Thatch is an accumulated layer of dead grass stems, blades, and roots that build up between the live grass plants and the soil surface. A thatch layer of 1/4" to 1/2" is very beneficial. It is the thatch layer that reacts to the impact of the golf ball as it strikes the green. In other words, it is the organic cushion that allows a shot to "hold". The thatch also provies the grass plant with a cushion from physical injury caused when the grass plant is pressed between the player's foot and the soil. It is a natural organic BUFFER that when properly managed is a prerequisite for a good putting green surface. If the thatch layer is allowed to accumulate to more than 3/4", it becomes a serious problem to healthy turf. A thick layer of thatch retains excess moisture at the soil surface which is an excellent medium for harmful fungus diseases and anaerobic bacteria. Heavy thatch restricts the penetration of water, air and fertilizers. When a heavy thatch layer dries out, it is very difficult to re-wet. Because a player can not see this thatch layer, he does not see the problem. He can, however, see symptoms; spongy greens, fungus injury, localized dry spots, thinning turf, moss and algae.

WHAT IS TOPDRESSING?

Topdressing is a specially prepared sand, soil and peat mixture. The percentages of sand, soil and peat in the mixture can vary considerably depending on existing soil conditions. A basic agronomic rule is to keep the topdressing a similar consistency as the area to which it is applied. Using a substantially different consistency may cause layering and eventual problems with water and root penetration.

WHY TOP DRESS?

Topdressing is usually done in conjunction with aerification. Its initial purpose is to smooth the putting surface. It is an opportunity to add beneficial aerobic bacteria to the soil. If the existing soil structure is poor, then it is also a chance to improve that structure by filling the aerifier holes with a better soil mixture.

WHEN IS THE BEST TIME TO AERIFY?

Optimal times to aerify and topdress are when weather conditions provide the quickest turf recovery AND when there is the least amont of play. In our climate that is September, October, April or May. Since these times are still within the playing season it will be a nuisance to someone's play. However, lack of adequate soil aerification and thatch control will cause deterioration of plant vigor and eventual loss of turf. This deterioration is most likely to occur during the mid-summer weather stresses when the amount of golf play is at its peak. The trade-off is between inconvenience in the fall or spring and substandard turf in mid-summer.

CONCLUSION

Aerification and topdressing improve soil structure by relieving soil compaction. Aerification helps control thatch physically by removing it and biologically by stimulating aerobic bacteria that decompose it. The need and frequency for these procedures are really dictated by the amount of soil compaction and thatch present.

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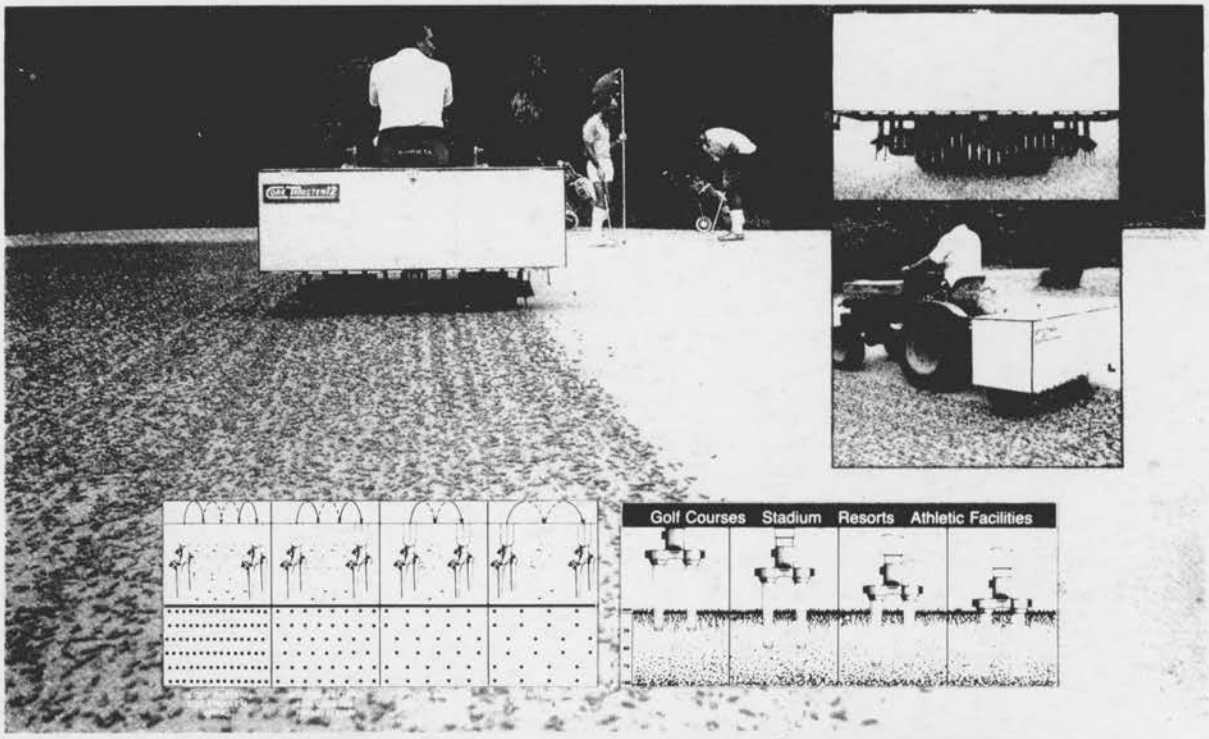

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