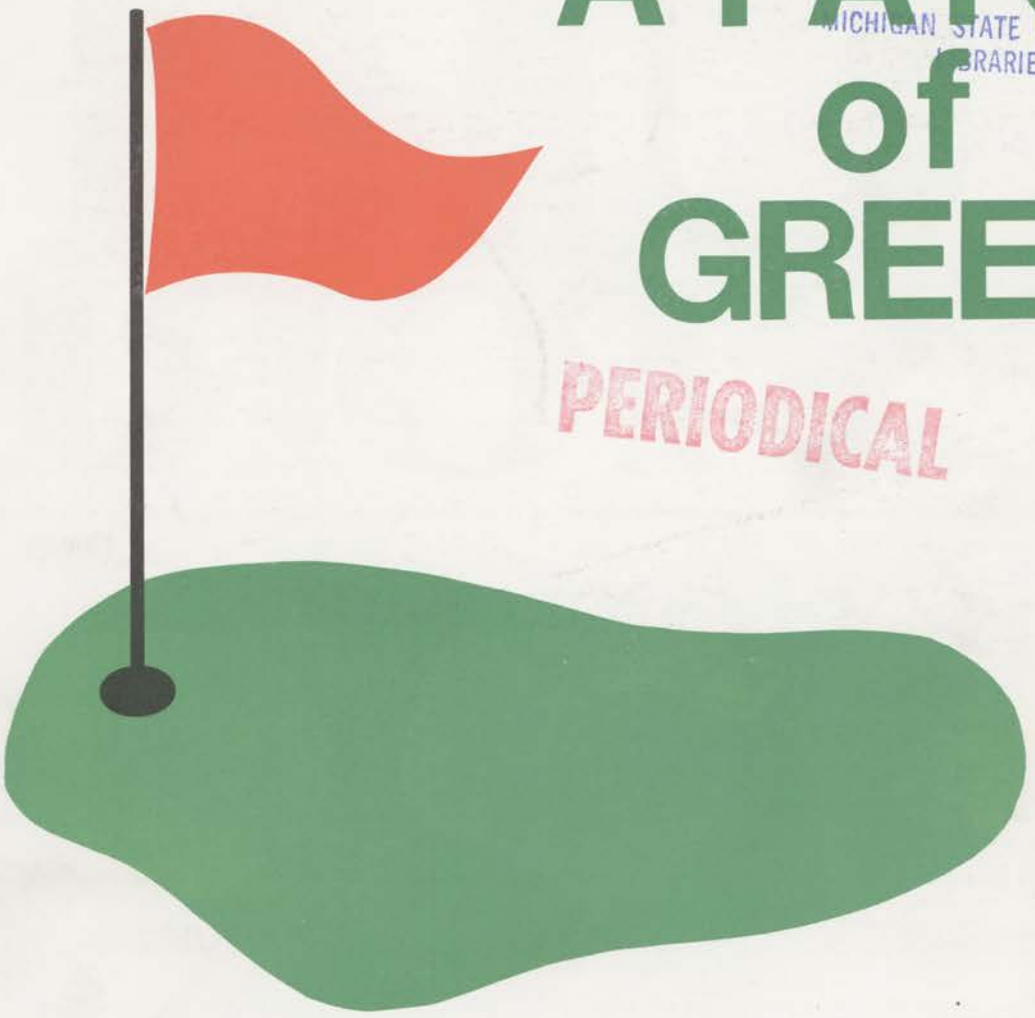
JULY/AUGUST 1987

62nd Year

A PATCH of GREEN



GOLF COURSE SUPT. ASSOCIATION
BORDER CITIES
MICHIGAN

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA

OFFICIAL PUBLICATION OF THE MICHIGAN & BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

PRESIDENT'S MESSAGE

In the coming months there are three events that everyone should put on their calendars. In August, the annual picnic will be held at a yet to be determined site. The picnic is a day when all members and their families can get together for a day of fun and relaxation at a time of year when everyone needs a break from the daily grind. There are games for the kids and adults, swimming, fishing, boating, good food and friendship. The whole day is fully subsidized by the Association and I encourage everyone to attend this fun-filled day. So when the notice of the picnic is ent to you in the mail try to schedule the day on your calendar.

Second, on September 14, the first annual Michigan Golf Course Superintendents Golf Tournament will be held at Forest Acres Golf Course in East Lansing. All of the golf course superintendent associations in the state are working together to promote freindship and the turfgrass industry. There will be flights for all handicaps, many prizes and an awards dinner. The pairings for the tournament will be made so you will have an opportunity to play golf with a golf course superintendent from another association. This tournament will be a great opportunity for all superintendents who are unable to attend the National golf tournament that precedes the GCSAA Conference & Show. There will be more information to follow concerning the event. Plan on playing in this first ever tournament.

On October 21, the annual meeting will be held at Maple Lane Golf Club. The election of Officers and Directors will be determined at this meeting. In the near future the nominating committee, headed by Mike Edgerton, President Emeritus, will be developing a slate for 1988. If there are any Class A members (agolf course superintendent for 3 or more years) who may be interested in running for office, please contact Mike Edgerton as soos as possible. It is important that our Association has a wide range of condidates to run for Directorship. If you have any interest in helping to run our Association in the coming years I encourage you to submit your name as a candidate for 1988. I know there are many superintendents that have good ideas and strong leadership abilities and would be a great asset to the MBCGCSA. I have been an Officer and Director for the past eight years and I have found the experience to be challenging, rewarding and enjoyable. If you have the desire to take a challenge, volunteer to run for office. For all of you who do decide to run I encourage you to campaign for the position. In all of the years I have been a member I have yet to see any candidate actively campaign for office. If you are interested, this is your chance to get involved.

Kevin Dushane,
President, MBCGCSA

"A PATCH OF GREEN"

Published Bi-Monthly by the

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Working Nine to Five?

by Charles B. White
Director, Southeastern Region
USGA Green Section

Is a golf course superintendent a businessman? Well, he doesn't go to the office each day in a three-piece suit with briefcase in hand, but he is a businessman. Areas such as public relations, budget preparation, equipment depreciation, labor justification, personnel management, maintenance facility upkeep and long-range planning are all parts of business management, but they're seldom given enough emphasis in golf course management education or in the superintendent's job description.

Learning how to relate to the board and green committee is a critical part of the golf course superintendent's job. It is important to realize that, as businessmen, they relate best to business terms (e.g., miles versus hours on equipment). When communications are geared toward intended ears, budget proposals and project selling have a much higher batting average. The golf course superintendent, who gives the maintenance program continuity through myriad changes in the green committee, must constantly reinforce the distinction between the needs of the club versus the desires of individual golfers when dealing with the committee.

Public relations is a facet of golf course management that many golf course managers overlook, but when it comes down to the real issues of the golf course superintendent's profession, good public relations may be the most important factor leading to success and credibility. Many turf managers who are excellent agronomists lack effective communication and public relations skills. Consequently, they usually are not as successful as those who have developed skills through education and practice. Effective communication is not easy, but these skills can be dramatically improved when they are developed through proper channels. Continuing education is one of the best means of improving public relations specialties such as personnel management, communication skills, public speaking and business management. As the superintendent profession continues to upgrade itself educationally, technically and scientifically, it will put a premium on the superintendent's ability to handle public relations. This includes communications with the membership as well as with those employees who may lack formal education. Budget preparation and presentation could also streamline golf course management. Golf course budgets oftentimes are the dumping ground for odd and end budgetary expenditures, such as golf cart, swimming pool and tennis court maintenance. Some clubs may show large bottomline budgetary figures, but the money really available for actual golf course maintenance (equipment maintenance and repair, fertilizers, chemicals and labor) is relatively small. These four particular line items must be presented to the board so it realizes their importance and so that budget dollars can be appropriated to develop the needed maintenance programs.

Businessmen want to see where money is going and why

When budgets are presented to the board, it is important not only to show figures for each line item, but also to include an explanation and justification for each one. Businessmen want to see where money is going and why. Golf course budgets are upgraded more successfully through proper preparation and presentation than through any other single factor. Sometimes superintendents who are unable to obtain adequate budgets have become disgusted and left their jobs. When the replacement arrives the budget is often raised significantly. This is often caused by the preparation and presentation by the new superintendent rather than because of the board's lack of confidence in the former superintendent.

Equipment depreciation and replacement is one of the more difficult sections of the budget to sell to the board. When a new piece of equipment is bought, it should be depreciated so that planned equipment replacement will always be an integral part of the club's finances. If capital equipment is depreciated at the time of purchase, then projections to replace larger capital items such as backhoes, fairway mowers and dump trucks can be made years in advance. Unfortunately, most golf courses do not depreciate their capital equipment and sudden breakdowns often force significant expenditures when the budget cannot really afford it. Then, other operational budget monies are often reduced or deleted to make up for the unanticipated capital expenditure.

Using dilapidated equipment is often more expensive

Planned equipment replacement also reduces the significant cost of repair parts, down time and labor needed to keep old, worn-out equipment operational for another year or two. Using dilapidated equipment is often more expensive in the long run than buying new equipment. Clubs often spend$12,000 to $15,000 more a year in equipment maintenance and

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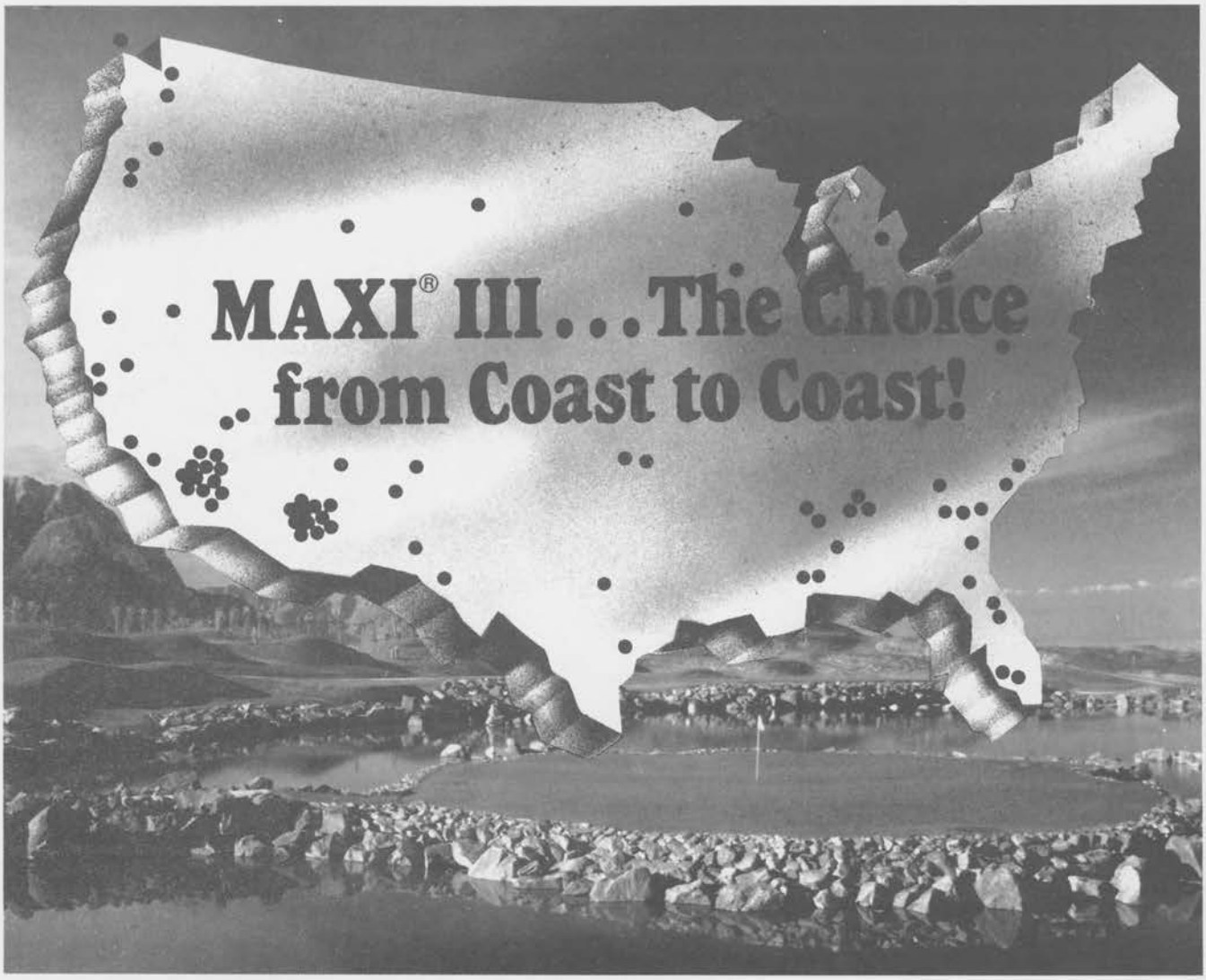

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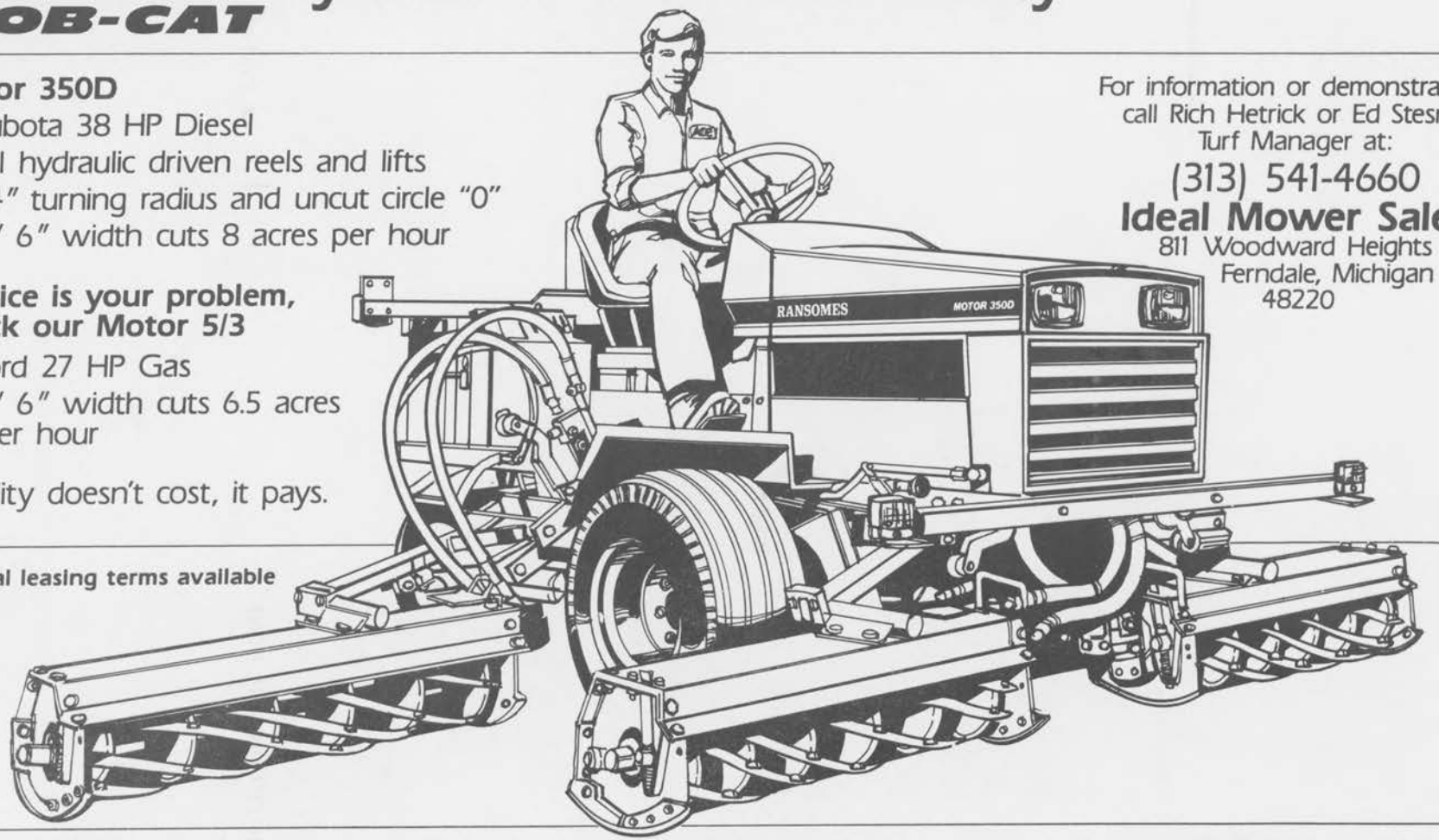

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Executive Editor
GOLF Magazine
380 Madison Ave.
New York, NY 10017

Dear Sir:

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

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

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

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

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

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SULFUR AND THE BLACK LAYER

We have been getting mixed signals from the agricultural colleges. First we were told by Dr. Goss at Washington State that SULFUR plays a role in the suppression of poa seed-heads when applied at relatively high rates. Then Dr. Joe Vargas, not quite sure that he was getting proper suppression of poa, was actually seeing overall improvement of turf from SULFUR applications - particularly in highly alkaline soils.

These reports were enough to get superintendents on a SILFUR kick. Sales of our flowable SULFUR soared. Suddenly, we have been getting sporadic reports from various parts of the country about a **BLACK LAYER.** It has been identified and described quite accurately as a sealing off of the soil to the point that air is not getting down to the root system and that an anaerobic condition prevails in which microbial action is producing toxic hydrogen sulfide. The hydrogen sulfide in turn quickly reacts with most of the salts forming black insoluble sulfides. This is especially true of iron. To complicate matters, the black iron sulfide can regenerate more hydrogen sulfide under acidic conditions.

Now the pendulum has swung far to the left in the other direction. The superintendent is being told to lay off of SULFUR in any form - no more sulfates, no more sulfur coated urea, no more elemental SULFUR as if this will cure **BLACK LAYER.**

SULFUR is not the cause, but the lack of oxygen is responsible. A layering of soil which prevents percolation and aeration, can be rectified by aerification. This is a quick fix that remedies the situation, as I found out on one Southern California course last summer. Only two or three hundred square feet on three greens were involved. Within a week, aerification remedied the situation. Ironically, this course has not used our flowable SULFUR. But one can find sufficient SULFUR in the soil to accommodate the **BLACK LAYER** effect under anaerobic conditions.

Recent experiments reporting increased use of phosphates to help the roots develop and grow out of this stress situation are encouraging. But this, I'm sure, must be accompanied by adaquate aerification.

But where does all of this information leave us? How are we to correct high alkaline and saline soils without SULFUR? Impossible - the only adaquate products proposed for this correction are SULFUR products.

The age old remedies of sulfate of ammonia or gypsum - both of which are acidic sulfates - have been used extensively. More recently, carefully me-

CONTINUED PAGE 16

BLACK LAYER: A WESTERN VIEW

As more soil samples have been analyzed and as the subsurface black layer was analyzed separately, the following observations continued to be made. The metal ion concentration was higher in the black layer. The heavier metals, manganese, zinc, iron and copper as well as boron, were observed in higher concentrations in the layer than in the soil above. It is at that black layer that the root system stops and in the presence of the black layer that severe damage shows. After looking back over hundreds of soil samples taken from greens over the last years, the most marked difference observed between normal turf and affected turf was that the metal ion concentration and the ECe were higher in the affected turf samples. Not only were the metal ion concentrations higher, but the available phosphorus concentration in many of the samples was low.

The turf areas studied were bentgrass and bentgrass-poa mixed greens in the coastal and desert regions of California. The data was taken on greens that had distinct black layers and other greens that showed the same typre of damage but had a clay layer but because of the management practices the layer was not black or dark colored. When tissue and soil samples were analyzed from greens that were under stress, a number of things were observed:

1) The affected turf tissue from greens with either type of green, the metal ion concentration, especially the manganese, zinc and iron was found to be much higher than in the "normal" or normal looking turf.

2) In all cases so far, in the turf affected adversely, the tissue analysis showed low phosphorus concentrations in both the soil and tissue.

3) So far the problems are most prevalent on courses where phosphorus applications have been minimized in order to control poa seeding.

4) When phosphorus was applied to the affected areas in a spray application of MAP (mono-ammonium phosphate), the turf improved quickly.

5) In all cases, the black layer or the clay layer showed much higher metal ion concentration than the soil above (three to five times as high).

It is proposed that much of the "black layer"-like symptoms that are observed and are looked at as being a unique problem because there is no black layer are really the same problem. In fact, the same type of damage occurs without a "black layer" on many greens but, because the greens are not anoxic, the color of the layer that does exist is not dark or

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1987 Michigan Special Olympics MBCGCSA Fundraiser

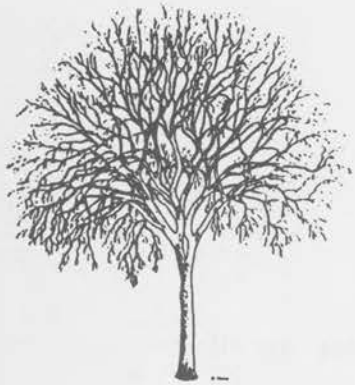
On May 6 at the Links of Pinewood the Michigan and Border Cities GCSA held their annual Special Olympics fundraiser with over 60 golfers participating in this year's event. As in past years, the suppliers were given an opportunity to purchase tees with the proceeds going to the Special Olympics. As always, their participation was excellent and coupled with the proceeds form the golfers we were able to donate $3,700 to the worthy Organization. In the past six years our Association has raised in excess of $20,000 to the Michigan Special Olympics, something that all members can be proud of. We are now the longest running fundrasing event for the Special Olympics. Craig Mosher, Director of Special Olympics, is most thankful for our efforts in providing funds for continuation of the many functions they provide for the mentally handicapped. Our Association can take pride in the fact that we are actively involved in helping other less fortunate people reach for goals that otherwise may be unattainable.

The golf tournament was a Texas Scramble with the team of Fritz McMullen, John Kirtland, Kevin Dushane and Jim Timmerman coming out the winners. It was a beautiful day to play golf and everyone was treated to a wonderful lunch afterwards. Ed Heinemam, Chairman of the Special Olympics fundraiser did another outstanding job in organizing and running the day's festivities. Also, thanks go to Doug Glasson who donated distinctive Special Olympic flags for the golf tournament. Congratulations to everyone who participated in this year's event.

DOUG GLASSON of D & C Distributors, displaying flag donated annually to Special Olympics Day

WINNING TEAM in 1987 Special Olympics Golf Tournament – L to R: John Kirtland, Fritz McMullen, Kevin Dushane, Jim Timmerman

ED HEINEMAN, Chairman of 1987 Special Olympics Day, relaxing during golf.



DUTCH ELM DISEASE AND ELM TREE ROOT GRAFTS:

THE DEADLY CONNECTION

Root grafts are a factor that must be taken into account when injecting any elm tree. Trees that become infected via root grafts are fatally sick.

Fortunately, root grafts can be handled. The easiest way to prevent root graft transmission of the disease is to physically break or kill a zone of root tissue between the diseased and the healthy trees. This can be done with Vapam or by trenching.

HOW DO I KNOW IF MY TREES ARE ROOT GRAFTED TOGETHER?

As a general rule, a tree's roots spread out about as far as the branches. In some prairie or dry areas, roots can spread out twice this distance. If two elm crowns are touching, chances are their roots are touching.

CHECKING FOR & STOPPING ROOT GRAFTS

There are three ways to stop root grafts transmission between elms. None will work if the disease is already present in the roots, connecting the two trees.

CHECKING FOR DISEASE ALREADY IN THE ROOTS

This is quite easy. All that is needed is an ax. Do the following (make sure you have permission to do this):

1. Open a window in the bark, low on the trunk on the side of the infected elm that faces the elm you are trying to save. Do this by cutting three sides and pulling open the bark. Close the window when done.

2. If you see the brownish streaks of the disease on the wood in the window, the disease has entered the roots. If you see white creamy tissue, open windows to the right or left.*

3. If the disease is coming down the trunk on a side of the infected elm away from the other grafted elm, you still have time to break undiseased grafts, but you need to act fast.

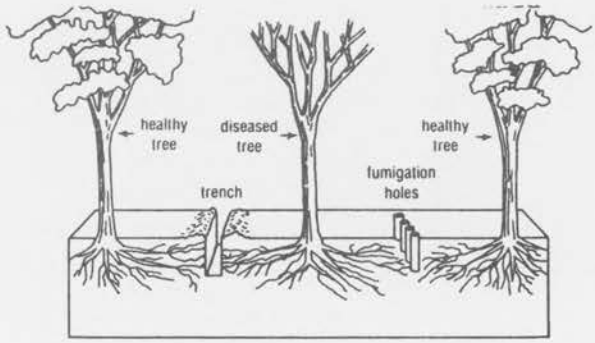


FIGURE 1

BREAKING ROOT GRAFTS

1. GIRDLING - If the disease in an infected tree has not yet moved into any of the roots, girdling is a way to prevent this. It involves cutting a 2-3 inch deep ring low on the trunk of the infected elm, around the entire circumference of the tree. This will kill the girdled tree.

2. VAPAM BARRIERS - These are inexpensive to lay down, and involve drilling 20 inch-deep holes into the ground between the two elms. These holes should be one inch wide and six inches apart. Then, Vapam mixed with three parts water, is poured into these holes. Elms must be further than thirty feet apart for this to be effective. Also, the job must be done correctly. Holes further than six inches apart are unacceptable.**

3. TRENCHING - This is used between elms closer than thirty feet apart. When doing so, be aware of underground electrical, gas and phone piping. It is expensive to lay trenches. A trench should be **at least** 20 inches deep.

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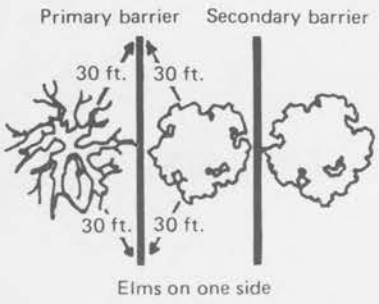
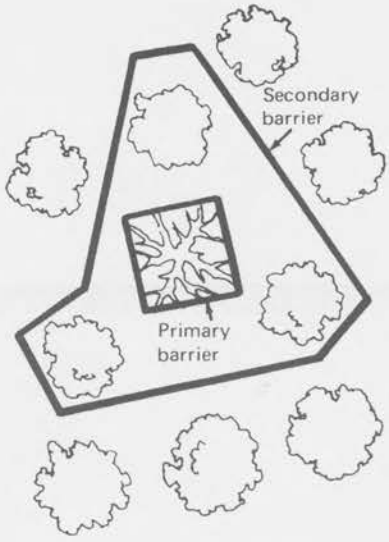
FIGURE 2





IMPORTANT POINTS ABOUT ROOT GRAFTS

1. Root grafts are the fusions of roots between two trees of the same type (Pheno-typically similar; thus Siberian elms are not grafted with American elms, or Slippery elms fused with Rock elms, etc.) If the bark is very different between the trees , they probably are not grafted.

2. Root grafts are usually present between trees whose canopies are touching.

3. Large elms rarely fuse with smaller elms that are approximately half the size.

4. Since 95% of all roots grow in the top 18 inches of soil, water, sewer, gas and electrical trenches installed between elms within the **past ten years** have most likely broken any root grafts for **larger elms**, and **5-7 years** for smaller elms.

* Rinsing or spraying of tools in chlorine solution is recommended, after use, or before going to the next tree.

** The diseased elm cannot be removed for 10-14 days after Vapam is laid down. Also, Vapam will kill a six inch wide swath of grass along the whole barrier. Follow Vapam directions **carefully.**

Figure 1 - Kansas State University, Ag. Exper. Stn. Bulletin 626, page 13 November, 1978
Figure 2 - University of Minnesota, Ag. Ext. Svce., Ext. Bulletin 415, page 12 Revised 1980

Source Technology Biologicals, Inc.
3355 Hiawatha Avenue, South Suite #122
Minneapolis, Minnesota 55406

BLACK TURFGRASS ATAENIUS

Despite being the smallest of the "Scarab beetles", the Black Turfgrass Ataenius (BTA) produces a white grub large enough to kill areas of turfgrass. The grub is often difficult to control because timing of insecticide applications must coincide with the BTA life cycle.

Larval control products, like OFTANOL, need to be applied just prior to egg hatch. As the new grubs develop and begin to feed, they ingest the OFTANOL and die. **Ataenius spretulus** larvae go through 3 growth stages, with the third and largest being the most damaging to turfgrass. The best insecticide management decision is to control the grubs early. BTA eggs are laid in fairways from early May to mid-June. The larvae are then present from late May to mid-July. OFTANOL applications for this generation are best made in very early May.

Northern Ohio is the approximate latitude above which only one generation of BTA occurs per year. In these cooler regions, the timing of OFTANOL treatments should parallel the bloom of **Spirea vanhouttei**, horse chestnut and black locusts. This phenological relationship also holds true to the South, where these plants bloom during the first half of May.

Where two generations occur, the reddish new beetles lay eggs in late July and early August. The

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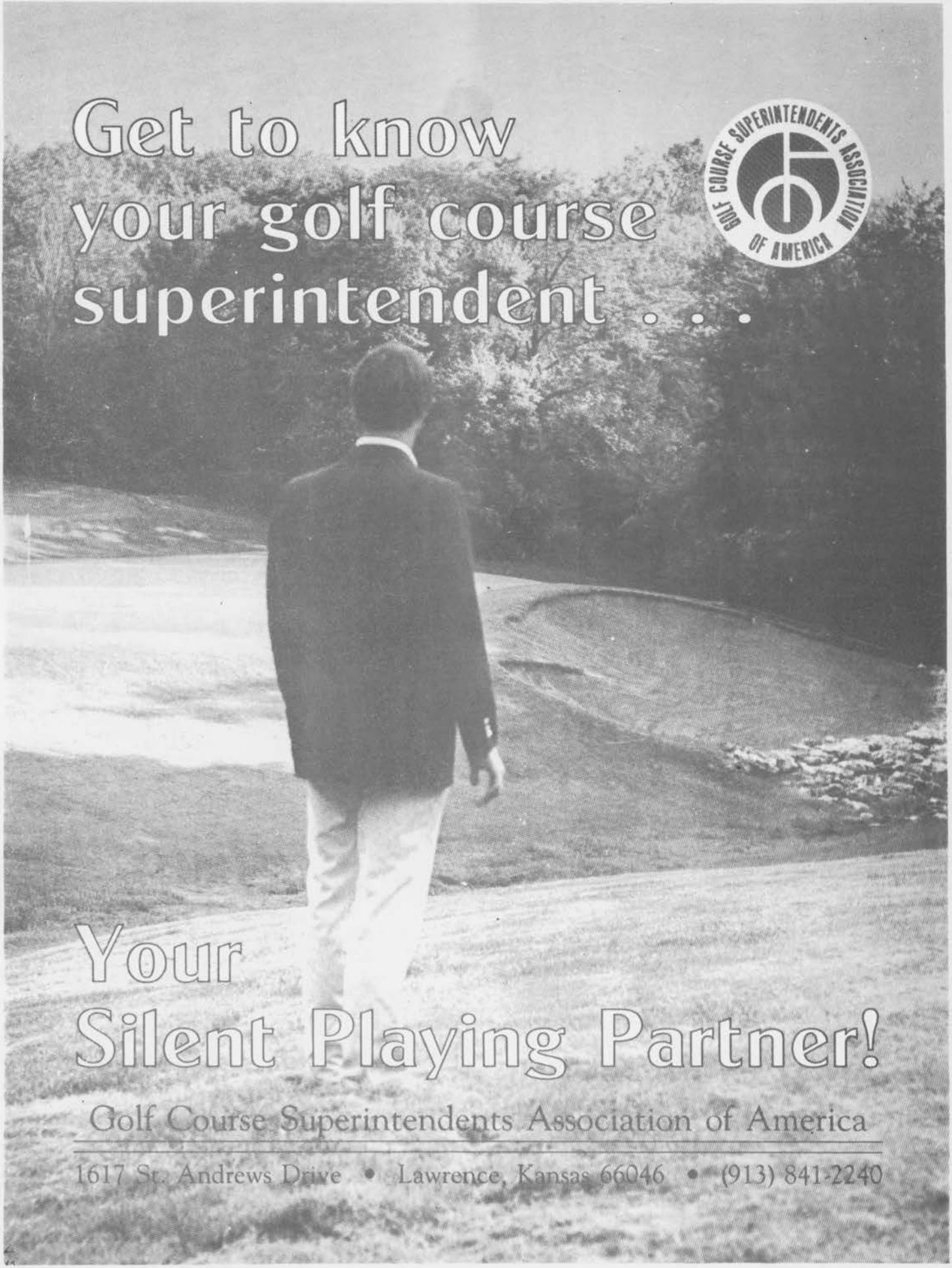
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black. The metal ions can accumulate in the clay layer that has built up in the greens. A natural separation of the fine particles from the other material in the sand mixtures will occur and layering is the result. It can also build up from wind-blown fine clay particles that move down through the green to a depth where they begin to form a layer. Some fine clay is also added when various carrier materials in some granular fertilizers are added to the greens as well as from particulate matter in the irrigation water.

As the clay layer builds, the metal ions can be held on the sites on the clay and can build to a concentration where problems can occur. The concentration of the metal ions around the roots can build and be picked up in quantities that can severely stress the plants.

Phosphorus applications have been reduced or eliminated for years on greens in order to reduce poa seed head production and, in the cases of new sand greens, either minimized or eliminated from the green during construction. Moreover the fear of poa encroachment has caused some people to have never applied phosphorus to their greens. In the extreme conditions on the green tested, phosphorus was down to a level that was barely detectable. Grass cannot build a root system without phosphorus. "To grow carrots, you add phosphorus, not nitrogen", yet we want healthy turf, with no applications of phosphorus to promote root growth. The golf greens cannot be cut extremely short and remain healthy if the root system is not supplemented. It is impossible to promote a healthy turf while eliminating one of the major nutrients. There must be a balance between root growth and leaf growth, a balance between phosphorus and nitrogen.

We may have outsmarted ourselves:

1) We create good drainage on greens and allow the water to move through the soil easily. Over the years what phosphorus was in the soil mix is leached out to the point where there is a problem.

2) We acidify the greens with sulfur applications and with acidifying nitrogen fertilizers which makes the phosphorus more soluble which allows it to be leached away faster.

3) We promote leaf growth and remove the clippings which carry away the phosphorus.

4) When we acidify the greens, we increase the metal ions such as manganese, zinc, copper and iron that are available to the plant. Many of these ions can, in high enough concentrations, cause problems if the plant can not pick up enough phosphorus.

5) We have used some sands that have appreciable clay content which can, after a period of time, form layers.

6) We use irrigation water year round which may have appreciable concentrations of metal ions as well as silts, clays and organic matter which can build up in the clay layer.

7) Year round irrigation speeds the leaching of the phosphorus.

Phosphorus cannot be effectively utilized by the plant if one of the following conditions exist:

1) If there is little phosphorus in the soil to begin with.

2) If the temperatures are low. This will reduce the ability of the plant to pick up the necessary phosphorus, even though phosphorus is present. Under these conditions, bentgrass turns purple (phosphorus deficiency), the poa will show stress and will seed.

3) High pH soil conditions where the phosphates are very insoluble.

4) In high salt content soils the phosphorus absorption is blocked.

5) Under high temperate conditions the plants seem to show similar stress. It is not known whether it is temperature alone that is the problem, or whether it is a salt build up caused by the increased temperature that affects the phosphorus uptake.

The result of low phosphorus:

1) Grasses will show very short, weak root systems.

2) Ion concentration of manganese, zinc, copper, sodium, boron and iron can build up in the plant and become toxic.

3) Without phosphorus, normal growth in the plant cannot recover quickly from physical damage or stress.

4) The turf color and texture is affected. The greens are mottled in color, whether pure bentgrass or bentgrass-poa mix.

5) The growth rate is very inconsistent and by afternoon the green can become bumpy.

6) Poa will show tipburn, dieback of the older leaves and produces more seed when under stress.

Because phosphorus is slow to dissolve and be used, the problems of the definciencies of phosphorus did not show for years. The problems like the black layer

CONTINUED NEXT COLUMN

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tered dilute sulfuric acid through the fertigation system, is receiving extensive testing. Finally - one pound rates of flowable SULFUR - which oxidizes to sulfuric acid eventually - has shown very promising results. Most important of all these remedies work under aerobic conditions, but could backfire under anaerobic conditions.

Isn't sensible to eliminate the real cause of **BLACK LAYER**? Excluding SULFUR products is not going to solve the problem, especially if one has an alkaline soil. Under this condition - the use of sulfur products is not only essential - but imperative.

Paul Sartoretto, Ph. D.
May 21, 1987

creep up on us and it is hard to point a finger at the phosphorus as the problem because the grass was able to tolerate the lowering phosphorus levels with only a discoloring or slight damage. Until the phosphorus levels got so low that the damage became severe, the problem was not easy to isolate to one nutrient.

A number of course, Old Ranch Country Club of Seal Beach CA, (Don Parsons), Los Coyotes of Buena Park CA, (Bill Gallegos) and the City of Anaheim Golf Courses, (Don Marshall Director of Golf Operations. Gary Wimberly and Don Lewis) have been very helpful in evaluating the effectiveness of the phosphorus in treating the problems on various types of greens. One course in particular that had "black layer" symptoms after over 20 years of no applied phosphorus, was started on a program of light, soluble phosphorus applications four years ago, has had little or no trouble with the greens since the soluble phosphorus applications started. A number of other courses here in the Southwest with problem greens are now in the process of applying soluble phosphorus to attempt to control the "black layer" symptoms. A number of courses have included phosphorus as a regular part of their greens program especially when the greens show stress, have not shown the black layer or the damage associated with the metal ion build up.

Upon application of phosphorus at 0.25 - 0.50 Lbs. of P2O5 per thousand sq. ft. in a soluble (MAP) form seemed to eliminate the problems. The root growth was amazing at Victoria Club in Riverside where the greens were sprayed with a solution of monoammonium phosphate. During the application, areas of the green were covered to leave the area untreated. The treated area gave a three inch increase in growth of roots in less than a week, compared to the untreated area. This test was done in February of 1987 with the help of Mark Livingston the superintendent of Victoria Club. This course was picked because this particular course is five to ten degrees colder than the other area courses and purpling was still very evident on the bentgrass.

The addition phosphorus will help to control the metal ion concentration in the soil by forming metal phosphate compounds that hve low solubility. The ions are still in the soil but are not in high enough concentration to become a problem. Moreover when the metal ion is released, a phosphate ion is also made available for the plant to absorb and any problems are minimized.

These conditions are more severe on new sand greens where little phosphorus had been applied and perculation rates are high. One explanation for this is that the sand greens may hold only one third the water as a clay green. If the ECe is the same on a sand and a clay green, in effect, the concentration of the total salts in general and metal ions in perticular are three times as high around the roots of the grass on the sand green. The response to a phosphorus application on a sand green is very rapid.

The application of soluble phosphorus compounds is

CONTINUED NEXT PAGE

BTA, CONT.

eggs and subsequent grubs are found in the lower thatch and upper 1 inch of soil. Thatch restricts the movement of some insecticides to the grubs, but it is at the thatch/soil interface where feeding occurs. As when controlling any of the "white grubs", OFTANOL needs to be watered into this activity zone just prior to larvae arrival.

Early May applications are recommended for golf courses with Black Turfgrass Ataenius. Those which have no significant spring grub damage should wait until late July or early August to apply OFTANOL.

Black Turfgrass Ataenius grubs can be indentified by the two pad-like structures and scattered raster pattern near the anal slit.

by Sue-Ann Brown

A FELLOW GOT UP ONE SATURDAY MORNING WITH THE ODD FEELING THAT SOMETHING ABOUT THIS DAY WAS TO BE DIFFERENT. SOMETHING UNUSUAL WAS ABOUT TO HAPPEN. HE GLANCED OUT THE WINDOW AT THE THERMOMETER: 33°. HE WENT DOWNSTAIRS – STRANGE, THE CLOCK HAD STOPPED AT THREE O'CLOCK. HE PICKED UP THE PAPER AND READ THE DATE: THE THIRD OF THE MONTH. THREES – THAT WAS IT! HE GRABBED THE PAPER AND FLIPPED IT OPEN TO THE RACING SECTION. SURE ENOUGH IN THE THIRD RACE THERE WAS A HORSE NAMED TRIO! THE FELLOW HURRIED TO THE BANK, DREW OUT HIS LIFE SAVINGS, AND BET IT ALL ON THE HORSE TO WIN.
IT RAN THIRD.

WESTERN VIEW, CONT.

necessary. The use of phosphorus should help to improve stressed areas on the greens by allowing the root system to be made stronger. It is hoped that this work will give some people the confidence to use the phosphorus at times when the greens are under stress and that it will help some people to solve some of their problems. Remember that anything used in excess can cause problems. If small applications of phosphorus are placed with a balanced feeding program, no great excesses will occur and any imbalances will be avoided.

Tom Lubin 3/16/87
From Divot News,
So. Calif. Chapter, May, 1987

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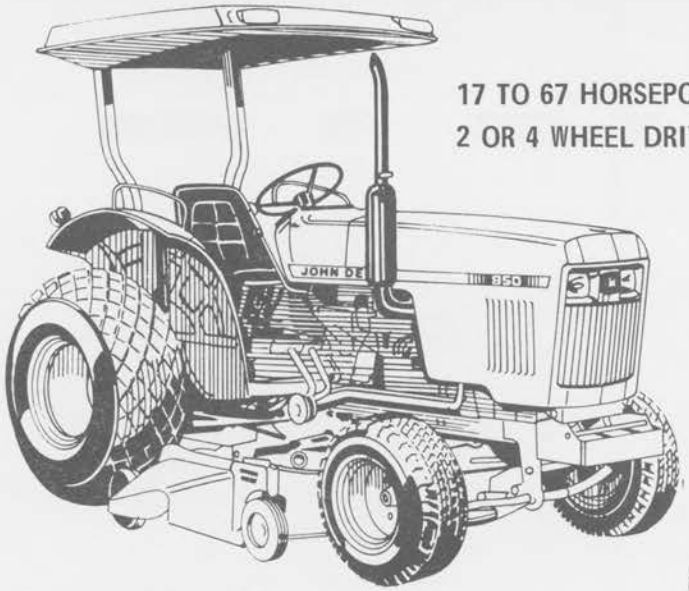

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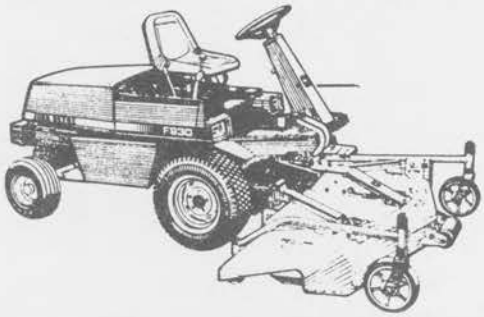

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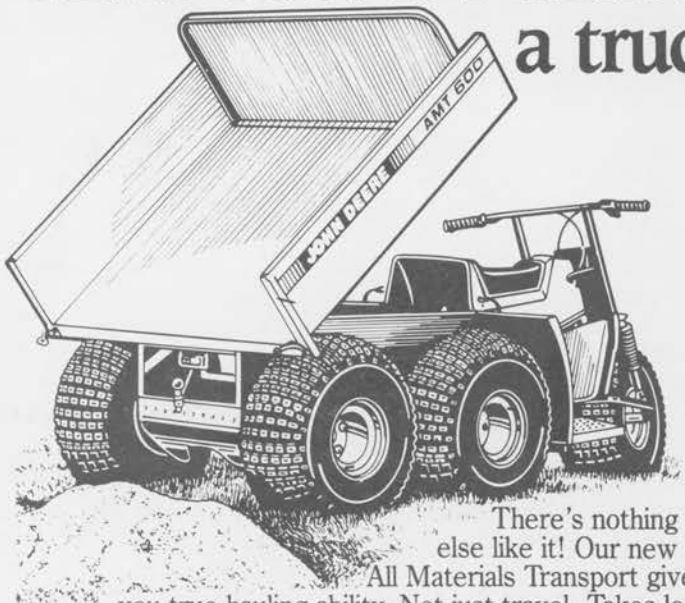

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for comparison, and it shows that aspirin is at least 13 times more toxic, and table salt is at least 3 times as toxic, than Daconil 2787.

With this evidence and my experience, I still would not say absolutely and without question that Daconil 2787 did not cause Lt. Prior's death, though I believe it overwhelmingly unlikely. I leave such omniscience to such "experts" as the Dr. Samuel Epstein quoted in your article. Some people die from bee stings; others hardly have a reaction. If we were all exactly alike and reacted to all substances exactly the same way, there would be no need of the word "allergy" in our vocabulary.

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

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

Returning to your "expert" on environmental toxicology, Dr. Samuel Epstein, I highly recommend that you check with respected authorities such as Sir Richard Doll and Dr. Richard Peto, University of Oxford cancer researchers and epidemiologists; Dr. Elizabeth Whelan, epidemiologist and author of 12 books on healh issues, including Toxic Terror; Dr. J. Gordon Edwards, a professor of entomology and counselor for the National Council for Environmental Balance; or Dr. Keith C. Barrons, author of Are Pesiticdes Really Necessary? Ask them or any other

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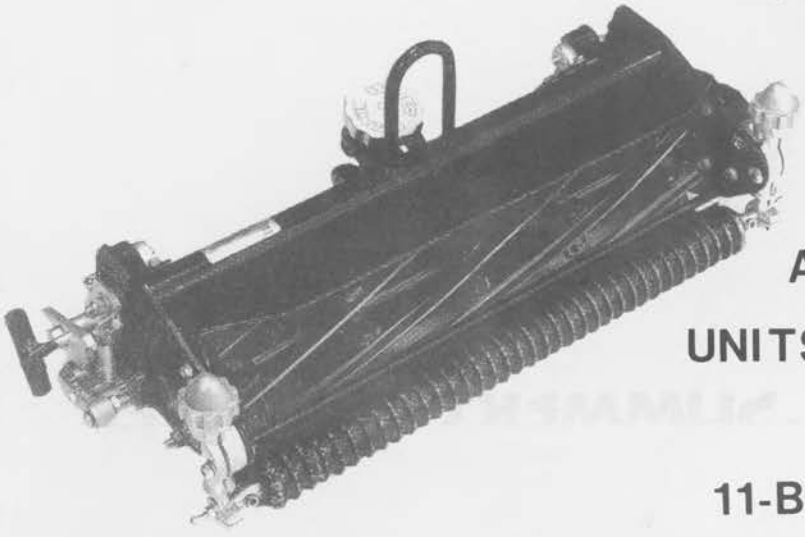

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reputable scientist about Dr. Epstein's scientific methods and motives. Dr. Epstein makes quite a good living feeding on society's environmental paran noia and is time and again called in as the "expert" on environmental issues more diverse than any one man could possibly be an authority on. At the EPA hearings on the banning of DDT, Dr. Epstein was the only scientist to contend that DDT presents a high cancer-causing risk in humans, citing data from abotched laboratory experiment on mice.

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

1.) Golf Course Superintendents, their spray technicians, and other maintenance personnel take the greatest risk using pesticides. They are exposed to the pure concentrated pesticide when mixing and handling; they are exposed to the diluted spray mixture before it is watered in; and they spend 2 to 3 times as many hours on the golf course as golfers do.

2.) A golf course crew is generally a small close-knit group, and it would be very difficult to look another member of that group in the eye if you felt you were exposing him to unnecessary or unusual hazards.

3.)Thanks to the efforts of the media and environmental groups, pesticides with residual activity (mostly chlorinated hydrocarbons like DDT) have been taken off the market, and the replacement chemicals (mostly organo-phosphates and carbamates) are more dangerous to man (especially those who mix, handle, and spray them), and must be used more often and at higher cost to deliver the same level of control.

4.) The only reason golf course maintenance people support the use of pesticides is because it is a necessary tool for doing their job of providing the fine playing conditions that golfers have come to expect and demand. None of us like using pesticides. We receive no "kick-backs" or other compensation from chemical companies. Without pesticides there would be no golf as we know it today.

5.) Every year we lose one or more pesticides for use on golf courses, usually because of accidents, excesses, or false allegations in the agricultural industry. Golf Course Superintendents must pass examinations to obtain and retain licenses to use restricted pesticides and are head and shoulders above the ag industry and the general public concerning pesticide use and safety.

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

CONTINUED NEXT COLUMN

WHY DO WE HAVE 18 HOLES ON THE GOLF COURSE?

The following article was taken from the book, "The History of Golf."

At the time the members of the Society of St. Andrews Golfers laid down the rules, the course at St. Andrews - what would now be the famous Old Course - had twelve holes. The first eleven traveled straight out to the end of a small peninsula. After playing these, the golfers returned to the clubhouse by playing the first 10 greens backward, plus a solitary green by the clubhouse. Thus a "round" of golf at St. Andrews consisted of twenty-two holes. This is, the golfers played "out" until they reached the End Hole. There they turned around and played "in" to the same holes. If two groups approached a green simultaneously, preference was given to those playing "out". The outgoing holes were marked with a small iron pin with white flags, while the incoming holes were marked with a red flag.

In 1764, however, the Royal and ancient resolved that the first four holes should be converted into two. Since this change automatically converted the same four holes into two on the way back, the "round" was reduced from twenty-two holes to eighteen. And since St. Andrews was soon to become the arbitar of all that was correct about golf, eighteen holes soon came to be accepted as standard throughout Scotland and England and eventually throughout the world.

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KILLER COURSES?, CONT.

$500 a year for turf research, most of the serious problems facing Golf Course Superintendents would be solved in a few short years.

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

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

repair than they should. With scheduled replacement, this excess could be channeled into a separate line item capital replacement budget. A **yearly** capital expenditure item of 10 percent to 15 percent of the maintenance budget can keep equipment upgraded and save the club money over time.

As mentioned above, boards and green committees are composed of businessmen who relate to business terms. Hours on a mower for example, has no meaning to the average golfer. However, converting hours to **equivalent** milage on automobiles allows everyone to relate to the wear on that mower. Don't try to convince the committee to approve a new mower by saying, "That greens mower is ten years old and has almost 5,000 hours on it!" Plenty of automobiles are still in great condition after 10 years. But how many ten-year automobiles have an equivalent wear of 273,600 miles? That's the attention getter!

Let's look closer at the conversion factors from hours to miles on the wear of a piece of equipment to better relate to the overall life expectancy of that machine.

A car would have to travel approximately 60 miles per hour to have the same wear factor as turf equipment. Considered in this value is the high revolutions per minute, slow ground speed and dusty operating conditions. The slow ground speed has a particularly adverse effect because the engine isn't cooled as well as an automobile travelling 60 miles per hour. This 60 miles per hour is not designed to inflate comparative numbers but simply to give a more realistic wear factor in relation to turf equipment. An automobile probably only averages 30 miles per hour when it is operation, all driving conditions considered, but this relative wear factor would not be comparable with turf equipment operating at near full throttle and moving at a low rate of speed.

For example, a greensmower might be driven two hours a day, six days a week, 38 weeks a year, for a total of 456 hours each year. Based upon the 60-miles-per-hour figure, this mower would travel the equivalent of 27,360 miles every year. In five years it would have travelled 136,800 miles and in 10 years 273,600 miles. Based upon the figures, the useful life of this greensmower should be about five years; then it should be replaced or regulated to backup status.

Taking a large fairway mower as another example, it might run seven hours a day, five days a week, 32 weeks a year, for a total of 1,120 hours each year. Using the 60-miles-per-hour figure, it would travel the equivalent of 67,200 miles every year and 470,400 miles in seven years.

From these two examples, it is easy to see the impact this approach would have on the green committee compared to simply listing the number of hours each machine has been driven. Try it sometime.

Personnel management skills must receive constant attention from the superintendent, too. Just as labor

CONTINUED NEXT COLUMN

expenses make up 50 percent to 70 percent of a golf course superintendent's job responsibility (or headache). It is often difficult to schedule the best and most efficient operation for the crew, especially when crew size and equipment availability may limit the operation.

Establishing and maintaining good crew morale is vital. Upkeep of crew morale is difficult for many people in management positions, but more times than not, effective leadership in this responsibility can help make the difference between success and failure. It is essential to maintain full authority with the workers on your crew, while at the same time maintaining respect for them. The crew must understand that while they should feel free to discuss problems with the superintendent, it must be done on a professional basis.

Subscribing to personnel or business management magazines or monthly newsletters can be a tremendous tool in improving the superintendent's personnel management skills, providing many helpful tips and morale boosters for keeping the crew satisfied and productive.

Personnel management consultants agree that the most effective motivator for the crew comes through job appreciation. We frequently reprimand a subordinate quickly when a job is not properly carried out, but do we just as quickly praise that subordinate when a job is done well? It is certainly important to ask yourself that question as a personnel manager. One cannot expect to instill pride without praise.

The appearance and upkeep of the maintenance building and equipment are also vitally important to the overall success of a golf course management program. One of the worst impressions on the green commitee or club members is to see a cluttered, junky maintenance facility - sometimes referred to affectionately as The Barn. Not all maintenance buildings can be new and modernized, but they can be kept clean and neat not only to make a favorable impression but also to keep maintenance operations efficient. Green committees are also more inclined to upgrade equipment if the present equipment and facilities are maintained impressively. A clean, well-organized shop and storage area promotes an atmosphere of proper equipment use, upkeep and service.

A run-down and cluttered maintenance facility also depresses crew morale. Everyone would agree that the crew deserves a neat, clean area in which to work, to take breaks and to have their lunch, yet this is not the situation at many golf courses. Again, it is not the degree of modernization or the age of the building that is important; it is the cleanliness and efficiency of the maintenance facility.

Justifying labor expenses in the budget can be another tough sell to the board and the green committee. Green committees have often decided they want this or that special project without understanding that some area will have to be neglected in order to accomplish that particular

CONTINUED NEXT PAGE

project with the current labor force. It is important to lay out the man-hours required to do all the maintenance operations on the course. These might include green, tee, fairway and rough mowing; bunker raking and edging; aerification; topdressing; vertical mowing and other specialized time-consuming operations such as hazard maintenance, reconstruction, or drainage projects. In trying to justify the budget, develop a line item budget figure that reflects the time required for each of these maintenance operations in relation to man-hours available. If the green committee then decides it wants a particular operation carried out, each item is broken down into man-hours at a particular budget level. Let the committee decide where they want to cut back in the budget to add their special projects. When each facet of the maintenance program is broken down on an hourly basis, it may become evident to the green committee that the labor force is too limited to do everything they want. Labor justification based on line item man-hour projections can be one of the best means of building a golf course budget toward proper proportions based on the wishes of the membership and the demands of the course.

The last main area of managing a golf course like a business is developing good personal traits. An individual can have all the ability and knowledge in the world, but if he is not a pleasant and personable individual, then all his ability and knowledge is diminished. Personality is not something that can be taught, but it can be modified with effort. In golf course management, just as in any othet business, a successful individual is pleasant to be around and has a respected way of presenting ideas and thoughts to subordinates, peers and superiors. Proper grooming and personal appearance are major factors in the image an individual portrays. One should conduct himself and present himself in a professional manner to suit the particular occasion. For example, if the members of the board wear coat and tie to its meetings, then the superintendent should too. Personal appearance is 90 percent of first impressions and first impressions are often lasting impressions. Therfore, presenting and conducting oneself professionally is essential to being a good manager and a good businessman. Business management consultants agree that an individual rarely achieves higher goals and advancement if he does not already appear to be at the higher level. A business executive once said, "Success is 90 percent appearance and personality, 5 percent knowledge, 4 percent respect and 1 percent luck." Therefore, with work and perserverance one can control 99 percent of his destiny.

Make sure you are a true credit to yourself and your profession. Following through with these suggestions can help improve your image as a golf course superintendent and in the process, produce a better businessman as well.

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