

soil, deep placement will make them immediately available to the new plant to enhance root and top growth. It is extremely important, however, that the fertilizer be mixed into the backfill and not placed in direct contact with the roots. A slow release fertilizer is not desirable for mixing with the backfill. Slow release fertilizers supply only small amounts of nutrients at any one time, so the possibility of root damage is minimized and a longer term response is obtained.

Of the nutrients in a complete fertilizer, nitrogen gives the most pronounced effect. Phosphate and potassium, on the other hand, generally produce little visible growth response unless soil levels are extremely low. Since certain soils may be deficient in these two nutrients, and since phosphorus is essential for root growth, it is usually beneficial to use a complete fertilizer (N,P,K).

The recommended rates of fertilization are four pounds actual nitrogen (N) per 1,000 square feet per year. When needed, 3.6 pounds of phosphate (P205) per 1,000 square feet and six pounds of potassium (K90) per 1,000 square feet should be applied every two to four years. These quantities of fertilizer cannot be applied to the turf under trees. It must be applied to a non-turf area or placed in holes drilled in the soil around the tree. The recommended rate for turf is 1 lb. N/1,000 ft² at one time and any rate greater than two pounds of nitrogen per 1,000 ft² in one application will result in injury to the turf.

Products that combine fertilizers and herbicides ("week and feed") should not be used on or around trees and shrubs. Such products will injure or kill trees in the same way that they kill weeds.

NEW DROUGHT FOLDER AVAILABLE

The Dial-U Insect and Plant Information Service has written a follow-up folder to last year's "Drought and the Urban Landscape". The new publication is called "Restoring the Urban Landscape: Methods for Recovering from Hot, Dry Weather". It deals with lawn repairs, tree and shrub care, and offers gardening tips for coping with dry conditions. It also alerts to insect and disease problems expected this year.

Order your copy of "Restoring the Urban Landscape" by contacting your local County Extension Office. Ask for AG-FO-3727.

FILL IN EXTENSION SERVICE AGENT

Phil Allen has been hired as turf extension assistant for the state of Minnesota from now through September 30,

CUSHMAN 1989 SPECIAL!!!

22-hp for \$4,850.00

MODEL 531 RUNABOUT

SEAT: Two-passenger, vinyl-clad seat with backrest and hip restraints/hand holds

STEERING: Wheel-type

SUSPENSION:

Front: Leading-link type supported by 2 tension springs; front shock absorbers

Rear: Two multiple leaf-type springs and shock absorbers

TIRES:

Front: 18-8.00 x 6, 4-ply turf rib

Rear: 18-9.50 x 8, 6-ply turf softac

PERFORMANCE:

Payload: 1500 lbs. (681 kg)

Speed (Maximum): 18 mph (29 km/h)

POWER:

Engine: 22-hp

Clutch: 6 1/2" (165 mm) commercial

Transmission: H-shift pattern; 3 speeds forward and 1 reverse; synchromesh in second and high

Differential: Worm-gear with 10.25:1 axle ratio

Governor: Mechanical overspeed



"SINCE 1949 - SATISFACTION GUARANTEED"

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2909 E. FRANKLIN AVENUE - MINNEAPOLIS, MINNESOTA - PHONE: (612) 333-3487

TURF SUPPLY COMPANY

News Update

PHONE (612) 454-3106

Vol. 1, No. 9

Summer 1989

GREENSKEEPERS DIARY

Monday—Need to spray for dollar spot.

Sprayer won't work. Cushman won't work. Nobody wants to work. Junior golfers are to have shotgun start on both nines at 8:30. Went out to check on No. 13. Hate that green... winterkill, oil spill, and disease all hate that green. Ought to have SPCA put it to sleep. Greens chairman left message at Pro Shop to get in touch with him at once. He better not hold his breath. Hit 95° by 2:00 p.m. Late for supper. Wife mad. Watered till dark. Showered... went to bed. Wife mad again.

Tuesday—Went in at daylight—the air is like a dogs breath. Got sprayer working. Fairway tractor stuck in wet spot... next to huge localized dry spot called Iran. Huge lineup at first tee. Pro Shop says member-guest transferred from another club that had fire in kitchen. Go home early - sleep through supper. Wife mad again, too tired to be mad. Woke up, showered, ate cold left-over supper. Interested, but wife mad from last evening. Not interested.

Wednesday—Went in late (6:30 a.m.)

Boys say No. 13 Green has new disease... looks like vomit. On close inspection it is vomit. Vomit... what a relief! You can hose off vomit. How many cutworms does it take to fill a blackbird? Have more holes on Greens than slice of Swiss cheese. Went in the club for a cup of coffee. Manager asked if I knew septic backing up at halfway stand. Left without coffee. Got home in time for supper—no one is home. Note says heat T.V. dinner. Went back and finished mowing Rough. Wife mad. Don't care, slept on floor.

Thursday—In at dawn. Fell into mower before I could get the lights on. Kid worker mad at me because I cut his headband while cutting bubble gum out of hair. Cleaned up remains of party near No. 13 Green. Members kids... all imported beer, Johnny Walker and Perier bottles.

ATTENTION: Golf Course Superintendents

Dr. John French will be the featured speaker for your June 5th meeting at Detroit Country Club in Detroit Lakes, MN.

Dr. French comes to us with impressive credentials. He is a graduate of State University of New York, College of Forestry, with a B.S. His Masters degree was also earned at State University of New York in Environmental Sciences & Forestry. He then transferred to Michigan State University and received his Ph.D. from that institution with a major in Plant Pathology and a minor in Entomology.

Looking through his list of publications it appears he could tell us a lot about **Hypoxylon Canker** of Aspen and a few other diseases of trees.

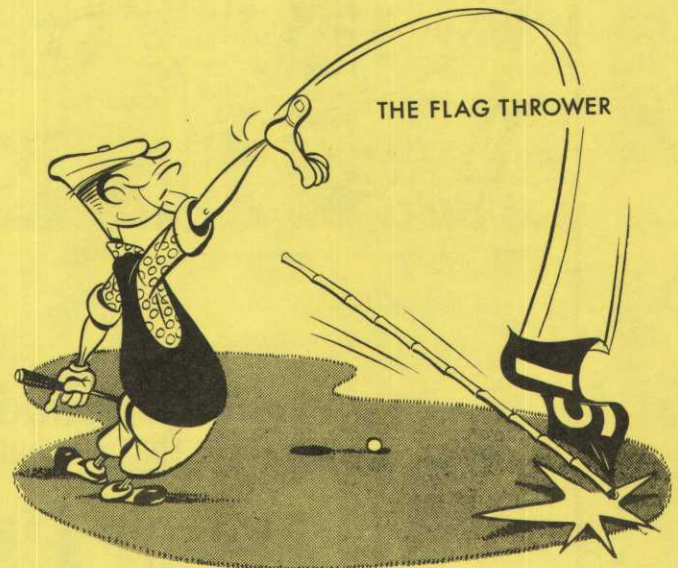
Dr. French is presently employed by Fermenta ASC Corporation in technical development. He is also engaged in worldwide planning of commercial development programs for fungicides, insecticides, and nematocides. His expertise is also used in liaison with departments of toxicology, environmental impact assessments, residue chemistry and registrations.

Dr. French's topic will be the "Classification and Mode of Action of Fungicides". It would behoove the attending superintendents to take advantage of the opportunity to visit and ask a lot of questions of Dr. French who is an expert in the field of forestry and entomology.

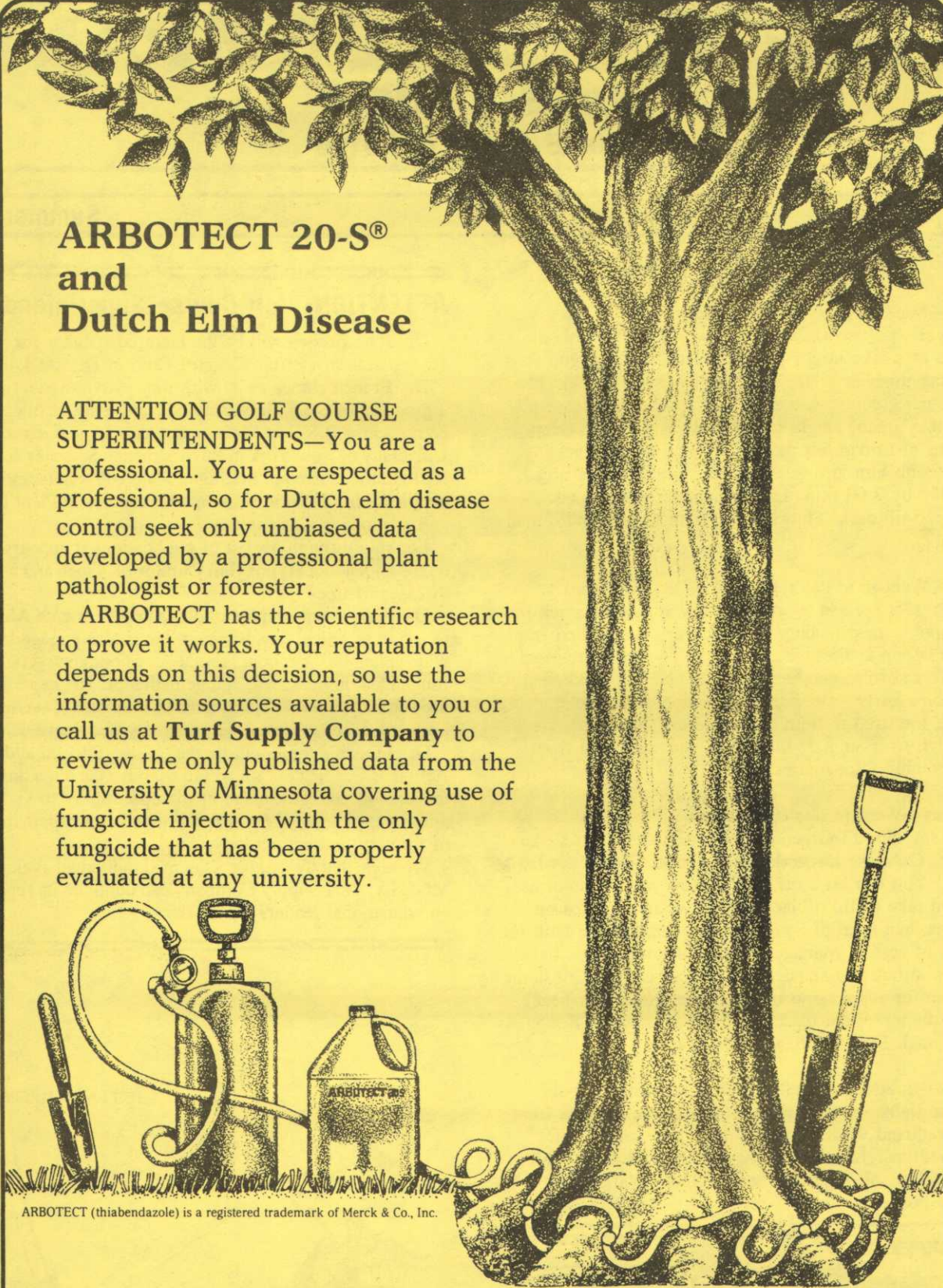
We hope that by making a talented individual available to the MGCSA, Turf Supply Company can continue its reputation as an educational leader.



EXPEDITE
GRASS & WEED HERBICIDE
Specially Formulated for Spotless Application Equipment
SHAKE WELL BEFORE USING
NET 5 LITRES
(15 qt. 9 fl. oz.)



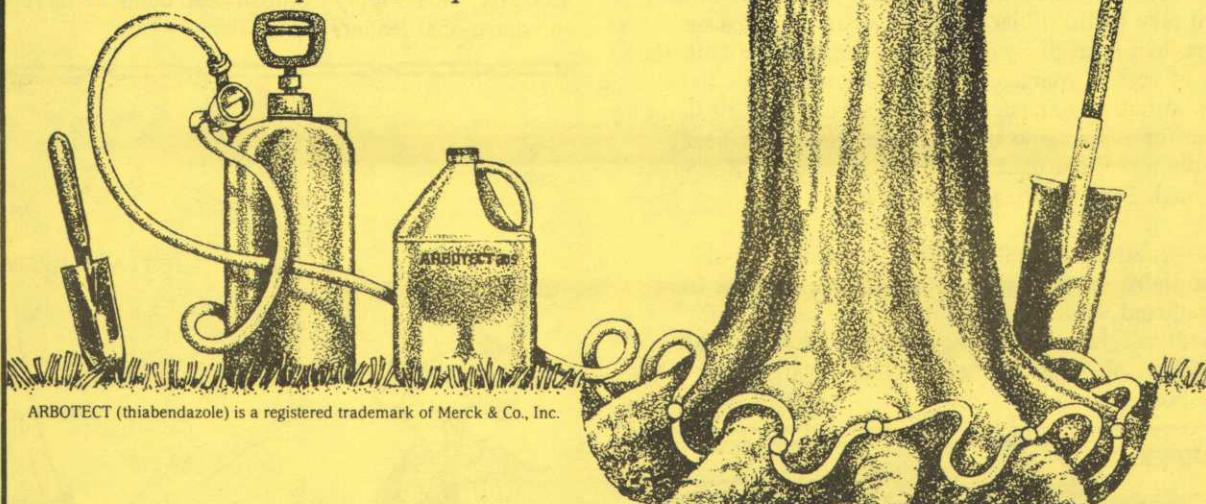
Have you seen this man on your course?



ARBOTECT 20-S® and Dutch Elm Disease

ATTENTION GOLF COURSE SUPERINTENDENTS—You are a professional. You are respected as a professional, so for Dutch elm disease control seek only unbiased data developed by a professional plant pathologist or forester.

ARBOTECT has the scientific research to prove it works. Your reputation depends on this decision, so use the information sources available to you or call us at **Turf Supply Company** to review the only published data from the University of Minnesota covering use of fungicide injection with the only fungicide that has been properly evaluated at any university.



ARBOTECT (thiabendazole) is a registered trademark of Merck & Co., Inc.

THE MOST COMPLETE LINE OF TURF PRODUCTS FOR
COMPLETE TURF MANAGEMENT UNDER ONE COMPANY

TURF SUPPLY COMPANY

2970 Dodd Road

• St. Paul, MN 55120 •

Telephone: (612) 454-3106

WHAT'S LABOR LIKE THIS YEAR?

The area's golf course superintendents are back from various national and regional turf conferences and ready to put their layouts into final shape for the coming season. Uppermost in their minds, however, is the increasingly difficult problem to find enough workers for maintenance staffs.

It's no longer easy to hire competent men who are willing to work demanding hours on a seasonal basis for minimal pay by present-day standards, according to Jim Lindblad, golf course superintendent at Wayzata Country Club.

"So many golf courses regard labor as it was in the 1950's," Lindblad said, "when unskilled workers were satisfied to work from April to October or November and then disappear until next year. Today we have to think in terms of job security and fringe benefits to keep these men interested."

Most experts agree that a golf course needs at least one maintenance man for every hole. Many employ students during the summer, but have had trouble keeping them on the job as fall approaches.

"Let's face it," Lindblad said, "the only good thing about these jobs is that they're outdoors, clean, and in beautiful surroundings. Everything else is against them—the hours, the days, the wages, and so on."

Without adequate labor, superintendents are finding their talents stretched to meet demands for improved facilities. They are using bigger and better machines, but fewer men are around to do the work.

"There now is a lag...and it has grown quite sizeable...in what the superintendent is trying to do and what he has

the means to do," Lindblad said. "It all boils down to the nightmare of 'wondering if he'll be able to keep that irrigation repairman, with those ungodly hours—especially if he's a good man.'"

Food Fears

Have you noticed that every day or evening on the television news there is a poison scare? Here is some information that should be posted in each grocery store:

POTATOES: Warning—Potatoes contain natural occurring solanine and chaconine at 75,000 parts per billion. These compounds can damage the nervous system and may cause birth defects.

MUSHROOMS: Warning—This product contains naturally occurring toxic hydrazines at 500,000 parts per billion. Some of these compounds have been shown to cause lung cancer in laboratory mice.

PLEASE NOTE: All meats containing high levels of fat have been linked with colon and breast cancer. In addition, cooking meat, even lean meats like chicken, has been shown to generate mutagenic nitropyrenes similar to those found in diesel exhaust.

PLEASE SHOP WITH CARE. Since recent estimates are that half of all compounds tested, whether natural or man-made, produce tumors in animals; a third produce birth defects.

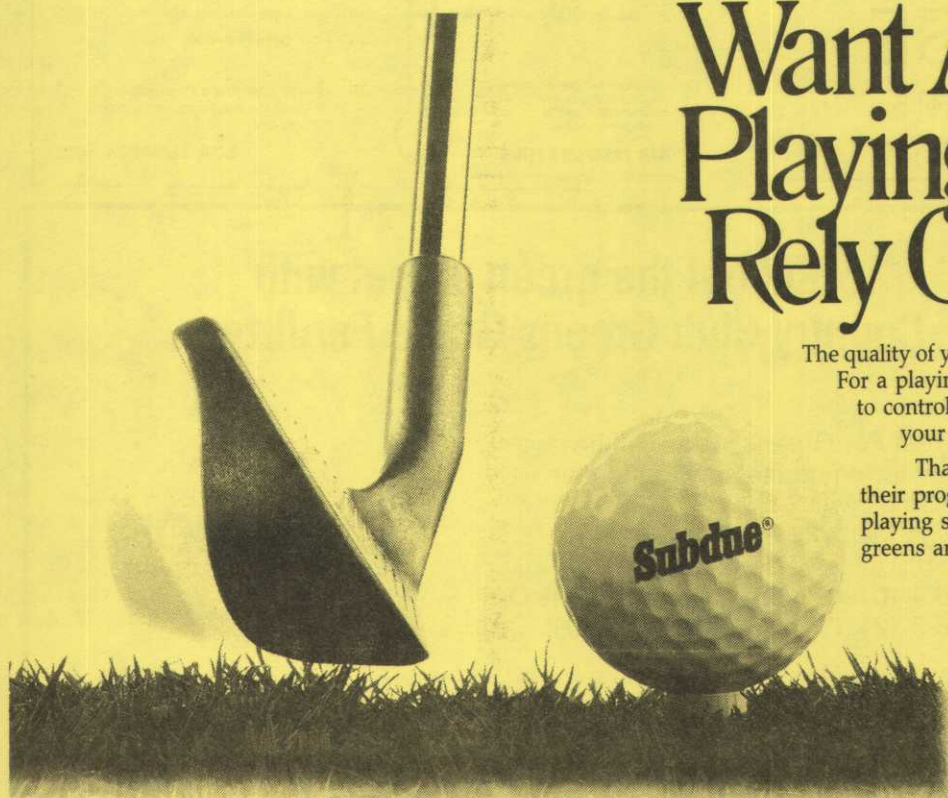
As noted—plants typically generate large amounts of toxic chemicals, primarily as a defense against disease and predators. Potatoes, celery, mushrooms, beets, lettuce, spinach, radishes and alfalfa sprouts all contain natural pesticides.

Turf Supply Company can furnish the following specialty items:

Want A Superior Playing Surface? Rely On Subdue®

The quality of your fairways and greens is on exhibit every day. For a playing surface to stay in peak condition you've got to control Pythium. But the heavy traffic and stress that your turf must endure may leave it looking ragged.

That's why smart course managers use Subdue in their programs to create superior playing surfaces on greens and fairways.



TURF SUPPLY COMPANY, 2970 Dodd Road, St. Paul, MN 55121 • 454-3106

Some Good Things To Remember

A surfactant or a wetting agent?

Adjuvant: any substance which, when added to a chemical treatment, increases the performance of that chemical.

Surfactant: an adjuvant that is surface active and reduces surface and/or interfacial tensions of water solutions and other surfaces, liquid or solid; can be anionic, cationic, or nonionic.

Detergent: a type of surfactant used for rapid wetting emulsifying and rinsing away, especially at oil/water interfaces; often anionic, usually diluted.

Emulsifier: a type of surfactant used to mix and hold together two or more materials by reducing the surface and interfacial tensions between them; used to stabilize pesticide mixtures such as flowables, emulsifiable concentrates, or emulsions.

Wetting agent: a type of surfactant used to lower tensions of water, to cause water and water solutions to wet and penetrate; exerts, much less emulsifying action, should be used in non-ionic type.

Spreader-sticker: a type of wetting agent consisting of a spreader and a resinous material that causes the solution to "stick" on the surface longer for better retention.

Spreader-extender: a type of wetting agent consisting of a spreader and an ultraviolet screen that inhibits photodegradation of the chemical; used to "extend" the effective presence of the chemical.

Spreader-activator: a type of wetting agent consisting of a spreader with tendency to cause penetration as well as spreading and wetting; effective for "activating" chemicals by moving them into leaves or other surfaces more quickly.

Soil wetting agent: a type of wetting agent with great tendency to cause penetration and movement of water through soils and growing media; safe to be used at higher rates than many spreaders, should adsorb tightly and uniformly through a medium.

MANGANESE

CHELATED TRACE ELEMENTS

DERIVED FROM MANGANESE GLUCOHEPTATE

MANGANESE

Manganese controls the state of oxidation of several oxidation/reduction systems in plants and relates directly to uptake of iron, ascorbic acid and glutathione in plants.

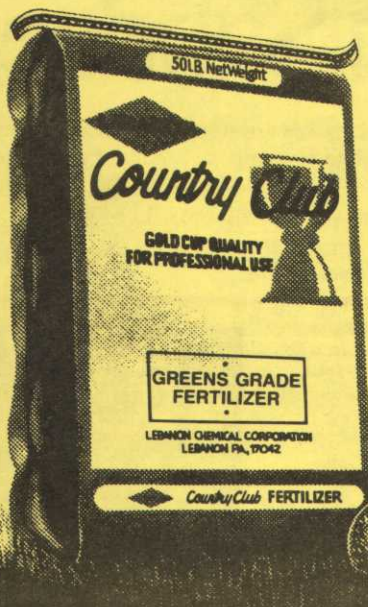
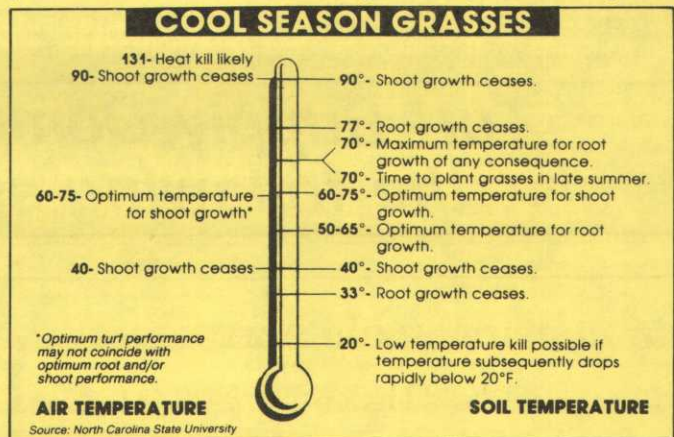
pH MANIPULATION

It becomes evident, when looking at the availability of cations as related to pH, that one of the best ways of improving micronutrient availability is to change pH in the appropriate direction.

Reducing pH from 7.5 to 7 dramatically improves the solubility of cations—especially iron. Improvement is ten times for Mg, Mn, Cu and Zn and nearly a hundred times for Fe. This is not without some challenges, of course. Acidifying a calcereous soil (one having high amounts of free lime and very insoluble) can take considerable quantities of soil sulfur, sulfuric acid or other acidifiers.

In any case, once pH is adjusted, only an occasional "fine tuning" of pH is required. It is a case of amortizing the cost of correction over a fairly long time span—a capital expenditure, so to speak. The benefits are not limited to micronutrients. Nearly all of the other nutrients, with the exception of molybdenum, are more efficient in a range of pH values that are just slightly acidic. Further reading in this category is suggested.

We know pH has a profound effect upon microbiological activity. It is a field of study still in its infancy and one that will yield a much better understanding of our dynamic soil system!



Roll out the green carpet with Country Club Greens Grade Fertilizers.

- Great For Greens, Tees & Fairways
 - Small Homogeneous Granulation
 - Less Mower Pick-up
 - High Methylene Ureas (W.I.N.)
 - Four Unique Formulations
- | | | | |
|---------|----------|---------|----------|
| 18-4-10 | 90% Org. | 8-4-24 | 30% Org. |
| 18-3-12 | 70% Org. | 18-0-18 | 80% Org. |

Lebanon
TOTAL TURF CARE

1-800-233-0628

BOB FESER

The Feser name, as you know, is synonymous with golf in Minnesota. The Leo Feser Award is recognition for those superintendents nationally who have contributed in some way to articles on golf course management.

Recently, when the *Hole Notes* asked if anyone knew the address of Bob Feser, I decided to take action and inform the local association of both his address and his present activities.

Both Bob and Dave Feser are now living in the southern part of the United States, but they say this is actually a return to their roots. Great Grandfather Feser left Kentucky and went to Indiana to join the Union Forces. When the Civil War was over, Great Grandfather's return to Kentucky was very unpopular since many Kentuckians were convinced he fought on the wrong side. He decided to get as far away from the south as possible. Thus, he wound up on a hilly farm adjacent to what is now Woodhill Country Club and Lake Minnetonka.

Dave and Bob claim that the old time superintendents were like a brotherhood and the Emil Picha, Joe Rush, Art Thorud, Leonard Bloomquist and many others were like uncles.

In the spring of 1942 with the War (WWII) in progress, there were few golfers, gas rationing and a shortage of help. Bob Feser was 12 years old. Bob says his dad had a theory that the U.S. would fire bomb the paper cities of Japan and within one year the war would be over. Thus, according to Leo Feser, the golf courses should be kept open.

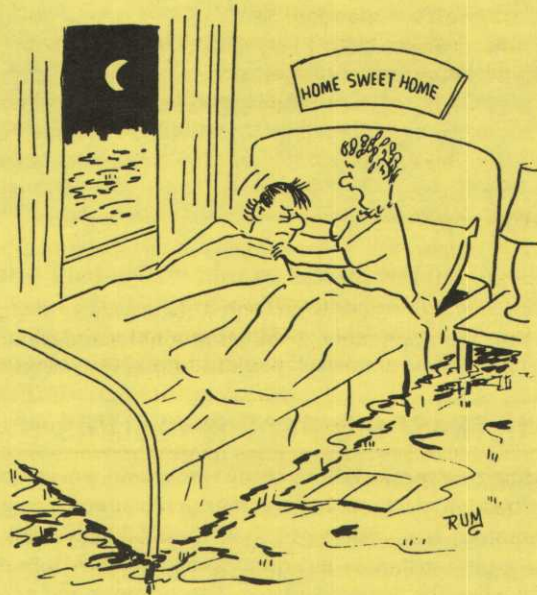
Bob and his sister, Ruth, (now professor of geography at U. of Wisconsin, River Falls) took over the maintenance of Woodhill Golf Course. Ruth drove the tractor and kept the fairways mowed and Bob did nearly everything else. Power greens mowers were not available so push mowers were the option.

Grass was cut with a scythe on a lot of the areas, whereupon Ruth, Bob and Dave raked it and stored it in the barn for the horses. If you ever have the opportunity to visit the basement of Orono Clubhouse, back in the northwest corner, there are

three tiny foot prints pressed into the concrete at the time of pouring and the names of the three are etched above the prints.

According to Bob, the golf course grossed \$500.00 in 1945. Bob adds this figure to his dissertation so those of you with slightly higher budgets can figure out how you would budget for such times.

Bob, at the present time, has bought a lot in a new golf course development in the mountains of western North Carolina planning on a retirement life. But, guess what . . . they have not hired a superintendent as yet and are expecting Bob to lend his expertise. Dave is a supplier of turf products in Georgia.



"Fred! Wake up! Are you sure you turned off the irrigation pump?"

Water Insoluble Nitrogen (WIN) . . . the key to superior turf.

UNDERSTANDING SLOW RELEASE FERTILIZERS

Every fertilizer salesman dazzles us with the quality of his product. The best way to understand what you are buying, of course, is to do your own research or to read the "Fine Print" on the part of the bag called "Guaranteed Analysis". Read all of it carefully. Look for the Water Insoluble Nitrogen (WIN). The higher the WIN percentage, the longer your fertilizer will last and the longer and more efficient the Nitrogen takeup by the plant will be.

This is the way Nitrogen sources line up.

This is the way Nitrogen sources line up

NITROGEN SOURCE	ANALYSIS	SLOW RELEASE NITROGEN	WIN
Par Ex IBDU	31-0-0	90%	27.9
UF Nitroform	38-0-0	65%	24.7
Scotts Methylene Urea	41-0-0	24.6%	10.1

Net Weight 61 7/8 lbs

CAUTION: PLEASE KEEP OUT OF THE REACH OF CHILDREN. EYE CONTACT WITH CONTENTS MAY CAUSE IRRITATION. FLUSH EYES WITH WATER AS SOON AS POSSIBLE.

ProTurf Fairway Fertilizer 32-3-10 643-8408

Guaranteed Analysis

Total nitrogen (N) 32%

0.8% ammoniacal nitrogen

24.8% water insoluble nitrogen

6.7% water insoluble nitrogen

Available phosphoric acid (P₂O₅) 3%

Scott's ProTurf

GUARANTEED ANALYSIS

Total Nitrogen (N) 35%

5.5% Water Insoluble Nitrogen

3.8% Urea Nitrogen

Available Phosphoric Acid (P₂O₅) 5%

Soluble Potash (K₂O) 9%

Magnesium (Mg) 10%

Sulfur (S) 8.0%

Iron (Fe) 1.0%

Manganese (Mn) 0.5%

Nutrient Sources: Urea, Methylene Ureas, Ammonium Phosphate, Ammonium Sulfate, Ammoniated Superphosphate, Sulfate of Potash, Oxides, Ferrous Sulfate, Sulfates.

Potential Acidity Equivalent 1300 lbs. Calcium Carbonate per Ton.

Lebanon Country Club

GUARANTEED ANALYSIS

TOTAL NITROGEN (N) 24.0%

1.6% Ammoniacal Nitrogen

11.5% Urea Nitrogen

10.8% Water Insoluble Nitrogen

AVAILABLE PHOSPHORIC ACID (P₂O₅) 4.0%

SOLUBLE POTASH (K₂O) 12.0%

Magnesium (Mg) 0.7%

Sulfur (S) 5.0%

Iron (Fe) 0.4%

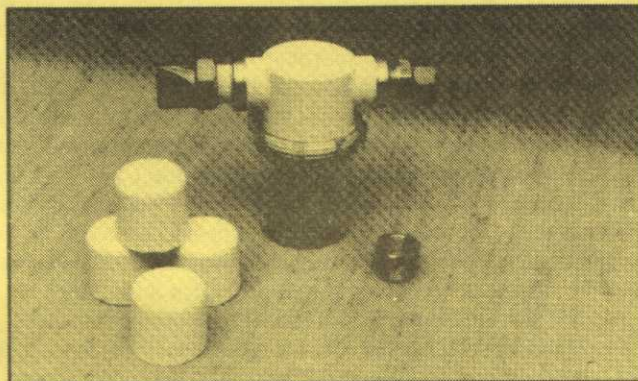
Derived from ammonium phosphate, isobutylidene diurea, urea, sulfate of potash, sulfate of potash-magnesia and iron sulfate. Potential Acidity 1000 lbs. Calcium Carbonate Equivalent per ton.

Manufactured by Vigoro Industries, Inc.
Fairview Heights, Illinois 62208.

Par Ex

Localized dry spots

Relief & Control



No chemicals to mix • No turf burn • Works on all soil types • Biodegradable

Here is fast, no hassle relief for a summer nuisance on greens. Drop a HYDRO-EZZ turf wetting agent tablet into the applicator, hook up to a hose and treat dry spots for one to two minutes each. Repeat on three week intervals as needed. Excellent root zone water penetration for fast recovery and dry spot prevention.

ULTRASONIC PEST REPELLERS

According to a recent USDA study, the sound waves generated by ultrasonic pest repellers neither drive insects away nor stop mosquitoes from biting. In fact, the study revealed that under some circumstances mosquitoes may actually bite more frequently when the device is in use. Ultrasonic sound generators are credited by manufacturers with being able to repel various pests including roaches, flies, mosquitoes, rats, and mice. The final conclusion of this USDA study was that there is not a "shred of evidence" that ultrasound is effective against any household pest.

TO OUR GOOD FRIENDS

We have a confession to make—This little sheet is an advertising medium for TURF SUPPLY COMPANY. We try to put this together at least once per year, and make it as informative as possible. Several of you have told us that you put it in your files as a source of valuable information.

We want to thank all of you for helping us grow and prosper for 19 years in this exciting industry. It is largely because of your continued confidence and loyalty to us and to our products that we have been able to serve you for these past several years.

TWO GREAT STRATEGIES FOR INSECT CONTROL IN TURF AND ORNAMENTALS

TURCAM®

- Effective against surface and subsurface insect pests of turfgrasses and a wide range of insects attacking trees and other ornamentals.
- Fast acting with good residual activity.
- Odorless carbamate insecticide.
- Does not tie-up in thatch or other organic matter.
- Available as a wettable powder and granular TURCAM® 2½G.

PROXOL®

- Effective against grubs and surface insect pests attacking turfgrasses and ornamentals.
- Quick acting.
- Organo-phosphate insecticide.
- Does not tie-up in thatch.
- Available in an easy-to-handle soluble powder formulation.

TURCAM® is a RESTRICTED USE pesticide, to be applied only by certified applicators.

TURCAM® and PROXOL® are registered trademarks of NOR-AM Chemical Company.

FUSARIUM

Probably nothing in turf management the last few years has caused more confusion than the Summer Blight complex. In the old days it was called the "Fungus". Later it was called "frog-eye" and still later Fusarium Blight. We now know that fungus covers all the turf diseases, that frog-eye is a symptom for several of them and Fusarium fungi are not the primary cause of the disease that bears their name.

Fusarium blight is made up of at least two separate patch disease components. These components have been named summer patch and necrotic ring spot. Together they are called "Fusarium blight syndrome".

Fusarium fungi do infect turfgrass plants but their role in the syndrome is likely as secondary pathogens. It is in this role that they contribute to the expression of the disease symptoms.

Summer Patch

Summer patch is caused by a soil-borne fungus *Phialophora graminicola*. This fungus grows best between 80 and 85°F and infects the roots of grass plants, causing them to wilt during periods of moisture stress.

Summer patch most commonly occurs from mid-June through September. It can, however, occur earlier or later, if conditions are favorable. Symptoms may also disappear during cool periods in July or August, but reappear again with the recurrence of hot weather.

Turfs affected by summer patch initially show scattered areas of bluish-green, wilted plants. These, however, are usually not detected until infected outward, producing the patch symptoms. Patches can be circular, crescent, or serpentine shaped. Patches vary in size with older patches being one to two foot rings with tufts of apparently healthy grass in the center creating a "frog-eye" pattern. Dead grass in the patches is straw-colored and matted giving the turf a pock marked appearance.

Necrotic Ring Spot

Necrotic ring spot is caused by the fungus *Leptosphaeria korrae*. This fungus inhabits the soil, and infects the crowns and roots of grass plants.

Necrotic ring spot most commonly occurs when wet weather is followed by hot, dry periods. The disease can develop over a broader range of temperature and moisture conditions than summer patch, so outbreaks can occur from mid spring through late fall.

It is nearly impossible to tell symptoms of necrotic ring spot apart from those of summer patch. Circular patches of straw colored grass 6 to 12 inches in diameter form in affected areas. As plants die, donut or "frog-eyed" depressions form. This gives the affected area a pock marked appearance.

Plants at the edges of the patches may appear stunted, and off color. Stripping back leaf sheaths reveals brown to black lesions on the crowns. Infected rhizomes and roots are similarly discolored.

Treatment

Table 1 lists the fungicides that are effective in treating the fusarium complex. All of these products work as a preventive treatment. Applications should be made on turfs with a history of the disease when conditions are right for development. Repeat treatments should be made according to label directions as long as favorable conditions continue.

Fungicide	Summer Patch	Necrotic Ring Spot	Application
Bayleton	x		Foliar
Chipco 26019	x	x	Foliar
Rubigan	x		Foliar
Tersan 1991	x	x	Drench

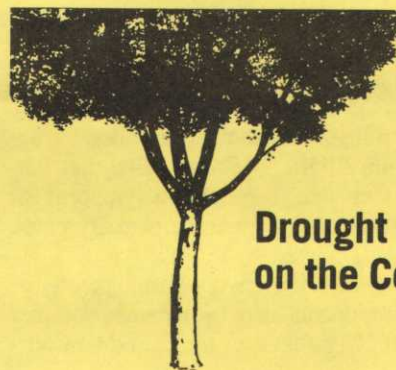
To most, Summer Patch is an unseen mystery. Here's how to keep it that way.

Banner® turf fungicide works systemically to prevent the spread of diseases, like Summer Patch, before damage occurs. Call for a free copy of our turf disease guidebook to learn even more.

Banner

PROGRASS can be used both pre- and postemergence to solve your toughest *Poa annua* problems, and provides results not attainable from any other product.

PROGRASS® The "PRO" Solution to *Poa annua* Problems.



Drought Damage to Trees on the Course

Last summer drought was not only difficult for turf but also for trees. Because of the lack of moisture and high temperatures, especially in roughs, many large established trees are now showing or **will show the effects** of these abnormal conditions.

Because these large trees are often very important center pieces on the golf course and impossible to replace, **they should be given the attention they need.**

It has been shown in annual tree ring studies that trees can be weakened for several years following a drought. During this time they are more susceptible to attack by insects and disease. Symptoms of drought stress include wilting of foliage, leaf scorch, yellowing, leaf drops and pre-mature fall coloration. Even if normal rainfall occurs, damage has been done. Extra attention given to "showcase" trees will help them to survive insect and disease infestations in their weakened condition.

Water **this year** will be critical to the recovery of trees and their ability to withstand additional stresses of insects, disease and drought. Most of the active tree roots are within the top 12" of soil. Water should be applied to the area under the canopy as often as possible when the soil is dry.

Fertilizing can reduce the severity of drought injury and help the tree recover faster. Trees will benefit from turf fertilizer over the surface but a more effective method which will get fertilizer directly to the roots and provide nutrients for up to 3 years is the introduction of Woodace 14-3-3 briquettes into the soil under the canopy. This can be done by using a narrow sharp shooter spade to remove soil down to 3", then inserting a briquette. Use 6 briquettes per 1" of tree caliper placed randomly within the drip line area under the tree.

WEED CONTROL

SOIL TEMPERATURES



60-65° - Germination of spurge and goosegrass is expected, therefore, apply preemergent materials when soil temperatures approach this level.

53-58° - Germination of crabgrass is expected, therefore, apply preemergent materials when soil temperatures approach this level.

INSECT CONTROL

SOIL TEMPERATURE



55° - Minimum temperature for white grub and male cricket activity.

Source: North Carolina State University

RESPONSIBILITIES OF A GOLF COURSE SUPERINTENDENT

AGRONOMY

Grow and maintain roughs, greens, tees, fairways and landscaping.

HYDROLOGY

Maintain irrigation and drainage systems.

CHEMISTRY

Mixes and applies fertilizers, growth inhibitors, wetting agents and other chemicals. Requires pesticide applicator's license.

GEOLOGY

Maintaining greens and tee boxes requires extensive knowledge of soil sciences.

MECHANICS

Modern turf equipment requires knowledge of diesel mechanics and hydraulics.

STRUCTURAL ENGINEERING

Build and maintain shelters, maintenance buildings, fences and bridges.

ADMINISTRATION

Develop and maintain a budget; develop work schedules; hire, train, supervise and evaluate personnel.

GOLF

Know Rules of Golf, particularly course marking and factors which affect enjoyment of the game.

PUBLIC RELATIONS

Understands what golfers want and explains why they can't always have it; motivates crew; deals with committee members who don't always understand the finer points of agronomy, hydrology, chemistry, geology, mechanics and structural engineering.

1989 Retail Price List

Reveal™ Turf Disease Detection Kits

Unit Number	Description	Suggested Price
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REM	AgriMeter II™	\$300.00

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1989. This position fills the vacancy for Turf Extension while Don Taylor is on sabbatical leave.

He can be reached at: Phil Allen, Turf Extension Assistant
434 Alderman Hall
University of Minnesota
St. Paul, MN 55108
Phone: 624-1706

MISSING TABLE

Here is the table that was left out of the article titled "High pH Soils are Detrimental to Daffodils" last month.

Table 1. Guidelines to lower pH with elemental sulfur¹

Initial pH	Pounds of Elemental Sulfur Required per 100 sq. ft. to reach pH 6.5	
	Sandy Soils	Clay Soils
7.0	0.5 - 1.0	1.0 - 2.0
7.5	1.0 - 2.0	2.0 - 3.0
8.0	2.0 - 3.0	3.0 - 4.0
8.5	3.0 - 4.0	4.0 - 5.0

¹Adapted from the 'Fertilizer Handbook', Natural Plant Food Institute, Washington, D.C.

JOB OPENING

TITLE OF POSITION: Golf Course Mechanic

COMPANY NAME: Owatonna Country Club
Owatonna, MN 55060

DUTIES: Perform all repair and maintenance of golf course equipment and golf car fleet. Prepare yearly budgets for equipment repair. Keep accurate written records pertaining to parts inventory, equipment repairs, and preventative maintenance schedules.

ANNUAL BASIC SALARY: Negotiable with experience, some benefits included.

REQUIREMENTS: Knowledge of small engine operation and repair, some diesel experience, knowledge of electrical systems, Oxyacetylene and arc welding experience, reel mower and rotary mower setup helpful

RESPONSIBLE TO: Randall Nelson, CGCS, Golf Course Superintendent

SEND RESUME OR INQUIRE TO: Randall Nelson
Owatonna Country Club
PO Box 446
Owatonna, MN 55060
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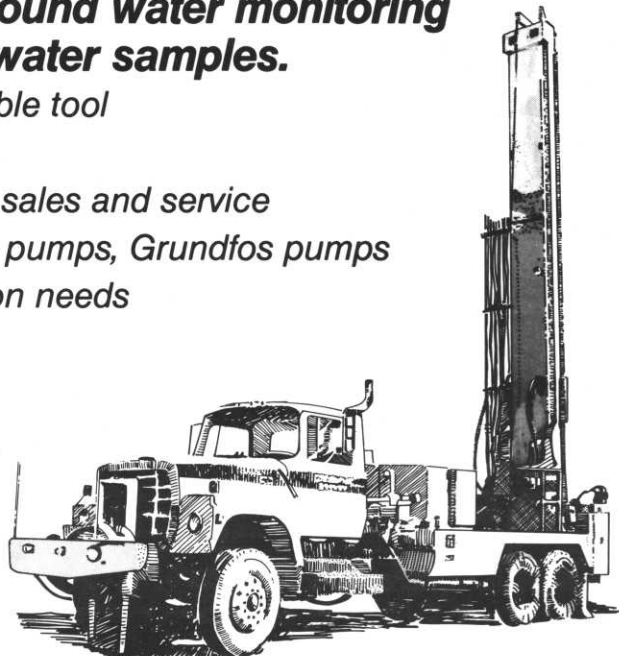
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OFF THE TOP OF MY HEAD

GREG HUBBARD, CGCS
Editorial Chairman

Many local superintendents had smiling faces earlier this spring, desperately camouflaging hurting spirits caused by the massive attack Old Man Winter paid to Minnesota golf courses. Dessication and ice damage were prevalent around the region as poa annua played its usual game of hide-and-go-seek. Pride overcame depression as many traditional practices and some new and innovative techniques were tried to coax just a little bit more grass on those greens, tees, and fairways. Most of our golf courses are finally recovering as the warm summer sun, coupled with many hours of hard work, allow those unsightly winter kill areas to become faded memories. That same welcome sun, however, will soon be baking our turf and a whole new set of problems will emerge.

The golf course superintendent, it seems, is never completely happy. The weather never cooperates as you try your hardest to bring your course into the fine condition that both you and your members have come to expect. It's either too hot or too cold, too wet or too dry. Each day brings a new set of circumstances that require immediate attention. Adapting to these ever changing demands is one reason for your success and may be your greatest asset. Unfortunately, these same demands also lead to increased pressures and subsequently added stress. Your inability to cope with these demands often leads to bad judgement, poor health, and mental fatigue. The end result is unhappiness in your job and home life. Something has to give and its often yourself.

Like your grass plants, you too must prepare for the stresses that are upcoming. As the hectic days of spring meld into the dogday afternoons of summer, be aware that stress and its pressures will come into your life. When that insurmountable load climbs on your shoulders, identify the problem, seek solutions, and act. Hire new help, buy new equipment, or use new management techniques to ward off those feelings of frustration and confusion. Plan on some time off to recharge your batteries. Reacquaint yourself with your family and friends. Your life, your wife, and your golf course will thank you.



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BOARD SILLY

by Fred Taylor, Asst Superintendent
Mankato Golf Club

One of the unwritten duties of an assistant superintendent is to change a few things in and around the maintenance building while the superintendent is on vacation. These changes may be subtle, like rearranging the office furniture; or more dramatic, like ordering all new office furniture. The assistant's sense of discretion as well as the superintendent's propensity to be humored dictate the level of change that can be safely considered.

One of the changes that we at the Mankato Golf Club made while superintendent "Boots" Fuller was away, was the installation of a 4' by 8' white marking board, or "white board", to help with communication and task assignments. For those unfamiliar with the white board, it is similar to a blackboard in function, but doesn't propagate dust from the chalk. The water-based markers for the whiteboard come in an array of colors and erase easily. Best of all, it is virtually impossible for a spunky staff member to make that bone-chilling shriek while scratching their fingernails down the board.

I was first introduced to the features of the whiteboard by a silver tongued, smooth operating insurance salesman named Gary. Gary was intimate with his board. Together they made lists, drew charts, changed colors, and circled unbelievably large dollar figures. I didn't buy any insurance from Gary, but if he would have parted with it, I'd have bought the board right then and there. I mean if a guy can sell insurance with this thing, just think what it will do for us trying to explain to a new staff member the fastest way to the local donut shop!

We had used a blackboard in our operation before, but it was far from being adequate. It was small (about 20" by 24") and difficult to write on because the black, painted-on finish had worn down to the underlying tin from use. In a previous life, you see, it displayed soda and hot dog prices in a traveling concession stand. The "Pepsi" logo was still prominently displayed above the black portion to remind us of it's humble beginnings. Adequate or not, it was free; and, let's face it, free stuff is just darned hard to criticize, or worse, throw out.

After much discussion with our mechanic, Dave Sime, it was decided to obtain prices on a new whiteboard. Catalogue prices ranged from \$50.00 for a small melamine board to over \$350.00 for a 4' by 8' ceramic board that weighed nearly 200 pounds. A few calls to area office supply stores confirmed these prices. The

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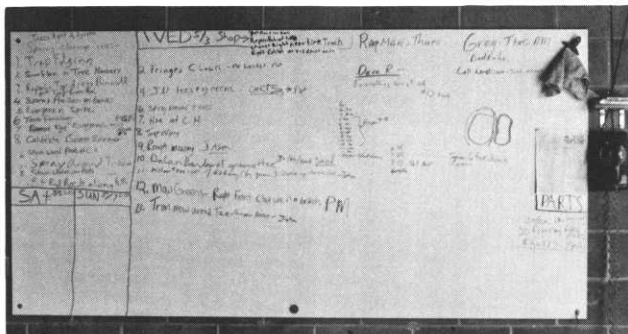
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ceramic boards, we were told, would last nearly forever. The melamine, on the other hand, could wear out over time and may stain if words or symbols from the markers were left on the board for an extended period of time. I felt that a 4' by 8' ceramic would be the best way to go, but at \$350.00 there was no way I could look Boots in the eye when he returned from his vacation and say, "Guess what we chopped from the budget to afford this little beauty?" A prudent assistant, after all, does have limits.



Dave and I were about ready to give up on the idea because of the cost until I wandered through the local lumber yard one day. There, among the various sheets of paneling and wallboard, was a white 4' by 8' sheet labeled "melamine". The price? \$6.99. Now there was a price we could live with.

The next day, I told Dave of my discovery. He immediately went down to the nearest office supply store and purchased a four color pack of the erasable marking pens. He then proceeded to the lumber yard to do a little test marking on the melamine board that I had seen. Once satisfied that the markers would show up well and erase easily, Dave bought the melamine sheet along with a 4' by 8' sheet of 1/2" plywood and a can of panel adhesive. He then glued the plywood to the back of the melamine sheet for strength and rigidity. After that, he drilled eight holes along the perimeter of the board and bolted the entire unit to the interior wall of our shop. For about \$35.00 and a couple of hours of labor, we made one of the best improvements to our maintenance program since we offered our stimpmeter in a sacrificial meltdown.

Once installed, there are a number of uses for the whiteboard. Illustrations of all sorts can be made to help give directions or instructions to staff members. Daily task assignments can be written in numerical order of priority and then erased upon completion. John Harris (another proponent of whiteboards) suggests listing upcoming and ongoing projects in one special area. Because of the large size of our board, we can list phone messages, equipment problems, parts lists, special events, rainfall amounts, and still have room for the occasional graffiti. Imagination is the only limit to the successful use of the whiteboard.

MGCSA BOARD OF DIRECTOR PROFILE GREG HUBBARD



SPOUSE - Bonnie.

CHILDREN - Elizabeth, age 7; and David, age 5.

CLUB AFFILIATION - Manitou Ridge Golf Club.

PAST EMPLOYMENT HISTORY - Leased Golf Course since 1971.

EDUCATION - B.A. in Economics, University of Minnesota.

INTERESTS - Golf, Camping, Canoeing.

HONORS - Achieved certification status (CGCS) in 1988.

COMMITTEE ASSIGNMENTS - Editorial Committee, 1989 and Research Committee, 1988-1989.

COMMITTEE GOALS - Our Editorial goal is to improve quality and stability of the Hole Notes. The Research goal is to examine solution to Minnesota based turf problems.

MGCSA GOALS - To lend my experience and talents to the future of Minnesota Golf and improve the status of the Golf Course Superintendent.

PAST MGCSA POSITIONS - Research Committee, 1988.

OTHER MEMBERSHIPS - Secretary/Treasurer of the Minnesota Golf Course Association, 1987-1989.

CAREER GOALS - To provide a quality golf course for myself and my members - eventual ownership of a golf facility.

CLOSING COMMENT - An investment in golf now, will pay dividends in the future.

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The Board of Directors of MGCSA is proud to announce the establishment of an annual award to be presented to the author of the best member-written article in Holes Notes. This award, to be presented at the annual banquet, will be judged on original content, clarity, and composition. As an added incentive to members, all published articles will earn a \$50.00 gift certificate from Miller Golf towards the purchase of a suitable award of the author's choice. This offer is retroactive to all published articles during the 1989 year with the exception of official notices and reports.

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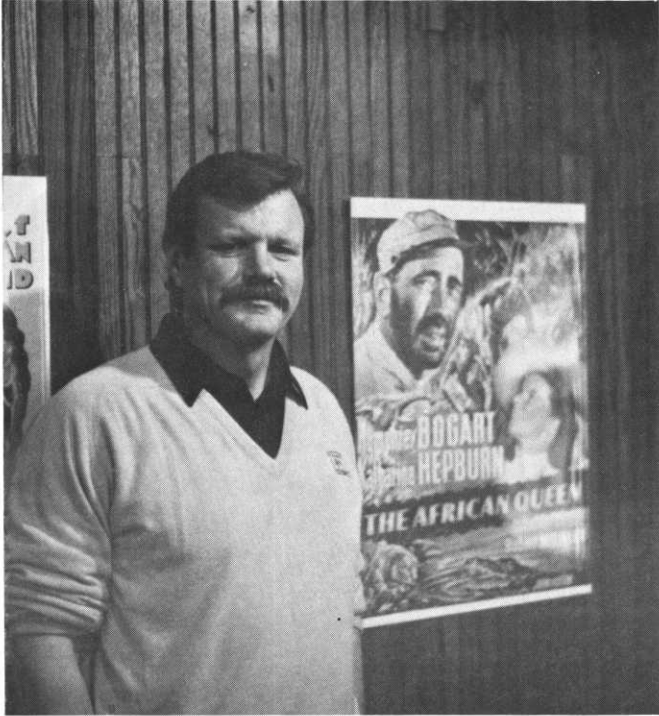
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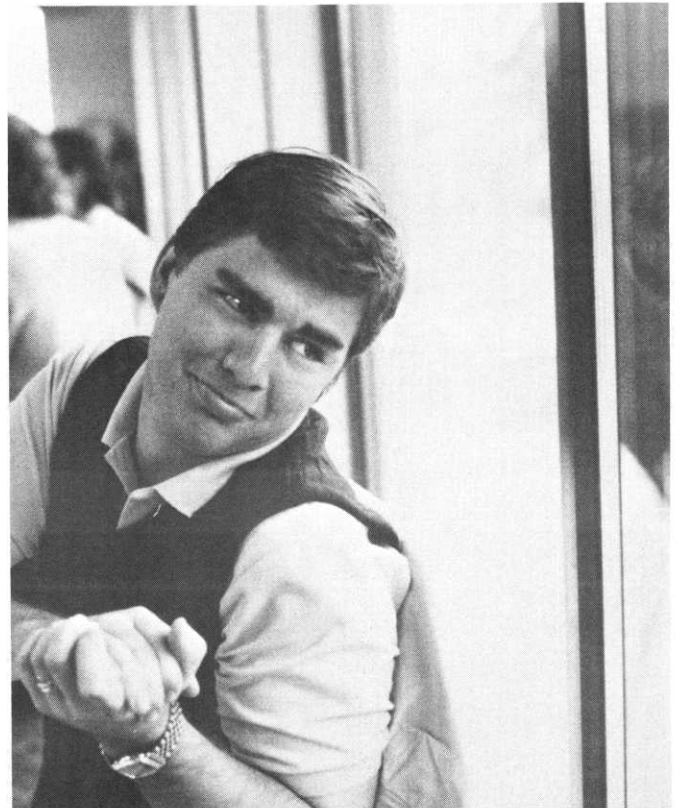
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