

transmission at 300 bps between his home and office in the Milwaukee area. "Dirty lines," he said. Extraneous electromagnetic noise. Dale Gadd told me he recently upgraded to a 2400 bps modem and cut his monthly telephone bill in half. It paid for the new modem in two months. I'm glad I don't have his phone bill, even at the new rates. 9600 bps is becoming common and speeds of over 19000 bps will be available soon.

Recently, I've started to evaluate the TRIMS Grounds Management Software Package. It does the job of tracking, organizing and reporting information for you. The result? Better information and decisions, more time spent doing what you were trained to do — "keeping it green" — and less time spent on paperwork. And you don't have to be a computer expert to get the most out of our software. Using it is as easy as filling in the blanks. Some of the things it does are: 1) Tracking Man Hours — tells you at a glance how many hours were spent by activity. 2) Generating Work Orders — you can literally track and manage your people, your equipment and your budget by creating work orders. 3) Controlling Expenses — the first step in controlling expenses is knowing exactly where your budget dollars go. 4) Fast, Accurate Budgeting — you'll know exactly where every man hour and dollar was spent. 5) Chemical Applications — TRIMS takes the number crunching out of chemical applications. 6) Managing Water Usage — water demand can be balanced with pumping capacities to maximize equipment life, shorten the irrigation cycle and minimize energy usage. 7) Personnel Records — maintain up-to-date employee files. 8) Inventory Control — perpetual inventory system tracks parts and supplies as they are ordered and consumed. 9) Scheduled Maintenance and Events — schedule preventive maintenance, special events and recurring jobs with amazing ease. 10) Equipment Maintenance Records — records are automatically updated on equipment whenever a work order is processed. Parts and labor costs are tracked. The program is from LABB Systems, 6018 East Osborn Road, Scottsdale, AZ 185251, (602) 481-9710. Lee Bornstein is the man to talk to.

My first reaction was only lukewarm. An investment of \$995.00 seemed rather high. But the more I thought about it, the more reasonable it became, considering the software it would replace. Plus, there would be a

minimum of learning required. The program comes with a 250-page manual and free telephone support for one year. I duplicated one of the sample reports on my electronic spreadsheet, and I feel confident that given a couple of hundred hours I could develop something similar, but I'm not sure how interactive the reports would be. TRIMS doesn't have the flexibility of something that I might develop myself, but that would probably be an advantage for the beginning user. And don't think this is just for the bigger, richer clubs. Having less money to

work with requires that we be more efficient. There is less of a margin for error. This would be a good place to start, in my opinion. There is also a demonstration package that can be purchased for \$50.00. The price is applicable towards the software purchase. Hardware Requirements: DOS 2.1 or later, IBM compatible, 512 K of memory, 10 megabyte hard disk, graphics printer, Monochrome, Hercules, CGA, EGA and VGA monitors are supported. A copy of the TRIMS program directory is included (Figure 1).

---

## TRIMS PROGRAM DIRECTORY

### Budgets & Expenses

- Master File Add/Change/Delete
- Enter Transactions
- Expense Account Inquiry
- End of Month Procedures
- Define Budget Source Codes
- Import Budget Data From Disk
- Delete Repeating Transactions
- Payroll/Budget Interface
- Budget Project Descriptions
- Print Monthly Expense Recap
- Print Consolidated Budget
- Print Project Budget
- Print Transaction Report
- Print Master File

### Schedules & Events Calendar

- Enter Schedules & Events
- Print Schedule
- Purge Events From Schedule
- Telephone Directory
- Print Telephone Directory

### Equipment Maintenance

- Add/Modify Equipment File
- Equipment Maintenance Records
- Work Orders
- Work In Process Report
- Delete Completed Work Orders
- Print Equipment Master List
- Print Maintenance History
- Delete Equipment & Report
- Delete Old Maintenance Records
- Tow Vehicle Speed Calibration
- Sprayer Specifications
- Spray Tip Specification File

### Chemicals & Calibration

- Chemicals & Coverage Info.
- Sprayer Calibration
- Seed/Fertilizer Information
- Seed/Fertilizer Cost Estimates
- Grounds Dimension & Definition
- Print Grounds Definition
- Edit Grounds Section Names

### Irrigation Management

- Satellite Group Start Times
- Satellite Controller Timing
- Print System Timing Chart
- Print Water Demand Chart

### Inventory

- Master File Add/Change/Delete
- Inventory Change Records
- Purchase Orders
- Remove Completed P.O.'s
- End of Period Procedures
- Vendor File Maintenance
- Full Inventory File Listing
- Open Purchase Order Report
- Items on Order Report
- Item Requirements Report
- Inventory Value Report
- Physical Inventory Report
- Inventory Usage Summary
- Inventory Transaction Listing
- Delete Item & Report

### Personnel & Labor Records

- Enter/Change Employee Data
- New Period Initialization
- Enter Weekly Labor Hours
- Delete Payroll Hour Records
- Print Payroll Hours Report
- Print Full Employee List
- Print Address/Phone List
- Print Vacation Status Report
- Enter Project & Labor Codes
- Print Project Labor Summary
- Print Labor Cost Summary
- Print Weekly Project Hours
- Print Project/Labor Codes

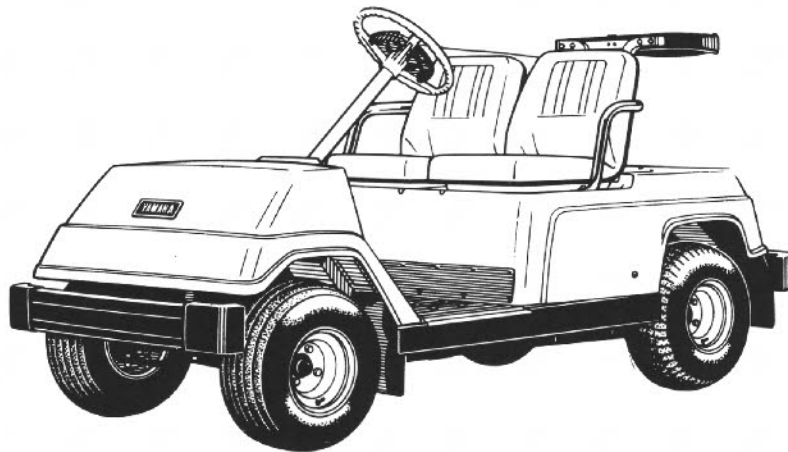
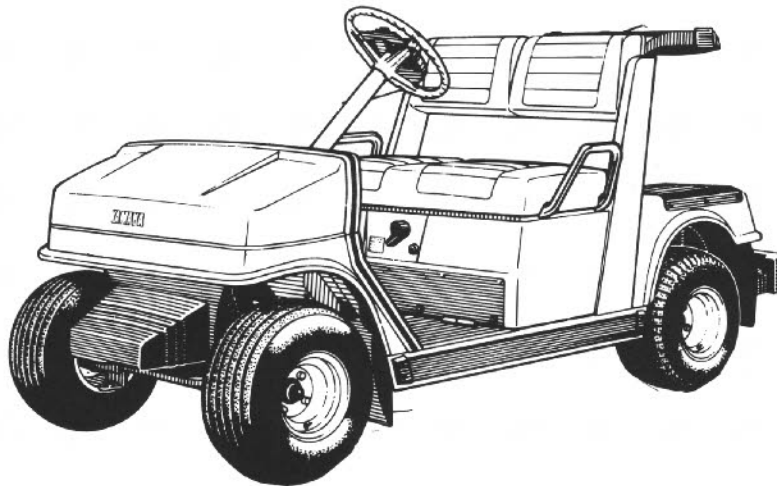
### System Utilities

- Setup System Options
- Screen Definition
- Create New Blank Data Files
- Menu and Password Changes
- Backup Data Files to Disk "A"
- Restore Data Files From Floppy
- DataFlex Report Generator
- DataFlex Query Delete
- DataFlex Reindex Utility

(Figure 1)

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## Stevens Point Does It Again!

Jeff Bottensek and Jim Billings used the occasion of the Wisconsin Turfgrass Association golf outing to present the WTA with a check from the membership of Stevens Point Country Club for over \$1100. The money is dedicated to the O.J. NOER CENTER for TURFGRASS RESEARCH.

Jeff's enthusiasm and hard work on behalf of the NOER CENTER are impressive. But equal to that is the sincere interest shown by Jim Billings. He understands how important turfgrass research is to our future and has joined with Jeff in conveying that need to the members of Stevens Point C.C.

The program they have designed involves a \$5.00 voluntary donation from each member for turfgrass research. They make the giving convenient for their members through a check off on club billings. The office collects the money and issues a check to the WTA. It is efficient and effective — they have a 95% participation rate.



Jeff Bottensek presents WTA Vice-President Red Roskopt with a check for the NOER CENTER from the membership at Stevens Point Country Club.

Here is another example of a way to present a fund raising program to your club. These men are a great example

of the kind of leadership the NOER CENTER project needs if it is to be successful.

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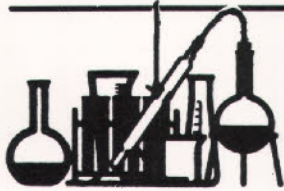
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## COST ANALYSIS OF NITROGEN FERTILIZATION OF BENTGRASS

By Patrick Keller

Data collected in 1987 from research plots maintained at the Maple Bluff Country Club provide the agronomic basis for this cost analysis. In this experiment, 4 nitrogen fertilizers, each at three N rates, are being applied to Penncross creeping bentgrass established in 1986 on a well drained silt loam soil.

Weekly color ratings of the research plots were averaged for the 1987 season and plotted against the N rate of each fertilizer. From these relationships, the N rate of each fertilizer required to achieve a preselected average annual color rating was derived.

For the purposes of this cost analysis, fertilizer rates were selected that provided a season average color rating of 7.5. A color rating of 7.5 is 0.5 unit above what many turf managers consider to be the minimally acceptable color for bentgrass and is associated with turf with good density, low tendency for weed infestation and rapid recovery from physical or disease damage.

The fertilizers being compared in this cost analysis, their modes of application and the N rates associated with season average color ratings of 7.5 are shown in Table 1. In actual practice the urea and fine grade Milorganite were applied only in the dry form. Both may be applied as solution or a suspension. Thus, there is interest in comparing the costs of sprayer versus spreader application of these two materials. This has been done here with the assumption that turfgrass color responses to urea and fine grade Milorganite over an entire season do not differ significantly whether they are applied dry or as a solution or suspension.

Application costs of the various nitrogen fertilizers were derived from:

1. Actual dealer quotes for the fertilizers and application equipment required.
2. Discussion with Madison area golf course superintendents regarding equipment lifetimes, hours used per season, hours required to apply dry and liquid fertilizers on putting greens and tees and hourly labor costs.

From all this information, annual costs of applying each fertilizer were computed.

As shown in Table 2, annual costs of maintaining the bentgrass at a season average color rating of 7.5 ranged from \$4.17 to \$51.45 per 1000 sq. ft. The inordinately high cost for fine grade Milorganite applied as a suspension is largely the result of the necessity of using a wetting agent. Aqua Gro has proven to be more effective in this regard than several other commercial wetting agents and was used in this cost analysis. Even at the low rate of 8 oz. per 100 gal. water, Aqua Gro accounts for 50 percent of the annual application cost of fine grade Milorganite as a suspension.

When cost is a concern in selecting or modifying a nitrogen fertilization program for turfgrass, total cost is but one factor that should be considered. The various components of the total cost also require attention. A good case to consider is that of urea. As shown in Table 2, material is a relatively small

portion of total application cost for urea. Therefore, a change in rate of application has little influence on total cost. Just the opposite would be true if the rate of application of IBDU used here (1.8 lb N) was found to be inadequate and was increased to 3 to 4 lb N per season.

Equipment and labor costs for spray application of nitrogen fertilizers were found to be considerably greater than for application of dry fertilizers (Table 2). At least in the case of urea, these costs are erroneous if, as is so often done, pesticides are added to the spray tank. Under this circumstance, a significant portion of the equipment and labor costs needs to be allocated to pesticide rather than fertilizer application cost.

Because the basis for this cost analysis is a single year of field research, the results need to be interpreted cautiously. However, they do convey a general sense of the relative costs of different approaches for fertilizing bentgrass.

**Table 1. Nitrogen fertilizers considered and their model and rate of application for a season average color rating of 7.5.**

Fertilizer	Mode of Application	Application Rate	
		Nitrogen	Material
		lb/1,000 ft <sup>2</sup>	
Fine grade Milorganite	a) Dry, bi-weekly, hand operated drop spreader	7.2	120
	b) Suspension, bi-weekly, tractor drawn 300-gal. sprayer with hand boom	7.2	120
Regular grade Milorganite	Dry, monthly, hand operated rotary spreader	4.0	67
IBDU	Dry, bi-monthly, hand operated rotary spreader	1.8	5.8
Urea	a) Dry, bi-weekly, hand operated rotary spreader	4.5	10
	b) Solution, bi-weekly, tractor drawn 300-gal. sprayer with hand boom.	4.5	10

**Table 2. Component and total costs for annual applications of different fertilizers on bentgrass.**

Fertilizer	Form Applied	Component Costs			Total Cost
		Material	Equipment	Labor	
-----cost/1000 ft <sup>2</sup> -----					
Fine grade Milorganite	a) Dry	\$12.24	\$0.52	\$2.66	\$15.42
	b) Suspension	\$39.24 <sup>1</sup>	\$3.66	\$8.55	\$51.45
Regular grade Milorganite	Dry	\$ 6.81	\$0.52	\$1.33	\$ 8.66
IBDU	Dry	\$ 3.59	\$0.52	\$0.89	\$ 5.00
Urea	a) Dry	\$ 0.99	\$0.52	\$2.66	\$ 4.17
	b) Solution	\$ 0.99	\$3.66	\$8.55	\$13.20

<sup>1</sup>Milorganite = \$12.24; Suspending agent (attapulgitic clay) = \$1.05; Wetting agent (Aqua Gro) = \$25.95.

*Editor's Note: Pat is a UW-Madison senior from Mount Horeb, WI. Although he is an Agricultural Business major, he elected to take an internship under Dr. Wayne Kussow this past summer. This paper is one of the activities Pat carried out during his internship.*

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# THE GENTLE GIANTS

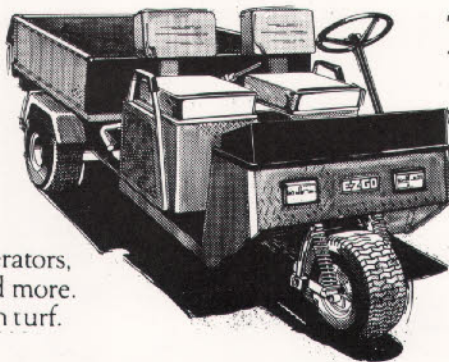
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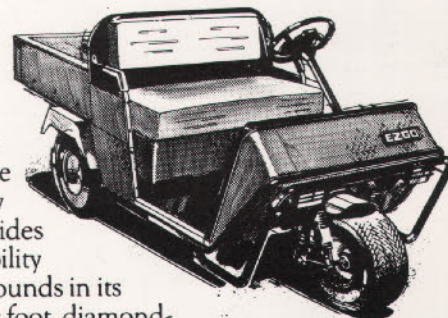
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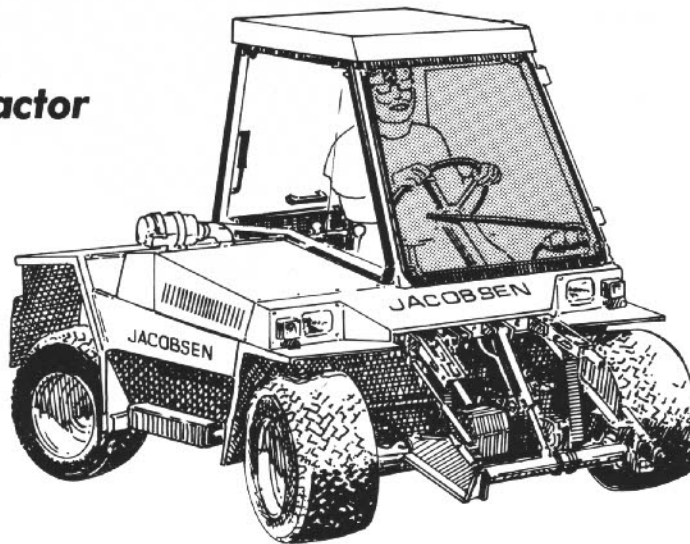
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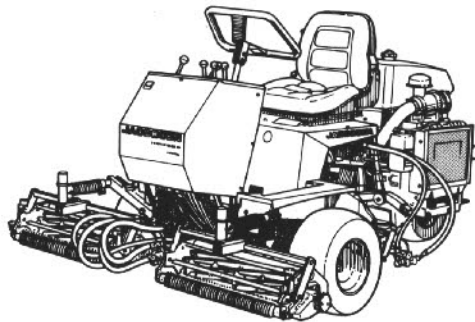
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## Life In The "Past" Lane

### VETERANS DAY

By Monroe S. Miller

When I penned a few words awhile back about summer holidays under the byline "The Forgotten Holidays," my focus was the three big weekends during the summer that demand our total attention and almost all of our time. So much work is required that we truly forget them and their meaning.

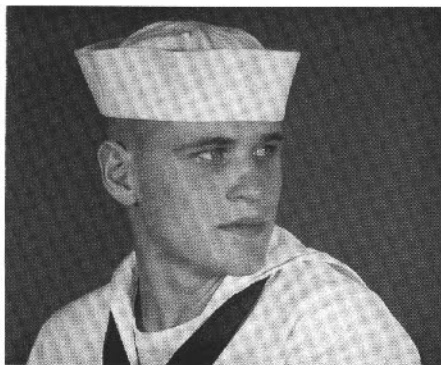
Veterans Day is different. It seems nearly everyone in America forgets the significance of November 11th. This day, of course, is set aside to pay tribute and extend thanks to those men who gave to their country in the form of time in military service. It is a day when our people should recognize the sacrifices made by the men and women who willingly and proudly took the oath of duty to our country's armed services.



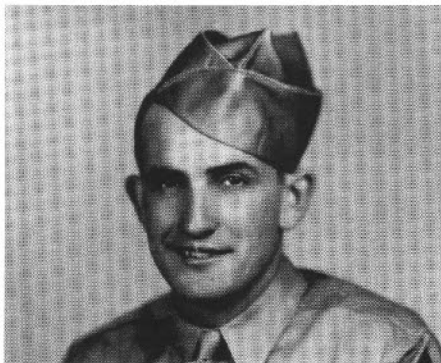
PFC Charles Frazier, U.S. Army National Guard, Ft. Carson, Colorado, Clerk/Typist.

Veterans are a proud group; proud of their country and proud of their sacrifice on her behalf. There is a world of pride that too often includes pain, physical pain for the many who wear the purple heart and mental pain for those who have been in conflicts around the world. The memories aren't always pleasant.

Those whose duty included time in war more clearly see and understand the issues of war and peace; they all want peace desperately because they know what the alternative is.



P.O. 2nd Class Roger Bell, U.S. Navy, Dahlgren Naval Weapons Laboratory, Virginia, Aviation Electrician.



SFC Bill Sell, U.S. Army, 14th Armored Division, 94th Cavalry Recon Squad, Mech. Troop E, Europe, WWII.



Sgt. Randy Smith, U.S. Air Force, Elmendorf Air Force Base, Alaska, Dental Technician.

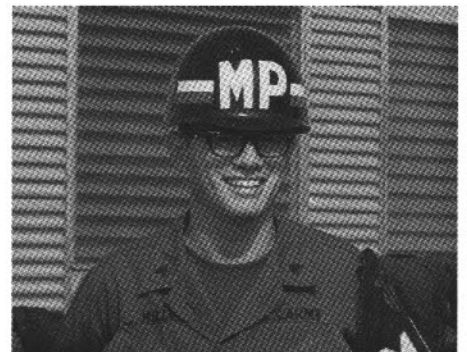
Many WGCSA members are veterans and remember on the day of November 11th their own experiences and recall with sadness and quiet reverence those friends of theirs who did not live to see the rewards of their sacrifice in uniform. Join them on this "Forgotten Holiday," won't you please, to honor all of America's veterans. And enjoy a glimpse back in time to see how a few of your friends in our association looked during their term of service to America.



PFC Woody Voight, U.S. Army, Philippine Islands, Army Information and Education.



U.T. Tom Harrison, U.S. Navy, Gulf Port, Mississippi Naval Base, Sea Bees.








Sgt. Monroe S. Miller, U.S. Army, Long Binh Post, Vietnam, Military Policeman.

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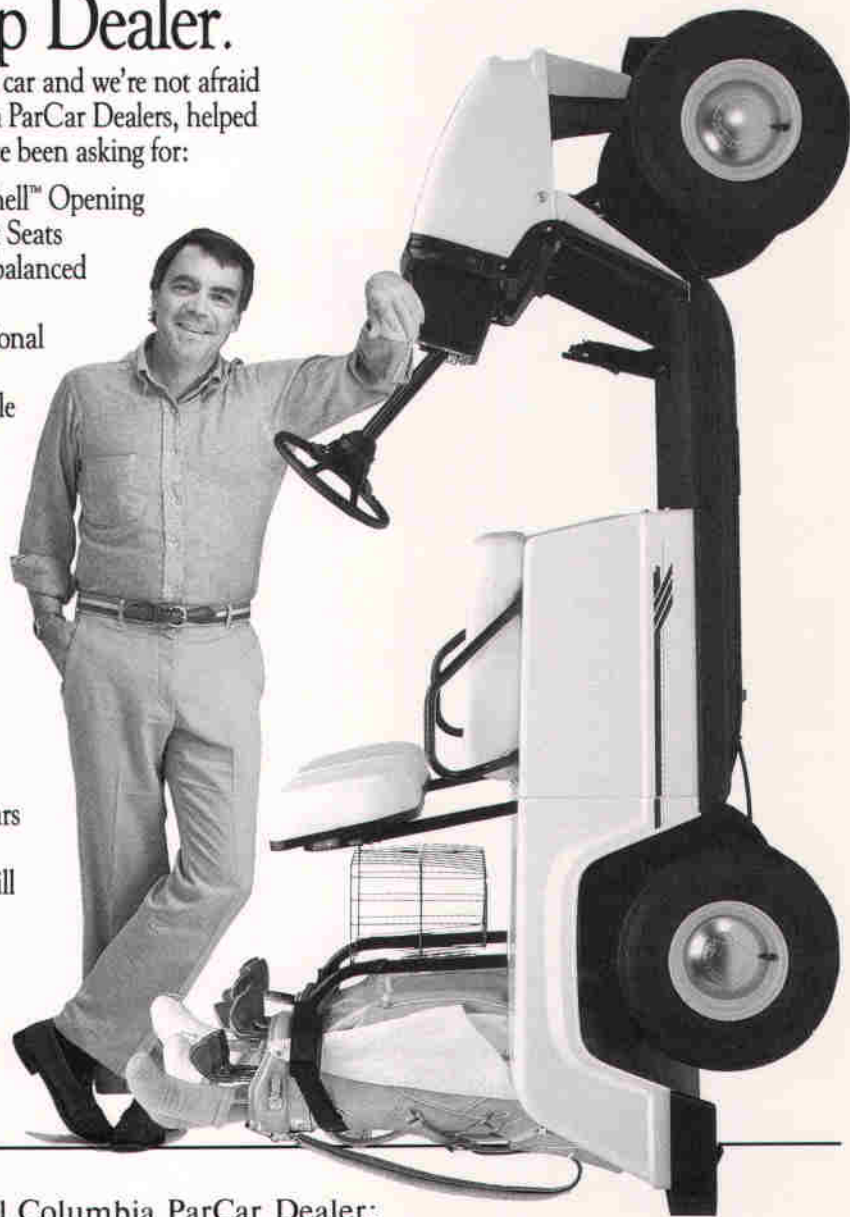
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## NEARLY 60 ATTEND WTA TOURNAMENT AT BUTTE DES MORTS GOLF CLUB

Almost 60 people traveled to Appleton on October 10th to support fund raising efforts for the Wisconsin Turfgrass Association's ambitious project, the O.J. NOER CENTER for TURFGRASS RESEARCH.

Most of these 60 teed up the ball in extremely windy conditions under bright blue skies. Following dinner, the prizes, which were donated by those very generous people noted below on the donor board, were raffled off.

Steve and Cheryl Schmidt were joined by Butte des Morts Green Committee Chairman Jay Drzewiecki as hosts and hostess of the event. Just over \$4,700 was raised for the NOER CENTER.



Hosts Steve and Cheryl Schmidt and Jay Drzewiecki.

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A few of the Milwaukee gang — Greg Youngs, Bill Knight, Danny Quast and Red Roskopf.

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# BIOTECHNOLOGY IN ACTION

By James S. Busse

Biotechnology, that snappy catchphrase spoken in biochemical and molecular biology circles, conjures several meanings among the plant science crowd. Nitrogen fixation by non-legumes, genetic transformation, and whole plant regeneration are all possibilities of biotechnology. One of the most interesting and applied aspects of biotechnology is the use of antigen — antibody reactions in turf disease detection. This process is successfully being utilized by the Agri-Diagnostics Corporation for Pythium Blight, Dollar Spot, and Brown Patch detection.

Each of these fungi have highly specific chemical entities associated with

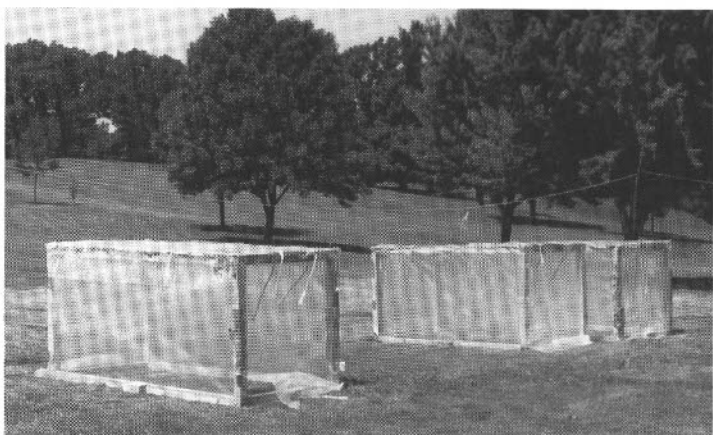
them known as antigens. Antigens are injected into laboratory animals which produce antibodies. The antibodies with their specific antigens, from a fungus causing a turf disease, produce a chemical reaction. The extent of this reaction can be assayed by the degree of color change of certain dyes. This process is known as Enzyme Linked Immunosserum Assay (ELISA).

The Agri-Diagnostic test kits take roughly three hours to complete. The procedure is simple, and each kit has very thorough directions. A reflectance photometer is used to determine color change, and hence, the level of disease activity. This meter reading is

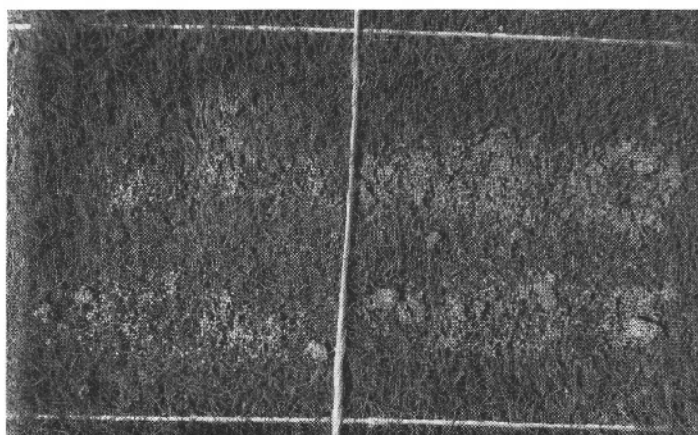
compared against a gradient scale of danger categories. One kit, capable of six tests, costs \$105.00. The meter is an additional \$200.00.

Testing was conducted this summer at the Blackhawk Country Club to determine the reliability of these kits for conclusively identifying a disease outbreak in situations where a reliable testing laboratory was not immediately available. This would bolster confidence of visual confirmation, and help a superintendent make an intelligent, accurate choice of fungicide(s) to be used for control.

Unfortunately for our study, very little natural infection occurred this hot,



The three controlled environment structures were 4'x2'x2' and secured with tent stakes.



Pythium damage under environment structure.



Diseases promoted under environment tents left to right, check: no disease, Pythium, Brown Patch, and Dollar Spot.



Kits are currently available for testing Brown Patch, Dollar Spot, and Pythium Blight diseases.