



GCSAA AFFILIATE

Turf Times

Quarterly
April, 1992
Vol. 21, No. 4

The newsletter from the Northern Michigan Turf Managers Association

NMTMA EXECUTIVE COMMITTEE

President
Jeffrey Holmes

Vice-President
Michael Morris

Executive Secretary
Thomas J. Reed
3733 Apollo Dr.
Traverse City, MI 49684
Phone 616-943-8343

Directors
Kathy Antaya
Tom Brogger
Tom Heid
Brian Holmes
Paul Holmes
Jim Inman
David Little, CGCS
Jon Maddern
Michael Meindertsma

Past Presidents
Ed Karcheski
C.E. "Tuck" Tate, CGCS
David Longfield, CGCS
Jonathon Scott, CGCS
Tom Brogger

MTF Liaison
Jon Maddern

GCSAA Liaison
Jon Maddern

Newsletter Editor
Michael Morris
P.O. Box 1575
Frankfort, MI 49635

President's Message: Is Pesticide Disposal Day a Reality?

The answer to the title question is yes. A pesticide disposal day is becoming a reality for the golf courses of Northern Michigan.

If you recall about four or five years ago, the NMTMA tried to organize a chemical disposal day. Everything was running fine until each person was going to need a manifest number for disposal of their hazardous waste. People were also worried that they would be put on a government hazardous waste generator list, which would involve future visits from enforcement agencies. Well, these phobias can be put to rest and are eliminated in our new disposal day.



President Jeffrey Holmes

The NMTMA has been working with the Michigan Department of Agriculture (MDA) and with a few county extension directors to organize a pesticide disposal day.

The MDA has spearheaded three new programs to reduce potential pesticide contamination of Michigan's water resources.

The first program, and the one most important to us at this time, is the "Michigan Clean Sweep" program. This program will dispose of old unstable chemicals that are being stored.

Different groups will partake in this disposal day. They are farmers from the five county area of Antrim, Benzie, Kalkaska, Leelanau and Grand Traverse. Other groups from the five county area are nurseries, lawn care, cemeteries, and other avenues of agriculture.

These groups will be supported by grant money that has been set up for the "Michigan Clean Sweep" program. The golf courses will also be supported by this grant, but we, the NMTMA, have volunteered to donate monies into this program. Why are we doing this? There are a couple of reasons. The first reason is that since we are donating money, we will be able to go outside of the five county area and make our participant disposal range all Northern Michigan golf courses. The second reason is that we are helping finance the program to dispose of pesticides that may contaminate our fresh water if not cared for.

There will be a survey sent out the first of May. It is important that you fill out the survey completely and return it promptly.

This is the time for you to get rid of your old chemicals without any worries. The manifest numbers will be signed off by a representative of the MDA. Some costs will be as-

(Continued on next page)

Inside This Issue:

	Page
Pesticide Disposal Day	1
Perfection - editorial by Jon Scott	4
Buying a P.C.	7
Environmental Issues	7
MTF Benefit.....	8
Ag Rinse Pad	9
1991 Research - By. Dr. Trey Rogers ..	11

1992 NMTMA Meeting Dates

May 4	Traverse City Country Club
June 15	Monument, Boyne Mountain
July 7	Spruce Run, G.T. Resort
August - T.B.A.....	Grayling C.C.
Sept. 22.....	Tom Fazio, Sylvan Resort
Oct. 12	Cadillac Country Club



RECYCLED PAPER

President's Message . . .

(Continued from previous page)

assed to each participant but they will be minimal. The disposal day will be happening in the early part of September and the destination site will be announced at a later date. We will put out more information regarding a golf event to raise funds that will help finance our commitment to the program.

The other two programs that have been spearheaded by the MDA are as follows; "Pesticide Container Recycling Program", which will be an organized collection of plastic containers. These containers will be ground into usable granules and recycled into new non-consumer, environmentally safe pesticide containers. Close monitoring will be done to ensure that collected containers have been cleaned to remove any pesticide residue. This will be a cooperative venture be-

tween MDA and MSU, the Michigan Agri-Business Association (MABA), and Grower Service Corporation, a subsidiary of United Agri Products.

The third program is the "Pesticide Regulatory Education Program", which will be conducted as a joint effort between MDA, MSU and the EPA. This program will be the backbone of training for state regulatory officials on the EPA's new initiatives for the disposal and recycling of used pesticide containers.

If you have pesticides to dispose of, make sure you continue to follow this program through. There will be updates as more information becomes available. The program will happen this time, so make sure that you become a part of it this coming September.

President Jeffrey Holmes

The Assistant's Perspective: "A Real Learning Experience"

By Scott Lengerman

Upon graduation from Michigan State University last June, I received phone confirmation from Mr. Jeff Holmes that I could begin employment as an assistant golf course superintendent the following Monday at Grand Traverse Resort. With the ink hardly dry on my four-year degree in Crops and Soil Science, I headed north to a job which proved a little different from the usual assistant's job. Both courses already had superintendents and assistants, and I was assigned to lighten the load at this busy resort. I liked being a "rover" between **The Bear** and **The Resort Course**, because it allowed me to witness first hand some of the pro's and con's that each course has, plus learn technical and management skills from a variety of individuals.

I started off under the supervision of superintendent Paul Galligan on **The Resort Course** which was shortly renamed **Spruce Run** through a Detroit Free Press contest. Very appropriately titled, this course has a large number of spruce trees scattered throughout. I could relate to **Spruce Run** and its course management for it compared to the two courses I had worked on during summer breaks - Midland and Saginaw Country Clubs.

When I started on **Spruce Run**, Paul and his crew of twelve were in the middle of preparing for the Michigan Open Tournament which was two weeks away. This was the first year that one of the rounds, the second, was played on **Spruce Run**. This tournament preparation was similar to what I had previously done for invitationals at country clubs in late August and early September. The greens were verticut and topdressed approximately a week before the tournament. As "rover" I got to witness first hand the topdressing and aerification program on both courses. This amounted to long hours.

Every course I've worked on has had different equipment for topdressing. **Spruce Run's** topdressing was done using a vicon spreader which was assembled on the back of a cushman where the bed was located. For the first time I got to verticut by means of an older model of a "Jac" greens-rider which was converted over to just verticutting. Finally, to add a little extra speed to the greens, they were rolled with water-filled rollers that were pulled behind a cushman. Again,

rolling was a practice I had not witnessed or done while working at the country clubs.

Throughout the summer, **Spruce Run** underwent some changes, the major one being the addition of about 150 spruce, pine and maple trees. Using a truck with a tree spade, these were planted along holes 1 through 4, and in the next couple of years will define a good outline of each hole for the golfer.

The Bear, designed by Jack Nicklaus, is more like a "stadium" course with enough space around the tees and greens to hold a crowd for a major tournament. Superintendent Al Bathum and a crew of about twenty-five introduced me to this high maintenance course which is definitely different from any I have worked on. Resembling an English course with a limited number of trees on the majority of the holes, **The Bear** is on high ground with primarily a sand make-up. On a warm, windy day a crew of four syringers must monitor the tees and greens by mid-morning and this can continue into the evenings with the super or assistant, depending on the weather. The latter are solely in charge of greens 3, 12, and 13, which need extra Tender Loving Care. These greens receive no night watering due to their high sulfur content from past applications to adjust pH and green make-up mixture that allows for slower water penetration.

One disadvantage to rotating courses was switching crews and superintendents, which required some adjusting but in the end made me a more flexible person. No two superintendents have the same circumstances or react the same. I gained invaluable knowledge from both Paul and Al. But at times I felt I had just begun something on one course when I was placed right square in the middle of something else on the other course.

The summer went fast - in fact, it was like two summers in one. For the fresh graduate, one couldn't ask for a better "internship."

By late autumn, I fertilized the rough on both courses, which amounted to 773 bags or 19.5 tons, which increased my upper body strength considerably.

Looking back at my first year, I am grateful for this job experience and wouldn't have traded it for any other.

April Quarterly 1992

Mechanic's Corner

This month's tip is for those of you with TORO Sand Pro units. This past winter, I rebuilt our Sand Pro and one of the parts we had to replace was the rake prong assembly. I checked with TORO and the prongs cost about \$200. Instead of using the TORO prongs, I went out and bought 40 3/8 X 4" #8 grade bolts. I then cut off the heads and used two nuts to mount them to the mounting plate. I put a nut on the bottom side of the mounting plate, and a nut and lockwasher on the topside. Doing the repair this way, material cost is approximately \$26. If you have any questions regarding this repair, feel free to call me at (616) 267-5769.

Matt Hinkle
High Pointe Golf Club

Letters to the Editor

You can communicate directly with the NMTMA and your fellow members by writing to:

Turf Times
c/o Mike Morris
PO Box 1575
Frankfort, MI 49635

Share your thoughts and feelings about our organization or the industry in general.

CENTURY RAIN AID

GOLF'S IRRIGATION PROFESSIONALS



How CRA Helps Superintendents:

- Complete stock of irrigation supplies
- Water conservation analysis & troubleshooting
- Assistance in pumping improvement & pumping cost efficiency
- Drainage solutions
- Fountains • Aerators • Pump Management
- Improvements of energy-usage cost
- Technical assistance

FREE Catalog!
1-800-347-4272

Ann Arbor, MI • 2461 S. Industrial Hwy. • (313) 668-1020 • Fax (313) 668-7143
Grand Rapids, MI • 3400 Jefferson S.E. • (616) 452-3373 • Fax (616) 452-5720
Madison Heights, MI • 31691 Dequindre • (313) 588-2990 • Fax (313) 588-3528
Southfield, MI • 22159 Telegraph • (313) 358-2994 • Fax (313) 358-1022

For Eco and IBDU are registered trademarks of Hydro Systems, Inc.



Why the Ex stands for Excellence... in professional turf care.

IBDU EX

The Ex Stands For Excellence

- ❑ Contains environmentally-oriented, non-leaching IBDU® slow-release nitrogen.
- ❑ Regionally formulated blends to meet your agronomic needs.
- ❑ Not dependent on soil temperature or microbial activity.
- ❑ 100% available nitrogen in a single growing season.
- ❑ Non-hygroscopic; flowable product.
- ❑ Non-burning; low salt index.

J. Mollema and son, Inc.
5400 36th Street, SE
Grand Rapids, MI 49512
616/940-1441

Gary Neyman
Specialty Products Territory Manager
412/285-8162



SINCE 1938

ROADBUILDINGPLUS

CONSTRUCTION SERVICES:

CLEARING, GRADING, SHAPING, BUNKERS, CART PATHS

CREATING SPECIALTY SANDS:

TOP DRESSING & BUNKER SAND

Golf Course Construction Since 1977

Request for References Encouraged

ROADBUILDINGPLUS Asphalt Paving • Concrete Paving • Excavation Airports Golf Courses Site Development Tennis Courts Sand & Gravels Underground Utilities Plus, Plus,

H&D INC., 2081 W. CHARLEVOIX AVE., PETOSKEY, MI 49770
(616) 347-2547

Editorial - Perfection

by Jon Scott, Consulting Agronomist, Jack Nicklaus Golf Services

Thorndike and Barnhart define the noun perfection in their **Comprehensive Desk Dictionary** as "1. perfect condition; faultlessness; highest excellence. 2. a perfect person or thing. 3. a making complete or perfect: (the perfection of plans). 4. to perfection; perfectly." Can any of us lay claim to having achieved that level of utopia? Has anyone even caught a glimpse of it? Since the term itself is relative and fluid, changing with the very time within which we exist, perfection becomes a pursuit which can at once propel us to great heights of ecstasy and great depths of despair. Pursuit of perfection can consume tremendous amounts of energy and other resources which logarithmically multiply the nearer one gets to the goal. How you manage yourself in this endeavor can determine whether you succeed or fail in your profession.

There are two types of perfection in the world today. The first is fashioned by the impressions of others around us, and the second is created by ourselves. Frequently, the latter feeds on the former, so that no matter how much our accomplishments are acknowledged and appreciated by others, we still are not satisfied. We reach one level only to yearn for the next. Because we have more intimate knowledge of the environment than those who judge us, we frequently focus on the faults and not the achievements. While golfers, managers, and peers may be exploding with compliments and pride on a given day, we may be looking at the sod that has broken away from the bunker edge, the wear at the end of the cart path, or the neglected trimming around the irrigation controller. To a point this is good. Complacency breeds trouble in management. However, when pursuit of perfection becomes the driving force in our lives, it is time for a re-evaluation.

How and what does one reevaluate? Several areas come to mind. First, where are you in your life plan? Do you even have one, or are you just hanging on for the ride? If you find yourself trying to remember what it is, the time has come to sit down and re-write the plan. Many times, we can be so wrapped up in the mechanics of achieving a personal goal that the goal is passed or forgotten. Look back and ask if there was a point where you were better off than you are today. Was there a time when you had more time with your family, enjoyed your work more, spent more time with your friends? If the answer is yes, compare it to today and evaluate why.

Second, how real are your goals? Are they actually achievable given the position you are in? The Great American Dream is that everyone can be anything and do everything. Sure, but there are limitations, some within your control and some not. For example, if a six-figure salary is your goal, have you looked at a recent salary survey? Nationally, only the top 10% of golf courses and related industry jobs pay more than \$60,000 annually. One can safely estimate that this number steadily decreases the closer one gets to \$100,000. Depending on your connections, the chances of your even getting an interview for one of these jobs is slim, and landing the job in the face of strong competition is even more unlikely. The point is, the odds are not in your favor.

Therefore, is this goal realistic? In the great majority of cases, no. A more realistic goal would be to attain a level of comfort for you and your family which includes more job security, a good place to live, and the promise of modest gains as recognition for your hard work.

Third, is your pursuit of perfection consuming all of your resources, leaving nothing for the future? In other words, are you heading for, or even now experiencing, a "burn-out?"

We could take a lesson from the country's present economic plight. The drive to be all things to all people in the 1980's while still chasing that American Dream of a perfect society consumed more resources than either we or the country could provide or afford. Now, in a sense, the economy has "burned out" and become stagnant. Some say it will stay that way until someone or something provides the right stimulus. Within the turf industry, that frequently means a job change. Is that what you want? Do you need the trauma of relocating yourself and your family into an unfamiliar environment which may be less desirable than where you now live? If the answer is no, you'd better take stock of your own resource consumption and set up a manageable plan. A long distance runner outlasts the sprinter every time.

Fourth, ask yourself if your vision of perfection matches those who are footing the bill. Yes, you were hired to provide leadership and initiative. Everyone wants to excel in their profession and their product. But, when you push beyond the budget, even if to briefly touch the tail of perfection, you have that much less with which to maintain the momentum that existed before the push began. Is it worth it? Frequently not. In many cases, the only person who sees that an acceptable level of perfection has not yet been achieved is you. Once you open the door, the demons are let out. What was not achievable becomes standard, yet the budget remains the same. Keep the demons behind the door and let them out one at a time; on a leash.

Finally, do you admit to and learn from your mistakes? For many in the pursuit of perfection, this isn't easy. In fact, the closer one gets to the goal, the fewer mistakes are permissible. The smallest gaff can have the most damaging of consequences. As a result, a perfection chaser may be less likely to recognize or acknowledge when a mistake is made. It can be easier to rationalize that the fault lies elsewhere. The problem with this is that no lessons are learned or corrective action taken, leaving one open to repetition. A good example is the manager who finds that the dead turf on the first green was the result of the chemical spray tank not being properly cleaned of herbicide before switching to a fungicide. Naturally, he blames the operator, who "should have known better." But did the manager have a procedure in place with the appropriate checks and verifications to reduce the risk of such an oversight? Or was it, as we often hear, "bad material" from the manufacturer that caused the burn? In either case, the real problem will not have been addressed, and it is likely to happen again. Driving toward perfection with this baggage in your trunk will run you out of gas every time. It is much healthier for you and your operation to realize and admit your responsibility in making and correcting any mistakes.

Perhaps the pursuit of perfection is one of man's most noble endeavors. For many, however, it can become an obsessive albatross interfering with happiness and preventing fulfillment. Ask yourself where you fit in this quest. Do you have a life plan with achievable goals? Are you managing and conserving your personal and professional resources in the chase? Have you been able to keep your charge within the means to maintain its position or progress without setting the demons loose? Finally, are you willing and able to stand up and answer for your mistakes, and make the experience gained productive? If you can answer yes to all of these questions, you are probably as close to perfection as you can ever expect to get.



- Shelters
 - Rest Rooms
 - Benches
 - Tables
 - Storage Buildings
 - Bridges
 - Litter Receptacles
 - Pool Furniture
- ★ Hazardous Material Storage Buildings ★

Call: Recycled  Products
1-800-632-4153

Tee Time[®] Quality Turf Care Products

Tee Time[®]
Fertilizer 25-5-15
with Nutralene™

the professional's
partner[®]
The Andersons

- Homogeneous Greens Fertilizers
- Greens and Fairway Fertilizers with Nutralene
- Quality Sulfur Coated Area Fertilizers
- Combination Products
- Granular Insecticides
- Granular Fungicides

Distributed by :



TURFGRASS, INC.
P.O. Box T
28064 Pontiac Trail
S. Lyons, MI 48178

Call Toll Free:
1-800-521-8873 or
(313) 437-1427
(Call Collect)

PRESENTING..... A WAREHOUSE ON WHEELS

**TRI
URF**

(616) 943-8343

3751 Blair Town Hall Rd.
Traverse City, MI 49684

**TRI
URF**

Driver:
Eric Denoyer

Suppliers of Quality Products To The Turfgrass Industry

- Chemicals
- Fertilizers
- Grass Seed
- Golf Supplies
- Safety Equipment
- Parts & Accessories
- Soil Management Materials
- Soil Construction Materials

A Total Turf Care Distributor

- Consulting
- Technical Information
- Fungicide Programs
- Fertilizer Programs
- Soil Management Programs
- Soil Testing

Call Tom Reed Sr • Tom Reed Jr.
Eric Denoyer • Robert Reed
(616) 943-8343

The
Spirit
of Competition

TORO

YOUR COMPLETE LINE OF IRRIGATION
PRODUCTS AND SERVICES

- Toro Irrigation Products
- PVC Pipe, Fittings, Wire, Etc.
- Otterbine Foundations, Sales & Service
- On-site Irrigation Service
- Pump Stations, Equipment & Accessories
- Certified Irrigation Designers
- System Design - Computer Aided

Spartan Distributors, Inc.

487 W. DIVISION ST. • P.O. BOX 246 • SPARTA, MICHIGAN 49345

616-887-7301

The next generation in
fertilizer performance.

POLY-S
TECHNOLOGY

Compared to SCU fertilizers, Poly-S™ technology offers:

- **Best Fertilizer Value** - With its unprecedented Poly-S technology, SCOTTS® can offer you the performance of a polymer-coated fertilizer at a price comparable to SCU products.

- **Nutrient Efficiency** - Poly-S technology provides higher nutrient efficiency than SCU fertilizers, with the capability for a consistent, programmed linear nutrient release unattainable with SCU.

- **Environmentally Compatible Performance** - With Poly-S technology, there's minimal potential for leaching, run-off and volatilization, with a significant reduction in clippings associated with surge growth.

- **"User-Friendly" Application** - Each Poly-S fertilizer is specially designed for use with a broadcast spreader, with no conditioner and no wax, eliminating the potential for lumps, wax build-up and other application problems.

It is the most efficient — and cost-effective — turf fertilizer technology ever developed. For more information about Poly-S fertilizers and their performance advantages, contact your Scott Tech Rep. Or call 1-800-543-0006.



Tire Wholesalers Co., Inc.

- As our name implies, we are a wholesaler of tires.
- We are an established business, having been in business for over 19 years.
- We deliver.
- We have UPS service daily.
- We guarantee what we sell.
- We want your business.
- We have a huge inventory of Passenger, High Performance Truck, Trailer, Motorcycle, Carlisle Lawn & Garden, Industrial Tires & Tubes, Shocks, Struts, Custom Mag Wheels, and Accessories, all in stock for immediate delivery.

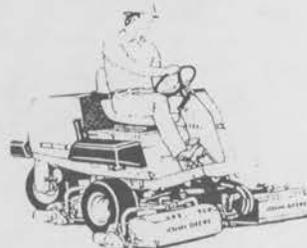


19240 West 8 Mile Road
Southfield, MI 48075

303 1/2 Hawthorne St.
Cadillac, MI 49601

Phone: (313) 354-5644 Phone: (616) 775-6666

John Deere



2243 PROFESSIONAL GREENS MOWER

Nothing Runs
Like a Deere®



PROFESSIONAL TURF MOWER

KLOOSTER

EQUIPMENT, INC.
WORK 'N PLAY SHOP

RON HAGELSTON
SALES REPRESENTATIVE

ELLSWORTH
(616) 599-2541

Buying My First P.C. . . .

By Michael Meindertma



A conversation in the Meindertma household last fall went something like this: My wife, Brenda, a first grade teacher in Traverse City, said, "Mike, I think we could really use a computer at home."

My reply was, of course, "Oh."

She then entered into a rehearsed repertoire of reasons why we should have a personal computer,

such as work at home, (truly exciting), record keeping, financial organization, letter writing and even games.

"Games?" I asked.

Knowing she now had my undivided attention, she successfully persuaded me to look into the possibility of purchasing a personal computer for our home.

So we wholeheartedly set out to research the issue. Now, Brenda, being an educator of the 1990's, had been progressively literate in the PC world. Myself, on the other hand, still found it amazing that all those big words, graphs, and charts on that screen could actually pass through that little wire and end up on paper!

I quickly became aware that personal computers encompassed many realms of everyday life, such as eating (bytes, apples, megabytes, gigabytes), animals (RAM, mouse), transportation (hard drive, disk drive), frisbee toss descriptions (floppy disk, Mini disk), sports cars (386 SX, 486 SX, crash), Happy Days (fonts, interface), clothing (boot, software) and many other terms that seemed easy enough to understand.

After learning the deeper meanings of the terminology, I learned that there are a few parameters that any prospective buyer must define. "What will the unit be used for?" was the most popular question among consultants that we dealt with. AS I would blurt out "Games!", Brenda would take over and logically convey our situation, our careers and other pertinent facts regarding our inevitable computer purchase. Over the winter we trodded through the world of Megs, memory, monitors, modems, disks, drives, speed, software, etc., etc., etc. We shopped and discussed, hemmed and hawed, weighed pros and cons, and finally decided what we wanted. We took the proverbial plunge.

I can attest that, yes, a personal computer is a valuable tool to have at home. Organizing personal finances, record keeping, doing work at home, and even playing those totally awesome computer games, our computer is consistently getting quite a workout. My advice to any other personal computer neophytes would be to use all available resources when investigating what machine you want. Ask friends and relatives who have a unit, use trained salespeople for information, even take a class on personal computing.

The world of personal computers can be mind boggling. For us the returns have outweighed our investment, in both time and dollars. Well, I need to go power up, configure my printer, read my E-mail, copy some files, create a directory, and then get back to my Star Wars Ballistic Renaissance X-Wing Fighter Golf Course Superintendent Stealth Iraq Attack Free the Hostages Save the Whales Conservative Republican Victory Battle game!

Environmental Issues and Educating The Public

By Tom Heid



I think we can all agree that the main topic of discussion today in the turfgrass industry is in the area of environmental issues.

One area of public concern is in the usage of fertilizers and pesticides and the possible impact that these items may impose on the environment.

We are currently experiencing the decade of the 90's as a period where "anti-chemical" groups are emerging and skirting the facts on chemical usage and their impact on the environment.

With a great number of uninformed allegations being stated by various special interest groups, the time is now for our industry to be armed with facts in helping refute claims which seek to undermine the credibility of our industry.

With new laws and regulations being proposed, the availability and usage of various chemicals in our industry are at great risk.

In beginning to resolve various environmental issues, we need to move from what has been a predominately "Confrontational Approach" and move toward a "Communications Approach."

Through proper communication techniques we can work toward resolving the various issues and address the false and misleading claims that are targeted at our industry, and con-

tinue to direct attention toward the positive aspects that the turf industry provides.

Here is a list of some of the claims in reference to fertilizer and pesticide usage in our industry with some factual data refuting these allegations:

CLAIM:

Lawn Care Pesticides and Fertilizers are contaminating lakes, streams and various underground drinking water supplies, harming human health and the environment.

FACT:

Research has shown that well maintained, high quality turfgrass reduces runoff and leaching of pesticides and fertilizers to negligible levels. Turfgrass provides a dense mat of vegetation which uniquely affects the fate of fertilizers and pesticides.

CLAIM:

Exposure to the herbicide 2, 4-D causes cancer in humans and pets.

FACT:

The EPA has found that 2,4-D should not be classified as a carcinogen and that continued use of the herbicide will not pose a significant hazard to the environment or Public Health.

(Continued on page 10)

Constructing an Inexpensive Ag

ACRE

ALLIANCE FOR A

CLEAN

RURAL

ENVIRONMENT

P.O. Box 413708
Kansas City, Missouri
64179-0386
800-545-5410

Simple, everyday solutions often exist to questions about proper agricultural (ag) chemical storage, mixing/loading and application. However, state and federal regulations are rapidly becoming more complex and restrictive, and more intricate solutions may be needed in the very near future to comply with changing surface and ground water protection requirements.

Faced with this prospect, many farmers and other ag chemical users are asking what they can do to be prepared for the new laws and regulations. Of course, no one has a crystal ball, but some areas of ag chemical use seem more vulnerable to change than others.

For example, ACRE has cautioned not to repeatedly load and rinse equipment in the same location and certainly not next to wells or surface water. Yet it's a mistake commonly made, since that's where the water for mixing and loading is located. It is important to protect areas where loading or rinsing of sprayers and spreader equipment occurs.

What can golf course superintendents do? Superintendents may want to construct a cement rinse pad to prevent inadvertently spilled ag chemicals from leaching into ground water or contaminating streams or ponds, and endangering the water that you, your family and neighbors drink. Designed properly, it can also serve as a secure ag chemical storage area and permit easy cleanup of spills incurred during ag chemical handling.

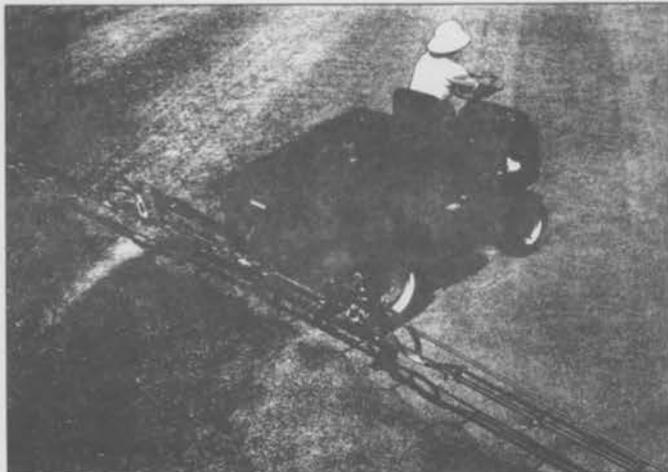
SIMPLE, EFFICIENT DESIGN:

There are many possible ways to design and build a chemical rinse pad, but one we like was designed by Ronald T. Noyes, extension ag engineer at Oklahoma State University. His standardized, modular design uses input from numerous engineers, researchers and regulators. A key feature is that it provides flexibility, allowing superintendents (as well as dealers) to scale the construction to their needs. Professor Noyes estimates construction costs for a 20x25 foot rinse pad, including professional labor, to be about \$900 - \$1300, excluding equipment such as sump pumps and tanks.

Professor Noyes can provide detailed specifications and cost information in his publication **Modular Farm-Sized Concrete Agricultural Chemical Handling Pads**. His address is - Cooperative Extension Service, 224 Ag Hall, Oklahoma State University, Stillwater, Oklahoma 74078.

The basic design for the Noyes system guides the construction of a watertight, reinforced, concrete pad large enough to hold the largest application vehicle you use, plus

Spray Star. It makes the job as easy as a Sunday drive.



Ultra low profile tank design for visibility and stability.

Just one ride on Smithco's Spray Star 1600 and you know its engineering is state-of-the-art. The sophisticated power steering lets you maneuver with ease. And, with an exclusive front-end suspension and extra-wide tires, nothing else is quite as easy on turf.

MILLER WEST, INC.
274 Mart Street, S.W.
Grand Rapids, MI 49548
(616) 241-4481 or (800) 531-2151



The strongest spray boom ever built, for longer life.

Spray Star 1600 sports these features:

- Automotive power steering
- Ultra low profile fiberglass tank, 5-year guarantee
- Independent front suspension for comfort
- Centrifugal or 3-cylinder diaphragm pump

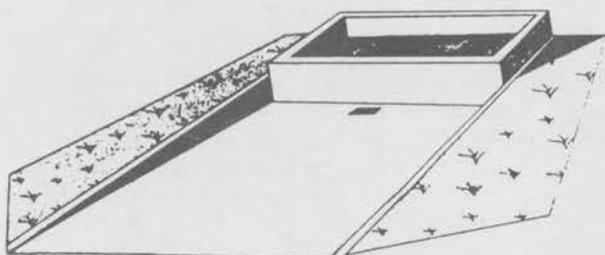
A stroke ahead in engineering

SMITHCO
WAYNE, PENNSYLVANIA 19087

Agricultural Chemical Rinse Pad

containment areas dedicated to rinse-water storage tanks, mixing and loading equipment and for ag chemical storage.

The pad is sloped to the center and contains floor drains to sumps for easy cleanup. Steel grated, shallow concrete collection sumps serve as sediment settling basins and are designed to collect spills and rinse water for transfer to above ground rinsate tanks. A pump can also be used to move solutions directly from the drain valve on your sprayer into rinsate storage tanks.



This sketch illustrates the type of ag chemical rinse pad/storage and containment facility you can build.

CAPTURING WASTE WATER:

To use the rinse pad, a superintendent drives his sprayer onto the concrete pad and makes sure that the sump drain valve (if installed) is locked in the closed position. Any leftover field-strength chemical and rinse water from the sprayer drain valve is pumped into a marked rinsate tank. Any spills can be hosed into the sump for later recovery.

Rinse water or rinsate can be stored temporarily in various types of holding tanks, including mobile tanks. A good choice, however, is one or more 300-gallon, cross linked polyethylene or fiberglass tanks. Liquid levels can be easily seen through these types of tanks. Noyes recommends that the rinse water storage tanks be mounted 3 to 5 inches above the concrete so leaks can be spotted easily. Pumps and piping should be above ground too, and contained within the rinse pad area.

Probably more than one rinse water tank will be needed. By separating rinse water by use into different tanks, it can be used later as makeup water the next time the product or a compatible chemical is sprayed. Caution should be used to follow label instructions and mix only label-compatible ag chemicals.

Storage tanks are mounted on a level area at the back of the concrete pad, within low concrete walls high enough to contain an amount 10% greater than the volume of the largest rinse water tank should a severe leak occur. A separate sump in the containment area is needed to handle rainfall and potential rinse water spills. It is important to keep sumps pumped dry so rain water and snow won't become a handling problem. Sumps should always be checked and rinsed regularly.

STORAGE OF FULL-STRENGTH CHEMICALS:

When designing a rinse pad, it may be useful to consider adding extra convenience and greater environmental protection by including an area for storage of full-strength ag chemicals. For security as well as safety, this area should be designed to include security fencing and a locked gate. A weatherproof shed would be useful for those products that need weather protection.

Full-strength crop protection chemicals and rinse water tanks can be stored in the same containment area, but they must not be stored in the same containment area as fertilizers and the rinse water from them. Keeping crop protection chemicals and fertilizers separate within the containment area is accomplished by building a concrete subdividing wall. Separate sump pumps should be used within each subdivision.

SITE SELECTION:

Selection of a suitable site for the rinse pad is also important. It should not be in a location where the water source can be contaminated by an accidental spill. If possible, pick a site that hasn't been used for chemical storage, mixing/loading or equipment rinsing. If not possible, take precautions to remove contaminated soil or otherwise decontaminate the site before constructing a rinse pad.

DETAILS, DETAILS, DETAILS:

If you decide to construct a rinse pad, contact Professor Noyes for details and specifications. Then carefully review these with your cement contractor, paying particular attention to requirements for rebar placement, concrete strength, plastic admixtures and waterproofing.

OTHER REFERENCES:

Drawings and specifications from other sources are also available. They include:

National Fertilizer Solutions Association

339 Consort Drive
St. Louis, Missouri 63011

Farmstead Assessment System

University of Wisconsin
Ag Engineering Dept.
Madison, Wisconsin 53706

DETAIL

800 North Lindbergh
St. Louis, Missouri 63167

National Agricultural Chemicals Association

1155 15th Street, NW
Washington, DC 20005

Environmental Issues and Educating The Public. . .

(Continued from page 7)

- Epidemiological evidence reveals no compelling cause-and-effect relationship between 2, 4-D and cancer.
- Laboratory animal studies do not show that cancer is caused by 2, 4-D.
- The results of a national cancer institute study, allegedly linking malignant lymphoma among dogs to the use of a lawn care product containing 2, 4-D, are flawed.

CLAIMS:

1. Homeowners apply 10 times the pesticide used in agriculture.
2. Golf courses apply much more pesticide than farmers, leading to groundwater contamination.
3. People have died from being on pesticide-treated golf courses.
4. People have gotten sick from pesticides interacting with prescription drugs.

FACTS:

- Pesticide use around the home constitutes 7 percent of the total quantity sold in the US. Typical usage rates are similar to or less than the rates used in agriculture.

- Golf course use of pesticides is consistent with other high value crops. These products are necessary to achieve the economic and recreational benefits derived from golf courses.
- US Navy Lieutenant George Prior, who allegedly died as a result of a reaction to Deconil, a fungicide sprayed on a golf course, had no traces of Deconil in his body tissue during his autopsy.
- Tom Latimer, who sued a chemical company by claiming he became ill because Diazinon interacted with a prescription drug, lost his case because he actually became ill two months after the application, not two days as he alleged. His doctor testified that his illness could not have been caused by Diazinon.

In Conclusion;

The very mention of the words "chemical" and "cancer" is enough to provoke an emotional reaction from nearly anyone. What most people forget, however, is that all living things are made up of chemicals - including food, plants, and humans. Even if we define "chemicals" within the narrow category called pesticides, we still find that they occur naturally.

In educating the public; they must first understand that the mere presence of a chemical does not mean it is hazardous.

The Michigan Turfgrass Foundation: A "Monumental" Benefit for 1992

By Tom Brogger



I can't imagine where we would be today on environmental issues and governmental regulations if it weren't for the information we have received from Michigan State University, The Michigan Turf Conference and other related work funded by the Michigan Turfgrass Foundation. We are all very fortunate to have in the MTF perhaps

the best organization of its kind anywhere in the country. A major reason why we are so strong is because of the dollars raised from donations and fund raisers like the one we host each year. The success of our Michigan Turfgrass Foundation Benefit Day in recent years has certainly sent the message that we care and are willing to help.

This year's MTF Benefit Day will be held on June 15th at Boyne Mountains, Monument Golf Course in Boyne Falls. You will receive the registration information in a future mailing. The Monument opened in 1987 and has matured into

one of the finer conditioned courses in our area. Mark Skop will be our host that day and he has a lot to be proud of. In July of this year, Boyne Mountain will be hosting the \$100,000 Boyne Tournament of Champions, the fourth major on Michigan's PGA Tour. The theme of the Monument Golf Course has been to honor some of the game's all time greats through the years.

Several of these impact players or if deceased, a close representative have participated in exhibitions while choosing their favorite hole. To date: Sam Snead, Kathy Whitworth, Gene Sarazen, Paul Runyon, Byron Nelson, Chuck Kosci, Chick Harbert, Bobby Jones, Walter Hagen and Everett Kircher have all had holes named in their honor.

So be sure no to miss this wonderful opportunity to play one of our area's finest courses and why not bring a member or close friend. At \$70.00, the price is the same as in 1991 and will include: golf, cart, towel, banquet dinner and a chance to win many, many prizes. Do it for the fun of it all, do it to support the MTF, or like the athletic shoe company says, "Just Do It."

Change of Address, Membership Application info available

Any member with a change of address should immediately contact
Thomas J. Reed at 3733 Apollo Drive, Traverse City, MI 49684.

He should also be contacted if any person would like to apply for membership in NMTMA.

1991 Executive Research Summary

By John N. Rogers, III, Department of Crop and Soil Sciences, MSU



1991 will be remembered as the year without spring. Soil temperatures, in this author's opinion the best single predictor for turfgrass management, were in the low 50's in early May and above 70 by the end of the month, more indicative of July. For this reason, many turf practices that occur in the spring either failed or were severely limited in their success. After July 4, the season was normal in terms of humidity and temperatures, but repercussions to the turf systems from the early high temperatures were felt through the year until fall.

Environmental concerns are escalating and it is likely that these issues will be with us for many generations. Subsequently, we have likely seen the pinnacle of high quality golf turf that is predominately based upon pesticide usage. This is particularly true in the area of putting green management as the pesticides utilized will either simply be no longer available or severely limited in quantity. This means that other cultural practices must be relied upon for maintaining the high standards we have all come to enjoy and expect. One very easy way to reduce the pesticide inputs on putting greens is to raise the cutting height. A higher mowing height leads to naturally stronger turf more able to withstand traffic and summer stress periods. The downside is slower putting speeds, normally not the golfer's wishes and a dilemma to be sure. At Michigan State University we have been researching the use of Plant Growth Regulators (PGR) for their effect on increasing green speed while maintaining a higher cutting height. Our results were encouraging in that we have been able to produce faster putting speeds with the use of the PGR particularly at higher cutting heights (>0.15 inch). While we did not see significant long term differences between the PGR types {Cutless (flurprimadol) vs. Turf Enhancer (paclobutrazol)}, it was very encouraging to surmise that these increased putting speeds at higher cutting heights can ultimately lead to a reduction in pesticide use resulting in triumphs along environmental and budgetary fronts. Another interesting aspect of these PGR has been their ability to improve turf quality under restricted light conditions. This could prove particularly useful in shaded tee and green areas. Research in 1992 will continue to investigate PGR in these areas.

Another exciting research area that received considerable attention in 1991 was the use of crumb rubber from used tires as a soil modifier for reducing soil compaction tendencies and increasing wear tolerances of turfgrasses. This also has environmental ramifications in that we were finding another use for the discarded tire that is a nuisance and is very difficult to recycle. Eight experiments were initiated in 1991 using a combined total of 41,000 pounds of crumb rubber (approximately 2700 automobile tires). While this is a long term study (as is any study involving soil amendments), we have already ascertained that the majority of our native Michigan soils should be amended with 10-20% crumb rubber by volume to achieve maximum soil benefits. All of these studies will continue in 1992 and beyond. Another potential use of the crumb rubber is that of a topdressing material in high traffic turfs. Our initial research showed that impact absorption and wear tolerance were improved with this amendment primarily because the rubber functioned to protect the crown of the plant, thus prolonging the life of the turf.

1992 promises to be an exciting one for golf and turfgrass research at Michigan State University. We have enjoyed success and recognition at this institution largely due to the efforts of the Michigan Turfgrass Foundation and the Golf Association of Michigan. Thank you for your support and we will try to keep providing answers for your organizations in the future.

The 1992-93 Directory provides information on the services provided by qualified golf course architects and the key points to consider when building/remodeling a golf course. The directory also features a map showing the location of each member of the society, which is comprised of leading golf course architects from the United States and Canada. To receive a copy of the 1992-93 ASGCA Membership Directory, please send a \$5 check to:

The American Society of Golf Course Architects
221 North LaSalle Street
Chicago, Illinois 60601

ASGCA Members Share Design Philosophies

News from the American Society of Golf Course Architects

The Jones family (father Trent and sons Bobby and Rees), Tom Fazio, Pete Dye, Art Hills, Jack Nicklaus and other members of the American Society of Golf Course Architects share their design philosophies and provide background information on their practices in a new 120-page Membership Directory.

Information on each of the 111 Regular and Associate members includes a listing of representative courses, professional and personal background, and the unique design strategies used to create many of the world's best-known golf courses.

The 1992-93 ASGCA Membership Directory, please send a \$5 check to:

The American Society of Golf Course Architects
221 North LaSalle Street
Chicago, Illinois 60601

ISOLITE

Root Zone Enhancement

An Environmentally Positive Solution for

- Increasing oxygen content in root zone
- Relieving compaction
- Naturally Increasing microbial activity
- Promoting a superior, more attractive course and consistent playing surface
- Solves compaction, droughty areas, sterile soils, and buffers temperatures

Learn how to get results that will be guaranteed

Call Mike Jenkins

1419 Settlers Passage, Midland, MI 48642

MI 800-253-0475

517-631-7961

IRRIGATION DESIGN

- ▲ Project Evaluation
- ▲ Full Scope Irrigation Plans with Bid & Contract Documents
- ▲ Cost Estimates
- ▲ Competitive Bidding for Contractors & Suppliers
- ▲ Field Staking & Observation

C. J. COLEIN & ASSOCIATES, INC.

IRRIGATION DESIGN CONSULTANTS
817 Main Street
Rochester, MI 48307
(313) 656-6805



M.T.F.

American Society of
Irrigation Consultants

HUGGETT SOD FARM, INC.

• Top Quality Sod •



Nugget + II (bluegrass blend)
Grade A or Commercial on Peat or Top
Soil Base

Shade Mix (Bluegrass, Fescua, Rye Blend)
Good on Sandy Soils or in Shade

Penn Cross Bent

Grown on USGA Soil Mix

Delivery

Michigan • Ohio • Indiana

- BULK SPAGNUM PEAT •
- SHADE & ORNAMENTAL TREES •

Ph: 517-635-7482

4114 East Marlette Rd. • Marlette, MI 48453

Their Approach
To Boosting Potash.



Our Approach
To Boosting Potash.



Improved disease tolerance. Enhanced drought resistance. And a complete, balanced feeding. In a homogeneous mixture to ensure uniform nutrient distribution. Country Club 8-4-24 simply outdistances the competition.

Country Club
8-4-24

Distributed By
Tri-Turf
Traverse City, MI
(616) 943-8343

Product Sales Manager
Randy Rogers
Michigan
(313) 673-7146

Stops the hurt
of heavy
turf traffic.



RHONE POULENC AG COMPANY

P.O. Box 74398
Romulus, Michigan 48174-0398

Tel: (313) 782-0323

Fax: (313) 782-6344

Remote Sensing

Aerial Infrared Photography and Interpretation
"A proven method for early detection"

Benefits of Remote Sensing

Detects stress caused by . . .

- Insects, drought and disease
- Compaction, wear and damage
- Excessive water, fertility and climate

Detects Irrigation Irregularities

- System leaks
- Irrigation patterns

Remote Sensing allows you to . . .

- Graphically present and account for problem areas to superiors, committees and subordinates
- Substantiate budget requests
- Communicate with decision makers
- Visually document the effectiveness of corrective action

Scale Photography - Topography Mapping are also available
For more information, Call:

Call Mike Jenkins

1419 Settlers Passage, Midland, MI 48642

MI 800-253-0475

517-631-7961



*Don's Ford
Tractor Sales*

2516 M-32 West • Alpena, MI 49707
(517) 356-6317



We also have
New & Used AG. &
Industrial Equipment,
and we are a
Woods Turf Equipment,
Bolen & Troy Bilt Dealer.



GCSAA News: GCSAA elects 1992-93 Board of Directors

William R. Roberts, CGCS, Lochmoor Club, Grosse Pointe Woods, Michigan, was elected President of the Golf Course Superintendent's Association of America (GCSAA) during the association's recent meeting in New Orleans, Louisiana.

Roberts succeeds Stephen G. Cadenelli, CGCS, Metedeconk National Golf Club, Jackson, New Jersey, who - as immediate past president - will continue to serve for a year as director.

Randy Nichols, CGCS, Cherokee Town & Country Club, Dunwoody, Georgia, was elected vice-president.

Re-elected as a director and appointed secretary/treasurer was Joseph G. Baidy, CGCs, Acacia Country Club, Lyndhurst, Ohio.

Also re-elected as directors were Bruce R. Williams,

CGCS, Bob O'Link Golf Club, Highland Park, Illinois, and Randall P. Zidik, CGCS, Rolling Hills Country Club, McMurray, Pennsylvania.

Paul S. McGinnis, CGCS, Union Hills Country Club, Sun City, Arizona, was appointed to the board. McGinnis will serve the remaining year on Nichols' term as director. Nichols' director position was vacated when he was elected vice-president.

Gary T. Trigg, CGCS, Genoa Lakes Country Club, Genoa, Nevada, and Charles T. Passios, CGCS, Hyannisport (Ma.) Club, continue serving terms as directors which they were elected to last year.

Officers serve one year terms, and directors are elected to two-year terms.

Personnel Management Guidelines Offered In GCSAA Model Handbook

A sample handbook for setting policy, writing job descriptions, developing pay scales, and handling other golf course personnel management issues, is now available from the Golf Course Superintendent's Association of America (GCSAA).

The handbook, available to both members and non-members, was developed to assist golf course superintendents in developing their own personnel manuals, tailored to their clubs' existing personnel policies.

Topics covered include employment status, work schedules and pay, attendance, employee conduct, performance

reviews, standards of conduct, employee benefits, guidelines, employment laws and job descriptions.

Sample general duties and job requirements are listed for the assistant superintendent, equipment mechanic and his assistant, foreman, equipment operator, irrigation specialist, chemical technician, gardner-triplex operator, landscape gardner and groundskeeper in the *job descriptions* section of the manual.

The model handbook is priced at \$10 for GCSAA members and \$15 for non-members, and is available through the GCSAA membership department, (913) 832-4480.

Northern Notes

People & Places:

- C.E. 'Tuck' Tate wins GCSAA's Distinguished Service Award.
- A-Ga-Ming and Elmbrock recognized by National Golf Foundation.

Research:

- M.S.U. Snow Mold Trials at Boyne Highlands and Birchwood Golf and C.C.
- Grace Sierra Snow Mold Trials at Crystal Downs Country Club.

New Courses & Additions

- Matheson Green, in Northport: 9 holes in '91, 9 in '92 opening.
- Tree Tops II (Fazio) in Gaylord: opening '92.
- Pinecroft in Beulah: opening '92.
- The Grandview in Kalkaska: under construction.
- The Farm in Bellaire: under construction.
- Eagle Glen: under construction.
- County Clare G.C. in Clare: additional 9 holes.

Building & Remodeling

- Crystal Downs C.C.: new maintenance building.
- The Legend: new driving range tee.

MTF Benefit Prizes Needed

The MTF Fund Raiser Committee is looking for prizes for this year's benefit day. If you are willing to donate golf or prizes, contact Tom Brogger at (616) 526-2683.

Christmas Party Looking For Host

Anyone interested in hosting the 1993 Christmas Party should contact Jon Maddern at (517) 785-7683.

Hosts for NMTMA Meetings

Anyone interested in Hosting a NMTMA meeting this year or next, contact Brian Holmes at (517) 736-6493.

If you have an item you would like listed in "Northern Notes", please call Michael Morris at (616) 352-4241.

**EVEN WHEN IT'S
EMPTY, IT'S LOADED.**



Even in its most basic form, Carryall by Club Car offers more standard features than the competition. Each model is strong and versatile, with plenty of performance options to choose from. There's no better way to load up on quality, dependability and lasting value.

Call your nearby authorized Club Car representative for details on how Carryall can do it all for you.

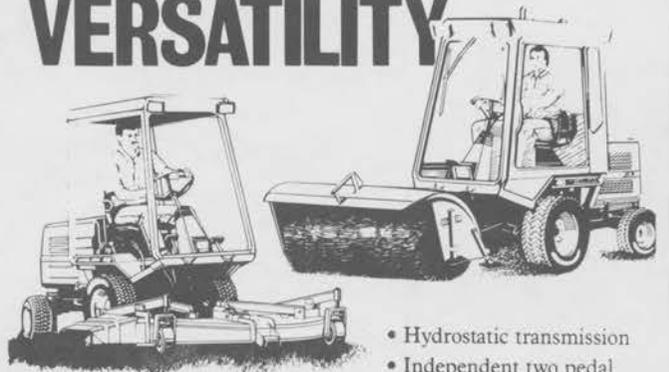


CLUB CAR, INC.
MICHIGAN BRANCH

33025 Industrial Road • Livonia, Michigan 48150
(800) 482-8830

Contact: Dave Nelson, Northern Michigan Sales Manager

UP-FRONT VERSATILITY



F2400-

- 24 HP, liquid-cooled diesel engine
- Excellent front visibility
- 4 wheel drive and power steering

- Hydrostatic transmission
- Independent two pedal system
- Choice of implements available

Kubota

GINOP SALES

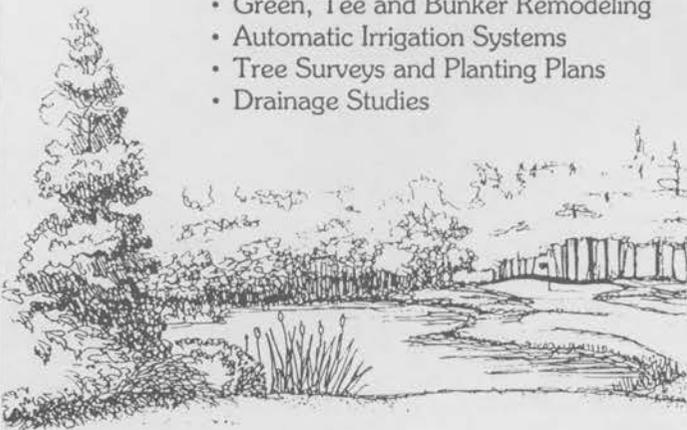
9040 E. M-72, Williamsburg
(616) 267-5400

M-68 Highway, Alanson
(616) 548-2272

1 (800) 344-4667

Complete Remodeling Services Including:

- Long Range Master Plans
- Green, Tee and Bunker Remodeling
- Automatic Irrigation Systems
- Tree Surveys and Planting Plans
- Drainage Studies



Matthews & Associates, P.C.

Golf Designs with Nature in Mind
Lansing, Michigan • (517) 485-0480

TORO

GROUNDMASTER 455-D QUADFLOAT 126



Trim and mow with wide area productivity. Quadfloat agility on any terrain. Power up to a 10 1/2 foot versatile rotary.

FOR MORE INFORMATION CALL:

Spartan Distributors, Inc.
487 West Division
Sparta, Michigan 49345
PHONE: (616) 887-7301

Calendar

APRIL

9-12 Augusta, GA Masters, Augusta National (USA-CBS)
 16-19 Palm Beach, FL PGA Seniors Championship, PGA National

MAY

*4 Traverse City C.C. NMTMA Meeting
 15 Links of Pinewood Michigan and Border Cities, Special Olympics
 28-31 East Lansing LPGA Oldsmobile Classic, Walnut Hills C.C.

JUNE

3-6 Albuquerque, NM NCAA Men's Golf Championship, Univ. of New Mexico
 8-9 Boyne Highlands Spaulding Pro-Am
 11-14 Boyne Mountain Mazda Pres. Senior Players, TPC of Michigan, Monument GC.
 *15 Boyne Mountain NMTMA, MTF Turf Benefit Day, Monument GC.
 18-21 Pebble Beach, CA US Open, Pebble Beach G.L. (ESPN-ABC)
 26-27 Oakland Hills GAM Michigan Amateur, North Course
 29-2 G. Traverse Resort AAA Michigan Open, Bear

JULY

*7 G. Traverse Resort NMTMA Meeting, Spruce Run
 9-12 Bethlehem, PA US Senior Open, Saucon Valley C.C. (ABC)
 13-14 Schuss Mtn./Shanty Allied Signal Michigan Golf Classic
 16-19 Gullane, Scotland British Open, Muirfield (ESPN-ABC)
 20-22 Boyne Mountain Boyne Tournament of Champions
 23-26 Oakmont, PA US Women's Open, Oakmont C.C. (ESPN-ABC)

NMTMA Want Ads

TRADE: Want 5-bladed Reels for Ransome 180, in exchange for 7-blade. Call Doug Sarto at High Pointe G.C.: (616) 267-5769.

MECHANIC'S POSITION: Highlands G.C. - experience preferred. Salary & benefits negotiable, immediate start. Call Gary Peters, (616) 453-0705.

MECHANIC/FOREMAN POSITION: Experience Necessary, Position may develop into Assistant Superintendent Position. Duties include rebuilding equipment in spring and fall, and fertilizing, spraying, repairing irrigation, etc. in the summer. Contact Tom McGuinness at (616) 874-6987.

FOR SALE: 3 Cushman Trucksters: 1988 with 800 hours; 2 1987's, 1000 and 2000 hours. \$3500 each. Call Doug or Mike at High Pointe G.C. - (616) 267-5769.

ASSISTANT'S POSITION: Highlands G.C. - Salary negot. Hospital and other benefits, immediate start. Gary Peters, (616) 453-0705.

ASSISTANT SUPERINTENDENT'S POSITION: Elk Ridge - Min. two year Turf Degree & 3 years exp. Must have Pesticide App. License, equipment repair experience, strong organizational skills. \$17-20,000. Will assist in supervision of irrigation system operation and repairs. Position available 4-6-92. Contact Jon Maddern, (517) 785-4683.

FOR SALE: Woods Brush Hog and Peerless 1300 Reel Grinder. Call Michael Morris, Crystal Downs C.C. - (616) 352-4241.

