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Official Publication  
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## FROM THE PRESIDENT'S DESK

### U of M Creates New Position Of Turf Extension Specialist



The University of Minnesota Horticulture Department is in the process of finalizing a newly-created position of Turf Extension Specialist. The position would serve as a liaison between the University and the turfgrass industry. The extension position was made available as a result of the closing of the University Campus at Waseca.

Brad Pedersen, head of the turfgrass program at Waseca, was named to head this newly created position. The executive committee met with Dr. Gary Gardner, the department head for Horticulture at the University, to investigate avenues in which our association can be involved.

\* \* \* \*

**The January meeting** was welcomed back to Izaty's this year. Our thanks to Steve Schumacher for hosting the meeting. Several members tried their luck at fishing while others were testing it across the lake at the Grand Casino. Kudos to Steve Garske and his talk on "Innovative Ideas."

\* \* \* \*

**At the Annual Meeting in November** a request was made for more financial information during the year. This information is available to the general membership by phoning Scott Turtinen at the Association Office and requesting such.

\* \* \* \*

**The MGCSA Research Committee** donated \$1,000 to the GCSAA Scholarship and Research Fund at the Golden Tee Club Reception in New Orleans. Also \$1,000 was donated to the USGA Research Fund at the Green Section meetings.

\* \* \* \*

**On behalf of the members** who attended the MGCSA Social in New Orleans on Saturday evening, I would like to thank the Associate members who sponsored this get-together. We also extend our appreciation to Dan Miller, John Wiley and Steve Garske, who took the time to organize this fine event.

\* \* \* \*

**The policy of having candidates for membership by the board has been changed** to help accommodate applicants and to enable the board to spend more time on board-related activities. Mike Olson, membership chairman, has organized members from different regions of the state to handle the interviewing process. A set format of questions will be asked applicants applying for different classifications.

\* \* \* \*

**The Board of Directors has promoted Scott Turtinen** to Executive Director of the MGCSA. We look forward to working with Scott in this capacity.

—Rick Fredericksen, CGCS  
MGCSA President

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# Environment and Government Relations Update

By this time, most everyone should have received their copy of the *Compliance Guide*. I hope you have taken time to go through it before you shelve it. Even though the information in this book may be difficult to understand or comprehend, this is the law. If you have difficulties with any part of the guideline, the names of MGCSA Committeemen are listed in the front of each chapter to assist you. Any questions or suggestions that you have on the entire booklet may be directed to me.

**The intent of this guideline** is to keep you, the superintendent, up-to-date with information already assembled. During the next few months, we as a committee will be reviewing our published information for accuracy. We will also update any changes on current information. The changes will be mailed out by entire chapter to ease the updating by all concerned. The changes will be mailed out around June 1.

The committee presently is working on three new chapters that will be mailed out at the same time. The new chapters will be Water Usage, Endangered Species and Employee Right to Know. If there are any other topics that are of concern, please let us know so that we may research them during the winter months.

**On the government side of this committee**, you must know by now that mercury fungicides may no longer be used in the state of Minnesota after July 1, 1994. It is too bad we are losing environmentally safe and tested products by means of an emotional issue. The makers of the product, Grace Sierra, have confirmed with

me that they are still proceeding with re-registering of the products. They will also be making a visit to Minnesota to talk with the Department of Agriculture on putting an extension on that law that states, "or until a suitable replacement is available." Best bet is that it will not happen.

I hope those attending the Annual Conference in November were able to attend the session on "Contingency Compliance." The information is in the guideline and must be taken to comply with the law. Also, recent information received from the GCSAA states that permanent eyewash stations should be at their facility if, according to label or MSDS, it states that if product is sprayed into the eye you must flush the eyes for 15 minutes. Eyewash bottles are not satisfactory. A quick look at my MSDS labels shows that following products are the 15-minute eye flush: Dursban, Daconil 2787, Hydrothol 191, PCNB, Rubigan and Bayleton. Serious though should be given soon to the purchase of a permanent eyewash station before OSHA lays out some fines.

**A final note to consider before the chairmanship passes to Scott Austin, Midland Hills**, is that of posting. The present committee feels it is a good idea.

We are recommending to our fellow superintendents that they post at or near the entrance to the golf course, pro shop and/or 1st and 10th tee, the daily pesticide application. It is not yet a law

*(Continued on Page 25)*

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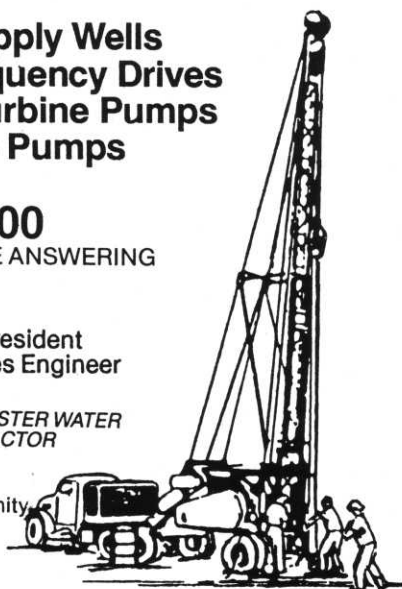
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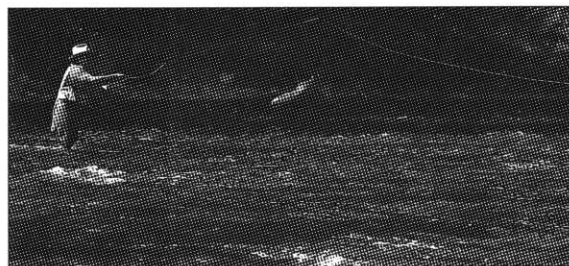


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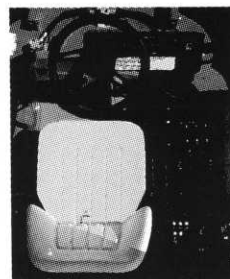


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# Elm Creek Golf Links of Plymouth

\* \* \* \*

## A Dream Come True

By Michael Klatte CGCS  
Owner, Superintendent

The history behind Elm Creek Golf Course dates back to the middle 1950s. Construction started in a wooded, hilly area north of Hamel, Minn.

My father, Mervin Klatte, created a nine-hole layout out of old machinery left over from the family farmstead. It's difficult to tell of the amount of time and effort he put into this project in this short article. Elm Creek took five long years to complete.

My Dad had a great knack for working within his means. He would stretch the dollar to the limit whenever possible. This really taught me some strong values and principles. I've been very lucky to have had such a strong parent and a special relationship with my Dad. I will never forget him and what he meant to me.

Dad passed away June 8, 1987 in a hospital two months after open heart surgery; he was 76. He was well loved by many of the old-timers in this association. His dream and work inspired me at an early age to go into what is now a dynamic profession, that of a golf course superintendent.

**Since those early days**, when life was a little less demanding, I've watched the golf industry make some significant changes. It seems like the '60s and '70s were steady years, but the '80s brought renewed growth in golf course construction and expansion. It seems like every state in the union is into the golf rage now. Minnesota is rated first in golf interest.

Locally, my family felt the pressure to expand three or four years ago. At that time we stretched out three holes on the original nine and added about 120 yards. This change evoked great encouragement from the players and motivated us to think of more ways to improve the course.

Dad always seemed a little afraid to expand the course for fear of high taxes. He had been a tax assessor years ago, while still on the farmstead, and knew how large tax assessments could be. For



**A VIEW** from the top of the 12th tee, looking back at a pond on the 11th hole.

this reason I did some checking and evaluation with the Plymouth Planning Committee about the future. Plymouth, is one of the fastest growing suburbs in the Twin Cities, second only to Eagan, and could accommodate up to 106,000 residents by the year 2010. Our area of Plymouth, the northwest corner, will be one of the last bastions to be developed residentially. With this in mind and the willingness of a bordering neighbor to work with us on a contract for deed, we started drawing up plans for development of a new regulation nine holes. This would give us the full 18 holes needed to compete with other courses of equal length. This is an oversimplification of two years of trying to purchase land bordering our course. If you've ever had to deal with developers or land speculators when it comes to putting in a golf course, you'll understand how difficult it can be.

**You really have to be careful** in the area of controlling the situation from the beginning to the end. The construction work was the easiest part of the project. Trying to satisfy the people you were trying to buy the land from was another thing. The first man was going to sell his property to us surprisingly cheap but wanted us to use swamp land for our greens and tees. The next individual had

us stretched out over vast amounts of land, somewhere in the neighborhood of 120 acres, creating just six holes. Most of this land was planted with corn for many generations. On further review, we found that Atrazine levels would probably not allow us to plant grass for several years.

The land we bought was really the best of the three options, with natural rolling terrain, pasture and hayfields. We needed 23 acres and somehow, through long negotiations, it was acquired. The next step was to design a new nine holes from an original executive type par 29 course. This had been our second nine for over 20 years. It was built by my Dad in 1963 as a par 27 short course on approximately 15 acres. He thought it would be a good idea to sell enough green fees to pay the taxes on the land.

Well, it did a little better than that but not much. Our present situation had us taking 87% of our green fees from the front (original) nine holes. We figured the extra income generated from a new, improved nine holes of equal length and beauty would more than pay for the development costs.

With the accent on a Scottish type links design so popular these days, and

*(Continued on next page)*

## Elm Creek—

the land with its openness, it seemed to lend itself naturally to this type of design. The rolling hills on the new land flowed perfectly with the present course, which is quite hilly. My design called for creating level landing areas from the tees with berms to separate adjoining fairways from one another. This would not only be practical but added the desired effect of a Scottish design.

**My twin brother, Mark, helped a great deal** with his input on integrating the two nines together in a balanced fashion. For instance, the original nine was a par 34 with two many par 3's. We devised a plan that would eliminate one of the par 3 holes and developed a breath-taking new par 4 overlooking the course.

But, before all this took place, the process of getting the plans passed through the City would take time. We hired Sathre-Bergquist, Inc. of Wayzata to help in the surveying and engineering to create the plan which was needed to pass through the City and Elm Creek Watershed District. They were a great help in this area and created a plan used by the construction company.

B & J Construction was retained as the general contractor. B & J had put in the new executive course at Brookview (Golden Valley) two years earlier. Greg Begin, the construction supervisor, did everything that was asked of him. I've never seen a better operator and a dedicated worker.

**We changed or rebuilt 10 holes** to create a par 70, 6,235-yard course from the blue tees. Four new greens were built and four others were enlarged or changed. A total of 27 new tee areas were built to accommodate all levels of play. We used the natural surroundings to create these magnificent multi-level tee areas.

Approximately 139,000 cubic yards of dirt was excavated and contoured during the project. Before the greens were put in, the creation of mounds, smoothing and leveling of fairways all took time, especially with the amount of rainfall we had. Along with all the work routing out new fairways and clearing of trees through two creek crossings, an irrigation system had to be expanded. Bob Reihe from MTI helped design the new irrigation expansion, which included the digging of a new 12" well. A 30-



**ON THE 14TH TEE**, you see this stretch of fairway.

horsepower, electric, submersible pump was installed with a capacity of 320 gallons/minute. This new pumping station will work very well in conjunction with the present 220 gallon/minute, 30-horsepower, submersible pump we have on the front nine. We installed 660 electric heads on greens and tees and 688 electric heads on the fairways on a single roll system. Seven new fairways were automated, and the old fairways have quick-coupler valves. All of the greens and most of the tees are automated.

**The four new greens were built** by using the fill out of the heavy black loam soils from two ponds. Heavy rains from July and August caused this fill to be quite wet. Greg recommended the use of Miriafi 500 Geo Textile soil stabilization fabric to keep the base from sinking or forming pockets. This fabric has been used quite extensively in making roads over swamps and wet areas in the past with tremendous success. Partial drainage was built into the greens using pea rock over a flat fabric tile. This system was put where natural drainage would appear.

The green mixture was a 90-10 mix of medium fine washed mason sand and sphagnum peat moss. The sand analysis, which was sent to Raleigh Physical Soil Testing Lab in Raleigh, N.C., was excellent. Dr. William Gilbert said, "The sand is excellent with peat being somewhat stemmy." We wanted a perk rate of 14 inches per hour in our greens and,

after a few more samples were sent to Twin City Testing in St. Paul, we were able to get it using the 90-10 analysis. The mix was spread out evenly to a 12-inch depth, using a 450 bulldozer. A Toro Sandpro was used to further compact and smooth out irregularities on the surface, at first using a steel drag and later using the machine alone.

**We then sprinkled the new greens** for 20 minutes with our new 660 electric Toro heads to further compact the soil. Later we seeded with Pennlinks creeping bentgrass at 1½-2 lbs. per 1000 sq. ft., using a cyclone spreader. I choose Pennlinks bent for its thatch resistance and upright growth habit. The Sandpro was used to get good soil/seed contact by driving back and forth in different directions. This really did a nice job of stabilizing and firming the surface.

Soil testing was done prior to seeding through Precision Turf Company. Dave Krupp was very helpful in recommending the right fertilizer and analysis to correct any deficiencies in the soil. The soil was from 6.1 to 6.7 ph; fairly neutral. There was a phosphorus deficiency in the fairly neutral. There was a phosphorus deficiency in the lowland acres where the five-acre pond was built; so a 10-18-22 fertilizer analysis was incorporated into the soil at 200 pounds per acre. Phosphorus was found predominantly low in all areas of the new land, so this fertilizer was used in lesser quantities here.

*(Continued on Page 22)*

# TURFGRASS BENEFITS

By ROBERT J. MUGAAS

County Extension Agent - Environmental Horticulture  
University of Minnesota  
Minnesota Extension Service - Hennepin County

*The following article is adapted from a presentation on Turfgrass Benefits given at the 1992 Iowa Turfgrass Conference.*

\* \* \* \*

Over the past several years, lawns and lawn care have taken a lot of bashing for their perceived negative environmental impacts. Those concerns include the use of fertilizers and pesticides and their potential impact on the environment, perceived poor adaptation of our turfgrasses to this area—we should be using “better adapted” native grasses—and perceived excessive inputs to maintain a healthy green lawn. While inappropriate and sometimes careless lawn care practices can create environmental problems, the turfgrass community does provide many benefits. These are beginning to be borne out and documented through various research studies.

Even though we may not stop and ponder how that lawn area in front of our house or the golf course down the street or the grassy areas of the park where our kids play influence our quality of life, the turfgrass community does have a variety of positive impacts. Turfgrass benefits can be broken up largely into three major areas of benefits. They are environmental modification, economic and aesthetic benefits. The following article will review several of the major turfgrass benefits associated with these different areas.

## ENVIRONMENTAL MODIFICATION

Environmental modification can be broken down into modifications which occur above ground and those occurring or influencing processes which occur below ground. To begin, we will look at several of the beneficial effects of turfgrasses on the above ground environment.

During the process of photosynthesis, turfgrass plants absorb carbon dioxide and in the presence of water and sunlight energy combine these into organic compounds used for growth. Oxygen is the by-product of this process and is released back to the atmosphere. It has been reported that 25 square feet of healthy turf is all that is required to meet the oxygen needs of one person for one day.

In addition to absorbing some of the solar radiation, grass plants scatter light and radiation. Grasses cool themselves and the surrounding area through evapotranspiration. Evapotranspiration is the water lost through the grass plant to the atmosphere and evaporation of moisture from both plant and soil surfaces. Each individual grass blade can serve as an evaporative cooler. It has been reported that an acre of turf during a summer day will lose about 2,400 gallons of water through this process. Other reports indicate that roughly 50% of the sun's heat may be eliminated by transpirational cooling, that is water loss through the grass plant itself. Thus our turfgrasses provide a form of natural air conditioning for our environment.

**Excessive weed growth and algae blooms are undesirable water quality** traits for aesthetic as well as recreational use of our water resources. However, the presence of lawns surrounding or adjacent to water resources are often accused of contributing inordinately to the demise of water resources.

A dense turfgrass cover can significantly reduce or nearly eliminate runoff from a site. In fact, research has borne this out and shown that a dense turfgrass cover can reduce runoff to nearly 0. The turfgrass cover slows the rate of flow over the surface allowing much greater chance for the water to infiltrate into the soil. As will be discussed later, this same turf cover, through improving the surface soil structure, can actually improve the rate of water infiltration into the soil.

Other environmental modifications occurring above ground include noise reduction, glare reduction, improved air quality, fire retardation and rodent reduction around a home. Reports suggest that grasses as well as other landscape materials can reduce noise levels by as much as 20 to 30 percent. This can be especially beneficial in the more urban areas where noise levels are increasing and the need to soften that noise is more important. Also, the soft, green surface of a well-maintained lawn significantly reduces glare compared to the bright and shiny building materials, vehicles, other paved surfaces and signage. Air quality is improved by the entrapment of dust particles as well as the stabilizing of the surface soil to prevent soil particles from being carried up into the atmosphere by winds. Dust and smoke particles trapped by the grass leaves are moved from the leaf surface down to the soil by condensation, rain or irrigation. These materials then become part of the dynamic turf/soil environment. Reports suggest that maintaining lawn areas around buildings creates a buffer zone or fire break that will not sustain a fire like that of dense woody vegetation. Also, lawns mowed at about two inches are not a safe home for many small animals. As they move out of the lawn areas into taller cover, rodent movement into the house or building may also be reduced.

In addition to the above ground benefits of our turfgrasses, they also provide an array of benefits to the soil below ground. Turfgrass roots penetrate into the soil and hold soil particles against wind and water erosion. Grass plants have a very dense, fibrous root system which allows them to bind soil more effectively than many other plants. These roots also loosen the soil and, through their being sloughed off, they, along with other dead and decaying grass plant parts, contribute to soil organic matter accumulation. This in turn contributes to the improved infiltration and filtering effects of the turf system. In fact, some areas are using effluent water for irrigation of turf areas to “clean-up” the water as well as meet plant water requirements. It has been reported that a healthy turf stand can absorb rainfall six times more effectively than a wheat field and 4 times more effectively than a hay field.

Other soil modifying effects include: improvement of soil biodegradation processes, encouragement of healthy soil building processes, improvement of overall soil structure and improvement of overall turf competitiveness. These processes all ultimately effect the aboveground portions as well, resulting in a healthy turfstand providing maximum benefit to the site.

*(Continued on Page 21)*

# Scale Insects Are Difficult Pests Of Ornamentals

By James A. Fizzell, Sr. Ext. Advisor Horticulture, University of Illinois

There are few plants that are not subject to attack by one or more species of scale. All are well adapted for survival under adverse conditions and, as a group, they are very difficult to control.

Scales belong to the Hemiptera insect order. They are sucking insects that spend most of their lives beneath the protective shells from which they get their name. They are divided into two large groups, the armored scales and the soft scales.

## Armored Scales

Armored scales produce a waxy shell that is separate from their bodies. They begin life as eggs, usually laid beneath the shell of a mature female. Crawlers hatch from eggs and move out from under the shell to find suitable feeding sites. Once such sites are located, the crawlers begin to feed, molt and start producing their characteristic covering.

In the molting stage, the scale has no body parts, eyes, wings or legs. It is simply a sack with a thread-like beak that inserts into the host plant tissue. Over this sack is a protective covering.

Females of most species never complete their metamorphosis, but instead spend the rest of their lives in this form. Males, however, leave this protective covering and develop into tiny, two-winged insects which are capable of flying to the immobile females to mate and then die. After mating, the females deposit their eggs, shrivel to one end of their shell and die.

## Soft Shell Scales

Soft scales' shells do not separate from their bodies. Their life history is like that of the armored scales, except the females retain their legs and antennae throughout their life cycle. They reproduce by eggs generally, though live young are produced in some cases.

## Why Control is Difficult

Two factors make scales difficult to control. Because of their size and coloring, they are often overlooked until well established. And once they develop their protective covering, they are unaffected by applications of sprays.

There are parasites that keep scale populations in check. But the problem is that most scales are not native to the United States, but have been inadvertently introduced. Unless the natural parasites are also introduced, the pest population grows unchecked. When single plant species are extensively planted, this creates an abundance of ideal feeding sites. A case in point is the proliferation of cottony maple scale.

By introducing the natural parasites and using cultural practices favorable to these parasites, some spectacular successes in control have been seen. In California, for example, cottony cushion scale of oranges has been controlled by a ladybug; black scale has been controlled through the introduction of several species of chalcidoid wasps.

Within the nursery industry, control of scales by parasites and predators is in its infancy. As a result, a carefully planned spray program is needed to produce clean stock.

To develop an effective program, the particular scale needs to be identified and its life cycle determined to find the "weak link" for proper timing of spraying.

## Recommended Control Measures

The most common scales we see in the extension offices are oystershell, lecanium, cottony maple scale and euonymous.

### Oystershell Scale

Oystershell is a small, brownish, hard-shelled scale about 1/8 inch long and 1/16 inch wide, with a curved shape like a miniature oyster shell. These scales can completely cover the bark of affected plants. They overwinter as eggs, hatching into crawlers in late spring. This scale is especially troublesome on ash, lilac and dogwood. While there are several natural predators to keep the population down, dormant oil also provides some control. Malathion or dimethoate should be applied in June when the crawlers are exposed. In some areas, a second generation of crawlers is produced in early August.

### Lecanium

Lecanium scales attack yews (Fletcher scale) and broadleaf trees and shrubs. These are soft-shelled scales that are brown, globe-shaped pests about 3/16 of an inch in diameter when mature. Half-grown fertile females spend the winter on the bark of twigs. Feeding resumes in the spring, and in early June eggs are deposited in a cavity beneath the female's body. After laying her eggs, the female dies. Crawlers hatch in a few days, move to the leaves and begin feeding by sucking the sap. During this period, honeydew drips from the scales and covers leaves, branches and objects beneath the tree. A sooty mold then grows on the honeydew.

By midsummer, the growing female scales relocate to the twigs where winged males find them, mate and die. The females continue to feed until cold weather, then go into hibernation. Thus the cycle repeats itself, with only one generation produced each year.

Fletcher scale should be sprayed with malathion in early April and again in June. Other species of lecanium scale respond to treatment with malathion or diazinon applied in mid-June and repeated in two weeks.

### Cottony Maple Scale

Cottony maple scale is a soft-shelled species that commonly attacks silver maple and box elder, but can also be found on many other species where infestations on maple are severe.

*(Continued on Page 20)*



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- Available with 4WD for Added Traction

*For further details or a demonstration call: Polfus Implement:*

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