Core Cultivation

By Dr. Wayne R. Kussow
Department of Soil Science
University of Wisconsin-Madison

Barring a freakish late season snow storm, many of the state's golf courses will be open for play by the time you have a chance to read this issue of *THE GRASS ROOTS*. Having survived the hectic moments of getting the course ready for opening day, many of you will now begin to think about programming into your work schedule a late spring or early summer core cultivation of greens and, perhaps tees and fairways. After all, the long standing recommendation is to schedule turf cultivation for times when the turf is not under heat or moisture stress. As your thoughts turn to core cultivation, have you ever asked yourself the questions "Exactly why do I do this and what am I accomplishing? Do the end results justify the labor and cost involved and the irate comments of golfers? ". If these questions have not arisen in your mind, perhaps they should.

Core cultivation has long been viewed as an effective means for controlling soil compaction, which leads to the question "What is a compacted soil?". By definition, a compacted soil is one whose bulk density is greater than normal. In other words, the soil, when completely dried in it's undisturbed ("bulk") state, has a certain weight per unit volume. The units used by researchers to express soil bulk density are grams per centimeter cubed (g/cm3).

Pore space is a vital part of the soil's bulk volume and may actually comprise one-half or more of this volume. Thus, soil bulk density reflects the total amount of pore space present and a second definition of a compacted soil is one whose porosity is less than normal. Soil compaction occurs at the expense of porosity.

But soil compaction does more than just reduce total pore volume. During the compaction process, soil pores are collapsed.

The least stable and most easily collapsed pores are the larger ones. In essence, large pores become smaller pores. This, in many respects, is more significant from the turfgrass perspective than is the actual reduction in total porosity. Soil pore space consists of large, non-capillary pores occupied by air after drainage occurs and smaller, capillary pores that store water. Compaction reduces air-filled pore space and increases capillary pore space. The result is a wetter, colder soil that may be incapable of providing sufficient oxygen for optimal growth and functioning of turfgrass roots.

In recreational turf areas, soil compaction is largely confined to the top inch or two of soil. Collapse of large pores extending to the soil surface often has a drastic effect on the water infiltration rate of the soil. Rapid infiltration occurs via large soil pores. Water will infiltrate about 16 times faster through a pore with a diameter of 1/4 inch than one with a diameter one-half this size, or 1/8 inch. Reducing water infiltration rates can lead to temporary ponding or increased loss of water via runoff during irrigation or rainfall. Standing water shuts off oxygen and carbon dioxide exchange between the atmosphere and soil and is the leading cause of turfgrass thinning and die-out in compacted soils. Only *Poa annua*, with its ability to grow in compacted wet soils and its infamous annual regenerative capacity via prolific seed production, can thrive in these areas.

Does core cultivation truly eliminate soil compaction? If not, how effective is it in treating the undesirable effects of compaction? A review of the literature reveals some disconcerting things. First is the fact that there is little research that has carefully documented the effects of core cultivation on soil physical properties and turfgrass growth and survival. Secondly, the research that has been done presents conflicting results regarding matters such as the influences of core cultivation on water infiltration rates, oxygen diffusion rates in soil, turf quality and thatch levels. Thus, the widely used practice of core cultivation does not have a solid research background. Realization of this recently led Dr. Paul Rieke at Michigan State University to undertake a detailed study of the effects of core cultivation on soil physical properties and turfgrass quality.

Dr. Rieke and his group subjected a creeping bentgrass putting green established on loamy sand to seven hollow or solid tine core cultivations over a 3-year period. A summary of their findings follows.

Effects of core cultivation on soil physical properties

Soil bulk density: Compaction increased bulk density 4.0%; cultivation had no effect; hollow tine cultivation produced an insignificant 2.9% lower bulk density than did solid tine cultivation.

Soil total porosity: Decreased 9.7% by compaction; no improvement from cultivation of the uncompacted soil; only hollow tine cultivation restored the porosity of the compacted soil to its original (uncompacted soil) value.

Water infiltration rate: Compaction reduced infiltration 45%, from 3.3 to 1.8 in/hr; cultivation had no influence on water infiltration rates on compacted or uncompacted soil.

Effects of core cultivation on creeping bentgrass

Bentgrass quality: The effects of core cultivation varied with the time of year; until mid-season, bentgrass quality was better on the compacted soil than the uncompacted soil; thereafter, the uncompacted soil had the highest quality bentgrass; cultivation yielded better turf quality on May 10 but not on July 8; by August 7, cultivation had improved turf quality on the compacted soil, but quality was best on the uncompacted, noncultivated soil; on August 30, turf quality was 18% better on the uncompacted soil than the compacted soil and cultivation had improved quality 9% on the compacted soil and 16% on the uncompacted soil; quality with hollow tine cultivation was 23% better than with solid tine cultivation; these effects carried through to

(Continued on page 33)

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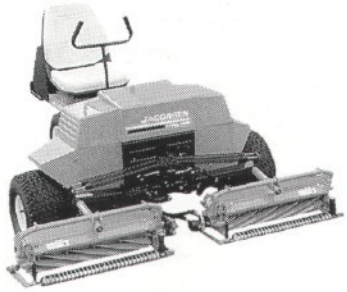

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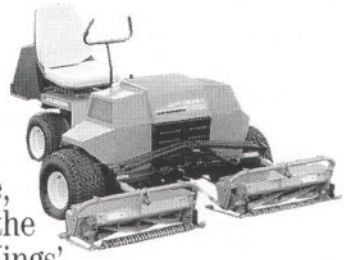

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(Continued from page 31)

September 17. Throughout the study the reductions in bentgrass quality were largely due to scalping during mowing. Early in the season, bentgrass growth on the compacted soil was more prostrate than on the uncompacted soil, the result being less scalping. Cultivation covered stolons with soil and reduced scalping.

Root weight density in the top 3 inches of soil: Reduced 9% by compaction and 9% by cultivation.

Total root weight to 9-inch soil depth: Reduced 12% by compaction and 9% by cultivation.

While the results of Dr. Rieke's research have to be interpreted with a bit of caution because the soil bulk density in the compacted and uncompacted greens did not differ greatly, his observations are not at all unusual. Similar results have been observed in other studies conducted around the country.

The fact that cultivation had no significant influence on soil bulk density brings to light the fact that core cultivation does not control or eliminate soil compaction. Rather, core cultivation treats some of the symptoms or consequences of compaction. Even then, the results are inconsistent and one has to ask "Why?". This is where more research is needed. In the meantime, some speculation is possible.

Without a reduction in soil bulk density, there is no way that core cultivation can significantly alter soil porosity, simply because porosity is a function of bulk density. But what about water infiltration rates? After all, core cultivation creates very large pores. But whether or not these pores improve infiltration first depends on how long they remain intact and open to the soil surface. Unless the core holes are backfilled with porous material such as sand, their lifetime is short and the effect of core cultivation on water infiltration rates is transitory.If the cores are shattered rather than being removed, core holes and existing large soil pores can be rather quickly sealed by the shattered soil. We observed this phenomenon in our turf runoff plots last year. A single core cultivation of the silt loam soil followed by shattering of the dried cores reduced the infiltration rate of simulated rain from 1.68 to 0.98 in/hr.

The impact of core cultivation on water infiltration rates also depends very much on what lies at the bottom of the core holes. A compacted soil layer or an abrupt change in soil texture at that interface can largely negate the effect of core cultivation on water infiltration except during light rains or irrigation. Water-filled pores that are slow to drain contribute little to water infiltration rates. Research has shown that repetitive core cultivation can create a compacted soil layer at the bottom of the coring zone that reduces the rate of water movement through soil. Dr. Rieke saw evidence of this in his study and earlier research at Michigan State University showed that when a sandy loam soil with a bulk density of 1.62 g/cm3 was hollow tine cultivated, the soil bulk density at the bottom of the holes attained values as high as 1.82 g/cm3. From these observations, Dr. Rieke has concluded that "... cultivation in a noncompacted soil can be damaging to soil structure and should be utilized only when clear objectives exist".

As observed by Dr. Rieke and other researchers, the effects of core cultivation on turfgrass quality are often inconsistent and of short duration. Presumably, the more compact the soil, the greater the effect of core cultivation on turfgrass quality. There is some evidence for this. But what this suggests is that unless you know for a fact that your soil is heavily compacted, there is little assurance that core cultivation will significantly improve turf quality.

So what type of evidence can we use to help form a judgement as to whether or not core cultivation will yield results that justify the labor and expense involved? In my judgement, inadequate water infiltration is as good a criteria as any. Desirable turfgrasses do not survive in excessively wet soils and the wetter the soil, the greater the amount of compaction caused by traffic. Low infiltration rates are clear signals that aeration is inadequate as well. But remember—core cultivation is not a sure cure-all for low infiltration rates. What lies below the normal depth of cultivation is crucial. Judicious use of a soil probe will tell you if deeper cultivation might not be what is really needed to improve water infiltration or if there is a chance that core cultivation of any type is an answer to the problem.

One other justification one might cite for core cultivation is thatch control. Date collected by Dr. Rieke in his study revealed what others have observed—there was no permanent reduction in total organic matter as a result of core cultivation even though the cores were returned rather than removed. Mixing thatch with soil increases the bulk density of the thatch but does not seem to hasten its decomposition. In view of the fact that there are less laborious ways of managing thatch on putting greens (eg. verticutting plus sand topdressing), thatch control alone appears to be an inadequate justification for core cultivation in this instance.

The bottom line here is that core cultivation of turf is not a panacea. Favorable results cannot be guaranteed. The practice is justifiable only when it is being applied to treat an evident problem and there is good reason to believe that core cultivation is the solution.

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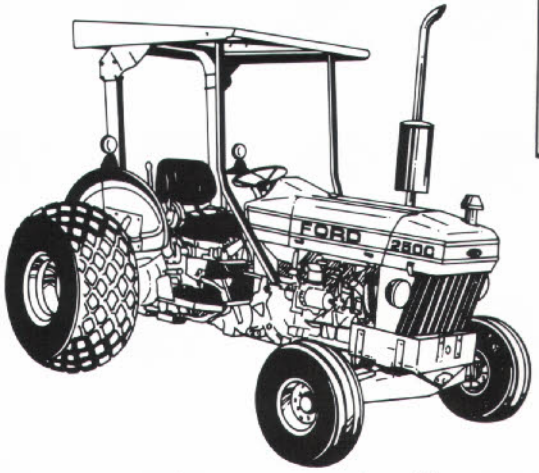

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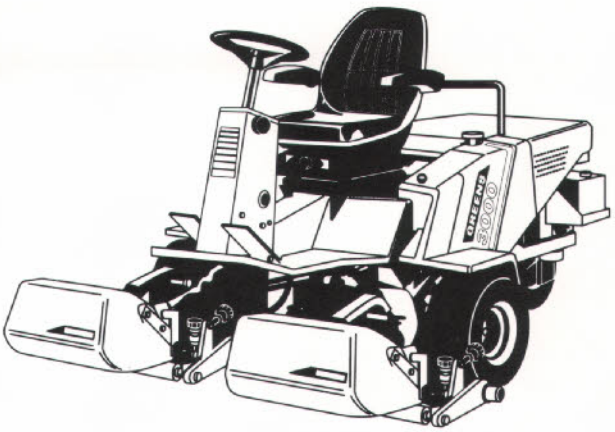

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Northern Great Lakes Research Station

By Dean Musbach

Now that the O.J. Noer Turfgrass Research and Education Facility is reality, some much needed turf research can begin. Wisconsin GCSA's commitment to build a variety of putting greens at the Noer Facility will benefit all superintendents. Many turf problems will be solved in years to come, except those associated with winter.

The Noer Facility is an excellent facility, but solutions to winter problems cannot be completely addressed there because of logistics. Although winter affects everyone in Wisconsin, the severity of winter in southern Wisconsin varies greatly from year to year.

Snow mold research in Madison is difficult because snow cover doesn't consistently persist throughout the winter. Likewise, Pythium research in Minocqua is difficult because the conditions for development also do not occur on a regular basis. If real progress is to be made on winter-related turf problems, the research needs to be performed where severe conditions exist. I believe the time has come to establish a permanent research facility in northern Wisconsin.

Northern Great Lakes GCSA began the groundwork for establishing a research facility two years ago when Minnesota announced that the use of mercury would be banned in 1994. Superintendents in the north began to worry that Michigan and Wisconsin would follow suit.

For those who don't know, Northern Great Lakes is a superintendent association with about 85 members from Northern Wisconsin and Upper Michigan. I am serving my third one-year term as president. The primary purpose of this association is education, but the success of the annual symposium has allowed the group to contribute to turf research during the past four years.

The board of directors contacted Dr. Gayle Worf of the University of Wisconsin-Madison about establishing turf plots in Eagle River and Antigo, and in the fall of 1990, plots were established. This was an important first step, but snow mold control wasn't the only concern of superintendents. Ice damage was also a concern that superintendents wanted to explore on a broader scale. This was when the vision of a northern research station affiliated with the UW-Madison was conceived. During 1991, the board and I actively promoted this vision to northern superintendents.

In spring of 1992, Fred Fabian of Northwood Golf Course was scanning the newspaper when he ran across an interesting advertisement. Brian Bowen, the manager of the University of Wisconsin-Madison potato research facility in Rhinelander, was looking for ways to diversify research that would benefit the local community. Fred made contact and arranged a meeting between Brian and some Northern Great Lakes board members. The meeting was very positive, but Brian was unsure about the political implications within the potato research program. Because Dr. Worf and Dr. Newman had recently retired, we could not proceed until the UW-Madison hired replacements for them.

In June of 1992, I made contact with Dr. Frank Rossi, from Michigan State, about speaking at NGL's July meeting. Frank told me that he was scheduled for an interview in Madison, so I briefly explained what NGLGCSA was attempting to do. He was enthusiastic about the possibilities of a northern research station, and he said if hired he would certainly explore this project further. Needless to say, I was pulling for Frank!

UW-Madison made the right decision hiring Dr. Rossi. His energy has invigorated Northern Great Lakes GCSA, Wisconsin GCSA, and Wisconsin Turfgrass Association. Turf managers in Wisconsin and the entire Great Lakes Region will benefit for years to come.

Dr. Rossi And Dr. Chuck Koval were featured speakers at NGL's August meeting. Frank told the members attending that he supported our idea of a field research facility and that he would begin working on the internal politics. Since then, NGL board has been in constant contact with the UW-Madison staff about this project.

Last December, the WTA Board was made aware of this project and in theory they support it. The WTA said it needed more details on the size and scope of the facility before it could make any commitments.

In March, 1993, Fred Fabian and Dr. Rossi addressed Dr. Marsh Finner the Director of Agriculture Research Stations, Philip Dunigan the Assistant Director, and Dr. Richard Lawer, the Assistant Dean and Director of Wisconsin Agriculture Experiment Stations, about our intentions and requirements to establish turf research at the Rhinelander Station. The requests were as follows:

1. A written commitment to guarantee long term use of land for turf research, and a first option to purchase in the event that the potato research station closes.
2. Allowed to construct a building containing equipment storage, classroom, restroom facilities and possible lodging for visiting professors or research assistants.
3. Availability to a quality water source.

The ball is in their court now, but if this option fails then we will attempt to develop this project at an independent site.

This project is a large commitment and Northern Great Lakes cannot do this alone. Once a detailed plan is complete, it will be submitted to Wisconsin Turfgrass Association and Wisconsin GCSA for study. I believe this project merits support, and I urge the WTA and this association to support it.

Currently, NGLGCSA is exploring methods of fund raising. The time has come to begin soliciting research funds from the people who benefit from research the most—**golfers**. Dr. Rossi, John Beck, a superintendent in Norway, Michigan, and I are scheduled to address the Upper Peninsula

Golf Association at their Fall Business Meeting. Our intentions are to explain the project, win the association's support, and assist in the development of a fund raising program that they can administer. If this is successful then we will consider approaching the Wisconsin State Golf Association with a similar program.

As golf course superintendents, we are losing tools for maintaining turfgrass. At the same time, golfers continue to want more. If we are to meet this challenge, we will be depending on research to solve many of our problems.

In the north, golfers used to accept dead grass in the spring, but just like everywhere else, golfers in the north want better conditions throughout the season. The only way that we can meet this challenge is through research. This is why northern superintendents feel a northern research facility is needed. There is a need for more extensive snow mold trials, development of winter hardy\snow mold resistant turfgrass varieties, and an in-depth study of how different cultural programs affect winter survival of turfgrass.

The O.J. Noer Facility is a great facility that will benefit all turfgrass managers, but because of its location in southern Wisconsin, it is inadequate for expanded winter turf research. A northern extension of the Noer Facility is a viable alternative for research.

In the past, superintendent associations, turf associations and green industry suppliers have been the primary supporters of turfgrass research and this should continue. But I believe the time has come to solicit research funds from golfers, the people who benefit most from turf research.

Help make Northern Great Lakes Research Station a reality. This project is an enormous undertaking and any comments, recommendations or suggestions are welcomed.

A Note of Apology:

The proof scan of the cover drawing for the March/April issue of *THE GRASS ROOTS* was accidentally used by the printer instead of the halftone version. The proof version that was used did not do justice to the fine drawing of Vince Noltner that was done for the issue by Jennifer Eberhardt.

What's Happening in 1993?

By UW-Madison Turfgrass Group

Research and education are the cornerstone of our industry and over the last few years we have begun to focus our attention on the "epicenter" of this endeavor—the Noer Facility. Activities abound at the Facility even during the stillness of the winter.But, before we discuss these activities, I have noticed some confusion, during my travels, among our allied industries, between our Noer Facility and the National O.J. Noer Research Foundation. I urge you to be clear in your communications to distinguish and clarify their perceptions.

Facility Manager

The loss of Tommy Salaiz, our first facility manager, has made for an interesting winter and one in which Julie and I began our indoctrination to University politics. I can only say how grateful we should be for the experience and wisdom of Wayne and Chuck. Much open discussion occurred regarding the future of the position which resulted in the approval to solicit applications. Position descriptions were sent to all turfgrass programs in the nation, including Canada, and the response has been wonderful. Applications have been received from nine different states with candidates who possess excellent practical experience and a sound appreciation of research. We are interviewing the candidates during the latter part of April and may have made a selection by the time this issue goes to press. This is very exciting stuff!

Field Day

The second Field Day held at the Noer Facility will be Tuesday August 17th, 1993. This year's Field Day will include an equipment show, the opportunity to wander through the demonstration areas, and a guided tour of the research plots. Please mark your calendars (you may notice it is the day after the WGCSA meeting at SentryWorld); we'd like it to be the Best Ever!

Turfgrass Pathology Research—
Dr. Julie Meyer, Department of Plant Pathology

Snow Mold Research

In the face of environmental concerns about the use of mercury-based fungicides, the management of gray snow mold will be a major research direction this year and in years to come. In 1992, a bentgrass cultivar trial was established and will be rated for snow mold tolerance over several seasons. In the fall of 1993, evaluations of non-mercury fungicides as well as an evaluation of brewery waste composts/extracts on control of snow mold will be conducted in both southern and northern locations.

Long-term research on snow molds will also be started this year. There is some encouraging work on biological control of gray snow molds that was done in the late 1980's in Ontario, Canada. Researchers at the University of Guelph found isolates of a nonpathogenic fungus, *Typhula phacorrhiza,* that suppressed gray snow mold disease to tolerable levels. *Typhula phacorrhiza*, is a close relative of the Typhula fungi that cause gray snow mold, except that it lives on organic matter and is not a pathogen. This spring we will begin isolation and evaluation of potential biocontrol organisms such as *Typhula phacorrhiza.* We will also be collecting isolates of snow mold fungi from across the state so we can begin to determine the temperature and moisture ranges when the sclerotia of these fungi begin to germinate. This is important to know so that fungicide applications can be timed in the fall to correspond with sclerotia germination—the most vulnerable stage of the life cycle and the time that fungicide applications would be most effective.

Necrotic Ring Spot Research

Necrotic ring spot is a persistent disease on Kentucky bluegrass that needs much more research. Dr. Gayle Worf did excellent work in discovering the pathogen that causes this disease. We would like to carry on his work and continue studying the biology and management of this pathogen. We will set up a cultivar resistance study and also look for opportunities to suppress this pathogen biologically. The first step planned in this direction is to see if the disease can be suppressed by increasing microbial activity of the turf with organic fertilizers or composts. We will attempt to establish a disease nursery of necrotic ring spot for demonstration as well as research purposes.

Additional Cultural Management Research

In addition to snow mold and necrotic ring spot cultivar trials, I would like to continue Dr. Worf's experiments on management of *Helminthosporium* leaf spot with species mixtures. We also have the NTEP tall fescue plots, with 96 cultivars, that will be checked and rated for disease throughout the season.

We know there are interactions between turf fertility and turf diseases, and there are many good research topics to study in this area. This year we plan to evaluate the control of summer patch on *Poa annua* with acidic fertilizers, the effect of organic fertilizers on suppression of dollar spot (and brown patch if weather conditions are right), and the effect of nitrogen on dollar spot of bentgrass. Dr. Wayne Kussow will be a valuable consultant and collaborator in these studies.

We have excellent weather data equipment at the Noer Facility and this is a good opportunity to begin to organize this data for use with disease forecasting models that are available for several diseases, including dollar spot, leaf spot, and *Pythium.* We will also set up the PestCaster and evaluate how well these forecasting models work under our Wisconsin conditions.

Soil and Fertility Research—
Dr. Wayne Kussow, Department of Soil Science

Nutrient and Pesticide Losses from Turf

The objective of this long-term study is to determine how subsoil compaction influences runoff and leaching losses of nutrients and pesticides from turf. Installation of the plots and runoff collection systems was largely completed in 1992. Some adjustments remain to be made and pan lysimeters installed in each plot. The Kentucky bluegrass will be managed to simulate a home lawn situation with regard

to fertilization, weed control, irrigation and mowing. Volumes of runoff and leachate will be measured and samples analyzed for nutrient and pesticide content.

Development of Standards for Organic Amendments in Sand Matrix Putting Greens

Experiments are underway to provide measures of the biological stability of a large variety of organic amendments and to relate this and numerous other properties to the greenhouse performance of mini putting greens. Installation of forty 8' x 8' putting greens at the Noer Facility was 70% completed last fall. Their construction will be completed as soon as weather permits and the greens seeded to 'Penncross' creeping bentgrass. Observation wells will allow us to monitor soil moisture in each green, periodically sample the rootzone mixes to measure composition changes, and to observe root growth throughout the season. Frequent visual ratings will serve to characterize treatment effects on bentgrass establishment and changes in quality over time.

Environmentally Responsible Nitrogen Management

This study, begun in 1992, will continue for at least two more seasons. The objective is to identify N management strategies that provide satisfactory Kentucky bluegrass color and quality while minimizing clipping production and avoiding leaching loss of nitrate. The N variables are carrier, rate and frequency of application.

Temperature Dependency of N Release from Milorganite

This study is still in the planning stage, but 1993 implementation is anticipated. The basic premise of the study is that effective use of Milorganite as a turf fertilizer requires knowledge of how temperature affects microbial release of the predominantly organic N in Milorganite.

Turfgrass Physiology and Weed Research— *Dr. Frank Rossi, Department of Horticulture*

Predictive Weed Models

The objective of this research is to quantify developmental stages of weeds to properly employ integrated management strategies such as biological control options. We will initiate experiments designed to determine the environmental conditions (soil moisture, light penetration through the canopy, degree days, etc.) necessary for the emergence and growth of turfgrass weeds such as crabgrass and annual bluegrass.

Winter Injury Research

The objectives of this broad based project are to determine various causes of low temperature injury and freezing stress (crown hydration) and investigate cultural management options which could minimize this severe stress problem. Species and cultivar evaluations will be initiated to determine individual selections and mixtures which afford greater winter hardiness under several maintenance programs. Laboratory research will be initiated with Chris Bullinger (the WTA Research Asst.) to investigate cellular level response to low temperature and freezing stress.

Creeping Bentgrass Seeding Density

We will conduct this experiment at three locations to determine the affect of seeding density on establishment rate, seedling vigor, wear tolerance, and disease infestation of creeping bentgrass. There are many questions which continue to arise regarding the amount of seed required for optimum density. Are we sacrificing long term sward vigor for immediate dense and finer leaf turf?

In addition to individual projects, the UW Turfgrass Research Group expects to collaborate on several projects as part of the continued development of our program. As a group, we will continue the species and cultivar evaluations, herbicide, fungicide, fertilizer and plant growth regulator evaluations, and begin construction of our experimental greens.

Answers to the puzzles on page 18.

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LAND FOR GOLFING

By Pat Norton

How interested we all are in the land of Wisconsin. If others out there are like me, then there's very strong interest in "the land". We are basically land managers, of some very beautiful properties, I might add. We are also stewards of the land; we manage our properties with an emphasis on the long-term welfare of the land.

How many times have you driven around your area of the state and seen property not properly maintained? These sites can range from the new subdivision that devotes little attention to erosion control or plantings to the convenience store with absolutely no landscaping to the super discount department stores with their mammoth buildings, mammoth asphalt parking lots, and mammoth amounts of noisy traffic. And precious little landscaping to soften the look of it all.

These developers all have a very poor attitude toward land use. Land to them is something to be developed and exploited for economic gain. Their concern for the almighty dollar is so great that their efforts to keep their completed properties looking good are almost nil. Check out the litter around these businesses the next time that you bless them with your patronage—it's disgusting!

A golf development is a different story. The land is developed for economic gain. It is oftentimes substantially rearranged, and sometimes soil erosion is a big problem. But in the end the land is healed over with lots and lots of grass, trees, shrubbery, flowers and waterways. It is a whole lot more soothing to man and beast to gaze out over a new golf course than the newly paved parking lot at WalMart, don't you think?

I even get disgusted with the landowners at my place of employment. We have lot owners who, despite the covenants and restrictions, totally neglect their golf course adjoining lots. Half buried silt fence, weeds out of control, and inexcusable erosion are all too common. What is most galling is their attitude that their land will sit "as is", looking like an open sore, until they are damn good and ready to correct the problems.

Refreshing are those landowners who constantly care for their properties, whether they own just a half acre or seemingly half of the county. They are out there caring for their land—planting nursery stock every year, constantly fussing over their lawns, and endlessly edging their sidewalks. At times I do feel a twinge of guilt as I watch them labor—usually as I recline on my decaying deck with an Export Lite in hand.

Good land conservation practices are a must for the farmers of Wisconsin, who are our best land stewards. These people live a lifetime on the land and rely on it for their livelihood. Not because it is fun, funky or politically correct to be an environmentalist do these families take such good care of their land. It's because their economic survival depends on it.

Golf course superintendents have many things in common with Wisconsin's everyday agriculturalists. We share with them our love of nature and the outdoors, an interest in agronomy and horticulture, and an attitude that tending to the land is important, more important than making the maximum buck by working at some other endeavor.

Our neighbor here at Cedar Creek has his solid, third generation farmhouse overlooking our shop and the southern end of the golf course. More than a few times Herb and I have been out in his yard at sunset, experiencing the quiet, relaxing time with absolutely no neighbors or traffic noise.

Herb Jr., is a former employee and a good friend. This young sprout recently closed a real estate deal for himself and his bride-to-be. For about $500 an acre, he purchased 80 acres of land north of LaCrosse. Admittedly this isn't prime farmland, but it would make a great golf course!

Owning land is no big deal to this young man, although he's excited about it. Tending to his land will be second nature to him—it's in his blood. I am more than a little bit envious of young Herb—he's actually owning a piece of the American dream.

What people do with their land is always of interest to me. I like watching real estate development in progress, watching a project take shape.

Of special interest are those properties that are destined to be greenscapes or golf courses. I do believe that land can be intelligently developed and enhanced by man. New golf courses are most times an intelligent use of land, providing that enough acreage is involved to create natural areas and buffer zones.

People who object to golf course development need to understand that developers and managers have a keen interest in the land, the water, and the wildlife that make up most every golf course. The reason we spend the long hours on our courses is for the love of the land.

Owners, board members, and golfers in general should understand that the people out on the course are great land managers. Without us all the land would most certainly return to its original native state.

Fortunately there are those few golfers who do realize what's really important out at the golf course, and we are not talking about the damn handicap sheets in the locker rooms! These golfers are really enjoyable—you get the feeling that they would really love to dig in and plant trees or mow greens.

Most others couldn't care less. They are interested in the game of golf, the competition, the social or business opportunities. They have no idea how it all works, and oftentimes belittle or demean our work.

These people do not share our love of the land, possess our love of nature and the outdoors, and do have a different

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