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**President's Message**

For those of you who did not attend the Western Open, it should be noted that the MAGCS provided a combination Public Relations/Hospitality tent for its' members and guests. In doing so the MAGCS took its' first step in introducing our profession to the public and at the same time provided an excellent facility for MAGCS members to congregate during the staging of the Western Open. This idea and the concept of promoting ourselves as leaders in the golfing industry are of great importance to each and every one of us. The game of golf is expanding very rapidly. We as golf course superintendents have proven we can keep pace with the increasing demands put upon us by the golfing community. Similarly the MAGCS and GCSAA are prepared to keep pace and be recognized as the leaders that we are. Ventures such as the Western Open are opportunities to highlight the key role superintendents are playing in the growth of the game of golf.

At this point I would like to thank several individuals who made the idea of having a Public Relations/Hospitality tent at the Western Open a reality.

First of all Oscar Miles. His efforts began with negotiating the idea with the Western Golf Association and continued through by assisting us with the set up of the tent and personally handling the logistics of supplying refreshments.

Secondly, the entire plan came together with the help of Warren Bidwell and the Tee - 2 - Green Corporation. Their generous donation made the entire concept financially feasible for the MAGCS.

Third, our board of directors. Their efforts in organizing and staffing the tent within a very limited time frame was crucial to success. On a special note, every member should be aware of and read the promotional flyer prepared by Jim Evans.

Last but not least, special thanks to Peter DeYoung, Western Open tournament director, and the Western Golf Association for extending the invitation that made this all possible. We appreciate your generosity and your respect for the profession of golf course superintendent.

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*David R. Behrman*

**David R. Behrman, CGCS**

## Director's Column

by A. T. Fierst, Oak Park C.C.

The golf season is in full swing for both the player and the golf course superintendent. Both groups have weathered many extremes — too much heat, rain, play, disease, wilt, pressure, and not enough time, money, material, manpower, and understanding. The list could go on ad nauseum. What we all seem to enjoy is the opportunity to gather and share ideas, problems, and solutions. We are given the opportunity to gather by the good graces of host superintendents and their very tolerant clubs. It's not easy to organize a meeting of any size, let alone the size and scope of a Midwest Association meeting.

Asking a facility to either make room for a hundred plus players or open up on a day off for an outside outing is very difficult. But asking is easy — no where near as difficult as actually hosting an outing such as a Midwest event. The details, decisions, and phone calls are made with the goal of an enjoyable opportunity to share the aforementioned company of superintendents.

The superintendents going to the trouble and the worry that hosting a meeting can bring really deserve your thanks — they all have done a great job. It would be nice, however, if it were not such a difficult task to get volunteers to host a gathering. Going through the directory and determining potential locations can be very tedious and waiting for volunteers usually becomes hopeless. And the numerous "false starts" of maybes and "I'd like to possibly think abouts" make one feel like he's chasing the Holy Grail.

Be sure and individually express gratitude to the gracious hosts of our events, each and every one of them deserves all the accolades coming to them.

Since we are touching on volunteers, it soon becomes time for nominations and elections to the Midwest Board. Roger Stewart is chairing the Nominating Committee and would like to hear from you. If you desire to serve on the board or perhaps have someone in mind to recommend, please contact him or any Midwest Assn. board member. It can't hurt to volunteer your thoughts or ambitions and the Association has thrived for a number of years because of ambitious people on the Board. The Association needs active, progressive members to serve in leadership roles and to direct the policies of our Association in the coming years. Remember — if in doubt, volunteer! Ultimately you'll help yourself and your professional associations by showing the willingness to be one of those involved.

---

### "Reward"

The Light at the end of the Tunnel,  
Shows Autumn is on It's way.  
After a long hot Summer,  
Seems natural to look forward to that Day.  
The test of Summer's stress is passing,  
The Dog Days will have ceased.  
The price of Summer's pleasantries,  
Are sometimes high to say the least.  
Rewards are great when Autumn comes,  
Relax and reap Your share.  
It's gratifying surviving Summer's stress,  
To breathe in Autumn's Air.

Kenneth R. Zanzig

## Golf Course Aerification

by Robert N. Carrow, Associate Professor  
Agronomy Department, University of Georgia

Turfgrass *cultivation* refers to the working of the soil without destruction of the turfgrass sod. The term *aerification* has the same meaning as cultivation and is used to denote any type of cultivation. The term *aerifier* was the original patent name for a coring device. Several different methods of turfgrass cultivations are available, each with unique advantages and disadvantages — coring, shattercoring, grooving, slicing, spiking, forking, and subaerification.

### Coring

Coring is a method of turf cultivation in which soil cores are removed by hollow tines, screw devices, or spoons. The soil cores may be dragmatted back into the turf as a topdressing or collected and removed. Core diameters are from ¼-¾ inches, depth of coring is 3-10 inches, and spacings are from 2-6 inches. Units may be power driven or tractor drawn.

Timing for coring depends on the situation; (a) Cool-season grasses — early to mid-spring and late summer to mid-fall. Sometimes late fall for football fields. (b) Warm-season grasses — mid-spring to mid-summer.

On severely compacted areas coring may be necessary at other times than the above recommended dates. For example, warm-season grass tees may need to be cored in the fall.

The soil should be moist when coring. A light topdressing following coring of a close cut turf may be desirable.

### Shatter-Coring

Shatter-core cultivation uses standard core aeration equipment but solid cores are used instead of hollow cores. The objective is to "shatter" the surface zone, which is best done when the soil is somewhat dry. This is a new procedure and very limited data exists. A few comments relative to this procedure are:

- It works best on soils high in clay and silt.
- Only the surface zone has appreciable shattering. Pushing the soil cores into the soil is very likely to create a "plow pan" effect after several operations — where a compact zone occurs several inches below the soil surface. Thus, the "net" benefit (or disadvantage) of using shatter-coring may require some time to judge.
- Since little soil is brought up and incorporated into the turf, this method would not be expected to control thatch.

### Grooving

Grooving is a cultivation method where vertical, rotating blades cut continuous slits through the turf and into the soil; with soil, thatch, and green plant material being displaced. The vertical *blades are power driven*.

A verticutter or dethatcher with the blades set down to cut into the soil is a small grooving machine. Large tractor drawn models are available. The Rogers/Jac Seeder acts as a groover when the front blades are power driven. Thus, models are available from ½ inch depth — 1 inch spacing to units with 5 inch depth — 2 inch spacings. Since the blades are power driven, these units dethatch while cultivating. They are often used in renovation of an existing turf.

Timing is similar to coring. Since both cultivation methods cause some injury to the turf and leaf openings, at least 2-4 weeks of good growing weather should follow grooving. The soil should be moderately dry for most effective grooving.

(cont'd. page 4)

### Slicing

A turf cultivation method is where vertical, rotating knives or discs slice through the turf and into the soil. The knives or discs are not power driven but depend on the weight of the unit. Since the units cut through the turf and soil without power blades, these units do not dethatch while cultivating. Depth of penetration is 1-4 inches and at 4-7 inch spacings.

Slicing can be done at any time of the growing season and as often as every 1-2 weeks. The soil should be moist. On close cut turf topdressing may be desirable.

### Spiking

A turf cultivation method in which solid tines or flat, pointed blades penetrate the turf and soil surface. The depth of penetration depends on the weight of the machine but is generally shallow (1/4-1 inch) and at about 1-2 inch spacings. This is a mild form of cultivation and the effects may only last a few days.

Spiking can be conducted at any time of the growing season and on a frequent basis. The soil should be moist.

### Sub-Aerification

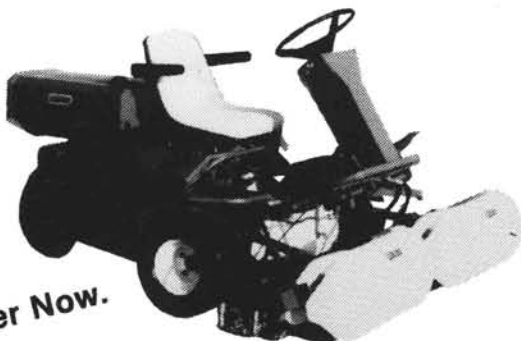
Sub-soiling refers to subsurface cultivation by means of vibrating blades. The units generally cut slices into the turf at 8 inch spacings and 7 inch deep. The blades vibrate to breakup compacted layers and shatter the subsurface soil. The soil should be moderately dry.

Sub-aerification can be done at any time of the growing season. It is most effective on heavy soils. If surface compaction is the major problem, these units are not more effective than slicing.

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### Forking

A method of cultivation in which a spading fork or similar solid tine device is used to make holes in the turf. The effects of forking are short lived. This method is useful for small localized areas.

Just as with any cultural practice, turf cultivation is done for certain beneficial responses. The grower should evaluate what his problem is and choose a cultivation procedure that will alleviate the problem. For example, thatch buildup on a bermuda fairway will not be corrected by slicing or shatter-coring but grooving or core aeration could be very effective since they bring up considerable soil that acts as a topdressing. If an impervious surface layer is hindering water infiltration, core aeration followed by topdressing would be more effective than spiking or slicing. However, spiking or slicing might be used if the growing conditions were unfavorable for grass recovery from the more severe coring plus topdressing operations. Perhaps the problem is a layer or compacted zone beneath the surface few inches. The best approach would be subaerification or drill-aerification.

The basic benefits of turf cultivation are presented in Table 1. As can be seen from the above example, a particular method of cultivation may not provide all of these benefits.

Table 1. Basic benefits from turf cultivation

1. Alleviates soil compaction at least temporarily
  - better air and water drainage
  - better rooting media

(cont'd. page 7)

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### What's Happening Here?

Phil Taylor has resigned from the MAGCSA Board and has gone into the ranks of sales with Illinois Lawn Equipment, Inc. Good luck Phil, in your new career! If anybody has been counting, this makes the 3rd MAGCS Director this year to leave the greenkeeping field and venture into sales.

Bruce Williams is asking for comments on the certification of superintendents. He has a meeting to go to in Lawrence and will take any suggestions with him. Call him before October 1.

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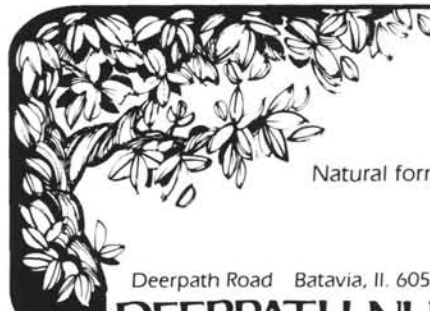
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(Aerification cont'd.)

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5. Helps correct localized dry spots
6. Improves fertilizer, lime, and pesticide penetration
7. May improve new shoot growth from cut rhizomes and stolons
8. Improves soil resiliency

Problems can arise from the use of an improper cultivation method or timing of cultivation. Common problems often cited are: (a) Any cultivation practice causes at least some injury in the turf. Thus, the timing of cultivation and choice of procedure are important. Cultivation should only be done if a problem warrants it. (b) Cultivation may leave openings for weed encroachment. This is especially a problem on sites where *Poa annua* seed are present. Early spring and fall coring can provide an excellent environment for *Poa annua* germination. (c) On close cut turf some procedures can leave the soil surface uneven. Top-dressing can help smooth the area. (d) Many growers are concerned about disturbing the preemergence, annual grass, herbicide zone when cultivating. Recent research at several locations indicate that this is not likely to occur unless the cultivation procedure is very severe — such as grooving or coring several times over an area. (e) Desiccation of the turf may be enhanced by late fall or summer cultivation, especially on close cut turf or one with excessive thatch. Irrigation immediately after the cultivation operation often reduces this problem.

Credit: Proc. 33rd Ann. Florida Turfgrass Conf.

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Reservations and billing can be arranged at I.T.F. headquarters: Phone 644-0828. Your golf course assignment and itinerary will be given to you at that time. Donations for tickets are \$75; this includes lunch, cart, golf, prizes and hors d'oeuvres.

Proceeds will go towards turf research at the University of Illinois and Southern Illinois University where Dr's. Fermanian, Portz, Wehner and Wilkinson will continue their research for better turf in the State of Illinois.

Sponsors and guests will enjoy an informal, but lavish, hors d'oeuvre party on the lawn at Evanston after golf. Prizes and raffles are part of the day. Guests are welcome and superintendents are encouraged to bring their assistants. Remember this is the inaugural presentation for the Dom Grotti Commemorative Trophy.

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# Aerification — A Comparison of Shattercore vs. Hollow-tined<sub>1</sub>

by Dr. Roy L. Goss<sub>2</sub>

<sub>1</sub>Presented at the 38th Northwest Turfgrass Conference, Sheraton Hotel, Spokane, WA, September 18-20, 1984.

<sub>2</sub>Extension Agronomist-Turfgrass Specialist, Western Washington Research and Extension Center (WSU), Puyallup, WA.

Aerification has been a standard practice on all heavily trafficked turfgrass areas for many years. It is the major means of relieving surface compaction in the uppermost 2-3 inches of soil and mat. Aerification is essential not only to relieve compaction, but to promote faster water infiltration rates, maintain firm dry surfaces and to allow better gas (oxygen) diffusion into the soil. Aerification will also enhance root growth due to better oxygen relationships and a soil that has less resistance for root penetration.

Aerification is more essential on turfgrass areas that were established on soils of sandy loam texture or heavier than it is on those areas established on pure sand. We usually assume that infiltration rates of water and oxygen diffusion rates are satisfactory in sands, although this can change with the accumulation of surface organic materials that are decomposing as well as accumulating as thatch. In this case, aerification also becomes essential. Native soils, due to their fine texture, have greater compactability than sands due to greater total pore space. When fine materials become packed tightly together, air spaces are essentially eliminated leaving only capillary porosity which increases the water holding capacity of the soils as well as increasing their density. The overall effect is poor root growth conditions and surface wetness.

In recent years an old concept of soil tined aerification has been modernized where solid tines are fitted into the Ryan Greensaire aerifier. These tines are bullet-nosed, generally of 1/2 inch and possibly 5/8 inch diameter, and are literally punched into the soil with the force of the downward thrust of the aerifier. Due to the rapid insertion and withdrawal of these solid tines, it is reported that hard compacted soils have become much softer, water infiltration rates have picked up, rooting has increased and overall turf quality has significantly improved.

Hollow tined aerification is the usual means of aerifying turfgrass areas. Problem putting greens with heavy soils, fairways, and sportsfields should be hollow tined aerified up to 4 times annually to help reduce compaction and maintain a better environment for root growth. Obviously, hollow tined aerification will increase water infiltration rates as well. In general, hollow tined aerification should be followed by sand topdressing to place as much sand down the holes as possible to maintain continuity of water flow to the surface. When aerifier holes close over at the soil surface with heavier textured soils, aerification is only a temporary effect.

We have some reservations with respect to hollow tined aerification. Therefore, we have initiated a research project to compare shatter core vs. hollow tined aerification to determine if there are any lone range problems associated with shatter core aerification. It is obvious that the downward thrust of a solid instrument through the soil must create some compaction at the bottom of the thrust. When a solid object is moved through the soil, there should be displacement in all directions. Although the upward thrust of the aerifier tine may loosen the soil throughout its length, it may not loosen the soil at the bottom

(cont'd. page 11)

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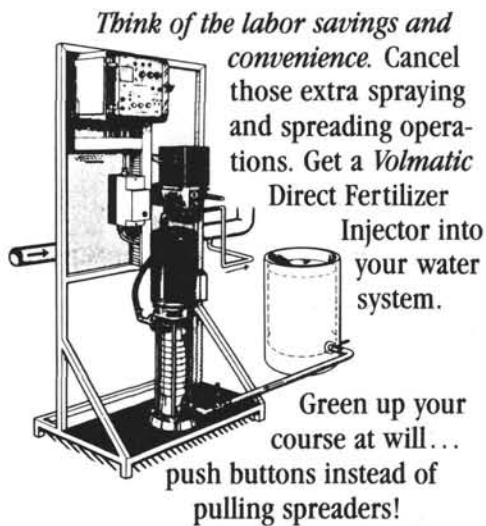


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