THRU THE GREEN

EDITOR
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PRESIDENTS MESSAGE

The power of the telephone, you know, just reach out and touch someone. We all take it for granted, like turning on a light switch. This very powerful tool is essential in our daily lives. The down side is when you began to receive calls like the following.

"Hello my name is Tim Talker and I am responding to your inquiry regarding our wonderful product line of XYZ cleaners, chemicals, light bulbs and trailer hitches. And a, how is it you pronounce your name? Well listen Rob, we would like to show our appreciation for your interest in our products and for your business in the past by sending you a VCR, Tv, cordless drill, or something. This gift will be your and will be given to you **FREE** along with your next order of our wonderful products. This is a special promotional offer to reward our valued customers. You are responsible for the purchasing of materials at the golf course aren't you? "No I'm not". **CLICK!**

That is one way to end the conversation and the quickest I've found so far. I have tried asking such as what products they have sold us in the past, or what inquiry they had received from me. The purpose of my questions was to determine how my number got on the list and who is selling it to them. These calls get my Irish up for a variety of reasons. Lying, Bribery and the incredible lack of respect for our profession are just a beginning of a long list.

Now for the disclaimer, not all phone sales are as tawdry as described above, just most of them. I have received calls from outfits that don't lie and attempt to bribe. They offer a product with which you are familiar in a large quantity at what sounds like an ok price. Fair enough, but do yourself a favor and check with the vendors that support our organization before you buy. In most cases the price will be better.

Our organization is greatly dependent upon the support of our Affiliate Members. The Christmas Party, GCSANC Institute, Scholarship, Research and the California Room at the National are very much dependent upon the generous support given by our Affiliate Members. So the next time you are offered a good deal, check the prices before you leap, it just takes a phone call.

The September issue of Golf Course Management contains an article entitled " A Window of Opportunity" by GCSAA President William R. Roberts, CGCS, regarding the proposed changes to the bylaws of the GCSAA. The changes consist of individual voting versus chapter voting. Simple majority vote required for bylaw changes. New membership classes and allow the board of directors to set dues for members. This article should be read carefully by National Members. The board of directors of your local chapter is also considering bylaw changes to be voted upon for the April meeting. The purpose of the bylaw changes for the local chapter will be to bring our bylaws into conformance with the National as far as Membership Classes.

Rod

om page 1

after an irrigation. This adjusted SAR - expressed as Adj. SAR- reflects the water content of calcium, magnesium, sodium and bicarbonate, as well as its total salinity.)

The pH of irrigation water is seldom a direct problem by itself, but a pH outside the normal range is a good indicator of an abnormal water situation. Very high or very low pHs are warnings that the water needs further evaluation for other constituents. (The use of Ph in evaluating water quality is analogous to the use of body temperature when diagnosing an ill individual; jut as abnormal temperatures indicate an illness but do not specify its nature, abnormal pHs indicate a problem of some kind exists.) The desirable soil pH range for turfgrasses is 5.5 to 6.5. The desirable irrigation water pH, however, ranges from 6.5 to 8.4.

Turfgrasses grow in a very complex turf-soil-water system and not is soil or irrigation water alone. Turfgrass problems associated

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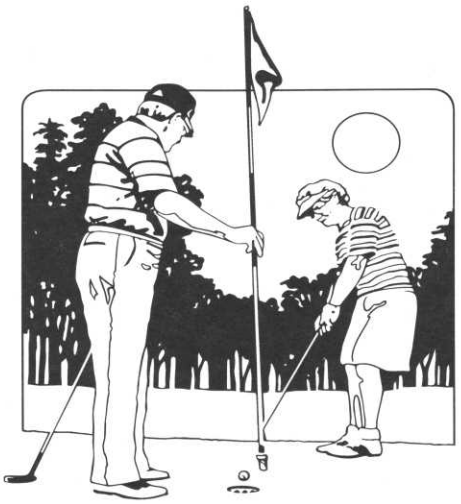

CHILD CARE COOPERATIVE

Those NorCal members planning to attend the 1993 GCSAA conference in Anaheim with their families are invited to take part in a child care coop. This idea surfaced around dinner one evening in New Orleans last year and I would like to follow it through.

This attempt is to allow members and their spouses the freedom to go out for a quiet (childless) evening once or twice while still having the kids with you for your stay in Anaheim. Ideally I can pair small groups, say 3,4, or 5 children together so there won't be a burden to the various hotels. If you wish to join this group you should expect to do your share watching some other children.

Please call me at 510-653-6789 ext. 118 if you wish to join this Freedom Group. I will attempt to group kids by ages and hotels if possible.

Randy Gai

VERTICUTTING & VERTIGROOMING :

Verticutting (vertical mowing) is a cultivation practice involving the use of vertically oriented knives mounted on a rapidly rotating, horizontal shaft. (A.J. Turgeon. *Turfgrass Management*, third edition).

Verticutting and vertigrooming are not the same and should not be considered equal as turf management tools. Verticutting is a necessary cultural practice probably equal to aerifying in its importance to quality turfgrass and putting surfaces. Vertigrooming is a fine-tuning of the playing surface that will enhance the ball roll and appearance of the turf.

VERTICUTTING

The objectives and benefits of verticutting varies, depending on the depth and spacing of the knives and the turf manager doing the job.

Major objectives of verticutting are thatch removal, reduction of grain, and compaction relief. Most turf managers agree that controlling thatch and reducing grain are the primary reasons for verticutting. Others contend that stimulation produces new leaf growth, making the putting surface more manageable.

Other problems that can be solved with verticutting: breaking up algae an putting surfaces; accelerating spring transition by injuring ryegrass and promoting bermudagrass; aiding overseeding to reach the soil during fall overseeding projects and, to some extent, removal of *Poa Annua* seedheads, thus improving the appearance of the putting surface.

Consideration should be given to the condition of the putting surface prior to the initiation of a verticutting operation. Shallow rooted turf can be seriously damaged by verticutting. The turf should be healthy and vigorously growing at the time of the operation to speed recovery.

Another factor is the disruption of the putting surface and the negative reception from the members and golfers. Be sure to properly notify everyone concerned of the scheduled operation and its effects.

WHAT IS VERTIGROOMING?

A new equipment option from major manufacturers, a vertigroomer is part of a cutting unit designed to simultaneously vertigroom while the mower is cutting.

Generally, the depth of the knives is limited and the vertigroomer is incapable of deep verticutting. The "brush" or "comb" traditionally found on the cutting unit is replaced by the vertigroomer. It is debatable whether the same objective applies to these attachments. Brushing stands the grass blades up allowing for a smoother cut. The vertigroomer may accomplish this as well, but many feel this is a side effect of vertigrooming with the main objective being a minor reduction of leaf surface. Some believe this reduction reduces friction allowing additional speed and more consistent ball roll. In addition, the stimulation of the turf increases microbial activity at the soil surface resulting in better gas exchange and increased turf vigor.

COMPARING VERTICUTTING AND VERTIGROOMING OPERATIONS

Verticutting usually has more visual impact to the golfer, while vertigrooming can be accomplished without the visual effect. Since vertigrooming can be done more often with less visual impact, it is not always necessary to notify anyone of the procedure.

Most turf managers prefer to lightly topdress following verticutting. This also helps decompose thatch and smooth the surface. The addition of topdressing increases the negative visual effect to the golfer. Many perceive the green speed to be reduced on topdressed greens. The opposite is generally true.

The topdressing fills irregularities in the putting surface, i.e., unrepaired ball marks, scuff marks, and minor tire depressions. This contributes to speed and "trueness" in the putting surface.

Scheduling of verticutting should be based on the need to verticut and the turf's ability to recover. Most superintendents agree that twice annually would be the minimum. Vertigrooming can be carried out more frequently since the process is less severe with little obvious impact.

Manufacturers suggest that vertigrooming be done two to three times weekly. Obviously, the lighter the setting the more often the vertigrooming can be done. Vertical mower attachments for triplex greensmowers are the most popular equipment because they are fast and usually trouble free. Other types include walk-behind units and tractor mounted, PTO (power take-off) versions.

Each equipment selection should be based on the suitability of that unit for the particular golf courses and the function it is to perform. Vertigrooming equipment is an extra cost option on greensmower reels, walk-behind and triplex. Triplex mowers can be equipped with vertigroomers and have interchangeable verticutting units. Again, these choices should be made with consideration of the intended use and suitability for the site.

Most turf managers agree that double verticutting (two directions per operation) is more beneficial and keeps the putting surface

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DIFFERENT OPERATION WITH SIMILAR NAMES

consistent. Because vertigrooming can be accomplished several times over a one week period it only requires one direction for its effect.

The depth of cut varies from one turf manager to another, but have common criteria. For example, the major verticutting operations conducted each year should be deep enough to remove thatch and allow top dressing to incorporated into the thatch layer, enhancing decomposition. If reducing rain is the objective, a lighter touch is recommended. Usually setting the knives art or fractionally above the bottom of the roller is sufficient to accomplish this.

When verticutting greens, a crossing pattern at 90 degrees produces a pattern that members and golfers will find tolerable.

Vertigrooming on the other hand can be done in any direction for consecutive days. Emphasis should be placed on straight lines to minimize negative responses from players. If [redacted]ets are used, some of the material will be collected and clean up labor will be reduced. A large vacuum/sweeper can also be used to collect debris. Generally, labor costs are minimal when light verticutting or vertigrooming is done. The more severe the procedure, the more costly the project in terms of time and labor.

VERTICUTTING TEES AND FAIRWAYS

It should be noted that verticutting is also necessary for the same reasons on tees and fairways and (if you have the luxury) even roughs. Thatch build-up in tees and fairways can be a problem. The plant vigor and appearance can be greatly enhanced with a regular program of verticutting in these areas.

To date, vertigrooming equipment is not available for fairway mowers, but, verticutting equipment is.

The degrees of verticutting will regulate the amount of time and labor needed to complete the operation and clean up the debris generated in the process. A verticutter set to enter the soil is likely to leave large amounts of material on the surface.

This material is usually a mixture of decomposing thatch, clippings, and soil. One method of clean up is to drag this material back into the grooves created by the verticutter, effectively reincorporating the material and accelerating the decomposition process. Another method is to mow the area with baskets to collect the material.

Remember that the benefits can easily be offset by damage if the turf cannot recover. Turf under stress from weather, insects, and/or disease has lower carbohydrate reserve and a lower tolerance to additional stress. Hot, dry weather causes rapid dessication of the grass plant following verticutting and turf loss is a real possibility. Wet, rainy weather saturates the soil, closing pore spaces and increases susceptibility to inoculation by disease organisms.

CONTRACTING SERVICES

Recently, contractors have begun offering verticutting and de-thatching services to golf courses. Opinions range from very positive to extremely negative about the use of contractors. A common thread running through groups of superintendents is that a turf manager that would contract spraying, aerifying, sod work, and other services would be more likely to contract verticutting.

There are some advantages in the use of a contractor. First, this is his specialty[and and he must be efficient if he is to make a profit. Second, hiring a contractor will free up labor, allowing golf course maintenance to continue uninterrupted. Third, there is usually recourse for the golf course if the job is not properly done or if unreasonable damages result from poor performance or materials. These questions should be asked of contractors prior to entering into nay agreement about service.

THE BIOLOGY AND CONTROL OF LOCALIZED DRY SPOTS ON SAND GREENS

Hydrophobic (non-wettable) soils occurring on bentgrass sand greens constructed to USGA specifications have been previously described and partially characterized. These areas, which resist wetting, have been termed localized dry spots (LDS). The LDS syndrome starts with the turf turning a blue-green color followed by a loss of turgor and finally shoot die-back. The symptoms observed are usually in irregularly shaped patches of variable size. Frog-eye type patches, characteristic of some turfgrass patch diseases, have been observed but are not predominant. Symptoms are most severe in hot, dry weather. Lower temperatures and adequate water will result in regrowth of the shoot system of plants that survive. Management practices for the the control of LDS are inconsistent at best, yet the following practices have aided in reducing symptom severity. Top dressing with sand that contains a minimal amount of "fine" particles. As will be discussed later, small particles (especially in the silt-clay size) may tend to aggravate the problem over time. Repeated core cultivation, especially in the spring and fall, has helped reduce the severity of LDS. Wetting agents, which reduce the surface tension of water, have given some degree of control for LDS, but are best used in a preventative program. Syringing of the greens may be used as a stop-gap measure, but primarily serve to lower the canopy temperature and rarely will alleviate symptoms. Frequently, various combinations of the above strategies are necessary, and a trial and error type approach is needed, to achieve adequate control of LDS.

Previous studies have shown an organic coating is present on sand grains associated with LDS and removal of the coating yielded substances with an Infrared (IR) spectra characteristic of fulvic acids. Fulvic acids are a diverse group of large molecules, common in most soils, that are extractable in solutions with a high pH and do not precipitate when the pH is lowered to approximately 1 or below. Previous studies did not include an extraction of wettable soil from bentgrass sand greens, and therefore it could not be determined if the fulvic acid associated with LDS was unique compared to fulvic acids in the wettable areas.

Studies were conducted at the Ohio Sate University from 1989 through 1991 to provide a more complete characterization of the organic matter and soil characteristics associated with LDS, and included samples from wettable areas for comparative purposes. First, several common classes of soil organic matter were extracted from two different sites, using several extraction sequences, were quantified and analyzed structurally using several techniques. Structural analyses of lipids (compounds that are similar to oils) were accomplished by gas chromatography/mass spectroscopy (GC/MS) and the large molecules that were extracted in alkaline solution, i.e. fulvic and humic acids, were analyzed by IR and nuclear magnetic resonance (NMR) spectorsopy. Second, particle size distributions were determined and the extend of non-wettability determined for each size range. While particle size distributions have been determined in previous studies, there were no reports of which fractions were the most hydrophobic, if any. Also, the area in the soil profile that displayed the most hydrphobicity was determined using soil columns collected from greens with LDS, allowed to dry down, re-wetted from the bottom, and the distance that was infiltrated recorded at one and two minutes. Finally, since bentgrass roots have been reported to be colonied by various fungi, both pathogenic and nonpathogenic, roots associated from wettable and non-wettable areas were stained and examined for the extent of fungal colonization present.

Results obtained from the organic matter extraction and analysis indicated that LDS soils had greater amounts of ally organic matter fraction studied that soils that were wettable. The only structural difference observed was from LDS that occurred on greens that were three years old, and this was only detected following an initial extraction with metha[illegible] It appears that there is either a unique struct[illegible], or interaction between several structures, occurring in the LDS sample. One possible scenario to explain these results is that a unique structure or structures act to "prime" the LDS areas, and then the syndrome is intensified by subsequent drying cycles, which after several years may mask the unique component that initiated the LDS. The origin of the organic compounds could not be determined in these studies, but it is probably derived from bentgrass roots, soil microflora, or both.

Particle size distribution analysis showed no significant differences between the wettable and non-wettable soils. Hydrophobicity, as determined by how long it took a water drop to penetrate the sample, indicated that particles less than 0.25 mm in size were the most hydrophobic. Since the greens are constructed

GOLF COURSE WASTEWATER SYMPOSIUM

The United Sates Golf Association, in cooperation with the American Society of Golf Course Architects, Golf Course Builders Association of America, Golf Course Superintendents Association of America, and National Golf Foundation, announces a Golf Course Wastewater Symposium on March 4 and 5, 1993. The Symposium will be held at the Newport Beach Marriott Hotel in Newport Beach, California.

Effluent water from sewage treatment plants and wastewater from other sources has been playing an increasingly important role in golf course irrigation as the use of potable water for irrigation has come under public scrutiny. The Wastewater Symposium will bring together turfgrass managers, engineers, agronomists, golf course architects, equipment manufacturers, and professionals from other disciplines who have a role in planning, designing, and operating wastewater irrigation systems.

The symposium will provide practical answers to questions concerning the use of effluent water for turfgrass irrigation and will encourage greater acceptance of wastewater irrigation as a significant means of conserving our most important natural resource. An indexed, peer-reviewed proceedings with valuable summaries, references, and appendices will be published from the symposium.

For more information on the event, contact Dr. Michael Kenna (405-743-3900) or Dr. Kimberly Erusha (908-234-2300) at the USGA.

with 85-90 % sand this size fraction has been largely ignored in previous studies on LDS, but since this is the most chemically reactive fraction, due to the presence of clays, it would not be surprising that this is where organic-inorganic interactions would be the most prevalent. The hydrophobicity was the greatest in the area immediately below the thatch-soil interface. This is the area in the soil profile with the most biological activity, especially in regards to root colonization and thatch degradation. Electron micrographs of soil particles that were approximately 0.1mm in diameter showed that the particles in LDS samples had an extensive organic coating compared to particles from wettable soils.

Roots from both areas n the sand greens were heavily colonized by several fungi including vesicular-arbuscular mycorrhizae (VAM),*Phialophora* spp., *Pythium* spp., and *Ploymyxa graminis*. The VAM appeared to be more extensive in the roots associated with wettable areas, but definitive conclusions should be avoided since the soil was already exhibiting LDS when the samples were collected and so a cause and effect relationship could not be determined. No attempt was made to rate the colonization by the other fungi, they were just observed in roots from both areas.

Results from these studies indicate the role of the bentgrass root system, And associated microflora, on the development of LDS should be investigated in more detail. Previous studies have attempted to characterize the chemical and physical properties of LDS soils, but the impact of biological influences on its development cannot be ignored.
Article seen in Divots, September 1992.