THRU THE GREEN

GCSANC

OFFICIAL PUBLICATION OF THE GOLF COURSE SUPERINTENDENTS ASSOCIATION OF NORTHERN CALIFORNIA

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OUR OBJECTIVE: The collection, preservation and practical knowledge and to promote the efficient and economical maintenance of Golf Courses.

TOPDRESSING:

A WORM'S EYE VIEW

Did you ever wonder what an earthworm might think about topdressing practices on our golf courses? If you haven't, then maybe it's time to take a closer look.

Topdressing for putting green maintenance is an almost universal practice; it is used to true up the putting surface and to help prevent thatch buildup. In recent years, topdressing programs have also been used to increase putting green speeds. If it is done with care and follows some simple guidelines, topdressing can also modify the basic structure of the green. This will improve water handling capacity and add to the life and health of the green and the turfgrass on it.

Topdressing practices are a major reason for the success or failure of new greens. With adequate basic construction and an informed superintendent, new green can have a predictable life of 20 years or more. Without these fundamentals, the same green can be in serious trouble within a year.

Although topdressing is used widely, the how and why of its function are often misunderstood. We were not aware of the wide variance in practices until recently, when our laboratory developed a new technique for analyzing rates of field infiltration. The method involves using three-inch PVC pipe to take a profile of the green through the seedbed, intermediate layer, gravel, and into the subsoil beneath the green. The tube is submitted whole, tightly packed to prevent movement of the contents. After doing the infiltration test in the pipe, we cut it open to try to determine the reasons for its behavior. In a startling number of cases, it is apparent that topdressing practices have created the problems we've found. There are cores that look like appetizing Viennese tortes,

made up of many layers of differing sands and soils, and cores that have been dubiously blessed with every commercial topdressing of the past 15 years, one after another. We find poor greens topdressed with superb materials, and great greens smothered with the cheapest filler available. we have found we can count layers like the rings in a tree and determine when the course changed superintendents, when the budget crunch came, and the year of the big flood, blizzard, or drought. We also see greens that have been maintained to perfection, and are very successful regardless of their age. While it is possible to have problems with the best built and maintained greens, the problems are usually more manageable and involve less brinkmanship on the part of the superintendent to correct.

To understand why correct topdressing practices are so important, it is necessary to think about the growth patterns of turfgrass and to have a basic grasp of water movements in soils.

Where distinct layers of materials exist in a profile, grass roots make a little effort to grow through one layer and into the next. If the roots have as much as an inch of one material to grow in, however poor it is, they will not cross into another layer even though that layer may have optimum growth medium characteristics. We often see well-constructed seedbeds with an inch of a different but equally good topdressing. The turf can usually be peeled off like a rug at the interface, because the layers aren't bound together by a network of roots. Where shallow root systems exist, turfgrass is vulnerable to problems from many sources.

Not only do layers affect the root systems directly, but there is a further problem with water movements through textural barriers. To visualize this involves understanding the way a perched water table works. The perched water table, which is incidentally, the basic principle upon which the USGA recommended method of greens construction is based, affects all soils. Simply put, the original research demonstrated that water remains within one layer until that layer is saturated. Then it drains into the next, which again must be saturated before it can release excess water.

As layers of topdressing materials different from the basic green are built up, they create additional perched water tables and cause unpredictable consequences. Relatively small variations in soil content and particle distribution can produce significant differences in the interaction of these materials.

Once these principles become clear, choosing appropriate materials for topdressing becomes simpler.

New greens should be topdressed initially with the same mixture of materials they were built with. Thus, in building a new green, plan during construction to set aside a supply of construction material adequate to topdress for at least two years. It is prudent to make sure the supplier will have the identical sand available in the future, and keep a supply of the organic material used construction for an indefinite period.

After a period of time, which will vary greatly in individual cases, the roots will begin to provide enough organic materials to meet their own needs for retaining water and for cushioning from the abrasion of heavy traffic. Because this is a gradual process, only by observing the root zones regularly can you know when you reach the point for a gradual cutback in the organic component. This is done best by looking at the root systems regularly. A cup cutter is a good tool to use for this examination. Go to an average area on the green and cut the deepest cup possible. Carefully extract the plug from the cut and look at the roots. In an ideal situation, the material around the roots is very similar to that below, and the roots themselves are plentiful and have a plump, healthy look. There should be no compacted area developing, nor any indication of unusual moisture retention. The topdressing program is

ideal if these criteria are met.

If the top two to three inches of the core are hard and the root system scanty and weak, the organic component is very likely inadequate, and there may be an excess of silt and clay. It will be necessary to use aerification with core removal, and topdress with a clean sand of a similar type combined with about 10 percent organic material to correct this development. If the soil is becoming spongy, the organic material should be cut back gradually over several topdressings until pure sand is being is dealing with more quickly through this method than with any other single tool at his disposal.

A variety of conditions may be discovered in an older green. There may be layering from multiple topdressing. This condition can be relieved to some extent by aerifying several times, removing cores, and topdressing each time with a clean sand in the medium to fine size range. This technique will be helpful if the layer is less than three inches deep.

Problems may appear in the form of a spongy upper layer, perhaps resulting from on-site mixing during construction, which has left excessive quantities of organic material in the upper portion of the green. This is more difficult to correct, although the same basic technique may be tried. It is sometimes necessary to remove the sod and remix the seedbed before real gains can be made.

The upper layer may be hard and compacted, indication an excess of silt and clay in the topdressing material, often in combination with very fine sand. Here again a very clean medium to fine sand may be employed in conjunction with aerification. It can be helpful to add up to 10 percent peatmoss in this instance.

Beyond the top three inches or so, it is almost impossible to make significant changes in the green's behavior using topdressing modifications. New technologies developing in some areas may make it possible to modify most of the seedbed. Time and experience will give us a better idea of their long-term effectiveness.

A current trend, which has caused many problems, is the building up of a sand layer on top of greens that are basically soil in order to improve putting speed. While it is possible to modify the greens in this manner, it should be done gradually over a couple of years rather than in an abrupt changeover. the modifying sand should be selected and mixed into the existing topdressing in a ratio of about 25 percent of volume. This material should be used several times and then further divided into a 50/50 proportion for several more topdressing. Continue increasing the quantity of sand in the topdressing until roughly a two-inch transition layer has been built up. This slower procedure allows the soil and sand to blend well enough for water to be moved as if there were no change. The infiltration rate will be that of the soil portion of the green of course. Regular aerification should be done throughout the transition period, and cores should be removed each time.

If the original material of which a good green is built becomes unavailable for topdressing purposes, it is crucial to locate the closest possible substitute. This can be done by taking the particle analysis of the original sand to area sand suppliers to seek a match. Fortunately, similar sands are often available from the same area. Locating a close substitute will allow a continuing successful topdressing program.

Regular examinations of the seedbed using this core sampling technique are helpful in becoming aware of problems before they develop into serious conditions. Success or failure often takes place on the worm's eye level.

Topdressing is more than a filler. It plays an active part in keeping good greens good, golfers happy, costs down, and aggravations to a manageable level. These are goals well worth pursuing.

Article by Judith Ferguson Gockel, Agri-Systems of Texas, Inc. as seen in The Florida Green.

Start the 90's right at the

26th Annual Northern California Professional

TURF AND LANDSCAPE EXPOSITION

Wednesday, January 17, 1990 — 8:30 a.m.-5:00 p.m.
Thursday, January 18, 1990 — 8:30 a.m.-3:00 p.m.

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EDUCATIONAL SEMINARS

Presented by the
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in conjunction with the
Univ. of California Cooperative Extension

Chairman: Ali Harivandi, U.C. Cooperative Extension Advisor

Wednesday, January 17, 1990

Session Moderator: Mr. Steve Kilmer, N.C.T.C. Past-President

9:45 a.m. **Welcome and Introductions**

Mr. John Chamberlain, N.C.T.C. President

10:00 a.m. **Preventive Engine Maintenance for Small Turf and Landscape Equipment.**

Mr. John Hearron, Sales Manager, Pacific Power Equipment Co.

10:40 a.m. **The Green Industry and Ground Water Contamination Issues.**

Dr. Marylynn Yates, University of California Cooperative Extension, Riverside

11:20 a.m. **Turfgrass in Japan - A Travelogue.**

Dr. Ali Harivandi, University of California Cooperative Extension, Hayward

12:00 noon Lunch break

Session Moderator: Mr. Ken DeSilva, N.C.T.C. Secretary

1:30 p.m. **A Legal Update for Turf and Landscape Pesticide Users.**

Mr. Phil Loder, Pesticide Enforcement, C.D.F.A.

2:10 p.m. **Pruning Young Trees for Structural Strength.**

Dr. Larry Costello, University of California Cooperative Extension, Half Moon Bay

2:50 p.m. **1988 California Urban Tree Survey - Complete and in a Nutshell.**

Drs. Elizabeth Bernhardt and Ted Swiecki, Plant Science Consulting and Research

3:30 p.m. Adjournment

Thursday, January 18, 1990

Session Moderator: Ms. Nancy Vorhees, N.C.T.C. Director

9:45 a.m. Welcome and Introductions

Mr. Ray Dawson, N.C.T.C. Expo Chairman

10:00 a.m. **Hydrogel Polymers as Soil Amendments - Boon or Boondogle?**

Dr. Dan Bowman, Dept. of Plant Science, University of Nevada, Reno

10:40 a.m. **A First Class Facelift; The Renovation of the Golden Gate Cemetery Turf.**

Mr. Dennis Kuehl, Director, Golden Gate National Cemetery, San Bruno

11:20 a.m. **A Primer in Fertigation for Turf and Landscape Managers.**

Dr. Dan Bowman

Credits Awarded

* Pest Control Advisor (PCA) Continuing Education: 5 hours
* Certified Golf Course Superintendent (CGCS): 0.5 hours
* Certified Arborists: 2 hours

IRRIGATION MANAGEMENT

In order to determine how efficiently we are able to manage our irrigation system, we have to be able to measure and compare the performance of sprinklers at different locations on the golf course. One of the measurements used is the precipitation rate. By knowing how to calculate the precipitation rate, we can determine how many inches per hour of water are being put out in any area on the golf course. The amount of water that a sprinkler puts out determines how long that sprinkler needs to operate. If the precipitation rate differs from one area to the next, then this becomes one factor that causes station run times to be different.

The precipitation rate is calculated using the following formula -

Prec. rate (in./hr.) =

$$\frac{\textbf{96.3 x GPM of the spklr.}}{\textbf{(Spacing) X (Spacing)}}$$

This formula is for sprinkler systems with square spacing. Typically, triangular spacing provides better uniformity, so many of the more current systems use triangular spacing. The formula for this type of system is -

Prec. Rate (in./hr.) =

$$\frac{\textbf{96.3 GPM of the Sprklr.}}{\textbf{(Spacing)X(Spacing) X .866}}$$

We can compare the precipitation rates for a square spaced system with a triangular system in the following example. Assume a 20 GPM sprinkler with 65' spacing.

Square-- $\frac{96.3 \text{ X } 20}{(65) \text{ X } (65)} = .456$

Triangular-- $\frac{96.3 \text{ X } 20}{(65) \text{ X } (65) \text{ X } .866} = .523$

Since the square spaced system has a lower prec. rate, this system would require longer run time to put down the same amount of water.

These calculations can also be used to compare stations on a golf course if the spacing is different. If we use the same triangular spacing as above, 65' and a 20 GPM sprinkler, our prec. rate is .523 for station I. If the next station on the fairway is spaced at 71', then the prec. rate would be-

$$\frac{96.3 \text{ X } 20}{(71) \text{ X } (71) \text{ X } .866} = .441$$

This is approximately 16% lower than the station next to it. If we were trying to put 1" of water per week on that fairway, then station 1 (65' spacing) would require 114 minutes of water during the week. Station 2 (at 71' spacing), would require 136 minutes of water during the week. If we water 5 nights a week, then station 2 requires a run time 4 minutes longer than station 1. By trying to determine the right amount of water for each location, we can come closer to providing the most consistent playing conditions possible.

Editor's Note: Please send your questions and/or comments to the editor in response to this monthly column .

THANKS MIKE

Many thanks to **Michael Garvale, CGCS,** and the staff at Palo Alto Hills CC for the fine accommodations and food for the November meeting. The weather was terrific. We received respirator safety training from **Carey Krefft,** and all who attended are now within the pesticide laws and regulations.

MEMBERSHIP FOR DECEMBER

CLASS A-PENDING EXAM

Jeff Livacich, Valley Gardens GC, Scotts Valley
David Smith, Tilden Park, Berkeley

Clark "Mike" Glasson, Fall River CC

CLASS F

William Abell, Pittsburg GC

PENDING EXAMS

CLASS A

Jeff Hardy, Moffett Field GC
Evaristo Hernandez, Jr., King City GC

CLASS B

Dana Waldor, Meadowood Resort Hotel
Gary Feliciano, Corral de Tierra CC

A LOOK AHEAD

Christmas Party Rancho Canada	Dec. 1
GCSAA SEMINAR	Dec. 14-15

1990

The Inn at Spanish Bay	Jan. 14-15
Green Valley	Feb. 9
GCSAA National Conv.	Feb. 19-26
NCGA/USGA	March
Annual Meeting	April
Sequoia CC	May
June	Open
July Supt./Pro	Palo Alto Hills CC
August	Open
September	Miravista GC

GCSANC DUES ARE DUE AND PAYABLE NOW-BEFORE DECEMBER 31, 1989. SEND PAYMENT TO:

GCSANC
1233 Kansas Ave.
Modesto, CA 95351

PALO ALTO HILLS CC GOLF RESULTS

GROSS

Scott Lewis	74	$35
Mike Garvale	78	$25
John Winskowicz	80	$15

NET

Alasdair Brownlie	71	$35
Rick Silva	71	$25
Jim Karrick	72	$15

NEWSLETTER NOTES

Larry Norman, Supt. at Pebble Beach Golf Links, is looking for experienced golf course volunteer help for the A T&T Tournament Feb. 1,2,3,4. The experienced help will work either at Spyglass or Pebble Beach on all four days to help prepare the golf course for play for that day. Duties include rake bunkers, establishing galleries via roping from 6AM-9AM. Repair of divots is from 1PM-3PM or after the last group plays through. In the event of inclement weather help will be needed to squeege greens and bunkers. Help is desperately needed on Feb 1&2. Call Larry at (408) 624-3811 Ext. 209 or (408)625-8515 to sign up on the schedule. This is not just for Supt. but for any experience help you might have on your course. For helping, you will receives shirt, sweater,hat, BBQ lunch and tickets for that days event. Last year was a big success, let's help Larry again this year.

The Board of Director's recently approved funding for renewal of the Advertisement in the NCGA Blue Book., Many times throughout the year, job requests and other pertinent questions are passed on from the NCGA to us, since most clubs (Board of Director's) were not able to contact GCSANC directly.

The Golf Course Superintendent's Association of Northern California Information Referral Service has been

in effect for one year now. This service is available at no cost to Golf Course Superintendent's in the Northern California Region. The program is designed to aid those Superintendents who request help from the Association. A committee of Certified or Class A Superintendents covering the geographical areas of Northern California will be available to make a personal call to discuss maintenance and management problems, and to advise the Superintendent of other organizations and materials that are available. This program is no intended to replace other visiting services, but to provide help in and out of the organization for the betterment of the Golf Industry. Requests preferably should be made in writing, or in case of emergency, via phone to the GCSANC office-(408)865-0360.

CLASSIFICATION/MEMBER-SHIP CHANGE

In order to meet our primary goal of support by Class A and B members, we the Board of Director's are submitting the following incentive to the membership.

1. ***For a one year period only,*** if a member wishes to upgrade to a Class A or B, the person must attend 6 meetings in this 12 month period and will not have to test to be upgraded to a Class A or B, if requirements according to the bylaws are met.
2. If a member attends five meetings and cannot make the sixth, they may choose to test at that time.
3. People can still test if they choose for class upgrades.
4. The Supt./Pro and Christmas Party are excluded as qualifying meetings. The GCSANC Seminar and GCSAA Seminar count as meetings.

HELP WANTED

Course Supt. needed for prestigious golf course owned by NCGA. Responsibilities include supervision of 18 holes designed by Robert Trent Jones, Jr., 11-man maintenance crew, landscaping at clubhouse-office area and administration of intern program. Salary range open.
Superintendents and assistants with a strong educational background, solid experience in turfgrass management and good references are urged to apply by December 1, 1989.
Send resume to:
Poppy Hills, Inc.
P.O. Box 1157
Pebble Beach, CA 93953
Attn: Rudy Staedler

ASSISTANT GOLF SUPT. AT MENLO COUNTRY CLUB-Responsibilities include Golf Course Irrigation Systems Maintenance, Club House Lawn and Landscaping, Chemical Application, and Personnel Supervision. Applicants with some Golf Course experience, and preferably some computer and bilingual skills are encouraged to apply. Salary commensurate with ability and experience; good benefit package.
Send resume to:
Menlo Country Club
P.O.Box 729
Redwood City, CA 94064
Attention: Scott Lewis

UTILITY WORKER
Under general supervision, perform a variety of semi-skilled and skilled tasks in the maintenance, repair, construction and operation of golf courses, grounds and facilities. Work week may include weekends. Any combination of education and experience equivalent to completion of the eighth grade and two years of related parks, golf course or landscape construction and maintenance experience. Must possess a valid California Drivers license. Possession of California Pesticide Applicator's License or current golf course experience and knowledge if irrigation and golf practices highly desirable. Filing deadline: December 21, 1989 at 5:00 PM. For application, contact:
Personnel Department
City of Sunnyvale
456 West Olive
Sunnyvale, CA 94086
(409) 730-7490