NEW IDEAS AND PRACTICES FOR TURF MANAGEMENT ON GOLF COURSES IN A CHANGED ECONOMIC ENVIRONMENT

by Vaclav Zolman

The Turf Symposium in Milwaukee, The Turf Clinic at Medinah Country Club, the Turf Conferences at the University of Illinois and Purdue, the Turf Conference and Show in New Orleans, and the Chicago District Golf Association seminar presented new fruitful programs for golf superintendents. The theme of the lectures and discussion was management of golf courses under present economic conditions. An intensive search for new and efficient methods has been aimed at an old problem: turfgrasses cannot grow naturally when attacked by diseases and fungi, or later when invaded by weeds and nematodes. Even more importantly, the results with expensive pesticides are not satisfactory on infected golf courses. Therefore, the superintendents and experts are intensively looking for new natural, practical, and more efficient measures in turf management. In this article, we summarize and evaluate methods used on golf courses in the Northeast, the West, and the Midwest.

I. Old Chicago Turf Management Style

As in most regions of the United States, turf management in Chicago has been developed from the maintenance of pastures. It relies upon the use of certain rules for fertilizing and chemicals. The rules were established for all maintenance work on golf courses. (For example: the soil mixture on greens should be natural or 1/3 soil, 1/3 peat, 1/3 sand or 1:1:1) Fertilizing programs features 12-4-8 formulations. Preventive applications of pesticides (fungicides) started in early Spring and continued at weekly intervals until fall. Soil and irrigation water testing was not considered essential.

Golf courses following the old practices have turf problems, more disease and fungi develop, and weeds, *Poa*, are prevalent. Superintendents rarely produce quality turf uniformly on all greens and tees. Usually, greens and tees must be rebuilt, and fairways reseeded after a period of years. This approach to turf management is very expensive, since the price of fertilizer and pesticides is booming, and the labor for rebuilding greens and tees has increased.

II. Purdue Method of Turf Improvement
(Dr. William Daniel)

The principle of this method is the chemical interaction and affinity between arsenic (As) and phosphorus (P) and arsenic toxicity. Arsenic is more toxic to some weeds, such as *Poa*, than to other turfgrasses. In the beginning, the arsenic program works in favorable soil, good drainage, and climatic conditions. Repeated applications of arsenic accumulate in the soil to a point toxic to turfgrasses. Conditions favorable for spreading disease and thatch is built up.[1] Therefore, the arsenic program cannot be recommended as a permanent turf management practice.

III. California Method of Turf Improvement
(Dr. J. Madison)

In California, turfgrasses on golf courses die because of very high concentrations of salts (sodium) in the topsoil and irrigation water. A fertilizing program including heavy applications of nitrogen and intensive spraying for diseases does not help. Only a light topdressing (80% sand and 20% peat) applied at three week intervals brings good results. Thus, the California method improves the physical properties of the soil, the soil structure, and dilutes the salts in the topsoil. This method of turf management works, especially on greens and tees with high proportions of clay and organic matter. The limiting factor is getting too sandy a topsoil. This method is fully acceptable as a permanent practice.

IV. Northeast Method of Turf Improvement

According to Elliot Roberts,[2] turfgrasses on golf courses in the Northeast were hit hard by Fungus in 1973. Successful results using applications of wetting agents was reported at the Milwaukee Symposium and the Urbana Conference. Theoretically, because of chemical interactions the toxic salts in the topsoil were diluted and leached down into the subsoil, decreasing their toxicity to the turfgrasses.

Wetting agents can help in certain soil conditions, temporarily. However, this method and the fertilizing program contradict each other. On the one hand, reserves of nutrients are being built up in the soil from expensive fertilizers, and on the other hand, the same nutrients are leached out using wetting agents. Wetting agent application can be hazardous if the chemical composition of the soil is unknown.

V. Illinois Method for Turf Improvement
(Dr. Al Turgeon)

Illinois favors planting of new varieties which are genetically resistant to diseases and fungi, and well adopted to the local climate. They emphasize a good preventative fungicide program. However, some pesticides, including mercury, arsenic and lead compounds have been, or will be, banned in many states soon. Some pesticides applied for years in the past remain in residue polluting the soil. These are toxic to the microbial complex in the soil providing a stimulus for spreading disease and fungi. Other pesticides stop natural growth of turfplants if not applied properly (Arsenic compounds, Dyrene, Chlordane, Tersan 1991)

The selection of new resistant varieties of turfgrasses, adopted to our climate is fully recommended, but the permanent preventative pesticide program is not fully acceptable. The safest and most effective program is healthy turf. Balancing the soil environment can be aided by complete soil testing.

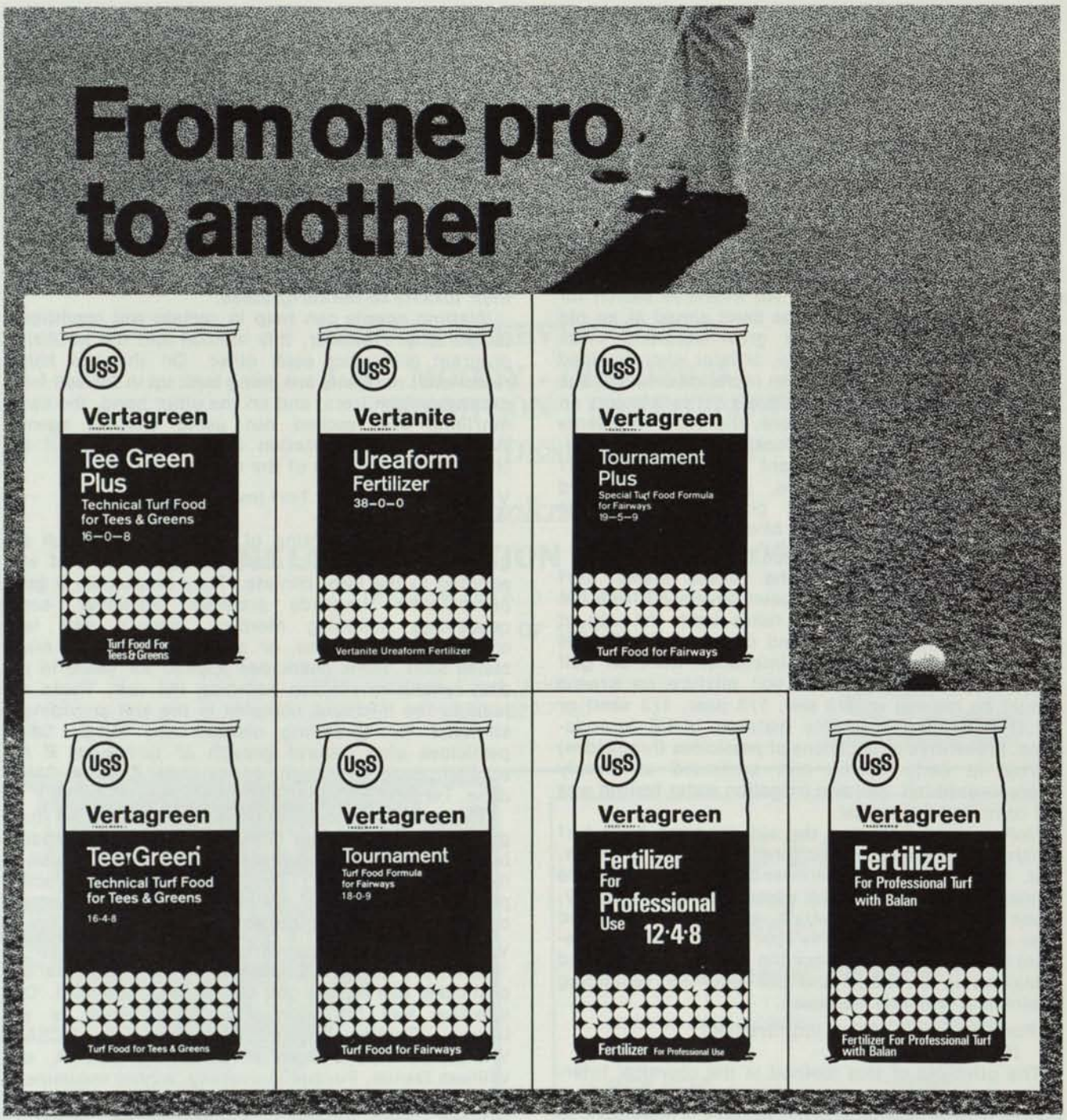
VI. Up-to-Date Management in the Chicago Area

Inflation, recession, rising prices of fertilizers and pesticides has hit the golf course business hard. One effective tool for economical management is soil testing. Charles Baskin, past president GCSAA, William Knoop, Director of Education GCSAA, and William Daniel, Purdue University, highly recommend soil testing. At the National Conference in New Orleans, John Jackman, Superintendent, Medinah Country Club suggested a complete testing of soil plus irrigation water. He has profited by test results on his three golf courses over the past ten years. Many other progressive superintendents have benefitted from the information soil tests can provide.

The concept of the new turf management program is similar to that used in human medicine. Thorough diagnosis and then treatment. A complete test of soil and irrigation water administered by Brookside Laboratories consists of 26 separate measurements. The nutritional level of the soil is rated in accordance with established standards for turf soil. A program for upgrading or correcting your conditions, balancing your soil environment, is then scheduled over a three year period.

Advantages of this new program, soil diagnosis and follow up therapy, are numerous. Financial return of the money invested in soil and water analysis is inevitable.

From one pro to another



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The structure of the topsoil is corrected to standard for the best growth of turfgrasses. The nutrients present in the soil or water; whether tied up in reserve, present in excess, or at toxic levels can be utilized. The toxic effect of chemicals can be controlled or eliminated. pH is corrected automatically. The nutrients supplied in fertilizers (10-10-10 or 12-4-8) will not accumulate in the soil in harmful excess polluting the soil, because investment will be made only for those macro elements or trace elements found lacking and necessary for proper balance. Systematic balancing of essential nutrients in the soil will decrease the amount of expensive fertilizer used (nitrogen).

Essential micronutrients properly selected and calibrated, contribute to the utilization of the macronutrients supplied from fertilizers. Minor elements contribute 20-30% to turfgrass growth say some scientists. Expensive pesticides can be replaced in their function by low cost minor elements if prescribed by a soil test. One case of pesticide, 10 lbs. cost over $100.00 compared with 10 lbs. of minor elements for $2.00, which may produce better results.

Rebuilding a golf course can be very expensive. A single putting green today costs between $8,000 and $15,000. We can avoid rebuilding greens and tees, and renovating fairways by balancing existing topsoil to turf needs. Money invested in good thorough testing yields the highest financial return.

A good superintendent is responsible for the golf course turf-wise but also for the economical prosperity of the club. The superintendents most reliable tool is his soil and water test results. He must recognize the merits of others, and use current research technology when it is applicable. Healthy turf attracts more golfers. This means not only fame and prestige for the club, but more money in the budget to face future burdens.

[1]Davis, RR, Nutrition and Fertilizers. Turfgrass Science, A.A. Hanson and F. Juska, American Society of Agronomy 1969, p 138

Record, Lee "The Turf Management Picture in 1973 As We Saw It" USGA Green Section Record, March 1974, p 16

Turgeon, Al "Effects of Repeated Applications of Preemergence Herbicides on Kentucky Bluegrass." Agronomy Abstr. 1974 Annual Meeting in Chicago, Nov. 1974, p 102

[2]Roberts, Elliot "The Fungus Among Us". The Golf Superintendent March 1974, p 22

POSITION OPEN

Kenosha C.C. private 18 holes is looking for a Golf Course Superintendent. Contact Don Carey, 414-552-8488.

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Experienced Supt. wanted for 36 hole public fee golf-course 30 years or over, 5 to 10 years experience. Starting salary $20,000. Phone 312-598-6460.

Mr. Ray Gerber, Editor
The Bull Sheet
865 Hillside Avenue
Glen Ellyn, Illinois 60137

Dear Ray:

What a summer this has been down here in the sunny South!! It has been bad enough that I am comparing it with the summer of 1968 — our "Year of the Great Pythium Outbreak".

Since joining Goltra, Inc. last January as Chief Agronomist, I have visited over 230 golf courses throughout both Carolinas, Georgia, Tennessee, and Virginia. The majority of these courses have suffered, in varying degrees, from wet wilt, dry wilt, Pythium, Brown Patch, Helminthosporium Leaf Spot, Dollar Spot, Fusarium Patch, and other diseases which I was hard-pressed to recognize. In addition, our entomologists really hit the nail on the head when they predicted major outbreaks of turf and tree insects for the summer of 1975. Some superintendents have already sprayed as many as 7 and 8 times for sod webworms and cutworms, and we are due for one helluva bout with Army worms in the coming 2 to 3 weeks. The less said about mole crickets and nematodes, the better — they have run rampant all summer in many areas.

As you might expect, the great game of "Musical Chairs" has already started and it simply tears me apart to see good superintendents fired by persons who have absolutely no concept of the complexity of maintaining fine turf under such trying conditions. The mettle of professional turf managers will be severely tried in the next few months and, hopefully, we will win in as many instances as is humanly possible.

On a more cheerful note, Dora, the three boys, and myself are back in Clemson, S.C. once again and are really enjoying our lakefront home and the many friends we left behind in 1969. Our new address is P.O. Box 1654, Clemson, S.C. 29631 and our telephone number is 803/654-1997 — we would certainly appreciate hearing from our Chicago friends any time you feel the urge to write or call.

Sincerely,
Paul M. Alexander
(Old Doc Grass-Ass)

P.S.-Keep up the great work with the Bull Sheet.

Following is a *tentative* program for the 10th Annual Wisconsin Golf Turf Symposium. We have an outstanding group of speakers to deal with a subject of great interest to any golf course operation. Some of your association members may also wish to invite the committeeman who is considering golf course changes.

We have not set the charges yet, but the registration fee should be in the neighborhood of $20.00. This will include lunch and a couple of cocktails on Wednesday. Any unspent funds are donated to the O. J. Noer Research Foundation, although this is not a "money maker" project.

James M. Latham, Jr.
Chief Field Agronomist
Turf Service Bureau

TENTATIVE PROGRAM

TENTH ANNUAL WISC. GOLF TURF SYMPOSIUM

Pfister Hotel, Milwaukee
October 29 & 30, 1975

"A NEW DEAL FOR AN OLD COURSE"

Session I-Wednesday Morning
"The Plan"

Welcome and Topic Introduction
Mr. Albert Vrana, President-Wisc. GCSA

The Great Decision, Membership Acceptance and Pacification, and the Enjoyable Climax
Mr. Jack Allis, Green Committee Chairman
Milwaukee Country Club

The Grand Plan: Strategy, Aesthetics and Logistics
Mr. Robert Trent Jones - Golf Course Architect

Session II-Wednesday Afternoon
"The Legalities"

The Necessary Evils-Specifying and Contracting the Work
Mr. Fred Stewart, National Golf Foundation

Job Inspection and Maintaining Specifications
Mr. Herschel Martin, Golf Course Superintendent
Ridgeway Country Club, Memphis, Tennessee

Key Words in a Loose Contract: The Superintendent as Expert Witness
Mr. James L. Johns, Golf Course Superintendent
Lake Park Country Club, Germantown, Wisc.

Session III-Thursday Morning
"The Implementation"

Moving, Mixing, and Draining the Soil
Mr. James L. Holmes, President
The Green Makers, Bryan, Texas

New Ideas for an Old Irrigation System
Mr. Richard Valentine, Golf Course Superintendent
Merion Golf Club, Ardmore Pennsylvania

Putting the Trees in the Forest - Correctly
Mr. William Milne, Golf Course Superintendent
Country Club of Detroit - Grosse Point Farms, MI

Play Away - General Summary Discussion Questions and Answers

L. to R. John Jackman, Fred Opperman, Dave Fearis. Something serious is taking place at the I.T.F. golf day.

TO: All Directors of ITF and Members of the Golf Day Committee.

FROM: Peter Vandercook, President Illinois Turfgrass Foundation.

We have just completed the first Illinois Turfgrass Foundation golf day. Thanks to Chairman Roger La Rochelle and his Assistant Chairman, Kenneth Quandt and Dave Meyer, as well as all the Directors and other Golf Day Committee members, this affair was a success.

Orginally our goal was to show a profit of $5,000.00. The actual profit was approximately $7,500.00.

Special letters have been sent to Carson, Pirie, Scott & Company, thanking them for the donation of their facilities. To the Central Illinois Golf Course Association, the Chicago District Golf Association, Swift Chemicals, Toro Distributing of Chicago, Turf Products, Ltd., and Glen Oak Country Club thanking them for their contributions which were in excess of normal sponsors contributions. Also to Ray Gerber for his super job of publicizing our efforts in the Bull Sheet. I have also written Dean Orville G. Bentley and Dr. C. J. Birkeland thanking them for attending our affair.

In addition, special thanks go to Ken Quandt, Fred Opperman, Wally Fuchs and Duane Grenier of Jacobsen for their special efforts in selling an excessive number of raffle tickets. Also to Mike Bavier and the Midwest Golf Course Superintendents Association for their efforts towards the raffle.

The efforts of all concerned to make this successful affair an expanding and continuing event is the next order of business. The idea of having three Golf Days each year; one in the Northern part of the state, one in Central Illinois and one in the Southern area is a realistic and reasonable goal.

Don't forget the Turf Grass Field Days. Let's continue our efforts in supporting Al Turgeon's turf grass research and programs.

GOLF

It is a science—the study of a lifetime
In which you may exhaust yourself but never the subject.
It is a contest, a duel or a melee
Calling for courage, skill, strategy and self control.

It is a test of temper, a trial of honor, a revealer of character.
It affords a chance to play the man and act the gentleman.
It means going into God's out of doors,
Getting close to nature, fresh air, exercise,
A sweeping away of the mental cobwebs,
Genuine recreation of the tired tissues.

It is a cure for care, an antidote for worry.
It includes comapnionship with friends,
Social intercourse, opportunity for courtesy,
Kindliness and generosity to an opponent.
It promises not only physical health but moral force.

David R. Forgan

PLANT TREES AND SHRUBS PROPERLY

Fall is an excellent time to plant trees and shrubs for shade and beauty. However, improper planting may result in injury which could weaken or even kill the plant.

Transplanting is most successful when the tree or shrub is fully dormant, but when the ground is not frozen. Therefore, fall and early spring are ideal times. Planting a tree in full leaf is hazardous because too much water is lost from the leaves through evaporation. However, balled and burlapped (B & B) evergreens may be planted as late as June and as early as September.

Before planting the tree or shrubs make sure the planting hole is wide and deep enough. For B & B plants, allow an extra foot of space on either side, depending on the size of the plant.

Dig the hole 6'' deeper than the ball or root system, then backfill with topsoil to the proper elevation. Always plant at the same level the tree or shrub was growing previously. Planting too deeply may cause root suffocation and rotting of the bark covered by soil. If planted too shallowly, the roots will dry out says Karen Jacobson, U. of I. Extension Horticulturist.

For bare-rooted plants, mound the backfill in the center of the hole and place the plant on the mound, spreading its roots out evenly. On container-grown stock, cut the sides and split the bottom of the root ball to prevent girdling roots. This occurs when the roots continue to grow in a circle, as if still enclosed in the container. On B & B plants, remove any plastic twine or other non-degradable materials. It is not necessary to remove the burlap, but cutting it open will allow faster root penetration.

After setting the plant in position, fill the hole with good loamy soil. Tamp it firmly around the roots as you fill in, and water thoroughly to settle the soil and remove air pockets.

Deciduous trees and shrubs should be pruned after planting to maintain the proper root-shoot ratio. Digging the plant from the nursery often results in root injury and root loss, so the above ground part may be too large for the reduced root system to support. Prune out weak and interfering branches, removing them at a crotch angle to maintain the plant's natural shape.

Protect the trunks of newly planted trees from sunscald, dessication, and borer attack by wrapping them with special tree-wrap paper. Staking is necessary to hold the tree in position and prevent excessive swaying in the wind. Use 2 or 3 wood or metal stakes to which heavy galvanized wire has been fastened. Run the wire through a small piece of rubber tubing to avoid injury to the trunk.

Such bracing is usually required during the first year or two. Check the wire periodically to be sure it is not cutting into the bark and girdling the trunk.

Karen Jacobson
Extension Advisor/Horticulture
Cooperative Extension Service
4200 W. Euclid
Rolling Meadows, IL 60008

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MAN IN TRUE PERSPECTIVE...The entire earths history put into 1 year would read like the following: The 1st 8 months-no life. Next 3 months-most primitive creatures. Middle December-first mammals. Man shows up at 11:45 PM on December 31. All of man's written history would occupy the final 60 seconds before midnight.

GOOD MORNING

A bore is a felow who lights up a room when he leaves.
—Parts Pups—