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State Of The Industry Report

1973 Golf Outlook

By HARRY ECKHOFF
East Coast Facility
Development Consultant
National Golf Foundation

WITH 297 new golf courses or additions to existing facilities in some stage of construction throughout the nation at year's end, 1973 promises to be another good year for golf course development. A year ago, National Golf Foundation records showed 290 courses in the under construction category.

New regulation length courses currently under construction total 181; additions to existing courses account for another 81. For executive courses the figures are 11 and 6 respectively; for par-3's 16 and 2. There are also another 330 courses under consideration or in planning throughout the nation. They include 279 regulation length facilities, 24 executive type and 27 par-3's.

Texas leads with 25 golf courses under construction followed by Florida with 23, California 18, Ohio 17, Colorado 16, South Carolina 15, Georgia 12, Michigan 11 and ten each for Illinois, New York and Virginia.

The leading states with new golf course openings in 1972 were Florida 23, California 18, Ohio 14, Texas 13, Arizona and Illinois each 12, Michigan 11, Indiana and Washington each 9 and Kansas, North Carolina, Pennsylvania, Tennessee and Wisconsin each 8.

NFG records reveal that 271 new golf courses were reported opened for play in 1972. Of these, 181 were 9 hole layouts, 85 were 18 hole facilities and 5 were other than 9 or 18 hole operations. Included in the year's 271 total are 237 regulation length golf courses of which 157 were new facilities and 80 were additions to existing courses. Of these 237, about 31% were reported as private operations; 54% semi-private; 12% municipal and 3% miscellaneous (collegiate, industrial, military, etc.).

There were also 18 new executive type courses opened for play in 1972 (14 new facilities and 4 additions). Par-3's (14 new courses and 2 additions) accounted for another 16 of the year's total of 271 new facilities. NGF maintains a national inventory of all the country's golf courses by category, number of holes and location.

Golf Oriented Developments

Golf oriented planned communities and second-home recreation-resort complexes played a dominent role in golf facility development in 1972 and will continue to do so in the immediate years ahead. Of the 271 new golf courses opening last year, almost half (45.76%) were of this type.

Golf-real estate or resort developments comprised about 35% of the 1971 total new golf course openings. Such projects have been on a gradual increase since 1965 when 15% of the total new golf courses opening for play were parts of real estate ventures.

A growing number of land developers recognize that properly designed and constructed golf courses materially increase adjacent property values and substantially aid sales of home sites, condominiums and apartments. Acreage involved in such ventures usually ranges from 600 to 35,000 or more. In the larger developments there often are several golf-recreation complexes. Golf course home site lots usually range in price from $6,000 to $15,000 depending on their size and proximity to the course.

Seventy-five percent of the golf courses now under construction in Florida are associated with home sites and high rise condominium developments. Fifty-eight percent of Arizona's new golf ventures are in the same category. In North Carolina, it is 52%. Of the 15 golf courses now being built in South Carolina, 80% are part of land sales or resort complexes.

Experienced land developers generally agree that an expertly designed and properly built golf course should be ready for play before real estate sales are begun. Most prospective purchasers prefer to see the golf facilities in action prior to buying a home site or condominium.

Many developers separate the golf operation from the land sales and create separate corporations or organizations for each. This facilitates sale of the golf course should

that be desired at some future date.

Two new golf-resort facilities that may be establishing a pattern for the future are Bay Tree Golf Plantation and Myrtle Beach National Golf Club, both of which are under development in the greater Myrtle Beach, South Carolina, area.

Bay Tree Golf Plantation, a 54 hole layout designed by George Fazio and associate Russell Breeden, went under construction in October 1971 and all three 18's opened for play on November 18, 1972. This is believed to be a record for constructing three 18 holes layouts simultaneously and having them all ready for play within a year's time. Golf professional at Bay Tree is Sam Timms. Developer is Caro-Strand Corporation, North Myrtle Beach, S.C., J. Bryan Floyd, President.

Myrtle Beach National Golf Club, a new planned 72 hole golf and residential complex, went under construction in May 1972. Golf course architect is Frank Duane with Arnold Palmer acting as consultant. Construction is now underway on three of the planned four 18 hole layouts according to Clay Brittain, President. Ed Bullock is the club's Golf Professional.

South Carolina's Grand Strand resort complex, a 50 mile long stretch of seashore bounded on the east by the Atlantic Ocean and on the west by the Intracoastal Waterway, is making history in golf course development.

Grand Strand, which includes the town of Myrtle Beach, has a permanent population of about 18,000. Located within its confines are 17 challenging golf courses and over 30,000 hotel-motel rooms. Six more 18 hole courses are currently under construction in the area.

Some resorts make it possible for you to own your own apartment in the vacation complex and, when you are not in residence, will rent your quarters for you. One such new and apparently successful project is the Innisbrook Resort and Golf Club near Tampa, Florida.

Innisbrook is an 800 acre development which has plans for four golf courses and 1200 apartment units (efficiencies, one and two bedrooms), Three full length 18 hole courses, all designed by Larry Packard, are now in play. An additional 18 hole course has come into play each December for the last three years. There are clubhouses with full dining facilities for each golf course along with its cluster of apartments. Mike Souchak is the resident Golf professional at Innisbrook.

Need For More Municipal Golf

Population growth, urbanization, more leisure time and increased personal income and mobility throughout the United States are putting great presure on public recreation facilities including golf courses in many areas of the nation. A good solution to the demand is more municipal courses owned and operated by cities, counties, states or regional park-recreation districts.

Why municipal golf courses? Practical politics and economics dictate such action.

Land costs and operating expenses, including rising taxes, make it increasingly difficult for member-owned clubs and private courses to financially survive in some communities.

More financial resources are available to municipalities. Among them are sale of general obligation or revenue bonds, federal grants (Department of Interior Bureau of Outdoor Recreation 50% matching grant program), private development with leaseback and outright public or private donations.

(continued on page 38)

industry people on the move

NORMAN R. HILBERT, joined the agricultural chemical division of Stauffer Chemical Co. as a sales representative.

• • •

P. ROBERT SCAGNETTI purchased The Clapper Co., West Newton, Mass., and becomes a distributor of Toro irrigation and turf products. He was formerly director of marketing and service in the turf products division of Toro. Orville O. Clapper, who founded the West Newton company, is retiring.

• • •

RON R. JOHNSON, named vice president of marketing for Agrico Chemical Company. He will be responsible for all domestic marketing in the U.S. and Canada.

• • •

G. C. "HARDY" BRYARS, appointed manager-pesticides for the Gulf Oil Chemicals Company. He will have worldwide responsibility for the company's proprietary environmental protection chemicals.

• • •

H. DUANE HOLSAPPLE, appointed marketing manager of Encap Products Company. He will head the marketing and sales programs.

• • •

DR. PHILIP M. KIRK, named director of the Greensboro, N.C. facility of Ciba-Geigy Corporation.

• • •

ROBERT SULLIVAN, named data processing manager for Yard-Man, Inc. He will be responsible for evaluating the company's computer system and recommending how it can be expanded to coordinate increased informational input on scheduling, costing, purchasing and shipping for maximum manufacturing efficiency.

• • •

J. SCOTT JEFFORDS, JR. and JERRY M. SPIVEY become agricultural sales representatives for Thompson-Hayward Chemical Company. Jeffords will be headquartered in Fayetteville, N.C. and Spivey will be working in the central and southern regions of Alabama.

• • •

JOHN E. CLACK, appointed sales manager of Ace Pump Corporation.

• • •

FRANK H. HAMLIN, president of Papec Machine Company, retires after 44 years of service. **W. N. HOWLEY, JR.,** assumes the presidency of the company.

• • •

LEO DONAHUE, appointed to the staff of the American Association of Nurserymen as the administrator responsible for legislative liaison. He replaces **RICHARD TURNEY** who has taken a position with the National Association of Wholesalers.

• • •

WILLIAM SOELLNER assumes responsibility for all Bolens branch operations in Wisc., Ill., Mich., Minn., Ind., and the Dakotas, a newly created position. **GARY K. AKIN** becomes branch manager in Michigan. **NORMAN O. WHITE** becomes branch manager in Minnesota. All are with Bolens Division, FMC Corporation.

• • •

NICHOLAS V. CORDA, named manager of safety for Hercules Incorporated. His new duties will encompass the safety functions at all commercial plants as well as those of the Systems Group of the Industrial Systems Department of the company.

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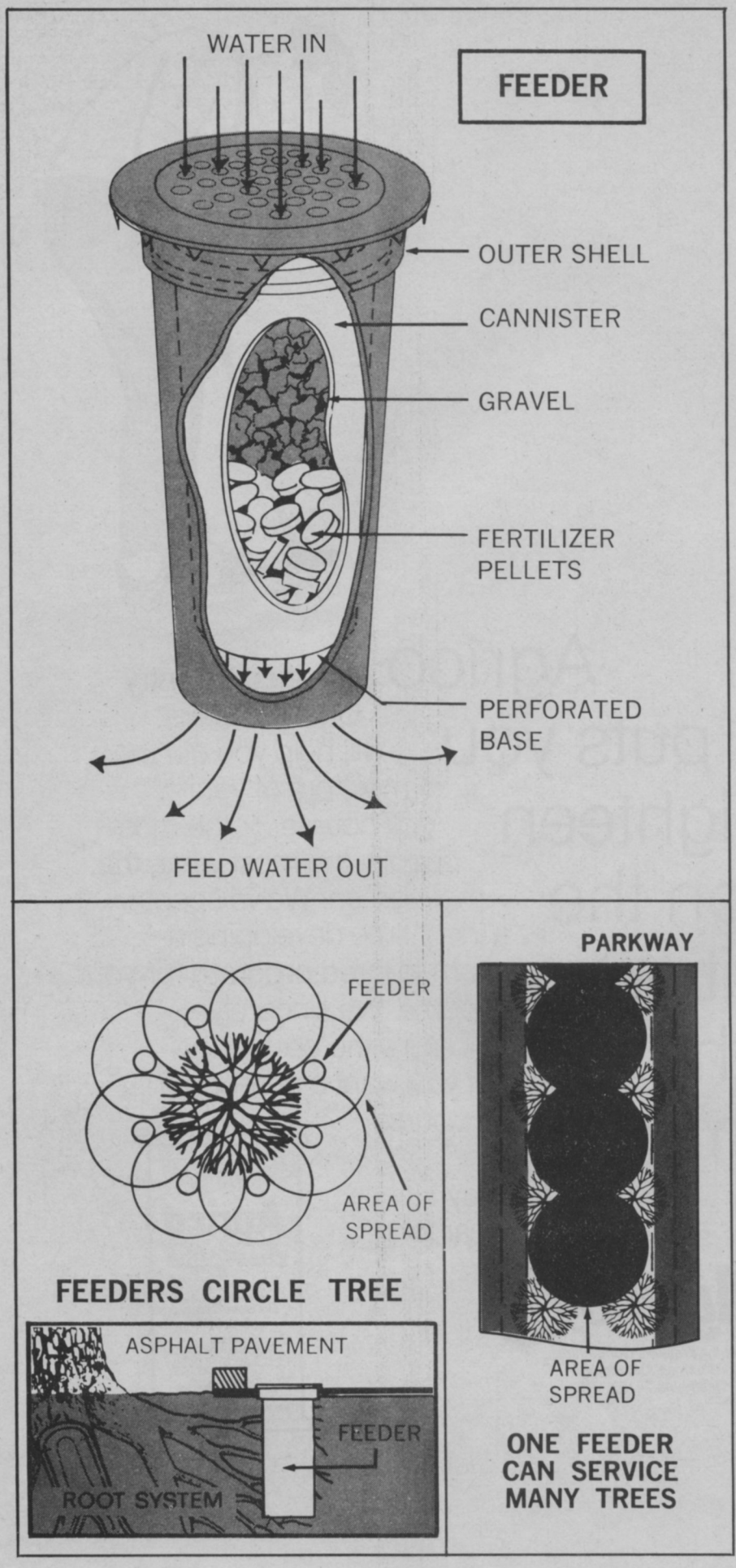

In-Ground Feeder Keep Trees Healthy

TREES surrounded by asphalt are like a runt pig in a healthy litter —neither get enough of the essential nutrients to sustain growth.

Wayne Smith, owner and operator of AAA Tree Service, Tampa, Florida has found the answer, however. He's invented a unique device called W.A.N.E. (water, air, and nutrition exchange) that is not only keeping trees alive, but helping them to grow.

It's a heavy-duty plastic housing which holds a removable inner sleeve containing time-release nutrients. The housing is inserted into a four-inch diameter hole drilled 18 inches deep through the asphalt. The perforated top protrudes one-quarter inch above the ground.

Fertilizer pellets are placed in the inner sleeve; gravel is added to fill the cannister. It is then inserted into the outer shell. Water and air filter through the gravel and solublize the fertilizer which is carried downward to the root zone.

Smith says the system can be installed in 10 minutes and annual servicing can be accomplished in another simple 10 minute operation. He recommends inserting the W.A.N.E. system at 10 foot intervals around the tree, approximately five feet from the drip line of the canopy.

Can be installed in a street, parking lot or any place where asphalt is inhibiting tree growth.

For more details on the W.A.N.E. Tree System, circle (719) on the reply card.

Forests Hold Answer To Garbage Pollution

What to do with the daily accumulation of some one billion pounds of garbage is one of the nation's most vexing environmental problems. But two University of Florida researchers think they have the answer to the garbage crisis.

Instead of burning it, dumping it in landfill, or trying to make some sort of marketable product out of it, they want to recycle it through forest soils. Their new procedure involves grinding up the garbage and mixing it into forest soils where it can decompose.

Experiments at the UF's Austin Cary Forest have shown that pine seedlings thrive in soil mixed with solid wastes. Seedlings planted in the garbage-soil mixture have grown twice as tall as those planted in regular soil, says Dr. Wayne H. Smith, associate professor with the UF's Institute of Food and Agricultural Sciences.

He pointed out that much emphasis has been placed on developing some sort of marketable product from garbage. "Everything from fertilizers to breakfast cereals has been tried with little or no success. Even composting plants, including one operated in Gainesville for a short time, have failed because of the high cost of their product and the limited market for it. The real need is to develop an inexpensive method of disposing solid wastes without harming the environment. Conservationists have long encouraged this approach," he said.

Results of the study indicate that a few hundred acres of forest land could receive all of the annual solid organic waste produced by Gainesville, a city of about 100,000. Growth stimulation of pines and vegetation would serve as an incentive for foresters to allow neighboring municipalities to use their land for recycling wastes.

Besides boosting tree growth, there are other reasons for disposing solid wastes on forest lands. Since trees are not a food product, there's no risk of any kind of human contamination, and the long growing period for pines—20 to 30 years in the South — would allow large amounts of organic material to decompose slowly.

In addition, many forest areas are close to urban areas, and have a very low population density. Tests indicate there's apparently no danger of any ground water contamination either.

The organic waste tested for disposal in forest soils was produced from garbage after most metals were removed. The waste was then ground up and mixed with sludge from a secondary sewage treatment plant.

All timber was removed from the 4-acre site some two years before the beginning of the experiment. Immediately after the waste was delivered to the site, it was incorporated into the soil, but seedlings were not planted until some five months later in December, 1971.

"By early spring of this year, it was quite obvious that the pine seedlings on the compost treated plots were reacting favorably," explains Don Post, an assistant professor working with Smith on the project.

After seven months of growth, survival and tree height were measured. Survival on the control (non-treated) plots averaged 86 percent compared to 88 to 95 percent on the compost treated plots. Most of the mortality occurred during the dry period of April, indicating a greater moisture holding capacity in the composted plots.

This is the way Old White Fairway 11 looked five months after treatment with Dasanit. Between October 1971 and October 1972, nematode count dropped from 5490 to zero. (See Table 1 below).

Nematodes
Could Your Turf Be Their Home?

I'M CONVINCED that nematodes are bad characters. If there are any around, they will get to you. So, if you have an unanswered problem with your turf, I'd check for nematodes quick," says W. D. Haven, golf and grounds superintendent for the Greenbrier, White Sulfur Springs, West Virginia.

Bill is speaking from first-hand experience. Various "culprits" such as fruit flies and *Fusarium* had been blamed for problem areas which developed in 1971. Several of the 54 fairways and greens on the 6500 acres comprising the famed luxury resort had been under attack.

"There are so many variables in maintaining a course — weather, weed, insect and disease control, drainage, fertilizing—that we can't always be sure that any one factor is responsible for a particular success or failure," Bill remarks. "But the rewards are proportional to the risks, and it's fascinating to see the turn-around when a problem is solved.

"Of course we tackle each problem as soon as it develops. We treated for fruit flies and *Fusarium,* but still had some yellow-white quarter-size spots that didn't resemble any of the diseases I know about. There is very little information available on nematodes in turf, but I read what I could find and wondered if, in fact, these small, wormlike insects weren't gnawing away at the roots.

"So, in October, 1971 I sent soil samples from several fairways and greens to Virginia Polytechnic Institute (VPI) for a nematode assay.

"The high counts that were reported (see Table 1) were astounding. That started my search for a chemical to control nematodes. I wanted one that was easy to apply, with minimum hazard to the people working with it and the golfers using the course following application. I was also looking for a fast response, and long-lasting activity.

"I found the answer in Dasanit 15% granular," says the superintendent. "It fits in with our equipment, goes right to work without burning, and one application lasts for the season." Haven reports that the product does give off an unpleasant odor, which lasts about 24 hours, but he did not have one complaint about this from any of our clientele, which is unusual.

"I first treated all tested fairways, as well as those which looked suspicious (it ended up to be all but a half-dozen) and then applied Dasanit on all the greens," he said. "We aerated each before treatment, then turned on the irrigation so that the granules would work right down to the root zone." The work started in mid-May, 1972 and wasn't finished until August. Even with 30

Table 1. Nematode Counts per 100 cc soil taken in October 1971 before treatment and in October 1972 following treatment.

Area	Ring (Criconemoides) Before	Ring (Criconemoides) After	Lance (Hoplolaimus) Before	Lance (Hoplolaimus) After	Stunt (Tylenchorhynchus) Before	Stunt (Tylenchorhynchus) After	Spiral (Helicotylenchus) Before	Spiral (Helicotylenchus) After
Old White Fairway 1	710	....	70	....	1070	....	10	....
Old White Fairway 3	1080	4	....	4	600	....	....	....
Old White Fairway 4	490	4	....	4	430	....	....	4
Old White Fairway 9	390	....	20	4	530	4	....	....
Old White Fairway 11	3060	....	80	....	2800	....	....	....
Old White Fairway 13	340	20	20	24	660	....	10	4
Greenbriar Fairway 1	380	4	90	4	30	....	....	12
Greenbriar Green 7	....	....	300	16	190	....	....	....

men, it took considerable time to cover 600,000 square feet of greens and tees, as well as a goodly share of our 120 acres of fairway.

"Just to be sure we were on the right track, in June, 1972 I sent more samples from one of the same fairways plus other 'suspects' to another laboratory in Georgia for nematode analysis," Haven injects. While these early-season counts were much lower the laboratory felt they were high enough to constitute a problem, and also recommended treatment.

"And to be sure I was using the right product, I set up 5 x 10-foot test plots on one green comparing half- and full-rate treatments of Dasanit, Nemacur (an experimental compound) and several other products," he says. "Dasanit effectively controlled the nematodes. As for the Nemacur, it looked even more promising on these test plots."

The West Virginia golf superintendent notes fantastic improvement on several of the fairways and greens. He concludes that the nematode treatment was responsible for it. "I feel sure these pests have been causing problems for some time," he says. "We just didn't recognize them.

"For example, the 9th green on Old White has been a problem year after year. The back third continually got thin and sparse early in the season. We tried everything—aeration, micro-nutrient testing, regular fertilizing—to no avail. But the problem cleared up within 3 weeks after treating for nematodes in early June, and the green stayed in good condition through October.

Currently only one treated fairway is not up to par. Haven's not sure but that weather, time of treatment or some other factor or combination of factors is responsible for that.

"I attribute a good part of our turfgrass success to our nematode control program," he says. "Dasanit has controlled one of the toughest problems we have in this business. There's no question that we have deeper, healthier roots than ever before. Last fall we used less fertilizer than usual, but it was better utilized by more roots with the nematode menace gone."

Follow-up soil samples sent to 3 laboratories in October are now being correlated, but the results (see Table 1) support Haven's contention that nematodes can be drastically reduced with a single application of a nematicide.

"You've got to always be on your toes," Bill asserts. "You can't have a first-class golf club with second-class grass. You can be sure I'll be treating again next year."

W. D. Haven says that typical symptoms of nematode damage are irregular bare patches. A nematode assay can quickly determine whether you have a problem.

IRON FOR TURFGRASS

(from page 16)

environmental factor that affects chlorophyll production. Iron is not a constituent of the chlorophyll molecule (as are nitrogen and magnesium) but is essential in the chlorophyll-producing mechanism.

There is a paucity of information on the role of iron in turfgrass production. However, Pocklington has done an interesting study on the relative abilities of five bentgrass varieties to produce chlorophyll under different growing conditions. He noted that those varieties having the higher chlorophyll contents are the darker green.

Since considerable research has been conducted to select turf varieties with genetic abilities to produce dark green leaves the need for iron by certain varieties may have been significantly increased. Chlorophyll production is, of course, a basic consideration.

Pocklington demonstrated that chlorophyll contents are not constant throughout the growing season but vary in accordance with the available sunlight. Thus the color intensity of grass could be expected to be less in the spring and fall months when net solar radiation is less.

It was further noted that varieties having the less intense green color and chlorophyll content were also lower in iron. However, total iron in each case investigated appeared to be sufficient for normal physiological activity.

Identifying Iron Deficiency

Identifying iron deficiency in turfgrass can be a relatively simple matter. Nitrogen and sulfur deficiencies will both give similar symptoms. However, under a proper fertilizer management program, nitrogen will be adequately supplied on a routine schedule. Sulfur deficiency in the western United States is a rare occurrence. If cases of sulfur deficiency are known to occur in an area, they can easily be verified and corrected through fertilization with various sulfur containing materials.

Iron deficiency will cause the leaf blades to turn lime-green, then yellow, in color. Growth will otherwise appear normal except under acute conditions. The yellowing (chlorosis) will not be uniform over the entire area, but will appear as randomly scattered spots giving a mottled appearance to the area. Such a mottling is typical of a micronutrient deficiency thus aiding in separating iron deficiency from that of nitrogen or sulfur.

Suspected deficiencies can be verified by a soil test. Until recently there was not a satisfactory method to evaluate plant available iron.

The DTPA soil test developed recently by Lindsay and Norvell, Department of Agronomy, Colorado State University, has proven to be a sensitive indicator of available soil iron, and also zinc, manganese, and copper. This procedure has been evaluated mainly with the "traditional" agricultural crops such as, corn, potatoes, etc. However, experience indicates it to be equally effective for turfgrass.

Correcting Iron Deficiency

The reason iron deficiency exists is the same as why it is difficult to correct. That is, an unfavorable soil environment which favors formation of unavailable iron compounds in the soil.

At this time specific recommendations for golf courses and other large scale turf production operations are rather difficult. Little research has been conducted to evaluate the various possibilities based on effectiveness, cost, and compatability with other management practices.

Iron (ferrous) sulfate is the most widely used material today. It is frequently included in the so-called "turf" fertilizer mixes on the market. The extent of its effectiveness will likely depend on the actual amount being applied per unit area and the severity of the deficiency. *As much as 1 lb ferrous sulfate /1000 sq. ft. in a single application may be required per growing season depending on the specific situation.*

Rapid though perhaps short-lived effectiveness may be gained by spraying ferrous sulfate on the turf. Recommendations as to rate of application are quite variable. One reference (Lock and Eck) suggests mixing 1 lb. ferrous sulfate/5 gal. water and applying at the rate of 12½ gal/100 sq. ft. However, another (Younger) suggests 2 oz. ferrous sulfate/1000 sq. ft. These probably represent extremes.

It has been reported by one Colorado State University extension specialist that ½ lb. ferrous sulfate/-1000 sq. ft. applied as a foliar spray will satisfactorily eliminate deficiency symptoms.

Various chelated products are also on the market. One of the most promising for soil application is Sequestrene 138 (FeEDDHA). Experiences in Colorado on turfgrass seem to range from poor to satisfactory results.

The problem we face today in correcting iron deficiency in turfgrass is lack of research information. Both inorganic and chelated products are on the market. However, how these may best be used in your particular operation is very much open to question.

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