

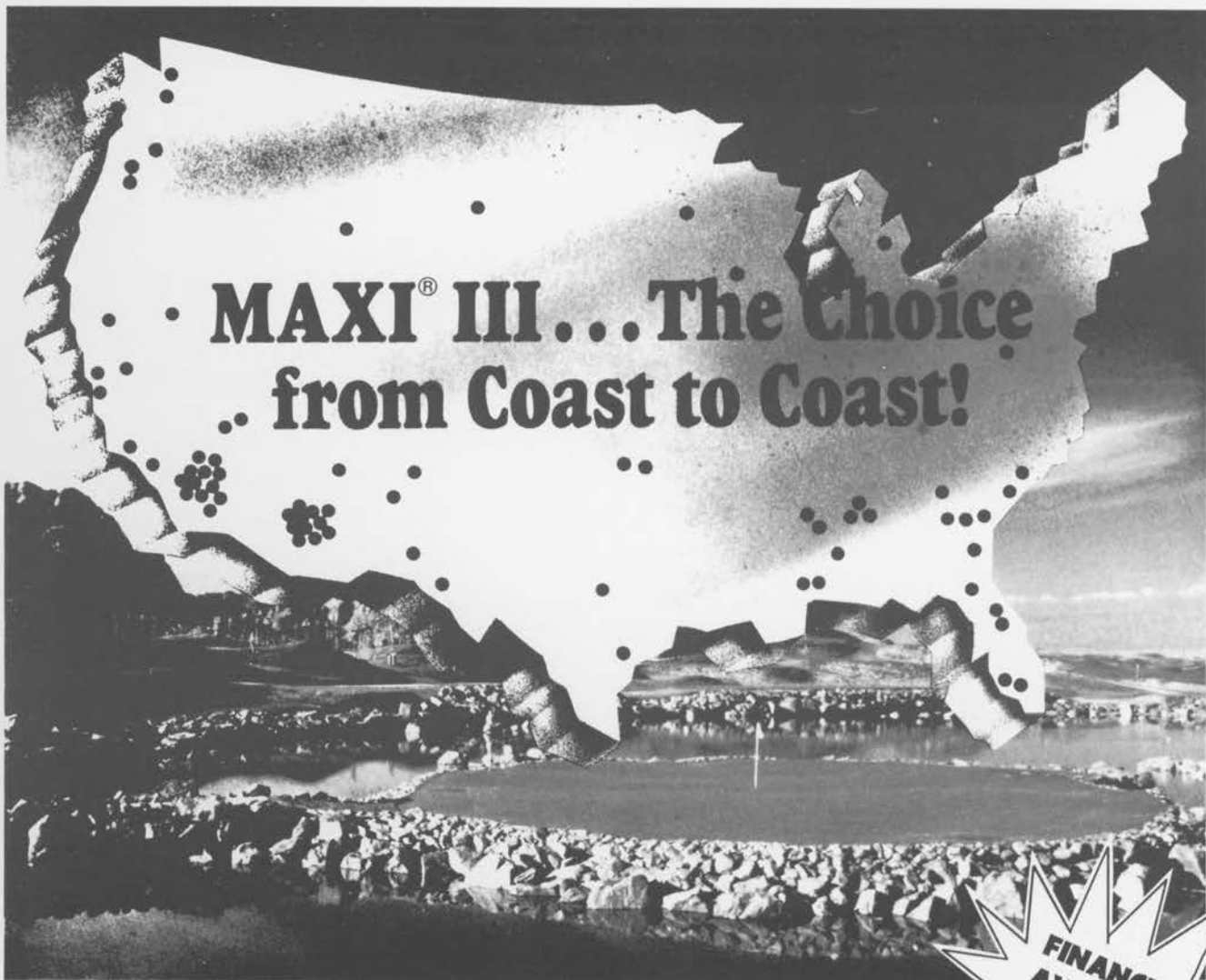
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PRESIDENT'S MESSAGE
Roger Barton

I played two great new golf courses in Western Michigan that I'd like to tell you about. On May 1, we had a Western Michigan meeting at Timber Ridge in East Lansing, just north of Walnut Hills. Jerry Matthews designed this outstanding track. The course makes you feel as though you are playing up north. It is cut out of the pine trees and has a very nice design. Bill Fountain, Superintendent, had the course in very nice condition.

Charles Scott dedicated his new golf course, Stonehedge, on June 9. This course has a unique design. It is cut out of the woods, with bentgrass fairways and a great bunker design. If you haven't played these two golf courses, I would suggest you do so soon. You will love them.

Cascade Hills Country Club hosted our golf day on June 19. I would like to thank Don Fritz, our host, for his hard work. We had a lot of rain, so some of the rounds were rained out, but the food was great and we raised \$6,000.00 for the Michigan Turfgrass Foundation Research Fund. Also, I would like to thank Chris Fochtman for co-hosting the afternoon round at Green Ridge Country Club.

On behalf of the Western Michigan Board of Directors, I would like to thank our suppliers for their donations and help in making this a great day. Paul Richter, chairman of Golf Day, and his committee made the day successful. Thank you, Paul. I wish everyone good luck with your turfgrass and with the weather.

Sincerely,

Roger Barton
Blythefield Country Club

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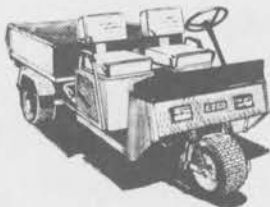
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Education is the key to our future and we need to keep abreast, or in front of, our future needs. As Turfgrass professionals, we are all aware of the ever expanding pressures (Environmental Concerns) on us and our profession. We need concrete answers to our concerns. Turfgrass research as an industry is an infant. By that I mean our education through research began only about 30 years ago and has made great progress since then. Then only limiting factor in research is monies available, and we have a responsibility to support research as much as possible.

The Founders Society was established so individuals have the opportunity to contribute to research as individuals. M.S.U. has one of the best research staffs in the country, and they need our support.

The Founders Society is in solid partnership with M.S.U.. In fact, the University believes the society memberships are so vital that donors are recognized as university contributors. There are five different levels of membership and all contributors are cumulative; you can join at one level and work your way into another. Lapel pins are awarded at the levels of Emerald and Diamond.

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Organizations in turf throughout the United States have started fund raising programs for research, and they have all followed ideas and examples set by the M.T.F. Be proud of your participation; this organization is only as good as or as strong as we make it by our participation. All contributors qualify for the M.T.F.'s 501-c3 status.

You will be contacted by the area's M.T.F. Founders Society Zone Chairman in the near future. Continue to support M.S.U. and research through your contributions.

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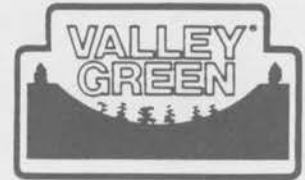



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GCSAA NEWS

GCSAA CERTIFIES 1,000th MEMBER

Ronald M. Ross, superintendent of Hillcrest Country Club, Lincoln, Neb., has become the 1,000th active golf course superintendent to earn the designation certified Golf Course Superintendents Association of America. GCSAA President Dennis D. Lyon, CGCS, made the announcement at the association's headquarters in Lawrence, Kan.

Ross has been superintendent of the 18 hole private club since July 1984. Previously, he worked at the Great Oaks Country Club, Rochester, Mich., and the Grand Hotel Golf Club, Mackinac Island, Mich.

GCSAA instituted the certification program in 1971 as a means of recognizing outstanding and progressive golf course superintendents.

To become certified, a candidate must have five years' experience as a golf course superintendent and be employed in that capacity. The candidate must pass a rigorous six-hour examination testing knowledge of the game and rules of golf, turfgrass management, pest control management, financial management, organizational management, and the history, ethics, purpose and procedures of GCSSA. Also, an on-site inspection of Ross' golf course operation was conducted by two currently certified superintendents: Alan G. Culver, GCSSA of Lincoln, Neb., and Tom Athy, CGSSA, Fremont, Neb.

GCSSA, a professional association of golf course superintendents, was founded in 1926 to promote the art and science of golf course management. Its 8000 members represent the United States, Canada, Mexico and 32 other countries.

WILDLIFE MANAGEMENT ON GOLF COURSES

FINDING: Golf courses have traditionally served as sanctuaries for many forms of animal life. While wildlife can pose problems for golfers and golf course developers, with proper monitoring and planning, golf courses and "nature's own" can coexist comfortably side by side.

WILDLIFE AND THE GOLF COURSE: Bird watchers have long known that golf courses are especially attractive to many varieties of birds. In the 1920's the National Association of Audubon Societies published the pamphlet "Golf Clubs as Bird Sanctuaries. More recently, Dr. Ron Kendall, director of the Institute of Toxicology at the Huxley College of Environmental Studies in Bellingham, Washington, noted golf courses "happen to be excellent bird sanctuaries with their variety of terrain and foliage and their water. Golf courses have often provided bird houses in order to attract species that will serve as an environmentally safe form of pest control.

Nevertheless, birds and other animals such as skunks, raccoons, deer, elk, and even alligators can pose a variety of problems for golf course customers and employees. The range from simple nuisances, such as goose droppings on greens to more serious threats, such as infestation with Lyme disease and rabies.

Fortunately, a variety of measures are available that can control such problems without harming the animals in anyway. As Jeffrey Marley, a professional authority on

wildlife control, explains, "To prevent damage, wildlife must be controlled with devices and techniques that are biologically, environmentally, and economically valid, effective and practical. Control measures must be with the law." Such methods include aversion and diversion techniques, including the use of bad-tasting food and noisemakers. For big game such as elk, natural areas can be left in the development of the course to attract them. Marley concludes that control of wildlife is simply a matter of good environmental management — "the golf course superintendents forte."

WILDLIFE AND GOLF COURSE DEVELOPMENT: A different kind of problem occurs in golf course development as the developers encroached on what used to be a natural habitat. But golf courses, especially when compared to other kinds of development, are uniquely suited to cope with this difficulty, since developers wish to take advantage of the natural beauty of the terrain, they have an incentive to preserve animal habitats. The experience of golf course development in the desert bears this out. The Del E. Webb Corp. halted construction of a golf course development in Tucson, Arizona, for 56 days until baby hawks in a nest near a fairway were ready to fly. When course development in the Coachella Valley near Palm Springs, California, threatened an endangered species of lizard, the government, developers, and environmentalists worked together to establish a wildlife preserve that would be compatible with course development. Obviously, with proper planning, golf course development need not threaten any endangered animals.

CONCLUSIONS: Golf courses are one of those rare kinds of development that can easily harmonize with the natural world, given proper planning and anticipation of potential problems. Golf course developers respect the environment and can provide habitats to preserve the various species affected by the presence of the course.

THE GCSAA/HALL-KIMBRELL COMPLIANCE ASSISTANCE PROGRAM: Guidance and Direction in a Complex World of Environmental Regulations.

President George Bush has been emphatic in challenging his newly appointed environmental leaders to "chart a course of environmental activism." Bush indicated recently that he was not only interested in pressing civil suits, but that criminal prosecutions would be a part of his drive to clean up the environment.

Every industry must carefully analyze its practices to assure strict adherence to guidelines and demonstrate "moral" responsibility in protecting workers and the environmental issues associated with modern golf course operations. The Golf Course Superintendents association of America, however, has recognized the need to take aggressive measures to stay ahead of the wave of environmental concern.

With that in mind, GCSAA recently introduced a member benefit program with Hall-Kimbrell Environmen-

(Continued on Page 9)

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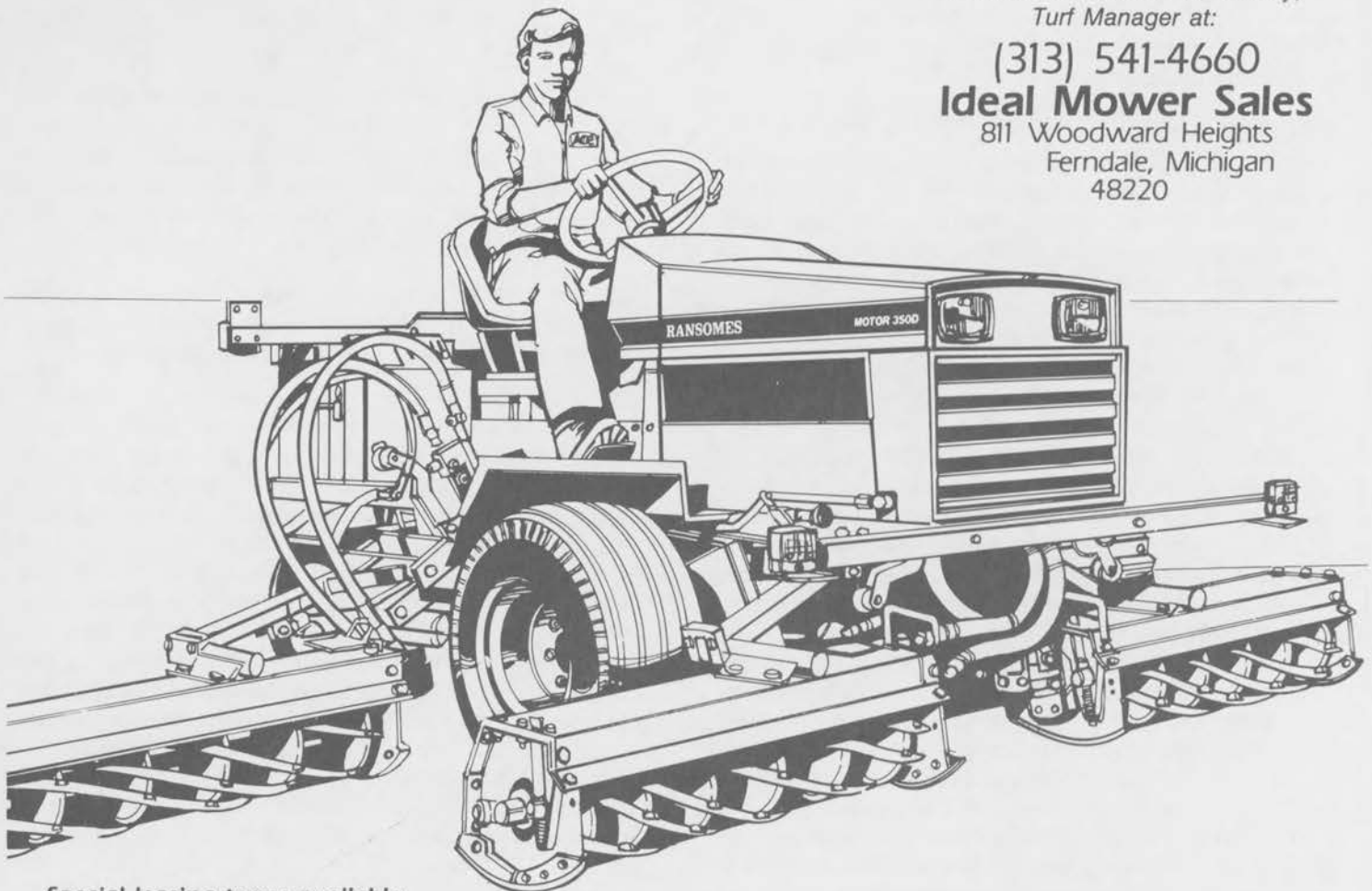
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tal Services, Inc., one of the nation's leading environmental engineering and analytical firms, to help superintendents respond. The GCSAA/Hall-Kimbrell Environmental Compliance Assistance Program provides golf course superintendents a means to identify areas of operations affected by environmental regulations and identify changes that should be implemented to achieve compliance.

"This is an important program for every golf course in America because no course can afford **not** to assess every area of its operations," said Dennis D. Lyon, CGCS, GCSAA president. "Our main goal is for superintendents to develop a high degree of industry involvement -- but there's also a very real payoff in dollars that superintendents will realize in improved management efficiency and reduced liability exposure." Lyon added that one fine or incident would vastly overshadow the nominal cost of the self audit.

The self-audit package gives superintendents a unique opportunity to act on their own. If a regulatory agency was to evaluate the same issues, violations would be reported and dealt with through legal channels. The self audit allows superintendents to evaluate their practices on their own and make modifications accordingly.

The Hall-Kimbrell/GCSAA Self-Audit Package consists of a 30-minute videotape program that outlines eight common areas of regulation and the regulatory self audit. The self audit is a book containing more than 500 questions that allows the superintendent to easily and concisely report his practices in an answer booklet.

Completion of the self audit generally requires about eight hours of a superintendents time. Most have found it better to split the time over a week or so, rather than attempt to move through it from start to finish in one session.

The answer booklet is forwarded to Hall-Kimbrell, where

it is scanned by a computer to summarize and sort the data provided by the superintendent.

Hall-Kimbrell scientists and environmental experts then review the data and compile a detailed report on the course's practices and how well they meet the applicable regulations. The report also contains concise overviews of regulations, phone numbers and addresses for federal and state agencies that issue and enforce the regulations and information on state programs that vary significantly from federal requirements.

The response report not only tells superintendents if they are in compliance, it also helps them evaluate procedures and management practices.

The self audit is not a fault-finding tool, but rather a fact-finding tool, explains Hall-Kimbrell Project Manager Steve Wharton. "People may have a natural tendency to provide what they expect are the 'desired responses' rather than the honest answers. The value of the package is in the superintendent's review of the resulting reports based on actual situations."

The self-audit and regulatory compliance efforts are not a "one-shot" effort. Existing regulations are often modified and stress periodic review of management practices as new regulations continue to be introduced.

One of GCSAA's considerations in selecting Hall/Kimbrell was the firm's commitment to an ongoing effort. The self audit serves as a prerequisite for follow-up services that include annual update procedures. By periodically updating the audit, it becomes a dynamic management tool for continual evaluation of practices, taking into account new products, regulations and training requirements.

The entire program and its follow-up mechanisms are designed to help superintendents become better managers. For more information or details on ordering the self-audit package, contact the GCSAA Membership Department.

WHAT KEEPS THE GREEN SIDE GROWING UP, AND THE BROWN SIDE GROWING DOWN?

by David B. Kittredge, Jr.

Extension Forester

Dept. of Forestry & Wildlife Management

University of Massachusetts.

Trees come in a wide variety of shapes and sizes. This is in large part due to the tremendous number of different species that have evolved to occupy different parts of the forest environments. But why can trees of the same species look very different? Part of the explanation, of course, is that trees within the same species vary genetically. Trees of the same species can vary in appearance the same way people vary in appearance (though we are all the same species).

Another important control of tree growth that results in a variety of shapes and forms is that of hormones. Trees have a number of different hormones, or growth regulators, that control the growth and behavior of the tree right at the level of the individual cell. Some of these regulators interact with one another in the tree, and the overall result is a tree of unique shape and form.

Where are these hormones, and how do they work? They are produced primarily in the shoot tips, root tips, or leaves, and are soluble in water. This enables them to travel either up through the tree with water extracted by the roots from the soil, or down through the tree with sugars that were manufactured in the leaves. They are present in trees only in extremely small amounts - often less than one part per million - which makes them extremely difficult for scientists to study. Nevertheless, they have an extraordinary influence on the way trees grow.

Hormone interaction in trees control some of the basic events that we observe. For example, the breaking of bud dormancy in the spring is controlled by hormones. Those that inhibit the buds from unfolding gradually break down,

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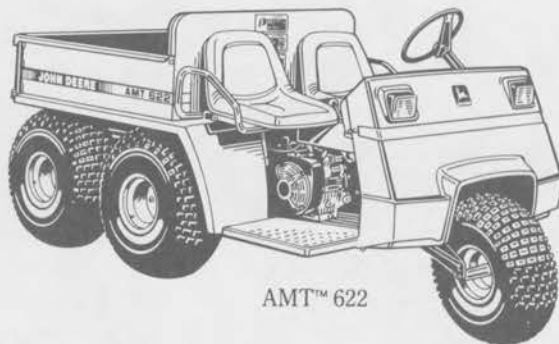
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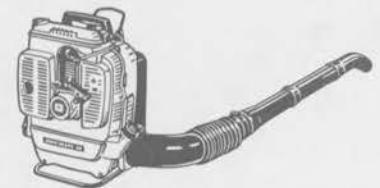
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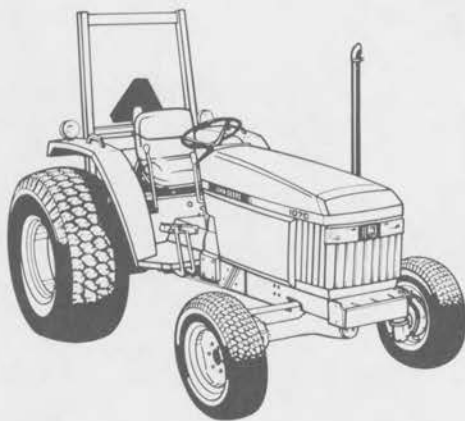
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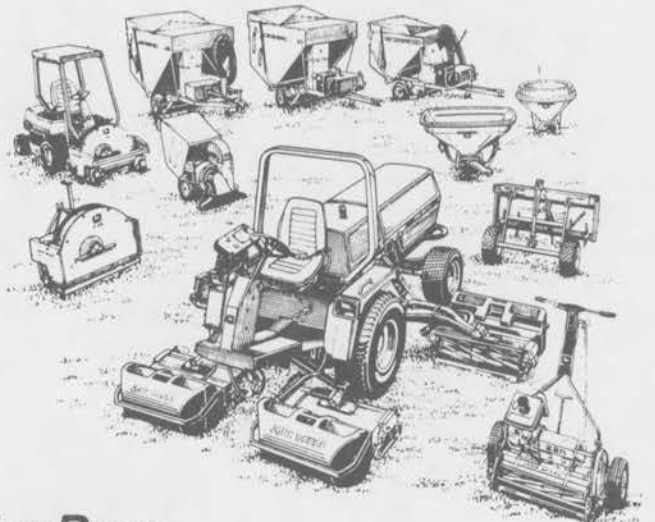
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and those that stimulate growth increase. The result is the green flush of new growth that we enjoy in the spring. When would a hormone that inhibits growth be useful for a tree? The reverse process takes place in the summer and fall, when growth-inhibiting hormones begin to dominate. This results in the cessation of shoot growth, the formation of buds to protect next year's fragile growth from the harsh winter environment, and (in the case of deciduous trees) the eventual falling of leaves to the forest floor.

Tree hormones also direct the growth of the stem in the upward direction and the roots in a downward one. If a tree is tipped, for example, by a high wind, its ability to "bend up" and grow vertically is due to hormones. They travel to one side of the tree and make the cells there grow more, thus making the stem "bend" towards the light in a room. Hormones are present in greater concentrations on one side of the plant, and the stimulated growth on that side makes the plant lean in a particular direction.

The notions of trees growing straight up, or leaning towards light in a forest, are subtle ones that we take for granted. The actions of hormones in trees can be much more dramatic, however. The concentrations of hormones in the shoots and stem regulate the degree to which the shoots throughout the tree will elongate. This is called "apical dominance," and insures that the tree's main

stem, or "leader," will continue to grow up and the other secondary branches will grow out to the side. If an insect kills back the main leader, or an animal eats it, the tree loses a main source of hormonal production and control. The balance is upset by the absence of one hormone, and the result is a change in the form of the tree. In the case of eastern white pine and white pine weevil, when the main leader is infested and dies, one (or several) of the lateral branches begins to "Bend up" and assume the dominant vertical position. After repeated weevil attacks, the tree can have multiple main stems, all of which are crooked, due to their having been "bent up." These "cabbage pines" are characteristic throughout the New England landscape, and are the result of the external influence of the weevil and the internal response of the tree's hormones.

Long before people understood that trees had hormones, they were using one of the results of hormonal response to their advantage. In medieval Europe (and later in colonial America), firewood was the principle source of energy for heating and cooking. People knew that if they cut down certain species of hardwoods, they would sprout again from the stump and continue to grow. Every 20 or 30 years they would return to the same few acres of forest and cut it all back again for firewood, with the knowledge that it would resprout. This was known as coppice cutting.

American chestnut continues to exhibit the same kind of hormonal response when it is repeatedly killed back by the Chestnut Blight fungus. Trees of this species have been dying back and resprouting since the blight swept through New England in the early decades of this century. This behavior is another example of the loss of "apical dominance" or hormonal balance in the tree, resulting in the sprouting of what would otherwise be dormant buds at the base of the tree.

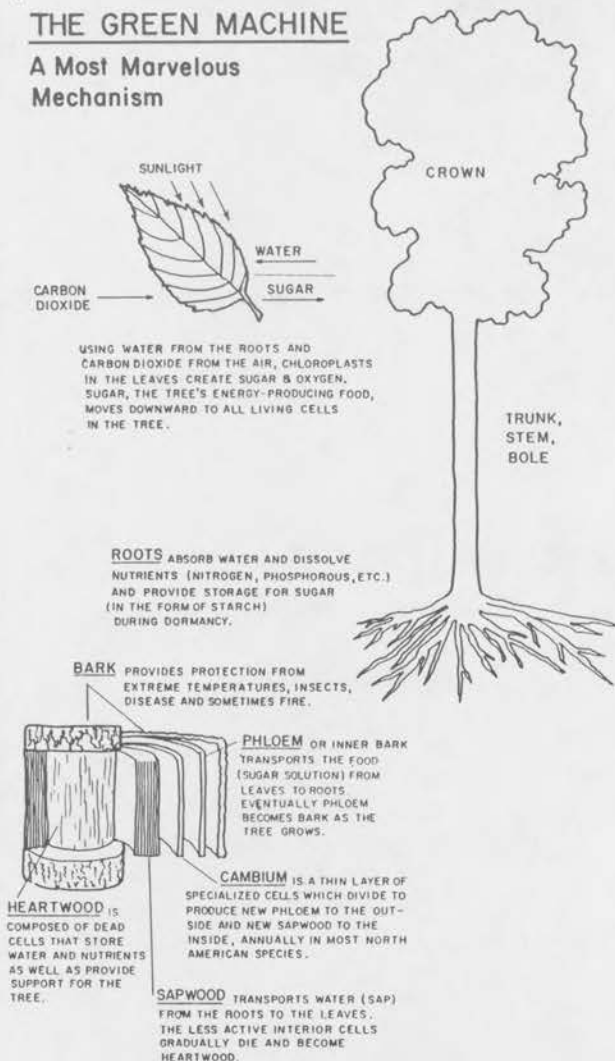
Based on a developing understanding of the role that hormones play in tree growth and form, forest scientists today are using hormones in research to clone superior trees. Tissue from such trees is taken back to the laboratory and grown in test tubes in the presence of hormones that will stimulate root and shoot formation. The resulting "little trees" (not actually seedlings) can then be planted. Knowledge of tree hormones has also resulted in the development of herbicides that stimulates excessive growth and peculiar physiological behavior which results in tree death.

Scientists continue to study the role that hormones play in tree growth. Much is yet to be learned about the interesting form of 'communication' within a tree. Based on numerous external environmental stimuli, such as day length or temperature, hormone balances in a tree change, and leaves fall, buds unfold or flowers appear. Shoot elongation and the degree of "apical dominance" is also controlled by hormones. Also, a tree's response to injury or external influences, such as weevil infestation, high winds, animal browsing, or felling is controlled by hormones. The relative presence in minute quantities of these important hormones plays a significant role in determining the growth and form of the trees we enjoy today.

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CONTROLLING NUISANCE AQUATIC GROWTH IN GOLF COURSE GREENS

by Heather Larratt

H.M. Larratt Aquatic Consultants Assn.

Introduction

Water and little boys have one thing in common - it's very hard to make them sit still and do nothing. When water is detained in a pond, the wise course superintendent prepares for trouble. It matters not whether your pond is essentially a large wading pool or a small lake, no size of pond is exempt from nuisance aquatic growths.

Certainly, some ponds are more prone to problems than others. The ideal pond is spring fed, cold and deep with steep shorelines and a short detention time. If your pond is a shallow, flooded swamp, which is essentially stagnant, the author sincerely hopes that you enjoy a challenge.

Algae is the most common nuisance aquatic growth, with rooted aquatic weeds running a close second. Algae range from slimy or hairy growths or submerged substrates (epiphyton) to minute, suspended forms (plankton) which are distributed from the surface to the depth where light penetrates. An abundance of plankton is termed an algae "bloom" in which the algae form a scum and/or color the water brown or green, depending on the species involved.

Aquatic weeds can be found from the shoreline down to 5 meters, but the preferred depth 1 to 3 meters. These plants have vascular supporting tissue and true leaves, and they are rooted. Aquatic weeds range from short carpets of grass-like plants to objectionable, dense beds of surfacing pondweeds. And you thought that all your weed problems were in your turf...

There are two avenues for attacking nuisance aquatic growths: chemical control and modification of the pond environment. This article should help the ground superintendent develop a pond maintenance program and plan modifications to the pond itself if necessary.

CONTROLLING ALGAE AND REDUCING NUTRIENTS

Like all plants, algae require a variety of minerals for optimum growth. By far the most common limiting nutrient is phosphorus, while nitrogen, silica and carbon are considered to be important macro-nutrients. A reduction in the available nutrients, particularly phosphorus, will result in a matching decline in an algae productivity.

An obvious source of nutrients to a golf course pond is the fertilization of the surrounding turf. Every effort should be made to ensure that no fertilizer fall directly on the pond during its application. Similarly, grass clippings, leaves, etc., represent a nutrient contribution and should be disposed of elsewhere. Sloughing banks also donate nutrients to the pond and they should be stabilized with a bulkhead or rip-rap.

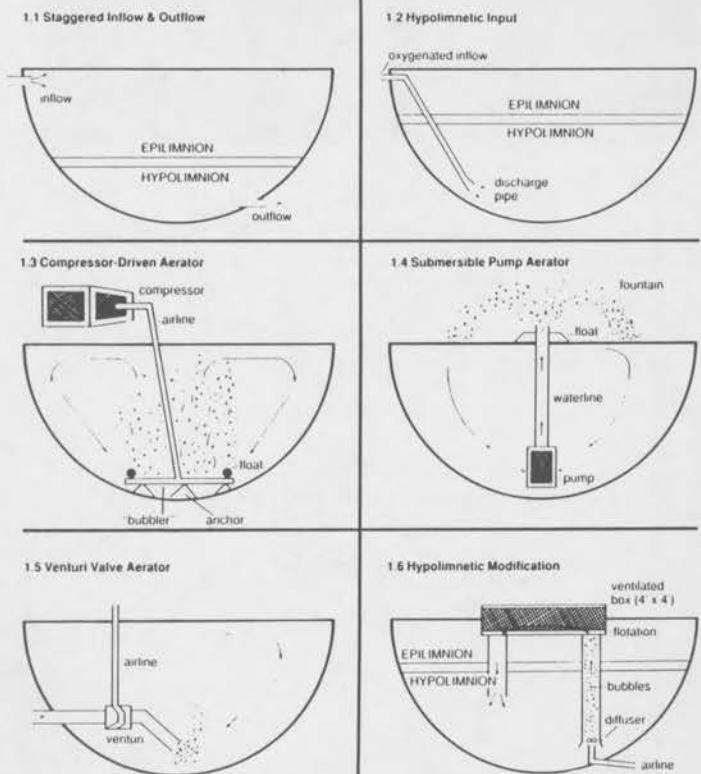
In addition to the external source of nutrients, ponds regenerate nutrients internally. The most significant source of internal loading are the sediments when anaerobic conditions prevail in the overlying water. Ponds that are 3 or more meters deep are prone to this problem. The mechanism is as follows: The sun warms surface water faster than bottom water, resulting in layers of water

with different temperatures and hence unequal densities. The warm, upper epilimnion does not mix with the colder, hypolimnion until the return of cool weather, or a severe wind storm which has the required energy of cool weather, to mix the entire water column in what is called "turnover". During the period of stratification, the water chemistry in the water layers becomes progressively different. The upper layer has more algae and an abundance of dissolved oxygen. The lower layer has more decomposers which consume oxygen, plus it is isolated from atmospheric oxygen. Bottom oxygen levels decline - often to the point that an anaerobic zone forms immediately above the sediments which are devoid of oxygen. Organisms which require oxygen are replaced by those that don't. These include the notorious bacteria groups that produce hydrogen sulphide (smells like rotten eggs) and methane (swamp gas). A sniff of the bottom water will tell you if your pond has an anaerobic zone.

The removal of oxygen from the sediment/water interface is somewhat like removing a lid; nutrients are liberated from the sediments, particularly phosphorus. When the pond experiences turnover, these nutrients are mixed into the water column where they can enhance algae growth. In summary, anaerobic zones are bad news.

What is needed is an input of oxygen to the bottom water. This can be accomplished in a number of ways. If water is normally added and withdrawn from the surface, it is sometimes possible to take water from the bottom instead. This has the effect of drawing surface water

Figure 1: Illustration of Pond Aeration Techniques



(Continued on Page 17)

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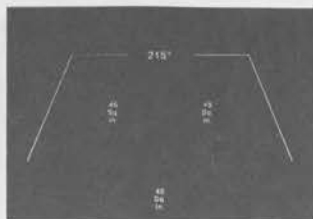
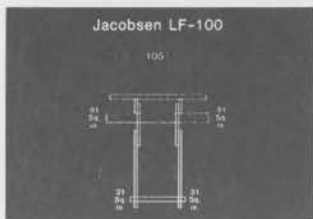
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This unique configuration also provides a shorter uncut circle of grass on turns and better access to all grass catchers, so there's less time wasted when emptying them. The wide, low-profile configuration delivers better traction and stability on slopes for more efficient mowing with less turf damage due to wheel spin and slippage.

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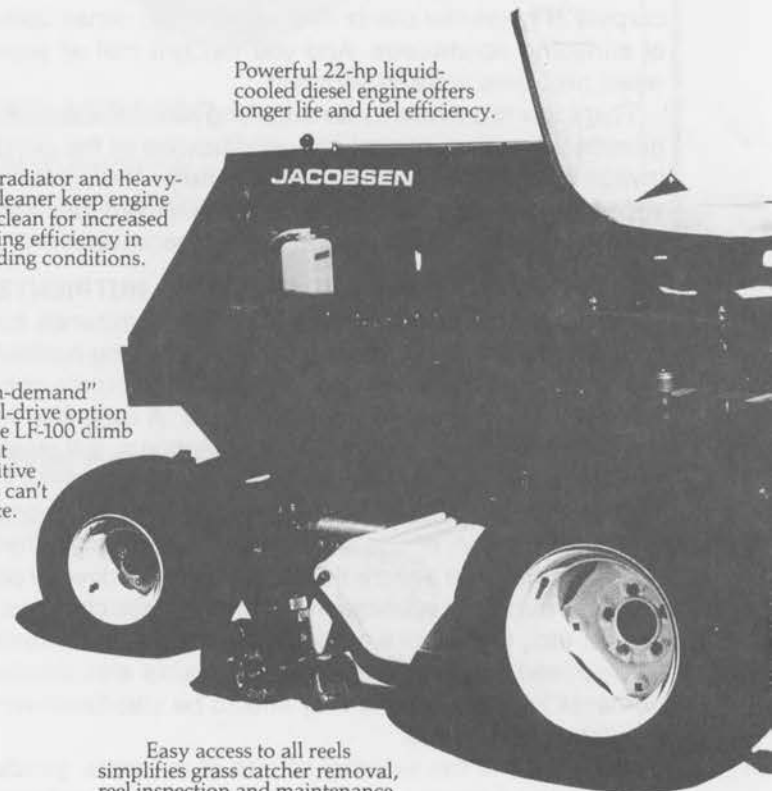
Powerful 22-hp liquid-cooled diesel engine offers longer life and fuel efficiency.

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pounding of high-production fairway mowing. It has a rugged, time-proven chassis design and extra-heavy-duty lift arms. Separate high-capacity pumps for traction and reel drive functions deliver increased efficiency and simplify maintenance. And for longer life and

dependability the LF-100 comes equipped with a tough 22-hp liquid-cooled diesel engine. Diesel economy can save you up to 50% in fuel costs over an air-cooled, gasoline engine. A wide-core radiator and heavy-duty air cleaner help keep the engine cool and clean in demanding conditions.

And to keep you up and mowing, the entire machine is backed by your Jacobsen distributor, so you're never far from dependable parts and service support.

In today's increasingly competitive golf industry, the all-new Jacobsen LF-100 gives you a powerful advantage—tournament-quality fairways, day after day.

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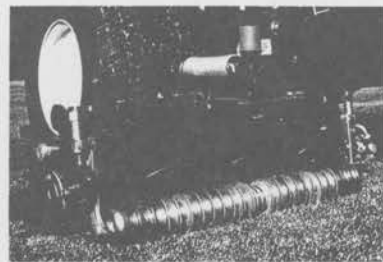
Wing reels located up front for better visibility and greater productivity.

Exclusive, heavy-section reels help make the LF-100 the ultimate fairway mower.

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AQUATIC GROWTH

(Continued from Page 13)

down into the bottom area with its fresh supply of oxygen. Alternately, if the inflowing water is well-oxygenated, it can be piped directly to the hypolimnion to supply the needed oxygen.

The cheapest aerators are the destratification type which break down the stratification (layering) in the pond. A homemade system can be constructed of a one horsepower compressor or blower connected to a 1" pvc grid fitted with .03" microjets or simply 1" plastic tubing with holes smaller than 1/8 inch. The "bubbler" section is anchored about 0.5 meters from the bottom. The rising bubbles lift bottom water to the surface where it is oxygenated before dropping back to the hypolimnion.

Adequate aeration can also be accomplished without a noisy compressor. There are commercially available units that utilize a submersible pump to lift bottom water to the surface where it is sprayed from a floating fountain unit, e.g. Otterbine. Alternately, a venturi valve can be utilized when there is a pressurized water line in the deep section. The valve is installed in the water line and is fitted with an airline to the surface. The air is sucked down the airline and the air/water mixture is discharged near the bottom.

It is essential that destratifying aerators be functioning in the early spring in order to avoid lifting nutrient-laden anaerobic water. Similarly, the aerator's operation cannot be interrupted for more than a few days in the summer without incurring the same problem.

It is not unusual for destratification aerators to increase turbidity due to the mixing of the water column. If the aerated pond becomes unacceptably turbid, you may want to consider the hypolimnetic modification in which the rising bubbles are trapped in a column, aerated in a floating, ventilated box, and returned via another tube to the hypolimnion. The hypolimnetic aerators are more elegant in function than they are in appearance.

Reducing light penetration

Like all plants, algae require light to grow. The amount of light that penetrates the water column is affected by wind play. A mirror-still pond surface admits the maximum amount of light, while a rippled surface admits less. If the strategy of the golf course permits, plantings around the pond which reduce wind should be minimized. A fountain can serve the dual purpose of enhancing the appearance while it disturbs the water surface.

More dramatic reductions in algae growths can be obtained using AquaShade, a blue dye that shades out the wavelengths which are essential to algae. The product which works well, imparts a Mediterranean blue look to the pond. If the resultant color looks a little too-blue-to-be-true, AquaShade used at half the label rate still reduces algae growth.

Algicides

The most commonly used algicides are the copper compounds (e.g. Cutrine Plus, Algimycin FLL-C). The liquid materials are well suited to treating suspended, microscopic

algae. Filamentous algae growing on rocks can be controlled by dragging a burlap sack of granular algicide along the infested areas. Generally, no permit is required to treat a pond which is located entirely on the golf course and has no outflow beyond the boundaries of the property; however, confirmation is advisable.

Copper algicides do not solve algae problems, and thus, repeated treatments during the summer are usually necessary. Typical treatment frequencies vary from monthly to weekly after the water temperatures exceed 16° to 18° C.

The frequency should be based upon the amount of algae present. Once the turbidity in the pond starts to increase, the algicide should be applied. There is no point in waiting until there is a full-brown algae bloom in progress. More algicide will be required, and a large volume of decaying organic matter will be sent to the bottom where it will fuel the anaerobic zone.

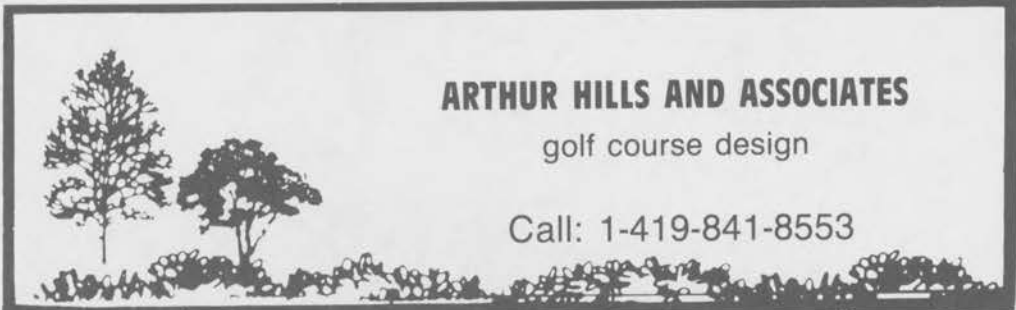
The turbidity can be monitored using a secchi disk - a 20 cm diameter disk with alternating black and white quadrants. The disk is lowered until it can no longer be seen from the surface, and that depth is recorded. A loss of 0.5 meters or more in the secchi depth would indicate the need for a treatment, bearing in mind that the disk is more visible on a sunny day and that the same observer should take the readings. After a time, a normal treatment pattern will emerge, and algicide applications can be scheduled.

There is a possibility that copper based algicides would adversely affect fish populations, although the author is personally familiar with two ponds and several lakes where proper use of copper compounds have no discernable impact on resident trout.

Chlorine is also an effective algicide. If the pond's water source is a chlorinated supply, you will enjoy the algicidal properties of the residual chlorine. It is also a relatively easy task to insert a chlorine feed to the inflowing water line. Continuous feeds of chlorine work best in unstratified ponds with short detention times because chlorine residuals are short-lived due to adsorption to suspended organic matter and the sediments.

Aquatic weed control and modifying favorable habitats

Aquatic weeds thrive at depths of 1 to 3 meters, and rarely penetrate beyond 5 meters. The pond sides should drop steeply to the maximum depth desired for your pond. Where this is not possible, the substrate can be rendered undesirable by covering it with burlap or erosion control fabric. Both of these coverings "breathe" and will not be blown to the surface by gasses accumulating from the sediments.



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PROJECT YOUR IMAGE OVER THE MIST

by H.E. Frenette, CGCS

"Infinite toil would not enable you to sweep away a mist; but by ascending a little you may often look over it altogether." (Arthur Helps)

A little known quote from a man we have never met, but what a profound effect it could have on our efforts to become the recognized professionals we all aspire to become. To lift ourselves above the feeble attempts to convince our members and colleagues that we deserve much more than we get. Just calling ourselves professionals and telling each other we are does not a professional make.

How many meetings have you had with fellow superintendents who begin their acquaintance with some remark like, "I have a pretty good layout, but the membership won't let me have the money to do the job", or "We just have to get the job done with what we have because our members can't afford to raise the dues." To add to this martyrdom, some announced **expert** gets up at your local meeting and spends 30-45 minutes telling you those members expect you to maintain that rock-pile in tournament condition with the same budget as last year, and you are just going to have to learn to accomplish this as professional superintendents. Have you ever met an **expert** in the field of Turf Management — Superintendents, as you know, are not classed as **experts** — who didn't say you were the greatest bunch of guys in the world? Then,

in the next breath, they're telling you that you just have to learn to do more with less. It occurs to me that these individuals may be experts in rhetoric but something less than knowledgeable in the field of turf management.

Here we are, down in the mist sweeping away like mad, but to no avail. Any man who can claim to give his members a better course (with today's labor, materials, and equipment costs) for the same money has lost touch with the industry or has a membership that will not long accept his quality of maintenance. We may even consider the possibility that his past efforts have been less than professional if he can suddenly produce results with the same budget.

This brings us back to the purpose of our discussion. In order to see above the mist, we must recognize that our industry is part of the free enterprise system. We do not enjoy subsidies, tax exemptions, or federal grants. We must operate with the economic realities of the business world, which means competing for labor, paying the going price for equipment and materials, and providing the fringe benefits that go with operating any business.

Determine the needs of your membership. What quality of course do they want? Once this is understood, all related efforts must be approached realistically. Determining the needs of your membership should be a continuing process. Listen to the ideas and complaints of each

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\$118.00	Average superintendent cost	\$148.50
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26 oz.	Total amount product applied per 1,000 sq. ft. per season	56 oz.
<u>\$ 4.79</u>	TOTAL COST/1,000 SQ. FT. SEASON (total oz. applied x cost/oz.)	<u>\$ 12.99</u>

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Total cost per season of HYDRAFLO[®] granular and AQUA-GRO[®] spreadable to 1,000 sq. ft. of golf course green (at manufacturer recommended rates):

HYDRAFLO 15g 40 lb. bag		AQUA-GRO S 52½ lb. drum
\$49.20	Average superintendent cost	\$66.70
\$ 1.23	Cost per pound	\$ 1.27
12 lb.	Total amount product applied per 1,000 sq. ft. per season	24½ lbs.
<u>\$14.76</u>	TOTAL COST/1,000 SQ. FT. SEASON (total lbs. applied x cost/lb.)	<u>\$31.12</u>

individual member. Be receptive to constructive criticism. Be prepared to reconcile even the most ridiculous suggestion to maintain harmony.

Prepare your requirements and justifications, and then be prepared to make a convincing presentation. For clarity, let's consider some of the items that might be in your presentation.

LABOR

This is the largest percentage item in the budget, but has traditionally been the least realistic. We have agonized for years with less than adequate personnel because this has been the way *it is*. It is time to recognize that the job is not going to get done properly without skilled technicians who can be encouraged to stay with the club. They should be paid competitive wages and be provided with reasonable fringe benefits as added incentives.

Training programs must be organized on a state or regional level to provide a pool of apprentices prepared to fit into the routine of turf maintenance procedures. State Superintendents' association can be the leaders in such a program with benefits equal to or surpassing existing halfhearted research efforts. What better trade for a young man to pursue in one of the local Vo-Tech schools? You, the superintendent, not the club, will be the one to initiate such a training program.

For years labor has been recognized as the main problem within the profession. Solving this problem will certainly help raise us above the mist.

Consider two areas where many of us give too little thought to our responsibility as professional superintendents: preparing the assistant and training the turf student:

The Assistant: Once we have made the decision to employ an assistant, our responsibility is twofold: (1) Provide the individual with the opportunity to learn all he can to prepare himself for the time he becomes a superintendent, and (2) Provide your membership with a competent individual who can maintain continuity in the daily operation of the course in the absence of the superintendent due to superintendent meetings, vacations, illness or other emergencies.

The Turf Student. You may have decided to employ turf students to supplement your seasonal crew. In doing so, you have accepted a responsibility to the student and to his or her school.

The student expects to participate in a varied host of disciplines. He or she does not anticipate spending the placement training period just riding a tractor or raking bunkers. They hope to have the opportunity to engage in every procedure on the course. The superintendent and his assistant should afford the student a chance to learn each skill on the course. In addition, the student should be required to exhibit his or her understanding of the disciplines studied in school such as:

- Turf and weed identification
- Tree and shrub identification
- Lime and fertilization
- Safety in the use, handling, storage and disposal of pesticides

- Calibration of application equipment
- Preventive maintenance procedures
- Budget and accounting procedures

Once the student has been exposed to the various duties on the course and given a reasonable time to comprehend the **HOW** and, most importantly the **WHY**, the superintendent has the responsibility to accurately evaluate each student. This is a commitment made to the school when he accepts a student for employment. To do less would allow unqualified individuals to enter the field and further dilute our efforts to be professional.

These two areas will increase your duties and cut into free time. However, it will also raise you above the mist and expose you as a professional. Often we are hesitant to share our knowledge and experience with young people entering the field. This is inconsistent with our efforts to conduct conferences, seminars, and local meetings to share ideas and experiences.

MATERIALS AND SUPPLIES

This is an area in which we are reluctant to thoroughly investigate alternatives. It is easy to check price lists or make a phone call and insert a figure. Better yet, the easy way out for many unprofessional superintendents is to just add 10% to last year's figures. Although more troublesome, a complete breakdown of unit prices can save 6-10% of many items used on the course. Breakdown of unit cost does not only mean cost per gallon, pound, etc., but cost of handling, application, storage, value of technical service and availability.

Too often, we use what the fellow down the street uses because it must be good and, besides, that's easier than coming up with your own programs. If you really want to know what his products are worth, ask him to see a label. That Cadillac will soon be out of your driveway. How about the guy on the phone from New York or Chicago who has the answer to your weed problems? The only answers this guy has are the ones written on a prepared sheet in front of him. When you talk to this fellow, you are really down in the mist; with a worn broom. When you walk in a materials storage area cluttered with 55 gallon drums of water, from these high pressure sales tactic, question the superintendent's professionalism.

When you list a material or supply item on the budget, know what you are buying, what it can or cannot do for you, and that it is the best value available. Analyze the amount of active ingredients and reduce it to cost per application. Determine your requirements, contact your reputable suppliers, discuss optional materials and price rates and then make your decision in a professional manner.

MAINTENANCE

This is probably the least predictable of all items in the management process. It would appear that no amount of historical recording, equipment record keeping or daily preventative maintenance can accurately predict future requirements. There seems to be one reasonable procedure that will minimize maintenance cost - diligent operator training and supervision. Most generally we are content to acquaint a man with a machine, show him the

controls and then turn him loose. This is not proper operator training and supervision. Proper training programs produce better work habits and less down time due to carelessness.

Then we regularly spot the article in a trade journal concerning repair or replace. There are as many formulae for solving this problem as articles. Manufacturers give us estimates of expected equipment life, and trade articles show us equipment still in use that is 30 years old. Somewhere in between we must find the answer to good preventative maintenance, operator diligence and periodic overhaul. This must be accomplished by the superintendent committing himself to some basic principles:

Inventory all available equipment and list its condition.

(Show purchase dates and prices)

Get rid of your "junk pile". Junk is worth cash.

Put all equipment required to get the job done and prepare your justification for its purchase.

I can hear the outcry, "That's okay for you guys with big budgets, but how about us superintendents at the small 9 hole courses?" The question here is not one of affluence of the club, but of the degree of professionalism of the individual superintendent. We are speaking of rising above the mist to see the reality of our profession. Being employed at a small club is not an excuse for ineptness.

(Continued on Page 23)

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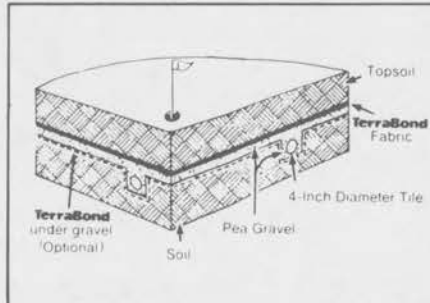
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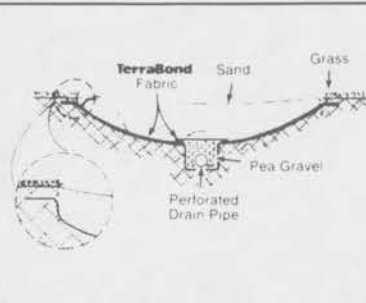
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Use TerraBond as a replacement for the usual 2" coarse sand layer between the greens mix and the gravel drainfield. The fabric will eliminate downward migration of the mix into the gravel and the subsequent reduction of water flow from the green.

TerraBond's high water permeability and highly engineered uniform density and EOS (AOS) make it an ideal fabric for this use. It will not rot in the soil-water environment. Its horizontal (planar) flow characteristic moves excess water horizontally out to the sides.

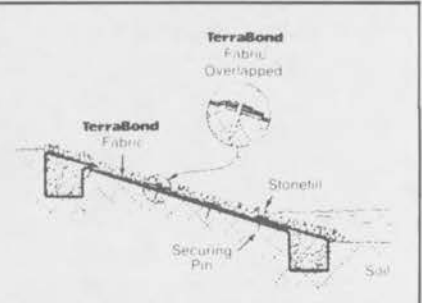
SANDTRAP LINING



Line the entire golf sand trap with TerraBond, including 6" under the surrounding sod. The sod's roots will knit the fabric to the soil beneath. Clay and rocks will be totally restricted from moving up into the sand.

Sand wash-down in rainstorms will be dramatically reduced, because TerraBond interrupts the interface of sand/soil. Rakeup will be greatly reduced. Time will be saved. Also, "wrap the gravel" in the trap drain to keep it flowing indefinitely. TerraBond's polyester will resist chemical and ultraviolet degradation.

SLOPE EROSION CONTROL



TerraBond is utilized beneath cut slope stone protection (rip-rap) as shown above. The fabric provides long-term confinement of cut slope or fill material.

Being constructed of soft and pliable needle-punched polyester, TerraBond will remain stable and functional for many years, in spite of potential exposure to the sun's ultraviolet rays and/or concentrated hydrocarbons such as gasoline, diesel fuel, oil or hydraulic fluid.

TerraBond also can be used in weed control, gravel path construction, retaining wall filtration, subsurface drainage, patio construction and planter filtration/separation.

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- Desiccation injury around test site was severe. Uncovered control area had 60% damage. TerraShield covered area had no injuries. Control area produced only 36% of the green cover obtained under TerraShield blanket.
- Green-up occurred 24 days earlier with TerraShield . . . and remained significantly greener than the uncovered control area for 21 days after cover was removed.
- TerraShield produced 3 times the recuperative potential of the control area . . . and twice that of clear plastic covered area.
- TerraShield enhanced soil temperature compared to uncovered control area.
- TerraShield remained in place all winter with no ripping or tearing despite heavy winds.

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IRRIGATION

This is an item that is coming of age, and yet one of the least understood expenditures on the course. Members are completely at the mercy of the fast talkers. We ask why the superintendent is not in a stronger position to assist the club in selecting their irrigation system. Most of us know the answer. We are not acquiring the knowledge necessary to understand the many problems associated with planning the system.

Who should be more concerned with such information as layout, pipe sizing, distribution, pumping stations, automation and specifications than the Golf Course Superintendent? The Architect? (He can advise, but generally is not qualified). The Contractor? (He is qualified and knowledgeable, but not committed to the interest of the club). The Irrigation Consultant? (He is self-employed to operate over a wide area and mostly not available). And, last but not least, the Club member who is a local plumber? We have all seen the results of a plumber's spigot-system.

It behooves the professional superintendent to make himself aware of irrigation principles, design, performance, installation and automation along with the up to date equipment available. The choice is ours; we can take an active part in the acquisition of a new system or gripe about what a lousy system someone else stuck our club with and left us to straighten out.

LANDSCAPING

We all have members who want to see the course progress aesthetically. This means take no trees out or add trees everywhere, put shrubs around all trees, to add to our maintenance headaches, and trees over every green to provide shade and roots for added problems. Usually, we end up with trash trees, such as Sweetgum, Poplar and occasionally some Hickory. The professional superintendent should be familiar with the plant materials indigenous to his locale and their characteristics. This is where the help of a Landscape Architect comes in handy. Develop a friendship and seek his advise on maintenance free materials.

If a tree program is to be established, get the help of a competent Golf Course Architect to prepare a Master Plan. Once approved, such a program can be carried out in stages as priorities dictate. The professional superintendent does not haphazardly start planting trees without thought to the game, maintenance or aesthetics. What you may consider a masterpiece this year could end up as a nightmare in the course of 8-10 years.

CONSTRUCTION & RECONSTRUCTION

According to the GCSSA Organizational Job Description, the superintendent is an expert in this area. The question is - Where does he acquire this expertise? It certainly isn't as routine as mowing or spraying. Most generally, the average superintendent never gets the opportunity to gain the experience necessary. He may, in a career, become involved in actual supervision or construction of various phases, but not the complete picture.

It would seem that the aspiring professional would make the extra effort to learn accepted fundamentals of good construction. Visit the course being built in your area and ask questions. Observe methods and results. Do not accept all that you see or hear at face value. Try to glean information from the architect, contractor and superintendent. Question your USGA representative. This type of investigation is what will raise you above the mist and enable you to see it altogether.

CONCLUSIONS

This writer hopes that these words will encourage you to consider your role as a member of this profession. The word *professional* denotes one who has explored all aspects of his profession and had prepared himself for problems which he will face and be required to make an intelligent decision. The fact that a club hires someone to take care of its golf course and calls him a superintendent, greenkeeper, etc. has no meaning unless the individual knows what he is and what his capabilities are to accomplish the myriad of tasks which he shall face. Joining an organization does not change your status unless you have accepted the responsibility to prepare yourself for the profession you have chosen. Make the most of your association with fellow superintendents. It will help your professional horizons.

Remember! You will never be a professional Golf Course Superintendent until your fellow members and the general public recognize and accept you as one.

CREDIT: *The Georgia Turfgrass News*

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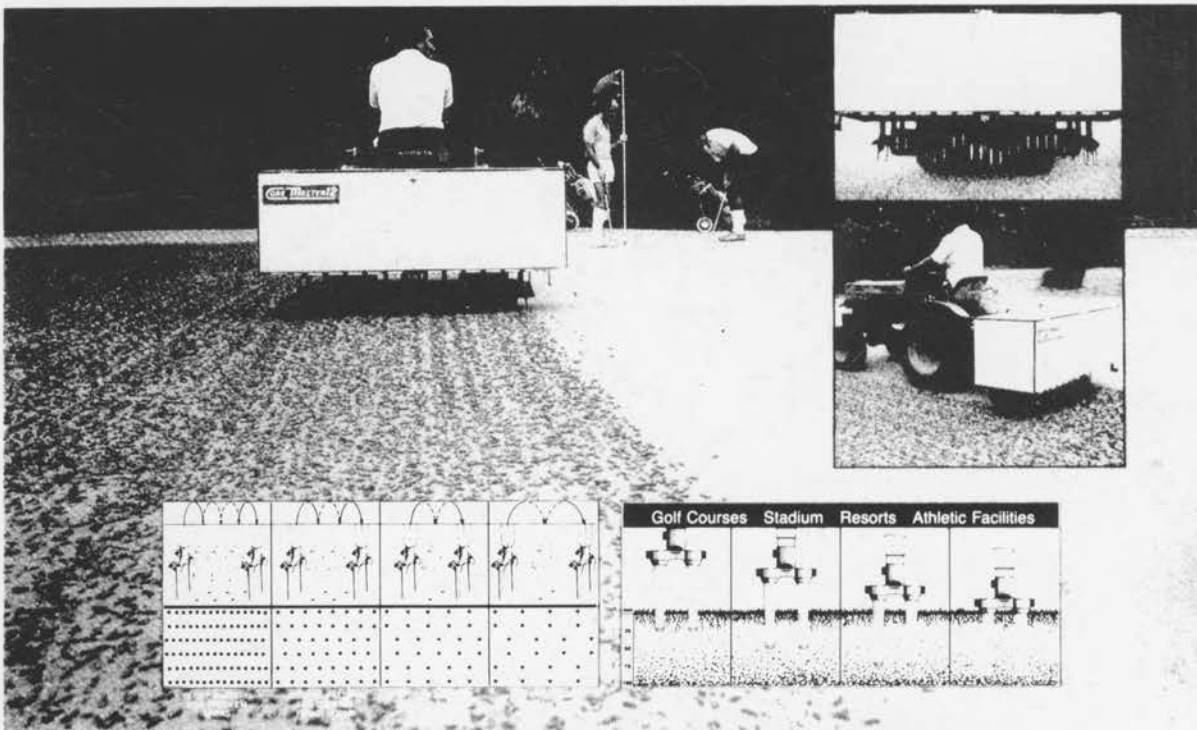
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