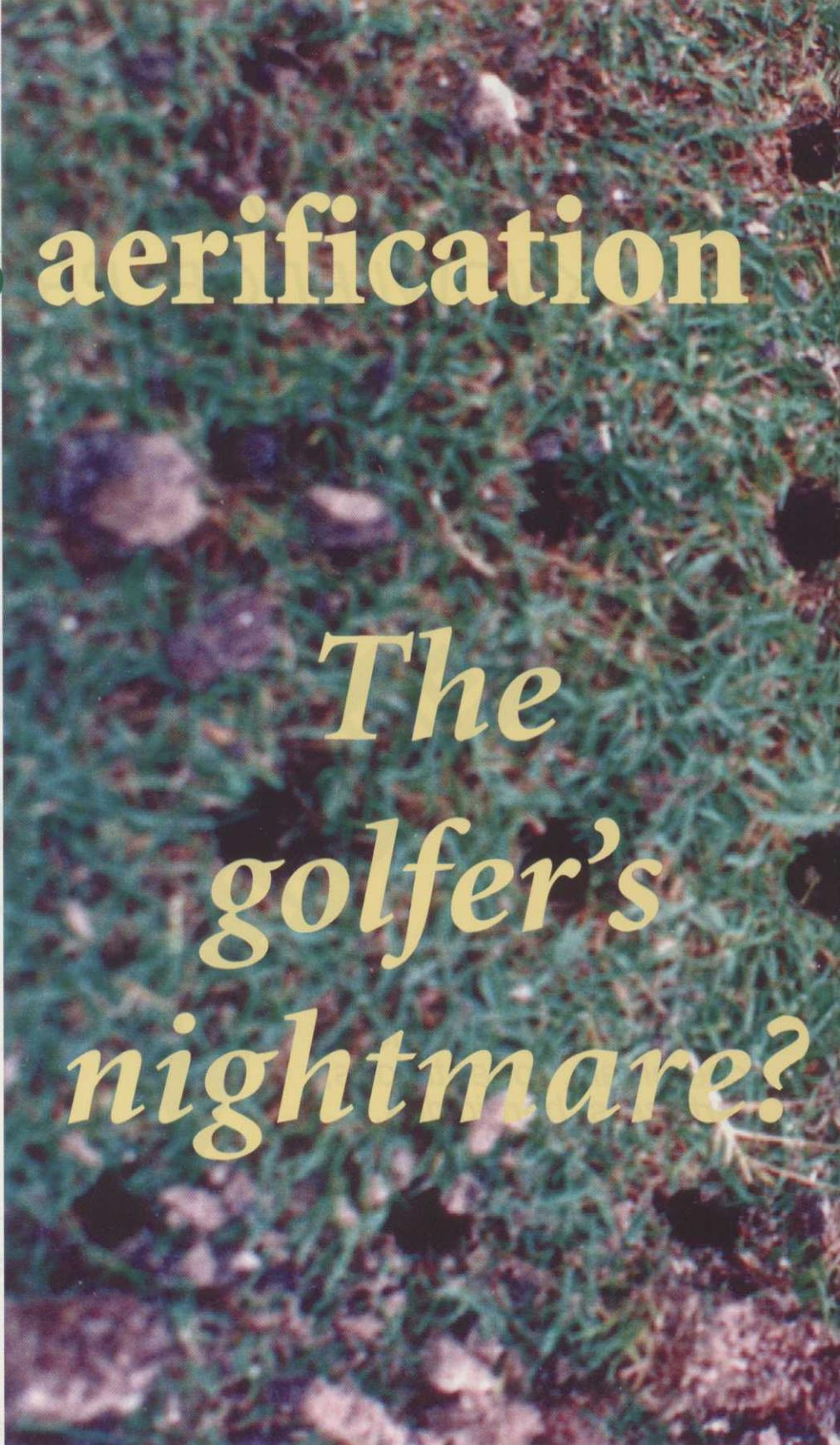


Greens aerification

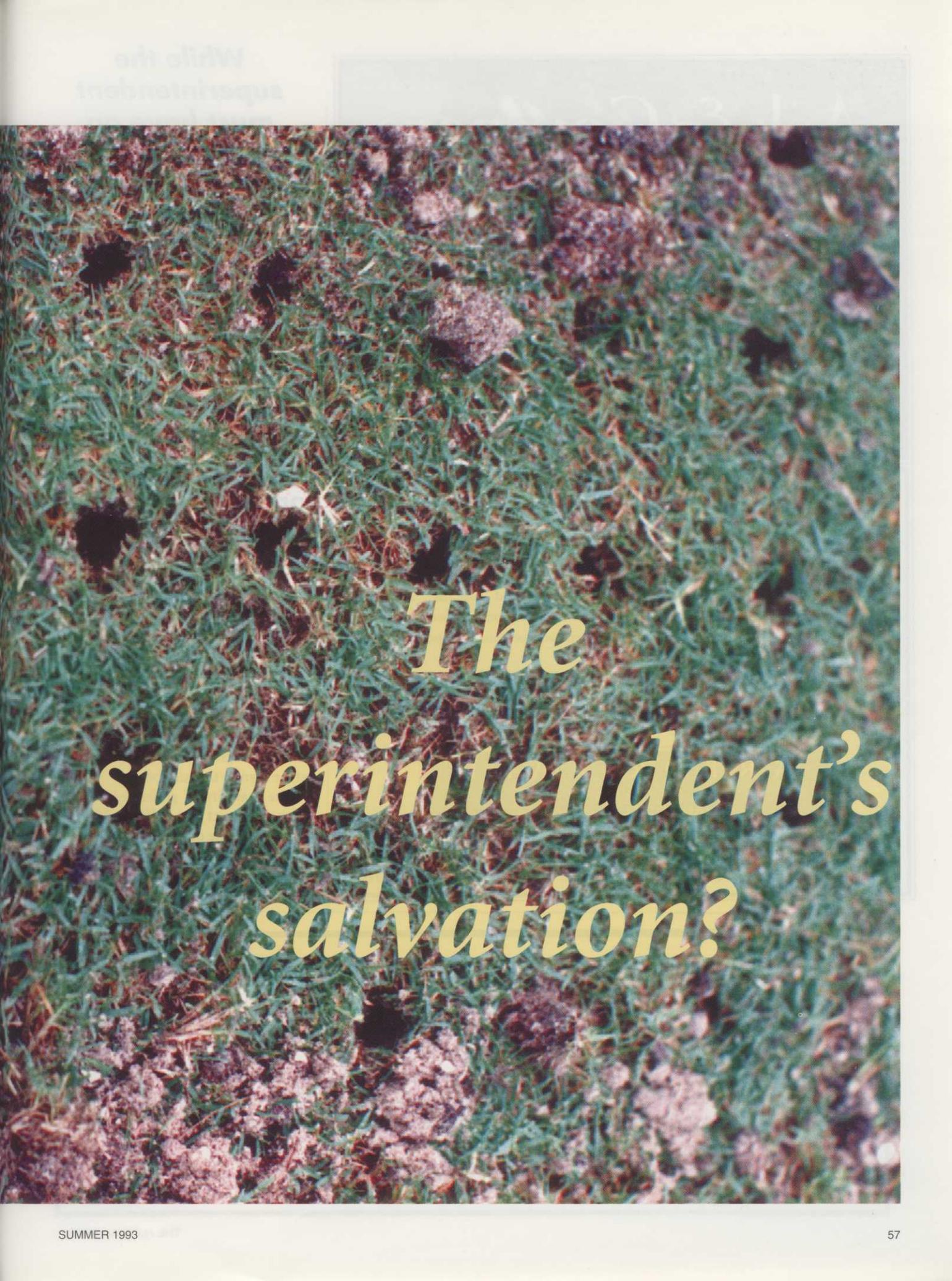
BY F.W. "CHIP" FOWKES
*Golf Course Superintendent
Emerald Dunes, West Palm Beach*

As turf managers in the south, we anticipate spring as a time to recover from the stress of the grueling winter season, catching up on our golf game, fishing, family time and just general relaxation...in our dreams! What this really entails is the extra overtime, equipment preparation and abuse, and complaints from members in relation to the rejuvenation of the turf we call renovation.

Every golf club has its own set of circumstances that determine the characteristics of the renovation program. As always, budget is a principle factor in determining the type and extent of procedures that can be performed. Will play continue while renovation is commencing or is the course closed for certain procedures, specific times or the entire summer? To make these decisions, the turf manager, general manager, golf pro and committee must determine at what level the lost revenue and playing time directly related to the disruption of the playing surface is offset by the benefits realized by the renovation process.



*The
golfer's
nightmare?*



*The
superintendent's
salvation?*



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While the superintendent must have an understanding of and appreciation for the short run impact to the club, his job is to represent the case for the long-term positive effects of these procedures for the upcoming season and ongoing life of the golf course.

While the superintendent must have an understanding of and appreciation for the short run impact to the club, his job is to represent the case for the long-term positive effects of these procedures for the upcoming season and ongoing life of the golf course. It is easy to see that loss of revenue and playing time due to poor turf condition is much more significant when it occurs in the busy winter months rather than in the summer.

The majority of golfers today have come to expect the golf course being "torn up" in the off season and accept it as temporary inconvenience. An efficiently renovated course recovers quickly



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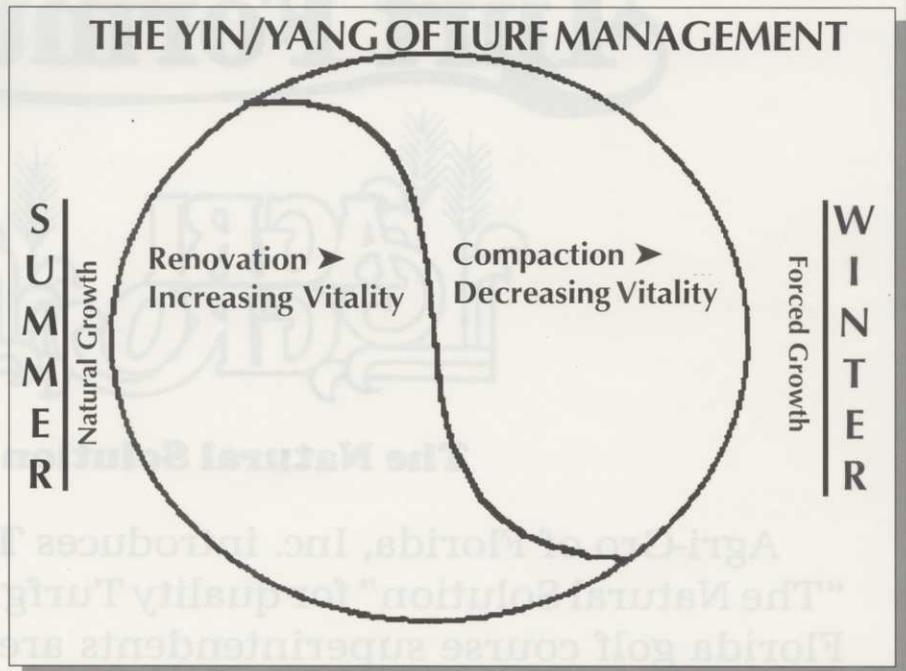
and exhibits immediate positive results. In the winter, damaged or weak turf recovers slowly due to the shortened photoperiod and lower temperatures.

If unusually harsh weather persists, extended tournament conditions are required, or turf is damaged from uncontrollable events; unrenovated turf will probably not recover until well after the seasonal player has returned home. On a private course, the member may reconsider his renewal or at least question the quality of his investment. The seasonal daily fee player will probably not return and certainly will not provide the essential "word of mouth" advertising necessary for increased revenue in the future.

With these financial repercussions of the impact of renovation understood by all involved, it remains to outline the agronomic practices that can be employed to restore the desired vitality to the turf.

Forced growth vs. natural growth

Each club has its own standard of turf quality and, hopefully, a budget that is



capable of supporting this goal. The successful turf manager will be able to maintain this standard with consistency, mini-

mizing the peaks and valleys in relation to playability and aesthetic value. An ag-



Make sure that slicing and verticutting blades are straight with good bearings. Aerifiers should be properly timed so the tines enter and exit the soil cleanly.

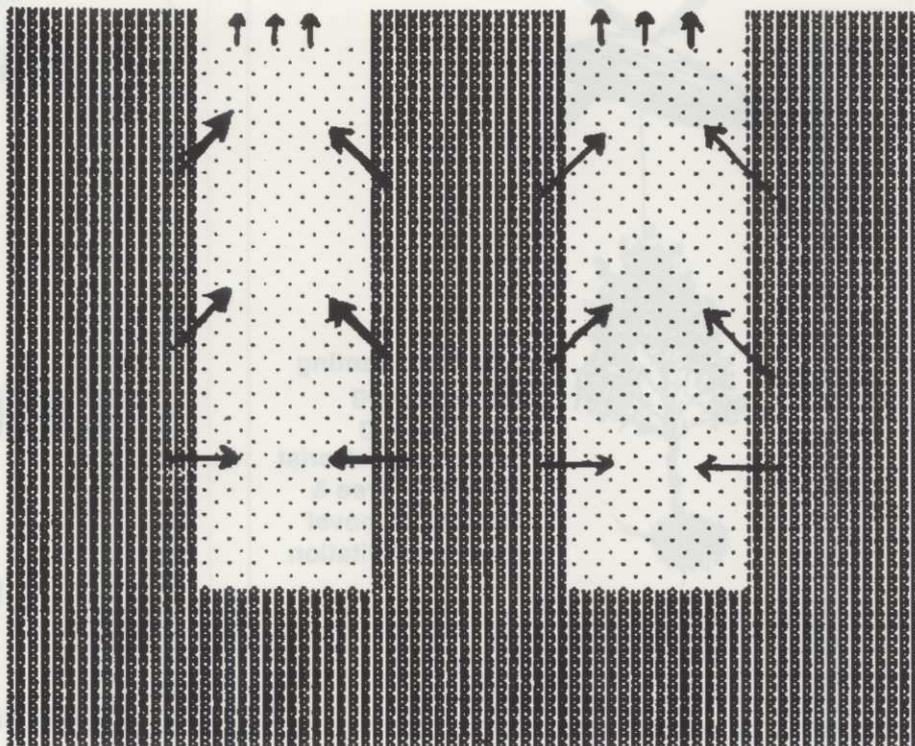
ronomically sound conditioning program during the “natural” growing season will increase the probability that the superintendent can provide consistent turf during the “forced” winter growing season. Unfortunately, the physical disruption of the playing surface during renovation is in itself not very pleasing to the eye or the golf swing.

The Yin/Yang of turf management

As the winter months progress, the shorter days and cooler temperatures dictate that the superintendent provide additional nutrients to force the turf to recover from damage and maintain acceptable color. The compaction from equipment, carts and foot traffic reduces the ability of water to penetrate the soil and carry nutrients to the root system.

This can begin a vicious cycle as more and more water is applied and the soil becomes saturated in the top layer. The wet conditions increase the rate of compaction, root systems shrink to the elevated water table and conditions become more favorable for disease development and turf decline.

Renovation should do more than simply allow the turf to withstand these pres-



As topdressed areas settle and expand into the topdressed holes, the positive effects of cultivation are spread more evenly throughout the soil.

ures and survive until spring. Along with reconditioning the soil, a program of efficient irrigation and fertilization should

be implemented to extend the natural growth period as far into the winter as possible.

Light reconditioning of the soil should start early to achieve maximum possible vitality when the plant is given the opportunity to improve itself. A weak plant with low food reserves will be slow to develop new roots to aid in nutrient uptake.

Before physically disrupting the soil, take soil and tissue samples for analysis. Soil tests will indicate what will be needed to encourage steady recovery, and what long range modifications are necessary to balance the growing medium. The tissue test will suggest what the immediate needs of the plant are and indicate if it is efficiently gathering and processing the nutrients that are available in the soil. This information can be used to determine what formulations of granular and foliar fertilizer can be used more efficiently over the upcoming months.

As soon as the turf can be spiked or sliced without displaying unacceptable discoloration, begin opening up the high traffic areas exhibiting the most damage. Experiment on a remote area to deter-

Soil tests will indicate what will be needed to encourage steady recovery, and what long range modifications are necessary to balance the growing medium.

The tissue test will suggest what the immediate needs of the plant are and indicate if it is efficiently gathering and processing the nutrients that are available in the soil.

Sand particle size and organic content of the topdressing will be an important factor that contributes a long-term residual effect from the aerification process and will be a deciding factor in the continued success of the turf management program.

mine a good time to start.

Use of wetting agents or soil conditioners after slicing may soften the area further and allow for more efficient water penetration. Now is the time to start cutting back on overwatering and try to aid deeper root development through less frequent irrigation.

Where localized dry spots develop

every summer or areas are continually susceptible to nematode damage, these procedures, started early and continued regularly, help the plant withstand the stress of hot, dry periods. If these areas are low in organic matter, start applying amendments that will aid in the development of beneficial microorganisms.

As the winter season is ending and the

turf begins to respond to the early conditioning program, tissue analysis should indicate that the plant is reaching optimum nutrient balance. All that must be provided now is room to grow. The turf can now be subjected to more aggressive cultivating techniques and have the ability to respond quickly to the improved




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soil structure.

Even under favorable conditions, deep verticutting, aerifying, and scalping all damage the plant to some extent. High rates of fast release or high chloride fertilization immediately after cultivation can burn new roots and leach quickly, contributing only a small portion to plant recovery. Post cultivation fertilizer should contain nutrient sources timed to release as the plant can use them to recover in an efficient, healthy manner.

Forcing the turf to "close up" quickly through excess nitrogen application will produce leggy and inconsistent top growth along with an environment favorable to disease and insect pressure. This is the optimum time to apply controlled release nutrients and conditioners that will balance and improve the soil throughout the year and establish a con-

sistent food source for the developing root system.

For the turf manager who is unable to suspend play while renovation takes place and turf recovers, there is additional pressure to quickly restore a smooth, consistent playing surface and keep visual disruption at a minimum. Make sure that slicing and verticutting blades are straight with good bearings. Aerifiers should be properly timed so the tines enter and exit the soil cleanly. On the putting surface, remove all aerified debris before topdressing. Left-over plugs become imbedded in the soft surface and are a sure excuse for missed putts. Applying the correct amount of topdressing to fill aerification holes is one of the single most important factors in determining how the ball will roll immediately after topdressing.

Forcing the turf to "close up" quickly through excess nitrogen application will produce leggy and inconsistent top growth along with an environment favorable to disease and insect pressure.

John Foy of the USGA Green section recommends leaving the holes slightly unfilled. As non-aerified areas settle and expand into the freshly topdressed holes, the positive effects of cultivation are spread more evenly throughout the soil. Topdressing is forced to the surface by the encroaching soil, providing a smoother ball roll. A greens roller may be used after topdressing to expedite this process.

To maintain consistency throughout the entire green, the holes should be filled as evenly as possible. Steel mats, brushes and rugs may be used in various combinations to achieve the best results and a shop broom can patch up any missed areas. The contours of the green, type of topdressing and height of cut will determine the most efficient dragging method.

Tine size and cutting height for cultivation should be determined based on the level of compaction, layering or thatch buildup, turf vitality and environmental conditions. Cutting at low heights in an attempt to provide a smoother ball roll after aerification may delay turf recovery and should be approached with caution.

Sand particle size and organic content of the topdressing will be an important

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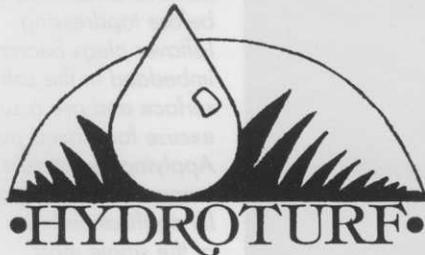


factor that contributes a long-term residual effect from the aerification process and will be a deciding factor in the continued success of the turf management program. Do thorough research to determine the best mix to improve ongoing quality of the soil.

A valuable lesson can be learned from

an act of vandalism experienced by most superintendents at some point in their career. Spinning donuts on a golf green can destroy a smooth putting surface and likewise a great deal of damage can be caused by wheel ruts inflicted by heavy equipment used during and after cultivation.

Turning on a green should always be avoided, especially on soft, aerified soil. Drive equipment straight through the green and turn on collar or apron. Be sure these areas are clean of debris and weed seed to avoid dragging foreign matter on the putting surface.



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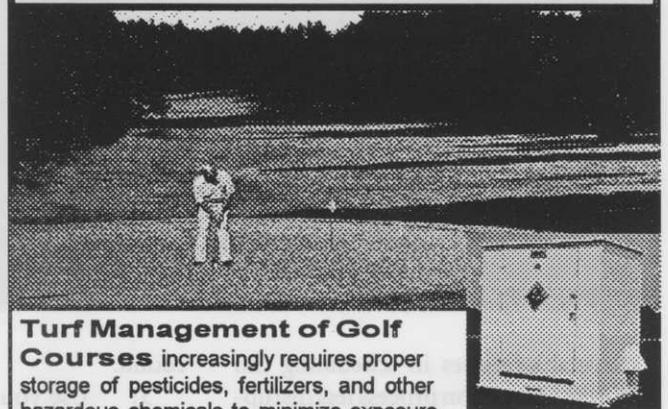
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Remove all aerified debris before topdressing. Leftover plugs become imbedded in the soft surface and are a sure excuse for missed putts. Applying the correct amount of topdressing to fill aerification holes is one of the single most important factors in determining how the ball will roll immediately after topdressing.

Several strategies in scheduling can make the renovation process less disruptive to the player's eye and golf game. If it is necessary to core aerify greens several times over a summer, it may have to be attempted without closing the course. On the first morning, aerify, clean, topdress and drag the last five holes.

That afternoon allow the back nine play only and get as many front nine holes completed as possible. The next morning, start play on the back and finish aerifying the front. That afternoon allow play on the front nine only and finish the back. This specific procedure will only be possible on courses with back nine start accessibility. The concept can be adapted to any situation. Examine the components of this program.

1) Finish each green before players arrive. Be careful not to let the aerifiers get too far ahead to the clean-up crew. A green that is aerified is unpleasant, a green covered with plugs is unplayable. Use the same caution with the topdressing and dragging crew.

2) Using this program, once the player encounters an aerified green, he adjusts his game and finishes the round under the same conditions. Playing alternating aerified and non-aerified greens is totally disruptive to the continuity of the

round.

3) Use your imagination and experience to form a plan that works best in your situation. Get the crew involved and listen to their suggestions as to ways to improve and expedite the procedures. Crew members that take pride in the details in cultivation and clean-up will contribute greatly to its success.

4) Take these concepts from the green to the renovation of the rest of the golf course. The golfer can tolerate playing through a crew cleaning one fairway and verticutting the next, yet will be annoyed by continually playing through mounds of thatch and springs. Remove cores on tees between the tee blocks immediately.

Share equipment and ideas

Everyone has their own techniques for renovating the golf course. Use your local GCSAA chapter meetings to discuss your situation and help others solve unique problems. Form an equipment co-op with other courses in the area. By sharing equipment, it will be possible to complete jobs quickly with less disruption of play. If your course can't afford to purchase renovation equipment, explore the possibility of renting from other courses or contracting from an outside service. Use the available FTGA member services and USGA green section as addi-

tional sources of technical information and agronomic advice.

Year round renovation

Just as it is important to begin reconditioning the soil early to relieve winter stress, the superintendent should extend the program as far into the cool season as environmental conditions and amount of play will allow. The goal is to shorten the "forced growth" period as much as possible. Some procedures such as water aerification, light topdressing and grooming can be continued year round. Use tissue tests to determine what the plant is lacking for winter color and health, as the proper balance of minor nutrients may reduce the need for excess nitrogen application.

As the course begins to show signs of traffic stress and compaction, it will become more difficult to water efficiently and the tendency is to overwater and overfertilize these areas. Resist this temptation as long as possible and keep records as to where and when these areas develop. This information can guide you in the spring and help gauge the progress gained over the years. The successful renovation program will shorten the duration and intensity of turf stress and allow for the most consistent playing surface possible under any conditions.