Understanding and using fertilizers

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One would be inclined to think that a basic understanding of most routine turf maintenance practices should not be too hard for a turf expert to come by. Not so! Fertilizer use continues to plague and confuse many, and perhaps the greatest amount of confusion is generated by the belief that fertilizing programs can and should be standardized. The net result of this kind of thinking has been oversimplification of the subject without accompanying development of good practices.

Not only does oversimplification set in, but following right on its heels is an additional error—the concept that fertilizers can be depended on to solve most turf problems. This misconception leads to much abuse in the use of soil nutrients rather than leading to their use as the valuable tool they can be.

In all probability the only area of agreement among experts regarding fertilizers is reached on the point that they are necessary to keep turf healthy enough for continuous golfing. On the other hand, disagreement is almost universal regarding fertilizer's effectiveness, rates, timing, material, brand, ratio and soil testing, and the disagreement is further complicated by nature of the geographic area under discussion.

The importance of good fertilizer use techniques is pointed up by the often too true fact that fertilizers are blamed for just about every major calamity that occurs on turf and many of the minor calamitous occurrences.

To bear this out one need only recall past instances of turf losses that were classed as winter problems due to disease, ice and desiccation, or high temperature and humidity at the other extreme. For the super these losses prove embarrassing when it appears that they are worsened by increased fertilizer use. And it becomes particularly discouraging (and often creates an uneasy feeling regarding the super's continued employment) when the glorified cow pasture course down the road appears to be unscathed by whatever is tearing up your pea patch.

Fertilizer quantity use per unit area has steadily increased since the early fifties, but the factors that have contributed to this evolution are obscured. Although what has gone into making this increasing use of fertilizer is not too well understood (by me as well) certain factors are evident.

At the top of the list must be the ever-increasing usage demand placed on golf courses. Use pressure and other associated less prominent factors are rapidly bringing many courses to the point where they may be placed beyond the pale of being biologically manageable.

Not only are total rounds of golf up beyond most expectations, but they are being played throughout the year, without regard to the consequences.

In addition, the impact of golf cars, women and junior golfers has also become a factor in this unmanageability. As a matter of course, turf stimulation through fertilizer application and associated watering has been adjudged the answer to these artificially created problems, problems that cannot be tended by nature in her own due time. This has put the super in a vulnerable position.

Climate, soil, management and use are the major factors contributing to successful turf culture. The first and last are always considered the most unpredictable variables requiring great attention and many safeguards. Most competent superintendents are optimistic about them to the point of believing they can cope with them if given the necessary resources. However, few members, owners, professionals and superintendents realize that it is becoming less and less possible for the super to manage the turf successfully.

Expanded budgets and improved techniques are misleading many supers into thinking they are successfully dealing with their turf problems when in fact they are not and in some instances are even mistaking what these problems may be.

The introduction of rotary spreaders and granulated fertilizing materials have increased the efficiency of fertilizer applications. Time and labor have been reduced up to 80 per cent. Agronomically speaking these newer techniques have decided advantages. The danger of foliar burning encountered when more soluble materials are used has been reduced and more important the new techniques have given better control of general fertility status.

Observations and research are providing continuous information related to basic fertilization programs. Improvements in the method of nutrient analysis and inter-

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Fertilizing and planting in 1919. We've come a long way.

pretation have proven a giant step forward, though not yet complete. The adoption of the cation exchange capacity method in soil tests to assess soil's ability to hold nutrients and measure their balance is increasing. These techniques are leading to a change in nutrient ratios in fertilizers, and from a practical point of view they help break the habit of applying the same materials in the same amounts annually for want of something better to do. As an instance, recent attention to potash and magnesium deficiencies is paying dividends in better turf conditions under seasonal stress.

Limited use of research and pressure for any result when there is an absence of observable growth or color response often leads to the ignoring of nutrients other than nitrogen which is undoubtedly why nitrogen gets the big play it does. It should be recognized that nitrogen is too often the overriding element in fertilizer programs. As a result it creates a substantial portion of supers' problems, regardless of its general value. The heart of many fertilizer puzzlers is nitrogen due to its vast foliar effect. Extensive use of nitrogen may have a detrimental effect for any number of reasons.

Probably the most negative effect comes from its use to force necessary growth under conditions where natural growth is seriously limited, especially when there has been a judicious use of water. Increased course activity and rolling over the turf with heavier maintenance equipment also have their toll on the soil and adversely effect growing ability. To combat this, corrective measures should be taken constantly. On the other hand pros know that there is a general attitude that dislikes playing a course following aerification, grooving, spiking and topdressing. Supers find they must curtail such practices and employ less effective methods.

It must also be appreciated that maintenance practices of five years ago are no longer as effective as they might have once been. This is most certainly true where golf cars are used extensively; without much thought to the damage they might do to turf. They also diminish the effectiveness of fertilizers, although what this may be and to what degree it occurs is difficult to ascertain.

Golf turf is unique because it practically stands alone as an example of mass ecological change. (Ecology is the response of plants to their environment.) We have seen changes take place in a decade that ordinarily take hundreds of years to occur in nature. The prime change has involved the establishment of a specifically

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Pros endorse pension plan

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In the case of the pro's assistant or assistants, the problem becomes a little knottier. If a club should decline to pay a pro's assessment it would almost certainly decline to pay into the fund for any assistants he may have. Then the payment of the $50 per month for assistants would fall right on the pro's shoulders.

Mr. Creasey told GOLFDOM that the PGA is looking forward to 3,000 pros being in the pension program and anywhere from 4,500 to 6,000 assistants as well.

The PGA has taken the first giant step in a pension program that the country's pros have been seeking for nearly a generation. The machinery is there. Final clearance by IRS is still pending. The pension plan is a welcome addition to the game of golf and should be a boon for the pros. □

The pension plan: how it will work

Here is the PGA pension plan and how it will work. The plan is available to all golf professionals who are PGA members and who receive some salary from clubs, salary which is subject to social security and Federal withholding taxes. It is also available to the assistants of these pros who are also PGA members. This is to include all active members of the PGA, even though they may be over 65 years of age.

Payment for each person who is subscribing to the pension plan is $50 a month. In order to meet requirements of the Internal Revenue Service that would make the program tax-exempt, payment for each professional or assistant who wishes to participate must actually come from the club.

Should there be some question of the pro's actual employment by the club it must be clearly shown that the pro or assistants who wish to enroll are in a salaried position regarding the club. (In actuality it has been determined that to meet such a requirement would not be that difficult.) If there should be an arrangement necessary between the club and the pro to meet the requirements, the Treasury department recognizes this type of agreement and regards it as entirely permissible when done for such a purpose, says the PGA.

Every participant must make payments for a minimum of twenty-four months before becoming eligible for benefits. If a participant dies or withdraws before qualifying for benefits, he or his heirs get back half the money that has been paid into the plan, plus 5 per cent interest compounded annually. If the club voluntarily pays the monthly assessment into the fund the pro is still entitled to half back on this basis.

Should the pro enroll in the pension plan whereby he is actually making the payments himself through the club, he or his heirs may then find that half the investment is lost because there would be no way of showing that all monies paid to the fund on his behalf (or assistants as the case may be) had come out of the pro's pocket. (Records would only show payment by a club.) Since the withdrawal or death provision only entitles a return of one-half the amount, with whatever appropriate interest might have been earned, the other half paid by the pro would be lost.

Using fertilizers

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desired turf, use of weed control, and eventual introduction of a proportion of *Poa annua* plus a turf species of grass. The proportion of *Poa annua* may vary from moderate to near-dominance.

This species is known for its satisfactory (to the golfer) turf, spring and fall, and poor performance during the height of the season. Many fertilizer programs that are adequate for a permanent base turf are totally unsatisfactory for a predominantly *Poa annua* turf.

The science of turfgrass culture has been based on the growth of permanent grass species. It's easy to see the conflict in the turf desired by golfers, turf managers and the desires to create an environment for general plant growth. If he considers fertilization alone, the super is placed in the position of fertilizing for environmental growth and may defeat the purpose of turfgrass fertilization.

General turf maintenance operations are often, at best, a gamble. Many of the problems that arise on golf turf are the product of severe or unusual climatic conditions. Under the pressure of the immediate problem, solutions contemplated are even put to the test and do not satisfactorily eliminate the problem. And to add to the already vexing situation more and more demands are being made by golfers for better and better turf in the face of what are truly worsening turf management conditions.

Golfers travel and play a wide variety of courses during a short span of time and expect conditions to be uniform no matter what the geographic location. When super attempts to explain in relevant terms that conditions must vary from Maine to southern California, he receives little attention. When an increased budget for soil amendments is then offered as a solution and in fact is not, the super is then placed in the position of explaining why this is so.

These are turf problems and belong in the hands of a turf expert, the super. A definite trend for many will be the reduction in overall fertilizer use, as the lesser of two evils. Another way of dealing with the problem will be a more concerted effort to chemically rid turf of *Poa annua* and grow stronger grasses. □