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No. 52-L (RIGHT) Unusually attractive combination of leather and Skinner's Tackle-Twill (remember—if it isn't Skinner's, it isn't genuine Tackle-Twill). This is a newly-designed head cover with a lot of style, color, durability and sales-appeal.

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No. 55 (LEFT) Here's the club head cover for the golfer who demands the very best! This is truly an outstanding model—genuine cream color cowhide, heavy weight but soft and pliable. Trimmed in colorful red, green or blue.



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How To Get the Most Out of Fertilizer

By H. B. MUSSER

(At GCSA Convention)

SINCE 1948, when publication of turf-grass conference proceedings first became general, there have been 33 major talks on fertilization problems at 12 state and national conferences. During this same period more than 25 articles on the same subject have been published in popular magazines such as the Golf Course Reporter, GOLFDOM, and the U. S. Golf Association Journal. In addition, better than 50 papers dealing with some phase of fertility that has a direct bearing on turf, have appeared in the Agronomy Journal, Soil Science, and other technical publications.

A review of this rather impressive mass of published material shows several very interesting things. In the first place, it gives us a quite complete cross section of modern thinking in this country with respect to the use of fertilizers on turf. Secondly, it shows a surprisingly high degree of agreement, not only on basic technological principles, but also on the way in which these principles should be applied. It is the latter consideration, that is, the application of basic principles to practical fertilizer practices, with which we are primarily concerned, in attempting to determine how to get the most out of fertilizers.

Controlling Factors

An analysis from this standpoint of what has been said and written shows that our knowledge of the subject can be classified into five main concepts, or groups of facts and procedures. These are the controlling factors in successful fertilizer use. They include:

1. The tremendous influence of the soil on the kind, quality, and effectiveness of the fertilizers we apply.

2. The specific differences in the fertilizers themselves.

3. The way in which grass uses nutrient materials.

4. The procedures and practices best adapted to conform with and take advantage of the above technological facts. And finally,

5. The economic considerations involved. Cost always is a factor in any fertilizer program.

Let's examine each of these categories. The task is relatively easy with respect to the first 3. These are all technical relationships to practical fertilizer use and there should be no necessity, therefore, for further elaborating the importance of the relationship between these basic principles and actual practice. We have the basic facts. Our chief concern is—do we use them? Do we apply what we know? For example—it is well recognized and generally understood that phosphorus is held strongly in the soil and that losses of this element are negligible. In spite of our knowledge of this fact the evidence indicates that all too frequently there is a tendency to continue liberal applications of high phosphate fertilizers when there is no longer a need for so much. Soil test records are available for 198 greens in Pennsylvania golf courses in 1953. Over 60% of these showed a high to very high available phosphorus content and over 43% were very high. In some cases the soluble salt content of greens was approaching dangerous levels. In spite of this there had been no change in the fertilizer program responsible for the condition and in certain instances none was made even after the records were in. Obviously, this is not making the best use of fertilizers.

Nitrogen is another example. We have the information on how plants use it, what happens to it in the soil and in what form we can get it (what's in the bag). Are we using this information in such a way that we can expect to get the most out of the fertilizers we apply? This is of even more vital concern, now that liquid and high analysis completely soluble fertilizers are becoming available. It will take all our knowledge and considerable good judgment to handle these materials without achieving a really magnificent amount of waste and perhaps running into serious trouble, to boot. Since nitrogen is the key growth element and is exhausted much

more rapidly than the phosphorus and potash in these materials our program of use must be based primarily on nitrogen needs. Quantities, and frequency of applications must be adjusted to provide a constant and continuous supply of this nutrient. Unless we watch the proportions of the various nutrients in the materials we use it is quite conceivable that in getting on a sufficient amount of nitrogen we will squander phosphorus and potash.

Relationship to Soil Condition

To further emphasize this dependence of maximum fertilizer utilization on basic principles let's look at its relationship to soil physical condition. When fertilizer is applied to established turf the only way in which it can get into the soil is to be dissolved in water and carried down. This is true whether it is applied in dry form or as a liquid in which it is in solution. If water does not penetrate because of heavy thatch or surface compaction, the fertilizer cannot do so. Unless it gets into the soil where roots can absorb it, it is of little value. Under such conditions the best correction is opening channels for its penetration by mechanical methods. Critical studies at the Pennsylvania Agricultural Experiment Station have shown over 50% more phosphorus in soil at a 2-6 in. depth 6 weeks after a single mechanical aeration than on the same unaerated soil. Certainly this would seem to be one way of getting the most out of fertilizers.

There are many other things that have a bearing on the return we get from the fertilizer we use. Are applications adjusted to the kind of grass we are fertilizing? Fescues and bluegrass make their best growth in the cooler parts of the growing season. They need their greatest supply of nutrients, particularly nitrogen, at these times. Actually, they may be seriously injured by attempts to force them into rapid growth during the heat of mid-summer. Bents are not so much affected. They can and do utilize larger quantities of nitrogen throughout the growing season. This is why so many superintendents have been using slowly available forms of nitrogen in their fertilizer programs. As turf goes into the hot weather the nitrogen supply is gradually reduced. The grass adjusts growth rate to the lower supply and becomes tougher and less susceptible to injury. The same effect may be achieved with frequent applications of small quantities of soluble forms of nitrogen. The trick is to know

what quantity to use and how often to put it on.

In contrast with cool season grasses Bermuda and the other warm season grasses make most of their growth during the summer. If we are to get maximum effects they must be fertilized when their needs are greatest. In the spring, to give them a start, then followed by supplemental applications whenever deficiencies begin to show. Certainly liberal applications toward the end of the growing season will keep them growing and hold color longer into the fall.

Water has a direct and major effect on efficient fertilizer use. This is especially true on the lighter types of soils. Sands and sandy loams do not have the same ability to hold nutrient materials, nitrogen particularly and potash to a somewhat less extent, as do heavier soils. In periods of heavy rainfall or when watering is not carefully adjusted to the moisture absorptive capacity of the soils removal of nutrients in the drainage water becomes an important factor. In addition, grasses grow faster when water supplies are adequate and so use more fertilizer. If we are to get the most out of fertilizers quantities and frequency of application must be adjusted to water situation.

Complications of Weed Problem

Weeds are another important consideration. Heavy infestations of *Poa annua* or crabgrass on greens and fairways tremendously complicate the fertilizer picture. Obviously, it is not good technique to apply fertilizer at times when the weeds are growing best and will make more effective use of the fertilizer than the grass. There is no question but that there have been instances when the weed problem was intensified in this way. The solution, however, is not simple. There are many times when fertilizers must be used to keep the grass in condition so that it will be better able to combat weed invasion, even though there is danger of weed stimulation. Where this is a serious problem, often, we get the most out of fertilizers only when they are used in connection with herbicidal treatments which will eliminate the weeds or set them back to such an extent that they cannot seriously compete.

Much has been said and written about rates of fertilizer application. Certainly it is an item of first importance in considering the economics of fertilizer use. Too little is just about as uneconomic as

too much. There is not enough to produce the results we expect and must have. We have invested money without an adequate return. So, how much is enough to do the job? This is one of the most difficult problems which a superintendent has to meet, and, unfortunately, there is no simple, blanket formula that can be applied. Are clippings removed or allowed to remain? What is the soil reaction and physical condition? What do soil tests show with respect to phosphate and potash levels? Do growth rate or tissue tests of the grass indicate that nitrogen is getting low? What is the watering program? What are the characteristics of the fertilizer itself? Is the nitrogen in slowly available form or is it completely soluble? What kind of grass is to be fertilized and how is it managed? And finally, what is the weather? These are some of the important things that must be recognized and correlated when we attempt to arrive at optimum rates of application. An understanding of them and ability to apply that knowledge is a part of what gives the position of Golf Course Superintendent a professional rating. The results of experiments and technological studies of the various relationships can give him the background information that will help to form sound judgments, but maximum results will be achieved only as they are interpreted in terms of the conditions and needs on the individual courses. (Incidentally, that applies not only to fertilizer programs, it applies to every management practice connected with golf course maintenance.)

Cost Factors

Finally, any discussion of getting the most out of fertilizers cannot ignore the cost factor. The actual dollars and cents value of "what is in the bag or bottle." Certainly, the actual cost per unit of plant nutrient materials plus differences in time and labor of applications must be considered. If a unit of nitrogen in one fertilizer costs twice as much as in another this must be taken into account. But, is first cost the only thing, or, always, even the most important thing? Undoubtedly, it would be, if all nitrogen was in the same form and could be handled in the same way. Unfortunately, this is not the case. There are material differences in rate of availability, safety and ease of application, frequency of application, stimulation of growth, and rate of loss.

The ultimate aim on the golf course is

to produce a good playing turf of uniform quality throughout the entire season. We abhor peaks of rapid growth and succulence, and valleys of starvation. Both experience and experiment have shown us that these are the things which cause trouble. Because so many things beyond our control contribute to the rate at which immediately available forms of nitrogen are consumed or lost, it becomes extremely difficult to determine just when, how often, and at what rate such materials should be applied. The popularity and wide spread use of the more slowly available natural organics is excellent evidence that this is recognized and that other considerations beyond first cost are involved, in fertilizer use. This should not be construed as an argument for or against any particular form of fertilizer. It is simply an attempt to marshal the facts that must be considered in trying to get the most out of what we use. There are times when we need quick action. There are others when we do not want it. An ability to recognize what we need and when we need it and a knowledge of what formula, or material will best meet the situation, these are the secrets of getting the most out of fertilizers.

Survey Shows Good Clubs Used on Cheap Balls

PAT Markovich, pro at Richmond (Calif.) GC, did a smart job of market surveying that might be discreetly adapted by other professionals.

Pat had his assistant, Paul Allen, checking equipment used by Richmond members. The check-up showed that standard top quality balls were sharing preference of the better scorers but, according to the survey findings, "the surprise was in the number of off-brand balls used by members who possess expensive sets of clubs."

Results of the survey were disclosed in the Richmond club's monthly bulletin, "The Approach."

Then another surprise was given to some members with the reminder that some discontinued markings of highest quality balls were available at the pro shop at prices lower than paid for off-brand balls bought elsewhere.

The story concluded with the line: "If you are looking for bargains that will not affect your game check at your pro shop first."

MacGregor presents . . . the greatest
 "under-cover" development
 in modern golf ball history—



V-THREAD WINDING

puts more **GO** in this new MT golf ball

What makes a golf ball go when you hit it? Not the cover—not the core—but the lightning return of the ball to its original shape after being compressed by the blow. This reaction takes place under the cover and over the core. That's where the "click" and "kick" of a ball are born . . . And that's where MacGregor's V-Thread Winding comes in.



Specially pre-lubricated rubber thread is wound electronically in a precision pattern of thousands of tiny V's. The result is a ball of amazingly fast compression recovery, perfect balance, longer, livelier life. Yes, MacGregor's new V-Thread Winding process makes the new MT the "goingest," most playable golf ball in the history of the game!

The MT is sold only at Pro Shops.
 It's best by a long shot!



EXTRA: New MT's are now available in two compression grades: Standard—and for Women's play. Packaged in new weather-tite, reusable zip-open tubes.

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 THE GREATEST NAME IN GOLF

CINCINNATI 32, OHIO



The attractive lounge of the Southington (Conn.) Country Club is one of the spots where the campaign to save the club was planned.

Community Spirit Fires Drive That Saved A Club

By OWEN GRIFFITH

WITHIN three weeks 254 persons bought 3,238 shares of common and preferred stock with a par value of \$25 per share in a lively tie-up of community spirit and golf interest at Southington, Conn.

When the astounding financial plan was completed members were able to save their 32-year-old Southington CC, after they saw the town's golfing and social center pass into the hands of a building concern and prepared to be cut up into homesites. The golf-minded people raised \$80,950 in cash, then with a bank loan were able to meet the price of \$88,800 asked by the new owner.

This all happened last May. Once the property was opened, golf activity reached a new high, and with the social events increased in number, the new management showed a neat profit of about \$4,100 in three months.

The project will probably go down as one of the most vigorous by a small town. Southington has a population of about 14,000. All of the shareholders are not

golfers. It was the intense desire to keep the country club operating that stirred the flow of money for stock.

The Southington CC boasts a sporty nine-hole course and a modest clubhouse. Many improvements have been made since the new regime took over the property, about a mile from the center of one of Connecticut's most progressive towns, located in an industrial area.

Early last spring the owners of the Southington CC decided to sell the property to a Hartford concern which was interested in developing the 88 acres into an area for houses. James R. Bent, of Bent and Bent, the realtors, made the offer, reportedly \$65,000, for the property. While negotiations were under way word got out about the impending sale. Efforts were made to avert the deal going through but legal steps saw the property change hands.

Town Hall Meeting the Starter

Then the golfers went to work. A meeting was called in the Southington Town Hall one Sunday morning and the whole

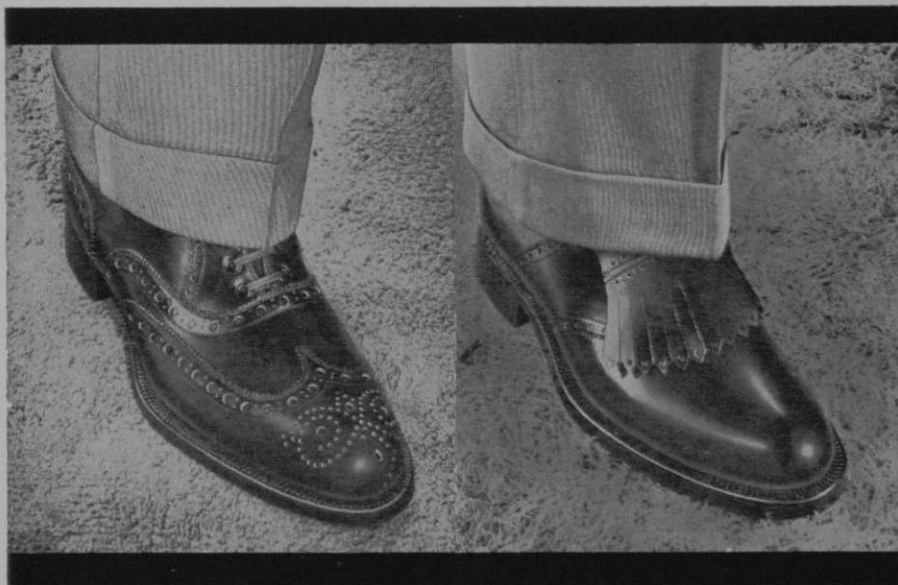


Bob Toski
World's Champion

Chick Harbert
P. G. A. Champion

Ed Furgol
U. S. Open Champion

**Chick Harbert... Ed Furgol...
Bob Toski, all play different
woods and irons ...**



7070—Street, wing tip, black or tan \$27.50

7099—Golf Black calf with shawl tongue \$29.95

but they all* choose...

There is only one name in golf champions choose unanimously... Foot-Joy! Your members recognize Foot-Joy as the finest, too. They want the rich distinction of Foot-Joy styling, the elegance of Foot-Joy craftsmanship, the supreme comfort of Foot-Joy's exclusive Straightline balance. So be sure to profit by this great demand... display a complete Foot-Joy stock and watch the sales roll in!

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"The Shoe that's Different"
BY FIELD AND FLINT CO.

for golf and street

*at the 1954 U. S. Open Championship 128 players out of 162 wore Foot-Joy shoes

write for new catalog, **Field and Flint Co.**, Brockton, Mass.



John L. DiCaprio, Southington (Conn.) CC pres., took time off from this business of his to push getting golf in the large economy size for the town.

situation was explored. But to many it looked hopeless, even though the realtor attended the session and gave assurance he would "not upset the town's sports program if it could be avoided." The real estate spokesman warned that certain expenses of his preliminaries would have to be met, along with the price. A few days later it was revealed that the realtor wanted in the neighborhood of \$125,000. This seemed out of reach of the group. But they refused to admit defeat.

Negotiations were carried on and finally the price was set at \$88,800 — but this sum would have to be produced in three weeks. The realtor was impatient to start operations, if his price was not met.

Then came a warning, after a common stock sale was decided. The potential buyers were told "It is the worst financial investment you can make, but the best community investment". This probably



Dick Deckert, supt., Southington (Conn.) CC.

was one of the greatest boosters for the drive.

As money started to pour in it was deposited in escrow in the Southington Bank and Trust. Golfers had to "sell" non-golfers on the idea. Practically every one of the 120 members on the rolls in 1953 were purchasers of stock at \$25 a share. With time running out an accounting revealed \$49,450 was realized from sale of 1,978 shares — but this was far short of the amount demanded.

Then six angels appeared. Dr. Anthony D'Angelo, Dr. Eugene D'Angelo, Andrew Simone, Lawrence D'Angelo, First Selectman Carl P. Verderame and Judge Stephen K. Elliott, judge of the Southington Probate Court offered to purchase a total of \$31,500 in preferred stock. This was voted by the common stock holders. The heavy investment by the half dozen financial figures in Southington was in addition to \$1,000 in common stock each held.

This new sum gave the "Committee to Retain The Country Club in Southington" a total of \$80,950 on deposit. The results of the door-to-door subscriptions, plus the generous help by the angels, were tremendous but the goal was not reached. A \$25,000 loan was negotiated; thus the price was met and additional funds were available for working capital and improvements on the course and clubhouse. The loan was taken as a first mortgage.

Golf was started on May 26 and on Aug. 31 the profit was reported, and this went into reducing the mortgage and against working capital indebtedness.

Community Spirit Shines

A Southington resident who operates a thriving food market in the nearby town of Farmington, John L. DiCaprio, is the new president of the Southington CC.

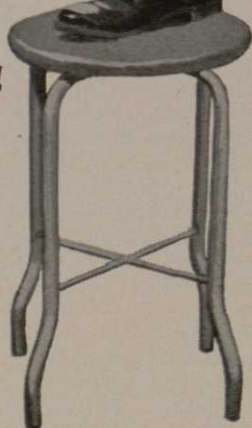
President DiCaprio speaks in glowing terms of the community spirit. "We never thought we would ever get our club back but it shows how a small town like Southington has a wonderful community spirit. We have plans for many improvements at the club, in addition to the numerous changes made this summer. Next year we hope to have the first golf professional at the club".

Judge Stephen Elliott, who has given much of his time in the successful efforts to keep the club going, foresees expansion of the course and subsequent closing of the membership rolls. "We have additional property which could be utilized to enlarge the course. By next July we may have to stop taking members."



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WORTHINGTON MOWER COMPANY STRODSBURG, PENNSYLVANIA

Chairman Sees Need of Course Priority in Club Operations

By J. PORTER HENRY

Green Committee, Algonquin Country Club, Webster Groves, Mo.
(At GCSA convention)

THE progress superintendents have made in the last 20 years has resulted in making fine greens the rule rather than the exception. Today we are so accustomed to good greens that we are apt to accept them as a matter of course and forget the struggles that resulted in their attainment and their continued excellence.

Every time I attend a great golf tournament, the first thing I do is to look at the greens. The public looks at the players. Little do they know what part the green superintendent has played through the years in preparing the course for the tournament. I have a feeling that the green superintendent is the unsung hero of the big tournaments.

We are beginning to accept good greens, even in this troublesome mid-America section, unmindful of the eternal vigilance exercised by the local superintendents. Here is sort of no man's land of turf maintenance, in so far as green problems are concerned.

St. Louis is an outstanding example of what can be done with genuine co-operation. When I first undertook to serve as green chairman, few of the greens adequately survived the late summer and early fall.

We had no green superintendents' association and little desire on the part of our greenkeepers — they were not superintendents then — to participate in such an association. None had the answer to the problems, but by some strange quirk of imagination most of them seemed to think that they had some secret weapon or knowledge which they were unwilling to disclose.

Finally, however, primarily due to the efforts of Leo Bauman of Westwood, who pioneered in close affiliation with the USGA, with some minor assistance from myself and others, a local organization was started and thereupon co-operation supplanted isolation.

A strong organization followed and in spite of the same multiplicity of prob-

lems, all our greens generally survive the rigors of our summers and make us proud of our local green superintendents' association — an example of what we can do for one another.

No green superintendent, any more than a nation, can survive or improve by practicing isolationism. We must co-operate. Emerson's law of compensation tells us that whatever blesses one blesses all. No one is impoverished by giving ideas and co-operation.

Balance of Costs

We hear on all sides about the ever increasing cost of club membership, and playing golf. No one can dispute the fact. Ten years ago the average dues and assessments in this district among representative clubs was about \$150 a year. Today it is about \$350 or more. The average green budget was about \$18,000, today it is about \$40,000.

Of the dues and assessments spent on our golf course, \$80,000.00 is spent in the clubhouse. We maintain a restaurant and facilities capable of accommodating 250 persons with a daily average patronage of less than 40. We maintain facilities for dances, card parties and diverse other social activities utilized by 35 per cent of the membership, but paid for by 65 per cent of the members, and yet we refer to the high cost of golf.

So far as costs are concerned, the golf course has been subordinated to the country club, and from my point of view, the tail is wagging the dog.

I am not contending for the elimination of the social aspects of golf clubs, although I feel somewhat like Abe Lincoln when he was invited to a symphony concert. Abe was somewhat of a backwoodsman rather than an artist, but he attended the concert and after it was over a friend asked him how he liked it. His diplomatic answer was, "For people who like that sort of thing it's just the sort of thing they'd like."

Now of course in your position, it would be indelicate for you to do or say any-