

JULY, 1940

## Unity Needed in Turf Research

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**Turf research programs must be intensified greatly, immediately, to relieve tremendous burdens on now existent experiment stations**

**A**S INTEREST in golf has increased in this country there has been a parallel development in the demand for more perfect conditions for playing the game. This, in turn, has shoved the course superintendent right into the middle of a whole series of specialized problems connected with turf production and maintenance. Because of the definitely technical nature of these problems he has recognized the necessity for critically controlled research to supply the answers. In other words, it is becoming increasingly important to extend the art into the science of green-keeping.

Evidence of the crystallization of our thinking in this direction is apparent in our golf journals and association publications. Almost any issue contains one or more articles on the more technical phases of turf production or management.

### Short Course Interest Grows

The development of increased interest in the annual short courses at many state colleges also is a straw that indicates which way the wind is blowing. A short ten years ago only three or four states were conducting such courses. At the present time over a dozen states regu-

larly schedule meetings of this type, with representation of as high as 50% of all the golf courses in the state in attendance.

All of this betokens a very definite development of interest on the part of the men who are growing turf, in the creation of a sound body of scientific information that will help them solve their problems. This is good. The need for action must be recognized before it is possible to make very much progress. However, if we continue, generally, to look upon this increased interest as the end in itself, instead of a very valuable means to an end, we will indeed have "missed the bus."

### Basic Facts Needed

One of the important jobs of the green-keeping profession today is to catch the rising tide of interest in the underlying science of turf culture at its flood and so harness it that out of its potential power may come a sound groundwork of basic facts. It is self evident that if we are content to go on talking in generalities with only indirect evidence, for the most part, on which to base our knowledge, an inevitable ebb of interest will come. When that happens it will be just so much

Golf flags are not part of the game, and therefore not subject to the 10% tax on games and sporting goods, under a decision handed down by the United States District Court for Illinois. The government had different ideas and made the Chicago Flag and Decoration Co. pay \$3,400. The company then sued to get its money back, and Judge Holley ruled for the company.

harder to do what eventually must be done.

And just what needs doing so badly as to warrant all the excitement? While it is not the purpose here to attempt a technical discussion of turf problems, it may be worth while to take a quick inventory of the status of our knowledge, or perhaps it would be nearer the truth to say lack of knowledge, of many of the basic principles on which a sound body of information depends.

For example, are we satisfied with the basic facts we have on fertilization of turf under the extremely specialized conditions to which it is subjected on greens and fairways? Apropos to this, what of the relative merits of organic and inorganic nitrogen; is one carrier of phosphorus to be preferred over another; and what do we actually know about the necessity of potash and the rarer elements in fine turf nutrition?

#### What About These?

What about the grasses that we are using on greens and fairways? Are we satisfied that the last word has been said on the best adapted types of bent, particularly on greens where disease is an important consideration? And have we a definite answer to this fairway problem, where good maintenance practice with the grasses available at present comes into direct conflict with playing demands?

Have we really developed a set of sound basic facts to back up such things as watering, physical conditioning of greens, the effects of constant applications of chemicals for disease, insect and weed control, and a dozen other things probably just as important? Are we definitely satisfied that we have all the answers on insect control? And what about the disease situation in widely separated areas during the last two years, where standard mercury treatments seemed to have little effect on what we were at least calling large brown-patch?

These and many more questions probably just as important constitute a backlog of needed critical investigation that deserve serious attention.

And right here it should be pointed out that the fact that there are still a lot of tough problems to be cleared up in no way detracts from what already has been done. The work of the Green Section of the USGA under the direction of Dr. Monteith has been a life-saver, particularly on control of some of our worst diseases. The soil fertility and acidity studies at New Jersey and Rhode Island have helped materially in nutrition problems. Also, turf breeding and soil fertility work in Pennsylvania is beginning to contribute some interesting facts to add to the sum total.

#### Not Enough Interested

The difficulty, certainly, is not with the quality of what already has been accomplished. The chief trouble is that so much remains to be done and there are so pitifully few who seem to be seriously interested in doing it.

So where do we go from here? If the facts really are needed, where and how can the machinery necessary to produce them be set up?

The state agricultural experiment station would seem to be the logical starting point. Certainly, it does not seem reasonable to expect an individual superintendent, whose job is practical course management, to find time for more than a very limited amount of critical experimental work. In contrast, the experiment station has the necessary laboratory equipment and a force of trained personnel with a background of many years of study of agricultural problems. Here is a potential cog in greenkeeping machinery that is already cut and fitted to meet the research needs. It should function for the greenkeeping profession just as the law library fits into the legal profession or the testing laboratory functions for the steel mill or automobile industry. It should and can be used to establish those technical facts on which such an important part of the job of golf course management must be based.

But the state experiment station is only a part of the picture. While there are many problems that are largely peculiar to individual states, there are many more that are generalized over wide areas. In order to get the answers to this latter group with the least lost motion and with the minimum of duplicated effort the work at individual stations should be correlated and dovetailed. This could become a very

important and valuable function of the Green Section of the USGA.

Could such a close knit organization for the creation of a sound set of basic principles of turf culture be developed?

In the first place, would the state experiment stations accept responsibility for their share of the job? The answer is complicated by a number of things. Theoretically, they should do so. Certainly turf production is an agricultural problem whether it is grown for use as a pasture, a lawn or a golf course green. Practically, research work requires money and state experiment station budgets are, almost universally, very modest.

### Must Compete With Other Interests

When the turf interests ask the experiment station to investigate their problems they immediately find themselves in direct competition for service with every agricultural interest in the state. For example, the poultrymen discover that a virulent chicken disease is seriously affecting their business. Immediately, they urge the experiment station to make an effort to discover a remedy.

Or again, there is tardy recognition of the fact that the fertile top soil of our farms is disappearing through a combination of factors that may be controlled by certain changes in cropping and land utilization. It becomes necessary for the experiment station to set up an extensive program of research to develop soil saving principles. And so it goes. Most of the agricultural interests long ago learned the power of their organized voice in getting attention for their particular headaches.

In the few states where investigation of fine turf problems is under way this has been recognized. The research program is functioning primarily because the turf interests, usually represented almost entirely by the greenkeeping superintendents, have insisted that it be done. Not only that, but they have watched the progress being made and have contributed many vital suggestions on the conduct of the work. Coupled with this has been a sustained enthusiasm on the part of every one concerned for the thing they are trying to do—founded on a clear conviction that it is important and necessary.

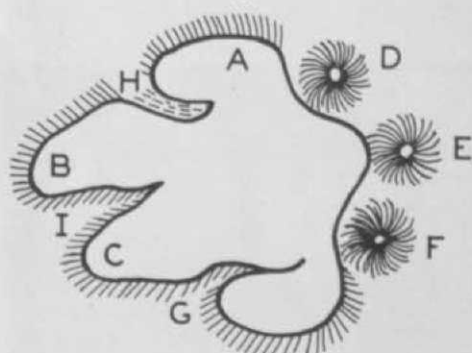
Thus, here and there, have been established series of front line trenches. They are functioning, mainly independently, in trying to meet local problems. As their resources and equipment permit they are

doing what they can to contribute to the wider general questions of turf culture. But they will not and cannot do a first class job for the country as a whole unless their numbers are multiplied and their findings properly correlated to develop a sound body of facts that have general application. This requires not only concerted effort on a national scale but a centralized agency which can direct the effort and sift the information.

But, whatever the method, the fact remains that there is a definite need for more action. It goes without saying that interest in a critical analysis of the problems can not forever live on its own fat. We can have short courses and educational sections of national conventions just so long. Eventually they will die of starvation unless a more solid diet can be provided for them. Solution of research problems is not an overnight job and the few who are interested in it can not possibly keep the plates full at every meal time.

## HOW TO BUILD A GREEN

WILLIAM WATSON, noted golf course architect, presents in the diagram below, the second in an exclusive GOLF-DOM series of 'hints on better green construction'. Green diagrammed in June GOLF-DOM was designed as a more or less level one, on level ground. Green below illustrates a raised (built-up) green, constructed on level ground.



Raised green built on level ground.

Scale: 1" = 71.5 ft.

### KEY

- A.B.C Highpoints on left side of green
- D.E.F. Series of undulating mounds to fit with green. Left side of green built up with irregular, but gentle slopes.
- G.H.I. Low cuts in contour at termination of shallow drainage swales. This makes a beautiful green, and is suitable for a long par 3 or long par 4 hole. It should be raised high enough to avoid water-logging in wet weather.