



Handmade tee box serves the dual purpose of a trash receptacle and a tee marker. Onondaga Country Club, New York.

which relate directly to playability. The leaf texture of bentgrasses becomes more coarse as nitrogen fertility levels increase, causing a corresponding reduction in putting speed. The excessive growth also creates a need for more frequent grooming and topdressing to reduce grain and encourage upright growth. Because the playing quality of greens is probably the most remembered and important characteristic of a golf course, this must not be taken lightly when nitrogen fertility levels are considered.

To summarize, nitrogen fertility has a great influence on agronomics as well as the playing quality of bentgrass putting greens, and excessive nitrogen fertility should be avoided. If the goal of a greens management program is simply to maintain a high-quality putting surface, as is often the requirement, only limited amounts of nitrogen may be required.

As to how to determine whether excessive nitrogen is being used in a greens management program, the following statements may provide an answer. It is logical to assume that if an attempt has not been made to find the least amount of nitrogen required in any given situation, it is possible that too much nitrogen is being used. If the use of a lower nitrogen fertility level has never been tried to study its effectiveness, how can it be known that it will not be effective? As a progressively lower nitrogen fertility level is used on a trial basis, only then can the lower limit eventually be revealed. There are several ways to reduce the nitrogen fertility level, but the most successful method may be to significantly reduce the amount used in each application while slightly increasing the frequency of application. Remember that it is always possible to add nitrogen when it is really needed, but when it is applied in excess, it cannot be removed, and its effect must be tolerated.

Little Things That Count

by WILLIAM S. BREWER, JR.

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THE PURPOSE of my few minutes here with you today is mainly to announce, with permission from the editor, the initiation of a new feature in the USGA GREEN SECTION RECORD and to provide some examples of the material which we plan to present in the future.

The title of this presentation, "Little Things That Count," is not necessarily the one that will be adopted for this new feature. That decision has not yet been made, but it is illustrative of both the sort of material that will be published and of our reasoning for making this addition to the existing RECORD format. We will feature ideas related to golf course management that can be adequately described and illustrated in a small amount of space and yet are ideas that have been found to be decidedly helpful for resolving problems encountered by many golf facilities around the country. It is our hope that by so highlighting these Little Things That Count, we can greatly increase both the range and speed of circulation of some of these marvelous gems of inventiveness, most of them attributable to golf course superintendents from the clubs which we visit in the course of conducting our Turf Advisory Service. What we hope to accomplish, in short, is to make good news travel faster.

Here then are our first three Little Things That Count:

1. 150-yard markers present some problems for most golf courses. Golfers generally expect to see them on courses, and they appreciate them. But artificial markers interfere with smooth maintenance operations, not to mention their vulnerability to accidental or intentional removal. So the trend has been toward the establishment of some kind of shrub or tree, often one on either side of the fairway. This practice, unfortunately, has not been an unqualified success. Too often these natural markers are as much an interference to maintenance operations as the artificial ones. In

addition, they are very often placed where they can readily become unintentional golf obstructions as well. And — although aesthetic considerations certainly can vary widely — in most cases the plants chosen to function as 150-yard markers are selected precisely because they do not fit naturally into the course landscape.

This then is the dilemma: golfers want 150-yard markers, but the darn things are either a nuisance or else they stick out like sore thumbs, or both. What to do? Well, this idea might be just the thing for courses that have cart paths. Paint a broad white line across the path at the 150-yard point and angle it as needed so that the imaginary extension of that line across the fairway covers all the points 150 yards from the middle of the green. With this method there are no obstructions added to either maintenance or play, and there is little if any visual disruption of the landscape above and beyond that already caused by the pathway itself. This idea was photographed at the Colonia Country Club, in Colonia, New Jersey, several years ago and was, I believe, the inspiration of the superintendent at that time, Angelo Petraglia.

2. There is a whole class of objects — small ones — that can represent a very significant problem for most golf courses. Not only do shoe spikes and tees and cigarette butts and the like detract from the neat, clean appearance we would all like to have on our golf courses, but they also frequently cause damage to mowing machinery. Again, what to do? All courses have trash receptacles located at points over the entire layout, but that seems not to be enough. Well, consider this idea, passed on to us by the Onondaga Country Club, in Syracuse, New York, an idea one of the members picked up while vacationing in Florida. It is a simple, 4-inch square wooden tee box with a bottom spike or two substituted for one of the regular tee markers. What it does is provide a much more con-

venient receptacle for broken tees and such, encouraging the golfers to take a more active role in the proper upkeep of the course. We were told that after several weeks of use on the men's tees only, the women golfers were asking that a set be made up for their tees as well, and that a new enthusiasm for maintaining course neatness in all areas had been generated among the membership. An additional benefit too is that on par-3 holes one always knows where to find a broken peg for teeing it up.

3. The third and final idea of this sequence involves the very pervasive traffic-related problems created by golf carts. Unlike the two previous ideas, this one is already catching on rather widely, at least in the Northeast. This is an idea to remedy wear and soil compaction problems. It involves a simple solid white line of marking paint used instead of signs or ropes for indicating to golf cart operators those areas where they should not drive. This line is painted 30 yards or so out from the entrance to a green. This traffic control method seems immediately to become extremely effective, apparently because of the similarity to highway markings. Clearly traffic damage is not eliminated, but it is pushed back away from areas which most often come into play. Of course as the lines fade and need to be put down again, they can be drawn in somewhat different places to better distribute the traffic, and the worn areas can be renovated periodically as well.

Well, there you have it, our kick-off edition of Little Things That Count: lines on cart paths as 150-yard markers, tee boxes for discarding small objects, and painted lines as a traffic-control device.

We hope that these ideas will prove their worth on other courses, just as they have on those shown. We would also encourage anyone with an idea to share to contact one of our Green Section agronomists or to send in a brief description of the idea and a slide or two illustrating the problem and the solution. Remembering that old adage that if I give you a penny and you give me a penny neither of us has gained, but if I give you an idea and you give me an idea we are both enriched, let's all work together on this effort to share these little things that can count for all of us.

The Stimpmeter - A Management Tool

by PATRICK M. O'BRIEN

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DURING THE 1980 PGA Tour, there was a direct correlation between the leading money winners and their putting ability. Four of the five players with the lowest average number of putts per 18 holes finished among the top 10 money winners. In contrast, none of the five driving distance leaders finished higher than 44th on the money list. Outstanding putting, then, is essential to championship golf, and it is also essential that greens be of highest putting quality. One tool useful in maintaining a quality putting green is the USGA stimpmeter.

The USGA stimpmeter is an extruded aluminum bar, 36 inches long and 1¼ inches wide. It is a modification of the original stimpmeter, invented by Edward S. Stimpson in the mid-1930s to measure green speeds. The stimpmeter first came into wide use in 1976 and 1977 when eight USGA agronomists took over 1,500 stimpmeter readings on greens in 36 states. The stimpmeter was first used at USGA championships at the 1976 U.S. Open, at the Atlanta Athletic Club, in Atlanta, Georgia. At this Open, millions of golfers saw a stimpmeter demonstration on television by a USGA agronomist.

The green speed data collected in 1976 and 1977 by USGA agronomists was used to produce Green Speed Comparison Tables for regular membership play and tournament conditions. These tables are still used today. Unfortunately, these tables have been misinterpreted by many as an attempt by the USGA to standardize green speeds. The purpose of these tables is to encourage each club to decide upon a green speed desired by the membership, and then work towards reducing variability of speed between greens.

In February of 1978, public distribution of stimpmeters began to golf superintendents of member clubs who subscribed to the USGA Turfgrass

Advisory Service. Stimpmeters were available by the end of 1978 to all golf superintendents at a cost of \$15. By the end of 1980, over 1,800 stimpmeters had been mailed from Golf House. This figure indicates approximately 15 percent of the golf courses in the United States possess a stimpmeter.

THE MAIN USE of the stimpmeter is to help the golf superintendent manage greens so that they putt uniformly over the entire course. The variability of ball speed between greens should be no greater than six inches when measured by the stimpmeter on fast greens for championship conditions. The variability would be less than six inches on greens with slower speeds.

Agronomic management practices performed by the golf superintendent have varying effects on ball speed. Wherever possible, similar management practices should be performed on all greens to reduce variability in ball speed. However, usually several greens on every golf course require unique practices that may influence ball speed. This may be caused by many factors, such as poor soil conditions, inadequate light and air quality, or pest problems. By monitoring the greens frequently with the stimpmeter, alternate management practices may be used to reduce any variability caused by these problems.

Sound management programs appear to encourage uniform medium to fast greens for regular membership play. Golfers usually prefer faster greens because they are generally truer greens. Light watering, minimum nitrogen fertilization, frequent vertical mowing to remove grain, light and frequent topdressing to smooth the surface and reduce thatch, and frequent mowing at 3/16 inch or less encourage quality putting conditions.

Since 1978, Dr. Ralph E. Engel, of Rutgers University, has studied the