

# Food for Thought — Regarding Fast Greens

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*Editor's Note: The procedures outlined in this article are proving successful at Butler Country Club. However, they may not be practical or feasible for every golf course or for every reader of the GREEN SECTION RECORD. Nevertheless, the idea of achieving and maintaining smooth, fast greens with the best in cutting unit maintenance and moderate levels of fertility is an interesting concept that may interest all readers.*

**P**RODUCING fast greens has always been associated with reduced nitrogen levels. I for one have tried this approach, but I find that with increased mowing frequency, along with other management practices, nitrogen levels can be increased to a moderate level without adversely affecting putting green speeds.

Last year, our fertility level for greens was increased twofold compared to previous years, resulting in denser, healthier turf without sacrificing green speed. At Butler Country Club, we seem to be achieving the best of both fast greens and healthy grass, grass that is better able to handle the wear and tear our small, old-style greens receive.

Our members feel comfortable with daily green speeds of 11.5 feet as measured by the Stimpmeter. Peak speeds of 12.5 feet are our goal for tournaments and special events. These speeds are not easily accomplished, but they are possible because of the small amount of undulations in our greens. Following is a description of the management practices we have developed to achieve these goals:

## Fertility versus Mowing Frequency

Low fertility is the common standard for producing fast greens. However, at Butler Country Club fast greens are being maintained with increased fertility along with increased mowing frequency. Nitrogen applications ranging from .25 to 1 pound per 1,000 square feet begin in late May and continue into the fall. Fertilizer applications are made bi-

directionally with a total of 5 to 10 pounds nitrogen per 1,000 square feet annually. Consequently, more grass is being grown, but by mowing more frequently (and increasing other management practices discussed later), fast greens are achieved.

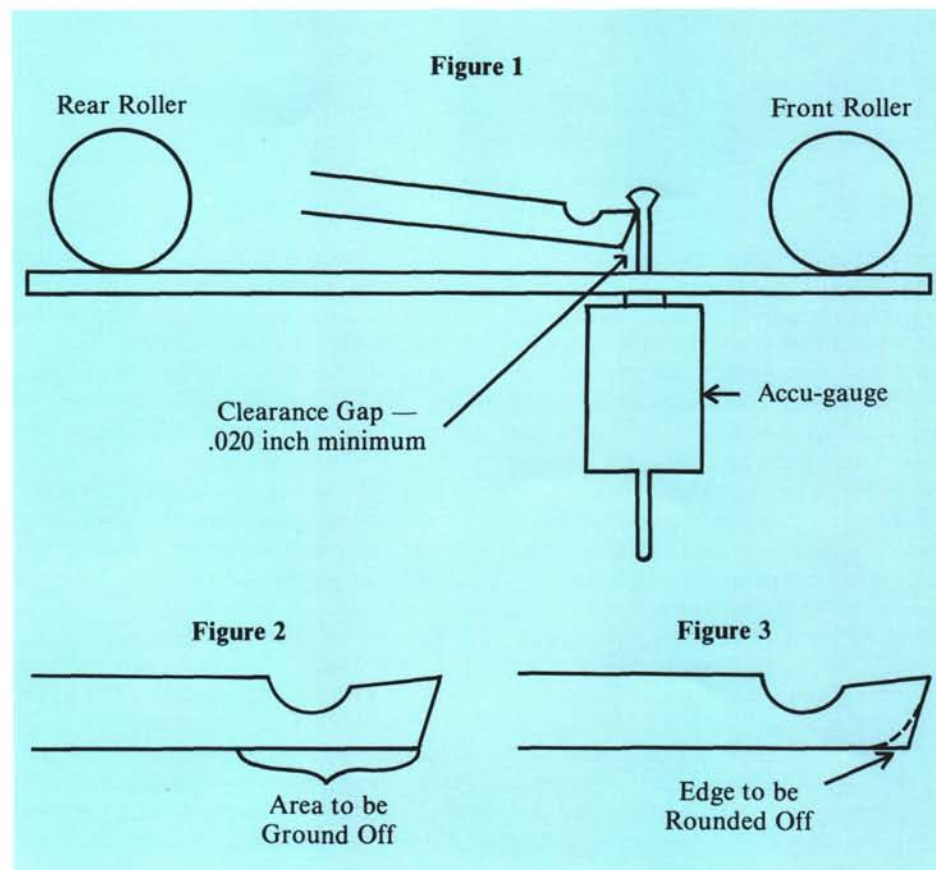
The greens are mowed seven days a week. We found skipping one day of mowing results in a loss of green speed that cannot be regained in the next day's mowing. Greens are double-cut a minimum of six days a week, while on special event days, they are triple- or quadruple-cut. Daily double-mowing is done using 21-inch walking mowers, but when cutting more often, triplex mowers are also used. The bottom line

is a dense stand of turf and a smooth putting surface.

## Cutting Units

This becomes a specialized area in itself, which requires more than simply height and cutting adjustments. The most expensive mowers are worthless if they're not set up properly and adjusted, and the closer you cut, the more precise these adjustments must become. If not, the cutting unit itself scuffs the grass for extra and unwanted abrasion. This is not good for the grass or the appearance or playability of the greens.

On a daily basis, the cutting units are inspected and adjusted, along with



periodic inspections in the field by the mechanic. All inspection checks play a vital role in producing a precision cutting unit as well as a precise quality of cut on the putting surface. They include:

1. Reelbearing endplay and drag.
2. Roller bearing endplay and drag.
3. Mower squareness.
4. Quality of cut.
5. Tightness of all bolts and screws.
6. Clearance between bottom of bedknife and height of cut gauge.
7. Height of cut.

All of these inspection items are important for both bedknife-to-reel or reel-to-bedknife adjusted units. Although both types of units can be set up to achieve the same quality of cut, each requires some specific adjustments.

The one item I feel is commonly overlooked is the clearance gap between the bottom of the bedknife and the height of adjustment gauge (*Figure 1*). This gap becomes more important the closer the greens are mowed. Obviously, the smaller the gap the more stress the grass is subjected to from the bedknife dragging across the surface of the greens.

Two mowing units set at the same height will mow and cut differently because of the variations in this gap. When our mechanic initially sets up a cutting unit with a new bedknife, a minimum gap of .020 inch is achieved by grinding the bottom of the bedknife with a bedknife grinder (*Figure 2*).

This .020-inch gap is the minimum clearance that we use for a cutting height of .080 inch to .090 inch. Also, an Accu-gauge that measures in thousandths of an inch is used to set the height of cut. For the 1987 season, we plan to try a higher mowing height, just under .100 inch.

Working with a bedknife-to-reel adjusting mower unit, such as on a Toro GM-300, reel diameter is an important factor with closely mowed greens. As the reel diameter is reduced, the bedknife relief angle is also reduced. This results in the front roller not being able to be set low enough while moving the rear roller to obtain proper bedknife relief angle. We find that four years is the maximum life of a reel used in this type of cutting unit for greens.

On cutting units with stationary bedknives, such as the Toro Greenmaster 21-inch walking mower, the relief angle for the bedknife remains constant. Reel diameter has no influence on mower adjustment, making it easier to replace the bedknives during mid-season.



*Light and frequent topdressing.*

One item of importance when changing a bedknife on any unit for closely mowed greens involves the bottom front edge of the bedknife (*Figure 3*). This sharp edge needs to be rounded off using a flat file. Otherwise, it will result in scuffing the turf until this edge naturally wears round.

Mower squareness on cutting units with adjustable rear rollers is also commonly overlooked. This is done by using a bench plate to adjust the rear roller so that it is parallel with the reel while achieving the proper relief angle for the bedknife. Only when this is done can the height of cut be set. Doing this will eliminate the cutting unit from rocking across the putting surface. I have seen putting green surfaces that were wavy because of mower units not being square.

Many man-hours are used to maintain the cutting units, but without precisely adjusted mowers, all other management practices could be worthless. It is all of these fine adjustments that lead to a truer putting surface while reducing mower stress on the turf. By reducing mechanical damage to closely mowed putting greens, you can have faster, smoother greens that are easier to keep healthy.

## **Topdressing**

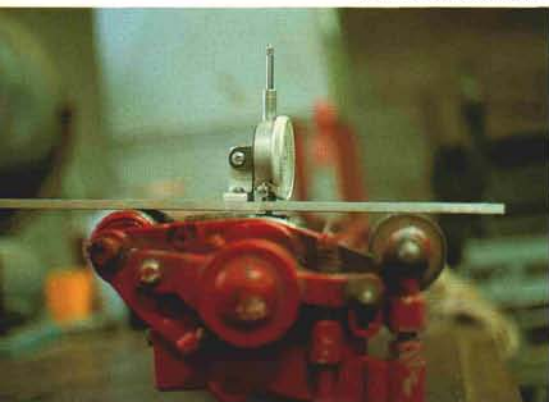
When increasing the fertility level on putting greens, other management practices, such as topdressing, need to follow suit. Topdressing rates of .10 to .25 cubic yards per 1,000 square feet at three- to five-week intervals are applied using a commercially prepared topdressing mix of eight parts sand, one part soil, and one part organic matter, according to USGA specifications. The greens are mowed in the morning to help dry them off. Once they are completely dry, the topdressing is applied using a Lely rotary spreader. The greens are then dragged twice using a dragmat and mowed once again to clean up any debris. At these light rates, very little sand is picked up to damage the cutting units, although enough abrasion does occur to require maintenance.

## **Verticutting**

Verticutting is practiced as necessary, occasionally followed with topdressing. Depending on what the greens appear to need, double verticutting is done every two to four weeks. The verticut heads are adjusted on a steel plate so the blades are just touching the surface.

(Below) Establishing the mower clearance gap.

(Right) For uniform distribution, apply fertilizer at one-half rate in two directions.



### Brushing or Dragmatting

These two management practices are used in place of verticutting. We usually use these during periods of hot weather to achieve basically the same results as verticutting with a lesser degree of stress on the turf. Double-mowing follows the process and leaves no evidence that the surface of the green has been groomed.

### Combs or Brushes on Cutting Units

Personally, I have not used these on a routine basis. I feel using combs or brushes can continually change the surface, resulting in less than true putting quality. I put emphasis on specific

management practices to achieve specific goals.

### Turf Groomers

The recent development of turf groomers has captured my attention. This could be another fine tool to help produce a truer putting surface. The increased number of blades along with their smaller diameter will definitely do a much finer job as compared to conventional vertical mowers used today. Turf groomers can be an important key to producing fast greens that putt truer without the need to cut them so short. Time will tell.

### New Ideas for 1987

This year we are trying two new ideas with our cutting units. First, in order to increase the frequency of cut with the Toro 21-inch walking mower, a 20-tooth chain sprocket was machined to replace the 16-tooth sprocket, which runs off the universal shaft. Secondly, on the Toro GM-300s, 11-bladed reels have been installed.

Our goal for this season is to produce a denser, smoother, healthier putting surface without cutting as short as in previous years. More precise mowing equipment and careful fertility practices may make this goal possible for all of us.

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# Managing Anaerobic Soils

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by DR. ROY L. GOSS

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*Editor's Note: In the following article, Dr. Roy L. Goss discusses the much-publicized black layer issue in a clear and forthright manner and from a position of experience and fundamental/basic agronomics. His original article appeared in the April, 1987, Northwest Turfgrass Topics.*

**A**N ARTICLE entitled "The Black Plague" appeared in the November 1986 edition of *Golf Course Management*, and a similar article entitled "An Update on the Black Layer" appeared in the February 1987 edition of *Golf Course Management*. Unless I am badly mistaken and being misled

from what I read, we all should be embarrassed to admit to the world that we have forgotten the fundamental concepts of managing soil and grasses. Isn't this problem of black layer or black plague simply one of an anaerobic condition developed through neglect of one or several management practices?