

Cupping Area— Where Does It Go?

by WILLIAM G. BUCHANAN,
Agronomist, USGA Green Section

Ideas have drastically changed over the last 15 years on how a green should be treated and built. Around the **turn** of the century the putting green was considered a part of the fair green; the putting surface was rather closely clipped by sheep which were the only lawn mowers that were used on the greens at that time. Until the invention of the lawn mower, putting greens were not treated differently from any other portion of the golf course. A periodical published in 1914 by Fred Taylor stated, "Putting greens were not especially planted or made. They were merely parts of the fair green because the natural conformation of the ground at this point was suited to putting."

Better golfing equipment and lawn mowers have changed a relatively simple approach to the golf course and its maintenance to a business where \$100,000 a year maintenance budgets are commonplace and putting green construction takes a major portion of the golf course construction budget. This drastic change in the way that golf has evolved makes it extremely important that a golf course be maintained at its peak through the golfing season, whether that season is a 5-month season or a 12-month season.

In the past few years, it seems private clubs are receiving more play than in the years past. This is a combination of the clubs accepting more members

and the members staying home and playing more rounds at their home club.

More play is a very good thing for the club, but it can create serious problems for the course superintendent. Many of the older clubs, those built more than 25 years ago, have small greens that were built for relatively small memberships. Since golf has enjoyed expanding popularity, many of these club's membership rolls have doubled and the old small greens with limited cupping area have suffered accordingly.

Cupping area and green size are not necessarily synonymous. Times have drastically changed since greens were "not especially planted or made." Greens today are shaped and sculptured by the architect and they call for greater putting skill. Take for instance a green with 7,500 square feet of putting surface. If the green is relatively flat or of a constant slope where essentially all of it may be used for cupping, there is between 5,381 and 5,779 square feet available for cupping. (The USGA states that the cup should be placed no closer than five paces from the edge of the green and that the area two to three feet in radius surrounding the cup should not have any change in contour.) The differences in area remaining is that some people take shorter paces than others; these figures are based on a person's five paces ranging between 12 and 15 feet. A 5,000-

A large green with over 8,000 square feet of putting surface, with only 2,200 square feet of useable cupping area.





Green restored to original size and shape-note front left of green.

square foot green, which is close to the national average, will have between 3,296 and 3,608 square feet available for cupping.

If the greens happen to be bi-level or have severe contours, much more useable cupping area is lost. Not only are the contours lost for cupping space, but an additional three feet on either side of the contour is lost because of the problem of the putting surface's grade changing within a three-foot radius of the cup.

Restricted cupping areas can lead to a variety of problems, among them compaction and turf wear.

Compaction can affect the turf in so many ways. It destroys soil structure, restricts air and water movement through the soil profile and greatly restricts root growth and plant development. It can make the green so hard that it becomes impossible either to satisfy the golfer or to maintain quality turf. Aeration several times a year, spiking regularly through the year, and a good top-dressing program can help in relieving the compaction problem so long as weather conditions are favorable.

Turfgrass wear is another problem. We can relieve compaction, encourage growth, and pray, but so long as the grass is subjected to constant wear, it will have no chance for complete recovery. When the cupping area is limited, the turf is subjected to constant wear because the green is the one place where everyone playing the course must walk. The cupping area receives the most concentrated traffic of all. Everyone is supposed to hole out on each hole. Everyone has to retrieve his ball from the hole, and therefore every golfer must make at least one footprint, and possibly two footprints, within a three-foot radius of the hole. This means 12 beautiful spike marks for each footprint. Is there any

wonder that the cup location must be changed in most cases on a daily basis?

Turf wear can be masked or covered up by overseeding, top-dressing and fertilizing, but the only real cure is to reduce traffic. It is not very practical to stop play completely for a week or two during the season, although the practice of closing the course each Monday has great merit and gives the turf a slight breather as well as allowing maintenance work to be done. The only additional technique is to try to get the greatest possible number of pin placements on each green.

Cupping area, if not built-in, can be very hard to find. Ideally, greens should be built large enough so the minimum size would handle the maximum expected play. This calls for the officials of the club to anticipate the largest number of members that the club will have and build the course accordingly. Of course any putting green construction on the course should be done to USGA Green Section Putting Green Specifications.

Since not everyone will follow the route of rebuilding all of their greens, there must be another way. This calls for a lot of study and, if possible, referring to the original set of blueprints that were used in building the course. It is very likely that, for one reason or another, your present putting surfaces are smaller than those maintained a few years ago. Economic cutbacks may have reduced some putting surfaces. Maintenance problems such as drainage offer another reason for reducing green size. But the main reason for the smaller putting surfaces is that the men operating the greens mowers, in an attempt to avoid scalping the fringe area at the perimeter, have gradually inched in. It does not take long to lose considerable space on a green if the mowerman

misses the cut by $\frac{1}{8}$ to $\frac{1}{4}$ inch each time the green is mowed. A green can lose six inches to a foot every year from its radius as a result of this practice. The reduction of the putting surface can be so gradual that it can very easily go unnoticed. When this occurs, the greens slowly lose their irregular shapes and all start to look like circles. A check of old blueprints or pictures may lead to some very interesting findings.

If these original references are not available, one could use a soil probe and probe outwardly around the edges of the putting surface until distinct difference in the topsoil mixture is found. Since the chances are good that the club has built the greens in the past 75 years, it is also very likely that the soil mixture on the greens has been modified. Using this method, the original green size and shape can be determined. It is not unusual to find putting surfaces that have been reduced 500 to 1,000 square feet over the years. The greens that seem to lose the most area are the ones that were large originally. After a determination has been made that the putting surfaces have been reduced, the next step is to regain the lost area. A photographic record of the before and after product would prove of great benefit in preventing a reoccurrence of the problem, because the pictures could serve as a constant reference.

Reclamation of old putting areas can be a delicate operation. The transition from a fringe cut that is generally $\frac{1}{2}$ to $\frac{3}{4}$ inch in height to a cut of $\frac{1}{4}$ inch or less is a difficult one for grasses to make.

Considerations must be given to the amount of thatch that has accumulated in the turf, the weather conditions, what type of grass is presently growing in the fringe, and last but not least, how healthy is the turf.

Weather conditions play an important role in how well the grasses make the transition. Good growing weather is needed; cool nights and warm days are ideal. Generally, this type of weather can be experienced in mid-fall and early spring in the Northeast.

Thatch removal is essential for the grasses to make the transition from a high height of cut to a low one. The thatch prevents a strong, deep root development, prevents good water and air movement into the soil and is an excellent breeding ground for disease. Thatch removal ideally should be completed prior to the height of cut being lowered. However, in

most cases it is not practical from the time standpoint, because normally it takes three to four aerations followed by severe vertical mowings to effectively remove excessive thatch. The goal should be to have the thatch layer on the fringe the same thickness as on the greens so both areas will respond the same to the maintenance program.

Overseeding and top-dressing are important in the reclamation process. A good, thick permanent grass stand is much easier to maintain.

Generally fall is the best time to initiate the lower cut on the fringe area. Lower the cut gradually, perhaps over several weeks time. This will give the grass a chance to recover prior to the winter weather and the entire spring to develop a strong root system that will support the grasses through the stress periods of the hot growing season.

The addition of four to five cupping areas will serve to reduce wear on other areas of the green. These new areas can serve to give overused cupping areas an additional four to five days to recover before the cup rotation on the green returns to a previously used location.

Every golf course superintendent has his own ideas of how far the cup should be moved from a previously used location. This largely depends on how much cupping area is available on any given green. Some may consider a 3-foot radius around the cup as a cupping area, others 4-, 5-, or even 6-foot radius. If these numbers are used, it means moving the cup at least six feet, and at the most 12 feet from the original location. When the 3-foot radius is used, the cupping area is 28.36 square feet; a 4-foot radius gives a cupping area of 50.24 square feet; a 5-foot radius covers 78.50 square feet; and a 6-foot radius covers 113.04 square feet. These figures show how quickly a putting surface can be used by rotation of the cup.

Many golf courses will receive at least 30,000 rounds of golf over a 6-month period. Just think how nice it would be to have 100 square feet of usable cupping area for every 1,000 rounds of golf played in a 6-month period of time. That would give the club roughly one cup placement a day for a month before the cup returned to the original location. Remembering the earlier figures, the average green is 5,000 square feet, with 3,296 to 3,608 square feet of recommended cupping area if the green is level. That would be slightly more than the 3,000 square feet these ideal figures have produced.

Old green with severe contours was built for a club with 200 members; now there are 350 and no additional cupping areas.



NEWS NOTES FOR JULY

From Monty Moncreif, Southern Region

For the past several years, we have been concentrating on control of *Poa annua* in bermudagrass fairways across the South, and have done an excellent job in eliminating it. Another weed, some times called *Spurweed* (genus *Soliva*) is now becoming more prevalent. It can be controlled with Bromonoxyl at four ounces ai per acre before the weed matures. Trexsan or Trimec will also give control.

From Al Radko, Eastern Region

The response of sand companies to Green Section Sand Specifications for bunker use as well as for soil mixes (greens construction and top-dressing mixtures) has been most gratifying. We have received an indication from several companies who are working to stockpile sand that conforms; i.e., a range from .25 mm to 1.0 mm for bunker use and from .11 mm to 1.00 mm for soil mixes with 75% ideally in the .25 mm to .50mm range. Hopefully, sand companies throughout the nation will make "golf course sand" available and as commonplace to buy as Mason, Brick or Concrete sands are now.

From Bill Bengueyfield, Western Director

Yosemite is the only National Park having a golf course within its boundaries. (It was already there when the Park Service acquired the additional land nearly 50 years ago.) It is called Wawona and is truly one of our country's most picturesque and delightful national treasures.

Last spring, in the snows at Wawona, new Superintendent Kirk Golden was taking inventory of the golf course maintenance equipment. It was meager indeed when compared to that which he had become used to at resort courses in Palm Springs. At about the same time, Kirk read "Those Were The Good Old Days" in the May, 1975 issue of the *USGA Green Section Record*. This story told of the equipment inventory on a golf course in 1930. Until he found a power top-dressing machine and green aerifier at the rear of the Slaughter House, Kirk was sure someone had turned the clock back on him by 50 years!

Oh; the "Slaughter House"? That's the original name of the old building where the golf course equipment now spends the winter! Those were the good old days.

From Herb & Joe Graffis, Florida

(Editor's Note: In both the printed and spoken word, no one has recognized and supported the work of the golf course Superintendent and the USGA Green Section more than Herb and Joe Graffis.) In the April, 1975 issue of *Golfdom's* "Swinging Around Golf," Herb Graffis writes:

"Required reading for golf businessmen: The 81st annual report of the executive committee of the USGA must be considered required reading by anyone who claims to know-or should know-golf business.

"The USGA report is for persons who are officially certified, or think they should be, as golf pros, club managers and superintendents. It is the ABC's and a preview of the higher learning for those needed and ambitious young men who are getting educated for happy, prosperous and secure careers in golf. It is a basic schoolbook for those in the PGA, CMAA and the many agricultural schools with which the GCSAA is associated.

"The USGA is the best-directed and operated organization in American sports today-perhaps in

*Kirk Golden and Bill Bengueyfield at Wawona in
Yosemite National Park.*





Herb and Joe Graffis

world sports. For national public service and usefulness to the amateurs and professionals and businessmen in the game, it governs with consent of the governed, and there is not a sports body anywhere nearly as good for the country and its sport as the USGA.

"The USGA's Green Section Service is the biggest bargain any sports organization-amateur or professional-gives its players and public. Yet income from the Green Section Turfgrass Service in 1974 was \$261,065 while its expenses were \$364,113.

"The treasurer's figures can only tell a small part of the USGA story. Services contributed without charge by officials and committee members mean time, brains and results in the millions for the benefit of all golfers."

*From Billy Buchanan,
Eastern Region*

Dateline 1931 -The Golf Club Organizer's Hand-Book

"Some of the fertilization methods employed by small town clubs show considerable ingenuity and thrift. At the Glenbrook, Nev. course the greens were

turning yellow because of the lack of fertilization. The club had exhausted its maintenance money, so it took manure about six months to a year old and put it in barrels about a quarter full. The barrels then were filled with water and stirred for two hours. The lighter part of the material was drained off and screened and the liquid was put on the greens with a sprinkling can. Soon the greens returned to their natural color. The method has been repeated twice monthly, with the only unfavorable aspect being the possibility of introducing too many weeds into the green."

This creative greenkeeper must not have heard about the article that was published some 17 years earlier explaining how to control the pesky weeds and control them economically.

"If weeds are to be controlled economically, it is most important that the proper implements should be used. Perhaps the most important weeding implement is a suitable cushion upon which the man can kneel or sit while he is at work. If he is made comfortable while working, he can do fully twice as much as if he is obliged either to kneel with his knees on the hard ground or crouch down in a cramped position. And if the ground is moist, the workman's knees should be protected from the wet. A section of hair mattress about two feet long, eighteen inches wide and four inches thick covered with a thick oil cloth, so as to be waterproof, should be provided for each weeder.

"The best implement which we have found for pulling up the weeds consists of a pair of tweezers about 6 1/2 inches long, having a wooden handle fastened onto each leg. Each weeder should have a light tray or basket for receiving the weeds, which he holds in his left hand while the weeds are pulled up with the tweezers in his right.

"Strings should be stretched across the green about three or four feet apart, so that the weeder may be sure that he gets all of the weeds between one pair of strings before he starts work on the next.

"The most economical way to get the weeding done is for the greenkeeper to select a 3- or 4-foot wide strip representative of the infestation on the green and time a good workman while he weeds it thoroughly. This will enable him to figure how long the weeding of the entire green should take. By offering the workman 35 per cent increase in his pay, providing the man does his work thoroughly and finishes his weeding within the required time, the weeding will be done for half the usual cost, in spite of the fact that the man while at it earns much higher wages. It is our experience, however, that laborers will not work at their proper speed and do thorough work for less than a 35 per cent increase in wages." According to the method described, "one good workman can readily water, mow and thoroughly weed three greens (averaging 7,500 square feet each), from the time they are ready to play on, and keep them in perfect order during the growing season."

Those were the good old days(?)

The Turfgrass Service of the USGA Green Section

The Turfgrass Service of the USGA Green Section again enjoyed an increase in total subscribers last year and looks forward to even greater membership support in 1975. It is the only non-profit advisory agency devoted solely to golf course turf, its playing conditions and its management, It has nothing to sell. The eight Green Section agronomists cover the nation and have made nearly 30,000 direct golf course visits to subscribing clubs in the past 23 years! Every USGA Member Club should subscribe to the Service. The cost is less than 1/3 of 1 per cent of most golf course maintenance budgets today. Why not put this highly trained team to work for your club this year?

Turfgrass subscribers receive the following benefits yearly:

- 1) Several direct conferences with a Green Section agronomist, in this manner:
 - A) A scheduled half-day, on-the-course consultation, followed by a written report from the agronomist to the Course Superintendent and Green Committee Chairman or club representative. Second visits are available if needed at no additional charge and at the club's request.
 - B) Consultation with the agronomist at local group meetings and turf conferences.
- 2) Assistance by correspondence and telephone.
- 3) A subscription to the USGA GREEN SECTION RECORD, dealing with golf turf affairs, six times a year, addressed to the Golf Course Superintendent. (This is in addition to the subscription sent to the Green Committee Chairman in connection with USGA Membership.)
- 4) A voice in the direction of turf research whose results benefit golf courses. The subscription fee covers all services and expenses; there are no extra charges for travel. (The fee for the Green Section Turfgrass Service is additional to dues for USGA Membership). A list of regional Green Section offices can be found inside the front cover.

APPLICATION FOR TURFGRASS SERVICE OF USGA GREEN SECTION (Open to USGA Members Only)

Date _____, 19__

Full Name of Club or Course _____

Permanent Mail Address (street or box) _____

Post office _____ State _____ Zip _____

Application authorized by: _____ Title _____

Course Superintendent _____

We hereby apply for the Turfgrass Service of the United States Golf Association Green Section and certify that we are eligible for the class checked below.

We enclose the fee (see schedule below) for the current year ending December 31. The USGA GREEN SECTION RECORD is to be addressed to our Golf Course Superintendent (this is in addition to the subscription sent to our Green Committee Chairman in connection with USGA Membership).

This application is automatically continuous from year to year unless interrupted by advance resignation,

Check Proper Class:

_____ Less than 18 holes \$280
_____ 18 to 27 holes \$360

More than 27 holes:

_____ 36 holes \$385
_____ Per regulation course in
addition to 36 holes \$ 75

Please send receipted invoice

If a subscribing member feels it requires a second visit, or if the appropriate USGA agronomist feels a second visit is required, it will entail no additional charge. For each visit after the second, the fee will be \$200.