USGA GREEN SECTION
TURF ADVISORY SERVICE REPORT

THE CUTTEN CLUB
GUELPH, ONTARIO, CANADA

June 4, 2010

Present: Mr. David Kuypers, Golf Course and Grounds Superintendent
         Mr. Peter Lago, Chairman, Golf Course and Grounds Committee
         Mr. Craig Moore, General Manager
         Mr. Brian Dempsey, Men’s Golf Captain
         Mr. Tim Martin, Secretary, Board of Directors
         Ms. Brenda Janssen, Administration Manager
         Mr. David A. Oatis, USGA
INTRODUCTION

It was my pleasure to make a Turf Advisory Service visit to The Cutten Club on Tuesday, May 25, 2010. The following report is offered as a summary of the major points discussed during the visit.

2010 is shaping up to be a challenging year already for golf course superintendents as many courses started out the year with winter injury. Some winter injury was again experienced at The Cutten Club. Fortunately, the early spring has helped tremendously with recovery, so the turf is bouncing back quicker than normal. It may sound peculiar, but winter injury (crown hydration specifically) is actually becoming the friend of The Cutten Club. Bentgrass populations have increased dramatically in Mr. Kuypers’ tenure, and while the winter injury is aggravating, it is helping to increase bentgrass populations even more. Bentgrass populations are so high in most areas of the greens and fairways that winter injury is becoming less significant. It can be devastating when annual bluegrass dominates the turf, but it is a cultural form of annual bluegrass control and can be beneficial when creeping bentgrass dominates.

The improvement in health, playing qualities and aesthetics of The Cutten Club since my first visit in 2005 are staggering. Virtually every aspect of the golf course has been improved dramatically, and some terrific plans are in the works to make even more improvements. During this visit we discussed the typical agronomic programs such as cultivation, organic matter control, fertility, growth regulator usage, etc. However, we also discussed some proposed improvement programs such as the new short game practice area and driving range tee. These will be tremendous additions to the facility and you can bet that they will be very popular and will receive extremely heavy usage once they are built. We also discussed the problematic #17 green. The agronomic problems with the green are well documented as the root zone mix has very poor drainage properties. Unfortunately, the design is out of character with the rest of the greens on the course as well, and playability is suspect as a result of the design. We discussed the proposed plan for rebuilding the green, and following through with it would produce a major improvement in the course.

Following my visit to The Cutten Club, Mr. Kuypers forwarded me water quality tests, and while we discussed water quality in passing during the visit, this will become the next major agronomic obstacle to overcome at The Cutten Club. The water quality is extremely poor.

Lastly, we actually played a few holes the day after my visit, and this was the first time I had the chance to play at The Cutten Club. While the greens still were recovering from winter injury and were not at peak season form, the course played beautifully. It was especially nice to see conditions so dry and firm, but I was equally impressed with the bunkers. We often cover so many different topics during a Turf Advisory Service visit that we overlook some basic aesthetic and playability issues, and it was interesting to examine some of the holes with our golf clubs.
GREENS

In the short term, winter injury is usually a problem, and it certainly has created havoc at The Cutten Club in each of the last two springs. However, the problems would have been much greater 5-10 years ago as annual bluegrass populations were so much higher then. Recovery then would have been incredibly slow because of the tree situation. Fortunately, grass growing environments have been improved dramatically by all of the tree work, and this has made many other improvements possible. All grasses perform better with more sunlight penetration and air circulation, but creeping bentgrass benefits far more than annual bluegrass. Since bentgrass is very tolerant of crown hydration injury in your location, maximizing sunlight penetration and air circulation are prerequisites for improving reliability. Bentgrass simply will not perform well in low light environments because it has such a high light requirement. Thus, winter injury is especially devastating on turf areas that are located in poor growing environments, because the annual bluegrass fails every year or two. This causes some fundamental problems that cannot be overcome:

- The overall reliability of the turf never improves because bentgrass populations never thrive. Bentgrass can be seeded and established, but in a low light environment the bentgrass population increases always are limited.
- Annual bluegrass is lost due to winter injury and new annual bluegrass plants are established every year or two. Since there are thousands of different biotypes of annual bluegrass this is particularly significant. Courses that are able to maintain annual bluegrass populations over a long period of time have natural selection in their favor, as better biotypes of annual bluegrass persist as the weaker ones transition out. When turf loss is frequent (whether from winter injury or disease), the natural selection process is constantly restarted and they never develop better strains of annual bluegrass. Courses with this type of scenario are forced to deal with winter injury problems in the spring and stress and disease problems in the summer.
- Courses that cannot grow bentgrass in this climate either suffer with poor turf year round or implement involved covering techniques in the winter months to try to preserve the annual bluegrass. These techniques are expensive and the results are not always consistent.
In short, the relative importance of maintaining good grass growing environments cannot be overstated. Doing so will produce healthier, better playing, and more reliable turf, and the turf will require fewer fertilizer and pesticide inputs.

Growing Environments

No. 4 Green

The 4th green at The Cutten Club remains the weakest on the course and this is a result of the environment it occupies. Numerous trees have been removed around this green over the years, and more work was done last winter. The result is clearly a vast improvement in the health and playing qualities of the turf. However, I believe you can still make some additional progress, and the following are the key points (in order of priority):

Winter injury is an effective control of annual bluegrass. The center of this damaged area now is creeping bentgrass, established last spring. This year’s damage was more extensive, hence the ring of damage around the bentgrass established last year. If damage is experienced next year, it will not be very significant. In fact, it would be helpful in controlling annual bluegrass.
• Trees directly behind the middle portion of the green block morning light penetration during the longest day length days, so any additional work that could be done here would be helpful. However, it is even more important to remove additional trees to the back right, behind and on the far side of the 5th tee.

• Although I did not examine the trees to the right front of the green closely, they are mostly unhealthy ash trees and are in decline anyway. I suspect removing additional trees in this area also will increase late morning/midday light penetration during the shortest day length days, and this also would reduce the threat of winter injury. As we have discussed in the past, there is a strong correlation between winter shade and winter injury, so light penetration is very important even when the turf is not growing.

• The tree line on the left side of the green already has been pushed back quite a bit, and this has helped with afternoon light and air flow. Clearly a lower priority, it still would be beneficial to push this tree line back even further. Tree work to the front left of the green (working around the fine old sugar maple) also would be helpful in further exposing the maple and increasing afternoon light penetration during the shortest day length days. This is when it would be most helpful.

No. 5 Green

Additional trees were removed to the front left of #5 green which helped to increase morning light penetration during longer day length days. I believe some additional tree work here also would be beneficial to increase morning light penetration even more. I also recommend removing the trees behind the green as they form an unnatural, unneeded and undesirable backdrop. Removing these trees will make it a bit more challenging to judge yardage to the green, and it will open up a terrific view of the 6th hole from the 5th. It also will cause the 5th green to look much smaller from the landing zone, and this will increase the psychological difficulty of the hole. Last but not least, it also will improve afternoon light penetration to the green.

No. 11 Green

The growing environment #11 green occupies has been improved significantly as well, but early afternoon light penetration during shorter day length days still is poor. Removal of three declining Austrian pines and one locust tree to the back left would cure this problem. These are likely major contributors to the incidence of winter injury as early afternoon shade causes water to refreeze more quickly, so these also should be a priority.

No. 14 Green/No. 15 Tee

Removal of trees to the left and behind the 15th tee is recommended to increase morning light penetration to the 15th tee as well as the 14th green. There are no good
quality trees in this area, and pushing this corner of vegetation back also will help increase air circulation to the tee. The work will also help when the new practice putting green and short game practice facility are constructed.

Winter Injury

As was the case last year, many courses throughout southern Ontario experienced winter injury in various portions of their course. Few courses experienced winter injury in both years whereas others only suffered it one of the two years. This is a function of the differing weather patterns as well as unique local conditions.

Once again, the majority of the damage was caused by crown hydration which results when turf in a saturated condition is subjected to a sudden drop in temperature. Annual bluegrass and perennial ryegrass are very susceptible to this type of injury because they are quick to lose their winter hardiness. Approximately 50% of their winter hardiness is lost when they are subjected to 35º-40ºF temperatures and moisture for three consecutive days. On the positive side, creeping bentgrass and Kentucky bluegrass are very resistant to this type of injury, so it only eliminates species that are not desired anyway.

Areas of poor surface drainage are especially prone to this type of injury because moisture collects and sits for a longer period of time on top of frozen soils. This increases the opportunity for that sudden drop in temperature which causes the injury. Afternoon shade also is a major contributor because afternoon shade can cause moisture to refreeze more rapidly (before it has a chance to drain off of the turf surface). Admittedly, there are rare years when greens in the most pocketed environments suffer less injury (because they do not warm up enough to cause the snow and ice to melt). At least 95% of the time, turf in the poor growing environments suffers the most injury. This is because it has the highest percentage of annual bluegrass, it may not have hardened off completely due to shade in the fall, and because it takes longer to clear off in the spring.

It is imperative to maximize light penetration to the most critical turf areas (greens primarily but also the fairways and tees). At The Cutten Club, the surface drainage is a problem in two obvious locations. The raised collar to the right front of the 5th green traps water, and this is why injury was experienced to the front right of this green the last two years. Similarly, the raised collar to the front right of the 11th green also traps water and produces the same type of injury.

In both cases, the solution is the same: the collar/approach areas need to be regraded to restore positive surface drainage. While positive surface drainage is not a guarantee that winter injury will not be experienced, it certainly improves chances for avoiding it. This obviously should be a priority.
It is always a roll of the dice as to whether snow and ice should be removed from greens in the winter, and it really depends on weather patterns, duration of ice cover, and the upcoming predicted weather. Since weather is so unpredictable, the results of removing snow and ice also are equally unpredictable. The bottom line is that removing ice layers can save turf or cause more injury depending on the weather that follows, so the decision as to whether or not to remove ice is a very difficult one to make and there are never any guarantees. On the other hand, it is critical when snow and ice are removed that the materials be moved away from greens such that the removed precipitation does not hinder surface drainage. Plenty of courses over the years have pushed snow and ice off of the front of the green, only to have it act as a dam and trap water on the front portion of the green which usually results in more damage. Snow and iced pushed off to the rear that drains back onto the green when it melts can be equally damaging. Thus, just be sure to make sure that the path of drainage off of the greens is kept as clear as possible. In cases where it is not possible to remove all of the snow and ice, removing it in a herringbone pattern to aid in surface drainage is an option worth considering.

Recovery

Mr. Kuypers was well aware that injury had been sustained, and the early actions (aerating, slit seeding, fertilizing and covering) combined with the warm temperatures in April produced a remarkably rapid recovery. Turf managers often struggle with the decision as to whether seeding or sodding is the best bet, but seeding of putting greens combined with covering techniques usually produces the best long term solution. It can be slower in the short term, but there are tremendous difficulties in sodding large areas of putting greens because cutting heights are so low and matching sod is not always available. The sod work has to be virtually perfect, and aeration, topdressing and rolling still are needed to smooth and alleviate layering.

General Comments

Aside from the winter injury, the putting green turf at The Cutten Club was in very good shape at the time of my visit. Cutting heights are higher than normal, so putting green speeds are obviously somewhat slower. That is a necessity given the need for continued growth and recovery in the damaged areas. As the areas continue to fill in and the turf matures, cutting heights can be lowered and playability will return to normal.

The putting green management programs clearly are working well as the turf is continuing to improve. However, there are a couple of points to keep in mind for this season and beyond:

- The relatively new fungicide, Premise, is a good fungicide for certain applications, but it has strong growth regulation side effects. It provides excellent control of summer patch (which is not likely to be much of a problem at The Cutten Club because of the relatively high bentgrass populations), and it provides
fair-good control of anthracnose. However, the growth regulation side effects are important to keep in mind. At higher rates and in higher temperatures, it will regulate the growth of annual bluegrass and creeping bentgrass, but annual bluegrass will be more affected, likely to the point where it will suffer discoloration and suppressed growth. From the chemistry standpoint, it is similar to some of the growth regulators that are in use in the United States such as Trimmit (paclobutrazol), Cutless (flurprimidol), and Primo (trinexapac-ethyl). Thus, be cautious regarding the use of Premise.

- At the time of this writing, I have not had an opportunity to closely examine the water quality tests, but a quick glance shows that water quality is very poor. Poor to the point that it will affect turfgrass health. Assuming that water quality cannot be improved, using it will require a whole different set of management practices. The problem with poor quality water is that salts are applied with the water, but the salts remain behind and build up after the water is used and/or evaporates. One or two applications may not cause any problems, but multiple applications can result in salt levels building up to a point where they adversely affect turf. Bentgrass has a greater ability to tolerate high salt levels than annual bluegrass, so weak annual bluegrass and healthy bentgrass can be a sign of a water quality issue. Another sign of water quality problems is when rain events cause an immediate and significant improvement (fertilizer-like) in turf quality.

- Another telltale sign of poor quality water is when seedlings show tip burn and/or fail or at least fail to thrive. As we discussed, doing a side by side comparison using turf plugs in pots, try watering a couple of plugs with tap water and a couple of others with your poor quality irrigation water. You may see a difference very quickly.

- Poor quality water will be most problematic in dry years when there is heavier reliance on irrigation. However, even when dry spells occur, periodic heavy, soaking rains may leach salts through the soil effectively. During extended dry spells, you may need to leach, and a general practice of watering deeper and less frequently would likely benefit given the water quality issue.

- Unfortunately, the water quality at Cutten is so poor that it may also adversely affect creeping bentgrass.

So what can be done to deal with poor quality of water? Drainage is a key. Poor quality water can be used if there is an ability to leach the salts through the soil. Gypsum can be applied to aid in releasing sodium from the soil, but simply having the ability to water deeply to flush salts through the root zone is of critical importance. To that end, you may find that you will need to perform more deep aeration techniques (vertidraining, drilling and filling, etc.) and/or install more drain lines in order to increase your ability to leach salts from the soils. A local company recently bought a drill and fill machine, and this would be a very helpful process for improving drainage and increasing your ability to leach salts.

Although we did not discuss it during the visit, the Turf Guard soil censors that now are marketed by the Toro Company would be an invaluable aid at The Cutten Club. The
remote censors can be buried in putting greens and then monitored, and they will measure moisture levels, temperatures and (most importantly) salt levels. Having the censors present will enable you to determine when it is time to leach and it will provide the information to determine how long you need to leach.

Ill-Advised Green Expansion Projects

Unfortunately, the approach to #6 green now is so severe that it makes for very poor playability. A ball that trickles off the front edge of the green will roll all the way down the hill and it is nearly impossible to bounce a ball onto the green.

As a stop gap measure, Mr. Kuypers has grown rough up across the approach to help catch a ball and prevent it from rolling all the way down the approach, but the best long term solution is to rebuild the green to create more cupping area and to soften the approach. This is the only way to make it more receptive. In answer to the question that will undoubtedly be asked, soil could be added to the approach to soften it, but it would take an extraordinary amount of soil and the area of disturbance would have to extend well out in front of the green (30-40 yards or more). More importantly, it would
not solve the cupping area problems due to the severity of the putting green slopes. This is a green that should be rebuilt.

On the other hand, I believe the addition to the front portion of the 15th green could probably be removed since the addition was created using a sandy root zone mix. The addition does not provide any hole locations, and due to settling, the addition “looks like an addition”.

My guess is that the subsoil was probably not disturbed, at least not very much, when the green was extended. Thus, it will be much like an archaeological dig as the solution is simply to remove the root zone mix that was added and to regrade the approach, ensuring that it is receptive to bump and run shots. Unfortunately, the bunkers were extended forward at the same time the green was extended, and they will have to be reworked to reflect the new shape of the putting green. Fortunately, there is enough cupping area on this green and it is healthy enough that it probably does not have to be rebuilt. The same is not true of the 6th green. Since reworking the approach is the cheaper and easier solution, it certainly makes sense to give this a try first. In the event that it does not produce a satisfactory result, the green could always be rebuilt at that point.

FAIRWAYS

The improvement in fairways at The Cutten Club since my first visit is staggering, and this is the result of the tree work, winter injury and several years of lightweight mowing. Bentgrass populations have skyrocketed and annual bluegrass and perennial ryegrass populations have dropped dramatically. Thus, both playability and the aesthetics of the fairway turf have improved tremendously. Congratulations!

The question now is have they improved to a degree where the often-discussed fairway regrassing program is still necessary. Unquestionably, regrassing the fairways (killing the existing turf and replanting to an improved cultivar of creeping bentgrass) would produce better turf. More importantly, it would have a significant impact on pesticide usage in the years to come. This is because the new bentgrass cultivars have such vastly improved resistance to snow mold and dollar spot. It is a question we can discuss more during my fall visit, but the right hand side of the 4th fairway, from approximately 150 yards in or so, would be a great location for a trial run. The fairway was expanded here two years ago, and the resulting turf is a mixture of annual bluegrass, bentgrass, ryegrass and Poa trivialis.

The regrassing process has been described in past reports, but it is fairly simple. Apply Roundup and begin cultivating and overseeding about 24 hours later. The Roundup will kill all the existing vegetation and allow you to established improved bentgrass uniformly.
Timing is of critical importance for the establishment rate and for annual bluegrass establishment. Since the Roundup will not kill the weed seeds in the soil, annual bluegrass will germinate and become established in the area along with the bentgrass. If the work is done in early-mid August, the bentgrass will get a big head start on the annual bluegrass and the end result will be a much higher percentage of creeping bentgrass. If the work is done in late August or September, the result will be a much higher percentage of annual bluegrass. Obviously, seeding in early-mid August would be the first choice because of the higher resulting bentgrass populations and because the area will become playable much more rapidly with the better growing weather. Assuming the area is regrassed August 10, you could probably reopen it for play in six weeks or so. If the work is not done until September 1-September 15, the area may not fully mature for 8-10 weeks.

In terms of bentgrass varieties, 13M would be a very good choice because it has excellent disease resistance and it is a less aggressive thatch former as compared to some of the other varieties.

PRACTICE FACILITY

We examined conceptual plans for the practice facility which calls for an increase in size of the driving range tee combined with creation of two practice putting greens and a short game area. As we discussed, practice has become incredibly popular at courses throughout North America, and many have or are in the process of investing heavily in upgrading them. In every case I can think of, the results are well received. A number of key points to keep in mind regarding the driving range tee project are included in the enclosed article entitled Building a New Driving Range Tee? SUPER SIZE IT!, but the key points at Cutten to keep in mind are as follows:

- Make the new driving range tee as large as is physically possible. It is just about impossible to make a driving range tee that is too large, and courses with small tees often double or triple their teeing area yet wind up with no net improvement in turf quality. This is a function of the driving range tee receiving more use because of the improved conditions. It makes sense to make the tee wider and deeper, and it is critical to make the tee one level. 20%-30% of the potentially usable area would be lost in the grade change if a two-level tee were built.

Given the topography of the area, you will likely have to drop the level of the existing tee (pushing it back at the same time) and the tee will have to be sloped from back to front by approximately 1%. Even with these changes, it is likely that the forward target greens would not be visible from the middle or rear portion of the tee. Thus, you may also consider elevating the forward target green to make it more visible. The other target greens could be elevated if and when an irrigation reservoir is created.
• Unless the tee can be expanded to a size of 1.5 acres or more, I recommend planting it with low mow Kentucky bluegrass. Several tees on the course (i.e. #12) were established with low mow Kentucky bluegrass this year. Bluegrass is a thatch former and it is a much more durable turf than creeping bentgrass. Even so, it will be important to manage wear on the new tee very carefully, and encouraging golfers to spread their divots out or, better yet, arrange them in long lines would be very beneficial. For years, golfers were taught to concentrate divots in small areas, and this is an efficient use of turf. Unfortunately, it weakens the turf to a point where it will not be usable and resilient for a very long time. At least 80% of the recovery rate with a Kentucky bluegrass tee will come from lateral regrowth, so smaller areas will actually recover much more quickly than when large areas are denuded of turf.

• I have included with this report a list of courses in the region that have built short game practice areas, and I encourage you to visit them whenever you have an opportunity. There is tremendous variation in the short game areas, and there are lots of good ideas that you can steal. One of the key points at Cutten is to take into consideration the predominant wind direction when the bunkers are placed in relation to the green. Golfers will not enjoy practicing bunker shots into the wind!

• Try to create every possible shot in golf as the short game area is designed. This should include short and long, shallow and deep bunker shots, bump and run shots, lob shots. It also is important to try to create shots from level and unlevel lies as well as from fairway and rough. In general, very large short game greens work best (8,000-12,000 sq. ft. or more) as this allows multiple players to practice to different portions of the green at the same time. It also aids with safety. A multi-lobe large green can be used by numerous players at the same time.

• To that point, some courses try to include a long shot (60-80 yards or so), but this causes several problems. Ball marks will be worse, divoting will be worse, but most importantly, if one player is hitting 70 yard wedge shots, no one else will be able to hit the short pitch and bunker shots.

• Similarly, it is important to design the bunkers so that they are roughly perpendicular to the direction of play. This will allow multiple golfers to hit shots out of the same bunker at the same time.

• The idea of creating three greens so that you have a three-hole short course makes great sense if you can work it in. Just be sure to create the other types of shots as a priority.

Again, I cannot overemphasize the relative importance of making the driving range tee as large as possible. The larger tee will allow more golfers to use it at the same time, and I think you will find that usage will increase dramatically as a result of a significant upgrade in the facility.

Lastly, keep in mind maintenance requirements. My guess is that practice will become even more popular than it already is, and golfers will want to use the practice facilities
first thing in the morning and late in the afternoon. This will make maintenance very challenging. Maintenance requirements will be significant given the scope of the facility, and it will be important to put several people on the facility first thing in the morning so that the maintenance can be accomplished quickly and the facility opened prior to or at the same time as the golf course is prepared. Perhaps several part time staff could be added for this purpose.

Also note that a significant amount of divot mix will be required. So, you may want to create a satellite maintenance facility for storage of specific tools needed to maintain the range along with a facility for storing divot mix, fertilizer and seed. Perhaps these facilities could be tied into a golf ball storage facility of some sort and/or a teaching facility.

Last but not least, keep in mind traffic flow for the ball retrieval equipment. Ball retrieval equipment causes a considerable amount of wear and tear, and if the golf ball storage/washing facility is not properly located, the wear can be very unsightly.

CONCLUSION

This concludes my summary of the topics discussed during my visit to The Cutten Club, and I want to thank you sincerely for the gracious hospitality that was extended during the visit. This was an especially enjoyable visit and your hospitality was exceptional, so thanks very much. As always, do not hesitate to call at any time throughout the year if I can be of additional assistance and best of luck for a successful season.

The Green Section appreciates your support of TAS and we encourage visiting the website http://www.usga.org/Content.aspx?id=26223 to access regional updates that detail our observations across the region and provide a snapshot of the types of problems and conditions we are seeing in our travels.

Sincerely,

David A. Oatis, Director
Green Section, Northeast Region

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cc: Mr. David Kuypers, Golf Course and Grounds Superintendent

Reprints: Building a New Driving Range Tee? SUPER SIZE IT!

List of Courses with Short Game Practice Areas