COURSE CONSULTING SERVICE

Onsite Visit Report

Sun City, White Wing Golf Club
Georgetown, Texas

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Present:

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The USGA Green Section develops and disseminates sustainable management practices that produce better playing conditions for better golf.

Executive Summary

It was great to make a half-day Course Consulting Service visit to White Wing Golf Club on September 28, 2022. The purpose of this visit was to assess conditions and discuss best management practices for daily and long-term maintenance.

Sun City is a community with over 4400 golfers and only three golf courses. As a result, there is tremendous pressure to maximize the number of available tee times, especially morning tee times to accommodate the large volume of golfers. Having such a strong golfing community is certainly a good thing, but it is important to strike a balance and provide adequate time for essential maintenance practices to be completed. During the visit, the golf course was in great condition, especially considering the resources available for daily maintenance and the limited time available to perform necessary maintenance operations. To be honest, the golf course was in better condition than I would have expected considering the minimalistic maintenance staff size of only six employees and the large volume of golf that is played annually. However, there are some agronomic concerns, especially with the extremely high organic matter content in the putting greens.

The golf course was originally constructed in 2004 and a partial renovation was completed in 2017. The renovation included bunker renovation work and the leveling of most of the tees. The greens were not touched and as such, are now 18 years old. The greens should have at least seven to 10 more years of life expectancy remaining, but it is critical to manage the organic matter in the upper portion of the profile to maintain adequate drainage and good playing qualities. Soil samples were taken during the visit to quantify organic matter content in the upper portion of the profile and they likely have the most organic matter of any ultradwarf greens we have tested. This is not surprising considering the greens are only aerated twice per year and verticutting and sand topdressing are only performed once every three – six weeks. The busy golf schedule makes it very difficult to perform labor-intensive tasks such as verticutting and sand topdressing. Making a firm commitment to closing the golf course at least one day per month will be tremendously beneficial and provide an opportunity for the maintenance team to perform critical tasks such as verticutting, topdressing and also to make growth regulator applications to fairways and roughs to provide better conditions more days out of the year.

The topics discussed during our tour of the golf course are outlined in the table below and discussed in greater detail throughout the remainder of this report.

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Putting Greens

Observations

1. **The putting greens are 'TifEagle' ultradwarf bermudagrass and were healthy and dense on the day of the visit. However, the greens were very soft underfoot – an indicator that the organic matter content is excessive.**
2. **Organic matter content near the surface appeared to be excessive and soil samples were collected on the day of the visit for laboratory analysis.**

    - To quantify organic matter content in the putting greens, samples were taken from the practice putting green and Hole 13.
        - The USGA Green Section is in the process of standardizing organic matter testing protocol both in the field and in the lab. This will provide more consistent data throughout the industry so that laboratory results for organic matter content will be more meaningful and will translate between different research projects and different courses. Samples are collected and tested in the 0-2 cm, 2-4 cm, and 4-6 cm depths.
        - Green Section agronomists have sampled over 200 ultradwarf putting greens and the average OM (organic matter) content in the upper 0-2 cm is 9%. The upper 2 cm is the most critical from a putting green performance perspective and the results for the upper 2 cm in the greens at White Wing Golf Club are 14.4% in the practice green and 12.4% on Hole 13. These values are extremely high and should be addressed.

Organic matter (thatch) content near the surface is excessive and creating soft conditions. This will also negatively impact root development and drainage of the greens. Increasing verticutting and topdressing frequency will help manage this situation.

3. **Organic matter accumulates naturally as plant stems and roots die off and remain in the soil. This plant material decays very slowly over time and if it is not removed via hollow core aeration or diluted with sand topdressing, then the content can become excessive.**

   - Excessive organic matter creates soft and wet playing conditions as this layer holds water like a sponge near the surface. Elevated organic matter content also predisposes the turf to shallow rooting, scalping, exploding ball marks, soft conditions, and a host of other agronomic concerns.

   - Hollow core aeration is currently being performed every June and August. These are ideal times to aerate TifEagle greens in your area. If regular verticutting and topdressing applications are being made, two aeration events should be sufficient to adequately manage organic matter content.

- Verticutting and topdressing are scheduled to be performed every three weeks, but this is contingent upon course closure. Oftentimes, it sounds like outings or other events are scheduled during the planned closure date and this also results in verticutting and topdressing being deferred until the following closure date.

4. **Small patches of goosegrass contamination were observed along the perimeter of the putting greens on a few holes. Weed control efforts appear to be working well, but options for improving control were discussed during the visit.**

Recommendations

1. **The best opportunity to improve putting green firmness, smoothness and overall reliability is to increase verticutting and topdressing frequency.**

   - The highest-quality ultradwarf greens are typically verticut one to two times per week during the summer months. I encourage you to verticut at least every two weeks and preferably weekly. Waiting longer than this will result in excessive organic matter accumulation, scalping, and aggressive grain issues. Furthermore, when it is performed more frequently it is less damaging to the surface. Greens that are verticut weekly roll smoother the day after verticutting and topdressing than they did the day before.

   - Frequent verticutting and topdressing also reduce the need to perform aggressive hollow core aeration. If new organic matter content is constantly being diluted with sand topdressing, then there is less of a need to perform aggressive hollow core aeration to remove old organic matter.

   - For the next two to three years, it would be wise to perform hollow core aeration three times per year during the summer to remove old organic matter content that has accumulated. If verticutting and topdressing are performed every one to two weeks, then aeration frequency could likely be reduced to two times per year, a few years from now.

   - The goal of reducing organic matter content is not to produce ultra-firm and fast putting greens, although reduced organic matter content is necessary to provide such conditions. The goal at White Wing is to better manage organic matter content so the putting greens maintain ideal drainage characteristics to prolong the life expectancy of the greens.

2. **The Andersons® Goosegrass/Crabgrass Control is currently being applied to the putting greens in one application in the spring. This product is effective to help control crabgrass and goosegrass on putting greens and collars but if only one application is made in the spring, it is common to see some breakthroughs in late summer.**

   - Consider making two applications at a half-rate with Andersons Goosegrass/Crabgrass Control in the spring. Make these applications approximately three to four weeks apart from each other.

   - A second option would be to make an application with Dimension® three to four weeks after the application of Andersons Goosegrass/Crabgrass Control.

   - Revolver® is the only post-emergent option labeled for use on ultradwarf putting greens and can provide acceptable results as long as it is applied multiple times and initiated when goosegrass is in early growth stages.

     - Revolver is the only herbicide labeled for postemergent goosegrass control in ultradwarf bermudagrass putting greens. This product should be applied

approximately two to three weeks after the final preemergence herbicide is applied. For Revolver to work well, it needs to be applied when goosegrass plants are in the juvenile stages.

- Revolver should be applied at 0.4 fluid ounces per 1,000 square feet every three weeks beginning two to three weeks after the final preemergence herbicide application.

- It is also worth mentioning that research has shown that post-emergent herbicides are less effective when goosegrass is under drought stress.

Fairways

Observations

1. **The fairways were in great condition on the day of the visit. That is, they were healthy and dense and weed control appeared to be effective.**

   - *Poa annua* control options were discussed to help reduce the amount of *Poa annua* breakthrough that occurs in late winter and early spring.

   - Late winter and early spring are the most challenging times to control *Poa annua* because preemergent herbicides that were applied in the fall are wearing off and post-emergent options such as the sulfonylureas (SU) are not effective when air temperature is below 65 – 70°. Furthermore, resistance concerns with the SU herbicides are significant. *Poa annua* is notorious for developing resistance to this class of herbicides rather quickly.

Recommendations

1. **There is no "silver bullet" program for *Poa annua* control but following are several options to consider in order to improve *Poa annua* control on the fairways in late winter and early spring.**

   - The current program typically calls for Specticle® in mid-October and Ronstar in late winter. We did not discuss whether or not a sulfonylurea herbicide is applied with the Ronstar, but these products are only effective if air temperature is above 70°.

   - One of the most effective and cheapest options for improving *Poa annua* control is to apply glyphosate in late winter.

     - The total spray volume for this application should be approximately 20 gallons per acre and use nozzles that produce a small droplet size. Apply glyphosate at 16 - 32 ounces per acre. 16 oz/A is the lowest recommended rate through dormancy. Applying at sub-lethal rates may promote resistance.

     - The benefits of applying a nonselective herbicide such as glyphosate are that it is the most inexpensive option and there is very little risk for movement in the soil once the product is applied. Due to the low spray volume and fine droplet size, this application should be made on a calm day to reduce the risk of offsite drift. Additionally, apply on a day when air temperatures are at least 60 degrees, and if possible, 70 degrees. The warmer it is, the more effective this application will be.

- Research has shown that applying glyphosate at 16oz/A will not kill bermudagrass, even if applied in July. It may delay green-up if applied to bermuda that is slightly green and growing but only for a few weeks.

- The timing of various preemergent herbicides also impacts *Poa annua* control. Recent research has shown that delaying the preemergent application in the fall and tank mixing with a post-emergent herbicide can help improve *Poa annua* control the following spring and help manage resistance concerns. A few options that have performed well in research trials are outlined below.
  - Katana® (2.5 oz/A) + Barricade® (18.5 oz/A) in late October to early November.
  - Monument® (0.53 oz/A) + Barricade (24 oz/A) + Princep® (1 qt/A) in early November.

2. **Applying the plant growth regulator Primo® to the fairways every two to three weeks would help suppress top growth and improve playing conditions between mowing events. With the limited staff size, it is challenging to mow the fairways frequently, and applying a growth regulator every two to three weeks would limit the frequency that the fairways need to be mowed. It will also reduce clipping yield each time the fairways are mowed.**

   - Applying growth regulators to the fairways every two to three weeks would require course closure at least once per month, and preferably twice. There are several maintenance tasks that could be completed if the golf course were closed for 1.5 – 2 days per month. These tasks include growth regulator applications to the fairways and rough, and verticutting and topdressing on the putting greens. The closure for 1.5 – 2 days would significantly improve course conditions for the thousands of rounds of golf that are played between closure dates.

Rough

Observations

1. **It sounds like one of the biggest complaints from golfers is that the height of cut becomes challenging from a playability perspective when it cannot be mowed frequently enough throughout the season. As discussed earlier, the busy golf schedule and limited crew size make it challenging to mow the rough multiple times per week.**
2. **There were several areas in the rough adjacent to cart paths that suffered from severe turf decline. Thinning in entry and exit points is common, especially if traffic is not properly managed during late fall, winter and spring when the bermudagrass is semi-dormant or dormant.**

   - Trees in high-traffic areas adjacent to cart paths make matters worse.

   - Root competition from surrounding trees can also increase the susceptibility for decline in high-traffic areas. Tree roots extend well beyond the dripline of the trees and outcompete turf for moisture and nutrients.

Recommendations

1. **Root pruning around the perimeter of all of the holes will help improve turf density by eliminating competition from surrounding trees.**

- Many courses have seen good results with the Imants® root pruner tractor-mounted attachment. This attachment is not disruptive to the playing surface and requires no repair work after it is performed.

Root pruning will help improve the condition of the rough by eliminating competition from adjacent tree roots. Also, in heavily shaded areas zeon zoysiagrass could be sodded to improve shade tolerance.

2. **In heavily shaded areas beneath trees, Zeon zoysiagrass could be installed to improve turf health and density. Bermudagrass has a very high light requirement and rough areas underneath trees stand no chance if they are planted to bermudagrass. Zeon zoysiagrass is much more shade tolerant and is a better option for turf and shaded areas.**
3. **Options for improving playability in the rough are outlined below.**

    - Mowing the rough more frequently will improve playability because the rough will be maintained at a lower height more frequently and allow for the height of cut to be reduced from 2 inches to 1.5 inches. Currently, the rough cannot be mowed at a lower height of cut because it is only mowed once every 7 – 10 days. When it is mowed at a low height of cut such as 1.5 inches, scalping occurs. This is unsightly and not ideal for turf health and vigor.

    - Applications of plant growth regulators, such as Primo Maxx®, every three to four weeks would reduce the growth rate of the rough. This will improve playability, shade tolerance, and reduce clipping yield each time the rough was mowed. However, for these applications to be made, the golf course will need to be closed at least 1.5 – 2 days per month.

    - Acquiring a Trimax rough mower would also improve playability from the rough. This mower is a PTO-driven tractor-mounted mower that is much more efficient at mowing rough than the existing mowers. Secondly, standalone rough mowers are more expensive and do not provide as good of a quality of cut. Another added benefit of the Trimax rough mower is that when it is not being used, the tractor can be disconnected and used for other tasks.

Summary

With the current resources and time available for daily maintenance, the golf course is in great condition. There are plenty of opportunities to further improve course conditioning and reliability, but

this will require an increase in staff size and time to complete necessary maintenance tasks. From a turf health and reliability standpoint, reducing organic matter content in the putting greens is a top priority. A firm commitment to course closure at least one day per month, but preferably 1.5 or 2 will allow the maintenance team adequate time to perform biweekly verticutting and topdressing applications and applications of growth regulators to the fairway and rough. From a playability perspective, growth regulator applications to fairways and rough and more frequent mowing of the rough will be most impactful.

I enjoyed touring White Wing Golf Club and look forward to working with the entire agronomy team on an ongoing basis. If you have any questions on anything in this report or if I can be of further assistance at any time, please don't hesitate to reach out. I am here to help.

Respectfully submitted,

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Additional Considerations

The USGA appreciates your support of the Course Consulting Service. Please visit the *Green Section Record* to access regional updates that detail agronomist observations across the region. Also, please visit the Water Resource Center to learn about golf's use of water and how your facility can help conserve and protect our most important natural resource.

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As a not-for-profit agency that is free from commercial connections, the USGA Course Consulting Service is dedicated to providing impartial, expert guidance on decisions that can affect the playing quality, operational efficiency, and sustainability of your course.

First started in 1953, the USGA Course Consulting Service permits individual facilities to reap the benefits of on-site visits by highly skilled USGA agronomists located in Green Section offices throughout the country.

For questions regarding this report or any other aspect of the USGA Course Consulting Service, please do not hesitate to contact our office.