

Course Consulting Service ON-SITE VISIT REPORT



Bella Vista Village Bella Vista, AR

Visit Date: August 12, 2015

Present:

Mr. Reed Holly, Superintendent at Kingswood and Berksdale
Mr. Keith Ihms, CGCS, Director of Golf Maintenance
Mr. Greg Jones, Superintendent at Highland
Mr. Scott Seifert, Superintendent at Bella Vista CC
Mr. Larry Shephard, Superintendent at Scotsdale
Mr. Geoff Smith, Superintendent at Dogwood Hills
Mr. Chris Hartwiger, USGA

United States Golf Association

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

On behalf of the United States Golf Association, it was a pleasure to visit the golf courses at Bella Vista Village. This was my first trip to Bella Vista and I am appreciative of everyone's hospitality and friendship. This USGA Course Consulting Service visit was structured according to the following itinerary:

- Superintendent Meeting – Discuss various agronomic topics.
- Highlands Course Tour – Discuss several topics with Joint Advisory Golf Council Members
- Bella Vista CC – Review and discussion of putting greens
- Joint Advisory Golf Council Meeting – Question and answer session

There were numerous topics discussed during the day and many of the same topics were repeated in different venues in the itinerary above. Therefore, this report will be structured in a way that summarizes the main topics discussed and the recommendations that were made. Please do not hesitate to contact me with any questions or comments after reviewing this report.

LABOR CONCERNS

Observations

1. The number one problem I have observed facing golf courses this year has been finding hourly seasonal employees. Many of my customers have spent the majority of the year understaffed. While the labor line item in the budget may look good, remaining understaffed means there are fewer available labor hours each week to get work done. Eventually this shows up on the golf course.
2. At Bella Vista, all the superintendents shared with me the difficulty they have faced finding and retaining seasonal hourly employees. Their courses have been understaffed this summer.
3. The competition for hourly workers in most parts of the country is high and many industries have significantly raised wages for entry level positions. Upon my arrival in Bentonville, I noticed a sign at a fast food restaurant that offered an entry level wage of \$9.00 and a \$250 bonus.

Recommendations

1. Add Full Time Employees. The competition for hourly workers is keen. Although I am not an expert in the labor market, I expect that golf courses are going to have to reverse the trend of the past seven years and begin hiring more permanent full time employees with benefits and room for advancement. Keith Ihms is proposing adding two or three full time employees to each of the golf courses to address their labor need. I support this decision and am confident there will be multiple benefits that will be achieved:

- a. *Higher Productivity.* More labor hours will be available. Eventually, full time staff will be cross trained on almost all the jobs and they will be much more productive than a new seasonal hourly employee.
- b. *Better Retention.* There should be a greater likelihood of retaining these employees.
- c. *Less Time Spent on Training.* When turnover of seasonal employees is high, management must spend a significant amount of time training new employees and this leaves less time for other important tasks.

COMMON BERMUDAGRASS VS. HYBRID BERMUDAGRASS

Observations

1. On the Highlands Course, the primary turfgrass in the fairways is common bermudagrass.
2. Below is a comparison of common bermudagrass and hybrid bermudagrass. I have also included a picture from another golf course taken in the spring to show the dramatic differences between common bermudagrass and hybrid bermudagrass.

| | Common Bermudagrass | Hybrid Bermudagrass |
|-------------------------------------|--|---|
| Leaf Texture | Wider Blades | Finer Blades |
| Canopy Density | Open Canopy | Tighter Knit Canopy |
| Winter Performance | Canopy is prone to deterioration | Canopy stays intact longer in winter |
| Wear Tolerance Under Traffic | Less Wear Tolerant | More Wear Tolerant |
| Spring Performance | Exposed stems and soil; ball lie is very tight | Canopy more intact |
| Playing Quality | Poor in Winter and Spring; Average in Summer | Superior to common bermudagrass 12 months per year. |



Picture 1: The hybrid bermudagrass is the green turf on the right side of this picture. The common bermudagrass is the brown area on the left. The hybrid bermudagrass up much earlier than common bermudagrass in the spring and provides a better playing surface twelve months of the year.

3. The most popular fairway grasses used in Arkansas are either some type of hybrid bermudagrass or zoysiagrass.
4. Conversion methods were discussed.

Recommendations

1. The presence of hybrid bermudagrass is definitely a weakness in the course infrastructure. There are three options to consider.
 - a. Keep Status Quo: The staff does a good job managing the common bermudagrass in the fairways with the current budget and staff levels.
 - b. Restrict Traffic. A major weakness of common bermudagrass' is its tendency under traffic to lose its canopy. Golfers can help to keep the fairways in better playing condition longer into the winter (and perhaps the

spring) by keeping carts on the path 100 percent of the time from late September – mid-April. This is never a popular recommendation, but golfers need to be reminded that they can be part of a program to have more playable common bermudagrass. Along with the cart restrictions, continue to use the growth regulator Primo through September and keep the mowing frequency at summer levels to promote a tighter canopy. Under this program, I would expect fairways to be better in the fall and only marginally better in the spring.

- c. Fairway Regrassing Project: Because no one uses common bermudagrass anymore, the presence of common bermudagrass as the primary fairway grass puts the golf courses at a competitive disadvantage when it comes to playing quality. Regrassing to a hybrid bermudagrass or zoysiagrass would result in a major upgrade to the playing quality of the fairways. Bella Vista is in a unique position to do this because play can be shifted over to other courses while a renovation occurs.

MANAGING BENTGRASS SUMMER STRESS

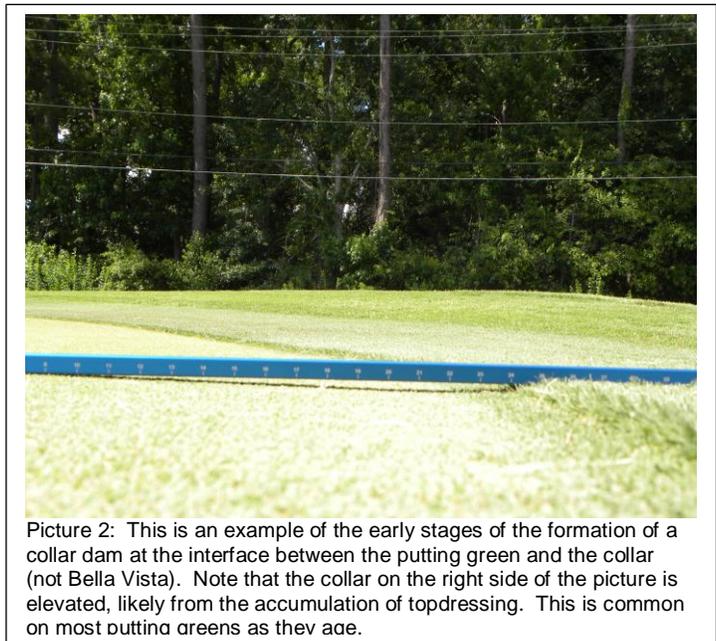
Observations

1. There are several important items to keep in mind when considering the management of creeping bentgrass putting greens in the summer months in Arkansas.
 - The optimum soil temperature for creeping bentgrass putting greens is 55 to 65°F. As soil temperatures reach 80° and above, a significant die back of bentgrass roots is expected. Research conducted by North Carolina State University showed that root dieback on bentgrass greens in their trials was 77% as measured from the end of May to early September.
 - Photosynthesis and respiration are two key processes related to plant growth that occur throughout most of the year. Photosynthesis is the means the plant uses to convert sunlight into create carbohydrates (food) that will later be used as energy for plant growth. Respiration is the process the plant uses to convert stored carbohydrates into energy for plant growth. As temperatures increase in the summer, the rate of photosynthesis decreases, but the rate of respiration increases. Respiration requires oxygen and it takes place in the roots. Therefore, oxygen demand is the highest in the summer months. As noted above, this is the time of year when the roots are dying back and plugging the preferential pathways for oxygen movement. Additionally, summer thunderstorms can displace soil oxygen. This is obviously stressful to a limited root system and it is why golf course superintendents core aerate their greens in the spring and vent them regularly in the summer months.

Below is an excellent summary of this topic: [Burning the Candle at Both Ends Dr. Kenna](#) .

- Fans are a key bentgrass life support tool. They work by replacing more humid air just above the canopy with less humid air. This provides a gradient in vapor pressure from inside the leaf to outside the leaf. This allows the plant to cool itself via transpiration.
 - Plant protectants called fungicides are used regularly throughout the summer to help protect weakened plants against harmful turf diseases.
2. We evaluated the creeping bentgrass putting green on Hole 12, Highland Course. We made several observations.

- a. Turf thinning occurred in a short period of time in the swale in the middle of the green and along the front right edge of the green. Surface water flows into both of these areas. When rain is followed by high temperatures and high humidity, wet wilt and disease can both cause turf to thin or die.



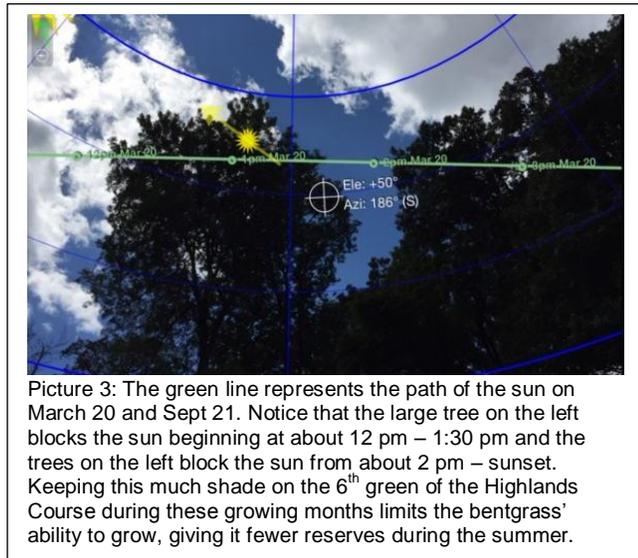
- b. Water collects in the front right of the green because of the existence of a collar dam. This term refers to a scenario where the edge of the green is actually higher than the putting green itself, causing water to be trapped. The picture to the right illustrates this concept. There are cases of collar dams on many of the greens on the golf courses at Bella Vista. This is a common issue as putting greens age.

3. The putting green on Hole 6 of the Highlands Course sits in a pocket that restricts air movement and shades the green during important spring and fall growing seasons. Two primary observations were made.
- a. The fans installed on this putting green have played a major role in summer bentgrass survival.

- b. We used the Sun Seeker phone app to check shade patterns on this green. Although this green does receive full sun in the summer, during the good bentgrass growing months of March and September, this green gets only about 45 minutes of sun after 12 noon. Shade during good growing months translates to turf that never reaches its potential and is less tolerant to stress in the summer.

Recommendations

1. Protecting and preserving plant health are focal points of summer bentgrass management. It is likely the recommendations have been mentioned numerous times both within the Bella Vista staff and from USGA agronomists, but I wanted to mention them again for any new members of the committee.



Picture 3: The green line represents the path of the sun on March 20 and Sept 21. Notice that the large tree on the left blocks the sun beginning at about 12 pm – 1:30 pm and the trees on the left block the sun from about 2 pm – sunset. Keeping this much shade on the 6th green of the Highlands Course during these growing months limits the bentgrass' ability to grow, giving it fewer reserves during the summer.

- a. Fans. There is precedent in the region to have fans on every green. This is an expensive proposition for both installation costs and electricity costs, but fans are very effective.
- b. Shade Management. Hole 6 is one example of how Sun Seeker can be used to pinpoint trees that are detrimental to bentgrass growth. Use Sun Seeker and eliminate trees that cause shade as budget and time allow.
- c. Moisture Meter Use. Fine tune the moisture meter program. Best results are achieved when the staff that hand waters the putting greens has moisture meters. This will allow them to understand how the greens perform at different moisture levels.
- d. Consideration of Ultradwarf Bermudagrass. The predominant trend in the southeast over the last ten years has been to convert from creeping bentgrass to ultradwarf bermudagrass. This topic will be reviewed in a later section of the report.

MORE FORWARD TEES ON BELLA VISTA COURSES

It was good to hear that the courses at Bella Vista are in the process of creating more forward tees for players with slower swing speeds, particularly women. For a detailed explanation of the theory behind more forward tees, review the PGA of America's recent

publication: [Setting Up Golf Courses for Success](#) . To understand the economic potential associated with a more forward set of tees, review the case studies in these two articles: [Bandon Dunes Forward Tees](#); [Arthur Little Case Study](#) .

Why Bella Vista should consider a more forward set of tees on all the courses.

Nationally, women are an underserved segment in golf. Women make up 52% of the population, but only 21% of golfers. When comparing participation rates of women in other lifelong sports, the participation rates of women are 55% for fitness swimming, 47% for tennis, but only 21% for golf. According to the PGA of America’s recent publication [Setting Up Golf Courses for Success](#) , “Most golf courses are, on average, excessively long and place many women at a disadvantage to their male counterparts. This design flaw has been caused by a lack of understanding of women’s swing speed, which directly corresponds to driving distance. The result is that, from a woman’s point of view, they are presented with an inferior, inherently unfair product. Unless this design flaw is addressed and corrected, many women will never be enthusiastic long-term customers, and golf facilities will not capture the full potential of the women’s market.”

Perhaps a more compelling reason to consider a more forward set of tees is to further enhance the value of a membership by making it more welcoming and enjoyable for women, beginners, youth, and senior citizens. Potential advantages include more rounds played (higher revenue) by a broader diversity of people.

How to Setup a Golf Course to Provide a Proportional Challenge for Men and Women

Table 1: Characteristics of Male and Female Golfers

| | Swing Speed (mph) | Driving Distance (yds) | Recommended Course Length (yds) | Azalea Course Length (18 Holes) |
|-----------------------|--------------------------|-------------------------------|--|--|
| Average Male | 90 | 202.5 | 6,000 to 6,100 | 6238 |
| Average Female | 65 | 140 | 4,000 to 4,200 | 4788 |

- Average men golfers swing their driver faster than women (90 mph for men vs. 65 mph for women). No surprise here.

- Because of longer driving distances, it is appropriate for men to play a longer course. The PGA of America recommends the average man should play from a course of between 6,000 to 6,100 yards and average women should play from a course between 4,000 and 4,200. Expressed in percentage terms, average women should play golf holes at a length of approximately 68 percent of the length that men play from ($4,100 / 6,050 = .68$).
- When comparing the course lengths for men and women at the Highlands Course at Bella Vista, we see the course length from the white tees is 58 yards longer (6,158 yds) than recommended for the average male golfer and 552 yards longer (4,752 yds) than recommended for the average women. The length of the course for women is 13 to 19 % longer than the recommended yardage of 4,000 to 4,200 yards. To put things in perspective, if the average male wanted to duplicate the golf experience for women on the Highlands Course, he would need to play a set of tees that is 13 to 19% longer than the 6,100 recommended length. This translates to a course that would range between 6,893 and 7,259 yards. How many average male golfers would regularly play a course this long?

Highlands Course Scorecard Observations

1. The table below contains information contained in the previously mentioned document, Setting Golf Courses Up For Success. Review this table and answer the questions that follow for each of your courses.

| | Average Length (yds) | Maximum Length (yds) |
|-------------|----------------------|----------------------|
| Par 3 Holes | 120 | 140 |
| Par 4 Holes | 230 | 260 |
| Par 5 Holes | 325 | 380 |

- a. Are the averages of our Par 3, Par 4, and Par 5 tees more or less than the averages recommended?
 - b. How many Par 3, Par 4, and Par 5 holes exceed the maximum recommended yardage?
2. A quick review of the Azalea scorecard revealed the following observations.
 - a. Par 3 Holes.
 - Two of the par 3's are shorter than the average recommended length of 120 yards: Hole 11 at 110 yards and Hole 9 at 72 yards.
 - Two of the par 3's are greater than the recommended length of 120 yards: Hole 5 at 122 yards and Hole 16 at 141 yards.

- One par three is barely longer than the recommended maximum: Hole 16 at 141 yards.
 - Overall, the current par 3 holes are reasonable for the average female golfer. There is a good mix of distances
- b. Par 4 Holes.
- All of the Par 4 holes are longer than the average recommended length of 230 yards. (Holes 1, 2, 4, 6, 7, 10, 13, 14, 15, 18). Practically speaking, it means there are no holes where short irons are played into the greens.
 - Seven of the Par 4 holes are longer than the recommended maximum of 260 yards (Holes 2, 6, 7, 13, 14, 15, 18). All of these holes basically play as par 5's for the average female player, meaning three shots are required to reach the putting green
 - Overall, the Par 4 holes are much too long.
- c. Par 5 Holes
- All are longer than the average recommended length of 325 yards. (Holes 3, 8, 12, 17).
 - Three are longer than the recommended maximum of 380 yards (Holes 3, 12, 17).
 - Overall, the Par 5 holes are far too long.

Forward Tee Summary

There is a great opportunity to improve the golf experience for female players through the creation of more forward tees. This can be done for a minimal investment. Other beneficial consequences associated with a more forward set of tees include a faster pace of play and the likelihood that more senior men will move up to what historically was called the "ladies tee." After working with multiple courses on this topic, there are several issues that should come up. Below are the issues and how to deal with them. I have formatted them in a Question and Answer format.

Why are these tees being installed?

The golf course is disproportionately too long for women or other players with below average swing speeds. By installing a new set of tees, our course will be more welcoming and enjoyable to these players. By creating a more enjoyable golf course for this segment of the golf population, the golf course will be used by more people and the quality of life in our community will benefit.

Who are they for?

They are intended for players with slower swing speeds. Players with average swing speeds may wish to play from these tees to gain more practice with their scoring clubs i.e. wedges.

Do I have to play from these tees?

No. Any person can play from any set of tees.

What about my handicap index?

Our state golf association will rate these tees and provide a course rating and slope rating for these tees. Continue to turn in your scores.

BENTGRASS TO ULTRADWARF BERMUDAGRASS CONVERSION

Over the last ten years, I have worked with many golf courses who converted their putting greens from creeping bentgrass to an ultradwarf bermudagrass. Over that time, I have found that it is helpful to provide decision makers with background information on why courses are converting and why it is under consideration at their course. The information below is a good summary to brief any interested committee members on this topic.

Why are other clubs changing?

There are multiple reasons why courses are changing from creeping bentgrass to an ultradwarf bermudagrass. Though their motivations may differ, the theme that all have in common is that an ultradwarf bermudagrass is a better choice to meet their goals for playing quality. Below are three market segments and the primary catalysts for conversion.

- Higher Budget Courses – These courses desire to provide their golfers with the finest putting quality the most days of the year possible. Many of these courses also want to host elite level golf events during the summer and provide firmer, faster surfaces for the competitors than what is possible with creeping bentgrass.
- Mid Budget Courses – Private courses in this market need members and rounds of golf to remain financially stable. They take advantage of the higher playing quality during the summer to provide better surfaces, play more rounds of golf including revenue producing outings, and they do it for similar or less money than with bentgrass putting greens.
- Low Budget Courses– Courses in this market segment that convert struggled with the health of their bentgrass putting greens in the summer. They take advantage of an ultradwarf's ability to thrive in high temperatures to provide

better summer golf conditions. Also, these courses carefully studied what they spent on their bentgrass putting greens and compared it with the cost to maintain ultradwarf putting greens. They found that typically there is an economic savings and potential revenue increase associated with a bentgrass to ultradwarf conversion.

For more details on this topic, please refer to these articles that appeared in the USGA Green Section Record magazine: [A Time For Change](#) and [Calculating Costs Confidently](#) .

Other considerations that overlap market segments include:

- The ability to peak the entire golf course all at one time. This occurs when the most important events are played at most courses.
- An emphasis on playing quality during the summer as opposed to an inordinate focus on plant health / survival in the summer.
- Ultradwarfs have a much lower (near zero) risk of catastrophic turf loss in the summer months.

What are the differences between creeping bentgrass and an ultradwarf bermudagrass?

The differences between creeping bentgrass and an ultradwarf bermudagrass are summarized below.

Creeping Bentgrass

- A cool season turfgrass species with a 60 – 75 degrees F optimum air temperature range for growth (Beard, [Turfgrass Science and Culture](#), p. 54).
- In temperatures above 90 degrees, the rate of respiration (food consumption in the plant) can exceed the rate of photosynthesis (food production in the plant). This contributes to summer bentgrass decline. For details, read this article: [Burning the Candle at Both Ends](#) .
- Research by Dr. Fred Yelverton at NC State demonstrated that in his trials conducted in 2000-20001, creeping bentgrass lost 76% of its root mass between the end of May and September 1. View this excellent graphical summary of Dr. Yelverton's work. [Bentgrass Summer Root Loss](#) .

Ultradwarf Bermudagrass

- A warm season turfgrass species with an 80-95 degrees F optimum air temperature range for growth (Beard, [Turfgrass Science and Culture](#), p. 132).

- More information on the morphological characteristics of an ultradwarf can be found in the previously mentioned article called [Opportunity Knocks with the Ultradwarfs](#) .
- Read this article for more information on the ultradwarfs and some of the important management considerations: [The Heat is On](#) .

How will a conversion from bentgrass to an ultradwarf impact the golf experience?

- The golf maintenance staff will be able to provide more days of the year where the putting greens meet playing quality expectations. Currently, expectations for green speed in the summer are lowered to promote better summer survival. An ultradwarf would provide more consistent playing quality throughout the year without any concerns about turf health in the summer.
- Golfers can expect approximately 49 weeks of the year where there is no disruption from turf maintenance practices to putting quality. There is one aeration event, typically performed in July, followed by a 10 -21 day week healing period to restore the putting green to the pre-aeration level of turf quality.
- There is an opportunity to make small changes in contours within the putting greens and greatly improve the interface between the perimeter of the putting green and the collar, eliminating collar dams.
- The entire course will peak at once.

Frequently Asked Questions

Below is a series of questions I am asked frequently by golfers when they are considering a bentgrass to ultradwarf conversion. These answers are brief. Please contact me for more detailed information.

Q: Do we overseed the ultradwarf putting greens in the winter when they stop growing?

A: No. Color is delivered through the use of turf colorants to provide a green, uniform color.

Q: Is it more expensive to maintain an ultradwarf putting green compared to a bentgrass putting green?

A: In conjunction with Dr. Mike Goatley, USGA Agronomist Pat O'Brien and I developed a survey aimed at answering this question. Over 90% of the respondents confirmed that they spent fewer budget dollars on an ultradwarf. The article above called "A Time for Change" lists some of the specific findings of this survey.

Q: What will happen to our putting greens if we do not convert to an ultradwarf?

A: You have an experienced turf management team at the Bella Vista and they do a good job with limited budgets. There will be summers that are more severe than others. As astute observers of bentgrass putting greens will note, oftentimes summer turf loss occurs during acute and severe weather extremes. For example, temperatures in the upper 90's accompanied by thunderstorms can often cause rapid turf loss despite the best efforts of the turf management team. These types of acute weather events are chronicled in this webcast produced in 2010: [Summer of 2010 Bad to Worse](#) .

Q: Do we have to close the course in the winter months?

A: No, just because the ultradwarf is not growing does not mean that the course needs to be closed. There will be instances when the putting greens need to be covered to protect against winter injury. This will occur generally when night time temperatures are scheduled to fall below 25 degrees F. Portable, lightweight covers are used to provide protection. The greens can be covered in the afternoon and covers are removed the next morning. The details of exactly when to cover and uncover are left to the superintendent. He will base the decision on labor costs, weather forecasts, golf demand, etc.

Q: Will we lose hole locations because the putting greens are too fast?

There will not be any loss of available hole locations or out of control green speeds. Steps are taken in the fall to grow a slightly taller canopy. It is reasonable to expect winter green speeds on an ultradwarf to be similar to winter green speeds on bentgrass greens.

CONCLUSION

It was a pleasure to visit Bella Vista Village and discuss the care of the course. Besides providing a service free of bias from affiliation with any product or manufacturer, the USGA Green Section is the largest supporter of turfgrass research in the world. This research effort is critical to ensure the future of the game of golf and the industry of turfgrass maintenance. The thrust of this research is to provide superior turfgrasses that play better and are easier to maintain while ensuring golf courses remain positive influences on the environment. Your club's membership in the USGA and support of the Green Section makes this research effort possible.

Thank you for your support of the Course Consulting Service. Please do not hesitate to call my office should you have any questions concerning this report, the research efforts of the USGA, or any other matter regarding the maintenance of your course.

Sincerely,



Chris Hartwiger
USGA Green Section, Director, Course Consulting Service