Buffalograss on the Golf Course

Two Case Studies at Golf Facilities in Drought-Stricken Texas Highlight Buffalograss' Value as a Low-Maintenance Turf Requiring Less Water

Let's face it; buffalograss (*Buchloe dactyloides*) is rarely given serious consideration for use on golf courses. It has never been in vogue, but this should change for several regions in the U.S. Before writing off buffalograss as an option for your golf facility, this article features two case studies combined with new information that may be of interest to you.

Most turf managers know that buffalograss is a low-maintenance, warm-season turfgrass with a slow growth rate and excellent drought resistance. It uses less water and requires less mowing and fertilizer than other turfgrasses common to golf. What you may not know is that significant research and turfgrass breeding efforts have been in place for buffalograss in recent decades. Much of this research was funded by the USGA and much of it done at the University of Nebraska-Lincoln (Buffalograss: Tough Native Turfgrass provides a great overview of the history and accomplishments of the buffalograss breeding program at UNL). As a result, there are newer, improved buffalograss varieties now available that possess better density, darker color, finer texture, improved winter hardiness and faster establishment from sod or seed. Newer varieties offer much better quality and playability than previous generations of
Buffalograss works well as a low-maintenance rough, in this case around a zoysiagrass fairway at Briggs Ranch Golf Club near San Antonio, Texas.

Buffalograss and zoysiagrass are better suited for use on golf courses. If you haven’t observed firsthand recent releases of buffalograss varieties, then you almost certainly have a misconception (and likely bias) against this turfgrass species for golf course use.

At two Texas golf facilities, the availability of improved buffalograss varieties that use less water and resources while providing playable golf course roughs met the challenges faced during drought conditions in 2011 and 2012. The following two case studies provide details of how buffalograss is well suited to handle heat stress and limited water.

**CASE STUDY 1. Briggs Ranch Golf Club, San Antonio, Texas**

- Briggs Ranch Golf Club, located in the beautiful and rugged hills west of San Antonio, is a Tom Fazio design that opened in 2001. Its architectural design and features fit perfectly into the surrounding native landscape and terrain. Buffalograss and naturalized areas were included in the layout to reduce maintenance and water use as well as blend the course into its natural surroundings.

The varieties 'Density,' '609' and 'Eco' were used in the primary and secondary roughs and established with sod. The buffalograss roughs not only require little maintenance, but their bluish hue adds beautiful contrast to the zoysiagrass tees, fairways and intermediate rough. Mowing height is about five inches and the roughs mowed as needed, or about once a month. The density of buffalograss is thick enough to help naturally fend off weed competition and minimize invasion, but not so thick that players have any difficulty finding and playing their golf balls. This is important to point out because the five-inch height of cut does not slow play.

The buffalograss has been virtually pest free, which is an
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Buffalograss provides nice visual definition surrounding bermudagrass tees and goes well with naturalized areas at Horseshoe Bay Resort in Texas. Water use for tee complexes is reduced because buffalograss surrounds are not irrigated; only the bermudagrass teeing surfaces are included in the automatic irrigation design.

other benefit of this species, and it thrives in this dry and difficult environment. As evident during the lack of rainfall in recent years, buffalograss has impressive drought resistance and can maintain its color well into a drought. And if it eventually does go into drought-induced dormancy and turns off-color, it resumes its color and growth quickly after receiving small amounts of rainfall or irrigation.

Fertility is provided by granular pre-emergent herbicide applications on a fertilizer carrier, but little to no fertility is required after establishment. Superintendent Chandler Masters has only been at Briggs Ranch since July 2012, but he notes that buffalograss is more sensitive than bermudagrass to post-emergent herbicides. However, with the higher height of cut and density of buffalograss, herbicide applications are needed infrequently.

Many consider low-maintenance turfs like buffalograss as only being suited to low-budget facilities or limited to courses not highly regarded in the golfing community. Not so! The USGA was proud to award the 2012 Women’s Mid-Amateur Championship to Briggs Ranch Golf Club. This, one of the USGA’s 10 national amateur championships, took place in October 2012, while still in the midst of an extreme drought. Briggs Ranch Golf Club was up to the challenge, in part because of the buffalograss roughs. Not surprising, a majority of the players in this USGA national championship had never experienced buffalograss on a golf course, so naturally there was interest and even a bit of concern about its playability. Rest assured, and after just a few practice rounds, players and USGA officials were impressed with playing conditions…or as pleased as players could be playing from the primary and secondary roughs.

CASE STUDY 2. Horseshoe Bay Resort, Horseshoe Bay, Texas - Summit Rock Golf Course, one of four golf facilities at Horseshoe Bay Resort, just opened in 2011 and is a Jack Nicklaus design. The design includes significant thought and planning for turf selection, incorporation of naturalized areas, and the use of low-maintenance turf. Buffalograss is one of the foundation turfs to meet all the criteria of reduced water, low inputs and limited maintenance.

About the authors
Ty McClellan is manager of the USGA Green Section’s Education Program and Bud White is director of the Mid-Continent Region. Both agronomists share in their belief that buffalograss should see expanded use on golf facilities in years to come, especially where water is limited and low-maintenance roughs are desired.
While buffalograss does best in full sun, it is performing well in shaded areas of the deep rough at Briggs Ranch Golf Club.

Ken Gorzycki, CGCS, is director of agronomy at Horseshoe Bay Resort and an active member of the USGA Green Section Committee. He oversaw the grassing details and establishment of this facility. Ken selected buffalograss varieties ‘609’ and ‘Density’ for the roughs and around teeing surfaces. All buffalograsses were established from sod, and it was slightly more expensive than bermudagrass sod. It was also slightly more difficult to install because it had less sod strength than bermudagrass, but it established nicely, according to Gorzycki. Manual weed removal was used during establishment.

The use of buffalograss in tee surrounds is especially interesting because they are not irrigated; only the bermudagrass teeing surfaces are included in the automatic irrigation design. This greatly reduces water use, and the total irrigated area is less compared to most tee complexes.

Ken reports that the buffalograss roughs and surrounds require very little mowing. It is maintained at 5.5 to 6 inches, and only mowed as needed, usually less than once per month. Gorzycki says the higher the height, the better the density and the less need for mowing, often as little as three times per year. The thin, whispy growth habit does not create a dense turf, and golfers can easily find and play their ball without problems. Weed control is largely accomplished using pre-emergent herbicides and then augmented as needed with post-emergent applications or manual weeding. After establishment, and once the buffalograss reaches maturity, weed pressure is relatively small because of the higher cutting height, low irrigation regime and competitiveness of the buffalograss. Fertility requirements are met predominately from the fertilizer carriers used in granular pre-emerge herbicide applications, as fertility needs are little to none after maturity.

Buffalograss has shown relatively good shade tolerance at Summit Rock, but its weakness is traffic tolerance, both foot and cart. This should be a consideration when identifying areas for establishment.

HELPFUL LINKS AND RESOURCES. This is not the first time buffalograss has been written about in the USGA Green Sec-

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ALUMNI UPDATE

The Syngenta Business Institute was easily one of the best educational opportunities I have attended. From the Wake Forest University instructors, to the accommodations, to the superintendents attending, everything was first-class.

The two areas I enjoyed the most were the discussions on leadership and effective negotiations. Whether we realize it or not, we are leading and negotiating every day. Excellent material was presented, but more importantly the open discussion among the group of superintendents was an awesome experience.

The take-home material has been a big help. I found that simple changes to how I approach certain situations can go a long way in improving our communication and productivity.

Brian White
Wichita Country Club
Wichita, Kan.

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Real Science

Buffalograss: A “New” Turfgrass for Golf Courses?

By breaking down the use of buffalograss for golf courses, we find a practical turf for use in golf, though it has been a long time. Going back to 1982, an excellent article –Buffalograss – A “New” Turfgrass for Golf Courses? – contains valuable background information, including management and establishment tips for buffalograss. It is suggested reading and it is interesting to note that the justification for buffalograss use then remains the same today: cut costs, reduce maintenance and save water. Further suggested reading and useful information can be found in Low Maintenance Troubles, published in 1998, and Buffalograss Management Research, published in 2002.

With minimal use so far, there remains plenty to be learned regarding establishment and management of buffalograss. Additional resources that may be of interest include the following for buffalograss lawns, albeit they are still useful for golf course roughs. (Editor’s Note: See the sidebar “Links” for additional information on how to access the following resources.)

- Management of Buffalograss Turf in Nebraska
- Buffalograss Management Calendar for Nebraska
- Establishing Buffalograss Turf in Nebraska
- Buffalograss Establishment and Management Guide from Native Turf Group
- ‘Cody’ Buffalograss Brochure – Newest Release from Native Turf Group

As with all turfgrass species, buffalograss is not well suited to every golf course or situation. It is a warm-season turfgrass that performs well on most soils, except sand based, and it can be used in many regions of the U.S., but it is best adapted to the Southern Plains, Southwest, and lower Transition Zone where rainfall is less than 30 inches per year with periods of heat and drought during the summer months. Please visit NTEP 2002 National Buffalograss Test or NTEP 2003-2006 Buffalograss Quality Ratings to determine which buffalograss varieties perform best in your region.

CONCLUSION. Given the existing economic climate combined with environmental concerns facing the industry, namely water use and its availability, it is no secret that we need turfgrasses that require less water and fewer inputs. Or, when drought conditions occur, we need turf that can still maintain playability and meet golfer expectations. It is key for almost every golf facility to reach greater economic and environmental sustainability going forward. Fortunately, this aligns nicely with the genetic makeup of buffalograss, the only turfgrass species native to North America.

It is hoped that the information provided in this article provides a fresh perspective on a turfgrass that clearly has potential for use on golf courses but has been rarely utilized. Suffice it to say the potential for buffalograss has never been fully realized. Or perhaps just not until now. An economic downturn that began in 2008 coupled with drought conditions in 2011 and 2012 have exposed weaknesses and needs in the industry, and without such extremes we may have missed the value and practical application of buffalograss. If your golf facility needs a new stand of turf in the roughs, if less maintenance is desired, or if the existing turf is poorly equipped to meet the challenges of limited water availability, then buffalograss may be your answer.

Links

Throughout this Real Science article, the authors mentioned a number of resources for additional information on this topic. To access each of these resources, enter the following into your Web browser, respectively. – The Editors.

- Low Maintenance Troubles – bit.ly/110r10
- NTEP 2002 National Buffalograss Test – bit.ly/1amQaqE
- NTEP 2003-2006 Buffalograss Quality Ratings – bit.ly/1amQaqE
- Buffalograss Management Calendar for Nebraska – bit.ly/1afZFgb
- Establishing Buffalograss Turf in Nebraska – bit.ly/19K1m8v
- Buffalograss Establishment and Management Guide from Native Turf Group – bit.ly/1alZWzV
FAIRWAY AERIFIER PORTABILITY

This Toro ProCore 1298 Fairway Aerifier comes equipped with a 3-inch-by-2-inch tubular-steel stand mounted horizontally underneath the main frame that is used for storing it when not in use. To make the aerifier more versatile for re-mounting it to a tractor, or for simply moving it around the maintenance area, caster wheels were added by David Zollinger, equipment manager, and Les Miller, equipment technician at The Ridgewood Country Club in Paramus, N.J. Eight caster wheels (model #16D120) were acquired ($80) from Graingers, which were mounted to the tubular frame using eight 4-inch-by-4-inch by ½-inch thick flat-steel stock mounting plates ($10); 32 ½-inch-by-4-inch bolts and 32 flanged nuts ($15); Eight ¾-10 nuts to replace the pins that hold the stand on machine, two per stand ($8); and a can of spray gloss black paint ($5). Total labor time was a little more than an hour after holes were drilled into the mounting plates, which were pre-cut at a local fabricating shop. Actual installation with air tools was less than half an hour, as everything was bolted-on without any welding.

PROPER STEERING MECHANICALS:

Standard steering mechanisms and basic steering alignment is being done properly on this Cushman Turf-Truckster by Jacobsen. The tires were wearing unevenly on the inside and the handling was suspect where the vehicle was "wandering" and hard to hold in a straight line due to a negative camber condition and from improper tire pressure.

Jacobsen offers a shim (part #841737 for about $3.50 each) that can be added between the upper control arm and the frame to push the top edge of the wheel geometry out and correct this condition. Each shim moves the wheel one half of a degree. A digital level from Sears ($40), which has a magnetic base that attaches to a used bed knife cut to length, is used to measure the camber.

To install the shim, the two upper control arm bolts are loosened, the shim is slid into place and the bolts are then re-tightened. To make the camber more negative, the bolts are loosened and one shim per ½ degree is removed. The number of shims added or removed depends on the camber measurement and how many degrees the alignment is out. The process takes less than 15 minutes.

Mark Yarick, the customer service specialist for North Florida and North Central Florida for Golf Ventures, Inc. and he is the former professor and program coordinator for turf equipment management at Florida Gateway College. Yarick also offered these tips: Regularly check the tie-rod ends, ball joints, spindles and wheel bearings for excessive play. Jack-up the steering axle off the ground and wiggle the tire from top to bottom and in and out to check for play. Grab the tie-rod ends and move up and down and in and out to check for play. With the steering axle on the ground, start the engine and have a helper move the steering wheel right and left while watching the tie-rods and spindles for "slop." Any steering wheel movement that does not result in tire movement is an indication of excessive steering component wear.
AD INDEX

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To understand the sort of issues we'll be dealing with, check out this study of subsidence in California's Coachella Valley (Enter on.doi.gov/145fYKX into your browser to read this study). The end result was a $50 million pipeline that brings additional surface water from the Colorado River to Coachella Valley, the region that includes Palm Springs. The water comes into a reclamation plant where it's blended with recycled water to meet the summer demands of up to 50 golf courses that draw on the aquifer.

Another term splashed about at water conferences is "direct potable reuse." The availability of recycled water for irrigation may decline as new methods of treatment allow for more recycled water to go safely back into the water system for drinking. Here's an example from Texas (Enter nyt.i.ms/WTx8IF into your browser) and a demonstration project in San Diego (Enter bit.ly/bHkurf into your browser).

A leading irrigation consultant told me that such projects are, "a double-edged sword because yes, they increase supply, but advanced treatment means higher water rates for the membrane (reverse osmosis) operation and brine disposal infrastructure and operating costs. This process is just starting to gain traction in the industry."

All of which means that while you also might not like water, you need to know about it. Down to the last drop.

Okay. So what do I like about water?

I like that it comes in three forms: frozen, liquid, or gas.

That three-quarters of the earth's surface is covered in water, and that we are trying to find safe ways to harness its power.

In frozen form, it's ideal for skating, a key element of my second favorite sport — hockey, and the perfect complement to my post-round Grey Goose and tonic.

I like showering after a long day on the golf course, and especially at great clubs like Riviera, Merion, and Pine Valley where the showerheads are big and fully pressured.

One more thing to like about water: It keeps us healthy. Remember to stay hydrated, and to make sure your staff drinks enough water, too. Unlike golf courses, for us there is almost no such thing as too much water.
PARTING SHOTS

MY NEW BROMANCE

Last month in this space, I wrote a love letter that described my bromance with Matt Shaffer. Here's the sequel…

Given the run-up to the Open and Matt's stature, I fully expected better-than-average coverage of the grounds staff and how they were instrumental in making the USGA's vision of a short-but-nasty Merion become a reality. After all, this major was meant to be a referendum on distance and reality. After all, this major was meant to return to traditional set-up values, short-but-nasty Merion become a focus than usual, right?

But I never saw Time magazine coming. I certainly didn't anticipate multiple packages about Matt, Aaron McCurdy and the crew on ESPN and NBC. I lost count of the times they mentioned them on Golf Channel. The social media coverage was off the hook (leading a few grumps to whine about overkill) and about a zillion photos of men and women pushing squeegees, pumping bunkers and rolling greens were published.

For a week, Matt was everywhere and the coverage was positive. Never has a super been given this sort of prominence at a golf event. Never.

When I say "given" prominence, I mean it. It was very clear that both the leadership at both USGA and Merion wanted Matt out front. I think they realized Matt's sincerity, his love for the course and the passion he had for the mission he'd been given ("give it teeth but keep it fair") would shine through in the media. And it did.

So what's it all mean to the average superintendent? Well, let me put it this way: For the past three decades, whenever a turfhead met some schmuck at a party and introduced himself as a golf course superintendent, the schmuck would say, "Oh, like Carl Spackler!" Now they're more likely to say, "Wow, like Matt Shaffer?"

It didn't even matter that Mike Davis went out of his way to say that the superintendent is "the person that is most important to the success of a U.S. Open." For once, it was readily apparent to everyone watching that Matt was the man.

At Pinehurst, playability will be the primary focus but the issue of appearance will be a close second.

Lots of host supers and their teams have incrementally raised the "respect" bar in the past. Now, that bar has "Property of Matt Shaffer" on it.

Which makes it even more interesting to watch the next stop in the USGA's "Changing Perceptions" Tour in 2014. If Matt's job was to send a message that great golf isn't just a bomb-and-gouge distance contest, Pinehurst's Bob Farren and Kevin Robinson are merely tasked with changing the paradigm of how players see courses.

The redesign and rebranding of the #2 course is well documented and you'll be hearing much more about it in the next 11 months so I'll spare you a rehash here. (I'm on record as saying that the notion of reinventing a great course by turning back the clock is a brilliant idea.) But, from a playability standpoint, it will be the polar opposite of Merion starting with the fact that they'll only be two heights of cut on the whole property: greens and everything else. So, newly naturalized bunkers and Donald Ross's buried elephants will provide the defense instead of the six inches of clumpy rough at Merion.

At Pinehurst, playability will be the primary focus but the issue of appearance will be a close second. The question is how much the TV cameras will like the naturalized look of #2 in comparison to the pristine Augusta-like version they saw the last two times the Open came to the Sand Hills.

Bob and Kevin will be out front of that conversation as the people who executed the transformation plan that took the course from 2011 back to 1943. Fortunately, they'll have a little help talking with the media and the golfing public from a guy named Ben Crenshaw and his pal Bill Coore.

This will be a very different dynamic than what we saw a few weeks ago in Philly. The intensity of Merion will be replaced with Pinehurst's quiet, down-home approach. And we're likely to see far more of Ben Crenshaw than Bob Farren on TV (which I'm sure is just fine with Bob). But you couldn't ask for a better group of people to lead a discussion about how good golf should look.

This isn't going to be another "brown is beautiful" fumble. Pinehurst, with their world-class business approach and amazing agronomic team, will do things the right way to tell this story (and sell the hell out of their brand). In the same way I couldn't imagine a better spokesman for old-skool conditions than Matt, I couldn't dream up a better team than Bob, Kevin, Bill and Ben to tell the story of the naturalized look.

So, thanks again Matt, for all you just did for everyone in the profession. And good luck Bob and Kevin…let the new bromance begin! GCI