



the golf superintendent's monthly buying guide

Delivered Monthly to the Superintendent of Every Golf Course in America



Leap of Faith from the Hog's Head for Robert Trent Jones, Jr.

Also in this issue:

And...That's a Wrap!

Bearings, More than Just Spinning Your Reels

Industry Insight

Bio Huma Netics, Inc.

Bactifeed: A Craft Brew For The Ages

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Reduced to \$12,250



2006 Toro Greens Master 1600
11-blade reel; lights; grass catcher
7 available



2015 Toro Reel Master 5410
11-blade DPA reels; rear roller brushes; ROPS; Cool Top
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2014 Jacobsen LF-510
7-blade reels; rear roller brushes; ROPS; canopy
3 available



2011 Jacobsen Greens King IV diesel
9-blade reels; lights; ROPS; grass catchers
Reduced to \$12,750



2012 John Deere Precision Cut 8700 4WD
10-blade QA7 reels; ROPS; canopy
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2012 John Deere 2500B gas
11-blade QA5 reels; ROPS; lights; grass catchers
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2013 John Deere 220E Hybrid w/groomer
14 blade QA5 reel; groomer; light; out-front brush; grass catcher
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AgriMetal BW360 Blower
2011 John Deere TE Gator Electric (Low Hours)
2012 John Deere TE Gator Electric (Low Hours) Accu-Pro
Reel Sharpener Foley United Bedknife Grinder
2012 Toro 5 Gang Great Shape
2010 Jac AR3 1800 Hours \$10,000
Numerous EZ-GO Electric Golf Carts
2010 Toro 3150 3WD 8 Blade
2010 EZ-GO Beverage Cart
Used Core Harvester \$2500 Good Shape

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John Deere 8700 or 7700 Reels \$5000
Toro Greens Rollers \$2000
2009 Toro 4000 2200 Hrs \$22,000
2011 John Deere 1200H Trap Rake \$7500
(2) Turfco Blowers \$5500/ea
2012 Toro 3500 Good shape!! \$20,000
(10) 2011 Jacobsen 322 Eclipse Walking Greensmowers
(10) 2010 Toro Flex 21 Walking Greensmowers
(5) 2011 John Deere 220 Walking Greensmowers w/trailers
(4) 2011 John Deere 260 Walking Greensmowers w/trailers
2011 Toro 5800 Sprayer



2006 Foley 670 Bedknife Grinder, 2006 Foley 632 Reel Grinder
Set: \$19,000



2013 Cushman Turf Truckster Have
2 1200 Hrs \$14,000/ea



2015 EZ-GO TXT Electric Cart
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AgriMetal Wireless Control
Blower \$4,500



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Heads Low Hours \$16,000



2011 John Deere 8500 4WD,
1800 Hrs \$14,000



2009 Jacobsen AR522
2100 Hours \$16,000



2013 Jac GMII Front Blade & Rake
Have 2 2100 Hrs \$7,500/ea



2013 Turfco 1550
\$9,500



2012 Toro 4500 2000hours
(Have 2) \$33,000/ea



John Deere 800 Aer-Core
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2013 Cushman SprayTec
(400 hrs) \$18,000

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NEWS

From Around the Industry

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Outdoor Water Solutions Introduces New Line of Solar Fountains at the Upcoming GIS show in San Antonio!



Outdoor Water Solutions is introducing a new line of Direct Drive™ high efficiency solar powered fountains for 2018. Models include three different sizes designed to work in ponds from as small as a ¼ acre up to 5+acres in size. This line of floating pond fountains does not need nor require electricity and instead relies 100% on solar energy to operate.

Finding access to electricity to power fountains can be a real challenge in many cases due to distance and location. Golf courses and many private ponds just don't want the hassle or expense of running power lines down to the edge of a pond. If power has already been run to the site, it may only be 110 volts, which is insufficient to operate larger, more impressive fountain displays, many of which require a minimum of 220 volts power.

The other challenge is cost and cost allocation. Many associations and private entities don't want to pay a monthly electric bill or don't want to divide up the cost between multiple parties. The benefit of a solar fountain is that there is no ongoing electric cost and no need to divide that cost up for everyone to share.

Sizes include 3/4hp, 1 1/2hp and a 3hp fountain. All of these utilize high quality pumps and motors carrying a full 5 year warranty, which is the longest warranty in the industry. Other features include

cable quick disconnects for ease of maintenance and winterizing, stainless steel frames and intake screens and an industry leading control panel with solar controllers designed for optimal run time. Each fountain is also available with your choice of up to six different nozzle patterns.

For 2018, these fountains will be sold through our network of Elite dealers. Pricing will be comparable to other high quality fountains on the market with the added benefit of not having to pay a monthly electric bill that can amount to as much as \$300+ a month.

For more information on this product or to find an Elite dealer, contact Outdoor Water Solutions, Inc. at 1-866-471-1614 or via email to sales@outdoorwatersolutions.com. You can also stop by our booth (Booth #35083) in San Antonio at the upcoming GIS show February 7th and 8th.

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The Golf Course Trades, established 1990, is a super-tabloid buyer's guide publication targeted specifically at the golf course superintendent. The Golf Course Trades offers display advertising, a categorized supplier directory, press releases, and extensive product reviews for heavy equipment. GolfCourseTrades.com is an extension of the magazine with a complete supplier guide for everyday use on the course. The Golf Course Trades currently mails to 18,955 golf course superintendents and product vendors in the United States. A digital copy of the publication is online as well at GolfCourseTrades.com.

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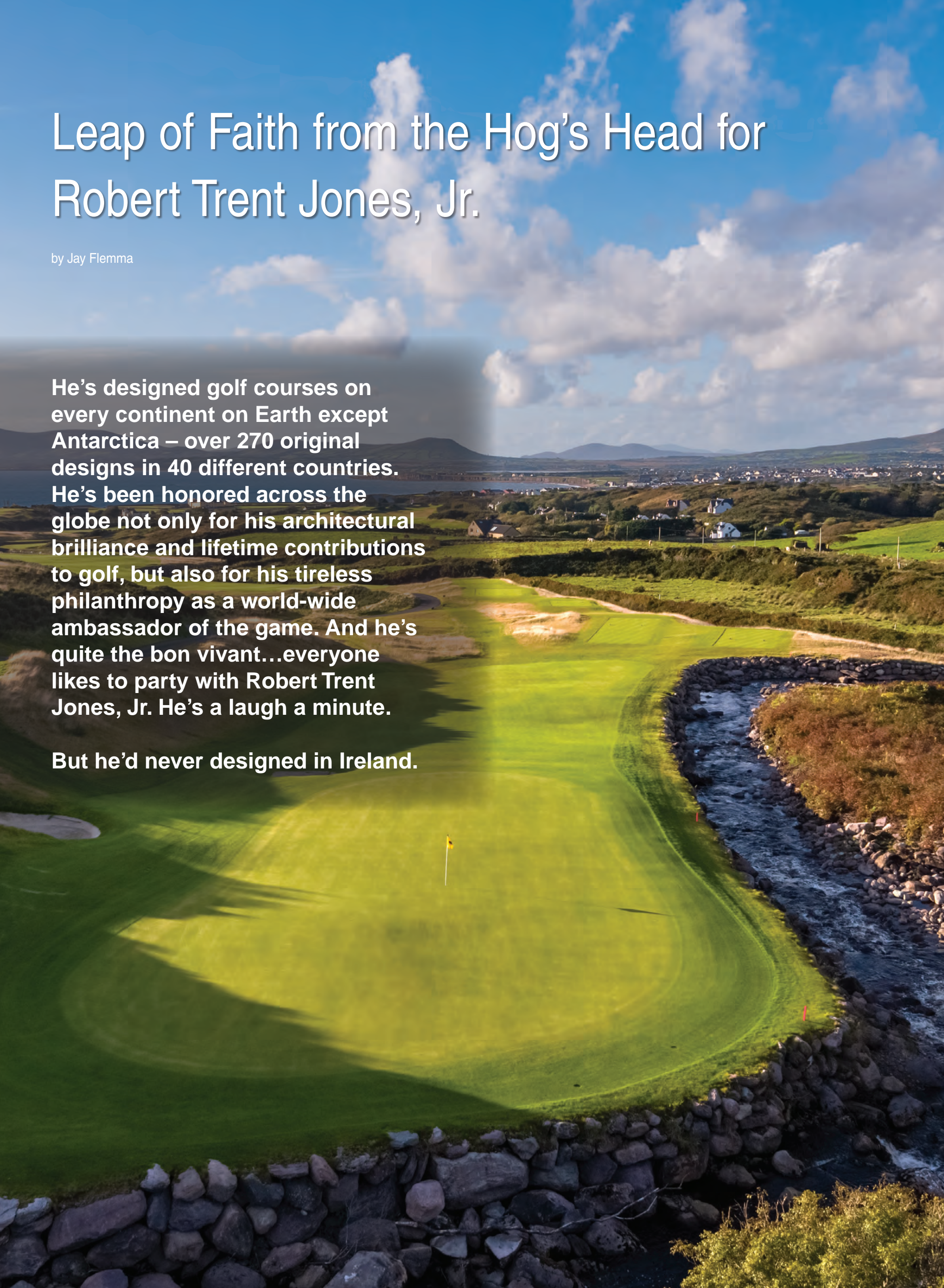
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Leap of Faith from the Hog's Head for Robert Trent Jones, Jr.

by Jay Flemma

He's designed golf courses on every continent on Earth except Antarctica – over 270 original designs in 40 different countries. He's been honored across the globe not only for his architectural brilliance and lifetime contributions to golf, but also for his tireless philanthropy as a world-wide ambassador of the game. And he's quite the bon vivant...everyone likes to party with Robert Trent Jones, Jr. He's a laugh a minute.

But he'd never designed in Ireland.





Talk about a statistical outlier, it's almost as incongruous as Pete Dye never having designed in the U.K. until just a few short years ago. Here's a country intrinsically tied to the origins of the game on the one hand, one of the most accomplished and well traveled architects in history on the other (and part of a dynasty as well), and for over half a century, somehow, they never crossed paths....until now.

It's called Hog's Head, and it's a stirring site, perched high atop the rocky cliffs overlooking Skellig Bay in the southwest of Ireland, Town of Waterville, County Kerry. And as it took Jones's whole life to get to Ireland, he figured he'd better go old school while he had the chance. The result was something that looks and plays like it's 100 years old. We caught up with Bobby, and chatted him up about it over a pint.

JF: Tell us about the history of Hog's Head.

RTJ2: There was an 18-hole course here before called Skellig Bay, [est. 2006], but they went bankrupt and weren't operating any more, so we totally blew it up. A few holes have similar playing corridors, but it's now an entirely new course.

JF: You're calling it a "headlands course." What's a "headlands course?"

RTJ2: Many people misunderstand or misuse the term "links." They think it means only firm and fast conditions on windy site. That's certainly part of it, but equally important, a links is a sea level course. A headlands course, on the other hand, is on the headlands, the clifftop over looking the sea, but has similar playing characteristics to links, like fast and firm conditions, the ground game in vogue, and a golfscape open to the elements so the wind can blow.

JF: So it's very much like Pebble Beach or Old Head?

RTJ2: Very much so, yes. And it's out and back, like a traditional links. A few of the holes on the old course played towards the Bay, but now a long stretch of holes, eight through 16, wind around edge of the cliffs.

JF: Now on the outward nine isn't there a salmon river that is the main natural feature you incorporated into the design?

RTJ2: It is. It's called the Finglas River, it's a major

salmon run, and many of the early holes play over or around it. After two relatively mild, "welcoming" holes, at the par-3 third, you cross the salmon stream. The fourth and fifth holes, a long par-4 and a long uphill par-3, also play along the edge of the cascading river as well.

JF: Did the salmon cause you any issues regarding environmental restrictions or permitting?

RTJ2: Oh yes, The salmon stream had to be treated properly. braced the stream with rock armor so it would stay in its natural course. This made the habitat more stable and encouraged the salmon to spawn more actively and to thrive.



The holes by the river are wonderful and are one of many crescendos we hit with the routing. After the river, you turn downhill and play back towards the bay at the par-5 sixth, which finishes with Biarritz green like number nine at Yale. As you would expect, the green is really three little greens in one, which is right for a par-5.

JF: How do you maintain the green?

RTJ2: The entire course is fescue, like Chambers Bay. We doubled down on it here: tees, greens, fairways, and rough. It's firm and fast since the fescue when unfertilized and gets only rain water, is perfect in a Maritime climate, where it thrives. We drained the center part of the green to both the left and right so you can mow it without scalping it and fescue aren't as tightly mowed as bent anyway. They are a little slower, stimping at 9-10, maybe a bit faster when dry.

JF: Then almost the entire remainder of the course plays along the cliffs?

RTJ2: It does. eight plays directly to the sea, and then you weave in and out of the cliffs all the way through the par-3 15th. There are some iconic moments....At 11 you play directly towards the Hog's Head rock in the Skellig Bay to a double green shared with hole 14. On a blustery day you have to play both your tee shot and your approach on number 12 into the bay and let the wind bring it back into play for you. (That's why the hole is called "Courage."). We call the two greens of the 13th hole "The Twins." And the seaside 15th overlooks Waterville town in the distance. Finally, you turn towards home for a closing par-5 for maybe a birdie or eagle finish.

JF: A lot is made of your recent epiphany towards designing as much as possible to emulate the great U.K. and Irish courses. How has your architecture changed over time and what do you show us that is new at Hog's Head?

RTJ2: My mantra here was "Built by friends, for friends, for fun." So we have wider fairways, less rough, and well-contoured interesting greens, it's not an overly long course, but it has really interesting smaller bunkers, well placed for strategic options. You need to play the ground game to keep the bal under the strong wonds. Most importantly, we put choices in the game. It's a great match play course.

JF: It seems like the imprimatur here was somewhat minimalistic. Did you use any ultra-modern tech at Hog's Head at all?

RTJ2: Not really, no. Instead we are back to basics. This is a Maritime climate, so we just let the grass grow. That's the way they did it when the game was born, it still works to this day, and it's totally in keeping with the spirit golf. It makes for a really fun, fast, firm playing surface.

Much of that success has to be shared with Head Superintendent David Dahl and his superb team. David is a young, hard working fellow who is dedicated to the founder's vision of providing firm, fast, and fun playing conditions. He's got quite a green thumb, and he really knows when the weather is changing so he can make quick adjustments. That's really important in Ireland where the weather can change so drastically so fast.

When not reporting live from major sports championships or researching golf courses for design, value and excitement, multiple award-winning sports writer Jay Flemma is an entertainment, Internet, trademark, and banking lawyer from New York. His clients have been nominated for Grammy and Emmy awards, won a Sundance Film Festival Best Director award, performed on stage and screen, and designed pop art for museums and collectors. Twitter @JayGolfUSA



Built Ford Tough

In 1999, Cinnabar bought a brand new Ford Ranger for the superintendent to use. We had talked about replacing it the last couple of years, but the truck seemed to be bullet proof. Last year we put a new transmission in it, but it still felt like it had more to give. Last month it turned over 250,000 miles and began to show it's age until it couldn't give anymore yesterday. 251,236 miles. I really enjoyed this truck and I have a lot of memories with it I thought I'd share.



Driving my daughter home from daycare singing wheels on the bus and having many one sided conversations.

- I rear ended a woman who suddenly stopped for turkeys crossing the road. There were no injuries (human or turkey), but when she told me she was friends with an owner I just about lost my lunch.
- Sleeping in it overnight numerous times on the evenings when I deep tine aerated the greens.
- Another overnight at the golf course when I had to run the water treatment manually. I had to wake up every 30 minutes.
- Taking our son Benjamin out early evenings to set raccoon traps. He always wanted to see the pictures the next day.
- Getting stuck on the side of the cart path at midnight when I went to check on a pump station that I thought was going to flood. It was dry as a bone.
- The day I (maybe Cinnabar) spent \$500 to get it thoroughly cleaned after I quit smoking. Money well spent.
- Either the year 2007 or 2008 where it seemed like I locked my key in the car once a month.
- Driving the kids around the block in back of the bed.
- Driving other superintendents around and having great conversations.

- Having not washed it with a hose from 2013-2016 due to the drought. I'd occasionally drive through the sprinklers or let the rain wash it.
- Still trying to explain to my kids what a cassette tape deck is and the difficulty of trying to buy children's music on cassette.

I'm very fortunate to have the opportunity to use a company vehicle and it was a great one. I know it's just a truck, but I'll look back on it fondly.

From the blog of Brian Boyer, Superintendent at Cinnabar Hills
<http://cinnabarhills.blogspot.com/>



did YOU know?

There are libraries in Los Angeles that let kids read to pay off their late fees. Each hour a child spends reading at county-run libraries knocks \$5 off their account. Library staff say at least 100 kids each week read away their debt, and 3,500 suspended accounts were cleared during the first 6 months of the program.

Warmer Weather, The Dilemma, To Allow Play on Frozen and or Thawing Greens

Well, it won't be a stampede but I'm sure there are a number of minds out there thinking 50's in the middle of next week, lets play some golf!! Not so fast my frozen St. Louisans.

Throughout my time at Glen Echo, I've been pretty tolerant with winter play, especially on frozen greens. It's when our greens begin to thaw that the stop sign will usually come out of my pocket. We place two holes in every green in winter to help with spreading wear out if greens remain frozen. There are occasions where play is allowed out on frozen greens. There are also times when the greens for the most part remain unfrozen and we don't have to worry much about freezing/thawing cycles. The winter of 2018 is definitely a frozen year!

This past fall and early winter we've had significant drought conditions which have not allowed the roots to grow properly. The fall and early winter are the 2nd best time of year for shoot (top growth) and root growth of cool season grass (Bentgrass) on our greens. This season, some of the root mass has been reduced because of drier than normal conditions. As you can see illustrated in the picture below, the late winter and spring are the prime time for root and shoot (top growth) so there is plenty of time for recovery as long as we don't create additional injury in winter.

As greens begin to thaw in the profile, there is a thawed layer and then frozen. As golfers walk on the green surface, the surface moves under their feet and roots are torn or sheared off at the interval of thawed and frozen turf. The deeper the thaw goes into the turf, the less susceptible the turf is to this issue.

Another thing that happens is that the moisture that has built up on or near the surface needs to drain through the canopy. Our sand layer is approximately 6" deep. If the deeper area 4-6" deep is still frozen, water cannot evacuate from the surface area creating a significant sponge effect on the surface of the greens. High moisture on or near the surface leads to foot imprinting which can be very disruptive and noticeable for weeks.

All of the above is dependent upon how slowly/quickly the freeze comes out of the greens. It varies during every freeze/thaw cycle. We will check the greens daily and notify the pro shop of availability of play or no play. One of the things you could do if the course is not open is to come out and hit a few range balls to get some swings in.

With the potential of freezing rain and an ice layer forming on the greens, we might not get an opportunity during this thawing cycle to open for play.

From the blog of Joe Wachter General Manager/Superintendent at Glen Echo Country Club <http://geccgcm.blogspot.com/>

We're always working for you, the Golf Course Superintendent, our team of writers work diligently to bring you fresh ideas for you to enjoy.

Now we are asking for your help. The Golf Course Trades is your magazine and we would like your input.

What would you like to see more of in our magazine?

What are your biggest concerns for 2018?

Do you have plans for a redesign, or refurbishment that one of our writers could contact you about to do a story on?

Contact: golf@thetrades.com



A Visit to the Quarry

Working in the mountains, rock is an everyday occurrence that you get used to and sometimes take for granted. While planning for the croquet expansion, I did not put much thought to the rock that we would need because it's everywhere and we had a supplier that I knew could provide the necessary boulders. However, at the insistence of our rock supplier, I visited the quarry where all of our boulders are coming from.



Sheer wall of granite at The McNealy's Company quarry.

With the rock wall for the croquet expansion reaching 20' at the highest point, just any old rock would not work. The boulders for the wall need to be relatively flat and very large. As I found out at the quarry, large flat boulders are actually a mistake in the blasting process and need to be individually picked out of the rubble. It's a time consuming process that yields the best boulders for our situation.



Drill machine drilling holes for explosives.

With about half of the boulder wall now finished, I feel good in that we have selected the best supplier for rock as they are taking the time to give us the best material for our job. After, viewing the mining operation at the quarry, I won't be taking rock for granted anymore.



Each large flat boulder must be individually picked out from the piles of blasted rock.

From the blog of Fred Gehrisch, CGCS
Superintendent at Highland Falls Country Club
<http://highlandsfalls.blogspot.com/>

Tree Planting on #4

This morning, we moved a tree at the practice facility as well as planted a Black Gum on the 4th hole. Treespaders of Greenville (SC) brought their 90" tree spade to the club to perform the work. This video of the equipment digging the hole on #4 allows you to see just how massive and powerful this machine is. Once the hole is dug, the truck will retrieve the tree to be moved which fits perfectly into the hole just made.

Below, the Maple tree behind the practice tee was moved out onto the body of the range, to help create a defined edge on the right side. Another 14 trees will be added to this buffer.



Below, the new Black Gum on the 4th hole:



From the blog of Brian J. Stiehler, CGCS, MG
Superintendent at Highlands Country Club
<http://highlandsccgolfmaintenance.blogspot.com/>

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It's Time to take Another Look at Your Fertilizer Purchase



Too many times, superintendents buy 50 pound bags of fertilizer and they just look at the cost of the bag when comparing different brands. There's so much more than that. When you consider the playability, durability and safety of the turf, no one wants to deal with breakthrough or ground repairs in the peak of the season. That costs time, money and potentially a not so pleasant conversation with club members or the Greens Chairman.

Every manufacturer uses different bag labels for their chemical pesticides as well as their controlled release Nitrogen source. In most instances, when a superintendent follows the bag label for application of the pounds of fertilizer per 1,000 Square Feet, the amount of Active Ingredient (AI) can go down and often be at a much lower rate than other brands. So what happens as a result? "Golf Course Superintendents are experiencing weed and insect breakthroughs during the season" says Mark Shaw, Vice President of Knox Fertilizer. Often times most people just compare the price of a 36-0-10 to another 36-0-10 and go with the cheaper bag price. What they should really be doing is looking at the amount of controlled release nitrogen, the longevity of that nitrogen as well as how many pounds it takes to cover an acre. "What most people find who actually take the time to do the math, is that they will actually see that the more expensive bag is actually similar in price per acre or in some instances cheaper" says Shaw.

Another comparison that is important to consider when purchasing fertilizer with control products is the branding within those control products. "We use branded chemicals in our fertilizers because we know that if a golf course has a problem, that chemical

company will come out and stand behind their AI and fix the issue with virtually no cost to the superintendent" said Shaw. There are many manufacturers out there that use generic AI's, but when there is a problem, unfortunately these golf courses are on their own to fix the issue themselves which costs time and money in the long run.

A good distributor rep should be offering you several choices and helping you with these comparisons. They all have access to several brands and in most cases have been trained by the manufacturers in great detail about their products and how they work and the guarantees that come with them. If your distributor rep is coming in selling you on the fact it's a cheap price, think twice before just saying yes to it. Challenge them when you can. If you really want peace of mind, ask the distributor rep to bring in the manufacturer's rep and hear it straight from the source.

There are a lot of things to consider when purchasing your fertilizer needs for the season. Cheap price shouldn't always be the most important. Things that should be given consideration are as follows: Pounds of controlled release nitrogen per acre, longevity of the controlled release nitrogen, amount of AI per acre, whether or not there is a branded AI that will stand behind the breakthroughs during the season.

One thing to remember is this: "The lasting effects of poor quality linger around a lot longer than short term feeling of a cheap price." said Bob Hartman, Director of Sales for The Knox Fertilizer company.

For more information go to the website at www.knoxfert.com/

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And... That's a wrap!

From the blog of Josh Clevenger at Claremont Country Club <http://claremontturf.blogspot.com/>

Let the fun begin



It's been a busy eleven months here at Claremont. Temporary facilities set up. Demolition of the 100+ year old golf shop. Excavation, grading, storm drain, concrete pour after concrete pour. Framing, fire line installation, roofing, windows... you get the picture. Oh, and we have a golf course and grounds to maintain as well. It's been hectic but fun, rewarding and draining. Now the fun really begins as we get to work on putting the golf course back together. Course construction will be split up into two phases with phase one consisting of rebuilding the 1st tee, 18 green surround, warm up tee and cart path tie-in to 10. Phase two work of



rebuilding the 1st fairway will begin sometime in November following the move in to the new Golf Shop and the breakdown of all temporary facilities.

Roger Downing of Earthsculptures and Golf Course Architect Jim Urbina were onsite for less than a week when things behind 18 green began to take shape. For the first time in almost a year the area is looking more like a golf course than a construction site. There are many
14 - GolfCourseTrades March 2018



reasons I feel absolutely lucky to work here. On this golf course. The opportunity to work with these professionals is near the top of that list as they are some of the best in the business. Great people doing great work. Claremont is in good hands with these two.

Much change will take place in the coming weeks. The full crew from Earthsculptures is set to arrive September 11 to begin irrigation and drainage installation. Hundreds of tons of sand will be imported to cap the 1st tee, the warm up tees and the surrounding areas. Finish shaping, bunker install, cart path install and sod... all in the matter of a few weeks. If all goes according to plan, which it always does, we will lay sod in mid-October on phase 1 of course construction. Keep an eye on the blog for updates as we move along.

As we progress, course construction may be more of an impact to you when playing the course. Please check in with the golf shop staff when you come out to play. Hole 18 will play to a temporary green at times and the 10th tee will be closed from time to time as well. These

decisions will be made based on safety for workers in the area. Thanks for your patience. The new facility and course features will be amazing and a major improvement for the club.

Course Construction Update

Phase 1 of course construction came to an end with the final roll of sod installed last week. The new

1st tee, 18 green surround and bunker, warm up tees and 9 green surround areas were all re-shaped and new irrigation and drainage installed. The tee surfaces were sand capped. All turf areas were sodded with a blend of Fine Fescues and Perennial Ryegrass. The finish product is a wonderful improvement for the club and we are proud of the work completed with Jim Urbina and the crew from



Earthsculptures. Phase 2 will consist of re-shaping the 1st fairway, installing new irrigation and finally new sod. Work here should take about two weeks and will begin November 27th. Sod is scheduled for installation sometime the week December 11. As always when working this time of year we depend on Mother Nature's cooperation and any rain during this time will slow progress. We've come a long way in the last 12 months!



Continued on page 17



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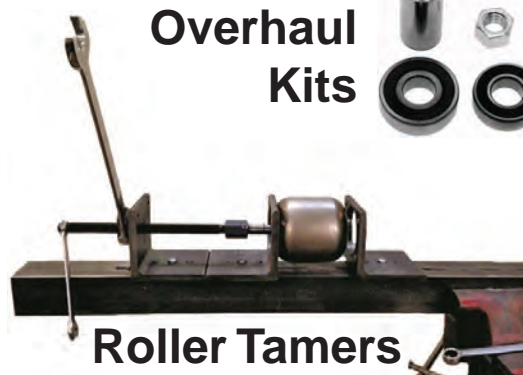
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And... That's a wrap!



After fourteen months of construction we put a wrap on things last week with the installation of new sod on the 1st fairway. With the sod down our focus turns to grow-in of the new turf. The first tee is open finally and I must say it's been quite the exiting time here at the club with the new facilities being met with overwhelming positivity. As is to be expected with anything new, an adjustment in routine when playing the course is necessary. Please keep the following in mind when playing golf this winter:

- The first tee is open for play but the sod on 1 / 18 fairway is not. Please keep all traffic off new sod. If your ball comes to rest in the newly sodded area inside the ropes, please carefully retrieve your ball on foot then drop and resume play from outside the area.
- The entire new area of sod including the 1st tee and 18 green surround MAY be closed at some point this winter due to wet conditions. Please be respectful and keep off closed areas when asked.

- Golf carts are not permitted on the 1st tee or any of the tees. Pull carts are always discouraged from crossing tee tops as well. Please use the cartpaths as much as possible when in the area.
- When playing 18 – as your ball reaches the green or surround please pull your golf cart left to the shared path between holes 9 & 18. Continue up the path and in-between the warm up tees to the cart parking directly behind the green. Once finished on 18 it's a quick drive up the path to the cart barn where the golf staff will greet you at the end of your round. The picture below shows a cart parked in the ideal location when finishing out on 18.
- Walkers on 18 should also move toward the back of the green and finish their round at the cart path behind 18. Please do not walk up the grass slope toward the first tee. Walk off the back of the green toward the tennis courts and then up the path. Please use the cart return area to drop off clubs, pull carts and any other items prior to returning to the golf shop or cafe via the stairs to the left of the cart barn.



Kikuyugrass Removal

With new sod heading our way we made the call to remove all turf on the slope right of 16 green. This area had become infested with the vile weed Kikuyugrass. This particular weed is invasive and difficult to control spreading aggressively on south facing slopes. In this particular area the contamination had reached the green. We chose to remove the entire apron leading up to 18 tee as the Kikuyu creates an inconsistent playing surface and had spread up the slope to 18. We will experiment with various control methods over the next few years in attempt to keep out the Kikuyu. The area will remain roped off until spring. Please carefully remove your ball from the new sod and drop in the drop zone.



With the New Year approaching I want to thank all of those that have made 2017 such a success. The staff in the Turf Department has accomplished great things on the course while the distraction of construction pulled at us daily. Led by Assistants Bill Scheer and Ismael Valadez and Equipment Manager Armando Ramirez, we had an amazing year for golf course conditions. Firm, fast and fun continues to be our target and I feel we met this in spades much of the year. Thanks so much to GM Steve Shaw, the Board of Directors and Green Committee for the continued support of our direction on the golf course. We do things a bit different here as we are allowed to present the golf course in a very natural fashion resulting in a rough, rustic look around the edges. I am so thankful to have the support from the membership as our approach would not fly at just any Club. We all know that Claremont is not just any Club but a unique place full of charm and quirk. It really is a special place that I feel so fortunate to be a part of. Merry Christmas and Happy New Year to all Claremont Members and families and best wishes for a prosperous 2018!

From the blog of Josh Clevenger at Claremont Country Club <http://claremontturf.blogspot.com/>



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Driving sustainability at Mauna Kea Golf Course

by Aubrey McCormick, Director of Business Strategy, Sustainable Business Consulting

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Emerging leaders within the golf industry are starting to align with sustainability because it makes good business sense and benefits the local community and environment.

I had the opportunity to work with Mauna Kea Golf Course & Beach Hotel, a Prince Resort Property in Hawaii, on developing its first sustainability-focused case study (PDF), which aligns with the United Nations Sustainable Development Goals and the Hawaii 2050 Sustainability Plan (PDF).

Mauna Kea Golf Course stepped up to implement sustainability focused initiatives before we even completed the project. For example, during its annual Tommy Bahama Golf Tournament on the infamous Par 3 third hole — situated on a pristine oceanside location — guests arriving to play the hole were challenged to carry the ball over the water.

When golfers hit shots into the water, it puts natural habitat and biodiversity at risk because every golf ball that lands in the water ends up being carried by waves, crashing into the lava rock and dispersing microplastics, which can harm marine life and water purity.

By working with Director of Golf Josh Sillman, we created an "Ocean Plastic Awareness" initiative where we handed players biodegradable golf balls before they teed off.

The Ecobioball is 100 percent biodegradable and turns into fish food after only 48 hours.

It was encouraging to see the participation of the players and their eagerness to learn how to lower their impact on the environment and why it's an important initiative. A few golfers were reluctant to try; one specifically hit a "normal" golf ball directly into the ocean just to spite the efforts. The good news, though, is the initiative raised over \$1,000 for Hospice of Hawaii in only a few hours.

There's more details in Embracing Sustainability at Mauna Kea Case Study. As you'll see, it features the methodology behind preserving historic island traditions, benchmarking progress and driving sustainable impact long-term for members, guests, locals and the planet.

The case study features the strategy, community engagement, native environment conservation, employee stewardship, responsibility toward protecting the planet

and an explanation of how the golf course is planning for the future to align with organizations committed to sustainability.

Mauna Kea Resort is a prime example of how a golf course can be a catalyst for growth and positive change in the community, especially when aligning to sustainable business goals that benefit people, planet and profit. The resort is taking steps to lower its greenhouse gas emissions by shifting to hybrid fleet vehicles and investing in environmental management systems to manage natural resources more efficiently. Additionally, its goals include reducing water consumption 20 percent by 2020 by integrating saltwater-savvy grass species such as paspalum, which makes up 40 percent of the golf course.

It's essential for golf courses to collaborate with "outside the golf industry" environmental organizations in order to shift the paradigm to a more sustainable industry. Mauna Kea collaborated with numerous community organizations such as the Coral Reef Conservation and University of Hawaii at Hilo to conduct a study that has helped gauge coastal waters in the Puako community and the potential impact from sewage on coral reefs in the vicinity.

It's clear that Mauna Kea is dedicated to sharing its journey, and when this becomes the standard in the golf industry, we can drive measurable impact by being more transparent and meeting people where they are.



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INDUSTRY INSIGHT

Bio Huma Netics, Inc.

by Andrew Penner



Insects, soil compaction, drought, flooding, ice, thatch, mold, mildew, rodents, weeds, pythium, brown patch, fairy ring, rapid blight – yes, when you consider all the ways turf can be attacked (and, obviously, this list is far from complete!) it's a wonder there is any healthy grass to be found... anywhere. But, thankfully, turf professionals have ways and means to counter the barrage...and keep the enemies at bay. For a growing number of golf course superintendents, a big part of that counter

attack is the use of Micro Carbon Technology, which is found only in Huma Gro Turf liquid fertilizer products.

Bio Huma Netics, Inc. (BHN), the parent company that makes Huma Gro Turf products (they make more than 70 products that the agricultural industry, mainly, has relied on for decades), is fast-becoming one of the go-to "weapons" in the turf grass industry.

Thanks to their fairly recent re-entry into the turf grass market in 2011 – highlighted by numerous examples where a wide variety of turf problems have been eliminated by their technology - Huma Gro Turf Products are definitely on the radar for golf course superintendents around the world. (The company is based in Gilbert, Arizona). While the company has made serious inroads in countries such as China, the turf products are still in the early stages of distribution and expansion in North America. To say there is serious growth potential for Huma Gro Turf products in the United States is a major understatement.

The main reason for this potential? Micro Carbon Technology. Indeed, besides having dozens of liquid fertilizer products that can counter nearly every turf problem in existence, the one factor that sets this company apart is this foundational ingredient. And, simply put, it works wonders.

The company, which began as the Sunburst Mining Company in 1973, got its start when the founders – Dr. Jordan Smith, Don Organ, and Delworth Stout - discovered a unique oxidized humate in a mine in Idaho. Realizing that this amazing humate-rich material was abundant in natural organic compounds and minerals, the founders worked on developing a proprietary process to extract acids, valuable minerals, and other organic components



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from this material. And this extract contains the base of Micro Carbon Technology – the key component to virtually all of their products.

“The variety of turf issues that confront superintendents around the globe is mind-boggling,” says Michael Gardner, the Director of US Sales for Huma Gro Turf. “And I’ve long since realized that golf course superintendents understand their situation better than anyone. Every situation is unique, and every situation requires a different approach. Thankfully, whether its heat stress, compaction, disease, or anything else out there, we have a product that can deal with it. Our Micro Carbon Technology can be combined with many other chemicals and products to deal with, basically, anything that a superintendent is confronted with.”

And Gardner, a former turf grower himself, understands the challenges first-hand. “I was a grower for 20 years and I realized, the hard way, that conventional fertilizers weren’t working. My fertilizer was getting tied up in the soil and my plants weren’t healthy. The soil wasn’t absorbing water. Thanks to excess runoff containing chemical fertilizers, I had legal issues with the EPA that needed to be resolved. Then a friend introduced me to Micro Carbon Technology and it was a true game-changer. My business changed dramatically for the better. And I believe there are hundreds of superintendents out there who will benefit with this technology.”

So what, exactly, are the positive effects that Micro Carbon Technology is responsible for? Not surprisingly, they are numerous. And it would be an exhaustive exercise to unpack all of its virtues. But, long story short, it’s the catalyst for sustainable soil fertility, ultra-efficient turf nutrition, optimal hormone management, and zero-residue turf protection.



Michael Gardner

In terms of soil fertility – perhaps the most important aspect to unpack – Micro Carbon Technology stimulates naturally occurring soil biology and changes the physical soil characteristics by releasing tied-up nutrients in all soil types. It also increases root mass development naturally (up to 25%) and dramatically improves water penetration and retention.

“Obviously, for many superintendents, water is a critical issue. And it will continue to be on the forefront in the years to come. Our products have saved courses thousands of dollars in water costs,” says Gardner. “Pooling and excess runoff is a major concern and comes with a high price these days. And Micro Carbon Technology can significantly alleviate this water waste. Similarly, the cost savings from not having to apply additional chemicals and fertilizers

can be huge. For some courses, the water and fertilizer cost savings has been a life saver.”

Keeping with the “environmental” theme, another significant benefit of Micro Carbon Technology is the fact that it does not create environmental hazards and has zero public health concerns. There are no harmful chemical residues or contaminants when it is applied (and, of course, it mixes well with most other nutrient solutions and liquid applications). Minimal personal protection is necessary during application and there are zero re-entry requirements.

With the sheer number of nasty, turf-killing diseases, intrusive insects and pests, and numerous other “attackers” Mother Nature can throw at you, having an effective way to fight back is key to a superintendent’s survival. Perhaps a little Micro Carbon Technology in your holster is going to make a big difference the next time you find yourself squaring off for a turf fight.



Andrew Penner is a freelance writer and photographer based in Calgary, Alberta, Canada. His work has appeared in many leading golf publications throughout North America, including Golf Magazine, Golf Digest, The Golf Channel, Golf Canada, and SCORE Golf Magazine. Contact Andrew at andpenner@shaw.ca

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Farm Survives 12-Day Flood

FLORIDA FARMER TELLS HIS STORY



Doug Carter drove up to his farm and couldn't believe his eyes. His sod farm fields were covered with 36-inches of standing water. In a two-day period, Fort Pierce, Florida, received nearly 16 inches of rain.

"I pulled in the gate and could not believe what I saw," Carter, owner of Sun Turf farm and a licensed sod producer of PremierPRO Bermudagrass, said. "My farm was three feet under water. The whole farm."

As the water receded after Hurricane Irma had cut a path of destruction through Florida, Carter noticed some of the grasses in his fields were damaged, but one was left unharmed. In the 12 days it took to pump out the water, the three acres of PremierPRO hybrid bermudagrass resurfaced with no damage whatsoever.

The farm is situated between cattle pasture lands and orange groves, which made it difficult to pump the standing water out because he was pumping for the adjacent properties as well. It took four days for Carter to isolate his farm from the neighboring properties to make any headway pumping out water.

"By day five I start panicking, I know I've lost everything, I know we aren't gonna make it," Carter said. "This is my registered block, my money block, this is what I have to use to plant certified. Of course I thought, I can't even see it, it's underwater."

By day six, the turf farm was still submerged under two-feet of water. On day eight, the highest points of his fields, where he had planted Celebration and Tifway 419, started to surface, while other parts of the farm where PremierPRO was planted remained submerged for 12 days.



While Tifway 419 and Celebration bermudagrass suffered from severe water damage and set Carter back 15-60 days for production, PremierPRO was unharmed. PremierPRO was under water longer than Tifway 419 and Celebration, but due to its ability to survive in low oxygen conditions and hypoxic soils, it was able to withstand 12 days underwater, according to Dr. Milt Engelke, Professor Emeritus at Texas A&M and developer of PremierPRO.

"Within two weeks of the water receding, I could have harvested and sold every square foot of that PremierPRO block," Carter said. "I was absolutely amazed, I could not believe it."

Once the water was dried out enough, Carter said he sprayed the farm with fungicides. About another week after, he was able to run equipment out on the farm.

"By day eight or 10 we were spraying for fungus and disease, more as a precautionary thing any turf farmer would do," Carter said. On the PremierPRO, he "sprayed one time since the hurricane event, and I haven't had to spray again. And it's beautiful."

Based on PremierPRO's recovery after Hurricane Irma, Carter is expanding his production of the grass to more than 50 acres by spring.

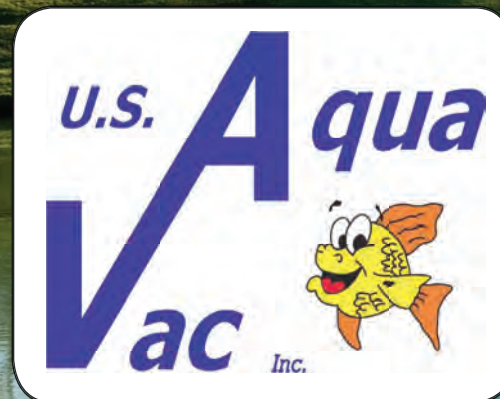
"I think it's capable of handling very wet conditions, capable of handling very dry conditions, it's a much denser grass than some of the other bermudagrasses that are out there right now," Carter said. "From what I've seen so far, in terms of the durability of it, nothing compares."

For more information about PremierPRO Bermudagrass, go to www.sodproductionservices.com

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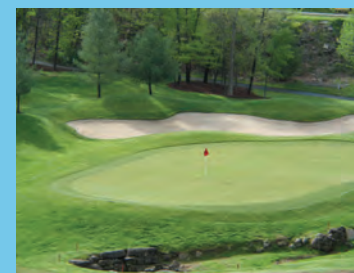
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INDUSTRY INSIGHT

Bactifeed: A Craft Brew For The Ages

by Andrew Penner



It's Friday evening and the Superintendent at the Fred Enke Municipal Golf Course, Dave Herman, has got a tasty little brew going. Tonight, at about 10:00 pm, it'll be fully mature and ready to pour. Party time. Rich and foamy, subtle on the nose, and a little nutty with some

crisp, earthy tones, it's going to be a brew – a Bactifeed turfgrass brew, that is - of the finest order.

Later on that night, in the wee hours of the morning, with every last "pint" poured on the

fairways, tees, and greens, the party is over. While nobody is inebriated, there is a whole lot of "happy" grass on the course. "Under the influence" from swallowing trillions of soil-essential microbes, the turf has never been healthier. The concoction is definitely having a positive effect. And Dave, along with the rest of the management team, is all smiles regarding the condition of the course.

"Professional brewmaster" definitely isn't a skill that your average superintendent would consider necessary for the job. (Leave that one for the boys at the local craft beer joint.) But, thankfully, when it comes to applying Bactifeed – a rising "star" in the turf grass industry – the brewing process is actually incredibly simple. IE: pour the Bactifeed powder into a tank, add the appropriate amount of water, and wait 7 to 10 days for maturation. Then apply the "liquid gold" via the existing irrigation system.

The key question Dave - and other superintendents looking for safe, organic, low-cost, highly-effective turf-enhancing treatments – needed to know was, well, what exactly is Bactifeed? And why is it so effective?



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Parker Cohn

Bactifeed is, essentially, an organic soil treatment system. The product, which is delivered in powder form, is a proprietary blend of dehydrated microbes, enzymes, and beneficial fungi that exist in naturally healthy soil. Since the essential nutrients and active ingredients are dormant, they need to be brought to life. Enter the brewing process!

“When the powder is combined with water the microbes begin to wake up and after about six hours they begin replicating every 15 to 20 minutes,” says Parker Cohn, Sales Engineer for Bactifeed. “The brew process typically takes five to seven days to get a good batch

going. During this time you're literally making trillions of soil essential microbes.”

Another question: Is this an “instant” remedy for unhealthy turf? The short answer: No. And this is one of the key differences between many fertilizers that are often just a quick “Band-aid.” With Bactifeed the process is long-term and sustainable. The “root” of the problem is addressed. And the results will happen with consistent and regular treatments. Results will be visibly noticed in weeks, not overnight.

“Bactifeed improves the health of the turf on a molecular level within the soil, and that takes time,” says Cohn. “The reason our product is able to do such amazing things is due to the power of biology that we unleash in the brewing process.”

These microbes that are created, and absorbed into the soil, are the miracle workers. They increase the efficiency and fertility of the soil by metabolizing minerals, breaking down organic material like thatch, aerating the soil, and increasing water retention. Within days the soil biology is changed and this translates into healthier turf that looks better, can withstand stress and compaction much better, and, certainly, “plays” better for every golfer that plays the course.

While golf and the turfgrass industry currently represents just a fraction of the business for Bactifeed, they are fully aware of its massive growth potential in the game. “As operational costs increase, such as water, fertilizer, wages, and so forth, there is a growing demand for solutions that allow operators and

management to produce a higher quality playing surface while using less resources,” says Cohn.

Unquestionably, Bactifeed poses a significant change from the status quo of turfgrass management. Therefore, educating superintendents about the product is going to be essential for Bactifeed if they want to develop a greater presence in the market. “As these operational costs increase, we are definitely seeing that more superintendents are open to learning about products like Bactifeed that allow them to do more with less,” says Cohn.

As each application – each “brew” - improves soil composition, fertility, root structure, and overall turf health, no doubt more superintendents will jump on the Bactifeed bandwagon. After all, it's not often you can mix-up a brew this good, this effective, and this easy in the golf industry.



Andrew Penner is a freelance writer and photographer based in Calgary, Alberta, Canada. His work has appeared in many leading golf publications throughout North America, including Golf Magazine, Golf Digest, The Golf Channel, Golf Canada, and SCOREGolf Magazine. Contact Andrew at andpenner@shaw.ca

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Mechanical Aspects of Golf

by Brian Duffy

Bearings, More Than Just Spinning Your Reels

The **Mechanical Aspect of Golf Column** is always open to new ideas and input. The subject of bearings this month is from one of our readers, Dave from Mahoning Country Club in Girard, Ohio. Bearings fit right in with the last two columns in which I touched on reel grinding and cutting units. In just one cutting unit there can be multiple types and styles of bearings used.



A simple definition of a bearing is a device that makes possible rotational and linear movement.

There is a long history backing up this definition and the bearings in our equipment. One of the earliest known examples of a ball shaped bearing made of wood came from the remains of a Roman ship dating back to 40 BC. As time passed the material used to make bearings changed. In 1794 a patent was awarded for the first modern ball-bearing design. Radial ball bearing came along around 1869 and were first used in bicycles. What we know now as a Timken tapered roller bearing was patented in 1898.

When bearings that are maintained and lubricated properly, they are the unseen workhorses of rotating and moving parts. A neglected bearing, quickly gets our attention as it begins to produce unwanted squealing or grinding sounds. At this point it's too late and the bearing has begun to fail and will be in need of replacement. So you ask yourself, "What kind of bearing do I need?"

The six most widely used bearing types are **Plain Bearing, Rolling Element Bearings, Fluid Bearings, Jewel Bearings, Magnetic Bearings and Flexure Bearings**



Described are three of the six basic bearing types used in all various types of mechanical equipment from a fine mechanical movement of a watch to large earth moving equipment and more.

Fluid Bearings are used in precision high rpm applications and support their load with fluid or gas under pressure. The bearings are made up of a Babbitt material. A Babbitt bearing consists of a steel shell coated with a layer of copper and a finished with a thin layer of Babbitt. The Babbitt is the bearing sur-

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face which is an alloy made from a mixture of tin and lead. One application of a fluid bearings are found in gasoline and diesel engines to support the crankshaft and camshaft. The bearings receive a constant supply of oil and pressure for lubrication and cooling while the engine is running. The operating clearance in a fluid bearing is few thousandths of an inch. This tight tolerance helps to maintain oil pressure. As the bearings wear and clearance increase so does the oil pressure in the engine.

Plain bearings are generally the simplest form and consist of a bearing surface with no moving parts. They can carry light to heavy loads from slow to high speeds. Plus they are relatively inexpensive. The bearing materials that are used range from a plastic called Polytetrafluoroethylene or PTFE. Other materials are soft metals or sintered steel. One application of the plain bearing is a rotating shaft through a hole. An example of this is a mower lift arm at the point where it rotates on its mounting pin.

Rolling Element Bearings consist of either rollers or balls rotating between an inner and outer rings most commonly known as a race. These parts are made of steel in which the surfaces are hardened to reduce friction and wear. Rolling Element bearings are the most common type used in turf equipment. Rolling Element Bearings are made in various configuration and styles. Two of the most common styles are ball bearings and tapered roller bearings. Ball bearing are designed to handle both side thrust and radial or rotational loads. The ball bearing is an assembly made up of a hardened inner and outer race with machined ball bearings rotating between the two parts. Depending on the application the ball



bearings maybe sealed with metal shield or rubber seal. When no seals are present this is called an open bearing. Open bearing are protected with seals installed separate from their assembly. A ball bearing is limited on how heavy of a load it can carry.

Tapered roller bearings bearing are a two piece assembly consisting of inner hardened race or cone wrapped in a cage holding tapered rollers and an outer hardened race. This assemble when used in pairs can handle heavier thrust and radial loads than a ball bearing. Tapered bearings in most applications do not have seals attached to it. Seals for this style of bearing are mounted separate from the bearing in the same housing that is packed with lubricating grease.

Another style you will encounter, are **caged needle bearings**. As the name implies these are longer thin roller bearing installed in hardened outer shell or race. The needles roll on the hardened shaft that they support without an inner race. These precision bearings are widely used to support high speed spinning shafts of hydraulic motors and pumps.

Heavy duty caged roller bearings are used in conjunction with plain thrust bearings in castor wheels. The two parts used together can handle the side and radial load of a castor wheel rolling on the turf.

Yet another type are **thrust bearings** are found mounted at the top and bottom of steering spindles. These thrust bearings are simple plain bearings, ball or roller thrust bearings.

From just one manufacturer alone I counted seventy six variations of just rolling element bearings. Plus these seventy six bearings come in wide range of sizes measured in both fractional and metric dimensions. As you become more familiar with these different types and styles you will be able to break bearing language barrier.

Come back next month for part two. I will go into more detail of identification, measurement and the servicing of bearings.



Brian Duffy's career spans thirty five plus years in the golf industry. With a diverse background of working on golf courses and turning wrenches on all types of equipment. Plus teaching Golf Course Equipment Mechanics and progressing into turf equipment sales and service. For any questions, comment or ideas contact me at mxk92@yahoo.com

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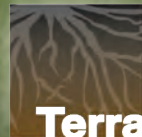
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