

# Major insight

Inside the ropes at the 144th Open Championship

Heading east Eastern GC's new-look estate

Irrigation system upgrades
When and how to pull the trigger

Australian golf's new beacon Cape Wickham Links opens to the world





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Cape Wickham: The stunning 14th hole at Cape Wickham Golf Links on King Island. Photo: Larry Lambrecht, courtesy of Cape Wickham Links.



## LEAD STORY: A new beacon

On 30 October 2015, Cape Wickham Golf Links on the remote King Island off the northern coast of Tasmania, officially opened for play. Following on from Darius Oliver's article that led Volume 17.2 ('Cape Wickham wonder', pages 6-10) about how this stunning links gem came to being, ATM editor Brett Robinson catches up with Cape Wickham superintendent John Geary to look back at what has been a challenging grow-in period for one of the most talked about course developments in the world of golf at present.

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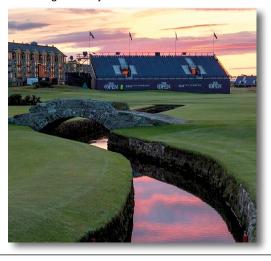
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Long-serving Golf Club course Eastern superintendent Clayton Howell looks back at the mammoth project to relocate the Melbourne-based club to a new Greg Norman-designed golf course in the Yarra Valley.

# At home on the Old Course

No strangers to working at major international golf tournaments, Sydney based course superintendents Justin Bradbury (Bonnie Doon GC) and Dan Cook (Elanora GC) recently ticked off what would be on every greenkeeper's bucket list - volunteering at The Open Championship on the Old Course at St Andrews. Here they look back at their time spent as part of the Links crew for the 144th Open held at the home of golf in July.



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In the first of two articles in this edition, 2014 AGCSA Excellence in Golf Course Management Award winner Shaun Cross, course superintendent at Byron Bay Golf Club, recounts his recent travels through the US. Here he goes behind the scenes at TPC Deere Run where he volunteered during the US PGA Tour's 2015 John Deere Classic.

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Following the John Deere Classic, Shaun Cross embarked on a road trip visiting a number of courses on both the east and west coasts of the US. In this second article he picks out some the highlights of his journey Stateside.



Ferocious Fiii

Following the highly successful inaugural event in August 2014, the Fiji International returned to Natadola Bay Golf Course from 15-18 October 2015. AGCSA superintendent member Steve Lalor looks back on what proved to be a very challenging tournament where just one player finished sub-par after four rounds.

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As USGA agronomist and regional director Pat Gross writes there is never a good time to replace an ageing irrigation system. But when the cost of not replacing it becomes high enough, it's time!

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Providing high quality playing surfaces relies not only on adequate funds but well written specifications, attention to detail during construction and establishment, strict project management and thorough ongoing maintenance.



GRASS-ROOTS WITH JOHN NEYLAN What is healthy soil?

Understanding soil health and relating it to turf health and the quality of the

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Dr Percy Wong provides an update on fairway patch, a serious emerging root-rotting disease of turf grasses caused by a newly-named fungal pathogen called *Phialocephala bamuru*.



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# **Changing landscape**

If the hype surrounding the recent return of the Australian Masters to its spiritual home at Huntingdale Golf Club was overshadowed somewhat by the announcement made just 24 hours before the first groups teed off. The venerable sandbelt club announced it would be entering into a heads of agreement with fellow Melbourne clubs Patterson River and Sandhurst to merge all three entities under the one Huntingdale Golf Club Group (HGCG) brand. The proposal is aimed at securing the long-term future of each club by creating in essence a 'super club' which it believes "will become a significant force in Australian golf". While by no means a done deal yet, extensive due diligence will now be undertaken with a detailed merger proposal likely to be put to the respective memberships in early 2016.

Looking back on 2015 it has been a year of change for numerous golf clubs, especially in Melbourne, as many look to secure their future in what has become a very challenging operating environment. Indeed, the press release accompanying the HGCG announcement quoted the very sobering statistic that more than 50 per cent of Victoria's golf clubs are reported to be under financial stress, mainly due to declining memberships.

Already this year we have seen the likes of The National Golf Club merge with Long Island Country Club to become the first 72-hole private membership golf club in Australia. Peninsula Country Golf Club and Kingswood Golf Club, who were the first clubs in Australia to merge back in September 2013, have taken the next step in their journey by starting reconstruction works on Peninsula's South Course, as well as making some significant staff changes within the turf maintenance department. And while not quite in the same boat, Mornington Peninsula-based courses Moonah Links and Eagle Ridge also announced recently they have new owners.

While such mergers and changes in ownership are well and good from a big picture perspective, for the existing staff it can be a time of great uncertainty as the new operating landscape starts to take shape. Unfortunately, the reality is that golf is just like any other business and given the competitive nature of the industry at present many clubs are being forced to reassess their business models, with merging an increasingly attractive option.

While it can be easy to focus on the negative, on the flip side such changes can provide a wonderful opportunity for individuals and if anything it highlights the importance of continuing education as your career progresses. At the end of the day no-one's job is guaranteed, but if you can make the effort to invest in your own professional development you will ultimately increase your currency and value to your club. Just as the AGCSA is currently undergoing a review of its strategic plan in order to remain a relevant organisation, members should do their own individual stock take and think about how they can better position themselves for the future. Who knows, your club might just be the next one creating the headlines. Ask yourself, would you employ you?

Speaking of changing landscapes, this edition focuses on the development of two new but very contrasting golf courses which recently opened – Cape Wickham on King Island and the new Eastern Golf Club in the Yarra Valley. The superintendents of both courses – John Geary and Clayton Howell – are long-time friends and two more passionate greenkeepers you will not meet. The challenges that both have faced in order to get their courses to where they are again shows how critical a role an experienced superintendent plays in any golf course set up, whether maintenance, construction or grow-in.

Have a merry Christmas and safe New Year and, as always, enjoy the read...



Brett Robinson, Editor

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# Strategic planning process vital to keep AGCSA relevant





s I am writing this edition's column, some rain is starting to fall in Victoria – well, we are in the middle of the Melbourne Cup carnival!

This week of the year traditionally comes good and most in the turf industry (except those working at Flemington) would welcome the precipitation. Reports from many areas around the country indicated October was the driest on record and without the rain event on Halloween most of Victoria would have been in the same situation. One golf course I have heard from is already trucking in water to irrigate greens – tough times ahead!

All AGCSA members should have received a copy of the proposed 2015AGCSA Strategic Plan. This document is vital for the organisation as we look at ways to ensure we remain relevant for the next generation of members. I encourage all members to read and make comment as the AGCSA is a member organisation and without input and 'buy in' from the membership it is to some extent irrelevant.

The AGCSA Board and the respective state presidents will be meeting in early December on the Gold Coast for the annual State President's Meeting where the Strategic Plan will be discussed at length and it is hoped that constructive discussion and decisions can be made on some of the more pressing matters.

During the meeting we will also have the opportunity to visit RACV Royal Pines which has undergone a remarkable transformation over the past two years. It will be great to see first-hand the end result of all the work that superintendent Lincoln Coombes and the team have undertaken on the course under the auspices of Graham Marsh; the back nine is now complete and the photos suggest it is a very different RACV Royal Pines!

# MELBOURNE 2016

At this time of year, planning for the next Australian Turfgrass Conference and Trade Exhibition is in full swing. 2016 will see some exciting changes to the event as we move to a new home at Crown Entertainment Complex in Melbourne.

The week will kick off on Sunday 19 June with the 2016 Toro AGCSA Golf Championship and in a first for the event we will be travelling to the Bellarine Peninsula where we will be hosted by AGCSA members Adam Lamb (The Barwon Heads Golf Club) and Steven Hewitt (13th Beach Golf Links, Beach Course). The dinner following the golf will be held at Barwon Heads where all players will come together under the one roof for what has in the past always been a great night.

We are currently finalising speakers for the conference week and we have been overwhelmed by the amount of expression of interests we have received from potential speakers. This interest has come from all parts of the world which is very encouraging.

I am pleased to announce that the Monday workshops, which will again be partnered by AGCSA Gold Partner Jacobsen, will kick off the educational component of the week. We can confirm that **David Bancroft-Turner** will return to again present his workshop "Political intelligence and how to survive, thrive and manage the politics at your club". If you have not attended David's full day workshop I recommend you get out of your comfort zone and take part; you will not be disappointed.

The agronomy workshop will be presented by Dr. Mike Richardson who hails from the University of Arkansas. Mike is a regular at the GIS and many other industry events worldwide and we look forward to welcoming him to Melbourne. In what has



After his widely acclaimed talks at the 2012
Australian Turfgrass Conference, Frank Rossi is set to return for the 2016 conference in Melbourne

been quite a coup for the AGCSA we have also been able to secure the services of **Associate Professor Frank Rossi.** Frank was a visitor to Melbourne in 2012 and was universally acclaimed by all that attended his sessions.

For those that have not had the opportunity to hear Frank present, he is entertaining to say the least and at times quite controversial. Frank is the most frequently requested speaker in all our surveys and we are delighted to welcome him back at the conference in 2016. Other speakers will be advised as we work towards finalising the programme for the week.

Given this is the final edition of 2015 I would like to take the opportunity to thank all the companies that have supported ATM over the past 12 months; without your ongoing support it would be difficult to keep up the quality of the publication. Thanks also to those that have contributed articles; your input is also vital.

I would like to wish everyone a merry Christmas and I hope 2016 is prosperous both personally and professionally but more importantly safe. I look forward to catching up when our paths next cross and please feel free to contact me at any time if you have an issue or suggestion; feedback is greatly appreciated. P.S.: Thanks Steve!



# **AGCSA**

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Every hole at Cape Wickham, whether inland or hugging the coastline, vies for your attention, none more so than the spectacular 14th. A right-to-left bending par four, the 14th plays from an elevated tee toward a natural punchbowl green

ohn Geary can rattle them off as effortlessly as an apprentice can find ways to take a shortcut – Lahinch, Royal County Down, Cypress Point, The Old Course at St Andrews. A golf course architecture tragic for all his 30-plus years in turf management, Geary has come to revere the innate magical qualities such courses possess and over the years he has made it a personal quest to visit them, ticking off many on what is an enviable greenkeeping bucket list.

As recently as July this year he spent three weeks visiting the famous links courses of Scotland and Ireland, including spending all four days at St Andrews for the 2015 Open Championship. Indeed, at 4am on the Saturday of the major, Geary was

out walking all 18 holes, absorbing the history and tradition and reaffirming in his own mind why the Old Course is the most unique and unrivalled piece of golfing real estate in the world.

Links golf and minimalist golf is Geary's passion and it is somewhat fitting then that over the past year he has played a significant role in helping bring to life what is currently one of the most talked about modern links developments in the world.

It was out of the blue in October 2014 when Geary fielded a call from Duncan Andrews, owner of Cape Wickham Links which was being developed on the northernmost part of King Island in Bass Strait. Set on 120 hectares of some of the best links land you will ever find and under the shadow of



Australia's tallest lighthouse, Cape Wickham was essentially constructed and already capturing the imagination of an industry both here and abroad.

Like many, Geary had read and heard just how good the Cape Wickham site was and duly accepted Andrews' offer to take up a six month placement as grow-in superintendent. At the time Geary was all set to see out his six months then return back to Victoria's Mornington Peninsula, but no sooner had he set foot on site than Cape Wickham rekindled a passion that only a superintendent can appreciate. A year on he's still firmly ensconced there and with the course officially opening its gates to the world on 30 October, in his own words "he has no intention of leaving just yet".

And he'd be a fool to. The wall-to-wall fescue Mike DeVries and Darius Oliver designed course is simply stunning and has all the hallmarks of being a world top 100 golf course. Australia currently has six if you go by Golf Magazine's 2015 list – Royal Melbourne West (12), Kingston Heath (28), Barnbougle Dunes (36), New South Wales (37), Ellerston (73) and Barnbougle Lost Farm (86) – and given the feedback from those pundits fortunate enough to have played it already, come the next rankings Cape Wickham could well be among them, some even boldly predicting top 20.

Bill Schultz, an American golf tragic who has played every world top 100 ranked course, could not have been more effusive. In his review of Cape

PHOTOS: CAPE WICKHAM LINKS/LARRY LAMBRECHT



From the opening tee shot to the very last putt, those who have been fortunate to play Cape Wickham have already lauded it not only for its design but inherently fun nature to play. Pictured is the 1st

Wickham on Golf Club Atlas, he rated the 1st as "the most dramatic and beautiful starting hole in golf", ranked the 9th hole as "perhaps the greatest par 5 in the world along with the 13th hole at Augusta National" and claimed the par 4 18th hole, which wraps around Victoria Cove, is "one of the greatest finishing holes in the game".

While Geary is well aware of the subjective nature of such lists and comments and is quick to shy away from making any predictions, he knows deep down that what Cape Wickham possesses is special and that in time it will be highly regarded.

"It certainly has the potential to be a world top 100 course and that is the hope of those involved with the development of Cape Wickham," states Geary. "If you look at all the great courses in the world, there are generally a couple of characteristics that link them. All have a dramatic landscape, the bulk of them are built on sand and the vegetation is dramatic. Cape Wickham has all three.

"When I first set foot here it reminded me a lot of the Mornington Peninsula – but on steroids! I have never seen a more scenic site for a golf course and the way the layout interacts with the ocean is something to behold. There is a tremendous variety in the landscape and while the ocean holes are spectacular, those holes which head back up into the dunes are as good if not better in some cases.

"The great layouts don't fight the land. They make the best use of the natural landforms and Mike and Darius have done a fantastic job of making

the most of them and highlighting them. Some of the comments we are getting back are just how understated the design is and that's a real credit to them and the obvious thought that has gone into it.

"I have read that when Alister MacKenzie designed Cypress Point he deliberately softened the contours of the greens because he didn't want them to compete with the course's spectacular setting. I've never actually asked Mike or Darius whether that was the intent here, but that's how it feels.

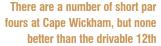
"From a golfing perspective as well it is just a fun course to play. The fairway widths are generous, there are a lot of bail out areas around the greens and there are some very heroic shots off tees and into greens. It's extremely playable and when you get an easterly wind there are three par fours that are driveable. But when it's blowing southwest it can be an absolute brute. That's the beauty of links golf!"

# **LIFEBLOOD**

As spectacular and entrancing as the site is, Cape Wickham's remoteness and exposure to the elements means there have been numerous challenges managing the course throughout the construction, grow-in and now general maintenance phases. To get to this point has been a monumental effort by all involved and Geary quickly attests he has had to draw upon all his years of experience during his time on the island.

In many respects his arrival at Cape Wickham on 10 November 2014 could not have been timelier. While the course had been expertly shaped and constructed by Turnpoint Constructions and the majority of the surfaces well on their way to establishing, it was within a matter of days of setting foot on the site that Geary identified a critical deficiency – water.

Just four days after starting Geary had fired off a comprehensive report which highlighted to management just how serious the water shortage was. At that time they were pumping between 0.5 and 0.6 megalitres a day from a number of nearby springs, but this was less than half of what was required according to Geary's calculations, especially during the critical grow-in phase.





From that he put forward a number of short-term remedies, including sourcing water from nearby properties to installing a desalination plant. He also immediately prioritised areas of the course where water was most needed – recently seeded areas, greens and greens surrounds – and also overhauled irrigation practices whereby in windy conditions only hoses or knockers were to be used.

Even though highlighting and addressing the issue as soon as he got there, it was all too late for last summer. Just weeks into his tenure Geary had to switch off the fairway sprinklers and painfully watch them go backwards. Fescue is an amazingly resilient grass but due to its poor lateral growth can be hard to establish. With no water and therefore the inability to fertilise, Geary effectively lost a growing season. Even until recently, the water situation was still very much a hand to mouth proposition and compounding things was an unseasonably dry August-October period. October, normally King Island's second wettest month of the year, yielded just 5mm.

It wasn't until opening week that Geary and his crew could breathe a little easier. Cape Wickham was granted a temporary license by the Tasmanian Department of Primary Industries and Environment which enables them to pump 180 megalitres over a six month period, with negotiations ongoing to secure long-term rights. Having the ability to fully utilise the course's state-of-the-art Rain Bird Stratus system and 1500 heads for the first time has improved the fescue out of site and Geary is looking forward to a far more productive growing season.

As well as changing watering practices, Geary was also quick to alter fertiliser applications. Shortly after arriving N inputs on the greens were bumped up, with the crew going out religiously every 2-3 weeks with 0.1-0.2kg of actual N/100m² as well as dusting regularly. The fairways received alternating three-weekly applications of an NPK fertiliser and Dynamic Lifter/chook manure, but that was nipped in the bud due to the lack of water.

"I've done a couple of grow-ins over the years and this is certainly the most challenging," says Geary. "It has been challenging regarding the water issues we have come up against but also getting your head around the climate and how dramatically it impacts everything you do.

"The wind obviously takes some getting used to. There's nothing between King Island and South Africa and on some days the Roaring Forties just slam into the island. When the wind does hit, it'll be up for 2-3 days then abate. In February and March though we had 12 days straight of gale force winds and I really did wonder what I had got myself into.

"Being right on the ocean salt spray has been a significant issue. There are days when you can see the sea mist rolling across the course and on average those holes closest to the ocean have taken twice as long to establish because of the salt spray. Some areas have been reseeded up to four times.



"For an 8-10 week period this winter we put growth covers on the 11th, 12th and 16th greens which are right by the ocean, and the difference they made was huge. We carry an EC metre to measure salinity levels and have been applying Calsap to help leach salts through the profile. Our water management practices are key and we have salt spray programmes set up in the irrigation system."

# ISLAND LIFE

Along with addressing the water and fertility issues and getting to grips with the nuances of King Island's unique climate, Geary has also had to adapt to the differences that come with island living.

Geary is the first to admit forward planning isn't one of his fortes, but being at the very northern tip on a remote island in the middle of Bass Strait has necessitated a steep learning curve. Getting products or equipment to the course is both a logistical and costly exercise. A thousand litre shuttle of liquid fertiliser for instance can cost half as much again and take up to two weeks to be delivered as there is only one boat a week servicing the island from Melbourne.

Securing, managing and retaining staff also takes on a new dimension. As well as the cost of living on the island being high, getting experienced staff has been a challenge and Geary has been extremely fortunate to land the services of two

Cape Wickham is wall-to-wall fescue with a mix of Chewings, creeping red, hard and Shoreline slender red varieties. Pictured is the 17th from behind the green

Another short par four, the 10th plunges down towards the ocean





 Cape Wickham's 170m penultimate hole with the 18th stretching around Victoria Cove

highly experienced former superintendents in Martin Greenwood (ex-Kingston Heath and Peninsula) and Martin Rose (ex-Royal Canberra).

Rose and wife Jo moved to King Island earlier this year seeking a sea change after spending the past 10 years running a cafe. An invaluable addition, Rose was recently appointed assistant following the departure of Ash Hobson to Thirteenth Beach. Greenwood too has been a superb catch and is currently working a three week on-one week off shift.

"Between the three of us we have over 100 years' experience," laughs Geary. "But in all honesty they have been absolutely outstanding and bring so much knowledge and experience. There's been so much on the go here that I can let them run crews and do the jobs without needing to check up all the time. In fact, most of the time they're telling me how to do it! We wouldn't be where we are now were it not for them."

While you can plan and prepare for most eventualities, one thing Geary didn't count on was a maintenance shed fire in July. Just two days into his three week trip to Scotland and Ireland, he received a phone call that no superintendent wants to get. Likely caused by an electrical fault with a golf cart charger, the fire caused extensive damage to the shed which was less than 12 months old. Along with two golf carts, a triplex mower, spray rig and Flex 21 walk-behind mower were written off, while the shed had to be fully re-clad and repainted.

Then, to top things off, the mechanic cut a tendon in his finger while backlapping a mower and was off work for 10 weeks. Never a dull moment on the island.

Mornington Peninsula but on steroids! I have
never seen a more scenic
site for a golf course

When I first set foot

on Cape Wickham it

reminded me of the

and the way the layout interacts with the ocean is

something to behold.

# THAT FEELING

While the weeks and months leading up to the opening were all about getting the weaker turf areas covered in, with the course now open the focus has very much switched to maintenance mode. Golfing numbers have been modest since opening but with

the outstanding feedback filtering through from those who have played the course, numbers will no doubt steadily increase over time.

Greens are being cut four times a week with triplexes at 3.5mm and tees and surrounds twice a week at 10mm. Cape Wickham's 30 hectares of fairways are being cut twice a week and from 18mm prior to opening they are currently 15mm and will eventually be taken down to 12mm-13mm. Even with the four par 3 fairways being cut at surrounds height, it still takes three fairway units a full day to cut the remaining 14 fairways.

"Right up until opening we were still heavily focused on a lot of grow-in and construction work, hydroseeding areas and returfing those weaker areas because we didn't have a proper grow-in last season," explains Geary. "There are still a few areas that are pretty raw, especially those four holes that were seeded last October. We've got 85 per cent coverage on holes 6, 13 and 15, so over the summer we'll focus on getting those areas up and then maturing the playing surfaces overall.

"Despite the challenges, I love being back in a hands-on capacity again. As all superintendents know there is nothing that beats the satisfaction this job gives you at times. I remember one time when I was growing-in St Andrews Beach, it was late one day and I was looking out across the 17th and 18th holes and thinking 'We're there!' and being so satisfied. I haven't quite got that feeling here yet but we are pretty close.

"The beauty of this place is that it varies from day to day. Yes it can blow hard, but then you get days like yesterday when it was absolutely pristine – the sun was out, there was no wind and I was standing on top of the ridge overlooking the 18th and watching a couple of cray boats fishing in Victoria Cove. The place was looking a picture and you just had to pinch yourself. I look forward to people coming down here and experiencing that and seeing what Cape Wickham is all about."

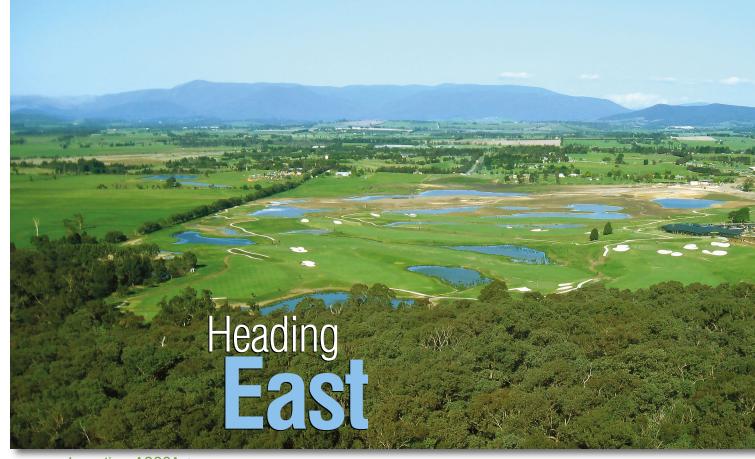


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Long-time AGCSA
superintendent member
Clayton Howell looks back
at the mammoth project to
relocate Melbourne-based
Eastern Golf Club to a new
Greg Norman-designed golf
course in the Yarra Valley.

he Eastern Golf Club was formed in 1940 in the Melbourne suburb of Doncaster. While certainly not a wealthy club, for more than 50 years it managed to get by despite the course being basic in its design and poorly constructed by today's standards.

As it was the only course in the municipality, Eastern had always boasted a reasonable size membership. By 2005, however, this was starting to decline and with the club struggling financially the board of the time started to look at options to provide a viable future. Working heavily in the club's favour was the fact that it owned the land it was on and it was zoned residential.

In 2007 it was put to the members that the club sell the Doncaster site and with the money purchase an existing course (Kingston Links). This didn't get up, so a new a proposal was put to them to purchase a green field site and build a new course. Along with some decent inducements such as membership fee reductions (based on years of membership) for the next 10 years, the members ultimately voted in favour.

With the members giving the green light, the club now had to find suitable land for a new course, a buyer for the Doncaster site (developers Mirvac would eventually purchase it) and start the arduous task of meeting planning permit conditions. The club looked at a couple of properties in the Yarra Valley area and fortunately the owners of what is now our current property must have heard this and approached the club. It was by far the best property

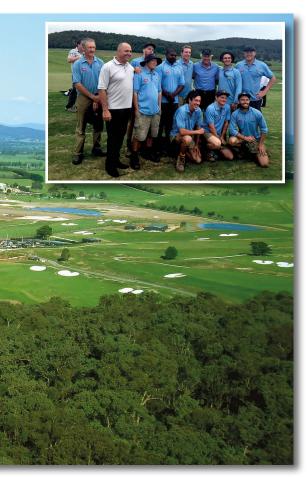
available at the time in my opinion as it included the Yering Gorge Cottages and nature reserve nestled beneath the Christmas Hills and was right next to the Yarra River.

Things didn't start smoothly, however, and due to opposition to the new course development the project ended up at the Victorian Civil and Administrative Tribunal (VCAT). This dragged on for a number of years before the government of the day intervened and granted the permit.

One of the key concerns was the environmental impact of the golf course on the Yarra River. As a result, an extensive modelling project was undertaken to look at the characteristics of all the available chemicals that could be used on the golf course and their potential risk for entering the river.

The proposed chemicals for use on site had to go through a Tier 2 assessment process, which tested the chemicals for potential impact on human drinking water, fish species, water invertebrates and other environmental effects. This was carried out by consulting scientists and originally we submitted a list of 56 chemicals of which 35 were approved.

The work that was undertaken had to be peer reviewed by an overseas expert before being accepted by the regulatory authorities. Consequently, several pesticides were excluded or were permitted for limited use only. I believe we can apply to have new chemicals added to the list providing they pass the Tier 2 assessment process and we drop an existing chemical off the list for each added chemical.



Because of the sensitivity of the site there are strict protocols in place for managing water and in particular minimising/preventing run-off from occurring. To this end the course has a complicated wetland system that holds run-off water and recycles it back through the property if necessary. This is to make sure that any chemical residues are removed from the water.

While the project was going through VCAT, we still had to present the Doncaster site as best as we could and remain positive about the project actually happening. To that end we set up a number of trials that would enable us to make informed decisions regarding bentgrass selection for the greens and bunker construction methods.

While this was happening there was the never-ending amount of meetings with project managers, regulatory authorities, consultants and contractors regarding course construction, water management, irrigation, landscaping, maintenance facility construction, clubhouse construction, civil construction and chemical usage.

The club had earlier selected Greg Norman Golf Course Design as course architects and they came up with a 27-hole layout along with a nine-hole par three course. McMahons was appointed as earthworks contractor with Robert Luxmoore as overall project manager.

Finally, after more than five years, the project actually broke ground in late October 2013. The project required approximately 750,000m³ of soil being moved within the site with McMahons starting

bulk earthworks, such as digging out the wetlands and stockpiling topsoil, during this spring/summer period.

The plan was to construct 18 holes initially and have them grown in and playable by 1 July 2015, the date the club had to hand over the Doncaster site to Mirvac. By March 2014 holes 17, 16 and 15 were shaped and turfed/sprigged up until late April. McMahons persisted during the winter in the upland holes as the lowland holes were too wet to work. However, sprigging fairways started again in November 2014 and with the exception of the 1st and the practice fairways all holes were sprigged by Christmas 2014.

There was still couch solid turfing occurring as late as June 2015 around the clubhouse and the 1st fairway, practice tee and numerous tee walk on areas were laid from mid-March to late April. As a result these areas had little chance of developing a decent root system or a top class surface by the 1 July deadline and it was more a case of nursing these areas through the winter period so they avoided destruction from golfer traffic.

# **GRASS SELECTION**

As mentioned, a series of trials were conducted at the Doncaster site to determine the best greens variety for the new course. We used one of the practice putters and established six different bentgrass types replicated in three plots each. The selections were based on the AGCSA bentgrass variety trial information and after discussing these with Andrew Peart and John Geary I was comfortable that any one of three or four varieties would be suitable. T1 was eventually chosen because of its impressive colour and density, particularly during the winter period, while being managed with low levels of nitrogen (approximately 1.6kg actual N/year).

On the fairways and tees we decided to go with Grand Prix couchgrass. Having gone through the exercise of selecting a fairway grass at the Doncaster site over seven years ago and being happy with its performance, we did not feel the need to go through the process again. Grand Prix couch has far less seed head than Santa Ana and from the trials we did it had slightly better wear tolerance than Santa Ana.

The roughs ended up being a pasture grass mix and this certainly created a fair bit of discussion. The designer wanted the rough largely unkempt, the

The new-look Eastern Golf Club site in the Yarra Valley and (inset) the Eastern crew with Greg Norman at the official course opening in mid-October

Greg Norman Golf Course Design came up with a 27-hole layout and nine hole par three course. Eighteen holes were open for play on 1 July with the third nine due to be completed by May 2016





 Eastern's new fairways were lineplanted with Grand Prix couchgrass

club did not want it to be overly dense and long, and with approximately 50 hectares of rough the less we had to maintain the better. However, what grass would be suitable?

Project agronomist John Neylan suggested a pasture type mixture would be in keeping with the surrounding rural environment, so a mix of Kara cocksfoot and three bentgrasses was decided upon after inspecting areas throughout the property where these were growing. On the site's unirrigated clay soils we have found this mix establishes best in the autumn period growing through winter and into spring, but have had poor results trying to establish it in late spring going into summer even when irrigating.

# **BUNKERS**

As the club was keen to have bunkers that stood out as visual features with large faces and deep lips, we started investigating different types of bunker construction methods. Traditionally new courses have used geofabric liners but this method has always failed on steep faces when decent rainfall is experienced.

With this in mind we trialled the Kustom Bind method in a practice bunker at Doncaster along with two bunkers on course which had geofabric. Kustom Bind relies on clean aggregate being applied over the face and base of the bunker with underlying drainage in the bunker base. The aggregate is 7-10 mm and placed 50-70mm thick on the face and then treated with a polymer that binds it together but still allows water through with the sand applied over this layer.



The Kustom Bind method is roughly double the cost of traditional fabric liner construction but without the follow up labour in repairing washouts or replacing fabric liner damaged from repair work and exposure over time, we decided to go with Kustom Bind at the new site. So far it is working well but we have not had any torrential rain yet.

# SAND SELECTIONS

John Neylan was again instrumental in the selection process of sands for the greens, tees and sand capped areas along with the amendments. A detailed process was undertaken to select the most appropriate sand type for greens, tees and bunkers with several sand suppliers contacted and samples selected and tested.

Key criteria included not only the selection of the sand but also the sand supplier had to maintain a high level of quality control and consistency. Rocla medium washed sand with five per cent by volume coco fibre was used. The sand and coco fibre was mixed off-site, tested for conformity and then, if it passed, was sent to site. Over the period of the project there were about 40-50 check samples analysed.

Because of the high clay content soils on the site there was much discussion regarding sand capping the fairways. It was eventually decided to sand cap the approach and surrounds of the greens because they were high traffic areas.

Another exhaustive process was undertaken to select the best sand and this included visiting The Heritage Golf and Country Club and sampling their sand capped fairways. After some trial and error, TGS supplied the sand and they also had to meet the strict quality control criteria.

# **ESTABLISHMENT**

While Evergreen Turf was engaged to supply and plant/lay the Grand Prix couch, the majority of the turf actually came from four different turf farms – Lilydale Turf's farm near Bairnsdale (sandy soil) and three near Richmond. NSW.

I visited the NSW farms once and the Grand Prix stock was very clean with little or no contamination. However, I made numerous trips to the Bairnsdale farm to string-line the paddocks, marking out the couch off-types for spraying out along with Grand Prix breeder David Nickson. While this was a tedious job, it was vital to carry out.

With the time constraints of having to grow in the 18 holes over just one summer, there was a need to give the couch in the fairways the best possible chance to achieve full cover. The first fairway to be sprigged was in April 2014 and then the others started in November with the last one sprigged on 20 December. The practice fairway and the 1st fairway did not get sprigged/turfed until March and April 2015. The programme for fairway sprigging was as follows (Table 1 shows the basic weekly treatments after planting):

Below right: Kustom Bind has been installed in all bunkers on the new course

Below: Dusting the 17th tee with temporary fencing in the background around the 16th green



- Evergreen line planting ratio 1:10;
- Ronstar plus Fertiliser (10g/kg oxadiazon + NPK 18-10-9) applied @300kg per hectare usually just prior to the line planting;
- Watering commenced as planting is carried out then kept wet until stolons have taken root.

Probably the biggest problem we have had is the amount of escapee bentgrass from the green and collar hydroseeding that is in the immediate couch surrounds. We have had good success in areas of minor contamination by using weed wands filled with glyphosate and just dabbing the

# TABLE 1. BASIC WEEKLY TREATMENTS AFTER PLANTING

Treatment p/ha	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9
Chook manure @1.5T	APP		APP		APP		APP		APP
Pivot 800 @ 150kg		APP	APP	APP					
Pivot 400 @ 150kg					APP	APP	APP	APP	APP
Abamectin @ 1L			APP		APP		APP		APP

We string-lined each fairway using two staff working across the fairway from one end to the other over a number of days. This would start at about the six week period and was an effective way of finding and spraying out any couch off-types or kikuyu that came up. Thankfully we only had kikuyu in one fairway and significant amounts of common couch types in three fairways. Even with the string-lining we have missed some off-types that will require picking up this summer.

The greens were hydroseeded and some greens required temporary fencing around them to prevent kangaroos from damaging the surface. Again we set up string lines on the greens to help with hand weeding control and have managed to keep on top of the *Poa annua* so far, although the biggest problem on some of the earlier greens was ryegrass from the hydroseeding tank.

We started cutting the greens with walk-behinds only but as more areas were constructed we had to use a ride-on as we were still maintaining the Doncaster site and didn't have enough staff. We then went back to using walk-behinds about three months before the July opening and the condition and quality of the greens quickly improved. Currently the greens in play are being maintained at 3mm.

individual bentgrass plants. However, in areas of dense contamination we will wait until the couch is really growing strongly this summer and use reduced rates of glyphosate via a knapsack.

# **FUTURE ISSUES**

As mentioned the new site has a comprehensive series of wetlands throughout the lower section of the course and while they provide visually appealing vistas they do not come into play very often and are designed to move water that comes from off site and within the site through a series of wetlands before ending up in the Yarra River.

They are also designed so that in the event of the Yarra flooding our property the wetland ponds





One of the biggest issues has been dealing with bentgrass from the green and collar hydroseeding that is now present in the immediate couch surrounds

T1 bentgrass was chosen as the greens variety and as the photo shows is performing extremely well













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The project had to overcome a number of hurdles in the early stages, but the end result is one that has pleased the Eastern membership

will take most minor flooding events without the main playing surfaces going under. Obviously a decent flood event will cause significant areas of the course to become unplayable as they will be under water. We experienced a minor flood event a few months ago but the ponds coped well.

While the greens have been performing very well to date, it would be naive not to expect *Poa annua* to become a problem sooner or later. So far we have been able to hand weed the odd *Poa* plant in the greens and will continue this until we have to resort to chemical controls. Due to the restriction on the use of some pre-emergent herbicides, there are limitations on the options for *Poa annua* control so that will be a challenge going forward.

The club was keen to have bunkers that stood out as visual features with large faces and deep lips



An aerial photo showing the complex wetland system designed to hold run-off water which is recycled back through the property if required The greens have been on a frequent sand dusting programme since mowing started and we are using the same sand they were constructed with. They are dusted every two weeks from September to April and only every eight weeks during the winter period. They are renovated (hollow tined and topdressed) in late November and late February/March and not dusted for 4-5 weeks afterwards.



We are trying to manage the thatch this way and also by keeping nutritional levels on the stingy side to avoid excessive growth. At this stage with deep and dense root systems we are able to water deeply and infrequently as a way of making the greens unfriendly to *Poa* establishment.

Having decided against sand capping the fairways, the club is well aware of the need to install additional micro drainage as required in specific areas. This will start this summer with the main priority being the 16th fairway as it was the wettest during the winter.

The club is currently considering implementing a fairway sand topdressing programme which will allow for 4-5 applications each growing season. This will build up about 10mm of sand each season and after five years or so should make a massive difference to the condition of the fairways during winter. The cost of sand to achieve this is about \$4500 per hectare per season.

Similarly, tees were constructed with 150mm of sand and we have been dusting them every two weeks during the growing season. They will be hollow tined in late spring and scarified in early summer as required.

Couch off-types in fairways 2, 5, 9 and 18 will continue to be sprayed out and returfed each summer as will any kikuyu areas. The pasture grass areas also have a massive weed seed bank in them and this will require ongoing treatment along with the oversowing of any bare areas in autumn until full cover is achieved. Eventually we may be in a position to treat the *Poa* in the rough.

The 200mm-plus grass lips on the bunkers have caused some issues at establishment and we ended up installing drippers around the most difficult lips which has worked well. However, sometimes kangaroos and foxes have been digging these areas up which will require returfing and pining to re-establish again. Wind erosion has also been a significant problem and we have recently started a trial using some tacking stabilising agents to see if it will help keep the sand in place.

# IN OUR HANDS

The new course was officially opened by Greg Norman on 16 October 2015 and it was great for the crew to meet the man himself. In true Norman style he offered some advice, none more pertinent than his parting words "Don't stuff it up boys!"

Looking back it has been a very challenging yet rewarding project to be involved with to date, but we still have a long way to go. The third nine holes are growing in at present and the club hopes to have these opened by May 2016. Work has also started on the par three course which will be operational next summer – a busy time ahead for the boys! Thankfully I have been very fortunate to have the support of a dedicated crew and can't thank assistant Jay Infanti, 3IC Joel Miller and horticulturist Bivek Inderjeeth enough for their efforts.





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Right: The vast expanse of the Old Course's opening and closing holes

Bottom: The Old Course greens were stimped using a tunnel to protect the ball roll being impacted by the wind. Greens stimped between 9.5 and 10.5

Sydney superintendents
Justin Bradbury (Bonnie
Doon GC) and Dan Cook
(Elanora GC) were part of
the tournament crew for the
144th Open Championship
at St. Andrews in July. Here
they look back on their
unique experience at the
home of golf.



here are only a handful of places in the world that give you a certain feeling when you experience them in person. Whether it's a place of historical significance, a sporting arena, or, in our profession, a golf facility, it's hard to put your finger on the exact feeling and describe it to someone, but once you have experienced it you know it.

So was the case when Dan Cook and I laid eyes on the iconic R&A clubhouse at St. Andrews having entered the town for the first time on 11 July 2015. There was no doubt we knew we were at the venerable home of golf! Despite having travelled

and worked in the US in the past – Dan for two years at Augusta National and myself at Congressional Country Club – this was the first time the both of us had visited Scotland. And to be working as part of The Links crew for the 144th Open Championship, that made the trip even more special.

As you enter the township of St Andrews, history and tradition oozes from every street and building. You cannot help but notice that this quaint place on the north east coast of Scotland lives and breathes golf; after all, this is where it all began.

You have to turn back the clock to April 2013 at The Masters at Augusta when the stars aligned and the prospect of working at St Andrews started to become a reality. Dan was on his annual jaunt to work The Masters and I was at the event for a couple of days visiting Dan and having a look at the course before returning to Australia to embark on my current role at Bonnie Doon Golf Club.

A mutual friend of ours, Gavin Neill, deputy course manager on the 'New' and 'Jubilee' courses at St. Andrews Links, had been sent over to work at The Masters and experience Augusta. At the time we indicated our interest to Gavin that if the opportunity arose to work at the 2015 Open Championship we would not hesitate in coming across.

Typically there isn't a great need for volunteers when The Open is held at St Andrews. With seven courses and many other clubs nearby, they are reasonably self-sufficient and can draw upon a wide





pool of greenkeepers to assist with preparations. To make a comparison, a US Open will typically have 130-plus course staff and volunteers, whereas The Open this year had 60-plus for a nine day period, depending on the shift or time of the week. Climatic conditions and course preparation dictates this difference in numbers.

So, when Gavin contacted us at the end of 2014 to see if we were still interested, it didn't require much thought to accept the opportunity with both hands. The calendar was marked!

### WHETTING THE APPETITE

In the months leading up to July 2015 there were a number of processes that had to take place prior to our arrival. For The Open and indeed with any Major event, things such as background checks, accreditation details, accommodation arrangements, uniforms etc. all had to be taken care of in advance.

With The Ashes and Wimbledon also on around the time of The Open, Dan and I made sure we gave ourselves enough time to visit the likes of the All England Lawn Tennis Club and Lords, while I also made sure to steal some time to visit White Hart Lane, home ground of Tottenham Hotspur FC (that is another story in itself thanks to a somewhat adventurous taxi ride!)

Fortunately, Pat Wilson (superintendent Pambula-Merimbula GC, NSW) put us in touch with



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The Old Course greens are a 65 per cent fescue/bent mix with a fescue oversowing programme in recent times aiming to lift that to around 70 per cent. The remainder is 30 per cent annual meadow grass and five per cent ryegrass Darcy Jones who was working at Wimbledon for the summer. Darcy met us and took the time to show us around the impressive grounds and facilities. We also organised a tour at Lord's and spent a day at the 1st Test in Cardiff. All these helped to whet the appetite for our eventual arrival at St. Andrews.

After a short flight from Cardiff to Glasgow and drive out to St Andrews, we met Gavin at his house which would be our base for the next 10 days. No sooner had we unpacked we were off to the course to meet with some of the staff and have a brief look at the historical links for the very first time.

The first thing you noticed were the massive spectator grandstands in the distance. As we drove through the streets to get to the course you could feel the buzz about town – the feeling was electric. The streets were full of people, the pubs were overflowing and every shopfront had golf fully on display.

On arrival to the maintenance facility we met The Links director of greenkeeping Gordon Moir and Old Course manager Gordon McKie along with other key personnel. We went for a brief drive around the course and had a chance to soak in all that is the Old Course.

Something I will never forget is seeing the 1st and 18th holes for the first time... the Swilcan Bridge, The R&A Clubhouse, the old town buildings on the right of the 18th and the amphitheatre that is created by the large structures erected all the way along the 1st hole and behind the 18th green. The surprising thing was just how wide the fairways of the 1st and 18th were, a case of TV not doing it justice at all.

A crew of around 60 were assembled to prepare the Old Course for the 2015 Open. Fourteen Toro GM3400 triplex mowers were used to cut the fairways at 7mm







# CLOCKING ON

This was all a very nice introduction to the week ahead, but at 4am the next day (Sunday) the reality of why we were here hit when we assembled for the initial briefing and first shift.

There is always an air of anticipation on the first morning and Gordon McKie took the opportunity to welcome everyone and go through the operational procedures and housekeeping for the week ahead, along with introductions of key St. Andrews staff and personnel.

A job list had been sent out weeks prior with the tasks for each individual, both morning and afternoon shifts, along with a tournament operating procedure document with all the key information. Dan and I knew we were part of the group that would be mowing fairways each morning, with a total of 14 Toro GM3400 triplex mowers working as one each day of the event, cutting fairways in one direction. Greens surrounds and non-championship tees were also cut with these same mowers, while the championship tees were mowed each morning using Toro 1600 walk-behinds, all at a height of 7mm.

Greens were mowed each morning and evening with 12 Toro 1000 walk mowers at 4mm. Three Tru-Turf rollers were used primarily in the morning, but skipped if not required. The greens are massive at St. Andrews with seven double greens and only four that are standalone – the 5th/13th measures 3500m²! Even though it is something you are aware of, they certainly make you look twice when you see them for the first time.

After the intensity of the morning shifts, the afternoons were quite laid back. A lot of the focus was on cleaning up and blowing areas such as tees and fairways by collecting divots and filling them. Greens were mowed if needed and also rough mowing was carried out (the semi roughs were mowed at 40mm). Due to periods of rain and cool temperatures there was no need for any hand watering. Dan and I were scheduled to hand water greens in the afternoon but as this was not required tee clean up became our duty. The burn was also cleaned out each evening.

Although green speed is important and something that is checked and data logged each day along with trueness and smoothness, compared to a US Open or Masters there didn't seem to be the same intensity and outside focus and attention on green speeds. Consistency was the primary goal and generally speaking the speeds at St. Andrews



were between 9.5 and 10.5 each day. Greens were stimped using a tunnel to protect the ball roll being impacted by the wind, something we had not witnessed before.

On some greens, particularly those exposed to the elements such as the 11th at the far edge of the property, mowing or rolling was not carried out on some days due to concerns with weather. Indeed, play was suspended during the third round due to strong winds. The 11th green received extra attention and was always prepared a little slower than the rest of the greens.

# ALL IN THE MIX

As far as grass species are concerned on the Old Course, there is quite a composition. Greens are approximately a 65 per cent fescue/bent mix, 30 per cent annual meadow grass with the remaining five per cent made up of ryegrass and bare ground.



These numbers are from a survey done in 2014 and on the back of this a serious overseeding programme was implemented where the aim has been to get 0.5 tonnes of fescue into the sward per pass with a disc seeder doing 2-3 applications per year.

There has been a visual increase in fescue content due to this overseeding and the hope is that when the next survey is conducted the fescue/ bent content will be nearer to 70 per cent. There has been an increase in bent in recent years mainly due to wet summers which has been at the detriment of the fescue.

Tees are a 70 per cent fescue/bent mix with the remainder being a dwarf ryegrass. It has been a goal to incorporate the ryegrass to harden up the surface so that it withstands wear and tear better. Fairways are an 80 per cent fescue/bent mix with various other grass types.

The Old Course's unmistakable and famous bunkering



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Above: Greens were mowed each morning and evening with 12 Toro 1000 walk mowers at 4mm

Right: The impressive stands with signage paying tribute to former champion Kel Nagle who passed away earlier in the year



Total N inputs into all surfaces are about 30kg/ha/year made up of sulphate of ammonia, iron, seaweed and magnesium. I was a little surprised by how much colour was actually in the golf course as when you think links golf you generally think 'off colour'. There had been a good amount of rain leading into the event along with a wall-to-wall application of a hydrating surfactant. This was to help achieve consistency and firmness in the surfaces, something Gordon Moir spoke in glowing terms of and was happy with the results.

The Scottish weather didn't disappoint. After getting caught out on the first morning by a lack of layers on the fairway units, we ensured it didn't happen again! Early mornings were in the midsingle figures and add in a light breeze and shower of rain it certainly didn't feel like summer! Most days were in the high teens... when the sun was out!

Friday certainly provided a lasting memory for all involved. Pushing water into the burn for two hours is something we'll never forget. About one inch of rain fell right at the tail end of our morning preparations and I recall being on our last fairways for the morning – 9 and 10 – with the wind picking

up and rain sheeting down sideways. This part of the course is the most exposed and there was no hiding from it. Mowing one direction was fine, but the moment you swung around you were unable to see because of the rain – it felt like you were being pelted by shards of glass!

After returning and washing down, play had been suspended due to areas of standing water. Once the rain stopped we were part of a large group that focussed on getting all the standing water off the 1st and 18th fairways so play could resume. This was quite an experience!

Saturday didn't disappoint either with winds consistently blowing at 80-90kph. All the staff and volunteers carried out their morning preparations as usual and it surprised many when play for the 3rd round was suspended due to the high winds. Interestingly, play was still happening a couple of kilometres up the road at The Castle course and Kingsbarns for regular daily play. The winds were strong, but it was Scotland and not uncommon.

Once the dust had settled after the final round and the four-hole playoff won by Zach Johnson, it was great to be able to settle in for some celebratory beverages with new friends and look back at what a great experience the week was. There are many memories that we will never forget from the week and to have the opportunity to be a part of an Open Championship at St. Andrews was truly a privilege.

Thanks must go to Gordon Moir, Gordon McKie and Gavin Neill for being so accommodating and giving us this opportunity. Along with The Open we also got the chance to visit other courses such as Muirfield, Gleneagles, Kingsbarns and Carnoustie. And finally, thanks to Bonnie Doon and Elanora for allowing us to spend time away from our courses to experience The Open from inside the ropes.

Tees are a 70 per cent fescue/ bent mix with the remainder being a dwarf ryegrass. The ryegrass has been incorporated to harden up the tees so that they withstand wear and tear better





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In the first of two articles in this edition, 2014 AGCSA Excellence in Golf Course Management Award winner Shaun Cross recounts his recent travels through the US. Here he looks back at his time volunteering at the US PGA Tour's 2015 John Deere Classic.

TPC Deere Run in Silvis, Illinois has hosted the John Deere Classic since 2000. Over the past four years winners of the AGCSA Excellence in Golf Course Management Award have travelled to the event as part of their prize. Inset: Byron Bay Golf Club superintendent Shaun Cross

# Classic times

n 2014 at the Australian Turfgrass Conference on the Gold Coast I was extremely honoured to receive the AGCSA Excellence in Golf Course Management Award, presented in partnership with John Deere. This had all evolved from an initial nomination from Byron Bay Golf Club captain Peter Sinclair for the GCSAQ Chesterfield/John Deere Superintendent Achievement Award earlier in the year, which I was fortunate enough to collect at the Queensland Golf Industry Awards in March.

This recognition from my club captain and directors was attributed to the transformation of the Byron Bay course that had been implemented over my 11 years as superintendent. In this space of time the course has been recognised in Australia's top 100 public access golf courses and has received extremely positive reviews from some our country's greatest golfers, such as Peter Senior and Ian Baker-Finch, who regularly play in our annual Australian Legends PGA Tour Championship each December. The extensive golf course re-design, construction and re-grassing projects were all basically completed in house and proved to be extremely rewarding when we look back at our accomplishments (see ATM Volume 16.4, 'Byron Bay's coming of age', pgs 20-24).

One of the most rewarding things I have completed in my time, however, was to collate

the 113-page PowerPoint submission that told the story over this time, which ended up being very worthwhile. This document played a big part in being awarded the AGCSA Excellence in Golf Course Management Award which in turn equated to an experience of a lifetime which presented itself in July this year.

Thanks to AGCSA Silver Partner John Deere's support of the award, I was given the opportunity to be involved with the 2015 John Deere Classic at TPC Deere Run, just as former winners Michael Bradbery, Ben Tilley and Colin Morrison had done. This event has been a regular on the US PGA Tour calendar since 1972 at various venues with various naming rights, but has made its home at TPC Deere Run, situated in Silvis, Illinois, since 2000.

Not only is this PGA Tour event a golfing spectacular for the region, with the world's best converging on the Midwest each July, it is also very unique in terms of what it gives back to the community. Since 1971 the John Deere Classic has delivered over \$60 million to regional charities, most of it through its innovative 'Birdies for Charity' programme. No other event on the PGA Tour does it better and it's the generous and hardworking nature of this area that makes it happen.

The tournament administers the programme, invoices the donors and turns over 100 per cent of

all monies collected to each designated organisation thanks to John Deere's generous promise to pay all administrative costs. Best of all, the tournament then takes its annual profits and adds a second 'bonus' cheque of between 5-10 per cent to each organisation. So, for each dollar pledged and collected, the charity receives between \$1.05 and \$1.10. At the 2015 tournament this initiative raised over \$6.3 million!

With 12 months to plan my trip, I also took the opportunity to maximise my time abroad to gain as much knowledge as possible while also enjoying a holiday at the same time. To that end I took some long service leave and organised a hectic seven and a half week itinerary which would see me visit a number of courses following the John Deere Classic before my wife Tammy and our two boys joined me for a family holiday.

# **GETTING A RUN**

So the journey began on 2 July when I departed Brisbane bound for Illinois. Upon arrival into the Quad Cities region in the Midwest, I promptly picked up the rental car, drove out to the hotel, checked in and buzzed straight out to the golf course. Chomping at the bit to get my first glimpse at TPC Deere Run and gain my bearings in preparation for meeting course superintendent Alex Stuedemann the next morning, I was obviously excited and could not wait to get in amongst it!



Prior to my trip I had been in regular contact with Alex to gain a brief insight into what to expect, so to finally meet and tour the course first hand was something I had really being anticipating, especially as it was soon to be in the world spotlight hosting a US PGA Tour event. The course, designed by former professional D.A. Weibring, is set on a former Arabian horse farm that hugs the banks of the Rock

The John Deere Classic tournament crew numbered 50, which was made up of 27 TPC Deere Run employees (eight permanent and 19 seasonal staff) and 23 volunteers including Shaun Cross



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Cross's primary duty during the John
Deere Classic was to take greens
firmness measurements using the
Precision Greens Firmness Meter
which comprises a six foot length of
chain with a finger-ring on one end
and a lead pyramidal fishing sinker
on the other, a chrome ball bearing,
a large washer and a depth gauge

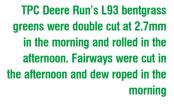


River and boasts some great elevation changes and natural ravines that add greatly to its visual appeal.

After meeting the golf course management team, which consisted of a first and second assistant, a spray technician, irrigation technician, landscape supervisor and an equipment technician, we took a brief tour through the maintenance facility before hitting the course. And bang! The questions started firing and Alex was more than happy to accommodate, elaborate and answer anything and everything regarding his maintenance operations.

What follows is a snapshot of their course specs and maintenance practices for the tournament:

 Greens: L93 creeping bentgrass maintained at 2.7mm with 10 John Deere 220E walk-behinds, double cut every morning and rolled in the evening with Tru-Turf RS48 greens rollers.





- Collars: L93 creeping bentgrass maintained at 7.6mm with two John Deere 220SL walkbehinds, cut each morning.
- Approaches: Southshore creeping bentgrass maintained at 9.5mm with two John Deere 2500 triplexes, cut each afternoon.
- Tees: Southshore creeping bentgrass maintained at 9.5mm with two John Deere 220 SL walk-behinds, tournament tee cut each afternoon and dew rolled each morning.
- Fairways: Southshore creeping bentgrass maintained at 9.5mm with three John Deere 7500 fairway units with catchers, single cut each afternoon and dew rope dragged each morning.
- Intermediates: Southshore creeping bentgrass maintained at 1.25 inches with two John Deere 2653B's, cut each afternoon.
- Rough: Kentucky bluegrass and ryegrass maintained at 2.75 inches with two John Deere 7400 and three John Deere 8800 rotary mowers. The rough was not cut in my first nine days present until the Saturday evening of round three and only inside the ropes was mown. So the true height of the rough from a player's point of view was closer to 4 inches.

Lunchtime on Friday the week before Advance Week is the official tournament staff meeting for all staff employed at TPC Deere Run. This was a great morale builder as the general manager addressed the meeting and presented a great opportunity for all staff, regardless of department, to network prior to the biggest week on their calendar over lunch in the clubhouse.

The monthly employee awards were announced followed by the Employee of the Year, which was a highlight for the team at TPC Deere Run. Alex introduced the visitor from Down Under, which broke the ice with the rest of team I was yet to meet. The mood was set throughout the room with how important this event was to highlight their facility front and centre.

From here on for the golf course management team it would be the start of split shifts – mornings 4am to 9am and afternoons 4pm to 8.30pm, depending on requirements and weather. As we did experience two weather events, this saw schedule changes and even a non-split day where we all remained onsite from 4am to 9pm.

The tournament crew for the John Deere Classic swelled to 50, which was made up of 27 TPC Deere Run employees (eight permanent staff and 19 seasonal staff over summer) and the remaining 23 being volunteers from neighbouring courses, industry trade representatives, interns and TPC support staff. It was a great mix of personnel with a broad range of backgrounds and experience. I thoroughly enjoyed all of their company over the week and we got to talk about everyone's site specifics and maintenance challenges. Many friends were made which is one of the great aspects of being part of such major events.

# ON THE RUN

My duties throughout the event were mainly data collection which is a standard practice at all TPC courses and used as a benchmarking tool for consistency. This included collecting data each morning and afternoon, such as greens firmness, speed and moisture. This was great to be involved with as I got the opportunity to roam around the course carrying out these duties and see practically every inch of the course and maintenance activities taking place. I also assisted with pitch mark repairs, divotting and raking bunkers.

My first priority of each shift was to collect firmness readings using the Precision Greens Firmness Meter. This comprises a six foot length of chain with a finger-ring on one end and a lead pyramidal fishing sinker on the other, a chrome ball bearing about 1-1/2" diameter, a large washer and a depth gauge.

The technique started with resetting the gauge to zero. You then put the chain ring around your finger and raised your arm until the lead sinker just touched the ground, giving you an exact six foot height off the ground to drop the ball bearing. Once you dropped the ball bearing you placed the large washer with the hole centred directly over the dimple caused by the ball. You then rested the digital depth gauge on the circle and pressed down until the prong bottomed out. After letting it rest you then took a reading of the depth of the depression.



Tracking this over time gave you a method of evaluating relative firmness of green surfaces.

The greens' firmness stayed quiet consistent over the four days of the tournament with numbers averaging in the high .200 to low .300 of an inch, although they softened ever so slightly following the rain event that occurred during the third round. Green speeds were also measured morning and evening and started the week around the high 10s and got up to the mid to high 12s. They definitely fluctuated more than expected throughout the day from the morning stimpmeter readings through to the afternoon readings, but by the time they were rolled each afternoon they were close to back in line again.

100mm of rain on the Tuesday of tournament week meant some urgent work to reinstate the bunkers





Green speeds ended up being around the mid to high 12s

Moisture levels were also monitored each morning and afternoon with a Spectrum TDR 300 moisture meter, with the magic number being around 14 per cent. This saw the hoses pulled a few times at the start of the week to maintain this target as some areas dipped to 11 per cent. However, after the two rain events those numbers were back into the high teens and low 20s.

It was interesting talking to Mark Johnson, one of the PGA Tour's agronomists, about these numbers. Earlier in the year at The Players Championship held at TPC Sawgrass, they were recording moisture numbers around 10-14 per cent and firmness readings around .200 on the ultradwarf MiniVerde.

The two rain events as mentioned added to the challenges faced, none more so than the 100mm which fell on the Tuesday afternoon the week of the tournament. The bunkers required some attention to be reinstated and firmed up again in preparation for the Pro-Am shotgun at 11:30am the following day. With minimal mowing taking place due to the additional moisture, this meant we had extra numbers to assist in this area.

Rain also interrupted play during the third round which saw squeegees deployed on both greens and fairways to get play resumed (the rain didn't impact eventual winner Jordan Spieth who fired a third round 61). The extra numbers assisting throughout the event made what would have been a daunting task quiet smooth and painless, even though at the time the stress levels and heart rate rose due to these unscheduled tasks needing to be completed.

TPC Deere Run's closing hole. Jordan Spieth collected his second John Deere Classic thanks to a stunning third round 61



# REFLECTIONS

Having wondered what to expect about tournament preparations before arriving at TPC Deere Run, it was certainly fascinating to see how they went about their operations. Every course is different and it was a great experience to see the achieved results even if there were significant differences in terms of their approach.

I had assumed that there would be more mowing practices undertaken each morning to completely mow out the course before play, but most of the mowing was actually completed in the afternoon with the surfaces dewed off each morning. As the saying goes, there is more than one way to skin a cat.

Probably the one standout difference for me in regards to this was the no morning greens roll. Again this did not seem to impact the performance of the putting surface as they were rolled each evening and double cut in the morning. The course was presented in world class tournament condition which Alex and his team should be very proud of.

The biggest obvious take home message from the event was that the one major element that influences the differences in all management practises is the resources available at your disposal. With higher budgets come more available resources such as equipment, staff levels, products etc but with this comes higher expectations. It made me feel very proud of how resourceful we are in Australia when comparing our results on such a smaller scale in most cases.

The benchmarking and the measuring of influential factors was interesting in trying to produce consistency across the course and this is something we probably do not spend enough time on in Australia due to restricted budgets which limit resources and staffing levels.

To be involved with the John Deere Classic was a career highlight that I thoroughly enjoyed and I really appreciated all the information I exhausted out of everyone I met. I must thank the AGCSA in partnership with John Deere for supporting the Excellence in Golf Course Management Award and allowing me this opportunity, along with my club for their ongoing support. Thanks also to Alex Stuedemann for his hospitality and his staff for making me feel so welcome.

I must also mention my appreciation to surrounding golf course superintendents Tim Gravert (Short Hills CC) and Jason Mansfull (Crow Valley GC) for taking the time to show me around their facilities. This was great to do some local benchmarking of my own and see the standards between the surrounding golf courses. Funnily enough Crow Valley held the inaugural PGA event back in 1971. These were both great golf courses and both great blokes to network with; however, it did make you appreciate the parcel of land that Deere Run sits on, with its natural and vast diversity across the golf course.



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**TRAVELS** 

TPC Sawgrass, home of the US PGA and The Players Championship, was one of many courses Shaun Cross visited over a two week period in **July and August** 

# **Pineh**

s they say one chapter ends and another begins and after spending 12 days volunteering at the 2015 John Deere Classic,

After volunteering at the John Deere Classic, 2014 AGCSA Excellence in Golf Course Management Award winner Shaun Cross embarked on a road trip which saw him visit the likes of Pinehurst, Quail Hollow, Cypress Point and Pebble Beach.

I embarked on the second leg of my US odyssey. Over a two week period I chalked up visits to Bear Lakes Country Club, Palm Beach Country Club, Pelican Marsh Golf Club, Hole in the Wall Golf Club, Vanderbilt Country Club, Streamsong Resort, TPC Sawgrass, the World Golf Hall of Fame, Ocala National Golf Club, Yeamans Hall Club, Pinehurst and Quail Hollow, before heading across to the US west coast and taking in Cypress Point, Spyglass Hill and Pebble Beach.

The 36-hole Bear Lakes CC in southern Florida was the starting point of an 11-day stretch on the east coast. It was here between 1998 and 1999 that I got my first taste of working in the US after taking on the job as assistant superintendent of the Links Course. Bear Lakes comprises the Links and Lakes courses and arriving back in West Palm Beach it was like driving down memory lane.

Prior to arriving I had been in contact with Dave Troiano, director of golf course maintenance. Dave assumed this role just three months before I started there and he played a major role in me getting the job. At that time he was making a number of structural changes and had appointed my good friend and former Royal Pines Resort colleague Brook Maxwell superintendent of the Links Course. It just so happened he was looking for a new assistant.

Together we forged a great working relationship and embarked on some redesign work under the auspices of original architect Jack Nicklaus. Both courses have since undergone further redesign and major renovations with The Links going more traditional with severe links-style bunkering, mounding and mass amounts of native grass wasteland plantings.

Greens turf varieties have also changed from Tifdwarf to TifEagle on the greens (The Links) and MiniVerde on The Lakes, although the latter will likely be replaced with TifEagle due to variations and mutations. The fairways have also been converted from Tifway 419 to Celebration, which was selected by the late Rod Riley.

# PALM BEACH CC

The next stop was to visit another former Royal Pines colleague Matthew Tacilauskas, currently superintendent at the exclusive Palm Beach Country Club (PBCC). Matt was also in the US when I worked there and was then second assistant at another exclusive private country club known as Pinetree.

PBCC is a very unique site with the course closed from May through to opening day on 1 October. As Matt pointed out the only pressure he has is what he puts on himself over this closure, but come 1 October the golf course had better be groomed like Augusta National. Indeed, the amount of pressure he does put himself under is quite something and his renovation practices are unique.

Every year, Matt shaves 20-25mm off all the short cut playing surfaces, apart from the greens, with a field top maker and a sod cutter. If you thought scarifying a course created some vegetative matter, imagine the piles of chaff and thatch left behind after this process! Over this closure period he also covers all bunkers with a thick black plastic to preserve the sand and minimise any contamination.

The greens at PBCC are Champion ultradwarf couchgrass maintained at 2.9mm with walk-behinds fitted with groomers set at 1.4mm depth rotating in reverse. He also verticuts weekly up and back in the same pass, followed by a weekly dusting programme with bagged sand through double hopper walkbehind spreaders going in 4-5 directions, which is then brushed in by hand.





All other surfaces are Celebration wall-to-wall, with the tees kept at 9mm, approaches 10mm and fairways 14mm. All mowers are equipped with out front reverse mechanical brushes between the front roller and the reel, which are set just below mowing heights. All the fine turf areas are on a weekly PGR programme to keep the surface nice and tight.

## PELICAN MARSH GC

Heading west along Alligator Alley across the everglades to Naples on the west coast of Florida, my next port of call was Pelican Marsh Golf Club where Brook has been superintendent now for the past six years. As well as viewing his meticulously managed course, we also visited Hole in the Wall Golf Club and Vanderbilt Country Club, the latter of which is home to another expat Australian superintendent Stuart Bothe.

Among the many discussions we had at these sites were the different practices employed on their couch surfaces. The dusting of greens varied from using dried bagged sand through walk spreaders to similar dusting sand and equipment as what we do in Australia. It was the same with applications of products on greens, with Matt preferring pedestrian sprayers while others used normal spray rigs. The one thing that was consistently different was that the couch greens were all cut with walk-behinds.

When we visited Hole in the Wall, all surfaces were being cored with Toro 648s and 1298s. The greens were being rubbed in after a heavy topdress with a Salsco roller with brushes attached on both sides. Not only was it pushing the sand around it was also smoothing out the surface. These rollers were very common across all of my visits, not all fitted with the brushes, but regularly used to bring up green speeds and smooth out the surface.

At Vanderbilt, Stuart was in the midst of a total course reconstruction with all manner of work going  greens being shaped and greens mix imported, line planting and rolling of fairways and installation of a new irrigation system. One interesting piece of equipment was a Vermeer 1250 fitted with a poly pipe layer and mole trencher to trench and install all in one action.

Stopping a couple of times to reset the GPS, I eventually found my way to the next stop further north – Streamsong Resort. This is the Floridian version of Barnbougle and not surprisingly was designed by Tom Doak. While Florida is typically flat, this course was beautifully undulating and boasted some serious sand dunes! Streamsong's two courses, Blue and Red, wind their way through this naturally beautiful links site, with the bunkering and green shapes very reminiscent of Barnbougle. They are also currently in the middle of building a third golf course!

# TPC SAWGRASS

Pushing on to Orlando, I picked up my former apprentice Jared Webber who would be joining me as I made my way up to Quail Hollow in North Carolina where he is currently stationed. After a few detours, including one to St Augustine to visit The World Golf Hall of Fame, the next big visit was to the home of the PGA Tour and The Players Championship – TPC Sawgrass.

With director of golf course operations Tom Vlack recently departing the site, Lucas Andrews, superintendent of the Dye's Valley Course, entertained us and was extremely accommodating in showing us both Dye's Valley and the Stadium Course, home of The Players Championship. Most of our time was spent on the latter which was in immaculate condition. It was also great to see the contrast of Dye's Valley which was closed and undergoing renovations.

To say the maintenance facility and clubhouse were impressive would be a huge understatement. They had just spent \$US300,000 on building a separate dedicated fertiliser and chemical storage and loading facility which held as much stock as some of my suppliers do back home! The whole building was fully containable and housed



Shaun Cross (right) with ex-pat Aussie superintendent Brook Maxwell who is based in Florida

At Palm Beach CC in Florida, ex-pat Australian superintendent Matt Tacilauskas shaves 20-25mm off the fairways, tees and surrounds every year when the course is closed from May through to October





Palm Beach CC's bunkers are covered in plastic during the course closure to prevent sand contamination

The Vermeer 1250 fitted with a poly pipe layer and mole trencher in operation at Vanderbilt CC





four spray rigs, each with their own dedicated premixing agitated tanks plumbed into fill points. The equipment throughout all the TPC courses is John Deere and it seemed that Sawgrass had 4, 5, 6, 7 or 8 of everything!

The rumour is that the greens on the Stadium Course will in the very near future be re-grassed from MiniVerde to Champion. They are currently conducting a trial on a spare MiniVerde chipping green, growing out half to highlight the mutations and variations that seem to be quiet common with this variety.

The next stop along the journey proved to be the biggest surprise of all – Yeamans Hall Club in Charleston, South Carolina. A newcomer in the Golf Digest's Top 100 rankings (92), Yeamans Hall Club is exactly what you envisage of a deep South US golf course. Sprawling across 900 acres and surrounded by dense forest, it has a real majestic and private ambience that made you feel like you were going back in time. We toured the property

with superintendent Brooks Riddel who pointed out the unique Seth Raynor designed golf course which features architectural elements from famous golf holes around the world.

# PINEHURST AND QUAIL HOLLOW

Nothing, however, could prepare us for our next visit. Up until now I thought I had seen some pretty special sites but to drive into Pinehurst definitely cemented its claim to being 'the home of golf in America'. Wow! With nine golf courses, four hotels, spas and fitness centres, tennis courts, bowls and croquet lawns, this was an incredible facility. It is no wonder the property has three maintenance facilities, not to mention 22 mechanics!

The history that surrounds these golf courses sends a shiver down your spine and we took a comprehensive tour of the No.2 course with superintendent John Jeffreys and his assistant. This Donald Ross masterpiece showcased not only a great design but probably the best putting surfaces I have ever come across. The Champion greens were in pristine condition and exhibited all the qualities that superintendents strive to achieve – tight, firm, dense and quick! They were a stunning example of how good couch can be as a putting surface.

The most recent restoration of the famous Ross layout was completed in 2010 by Coore and Crenshaw, who believe that "today you now play the course as it was originally envisioned" which is what we saw when it hosted the Men's and Women's US Opens back-to-back in 2014.

Jared and I thought Sawgrass had some equipment on hand to manage their 36 holes, but Pinehurst was in a league of its own – they do have 162 golf holes and numerous practice facilities, turf areas and landscape areas to manage after all. The main maintenance facility was a total one-stop shop of parts, servicing and repairs, with a full-time work shop parts manager onsite to ensure they were well stocked.

With the east coast stretch nearing an end, our final stop was Quail Hollow which as well as annually hosting the US PGA Tour's Wells Fargo Championship will also entertain the 2017 US PGA Championship and 2021 Presidents Cup. Jared has been at Quail Hollow since April 2015 through The Ohio Program along with three others including 2015 ACT Graduate of the Year Ryan Stores (ex-Yowani CC).

With a day to spare before Jared was due to return to work, we took the opportunity to visit the nearby Jacobsen factory in Charlotte, where Rachel Luken Thompson, manager of advanced design and technology took us on a tour. This was a great behind-the-scenes look at some of their latest developments along with an informative lesson on how the equipment evolves from start to finish.

Quail Hollow is managed by Keith Wood who was appointed weeks prior to the 2015 Wells Fargo Championship. A very approachable and

Cross with former apprentice Jared Webber at TPC Sawgrass with the Stadium Course's iconic 17th island green in the background



knowledgeable superintendent, Keith was extremely open about his operations and let me ride around with him and his assistants. This included sitting in on the daily briefings as well as talking to contractors who were completing some of the extensive works in preparation for the 2017 PGA. Works to date have included the removal of 500 trees, rebuilding of tees, new cart paths, reshaping of bunkers, irrigation system upgrades, native grass plantings in out of play areas and additional spectator mounding.

The greens are currently MiniVerde with some future developments in the pipeline! The surfaces rolled very true after just being lightly groomed and dusted which is a weekly cultural practice that Keith has implemented, something that was very common across all my visits. Keith was also incorporating Primo applications at the same time but at lighter and more frequent intervals (sometimes as often as every seven days).

Quail Hollow's fairways are a mixture of Tifway 419 and Tifgreen 328, with all of the new fairway reconstruction work being 419. The surrounds are also 419 with two holes converted to TifGrand, the world's first seed and pollen sterile (triploid hybrid) Bermuda. Keith plans to convert all his surrounds to TifGrand next summer due to its really fine texture and density, along with its superior cover in limited light environments. 2016 will also see all bunker sand replaced along with some other works which he was more tight-lipped about.



The golf course is completely oversown annually with ryegrass from October to May, which is how we see the course presented for the Wells Fargo Championship each May. Staff numbers in the middle of summer number around 40 (including three assistants) but this increases to around 100 for the tournament.

The four days I spent with Jared and the guys at Quail Hollow was a great experience and Keith is to be commended for the time he invests into these guys. They meet each Friday to discuss the past week's program, discussing the reasons behind the task completed, before looking ahead to the next week's schedule. He is a true professional and I wish him all the best in what will be a busy few years for the club.

Florida's version of Barnbougle Dunes – Tom Doak's Streamsong Resort

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# FROM EAST TO WEST

After reuniting with my wife Tammy and our sons Cody and Riley in Washington DC for the holiday leg of the journey, we headed across to the west coast where we would drive from San Diego to San Francisco. This is a breathtaking drive and for me culminated with some last minute visits to Cypress Point Club, Spyglass Hill and Pebble Beach on the spectacular Monterey Peninsula.

Cypress Point was the most spectacular piece of golf property I have seen to date. The contrast of the ocean, rocky outcrops, native sand dunes and the signature Alister MacKenzie bunkering makes for an amazing setting. To be able to walk around this course as the sun rose was an experience I will never forget as I caught up with the green staff preparing the course before meeting superintendent Jeff Markow. Jeff talked me through some of the native dune areas currently being reinstated, which I was later shown in an old book in the Pro Shop of how the course once looked.

After coming from bentgrass greens in the Midwest to the Bermuda greens in the east, it was now time to inspect the bent/Poa mixes of the famous Pebble Beach Resort courses. Being a warm-season man myself, it was hard to look at the Poa seed head across the surfaces, but rolling a

golf ball across them after a double cut with a walk mower and a roll they really surprised me.

Cypress Point is one hell of an office and whether it was the bunkering with the sand up in your face and the fescues that outline them, through to the wonderful vistas and natural undulations and elevation changes, it left an indelible impression.

A short drive around 17 Mile Drive was Spyglass Hill carved through the Del Monte Forest. Superintendent Bob Yeo has been employed by Pebble Beach Resorts for over 30 years, working at all facilities, and being a west coast surfer we hit it off from the word go! Spyglass was in exceptionally good condition and groomed to perfection. A Trent Jones layout which is heavily tree-lined, all the surfaces were cool-season (bents, *Poas* and fescues).

Bob and I spent hours talking about his site and a range of topics that impact his operation. Most pressing for him is water with the state of California currently experiencing severe drought. To put things in perspective, he was spending one-and-a-half times my whole budget just on water! Again, digesting all of the figures, it made me feel very proud of what we achieve in Australia with so much less.

The last stop on my US sojourn was Pebble Beach Golf Links, where assistant superintendent Bubba showed me around the famous layout that will host its sixth US Open in 2019. As they say, this golf course is one of the greatest meetings of land and sea and as I look back through my photos this is even more evident as the lines and shapes of the course are framed magnificently by the Pacific Ocean and cliff lines.

Bubba outlined their maintenance regimes and how mindful they are of how much traffic the course receives. Basically a circumference of about 50m around every green is maintained only by walk-behinds to minimise mechanical damage and compaction. As it is a public access course, he stated they are essentially in tournament set up mode each morning as they simply don't get any windows outside of the early mornings.

Pebble Beach was an amazing place to finish up my golf course visits and looking back I definitely made the most of the time I had at all courses. It was certainly the trip of a lifetime but I quickly came back to reality as no sooner did I arrive back at Byron Bay than we were into greens renovations.

I must thank many people who made this trip possible. I got to tick so many boxes, from visiting some of the best golf courses in the world to having an overseas holiday with my family. I'd like to thank the AGCSA (in particular Simone Staples), John Deere, the GCSAQ, the GCSAA (in particular Scott Woodhead) and all GCSAA superintendents. Huge thanks to the Byron Bay Golf Club board, my team at BBGC for holding the fort and most of all my wife Tammy for arranging all the fine details of our travels.

The contrast of the ocean, rocky outcrops, native sand dunes and the signature Alister MacKenzie bunkering makes Cypress Point an amazing facility















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As AGCSA senior agronomist Andrew Peart writes, providing high quality playing surfaces relies not only on adequate funds but well written specifications, attention to detail during construction and establishment, strict project management and thorough ongoing maintenance.

Above: The use of laser levelling should ensure correct sand depths are achieved and the surface falls as specified n recent months AGCSATech has been involved with overseeing a number of construction projects as well as discussions with companies prior to the start of major works. Unfortunately in some cases the quality of the final job appears to be very much price orientated. There is no doubt that not every client has an infinite budget, however, there are certain decisions that must be taken, even if the cost will escalate, that will ensure a much better end result.

While an acceptable playing surface can be achieved with minimal inputs, it is very dependent on the time of year, grass variety and the amount of use it will receive. Winter months in southern Australia provide the most hostile environment for playing surfaces, whether it's golf course fairways, greens or sports fields. This is generally due to their accumulated organic matter, the type of soil present and the presence/absence of adequate surface fall and subsurface drainage.

The decision makers who chose not to install subsurface drainage, install rootzones with minimal depth or those that lack sufficient surface fall may have playing surfaces that are suitable during dry weather but soon become saturated and poor in periods of wet weather or high levels of usage.

#### THE BASE-ICS

Base construction is critical in the formation of any playing surface whether it be a golf green, sports field or racetrack. Establishing a firm, solid, flat base is crucial for the long-term success of a playing surface. With the use of GPS, achieving the desired shape and fall on bases should be relatively straight forward these days, even with cut and fill operations.

Encountering soft spots within base construction can be an issue especially on clays where there is differing subsurface moisture contents. Excessively wet areas will be susceptible to soft spots and these must be ripped and allowed to dry before final compaction. In some cases the use of lime stabilisation may be required to ensure these areas meet the required compaction tests.

Irrigation is a crucial component of all playing surface establishment and maintenance. Even with the conversion of cool-season grasses to warmseason grasses on many sports fields and fairways, irrigation is still a required component. Installation must ensure that the base shape and compaction is not compromised.

The re-compaction of lateral and main lines is also important. Irrigation laterals should be installed deep enough so that if a decision in later years is to install subsurface drainage this can be undertaken without jeopardising the entire irrigation system.

Irrigation systems need to be checked on a regular basis to ensure optimum performance. This can be as simple as ensuring all sprinkler heads are rotating, checking nozzle pressure or undertaking a catch can test. While a few may have been installed poorly, it is more likely that the original pressure obtained has reduced and the ability to attain uniform coverage has been impacted.

While some sports fields are choosing not to install subsurface drainage at the time of construction, there is no doubt that fields with drainage installed will provide enhanced playing surface quality during prolonged periods of wet weather. This, however, does rely on correctly spaced laterals and the ability of water to enter the

drains. Unfortunately though, not even correctly spaced drains will guarantee successful drainage.

During construction the most common problem exists with contamination of the drainage lines with the clay base material, particularly around the joins, or fine clay particles migrating into the gravel prior to sand placement.

Issues that develop over time are usually caused through lack of adequate maintenance in terms of depressions developing between drainage trenches or excessive thatch accumulation over the drainage trench. Drainage is an essential component and must be strictly monitored during construction and then adequately maintained post construction.

#### **INGRAINED**

Sand selection is generally the most critiqued item in any construction with the three most critical components being particle size distribution, hydraulic conductivity and moisture retention. The particle size distribution and particle shape will define the characteristics of the sand's performance.

It must be noted though that hydraulic conductivity (drainage rate) and moisture retention (measured as volumetric water) are not directly related. The drainage rate of a sand is dictated by the amount of macropores within the sand, whereas volumetric water will be determined by the amount of micropores and retention of water by capillary forces.

The drainage rate of a sand must be known as part of the selection criteria, as must its moisture retention. It cannot be assumed that a sand within an acceptable drainage rate will have an appropriate level of moisture retention or that a sand which may have a high drainage rate has insufficient moisture retention. The two, as stated previously, are not directly related.

It is critical though that whichever sand is selected that it remains consistent throughout the project, whether it be building a bowling green, a sports field or 18 golf greens over a prolonged period. The USGA has formulated confidence intervals for quality control testing (Google 'USGA Guidelines for Establishing Quality Control Tolerances') and it is strongly recommended that these are included in any construction specification and adhered to with testing of stockpiles in a minimum of 500 or 1000 cubic metre batches. Those percentages stated can be used to formulate an allowable window for which all subsequent stockpiles must conform to.

Sand placement should be one of the more straightforward processes in the construction, however, it is imperative that trucks delivering the sand do not travel onto the base as this may compromise surface levels and at the very least lead to differential compaction. Prior to sign off of any sand placement it is imperative to check final levels and consolidation especially around the perimeter of the field/green or sprinkler heads as these areas are most susceptible to settlement.





#### THE GREEN STUFF

The majority of sports fields in construction projects today are established with warm-season grasses, namely kikuyu or couchgrass, and again depending on budget and time constraints will either be solid turfed or sprigged.

If solid turfing is to be undertaken it is imperative that a heavier soil type is not imported with the sod. Previously, washed turf was seen as a mandatory requirement, although in recent years sod has been laid that has been unwashed but grown on sand. This is acceptable although it is vital that even with the sand 'backing' that a hollow coring is undertaken prior to the first winter and immediately topdressed with the same construction sand to ensure the drainage through the sod is not restricted.

Establishing an area with sprigs should not encounter the same interface issues, however, the sprigs must be well incorporated into the growing medium and consistently watered to ensure a successful strike. It should be noted that if sprigging into in-situ material or a sand that has been

Left: When installing subsurface drainage it is imperative that the gravel is not contaminated by the clay within the base

Below left: Pushing sand over the base. It is imperative that no trucks are allowed onto the base

Re-ripping the base can rectify issues with soft spots to dry trapped moisture underneath the surface





Aggressive coring (1.5 x 2 inch spacings) undertaken at The Western Australian Golf Club this spring

incorporated with in-situ material, that the likelihood of weed germination will be a threat to establishment. In this case the use of a registered pre-emergent herbicide would always be recommended, although not a root-pruning herbicide (Group D chemical).

#### RENOVATE, RENOVATE, RENOVATE

Ensuring that a high level of quality has been achieved throughout the construction process in terms of the specification and project management does not guarantee life-long success of any sporting surface, let alone a natural turf surface. It is amazing how many playing surfaces have poor drainage irrespective of the lengths of quality control that may have been undertaken during the construction process. The main reason for this is generally excessive thatch/organic matter accumulation either from lack of renovation opportunity or the cost of undertaking the works.

In recent times AGCSATech has tested the drainage rate of a number of greens with an in-situ disc permeametre to discover their drainage rates are less than 1mm per hour irrespective of their construction sand, simply because there is such an accumulation of organic matter present.

AGCSA superintendent member Idris Evans from The Western Australian Golf Club in Perth posted some interesting photos on Twitter in October showing an aggressive coring regime he was trialling on a section of his chipping green. The image showed the green having been cored with 5/8" tynes at 2 x 2 inch spacings, topdressed and then immediately re-cored at 2.5 inch spacings.

At Foundation Golf Club in Doha, shaped greens were covered with tarpaulins until all greens were ready to be sown to negate issues regarding differing levels of turf maturity



The total area of such a coring event would be 13 per cent (eight per cent with the first pass and another five per cent with the second) assuming there was no overlap of coring holes. Even with that coring regime it is still less than proposed by O'Brien and Hartwiger (2001) who state that, in their experience, golf courses with successful mature greens have been on a core aeration programme where 15-20 per cent of the surface area has been impacted each year. To further increase the amount of core aeration, 4mm 'Ninja' tines could also be used on a monthly basis through late spring/summer, depending on the severity of the season.

While Evans did not complete the whole course utilising the double coring due to concerns of overlapping holes and the additional time for that hole then to repair, he did core at a spacing of 1.5 x 2 inches utilising 5/8" tines, pulling out the equivalent of 10.5 per cent of the area, although the photograph above would appear far more aggressive.

There is no doubt that multiple corings of golf greens in particular is becoming more challenging in terms of not disrupting the golfing calendar so it is important to maximise the amount of material that is removed when the opportunity arises. Adjusting the core hole spacings can be very good to remove differing amounts of material from greens depending on the amount of accumulated organic matter.

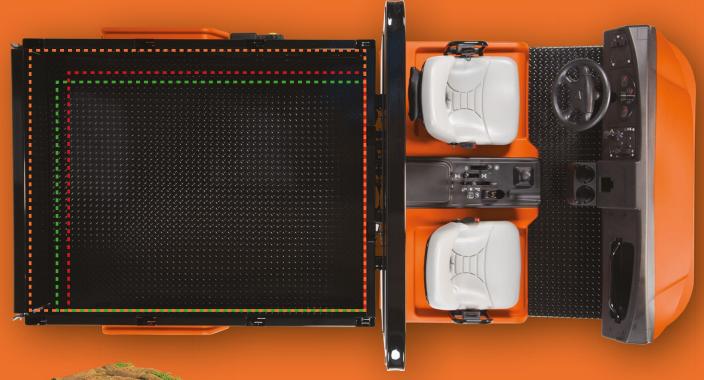
The best way to check organic matter accumulation is by undertaking loss on ignition (LOI) testing whereby a sample of the greens profile, usually 0-20mm and 20-40mm deep from the surface, is ashed at 650°C to calculate the percentage of organic matter present. Obviously if you have greens of differing ages the difference in organic matter accumulation may be more obvious but a LOI test gives you an accurate figure.

Many new golf courses have greens that are different ages and utilising differing core spacings is a very good way to alleviate those differences to produce a more uniform putting surface across all greens. In saying this, on a recent overseas trip I was fortunate enough to inspect a new golf course being built in Doha. There they were covering their newly constructed greens with tarpaulins until all the greens were ready to sow at the same time, minimising not only issues with management (i.e. mowing and watering regimes) but also negating any issues of differing green maturity.

#### CONCLUSION

Providing high quality playing surfaces relies not only on adequate funds but well written specifications, attention to detail during construction and establishment, strict project management and thorough ongoing maintenance. Turf surfaces are dynamic and their playing condition extremely vulnerable to climatic conditions and usage, but their variability will be determined by the decisions taken prior to construction and during their subsequent management.

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If you monitor key indicators such as infiltration rate, thatch depth, root health, soil compaction and undertake an annual soil nutrient test, you will have sufficient information to determine soil health



# What is healthy soil?



As respected

ATM columnist

John Neylan

writes, understanding soil
health and relating it to turf
health and the quality of the
surface needs to consider
the soil physical, chemical
and biological processes
and functions.

n many respects the turf industry is cyclical where old becomes new again. A current example has been the renewed interest in soil biology and the use of biostimulants and beneficial microorganisms to maintain a healthy soil environment. There is a premise that if there is a healthy soil biology it will then confer several advantages including improved root growth, disease and nematode suppression, summer stress tolerance, enhanced plant growth and better nutrient uptake.

The big questions are what constitutes a healthy soil and how do you know if your soil is healthy? What are the characteristics and functions of healthy turf soils? In researching additional information on the topic, I discovered that it is the 2015 International Year of Soils (IYS 2015) which is under the banner of the Food and Agriculture Organization of the United Nations (FAO) http://www.fao.org/soils-2015/en/.

The IYS 2015 aims to increase awareness and understanding of the importance of soil for food security and essential ecosystem functions. Its role is also to promote investment in sustainable soil management activities to develop and maintain healthy soils for different land users and population groups. Immediately we see a stumbling point – how do we relate agricultural interests and objectives to a turf environment?

Historically, soil quality was used to define soils and was related almost exclusively to agricultural productivity and fertility (Singer et al. 2000). In recent decades this definition has been widened to take in the interactions with the environment and the impacts on humans and animals.

In an agricultural context, soil health has been defined by Doran and Zeiss (2000) as 'the capacity

of soil to function as a vital living system, within ecosystem and land use boundaries, to sustain plant and animal production, maintain or enhance water and air quality, and promote plant and animal health'. In many respects soils within a turf system cover all parts of this lengthy definition.

Typically we think of a healthy soil in terms of fertility and microbial activity, however, it is much broader than this. As with all aspects of a well-functioning turf ecosystem the end result is dependent on numerous interactions and not necessarily on a single entity.

In turf management we frequently try to hang a problem on a single factor and then search for a single solution to overcome the problem. A healthy soil is no different and is a function of several interactions within the soil matrix including the biological, physio-chemical and mineral components (Figure 1 opposite page). The mineral component is the sand, silt and clay particles; the physio-chemical component consists of soil aggregates, pore space, reactive surfaces, and organic and inorganic compounds; and the biological component consists of roots, insects, invertebrates and microorganisms (Doran and Zeiss, 2000).

Turf areas provide two different sets of circumstances from a soils perspective. Firstly there is the specialised rootzone media selected for golf and bowling greens, golf tees, high-end sportsfields and racetracks. In these circumstances there are tightly specified requirements for particle size distribution, moisture retention, aeration porosity and drainage rate. Typically we are dealing with sands and therefore developing healthy soils is probably going to be more about the chemical and biological characteristics.

Secondly there is the use of 'native soils', normally associated with golf course fairways and to a lesser extent on sportsfields and racetracks. The 'native' or site soils can vary from raw sands through to heavy clays with a highly variable soil

chemistry. Developing healthy 'native' soils is going to be more an exercise in agriculture, often with a strong emphasis on improving the soil physical characteristics. On high clay content soils it is about manipulating soil aggregation, soil porosity and drainage rate whereas on sandy soils it is more about moisture retention.

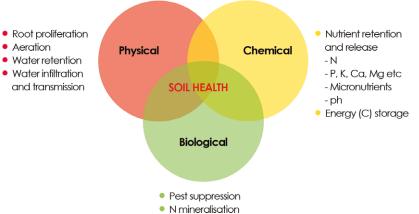
Soil health deals with both inherent and dynamic soil quality parameters (Idowu et. al. 2006). The inherent characteristics are mainly to do with soil texture and generally cannot easily be amended without considerable disruption and soil modification. The dynamic soil quality component is readily affected by our management practices and relates to the levels of compaction, thatch accumulation, traffic, root growth, etc. The dynamic component is of most interest to turf managers because good management allows the soil to come to its full potential.

#### PROPERTIES OF HEALTHY SOILS

Slavich (2001) describes soil health as integrating all components of the soil system with many of the characteristics described being applicable to a healthy turf soil which includes;

- High biological activity and biological diversity;
- High available moisture storage capacity;
- Favourable soil pH;
- Deep root zone;
- Balanced stores of available nutrients;

- Water retention



OM decompostion

- Resilient and stable soil structure;
- Adequate internal drainage;
- Favourable soil strength and aeration;
- Favourable soil temperature;
- Low levels of soil borne pathogens; and
- Low levels of toxic substances.

High soil organic matter is mentioned in most of the literature relating to healthy soils because of the benefits that it confers including improved soil structure, moisture retention, nutrient retention. erosion control and improving soil microbial diversity. In a turf context where there is a permanent vegetation cover and there is no cultivation that incorporates the organic matter throughout the soil

Figure 1: Soil physical, chemical and biological processes and functions (adapted from Idowu et. al. 2007)



The easy to measure biological indicators include thatch and root depth, root health and organic matter content and should be routinely measured (at least annually)

As one of the key planks
of determining soil
health, soil chemistry
cannot be ignored and
soil and plant tissue
testing is strongly
recommended.



matrix, we have to deal with dense organic mats that minimise water penetration, hold excess water, harbour pests and weeds and restrict root growth.

#### ASSESSING SOIL HEALTH

In order to make interpretations of the health of a soil, the various processes and functions in Figure 1 need to be assessed through meaningful indicators. Gugino et.al. (2009) evaluated 39 potential soil physical, chemical and biological indicators for use in a soil health assessment protocol for agricultural

applications. In relating these principles to turf systems the parameters detailed in Table 1 are suggested to be used when assessing turf health.

#### SOIL PHYSICAL INDICATORS

The desirable soil physical characteristics for turf systems are generally well understood, they have been thoroughly researched and there are standard test methods available. Particle size distribution, volumetric water content, aeration porosity and drainage rate will provide a clear picture of where any deficiencies may exist in terms of the rootzone material, particularly on sand profiles.

Assessing the infiltration rate in the field can be simply done and will yield valuable information about rootzone performance, particularly where it is tested with the turf layer intact as well as the turf and thatch removed.

On specialist sand profiles (i.e. golf and bowling greens), if the physical characteristics are severely deficient (e.g. low drainage rate, low volumetric water content or low aeration porosity), corrections are unlikely to be achievable without reconstruction and considerable sand amendment. Consequently the physical indicators should be the first step in the assessment process.

On fine textured soils, soil aggregate stability testing is a very useful indicator of soil aeration, infiltration rate and root growth. These tests typically measure slaking and dispersion in soils and can often be related to the soil chemistry and in particular the accumulation of sodium. This data can then be related back to field infiltration rates and soil compaction. It should be noted that this test has no relevance on sand dominated rootzones.

#### TABLE 1: POTENTIAL INDICATORS FOR USE IN A SOIL HEALTH ASSESSMENT

#### SANDY SOILS

#### (e.g. greens, sand based profiles) Soil Physical Indicators

- Particle size distribution
- 2. Available water capacity
- 3. Soil strength (compaction) with penetrometer
- 4. Field infiltration rate
- 5. Saturated hydraulic conductivity

#### HIGH CLAY CONTENT SOILS

(e.g. golf fairways)

**Soil Physical Indicators** 

- 1. Bulk density
- 2. Available water capacity
- 3. Soil strength (compaction) with penetrometer
- 4. Field infiltration rate
- 5. Saturated hydraulic conductivity
- 6. Soil aggregate stability

#### **Biological Indicators**

- 6. Thatch depth
- 7. Root health assessment
- 8. Beneficial nematode population
- 9. Parasitic nematode population
- 10. Organic matter
- 11. Microbial respiration rate/microbial population

#### Biological Indicators

- 7. Thatch depth
- 8. Root health assessment
- 9. Beneficial nematode population
- 10. Parasitic nematode population
- 11. Organic matter
- 12. Weed seed bank
- 13. Microbial respiration rate/microbial population

#### **Chemical Indicators**

12. pH

13. P, K, Ca, Mg, Na and micronutrients

#### **Chemical Indicators**

14. pH

15. P, K, Ca, Mg, Na and micronutrients

Adapted from Gugino et.al. 2009

#### SOIL CHEMICAL INDICATORS

Turfgrass management is a unique form of agriculture in that productivity or biomass production is not the measure of success and/or soil health. It is principally about producing surfaces that are suitable and safe for the intended use. Consequently, fertiliser programmes are not necessarily based around high nitrogen inputs at irregular intervals but more about manipulating the turf through nutrition to produce the best possible surface.

Turfgrasses are incredibly resilient even at very low levels of nutrition and minute alterations to soil chemistry are rarely necessary. If there is one single driver of the nutrition programme it is probably wear and the need to generate effective recovery.

Turfgrasses are no different to any other plant and require nitrogen, phosphorus, potassium, calcium, magnesium and various trace elements to achieve the desirable surface characteristics. In Australia, soil and plant tissue testing is widely used as a method of monitoring the status and availability of these essential nutrients.

In my time in turf, soil testing has moved from just testing for pH and salinity through to tests that 'test for everything'. The evolution of soil testing has been strongly associated with the product supply industry and used as a tool to sell fertilisers and soil conditioners. Consequently, some of the soil testing methodologies and interpretations can be called into question. Loch (2013) provides a detailed

critique of soil testing in turf in Australia and is recommended reading.

The central problem that we have is that soil chemical testing and interpretation of the results has essentially been adapted from soil testing for pastures. Any modification of the recommendations as they relate to turf has been based on experiences rather than research. Carrow et. al. (2001) in their book on soil fertility managed to pull together a considerable amount of the research findings on soil and plant tissue testing as it relates to turf and provides a more relevant reference.

As one of the key planks of determining soil health, soil chemistry cannot be ignored and soil and plant tissue testing is strongly recommended. While soil test reports will provide a recommendation for each nutrient deficiency, it is not necessary to aim for some arbitrary 'ideal'. For example we can have a green with a strongly acid pH soil, however, providing the surface is up to standard and there are no obvious problems with pests and disease, do we need to alter the pH? The answer is no.

The way that I recommend using soil and plant tissue testing for determining soil health is as follows;

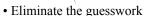
To provide a base line of soil and plant chemistry as it relates to the desired quality of the surface. Annual testing can then be compared against this benchmark as a means of monitoring the effects of the fertility programme.

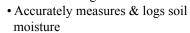
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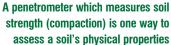


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application.



Assessing the infiltration rate in the field can be simply done and will yield valuable information about rootzone performance, particularly where it is tested with the turf layer intact as well as the turf and thatch







- As a diagnostic tool when there is clearly a turf problem.
- Monitoring the effects of using high salinity and high sodium water.

#### BIOLOGICAL INDICATORS

The easy to measure biological indicators include thatch and root depth, root health and organic matter content and should be routinely measured (at least annually). Measuring and interpreting soil microbial activity is far more difficult and its value is debateable, particularly if the soil physical and chemical indicators are within acceptable limits.

The turf literature contains numerous research papers on soil microbial activity and 'soil health' and its relationship to turf health. There are many examples of the positive benefits of microbes and biostimulants on turfgrass health, however, for each positive result there will be an indifferent outcome where the benefits are difficult to quantify.

Zuberer (2012) has written extensively on the topic and he provides the best summary of where strong microbial activity fits within a turf management programme. He states that the best practices for managing soil microbes are those that adhere to well established agronomic principles. That is, growing healthy turf will provide the necessary resources for soil microbes to thrive. Balanced nutrition, active root growth and good aeration will ensure that there will be an adequate food source, good aeration and sufficient moisture to grow 'healthy' microbial populations.

The interactions that occur between soil organisms and their relationships with the soil environment are so complex that they will never be fully understood (Sterling, 2001). However, Sterling (2001) also goes on to stress that our current knowledge shows that the soil biota play an important role in nutrient cycling, in improving soil structure and provide an active form of defence against pests and pathogens.

While we would acknowledge that a 'healthy' microbial population has an important role in a 'healthy soil' what we have almost no knowledge of is what it should be made up of? The best we could do at this time is to measure the microbial activity on strong, healthy turf and compare it to turf that is below the expected standard.

#### CONCLUSION

Understanding soil health and relating it to turf health

and the quality of the surface needs to consider the soil physical, chemical and biological processes and functions. A healthy soil will be balanced for all three components.

From a practical turf management perspective if we monitor key indicators such as infiltration rate, thatch depth, root health, soil compaction (fine textured soils) and undertake an annual soil nutrient test, we will have sufficient information to determine soil health. This information collected over time will provide a useful guide as to the management operations that need to be implemented for maintaining the desirable surface characteristics.

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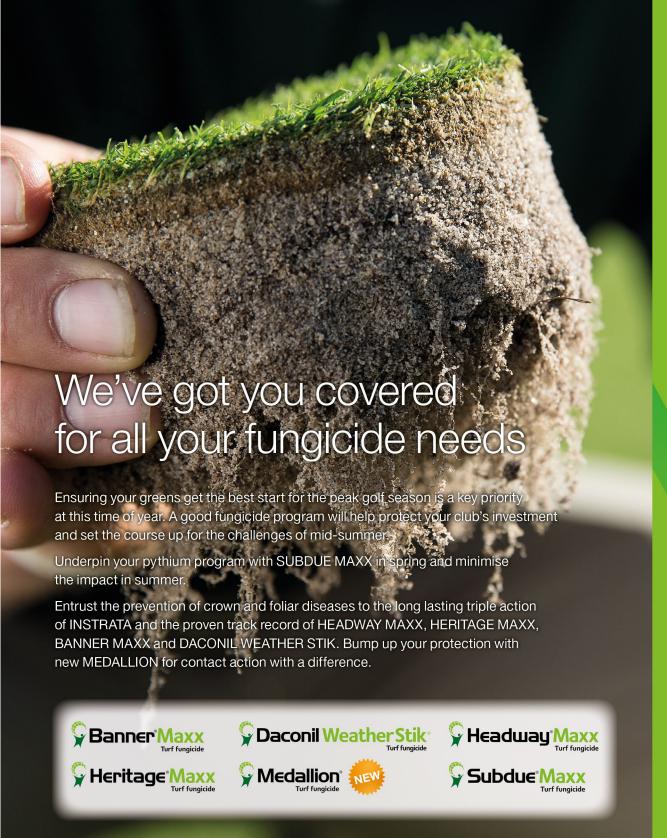
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The Natadola Bay maintenance crew and course volunteers following the final round of the 2015 Fiji International



AGCSA superintendent member Steve Lalor looks back on a challenging 2015 Fiji International held for the second time at Natadola Bay Golf Course.

The tees on the spectacular 8th hole were moved forward by 15 metres for this year's tournament



ollowing the highly successful inaugural tournament in August 2014, the Fiji International returned to Natadola Bay Golf Course from 15-18 October 2015. The 2014 event was a huge learning curve for all involved in putting on a Tour event in Fiji and from a course management perspective it not only challenged our abilities but also gave us something to build on.

Planning for this years' event started immediately after the last. My main goal was to improve our timing and have the course ready for play with no unforeseen surprises. Prior to last year's tournament the crew did 100 hours of overtime for six weeks to have the course ready. By comparison, this year no overtime was required due to the tournament being later in the year and better planning. Having the course at a consistent level during the year helped us with our preparations and we only really needed to tweak a few things to get the course up for the tournament.

As reported in Volume 16.5 of Australian Turfgrass Management – 'International exposure', p22-24 – a number of course improvement projects had been earmarked following last year's

tournament. However, plans to rebuild some greens were put on hold until we could determine timelines for construction considering other events booked during the year.

Our main focus therefore turned to opening up the course with the reduction of a woody weed known locally as Vaivai (*Leucana leucocephala*). This plant covers the majority of the deep rough areas at Natadola Bay, restricting views and playability. We began our reduction programme on the 1st hole and worked our way around the course, eventually clearing up to 15 hectares of vegetation.

In addition to this work we also refurbished several bunkers, replacing the drainage network and refreshing the sand. Native grass gardens were also planted in areas to reduce turf areas and control traffic movement.

Natadola Bay is a wholly seashore paspalum course (Sealsle Supreme) and one of our ongoing battles is with couchgrass encroachment. Couch in paspalum is difficult to control and after six years of operation the couch here is slowly moving in on most holes. We trialled salt applications to the roughs on the 1st hole over a five month period and found we reduced the amount of native couch by around 40 per cent (see photo page 48). These applications will continue over the coming year.

#### BACK IN THE SPOTLIGHT

With the knowledge gained from last year's event, tournament preparations this time around did not really differ that much. We intensified our preparations six weeks out similar to last year with the only real change being fertilising all turf areas with ferrous sulphate three weeks out from the tournament. With our Smithco roller down and awaiting parts, we had to use triplex roller units to roll greens three times a week.





The biggest difference to 2014 was the temperatures. It was the coldest winter I have experienced since arriving in Fiji in 2010 which had a significant impact on the growth rate of the seashore paspalum. Our soil temperatures from June-August were just 15°C compared to historical averages of between 25-30°C. Soil temperatures didn't get over

25°C until mid-September which restricted us from getting our rough heights up to PGA requirements. As soon as it heated up fertiliser applications

Just over a month out from the tournament, the PGA of Australia's director of tournaments Andrew Langford-Jones visited Natadola and we were able to show him the progress of the course. In an article on the PGA website shortly after his visit, Andrew commented he was very pleased to find that the course had really developed and course conditioning had improved.

Just as we had learned a lot about our programmes and course preparations from hosting the tournament in 2014, Andrew and his team were also able to call upon their knowledge from last year's event and implemented a few changes in regards to course set up.

Most of the course changes were made to the front nine holes to help improve playability and also enhance the experience of spectators. At the 8th hole, the tee was brought forward by about 15 metres to enable the players to get a better line at the fairway with their drive. The tee was also brought forward on the 9th, which played in the hardest three holes in 2014, to combat the strong cross winds which can come into play.

The 2015 tournament attracted a much bigger field (154 players) and it was a major coup to get US PGA Tour star Matt Kuchar headlining the event just



World No.16 Matt Kuchar triumphed in brutal conditions to take out the 2015 Fiii International



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Prior to the 2015 tournament Lalor and his crew cleared 15ha of weedy vegetation which was restricting views and playability

a week after he helped Team USA win the Presidents Cup in Korea. With a bigger field assembled, tee times were earlier (6.15am) which meant I was a little concerned about getting our runs completed. I took advantage of the practice rounds on Monday and Tuesday to practice our timings and fortunately the crew worked well with no hiccups and we were off the course by 6.30am.

With the tournament being two months later this year, unfortunately the timing was not that good from a volunteer perspective. While I had several enquiries from prospective volunteers, including guys who journeyed from Australia last year to help, many couldn't make it in October due to tournaments of their own or course renovations.

A few volunteers did make the journey and we were very grateful for the assistance of James Davis (Manly Golf Club) and Shane Summerhayes (Turfcare NSW). Ex-pat Dave Brennan, who is superintendent at Denarau Golf and Racquet Club about 45 minutes north of Natadola, was also on hand, as were local guys Joji, Taruva, Roy and Joeli from Laucala Island Golf Resort. I was also fortunate enough to have Ray Grech from Jacobsen and Kevin Adams from Powerturf NZ help out in the workshop.

The workshop team started at 2.30am preparing equipment each morning, while the remainder of the crew started at 3am. We finished set up by 6.30am and the guys left the course by 7am. Everyone was back at 5pm to carry out the afternoon jobs which we finished at 7.30pm.

To help combat couch encroachment on Natadola's seashore paspalum surfaces, Lalor undertook successful salt applications in the roughs on the 1st hole



#### **BLOWN AWAY, LITERALLY**

In the lead-up to the tournament, the PGA asked for Natadola's greens to be 10-10.5 on the stimpmeter. We achieved this comfortably a few weeks out, but did not count on the high winds that would descend.

The wet season in Fiji usually runs from October to April which is also the main period for cyclones. A tropical depression formed north of Fiji the week prior to the tournament with the worrying prospect that it could intensify into a Category 1 cyclone. Fortunately, the cyclone did not eventuate but the winds which buffeted the course in the lead-up to and during the tournament made things extremely difficult for both us and the players.

As reported, the winds during the event were between 60-70 kilometres per hour. Raising the height on the greens was one solution to slow them down and to ensure they were playable. By the Tuesday, I was asked to slow the greens to 9 on the stimp. With cooler temperatures around this time as well it was difficult to get any growth on the greens so we chose not to mow for two days' play.

Our cutting regimes varied as a result and on the Monday and Tuesday the greens were single cut with walk-behinds at 3mm with the exception of the 9th which was cut at 3.25mm. On the Wednesday and Thursday we raised the heights across all greens to 3.25mm and gave them a single cut.

After a brutal opening round which saw Josh Geary take the clubhouse lead with a round of even par 72, on the Friday we only rolled the greens with the walk-behinds. On Saturday, after the cut was made at +14, we only cut greens in the afternoon at 3.25mm which ended up being their last for the tournament. Across the remainder of the course, tees were cut at 5mm with walk-behinds, fairways 8mm, aprons 5mm and primary rough 25mm. Roughs were set at 50mm but were not mown throughout the week.

Watering of the greens was the most important maintenance practice during the week given the weather. We hand watered in the morning prior to play, in the evenings and gave them a 15 minute cycle at night. I carried a hose in my Hauler each day just in case specific greens required water.

Not surprisingly, given the wind several players commented that the conditions were some of the hardest they have ever witnessed on a golf course. One of the Korean players had eight shots on the 11th hole and had not even reached halfway down the 518m par five, after hitting and losing three balls into the deep rough. That was his second hole for the day! To the credit of the tournament officials they did not consider suspending play throughout the week. They felt that the conditions were tough but a result was still achievable.

One scene that went viral from the opening round was Kuchar's ball being blown back into the hole on the par four 2nd for birdie. The 2nd has an exposed green that cops the wind at any time of the year and Kuchar experienced that first hand.

Commenting after the round on the unusual situation, Kuchar said: "I gave it a second, because I knew my putt earlier had rolled backwards, and sure enough the wind finally took it and blew it right back into the hole. I'm not sure I have ever witnessed that; I always thought that it could happen, so it was kind of fun that it happened to me."

#### **GROWING IN STATURE**

Kuchar's presence certainly raised the profile of the Fiji International and Natadola Bay Golf Course. Winning the tournament with his father Peter carrying the bag and his family following him on course was great to see and made headlines around the world. That will no doubt filter through the player ranks and hopefully we will see more players of his calibre gracing the line-up here in the years to come.

This year's tournament was certainly a lot bigger than the first and the PGA has built some good relationships and partnerships. Crowds were bigger this year, even with the weather issues, so hopefully Mother Nature will be kinder next year and we get even bigger crowds.

Overall I was happy with the team, the surfaces and the feedback from the players and tournament officials. Given the tournament conditions we experienced, my team responded very well and I could not have been happier with the commitment my guys showed and the manner in which they presented the course.

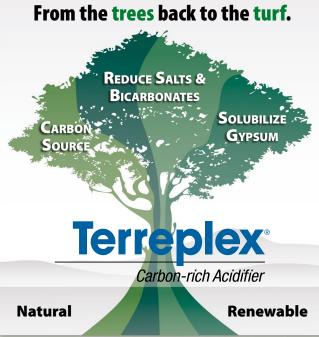


I think all turf managers feel that there is room for improvement and I am certainly no different. There were some areas of the course that I thought could have been better and we will work on these over the coming year.

Having Natadola Bay's original course designer Vijay Singh back for this year's tournament was also great. Some months before the tournament it was decided to engage Vijay to 'complete' the course to his design views. During his time here I had several informal meetings with him and his design associate on what realistic changes can be done over the next year. At this stage there may be alterations to some green complexes and I am looking forward to completing these works in 2016 if they go ahead.

Despite 60-70kph winds buffeting the course for the opening two rounds, Natadola held its own. Pictured is the 15th

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# Pulling the

As USGA agronomist and regional director Pat Gross writes there is never a good time to replace an ageing irrigation system. But when the cost of not replacing it becomes high enough, it's time to bite the bullet.



hat is the one thing on a golf course that costs an exorbitant amount of money, most golfers never see and most modern golf courses can't survive without? An irrigation system.

The efficient application of water is playing an increasingly important role as golf courses are focused more than ever on conserving water resources and protecting water quality. The drought-like conditions of the 2000s brought water management issues to the fore in Australia and in the western parts of the US at present a similar scenario has developed with water shortages and the rising cost of water placing more emphasis than ever on irrigation system efficiency.

Like all mechanical systems, sprinklers, pipes, fittings, controllers and other components experience wear and tear and will need to be replaced at some point. However, when budgets are tight and replacement costs are on the rise, the question becomes 'When is it time to replace the irrigation system?'

This article will examine the many issues and pertinent questions to answer when determining the need to replace a golf course irrigation system. The obvious place to start answering the above question begins with a thorough evaluation of your current irrigation system, taking into consideration the age of system components, its reliability and the suitability of the system for the location and design of the course.

#### SYSTEM AGE

A good starting point is to review the age of various irrigation system components including pipes, valves, fittings, sprinklers and controllers. In general, as irrigation systems age beyond 25 years they tend to experience more frequent breakdowns, components become obsolete and finding replacement parts may be more difficult. However, just because parts of an irrigation system are old in no way implies they are past their usefulness; age is just a relatively easy way to anticipate general fatigue and wear on irrigation systems.

The American Society of Golf Course Architects published guidelines regarding the expected life span of various items that can be used as part of this exercise.

Irrigation system: 10-30 years

Controller: 10-15 years

PVC pipe (under pressure): 10-30 years

Pump station: 15-20 years

The guidelines are a general estimate of how long each item should last under normal circumstances. Areas of the country with a 12-month irrigation season can expect accelerated wear compared to golf courses in seasonal climates where irrigation systems are only used for a few months.

#### RELIABILITY

The reliability of irrigation systems is crucial since breakdowns tend to occur when irrigation is most needed and maximum stress is being put on the irrigation system. Many a superintendent has performed overnight baby-sitting duties during the summer to monitor old irrigation systems that are prone to failure.

A reliable and efficient irrigation system is a key component of producing high-quality turf conditions. Consider the following scenario: a superintendent just completed a fertiliser application and plans on immediately watering-in the material only to find out that the irrigation system has broken down leaving no option but to watch the turf experience widespread fertiliser burn.

Despite the best intentions and preventive maintenance, similar situations often plague golf course superintendents with old irrigation systems. Frequent pipe breaks and failure of system components are possible signs that parts of an irrigation system are worn-out and need to be replaced. A review of maintenance records will provide helpful information regarding the number of repairs each year, how much down-time is experienced, and annual costs associated with irrigation systems repairs.

Frequent breakdowns also can be a sign of incorrect installation, inferior products or worn-

Above: An efficient irrigation system is a key infrastructure component of any golf course, similar to the roof on a house. It is not an optional accessory



out components. As a guideline, if pipe leaks are experienced more than one time per week and mainline pipe breaks occur more than two times per month, it is likely that the piping system and fittings need to be replaced.

#### **SUITABILITY**

It is important to evaluate whether the irrigation system design is suitable for the climate and location of the golf course. Parts of the country with limited rainfall depend almost entirely on irrigation systems to support turf growth throughout most of the year, whereas courses that receive frequent precipitation may only use irrigation systems as a supplement to natural rainfall. It is counter-intuitive, but even golf courses in high-rainfall areas benefit from an efficient, high-capacity irrigation system.

What would you do in the following situation? The forecast calls for a 50 per cent chance of rain; however, the golf course needs a full irrigation cycle or the turf is going to suffer significant stress the next day. Does the superintendent a) irrigate and take the chance that the golf course will be excessively wet if it rains, or b) abstain from irrigating for one more night and hope that the irrigation system is capable of watering the course ahead of play the next day if it does not rain? The answer is completely dependent on the ability of the irrigation system to apply a large amount of water in a short period of time.

This situation forces courses with low-capacity irrigation systems to irrigate because it would take several days to apply the amount of irrigation required by the turf in the event that no rain occurs, while in the meantime the turf will suffer significant drought stress and decline. Conversely, a course with a well-designed, high-capacity irrigation system can withhold from watering knowing that a full irrigation cycle can be completed in a short time frame with no disruption to play and without overwatering.

Also, the architecture of a golf course must be considered with respect to irrigation system design. Was the golf course designed to be a rustic layout with non-irrigated native grasses in the rough, or

was the course designed to be highly manicured from wall to wall? Are there mounds, bunkers or other architectural features that require specialised irrigation? Have renovation projects or architectural improvements been undertaken without making the necessary adjustments to the irrigation system? Good examples include the addition of new tees, the removal of turf in out-of-play areas, or establishment of native grass plantings that have a significantly different irrigation requirement than adjoining fairways and managed roughs.

The ability to isolate and control irrigation in sections of the golf course with different water requirements has a direct impact on overall course quality and water-use efficiency. If significant architectural changes have been made, or are being considered, modifications or complete replacement of the irrigation system should be included in the plan.

#### **EFFICIENCY AND UNIFORMITY**

There are several factors that influence the efficiency of an irrigation system and the uniformity of water distribution:

- Uniform sprinkler spacing based on manufacturer recommendations and performance data.
- Sprinkler and sprinkler nozzle performance.
- The ability to control individual sprinklers.
- A pump station capable of delivering adequate water volume and consistent operating pressure.
- Proper hydraulic design of the piping system and pumps.
- System maintenance sprinklers level and at proper grade, pressure-regulating valves properly set.

Problems with irrigation uniformity are often easy to spot due to the number and size of wet and dry areas throughout the course. Determining which of the previous factors are contributing to the problem and to what degree takes more expertise and is best done by hiring a golf course irrigation design engineer to analyse the system.



Irrigation breaks always happen at the most inopportune times

Frequent pipe breaks and valve failure are sure signs that parts of an irrigation system are worn out and need to be replaced





Many golf courses will attempt to nurse an old irrigation system and devote several employees to hand watering. While this can be effective short-term, at some point the irrigation system infrastructure needs to be upgraded before catastrophic failure occurs The analysis should include an evaluation of hydraulics and pipe sizing, the condition of pumps and controls, pressure checks at various points throughout the property, the time necessary to apply water during peak demand and a check of distribution uniformity (DU) in various sections of the course by performing a catch can test.

Recognising that natural rainfall is not completely uniform, the following rating scale from the Irrigation Association (US) is most often used when evaluating the DU of golf course irrigation systems:

- 80%: Excellent/achievable;
- 70%: Good/expected;
- **55%:** Poor.

Similarly, well-respected Australian water management expert Geoff Connellan (2002) writes that it is generally accepted that sprinkler systems for turf should have a minimum DU of 75 per cent.

Once completed, the analysis will provide objective information on irrigation system status, which components need to be replaced and a plan for making recommended improvements. The irrigation system analysis can identify several shortcuts that may have taken place during the design or installation process and other serious problems that may require major renovation or complete replacement of the irrigation system. The information gained from an irrigation system analysis will allow management to develop an operational and financial plan for irrigation system improvement or replacement.

#### COSTS OF MAINTAINING THE CURRENT IRRIGATION SYSTEM

When irrigation systems break down, most golf courses find there is little option but to patch repairs together as quickly as possible. But how much money is leaking out of the system, especially if frequent breaks occur? It is important for the superintendent to keep track of labour and repair expenditures in order to have a comprehensive overview of the amount of resources spent on the maintenance and management of the irrigation system. Maintenance records should include:

- Water cost:
- Electricity costs for pumping the water;
- Amount of time spent by the superintendent and maintenance staff managing and adjusting the irrigation system;
- Labour and material costs for making repairs;
- The amount of time and labour that is devoted to hand-watering dry spots to compensate for irrigation system deficiencies.

Granted, it is difficult to justify spending \$1 million on a new irrigation system, but tracking expenditures over time creates a clear vision of how the irrigation system is managed and where money is spent. In cases where sharp increases in the price of water are experienced, there may be clear justification for upgrading or replacement of irrigation systems. In situations where water costs are low, the main justification for upgrading or replacing an irrigation system may be an overall improvement in course quality and consistency.

#### IRRIGATION SYSTEM TECHNOLOGY

There have been rapid advances in irrigation system technology in recent years that have enhanced the ability of superintendents to more precisely manage water. The state-of-the-art irrigation system installed 40 years ago has been replaced with at least five generations of newer, more efficient irrigation system components and controls. Examples include:

- Valve-in-head sprinklers that allow each head to be operated independently for more precise irrigation control.
- Adjustable sprinkler nozzles that perform better in windy conditions.
- Variable-frequency drive pumping systems that pump water more efficiently and consume less energy.



Below: It is important to keep track of labour and repair expenditures in order to have a comprehensive overview of the amount of resources spent on the maintenance of an old irrigation system





- On-site weather stations linked to central control computers that provide site-specific weather data and information on how much water is used by turfgrasses.
- Wired and wireless in-ground moisture sensors.
- System integration that establishes communication between the central controller, pumping system, soil moisture sensors and other parts of the irrigation system.

The added information and feedback provided by advancements in irrigation technology allows superintendents to make more informed and accurate water management decisions while lowering overall costs to operate irrigation systems. Even golf courses in high-rainfall areas benefit from improvements in irrigation technology that provide the ability to fine-tune irrigation programmes leading to an overall improvement in turf quality and playing conditions.

#### FUTURE COST AND AVAILABILITY OF WATER

Inefficient irrigation systems that are prone to frequent breakdowns not only waste water but also waste money which can hurt a golf club's bottom line. Upgrading or replacing the irrigation system easily can be justified in such situations. It may be more difficult to justify irrigation system improvements in areas where water is plentiful and inexpensive, but this might not always be the case.

Unexpected changes in water-storage capability or a switch to different water sources may impact budgets and golf course operations in the future. It is important to talk with the agency responsible for water delivery in your area to develop a long-term view of the future price and availability of water and how future changes may impact your golf course.

#### RETURN ON INVESTMENT

If a golf course is going to spend \$1-2 million on a new irrigation system, questions often are asked like 'What is the return on investment?' or 'When will the project pay for itself due to savings in labour, water and energy costs?' Such calculations are difficult to make because each golf course situation is different with respect to total hectares, architecture, water source, desired level of maintenance and many other variables.

The simple fact is that an irrigation system is a key component of the golf course infrastructure, similar to the roof on a house. It is not an optional accessory. In some circumstances, a new irrigation system can produce significant savings where water costs are high and some courses document savings of 20 per cent or more compared to previous irrigation systems. In nearly all cases, a new irrigation system produces better water application efficiency, greater flexibility, reduces labour and repair costs and translates into improved turf quality and better playing conditions.



Performing a catch can test in various sections of the golf course is one part of a comprehensive analysis of an irrigation system





Above right: Variable-frequency drive pumping stations and controls are examples of improved technologies available to golf courses

Above: Although a major financial outlay for any club, a new irrigation system produces better water application efficiency, greater flexibility, reduces labour and repair costs and translates into improved turf quality

The capability of an irrigation system to apply a large amount of water in a short time allows superintendents to withhold irrigation if rain is expected, knowing they can catch up on watering the next day if the rain doesn't materialise



#### PULLING THE TRIGGER

Like many decisions related to golf course management, there is not a clear-cut date, time or number of operating hours that triggers when an irrigation system should be replaced. Making the decision to replace an irrigation system depends on a number of factors. An audit and analysis of the irrigation system by an irrigation design engineer that specialises in golf courses will provide objective data on the status of the irrigation system.

Another good exercise recommended in the 2000 USGA Green Section Record article 'Does your Irrigation system make the grade?' is to do a report card-style evaluation of the irrigation system. The next step is to develop plans to achieve the desired objective for your course. The following examples offer insight into some possible scenarios for irrigation system improvement:

Upgrading pumps and controls: The pumping station is the heart of the irrigation system. Inefficient pumps can adversely affect irrigation coverage but also can waste a significant amount of money by consuming exorbitant electricity. Assuming that the pipe system is in good condition and adequately sized, upgrading irrigation pumps and controls to a variable-frequency drive systems can improve pump efficiency and help save money on electricity. In some cases, the cost savings can be substantial. Replacement of sprinklers, satellite controllers and central controller: If the piping system is hydraulically sound and in good condition, upgrading the sprinklers and controllers may be all that is necessary. Sprinklers receive the most wear of any irrigation system component and are the items that need to be replaced most frequently. Some courses decide to replace sprinklers in phases to spread the financial impact over two or more seasons.

Note that partially replacing sprinklers results in a mix of older- and newer-model heads with different coverage patterns and water application rates, which contributes to a wide-scale lack of uniformity. Although it may not be economically feasible to replace all sprinklers and controllers at once, completing the project in a reasonable time reduces inconsistencies.

Replacing infield satellite controllers provides an opportunity to upgrade to the latest technology for better reliability and efficiency and to obtain additional programming features. Upgrading controllers also provides a chance to increase the number of stations on each control panel so that every sprinkler can be wired separately and operated individually.

#### Replacement of piping and control wire systems:

The frequency of pipe and fitting breaks offers a good indication that the piping system and fittings could be fatigued and may need to be completely replaced. Keep in mind that wires for the control system are typically placed in irrigation trenches, and an irrigation system that experiences frequent pipe breaks also is likely to have worn-out wiring.

Pipe and control wire replacement is a significant endeavour and usually signals the replacement of the entire irrigation system. However, replacing irrigation piping provides opportunities to improve the hydraulic design of the irrigation system so the entire course can be irrigated in a shorter time frame and modify sprinkler spacing and configuration for better irrigation uniformity.

#### CONCLUSION

Most would agree that there is never a good time to replace an irrigation system and, as far as the golf business is concerned, replacing an irrigation system is one of the most difficult projects to get approved. It is typical for a golf course maintenance staff to nurse an old irrigation system along for many years, however, at some point it is important to consider the cost of doing nothing. If left too long, finding replacement parts for an irrigation system may become increasingly difficult. Worse yet, there could be a catastrophic failure.

Replacing an irrigation system or upgrading major irrigation system components provides opportunities to refine irrigation system design to meet current and future needs. The ultimate goal is to have an efficient and dependable irrigation system that serves the needs of the golf course for many years while conserving precious financial and water resources.

#### **ACKNOWLEDGEMENTS**

Pat Gross is the regional director of the West Region for the USGA Green Section. This article has been reprinted in ATM with permission from the USGA Green Section Record where it first appeared in Vol 53 (5) March 6, 2015. A full list of references can be obtained from the AGCSA.



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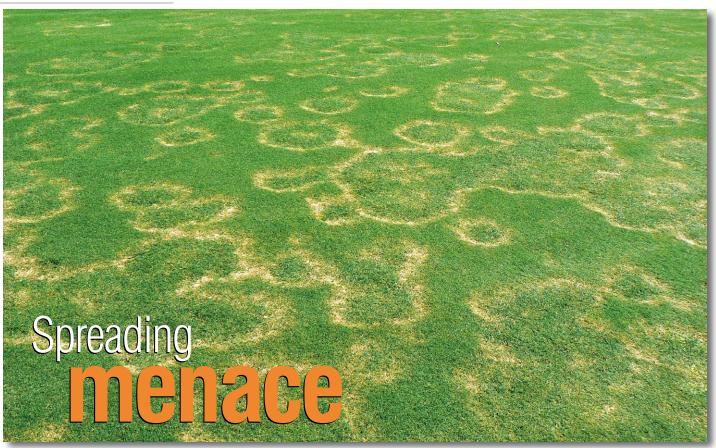


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Dr Percy Wong from the
University of Sydney
provides an update on
fairway patch disease
which has now been
positively identified at
multiple turf facilities
throughout Australia.

airway patch is a serious emerging root-rotting disease of turf grasses caused by a newly-named fungal pathogen called *Phialocephala bamuru*. Colloquially referred to as Black Fungus 1, or BF1, up until the pathogen was recently named, it was first isolated in 2007 from disease samples taken from Bonnie Doon, New South Wales and Royal Sydney golf clubs.

The symptoms of the disease begin as small circular or irregularly shaped dead patches (5-10cm in diameter, see photo opposite page) which are yellow to tan-coloured with some of the lower leaves of the infected grass tinged a bronze-orange colour. The patches appear to occur all the year round but are most pronounced from late spring to late autumn.

The patches enlarge into tan-coloured rings in couch and kikuyu turf and larger rings may measure up to one metre in diameter. The rings often coalesce to form disfiguring brown networks of dead or dying turf (see main photo above). The centres of the rings may recover to some degree but the green grass is coarse in appearance and often produces seed heads. Sometimes small patches die out completely and are sunken in the centre especially in areas where the mowing height has been raised.

The disease is most obvious on golf course fairways (hence its name) but also occurs on tees and green surrounds (see photo top of page 58). To date, the disease has been identified in a number of couch varieties including Wintergreen, Windsor Green, Greenlees Park, Santa Ana, Legend and common couch. It also causes disease in common

kikuyu. Fortunately, it does not affect bentgrass. It has also been found on couch sports ovals and even a couch lawn at a winery.

#### THE PATHOGEN

The cause of fairway patch is a sterile black fungus called *Phialocephala bamuru* (Wong et al, 2015). The fungus has not been shown to produce sexual or asexual spores but can be identified in culture by characteristic structures called appressoria.

DNA work has shown that it is a new species of fungus that has not been found anywhere else in the world. It is an ERI (ectotrophic root-infecting) fungus, which means it usually grows and feeds on the surface of roots but eventually invades roots to cause disease. It is not closely related to the fungal pathogens that cause take-all patch, rhizoctonia brown patch or spring dead patch (Smiley et al, 2005).

#### DIAGNOSING DIFFICULTY

Fairway patch is a difficult disease to diagnose. In the early stages of disease development, fairway patch resembles a number of patch diseases including spring dead patch, some ERI fungal diseases, rhizoctonia brown patch and take-all patch. As the disease develops into brown rings or coalesced rings, it can be mistaken for rhizoctonia brown patch or take-all patch. Therefore, a detailed diagnosis involving the isolation of the pathogen is required to confirm the cause of the disease.

It is not possible to diagnose fairway patch from a microscopic examination of the diseased

Aboe: A severe case of fairway patch at Bonnie Doon Golf Club in Sydney. The cause of fairway patch is a sterile black fungus called Phialocephala bamuru roots as the root symptoms are common for many ERI diseases and are not diagnostic. It is likely that fairway patch is far more widespread in Australia than is currently documented because it has simply been misdiagnosed. In fact, the disease at the three golf clubs that first showed the disease was misdiagnosed in 2005 as rhizoctonia brown patch and take-all patch.

#### SPREAD OF FAIRWAY PATCH

Fairway patch was first noticed as a single brown ring on the surrounds of a green at New South Wales Golf Club in 2000. It later appeared at Bonnie Doon Golf Club in 2004 and then at Royal Sydney Golf Club in 2005. Since then, the disease has been spreading rapidly and has been positively diagnosed at eight other golf clubs in NSW, two golf clubs in south-east Queensland, one golf club in Victoria, two golf clubs in Western Australia as well as three sports ovals and a winery lawn in various states. Therefore, the disease is of national significance.

The disease may be more widespread as many golf clubs and sporting facilities may have the disease without their knowledge because the disease does not become apparent for several years after its introduction to those facilities. The disease is mainly spread by infected turf and soil adhering to golf shoes, golf carts, maintenance equipment and machinery.



The severity of the disease varies from year to year. The reason for this is not known and more epidemiological research is required. A common experience is for the disease to be observed as a few brown patches or rings on a golf tee or fairway in the first year and for the disease to spread very quickly through the fairways in subsequent years.

In some years, the disease appears to subside in severity and almost disappears completely, but when conditions favouring the disease return, the disease can explode into countless brown rings that cover whole fairways (as shown in the main photo opposite and two photos on page 58).

#### LIMITED RESEARCH

In 2006, the three Sydney-based golf clubs affected by the disease commissioned me on a part-time basis to commence a research programme to identify the cause of this disease. In 2007, I isolated the pathogen and confirmed that it was the cause In the early stages of disease development, fairway patch resembles a number of patch diseases including spring dead patch, some ERI fungal diseases, rhizoctonia brown patch and take-all patch





Fairway patch is most obvious on golf course fairways (hence its name) but also occurs on tees and green surrounds as seen here at Royal Sydney Golf Club



Although first noticed in Sydney back in 2000, fairway patch has since spread nationwide and has been positively diagnosed at eight other golf clubs in NSW, two in south-east Queensland, one in Victoria and two in WA

of the disease by conducting pathogenicity tests (Wong et al, 2015).

Since 2008, a series of laboratory trials have been carried out at the University of Sydney and field trials have been carried out at the three golf clubs that have financed the research. All the fungicides identified as effective against the pathogen in laboratory tests were tested in field plots by applying them monthly at curative rates for six months and at various times of the year. However, none of the fungicides has been shown to be effective in the field.

Therefore, field trials were commenced at all three golf clubs to test the effects of a range of fertilisers, organic amendments and biological control agents for the long-term management of the disease. These trials are continuing and the information gained so far has been extremely helpful in planning future strategies for controlling the disease.

In the last six years Bonnie Doon, New South Wales and Royal Sydney have invested in excess of \$280,000 towards the research on this disease. These clubs, the University of Sydney and the AGCSA are actively encouraging those in the turf industry who have their facilities diagnosed with fairway patch to join in funding this project so that more research can be carried out to manage the devastating effects of the disease.



If left unchecked, it has the potential to spread to every tee and fairway within a golf club and to every golf club in the country with couch or kikuyu fairways. A spread into turf farms could severely affect the turf-growing industry in Australia.

#### IMPLICATIONS FOR THE TURF INDUSTRY

The seriousness of the disease cannot be overemphasised. The disfiguring symptoms of the disease as seen in the photos significantly detract from the aesthetics of the golf courses. This could lead to reduced membership, revenue and prestige. If it is found in turf farms, there may be quality assurance requirements imposed by customers for disease-free turf. Therefore, there is an urgent need for some disease-free accreditation scheme to be developed if litigation is to be avoided.

At present, the occurrence of disease is unpredictable, which makes management of the disease extremely difficult. Only a large injection of funds by the golf and turf growing industries to conduct detailed and methodical research into the disease will enable it to be properly managed.

So far, the limited research has gained a measure of understanding of the disease and laid the groundwork for further studies. In the United States, an intractable disease like summer patch (which, fortunately, we do not have in Australia) has required the expenditure of many millions of dollars and more than 20 years of research by several turf pathologists to develop management strategies for disease control.

From my long experience with soil-borne root diseases, I suggest that there is not going to be a 'quick fix' for this disease and the sooner the golf and turf growing industries support a long-term research project to investigate the disease, the sooner will we have some solutions. Anything less than this commitment would be akin to putting our collective heads in the sand.

#### DO YOU HAVE FAIRWAY PATCH?

If a golf club or sporting facility suspects that it may have fairway patch, it can have it confirmed by sending a disease sample to: Dr Percy Wong, Plant Breeding Institute, 107 Cobbitty Road, Cobbitty, NSW 2570. Other contact details are 0416 853 996 or email percy.wong@sydney.edu.au

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#### PARTNER RECOGNITION PROGRAMME

#### Support those organisations who support your association

Thank you to all the partners who help the AGCSA provide members with the greatest programmes and services the industry has to offer.















































#### SYNGENTA ADDS PENNMAG, MEDALLION TO PRODUCT ARSENAL



Medallion contact fungicide and Pennmag pre-emergent herbicide are Syngenta's two latest products to hit the turf market this season GCSA Gold Partner Syngenta has launched two new products onto the market this spring

- Pennmag pre-emergent turf herbicide and Medallion turf fungicide.

Pennmag (a.i. 960 g/L S-metolachlor) can be used on most established warm- and cool-season turf species (buffalo, carpet grass, common couch, hybrid couch, kikuyu, Queensland blue couch, seashore paspalum, zoysia, bentgrass, fescue and perennial ryegrass) and can deliver up to eight weeks of residual control when applied prior

to weed emergence. Applied at 2l/ha, Pennmag targets the likes of African love grass, annual ryegrass, barnyard grass, burr medic, carrot weed, crowsfoot grass, liverseed grass, pigeon grass, summer grass and winter grass.

"The addition of Pennmag to the Syngenta product line-up means turf managers now have a suitable tool to get warm-season turf bouncing out of their winter slumber while still maintaining good control of summer annual grasses," says Syngenta technical manager Dr Mark Walker.

"With the pre-emergent market dominated by actives coming from the Group D family, there has traditionally been a slight compromise needing to be made when wanting complete weed control and maximum turf recovery simultaneously.

"The Group D herbicides have a mode of action of microtubule assembly inhibitors (root pruners in simple terms) meaning turf suffering badly from winter wear and in desperate need of lateral growth to knit back up had an additional impediment of difficulty pegging down to anchor new runners.

"It's a short-term issue, narrow in time, but

very important to those whose job it is to produce a good surface in warm-season turf fields – fast. Pennmag is a short-term, non-root pruning preemergent herbicide, available to slot into a 6-8 week window, with a spectrum that covers the major annual weedy grasses."

Medallion (a.i. 125g/L fludioxonil) is a new contact fungicide developed by Syngenta for the control of anthracnose, brown patch, dollar spot, helminthosporium disease, winter fusarium/microdochium patch. Available in a 5L pack size,

Medallion attacks germinating spores and developing fungal mycelium to rapidly clean and protect external surfaces. The longer reach of Medallion into the leaf tissue allows the 'early curative' window to be wider than is possible for other contact fungicides.

"Medallion is an all-year, any time option, extremely versatile, broad spectrum and uses low application rates per hectare," explains Walker. "As you would expect, formulation quality is outstanding, buffered against variable water quality with

incredibly fine milling for outstanding surface area coverage.

Medallion'

"Medallion doesn't stop at the external surfaces of turf leaves; it has a far greater reach into the leaf. If you use it as a true preventative, more vulnerable tissues are treated for the same effort previously applied. For diseases where activity has commenced, control is possible deeper into the disease progression."

For more information about Pennmag preemergent herbicide and Medallion fungicide, view the product fact sheets at www.greencast. com.au





Turfkeeper.com.au is an online turf management tool for course superintendents

#### TURFKEEPER.COM.AU LAUNCHES IN AUSTRALIA

Online turf management tool Turfkeeper has launched in Australia. In mid-October at The Lakes Golf Club, Daryl Sellar (Turfwise Consulting) and Jeff Blunden (Golf Business Advisory Services) outlined the benefits of Turfkeeper to a number of senior facility and turf managers in attendance at the Sydney launch.

Sellar and Blunden have secured the exclusive distribution licence for Australia/NZ and Asia for Turfkeeper, a UK-developed management programme that provides turf managers with an oversight of staff management, turf maintenance practices, machinery use, chemical applications and department budgeting.

"Within a club environment, all other operational areas have dedicated pieces of software to help

support the delivery and administration of services provided," says Blunden. "With turf management, the key asset of all facilities, data capture and record keeping is still manual in many cases. With Turfkeeper, all actions are captured and importantly talk to one another.

"For example employee time is no longer only reflected in a time sheet. In Turfkeeper time also attaches to a task, which adds to machine use hours, decrements stock levels, feeds the budget and allows for much more thorough, automated reporting. Complete oversight is now possible."

Adds Sellar: "There is no doubt that more information is being sought from turf managers, and rightfully so. It's our view that further management collaboration can occur and this tool not only readily provides information but does so in an easy to use and illustrative way."

Kevin Scarce, product manager of the developers of the software, Turfkeeper Ltd, in the UK says they were thrilled to now have a great partner in the Southern Hemisphere. "We truly believe in the power of Turfkeeper, evidenced by the size of our customer base in the UK and are pleased that like-minded turf managers in Australia can now utilise our tool and receive quality local support," says Scarce. "Jeff and Daryl are already pushing us in terms of product improvement for the Australian market and we are looking forward to working with them."

For more information about Turfkeeper, which is being offered through monthly subscription, visit www.turfkeeper.com.au or contact Daryl Sellar 0408 322 397 or Jeff Blunden 0412 989 222.

#### BAYER PARTNERS WITH AQUATROLS



Soil surfactant company Aquatrols has announced a new distribution partnership with AGCSA Silver Partner Bayer Environmental Science to expand the company's presence in Australia. The deal, which came into effect late September, provides greater solutions, innovations and support for turf managers across Australia, according to Matthew Bywater, international accounts manager for Aquatrols in the Pacific Rim.

"As our science and product range has developed beyond simply controlling dry patch and into greater rootzone management, so has the need to further support and research our products on a localised basis. Working with Bayer will allow us to address the specific needs of Australia's turf managers," says Bywater.

Martin Ball, General Manager for Bayer Environmental Science in Australia, expressed similar optimism about the deal. "We pride ourselves on supplying Australia's turf managers with the products and services they need to produce optimum playing conditions. Over the past 60 years, Aquatrols has shown a strong commitment to research and development and a genuine concern for their customers. We are pleased to partner with them to provide Australia's turf managers with products that are backed up by sound science and research," says Ball.

#### UPDATED 2015 MONSTAR PERMIT

AGCSA trade member Campbell Chemicals has received an updated 2015 permit from the Australian Pesticides and Veterinary Medicines Authority for its Monstar fungicide for the control of fairy ring in golf greens. Campbells' marketing development manager Nadeem Zreikat says the company has submitted the registration for turf for fairy ring and rhizoctonia (brown patch) control and is awaiting approval which should be in early 2016.

#### ADVANCED SEED SPREADS ITS REACH



Advanced Seed now distributes the Earthway EV-N-SPRED Flex Select Series range of fertiliser spreaders. These commercial spreaders come with an interchangeable tray system that allows a high, low or standard tray to be fitted for the easy output of different sized materials.

Some of the features of the interchangeable tray system include:

- The standard tray has a three-hole drop mechanism and is fitted with the dual port shutoff system. It applies fertiliser in a balanced 180 degree pattern;
- The high output tray is designed for applying large granular materials, like sand, or gritty products. It has an oscillating agitator integrated into the shut-off which improves the material flow:
- The low output tray accurately applies small materials such as grass seed or other products that need a low volume output e.g.: chemicals. It also has the oscillating agitator integrated into the shut-off to improve flow.

The new Earthway EV-N-SPRED Flex Select Series range of fertiliser spreaders come with an interchangeable tray system

#### **INDUSTRY APPOINTMENTS**

#### SCAIFE TAKES ON GENEREAL MANAGER ROLE AT M&K



NSW-based Maxwell and Kemp has undergone a management restructure with the company announcing that **David Scaife** has moved

into the role of general manager. Scaife (pictured), joined Maxwell and Kemp as a sales and technical representative in January 2013 shortly after departing Bonnie Doon Golf Club where he was superintendent for more than 10 years. Scaife will still maintain and service his existing clients and can be contacted on 0423 566 571 or by email dscaife@maxwellkemp.com.au.

#### BALL APPOINTED NEW BAYER ES GENERAL MANAGER



AGCSA Silver Partner Bayer has appointed **Martin Ball** (pictured) as the new General Manager, Environmental Science, replacing **Dave**  Ross. Ball is an experienced manager and arrives from Bayer's Consumer Care Division, having held numerous positions including the most recent position of National Channel Manager, Grocery. Ball can be contacted direct on 0418 488 547 or by email at martin.ball@bayer.com

#### **CASSIDY JOINS NUTURF**



AGCSA Silver Partner
Nuturf has appointed **David**Cassidy to the role of Nuturf
territory manager based
in Queensland. Cassidy

(pictured) started his turf management career in Sydney and then had stints in Scotland, Barbados and Qatar, including six years as superintendent at Doha Golf Club, home of the European Tour's Qatar Masters. Cassidy can be contacted on 0429 939 273 or on email at David. Cassidy@nuturf.com.au

New appointments? Email ATM editor brett@agcsa.com.au

The F-Series comes in two sized hoppers – 36kg and 59kg – and all can use the integrated tray system. They are fitted with a new 'floating' heavy duty gearbox for extra life and 33cm turf tyres on rust proof rims. The F-Series can convert to a towable spreader with an optional kit.

For information on the Flex Select Spreaders, visit www.adseed.com.au or call Advanced Seed on (03) 9462 0340.



#### WINTER, WOOLFE PURCHASE CANBERRA'S STADIUM TURF MANAGEMENT

Canberra-based Stadium Turf Management (STM) has been purchased by Richard Winter and Mathew Woolfe. Winter is currently managing director of Melbourne-based turf management company Pitchcraft, while Woolfe is general manager projects for the same company.

STM maintains various premium turf venues around Canberra such as GIO Stadium, Australian National University and Canberra Raiders training and affiliated venues. Mark McGarry, the owner and founder of STM and managing director for the past 17 years, will remain as general manager for the next two years along with all current staff, with business carrying on as usual.

"Mathew and I are excited to be involved at Stadium Turf Management and continue the excellent foundation set by Mark and his very capable team," says Winter. "Both Mathew and I are Canberra born and bred so it's nice to be involved with a company that has been an established name in the ACT for many years."

#### **GRAHAM GETS TASTE OF THE FUTURE WITH JACOBSEN**

ew Golf Club's Jarryd Graham recently returned from being part of AGCSA Gold Partner Jacobsen's Future Turf Managers' Initiative (FTMI) held in Charlotte, North Carolina. Graham was nominated by Melbourne Polytechnic to attend the three-day FTMI which gives turfgrass students an opportunity to network with industry professionals, see some of the best managed sports fields in the US and also get an insider's look at Jacobsen's turf equipment.

As well as touring the Jacobsen manufacturing facilities, the visit also included trips to a couple of golf courses – Peninsula Golf Club on Lake Norman and Sage Valley Golf Club in South Carolina, just 15 miles from Augusta National. The magnificent Sage Valley was built by property developer Weldon Wyatt, whose company built most of the Walmart stores in the USA, after he had been turned down for membership at Augusta National.

Also included in the itinerary was a visit to the University of South Carolina and a tour of their sports facilities. Known as the 'Gamecocks', the university's Williams-Bryce Football Stadium seats 80,250 spectators and their US \$35-plus million Carolina Stadium baseball complex, which opened in 2009, has a capacity of 8242 fans. Assistant athletics director Clark Cox hosted the students and explained the turf management practices at both venues.



Jarryd Graham receives his certificate from Jacobsen's President David Withers (right) and Steve Rand, Director, Chapter Outreach, GCSAA

"In Australia when we do our apprenticeships we're more practical based, whereas over in the USA they go to university full-time for three years and then intern on their holidays," reflects Graham. "It was a bit of an eye opener. The practical side we do in Australia is really good because you're always outside working and you're learning on the job. But being full-time students, you could see that the American students' theory was probably a bit ahead of where ours sort of sits."



The student group at the University of South Carolina's Gamecocks baseball stadium

Graham rated the FTMI experience as extremely invaluable and with some recent changes at his own club says it will hold him in good stead as he takes on greater responsibilities. "I've been able to step up with the assistant and we were running the course for a period when the club was looking for a new superintendent," says Graham. "Having attended the FTMI demonstrated to the committee at Kew that I'm a person that's capable of handling a wide variety of jobs. It also confirmed that this is the career path I want to take. I love the turf management industry and this experience just reaffirmed that"



The new-look Nuturf website



#### **AUST ZOYSIA SHINES IN NTEP**

Shadetuff zoysia has ranked No.1 out of 35 entries for genetic colour and for leaf texture in the current US zoysiagrass trials conducted across 13 sites under the National Turfgrass Evaluation Program (NTEP) in 2014. It also rated No.2 for spring greenup. The current US standard cultivar for Zoysia matrella ranked 29th, 3rd and 20th in the same respective categories.

Shadetuff zoysia was bred in Australia by Dr Don Loch and was entered in the NTEP trials under its Plant Patent cultivar name 'A-1'. Dr Loch says: "I've been told repeatedly by knowledgeable US turf scientists and breeders that Shadetuff has the best colour of any zoysiagrass they've seen. Shadetuff

zoysia is great in the sun, terrific in the shade - even heavy dappled tree shade. And it lives up to the 'Tuff' in its name."

For further information on Shadetuff zoysia, contact g.loch@elitegreen.com.au.

#### NUTURE LAUNCHES NEW WEBSITE

AGCSA Silver Partner Nuturf has launched its brand new website www.nuturf.com.au. Designed with a fresh new look, user-friendly navigation and updated with the latest information about the products and services the company offers, Nuturf business manager Peter Schumacher says the new website is rich in content for its valued customers and the broader turf industry.



#### SAGCSA



**SAGCSA Distinguished Service** Award winner Rob Millington, right, with awards MC Ben Hook



**Excellence in Turf Management** Award winner Daryl Sellar with **Globe SA's Andrew Manthorpe** 



**SAGCSA Graduate of the Year Jacob Burridge with Toro's Simon Jones** 

ong-time SAGCSA member Rob Millington of The Vines Golf Club of Reynella was bestowed I the association's highest honour in October. In front of industry peers at the annual South Australian Golf Industry Awards dinner, Rob received the SAGCSA Distinguished Service Award in recognition of a career that has spanned nearly four decades.

Rob, who has been a course superintendent for the past 31 years, started out as a greenkeeper at Thaxted Park Golf Club in 1976 after realising there was no future for him as a professional golfer. After completing his trade schooling in 1983, he became superintendent at Thaxted Park in 1984. In 1997 he moved across to The Vines Golf Club as superintendent and completed his Advanced Certificate and Associate Diploma. Further to this, he completed his Masters in Turf Management with the University of Sydney in 1999, one of only two people in SA to undertake the course.

During his time at The Vines, Rob has completed major projects including the establishment of Santa Ana couchgrass across all fairways and a major earthmoving programme that reshaped eight holes. Securing an adequate water supply for the club has also been a focus, with the construction of a 32 megalitre dam and management of the installation of the stormwater harvesting project from the Happy Valley Reservoir System a major achievement. During his three decades as a superintendent, Rob has also been involved on the SAGCSA committee including time as secretary/treasurer.

The Distinguished Service Award was one of three that the SAGCSA handed out as part of the awards night. Jacob Burridge, formerly of Kooyonga Golf Club, was officially recognised as the SAGCSA Graduate of the Year. This award was judged earlier in the year to coincide with the AGCSA Graduate of the Year Award, with Jacob representing the SAGCSA at the recent Hunter Valley conference. Completing his studies at TAFE SA's Urrbrae campus, Jacob was elevated to the leading hand's position at Kooyonga and has recently moved to Melbourne where he has taken on a similar role at Peninsula Kingswood Country Club under course superintendent Glenn Stuart.

The final SAGCSA award - Excellence in Turf Management - went to Daryl Sellar from Glenelg Golf Club. Daryl has been course superintendent at the club since May 2000 and was employed just 18 months into the club's \$1.4 million course redevelopment project. This redevelopment saw a stunning transformation and is a credit to the architects' and the club's vision and the dedicated and committed work of Daryl and his course maintenance team.

In recent years Daryl has also overseen the establishment of the \$2.4m Aquifer Storage and Recharge (ASR) project which demonstrates the value of water re-use and stormwater recycling through the construction of man-made wetlands. Daryl has also been instrumental in the development and documentation of the club's course maintenance policies and procedures, which coupled with the major project works, sees the course better equipped to meet the challenges of the future through greater sustainability.

His emphasis on reducing inputs in marginal or out-of-play areas to allow for greater focus on the playing surfaces has benefited the club greatly and the results of his work have been clearly acknowledged by not only club members, but by the fact that Glenelg Golf Club has steadily risen up the national course rankings.

On behalf of all SAGCSA members, we congratulate these three gentlemen on their outstanding achievements.

> RICHARD JAMES SECRETARY/TREASURER, SAGCSA



he early warm dry weather in Melbourne has caught most turfies off guard with only a couple of millimeters of rain falling for the month compared to the October average of 66mm. We have also experienced some unseasonably hot days which has been good for couch reestablishment.

ASABA and STA Vic held a sports field seminar and field day on 17 September at Eltham College with 125 delegates attending. Martin Sheppard from Smart Connection Consultancy gave a presentation on synthetic surfaces with a focus on the good and the bad aspects of installing them. Next was a panel session on project management with Jarrod Hill, Ian Wilson and Hamish Sutherland talking about the development of Melbourne City's new training facility. The next presenter was Deidre Dattoli who gave a presentation on high performing teams. The last presenter before lunch was Adam Mattoli who spoke about the restoration of RMIT before keynote speaker AFL great Terry Wallace spoke about his career and goal setting.

STA Victoria will be developing a new look website over the coming months and need sponsors and members to ensure their details are up to date.

GARRY WOOLARD COMMITTEE, STA VIC



he last quarter of the year can mean many different things to most of us in the turf industry. For the majority of us it heralds the all too quickening end of yet another busy year, but for a small section of our turf community it also marks a milestone in their chosen career. Very soon those who have studied hard and hopefully completed all their exams, course assignments and competencies will be rewarded with their welldeserved accreditation.

Among these will be the graduating 3rd year turf apprentices from TAFE colleges and institutes throughout Australia. It's that time of the year when across the country the turf industry will come together to celebrate the graduating class of 2015 as they receive their completion certificates and for those select few an honoured award or recognised achievement.

An absolute core element of the Sports Turf Association has been the promotion of quality educational resources and new technologies complemented by the provision of effective information/training events. STA Australia proudly encourages the rights and intentions of all members to continue to take every available opportunity and make the very most of their learning potential and career development.

This could not have been possible if not for the continued support by the many companies linked with each state STA. They have shared this vision with the appreciation of how very proactive the Australian turf industry is with generational skills training and development.

Since 2010, Toro Australia has undertaken the very serious commitment to be involved in the

t is hard to believe that 2015 is coming to a close - where has the year gone? So far spring in NSW has been a mixed bag of weather, from some very hot summery days to a sudden drop of 15-20 degrees overnight and with very little rain.

A great day was had by all who attended our Annual Golf Day at Bayview Golf Club on Sydney's northern beaches. A special thanks to superintendent Dave Stone and his crew for presenting a great course and also to our sponsors and players. Congratulations to the Living Turf team for taking out the trophy.

This was our last planned event for the year but we are working hard to provide some informative seminars and workshops as well as our social event for 2016 and will keep members updated.

> CHRIS CHAPMAN PRESIDENT, STA NSW



education and training of the sports turf industry by sponsoring the National Sports Turf Graduate Award. Through Toro's generous involvement, the winner is afforded the very privileged opportunity in sponsored travel and accommodation to the USA Sports Fields and Grounds Forum, as well as exclusive access to the Toro headquarters and R&D division. It goes without saying that the achievement of awards such as this is a career-defining moment and one that all turf graduates should aspire to.

On behalf of all the STA Australia community, I would like to express all encouragement and best wishes to our turf apprentices and students as they step forward on a brilliant career within this fantastic industry.

Winning this year's National Sports **Turf Graduate of the Year Award has** been a career-defining moment for **Launceston's Grant Woolley (second** from left). He is pictured here (from left) with Toro's Robert Rein, Aurora Stadium's Bryan Dunn, STA Australia president Tony Guy and Toro's **Lawrence Bingham** 

#### **TONY GUY** PRESIDENT, STA AUSTRALIA

#### ON THE MOVE

STEVE ABBOTT: Replaces Shane Baker as superintendent at Araluen Golf Resort, WA.

MARK BIRD: Retired as superintendent Kew Country Club, NSW after 38 years.

PHIL BOAG: Resigned as superintendent Mcleod Country Golf Club, Qld.

CRAIG CLARKE: From assistant superintendent to superintendent Mcleod Country Golf Club, Qld.

PETER CAWSEY: From assistant superintendent Heritage Golf & Country Club, Vic to superintendent Eastwood Golf Club, Vic.

MARTIN FORMOSA: From assistant superintendent to superintendent Dunheved Golf Club, NSW

JAKE GIBBS: From assistant superintendent Bonnie Doon Golf Club, NSW to assistant superintendent Royal Sydney Golf Club, NSW.

NATHAN LINDSAY: Appointed assistant superintendent Hamilton Island Golf Club,

SIMON PAGE: Appointed superintendent of The National Golf Club (Long Island course), Vic.

**BEN PAYNE:** From Metropolitan Golf Club to Peninsula-Kingswood Country Club,

CAMERON SMITH: From El Dorado Beach and Golf Club. Mexico to assistant superintendent Bonnie Doon Golf Club,

LIAMSOMERS: Appointed superintendent Kwinana Golf Club, WA.

CAMERON STUART: Departed as assistant superintendent at Royal Sydney Golf Club, NSW.

SHANE STUART: From superintendent The National Golf Club (Long Island course) to Peninsula-Kingswood Country Club, Vic.

#### TURF AUSTRALIA Turt @ Australia

sing extension to communicate key outcomes from research and development projects and ensuring growers understand the difference between the role of industry and R&D bodies. These were two of Senator Richard Colbeck's, Parliamentary Secretary for the Federal Minister for Agriculture and Senator for Tasmania, messages when he opened the 2015 Turf Australia Conference back in August.

Held on the Sunshine Coast, the Senator opened by reflecting on his strong memories of the turf industry when in 2006 he was responsible for assisting in getting the turf levy off the ground. However it was the Senator's huge belief in Australia's R&D model which took centre stage during his opening address.

The Senator made it quite clear how Australia's R&D model was lauded by other countries who looked enviously on the model's capacity. But, according to the Senator, the thing that has been an issue for a long time is that of extension.

"The issue of extension is extremely important to us and I have seen examples of great R&D but extension has not been as good as it could be for the take-up of R&D," he stressed. "We are interested in finding ways to develop reasonable returns for growers, that's why you are in business and that's why we invest in R&D. R&D has been at the leading edge of maintaining this profitability. However, good extension is needed so industry can take-up R&D and ensure profitability."

In touching on a very topical issue in the horticulture sector, the Senator acknowledged that Australia's horticulture industry was going through considerable structural changes within its key R&D body – Horticulture Innovation Australia (HIA). The Senator added that: "The process had a little way to go and we understand the frustration across the whole of horticulture of the process. We are looking forward to the process being properly settled."

In referring directly to the turf industry itself, the Senator said "...it was good to see an industry working cohesively towards a strong positive future and I know having had interaction with some of you over a long period of time that you are a very innovative industry".

Finally the Senator answered and voiced his concern that there were a lot of growers who did not recognise the difference between advocacy groups and R&D bodies. "There is a lot of money going into R&D projects, the fact that so many people don't differentiate between advocacy organisations and an R&D body is vital and important," he said.

The Senator stressed that the Federal Government's Statutory Levy Funding Agreement prohibited political activity from industry with any R&D money – "...it (the levy) is there for the profitability of the industry.



"Political advocacy and representation is completely different. Some get confused that they're paying a levy and don't understand what it is all for," he said. "Political advocacy includes organisations such as the National Farmers' Federation. Industry has to work out how they want to fund themselves, but dipping into the R&D funding is not the way and would threaten the whole process."

The Senator agreed that understanding the difference between Voice of Horticulture (a member-based organisation that represents horticultural growers and businesses across fruit, nuts, mushrooms, turf, nursery plants and cut flowers), HIA (the horticulture industry's R&D body) and peak industry bodies (such as Turf Australia) was "...a communication issue and needed to be understood across industry about what it was all for".

"And that was one of the issues that came out of the recent review in the former Horticultural Australia Limited (now HIA) – the differentiation between industry organisations and R&D. Within the review, concern was expressed about the use of R&D funding being used for advocacy purposes."

In looking forward, the Senator stressed that the horticulture sector would see a fairly difficult time ahead for the next couple of years while the new structure of HIA worked itself out. "How some of the industry groups were receiving payments will be different and they will need to see a restructure of their business models," he stressed. However the Senator was positive and assured turf growers that he felt they were well positioned to cope with all the upcoming changes.

Turf Australia will continue to work with Horticulture Innovation Australia (HIA) in an effort to ensure turf levy funds are used to enhance the profitability of and professionalism within the turf industry.

RICHARD STEPHENS BUSINESS & INDUSTRY DEVELOPMENT MANAGER, TURF AUSTRALIA

#### ON THE MOVE

LINC URQUHART: Departed as superintendent Bargara Golf Club, Qld.

MORGAN WESTMORELAND:
Appointed superintendent at
Wentworth Falls Country Club,

Wentworth Falls Coul NSW.

MARK DAVIS: From superintendent Half Moon Bay Golf Club, Qld to superintendent Sea Temple Resort, Qld.

#### NSWGCSA •

astlake Golf Club course superintendent
Nathan Bradbury took out the NSWGCSA's
2015 Rube Walkerden Trophy which was held
in mid-November. Nathan posted an impressive 39
points around St Michael's Golf Club to beat home
The Ridge Golf Club's Ben Grylewicz.

St Michaels was in excellent condition for the field of 60 that turned out thanks to host superintendent Russell Fletcher and his crew. Coupled with near perfect conditions the scoring was pretty hot, with yours truly winning the stableford prize with 47 points, beating home Justin Bradbury (Bonnie Doon Golf Club) who posted 39 points. Also successful on the day were Guy Thomas (PGG) who won the Simplot Cup for the trade and Simplot's Craig Easton who won the Former Presidents Cup trophy.

Following the golf, the NSWGCSA held its 2015 AGM and handed out its annual awards:

- NSWGCSA Environmental Award: Peter Watts (Muirfield Golf Club)
- NSWGCSA Excellence in Turf Management Award: Richard Kirkby (Pennant Hills Golf Club)
- NSWGCSA Outstanding Achievement Award:
   Daniel Metcalfe (Beverley Park Golf Club)

The AGM saw the association report a good year with a number of new faces joining the committee.



The new NSWGCSA committee is:

- President: Stuart Gill (Terrey Hills GC)
- Vice-president: Steve Harris (The Vintage GC)
- Junior vice-president: Shane George (Shellharbour)
- Secretary/Treasurer: Russell Fletcher (St Michael's GC)
- Committee: Justin Bradbury (Bonnie Doon GC), Nathan Bradbury (Eastlake GC), Leon Hennessy (Cromer GC), Malcolm Harris (Northbridge GC), Mark Schroder (Liverpool GC) and Shane Herring (Camden GC)

Finally, congratulations to **Chris Neal** and the maintenance team at Bonville Golf Resort in northern NSW. Bonville really got into the spirit of Movember by cultivating an impressive moustache on the bottom of the 18th fairway (see photo). The big mo attracted widespread media attention and went a long way to helping the club raise an impressive amount for charity. Chris has encouraged his fellow supers to do likewise next year.

The Bonville Golf Resort maintenance crew and their carefully cultivated mo which appeared on the 18th fairway during the month of 'Movember'

STUART GILL PRESIDENT. NSWGCSA



#### GCSAQ 🖎

The new look back nine at RACV Royal Pines has progressed well and will get its first real test at the 2015 Australian PGA Championships in early December ensational Queensland weather has fostered near perfect spring renovation conditions which has made us all look like gurus. Reports from superintendents far and wide say their recovery has been the best in a very long time with some golf club members questioning whether we didn't go as hard on our surfaces this time around when in fact it was quite the opposite in terms of process.

With the good also comes the bad and some ugly afternoon storms wreaked havoc in late October/early November with some Gold Coast courses being closed for clean-up and others still clearing debris and repairing washouts.

Lincoln Coombes at RACV Royal Pines Resort will be praying for these storms to stop (after already receiving a 100mm downfall) as he moves into the final throes of preparing his newly constructed back nine for the 2015 Australian PGA Championship starting 3 December. Lincoln is happy overall with the progress given he has had three weeks less preparation this time around.

Some minor hiccups have necessitated re-turfing of the 18th tee and minor adjustments to drainage on the 10th tee, but apart from that he has been given the thumbs up from agronomist John Neylan and all will be ready to go.

As part of our 'Walk 'n' Talk' series, the GCSAQ is returned to Royal Pines on Wednesday 25



November to gain some insight into the completed redevelopment of the course. **Graham Marsh** gave us an insight into his design philosophies and guided us over the back nine. It was great to see the new holes just a few weeks out from the tournament.

Honouring another commitment to our members, the GCSAQ has launched itself into the world of social media and is now on Facebook. This is a prime opportunity for 'bragging rights' for all of you tech savvy members and for the elder statesmen of our industry and those not technologically advanced to get your kids to put your photos up. We would like to keep this page fresh and interesting so please contribute as often as you like.

The recent memorial golf day for long time GCSAQ member Russell Cook and brother of Rod (The Grand GC), was held at Nudgee Golf Club on 6 November. Ninety-two intrepid golfers participated in the day and a total of \$5000 was raised on the day to support Russell's son Matthew's school fees.

#### BEN TILLEY PRESIDENT, GCSAQ

#### QUALITY PUBLICATION

#### Dear Brett.

I note in the Volume 17.5 issue that it was the 100th edition. Would like to extend congratulations to you and others for their sustained efforts in producing a quality publication.

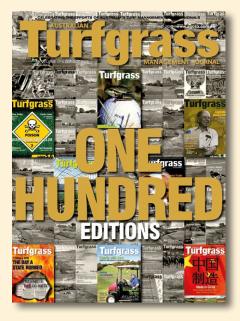
Sincerely yours,
James B Beard, PhD, DA, VMM
Professor Emeritus, Texas A&M University
International Sports Turf Institute

#### A CREDIT TO ALL INVOLVED

#### Dear Editor,

Hearty congratulations to all at AGCSA, present and past, for achieving 'the ton'. Quite a superb magazine from day one and a great credit to all involved. I did enjoy reading the historical accounts and recollections of Euan, Phil, John and yourself. 'Diving in at the deep end' is an experience I can equate to but it's a thrill to then swim rather than sink!

Regards, Arthur Stubbs



#### A TRIP DOWN MEMORY LANE

#### Dear Editor,

I have just received ATM 17.5 and it is an excellent edition. The history of ATM is great reading and well done on getting an interview with Euan Laird and Phil George who played such a critical role in the early days. Having been in the thick of it early on,

it brought back a lot of memories and also highlighted the importance of the AGCSA making its own way despite the critics. Congratulations on getting in contact with Trent Penman too – his cover photo for the very first edition of ATM is still one of my favourites. Well done to you and Jo Corne on what is a memorable edition.

Regards, John Neylan Turfgrass Consulting and Research

#### WONDERFUL MILESTONE

#### Dear Editor,

I just want to take the opportunity to congratulate yourself and the staff and all past and present AGCSA Board involved in producing 100 editions of Australian Turfgrass Management Journal. It was an enjoyable trip down memory lane for me reading the 100th edition. Is it sad when a work journal is your favourite magazine? Congratulations to all involved.

Best regards, John Nelson Grafton District Golf Club

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\*Compared to comparable 5-gang fairway mowers.

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- Akarana
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- Grange
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