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# Turfgrass



VOLUME 22.2 MAR-APR 2020

MANAGEMENT JOURNAL

## Coronavirus crisis

How the Australian turf industry has responded to COVID-19

## Killara reborn

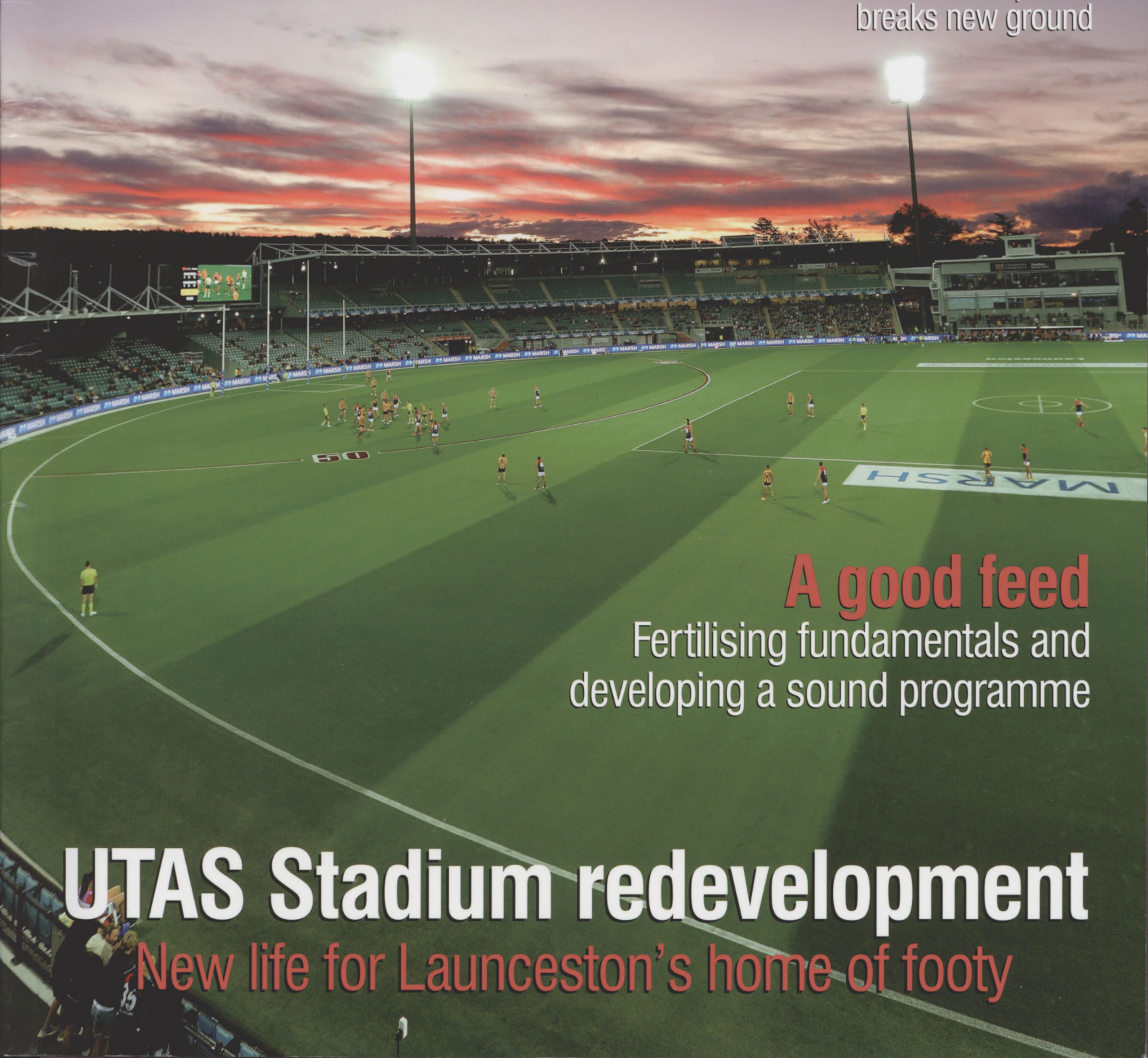
Course redevelopment breaks new ground

## A good feed

Fertilising fundamentals and developing a sound programme

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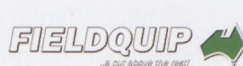
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**COVER STORY**  
**KICKING GOALS**

6

University of Tasmania Stadium in Launceston has long been regarded as Tasmania’s home of AFL, being the Apple Isle headquarters of the Hawthorn Football Club. Over the years it has also been a primary hub for state and community football and cricket in the north and has always had a strong reputation for being one of the best presented and conditioned boutique stadiums in Australia. That status has now been taken to a new level thanks to a multimillion-dollar surface redevelopment last winter.

*Cover:* UTAS Stadium, Launceston.  
*Photo:* Brett Robinson



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# Navigating the pandemic

Is this really happening? Seriously!? I'm sure everyone is still trying to make sense of where we are currently at as the COVID-19 pandemic has strangled, and continues to strangle, the world. First and foremost I hope that you are healthy, your families are coping as best as possible and for those of us who are home-schooling kids, well, we all deserve a medal don't we! Having to deal with maths again after 27 years has reaffirmed the excellent decision I made years ago to pursue a career dealing with letters, not numbers...

The world has changed so markedly in the space of a few months and what was once normal will not likely be for many to come. As with every industry, the sports turf management profession has had to roll with the punches in a continually changing, and often confusing, operating environment. Fortunately in some states golf has remained playable, despite conjecture, which has enabled clubs to keep their heads above water, just. Others, such as those in Victoria, have been forced to shut their gates completely.

While staffing and resources have been significantly impacted, for the most part our industry has continued to operate as best it can within the restrictions imposed. Turf managers have been resoundingly resourceful and innovative during such a time (as you will read in this edition), but now that they have adjusted to their new day-to-day regimes, thoughts are starting to wander to the road ahead and what the possible long-term impacts will be.

As Stewart Fenton, CEO of Royal South Yarra Lawn Tennis Club, noted at the Jacobsen-sponsored FTMI in March, clubs are in a position that they have never been before and rather than be reactive they need to be proactive. And that goes for superintendents and turf managers as well. Now, more than ever, they need to be standing up and being an active participant as clubs and facilities navigate their way out of the pandemic. The course/turf facility is, after all, its greatest asset and any reduction in its quality will make any recovery all the more difficult.

What has been heartening to watch throughout all of this is the way we have adapted to a new environment, embraced technology and carried on as best as possible with a sense of humour, an innate quality that most turf managers possess. Take ASTMA member Leo Barber for instance, the dual superintendent and general manager at New Zealand's prestigious Paraparaumu Beach Golf Club just north of Wellington. Barber has used his online presence to get creative via a number of means, hilariously documenting his self-imposed isolation after returning from the FTMI where he was a mentor and then starring in a series of videos on how to renovate your home lawn, delightfully titled 'Lockdown lawn renos with Leo'.

More seriously, however, he also used his time in isolation to record a series of interviews with prominent golfing personalities, which he shared with his members to keep them informed and connected during NZ's month-long lockdown. They make for great viewing, but it was the comments of former Kiwi professional turned course designer Greg Turner that resonated most about the current situation and how golf is ideally placed post-COVID-19 to take advantage...

"Everybody has got a bit of a fright," Turner commented to Barber. "We've been thrown out of our comfort zone in terms of being able to go anywhere and do anything we want. So that could make us a little more thoughtful about what we do and how we live our lives in our own back yard, and in a funny way that might work out really well for golf clubs. Even in these uncertain times, golf is one of those games that makes you slow down a bit and involves exercise, camaraderie and social interaction. Maybe this having to slow down, brought about by the coronavirus, will make us realise we don't have to live life at breakneck speed all the time. Maybe it will give us time to pause and actually realise there is great value in the three, four or five hours spent on the golf course from a health and wellbeing perspective. It may help golf clubs, especially those that have been struggling, to build on their relationships with golfers a bit more."

Enjoy the read, stay safe and stay sane...



Brett Robinson, Editor





# An industry responds to the challenges of COVID-19 pandemic

**J**ust a month ago, coming off the back of a challenging summer encompassing everything from droughts, widespread bushfires and flooding, thoughts of many turf managers and teams across the country began turning toward course conditioning or preparing fields for the start of the approaching winter sports season. Internally, agronomic assessments for the AFL and state leagues along with many councils, clubs and schools were well underway and planning continued for the 2020 Sports Turf Management Conference in June.

It would be fair to say not many of us could have ever imagined the set of circumstances that were forced upon us just a few short weeks ago, late in March 2020. As the COVID-19 crisis challenges our industry (and many others) in ways no-one could have thought possible, we grapple to come to terms with constant change, new social environments and increasingly demanding conditions and work requirements.

March and April bought about a significant period of adjustment for the Australian Sports Turf Managers Association (ASTMA), with a tremendous increase in requests for assistance and information, coupled with a need to review planning for the months ahead and rapid increase in the need to advocate for support and awareness of turf management needs at all levels of government.

Leaning on the relationships we have built over the last two years with a large number of



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national sporting organisations, state sporting bodies and government, the ASTMA continues to push for meaningful action on behalf of our members and the complete turf management industry.

Over recent weeks, we led an effort to bring together collective thoughts in a range of public statements to State and Federal Governments, drawing attention to the need for a continued support of sports turf managers and their critical work in maintaining sport and recreation facilities.

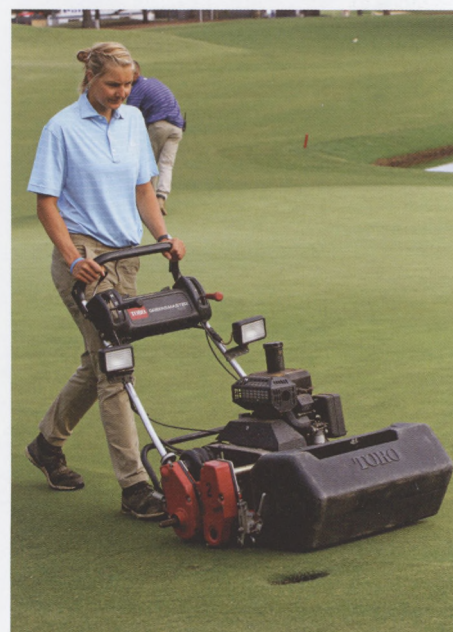
These discussions centred on our belief that the role we all play is essential to providing millions of Australians the facilities they need once social restrictions conclude, given the immense value of elite and community sport in fostering a sense of wellbeing and social interaction. Further, the work undertaken acknowledges government focus to work collaboratively and co-operatively to best safeguard community health during these extraordinary times.

The advocacy work, interviews and comments garnered substantial coverage by the news media right across the country, which has shone invaluable light on this critical issue and the work undertaken by our industry. The team strives to ensure that the ASTMA provides an accurate, credible and representative voice for turf management throughout Australia.

While our community and industry is in a period of isolation as we aim to stop the spread of COVID-19 and stay healthy, we are now starting to see discussions shifting slightly. Shifting to what comes next and how to master the challenges of 2020, into 2021 and beyond. The team at the ASTMA is maintaining regular contact with members and trade partners and a key driver of this communication is to encourage open discussion, share information and resources and be a reference for future decision-making and advocacy.

## WOMEN IN GOLF CHARTER

A significant part of this future advocacy is the recent announcement that the ASTMA has committed to support the Women in Golf Charter driven by The R&A. This commitment aligns actions under our Strategic Plan to strongly promote and advocate for more women and girls working in golf course management and encouraging more women and girls into turf management as a career, through actively engaging with training providers, schools and local employment organisations.



*The ASTMA has committed to support the Women in Golf Charter, driven by The R&A, to strongly promote and advocate for more women working in golf course and turf management. Pictured from left is Susana Oliveira (The Grange GC, SA), Gerri O'Callaghan (Royal Melbourne GC, Vic) and Martyna Synak (Oatlands GC, NSW)*



In addition, the commitment sets down a path for future efforts relating to:

- Continuing to increase the profile of turf managers, including the promotion of females in the profession through all available channels;
- The establishment of a Women in Sports Turf Management programme in Australia as a key industry-wide initiative for developing a platform for females in the profession; and
- Enhancing perceptions of sports turf management as a career that is accessible and inclusive among women and girls.

## EXPANDED RESOURCES

In understanding the range of challenges for turf managers in this demanding environment where access to resources and support is substantially reduced, the ASTMA has partnered with e-par to implement a free environment, health and safety (EHS) assistance service to all members and members of our aligned state associations.

Members can access confidential and free EHS advice to learn more about an EHS problem they are experiencing at their facility. These could range from risk assessments and hazard management, sustainability and best practice, environment and safety legislation, incidents and incident investigation or EHS training. Details of the service are available on our website, outlining the details for members to access these support services remotely.

Looking for additional ways to support turf managers as part of its continued commitment to the industry, the ASTMA has also made previous turf conference webcasts available

to all sports turf managers to access for free. These webinars cover a range of content from previous conferences including all main plenary presentations.

Topics covered include management and leadership, agronomy, management of sportsfields and grounds and golf course management, each presented by prominent Australian and international sports turf

## 2020 SPORTS TURF MANAGEMENT CONFERENCE, EXHIBITION CANCELLED

The issues and uncertainty resulting from the coronavirus pandemic have impacted other areas of the Australian Sports Turf Managers Association, most notably the 2020 Sports Turf Management Conference. Due to the closure of the Melbourne Convention and Exhibition Centre (MCEC) until 30 June 2020, the ASTMA Board and team has made the difficult decision to cancel this year's conference and trade exhibition.

The ASTMA understands the value of this important event for the industry and it thanks all commercial partners and delegates who have expressed their continued support for the conference. Shortly, the ASTMA we will be announcing details relating to the hosting of the 2021 conference and exhibition, and also work to deliver a series of events and initiatives in conjunction with state associations to bring us all together once these challenging times have passed.

– Mark Unwin

managers and industry leaders. Again, details are available on our website, along with an expanded range of assistance and resources for mental health for members following COVID-19 uncertainty.

## STAYING CONNECTED

As has been broadly commented on over recent weeks through advocacy discussions and in the media, playing surfaces at many of Australia's sporting facilities are in outstanding condition, judged by many as being in perhaps the best condition ever following a significantly challenging summer.

Ensuring that we all stay connected during this time is critical. Staying connected with team members, peers and each other, and to this point I would strongly encourage you to reach out if you are in need of assistance, and also to reach out to others within the industry for a chat, or just to talk through these difficult times.

Although we face unprecedented circumstances, we believe that our industry is up to the challenge. As your association, we will continue to support all members and the profession and continue to be a prominent and influential voice for the industry. Stay safe. 🕌



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# UTAS Stadium kicking goals

*UTAS Stadium in Launceston has long been regarded as Tasmania's home of AFL. Over the years it has become a primary hub for state and community football and cricket, always carrying a reputation for being one of the best presented and conditioned boutique stadiums in Australia. As ATM editor Brett Robinson discovers, that status has been further enhanced thanks to a multimillion-dollar surface redevelopment carried out last spring.*

*The recently redeveloped UTAS Stadium in Launceston was at its absolute finest in the lead-up to hosting the Marsh Community Series AFL match between Hawthorn and Melbourne in early March. The playing surface underwent a multimillion-dollar makeover last spring and was due to host its first AFL game of the 2020 season on ANZAC Day*

PHOTOS: BRETT ROBINSON





*The UTAS Stadium crew (from left) curator Bryan Dunn, Grant Woolley, Kaleb Clark, Chris McKenna and John Kedey. Absent is Adam Spargo. Below: UTAS Stadium's ANZAC Day tribute*

**B**ryan Dunn had extra reason to look forward to ANZAC Day 2020. As well as marking one of the most sacred days on the Australian calendar, the head curator of University of Tasmania Stadium in Launceston was also relishing the prospect of showcasing one of the best conditioned arenas in the country for its first AFL fixture of the 2020 season.

The Round 6 clash was supposed to be an unveiling of sorts for UTAS Stadium. Between August and November last year, the premier arena in the northern part of the state underwent the biggest makeover in its history. Hawthorn, which has called Launceston its second home since 2001, were due to play 2019 premiers West Coast, the first of our four scheduled Hawks home games for 2020.

The ground had earlier hosted AFLW in February and a Marsh Community Series pre-season match in the first week of March, drawing widespread praise of its pristine new ryegrass surface. It was then all about gearing up for the ANZAC Day clash and showcasing the new-look ground to the Tasmanian and AFL public. Unfortunately, a global pandemic would get in the way and ruin those plans.

Not to be denied, Dunn and his team still did their bit to make sure ANZAC Day was remembered. While many around the country held dawn vigils at the end of their driveways, the day before Dunn and crewmate Adam



Spargo went out onto the ground and painted a giant red poppy with the words 'LEST WE FORGET' emblazoned underneath. A number of other turf managers would do likewise in an ANZAC Day that few will forget.

## REVITALISING A COMMUNITY HUB

UTAS Stadium, or York Park as it was originally known, has been a prominent part of the fabric of Launceston for nearly a century. Opened in 1921, the site was initially the city's showgrounds, located on a floodplain adjacent to the North Esk River. Over time the ground became a focal point for local and state Australian Rules football and up until the late 1990s was still your typical suburban style ground, one where you could drive your car up to the boundary fence.

That changed in 1999 when the facility was redeveloped to the tune of \$6.4 million. A new two-tiered grandstand was constructed, while the ground underwent a major overhaul with a new drainage and irrigation system. Completed in 2000, the following year AFL

landed in Tasmania, with Hawthorn playing the very first premiership game there against Adelaide. By 2003, the Hawks were playing four games a year and in 2007 inked a deal to increase that to five games (four premiership and one pre-season) which has remained in place to the current day.

Despite rebuilds and additions to the ground's various grandstands over the years, up until last year the UTAS Stadium surface and its infrastructure hadn't been touched. As Dunn explains, the ground was starting to show its age and becoming increasingly difficult to manage. Despite that, he and his crew always presented it in sublime condition for its AFL matches and heavy schedule of local football. That conditioning, however, masked a number of underlying issues.

Last year's surface redevelopment is the culmination of a number of projects which over the past seven years have modernised the surfaces within the UTAS Stadium precinct. The precinct also includes the adjacent Invermay Park, the home ground of Australian cricketer great Ricky Ponting.

Such works began in 2013 when the main ground, then named Aurora Stadium, became the first in Tasmania to install drop-in wickets in a bid to attract first-class cricket. As was featured in ATM Volume 16.2 (March-April 2014), Richard Winter and his team at Pitchcraft constructed and installed the drop-in in time for a series of matches that summer.



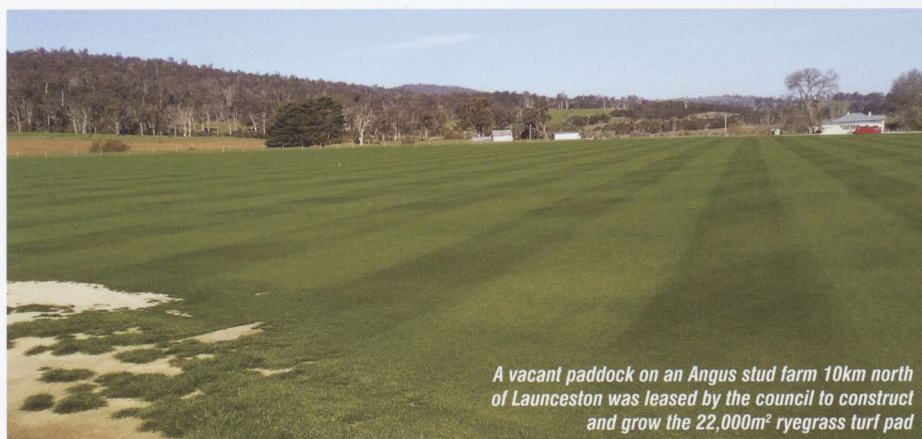
In the years since, the number of drop-ins have increased to three (two Legend and one Santa Ana wicket) and the ground now regularly hosts BBL, WBBL and Tasmanian Premier League matches (a total of six games last summer). More recently a new 28m-wide practice facility was constructed which can house a total of 12 ryegrass wickets.

With cricket setting up home on the main arena over summer, the next focus was the \$2.1 million upgrading of Invermay Park in 2015. Invermay hosts a full schedule of local cricket and football each year. The project saw a new ryegrass playing surface constructed from the subgrade up, as well as 30m-high light towers and related civil works.

Attention then turned to the main arena. In 2017, the City of Launceston, which owns the ground, announced that it was going to fully reconstruct the surface with a completion date ahead of the 2018/2019 cricket season. When the plan was unveiled, City of Launceston general manager Michael Stretton noted, "The lifespan for a playing surface of this standard is about 10 years. The current surface has been in place since 1999, and its longevity is a testament to the skill and expertise of our UTAS Stadium ground staff."

Sportsfield construction technology has progressed substantially since 1999 and there were a number of shortcomings that were becoming noticeable with the surface. Among the major issues were poor drainage, uneven levels, organic matter build-up and *Poa annua* had started to dominate the sward. Add to that aging infrastructure – the irrigation system, perimeter fence and the electrics and cabling for signage, communications and broadcasting – and the ground was ripe for a revamp.

"It was becoming increasingly difficult to manage as each year went by," explains Dunn, who has been head curator since 2006.



*A vacant paddock on an Angus stud farm 10km north of Launceston was leased by the council to construct and grow the 22,000m<sup>2</sup> ryegrass turf pad*

"Drainage was a major issue. We would get 10mm of rain and the ground would become a lake. With the volume of local football in winter, it sometimes got in pretty bad shape.

"In the 1999 redevelopment the surface was built flat. The ground is on a floodplain – the river is only 100m off the eastern boundary line – and over the years had shifted a bit and we started getting a lot of low areas. The perimeter was above the ground and water would simply flow towards the centre making it very difficult for water to get away.

"The push to get the ground redeveloped I guess started when we installed the drop-ins. When we built the base for the tray, we found one end had 130mm of drainage aggregate and the other had 60mm. It hadn't been screened and looked like it had come straight out of a river bed! The ag pipes were at different levels due to the ground shifting.

"With the arrival of first-class cricket, we wanted to improve the outfield and eliminate any risk of games being called off. The shape of the ground was unusual as well. It was wider down the southern end and had very deep pockets, so the redevelopment would make it a much more standardised shape."

## FALSE START

With funding approved by council, the redevelopment gained momentum. One of the key components initially was to source turf for the new surface and it was here that Dunn had to think outside the box. With no turf farms in Launceston, through his contacts Dunn approached a cattle farm in Dilston, about 10km from the stadium, with a proposition.

Landfall Angus is one of the largest Angus studs in the state and is literally the first major piece of agricultural land as you head north out of Launceston. It had plenty of land to house the required 22,000m<sup>2</sup> turf pad, had plentiful water and was just 15 minutes away (the nearest commercial turf farm is located 1.5 hours away in Burnie). More importantly, it meant the council (in this case Dunn and his team) would have full control over its construction, grow-in and maintenance.

With the farm agreeing to lease a paddock to the council, construction of the turf pad began in the spring of 2017. Given the existing relationship with Pitchcraft, Winter's team were contracted to design and construct the pad with their Transformer ready-to-play stabilised turf system. In February 2018 the Transformer

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*Due to the soft nature of the existing subgrade, stabilising it was a critical component of the project*

3D mesh was laid down and the pad sown with the stadium's preferred ryegrass blend of Colosseum and Soprano.

No sooner had the pad received its first cut then the disappointing news came through that the council had decided to put the resurfacing on hold for 12 months. While frustrating, Dunn says in hindsight the delay was a blessing and enabled more time for all parties involved to fine-tune every aspect of the eventual design and construction process.

Not wanting to leave the pad growing for a full year and becoming root bound – the sod was just 40mm thick and grown on black plastic – Dunn sprayed it out heading into winter. The pad was left untouched until the following February when it was re-sown, Dunn going over it prior to seeding with a drag smudge to prepare the seedbed. Five days after re-sowing, 40mm of rain hit and washed out sections which required a large amount of work to repair. Despite the setback, the ryegrass germinated and before long reached full coverage.



## ON A STABLE FOOTING

With the project back on track, in early 2019 the council put the reconstruction contract out to tender. Well-established Tasmanian civil firm Hazell Brothers were ultimately successful and partnered with Pitchcraft who would be responsible for the grading, final trim and turf installation. Melbourne-based Sports Turf Consultants were also brought on board to develop a detailed construction specification.

For Hazell Bros, the project was a perfect fit. In addition to its civil construction arm, the company also owns quarries and sand pits across the state, has testing laboratories and a fleet of transport equipment. While the company has vast expertise in many areas of construction, the UTAS Stadium project was its first sports oval construction of this magnitude.

The project would see the existing 20,200m<sup>2</sup> arena surface standardised to 19,000m<sup>2</sup> with the oval coming in a few metres on the eastern side and in the northwest pocket. The construction process involved several distinct stages;

- Demolition and excavation;
- Subgrade stabilisation;
- Construction of the clay dome base;
- Installation of the irrigation system and communications infrastructure;
- Laying of Megafllo flat pipe and spreading of the drainage aggregate;
- Spreading the rootzone profile and incorporating amendments;
- Final surface trim; and
- Turf harvesting and installation.

Brian Hyde was project manager for Hazell Bros and oversaw all aspects of the project, one which would throw up a few challenges along the way. Key aspects of the reconstruction included stabilising the subgrade and ensuring the drainage system and rootzone profile would ultimately provide the desired environment for a healthy surface. The timeframe was also relatively short – four months, August to November – with the ground needing to be handed back to give Dunn enough time to fine-tune the surface before its first BBL09 fixture on 30 December.

No sooner had the ground hosted its final AFL game on 27 July 2019, demolition of the existing perimeter infrastructure started along with excavation of the surface down 900mm. Digging to such a depth meant the construction team was working only 200-300mm above the water table in parts, necessitating the precise movement of heavy equipment. Starting from each end, excavators would dig up the material and swamp dozers push it to the middle of the ground for removal. In just eight days, more than 10,000m<sup>3</sup> of material was hauled off site.

The next and perhaps most challenging phase was the stabilisation of the subgrade. Due to the location and nature of the site, it was important to stabilise the subgrade so as to negate the possibility of the playing surfacing shifting. One of the principal methods used was a mix of cement and lime. However, with the weight of the mixing plant and compactors being used, some areas of the ground started showing signs of further instability due to the soft subgrade.

The lime and cement mix process worked on the majority of the ground, but on about a third of the oval – mostly the northern end which receives the most shade – Hazell Bros had to stop the process and come up with another solution. Using smaller excavators, they trimmed that material out and then stabilised those areas with Tensar TX160, a plastic geogrid product which is laminated with geofabric. The geofabric provides a barrier for any soft material to push up against, while the geogrid is a high-tensile structure which locks into the aggregate above.

*The 250mm rootzone profile was a blend of a coarse and fine sand which was subject to stringent testing throughout all phases of the project*



With the stabilisation process complete, the next phase was the construction of a clay dome base to create a surface profile with a fall of 0.5 per cent. Some 4500m<sup>3</sup> of clay from one of Hazell Bros' local quarries was used, with Pitchcraft's laser grader giving the impervious product a polished finish.

Services (communication cables etc) and components for the new Rain Bird irrigation system were trenched in, before 4.6 kilometres of Megafllo flat pipe was laid (a mix of 150mm and 300mm widths). Four radial drains, interconnected by laterals, were run from the centre circle to the pockets, connecting to a 474m long, 600mm concrete perimeter spoon drain which housed a total of 16 pits. The gravel layer (7mm-10mm aggregate) was then spread at a depth of 135mm.

## VIGILANCE AND TRANSPARENCY

One of the most critical parts of the project was ensuring the rootzone sand would meet the construction specifications set (USGA), especially around hydraulic conductivity, pH and bridging factor parameters. In the lead-up to and during the actual construction, there was an exhaustive process of testing by Sports Turf Consultants and Hazell Bros to ensure transparency. In all, three phases of testing were undertaken – preliminary testing of the proposed sand blends, production testing as suitable sands were stockpiled and testing during placement.

At the very start of the project, it was realised that a single source of sand was not going to be compliant on its own, so a blend of one coarse and one fine sand was required. The performance criteria of each sand needed to be examined separately, as well as when mixed together at different ratios. This included screening and washing each sand separately as well as screening and washing them as a



*After a final surface trim, Pitchcraft harvested and laid the new surface within six days last November*

blended sand. As Hyde notes, it only required very small adjustments to ratios, as well as the washing and screening regimes at any certain point in the process, to have quite significant effects on the specification requirements of the sand, especially hydraulic conductivity and pH.

Through the preliminary testing, a suitable blend was discovered and production started. During this the second phase of testing kicked in with samples from the production stockpiles taken and checked at regular intervals. Due to the natural variability in the sand, it was found as production progressed the hydraulic conductivity started to drift out and become higher, even though nothing had been changed in the way it was being produced. It got to the point where Hazell Bros had to stop production and went through a thorough process of what needed to be done to adjust the mix. This required the re-blending and re-washing of some of the stockpiled sand to ensure it met the specification before delivery to site could begin.

Testing continued once delivery started, with every truckload having a bag of sand sampled in the presence of the council and stored by the council on site. They then randomly selected 12 of those samples for re-testing, with every one of those passed for compliance with the specification.

The rootzone sand (4665m<sup>3</sup>) was spread at a depth of 250mm, amendments incorporated and power harrowed in, before the final trim was completed prior to turfing. The turf was harvested in maxi-rolls at the Dilston farm and laid by Pitchcraft, with Hazell Bros assisting with transporting and labour. Harvesting and laying of the 19,000m<sup>2</sup> surface took just six days. Prior to harvesting, cutting heights were brought down from 20mm to 15mm and once installed on the arena were gradually reduced to a final height of 9mm for cricket.

Other components that formed part of the ground reconstruction included;

- Installation of reinforced concrete goalpost footings for AFL, rugby and soccer.



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- A 170m-long synthetic turf roadway installed from in front of the player interchange (western side) to behind the northern goals. Despite initially being costed out of the project, Dunn was adamant it be included due to heavy traffic and shade issues in winter.
- A 500m-long prefabricated steel perimeter fence and gates were installed in the last couple of weeks of the project. The design of the new fence took into account the needs of TV broadcasters and concerts and the requirements for LED signage, with the inclusion of removable lids and trays to safely store and conceal cabling. Upgraded player interchange facilities and comms were also included as part of this.
- Prior to the turf being laid, a 100-tonne crane installed two drop-in wickets. Where the crane comes onto the ground, Hazell Bros utilised the geogrid product mentioned earlier to help reinforce the subgrade in that area.

### RAVE REVIEWS

Once the ground was handed back, Dunn and his team had ample time to get the surface up for its first BBL clash, the new ground's first official outing. A fortnight after the surface went down it was solid tined and dusted with around 60m<sup>3</sup> of sand to remove any imperfections. Soil tests were conducted regularly to ascertain what product applications (foliar, humics, kelps, silica etc) were doing and followed on from what had been in place out at the turf farm. PGRs were used to tighten the surface up and in the weeks leading up to the BBL fixture staff started double cutting the surface.

The opening game proved to be one Dunn won't forget in a hurry. While the game started in brilliant sunshine, just five overs into the Hurricanes' innings, black clouds gathered



Grant Woolley marks out the centre square ahead of the Marsh Community Series match in early March



Kaleb Clark touches up the 50m sign

overhead and play was suspended. All up that evening Dunn and his team would pull the covers on and off a total of six times as the Stars prevailed by the DLS system.

Despite the weather, the ground received rave reviews from players and match officials and handled the eventual 6mm of rain without any issue. Thankfully conditions were much better for its second BBL game three weeks later, with the Adelaide Strikers winning by 10 runs in a high scoring encounter.

All was in readiness for the 2020 AFL season and the ground had its first AFLW fixture in mid-February followed by the Marsh Community Series match between Hawthorn and Melbourne in early March. The day prior to that game, Launceston was smashed with 50mm of rain, the first real test of the ground's new drainage system. Dunn recalls the delight he felt as he watched water thumping through the drainage pits and within three hours of the rain ceasing Melbourne were out training on it.

Sadly, that match would be its last as a few weeks later Tasmania locked down its borders in response to the escalating COVID-19 pandemic. UTAS Stadium was scheduled to

have four AFL premiership games this season, but even if the competition returns with no crowds, smaller venues such as UTAS may not feature in the revised fixture. Local football has also ceased and in the weeks since Dunn and his team have been undertaking routine maintenance of the ground to keep it ticking over heading into winter.

Despite the unusual circumstances and uncertainty of what the coming months will bring, especially with the potential overlapping of winter and summer codes, Dunn is looking forward to returning to some form of normalcy soon and getting the UTAS precinct back up and running for the community. Indeed, they will have one of the best built and best conditioned facilities to come back to when restrictions are lifted.

"It was a fantastic project to be involved with and one of the highlights of my career," concludes Dunn. "The level of detail that went into all areas has really made all the difference. It's a shame what has happened with the coronavirus, but in the games we have had to date the surface performed exceptionally well and everyone has been hugely impressed."



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PHOTO: IDRIS EVANS (WAGC)

# Climate change

*The COVID-19 global pandemic has changed the world as we know it and like many industries the sports turf management profession has been hit hard. ATM takes a look at how Australian turf managers have navigated their way through a forever-changing operating environment.*

**M**att McLeod's Facebook post summed up the mood and feeling of many as the reality of the COVID-19 global pandemic started to hit home. Posted on 25 March 2020, just two days after his club had announced it would be closing its doors indefinitely, the Cobram-Barooga Golf Club superintendent penned...

"Hi all, today I start what will hopefully be a short period of isolation. I like many others have been stood down – I feel numb, angry, lost, scared and emotional with everything that is going on in the world. We will get through this I know, but we all need to do our best and follow the government recommendations... Please take care. Cheers Matt."

McLeod's club, like so many others, was reacting to a rapidly changing operating

environment as the Australian Government instituted sweeping lockdown measures in late March to reduce the spread of COVID-19. It was a double-whammy for McLeod who just days earlier had also received the agonising confirmation that his trip of a lifetime to Augusta National for the 2020 Masters had also become a victim of the pandemic.

Throughout the sports turf industry over the past two months, superintendents and turf managers like McLeod have found themselves making significant changes not only to their every-day lives, but also to the way they manage their facilities, their staff and their surfaces. They have found themselves in some very challenging predicaments, being asked to make difficult decisions in relation to standing down crew and managing their facilities with reduced resources.

It has been a confronting and confusing time. After initially being told to close their gates, clubs in NSW and Queensland were allowed to re-open as long as they adhered to the Federal Government's imposed rules of social distancing and rigorous hygiene standards. Western Australia and Northern Territory have eased their restrictions, yet in Victoria, at the time of writing, clubs and sports facilities still remain closed. Then you have unique cases such as RACV Royal Pines; although based on the Gold Coast and thus technically allowed to be open for golf, it's Victoria-based owners RACV have put a blanket closure on all their facilities.

Thankfully, for the most part, course superintendents, turf managers and their crews have been allowed to continue to maintain their facilities, albeit with greatly reduced



*Left: A sign of the times. Many golf clubs were forced to shut their gates in the early weeks of the pandemic. While some states have since made a return to golf, others like Victoria remain closed*

*Right: Some clubs, such as Spring Valley in Melbourne, have taken advantage of no golf to undertake a raft of projects around the course*

staff and resources. Capital expenditure and projects have been placed on hold and purchasing has been restricted to only what is absolutely necessary.

The economic impact of the pandemic on the industry will be felt for a long time and remains one of the great unknowns. Clubs are in uncharted waters and attrition, especially of those that were struggling before the pandemic hit, will be inevitable. One Murray River-based course superintendent reported his club did \$27,000 in green fees alone in the first week of the restrictions.

Cameron Hall, superintendent at Kew Golf Club in Melbourne, is just one of many to be concerned how things will play out in the coming months: "From a club perspective we obviously had huge cancellations of corporate golf, functions, weddings etc which has altered our projected cash flow for the coming year," says Hall. "That in turn is going to affect what capital projects we can carry out, along with equipment purchases. Seasonal staff for the coming summer will be a wait and see depending on how long this lasts."

Rob Savedra, curator at Wesley College's Glen Waverley campus in Melbourne, is also mindful of future ramifications: "Due to cash flow uncertainties, we have been instructed to maintain and repair but not undertake any new budgeted projects until further notice," explains Savedra. "It will be interesting to see the impact on budgets going forward. The financial situation for some parents may see the need for school fee payments being withheld or negotiated and therefore not coming in during the traditional time frame. This could cause difficulties in budgeting and money allocation to the various departments. Obviously funds



PHOTO: NIC DOUGLAS (SPRING VALLEY GC)

have also been diverted to charging up the IT department and online teaching side of the operation to keep students learning remotely."

## SPLIT SHIFT SUCCESS

In the scheme of things, sports turf professionals have adapted extremely well to the pandemic. The restrictions have forced numerous changes, none bigger than to staffing levels and rostering. Sadly, many have been forced to lay off or stand down casual and seasonal staff, with many applying for the Federal Government's JobKeeper programme to keep remaining employees on the payroll.

To adhere to social distancing guidelines and strict hygiene measures, turf managers have resorted to splitting their teams up. Metropolitan Golf Club was quick to get on the front foot according to superintendent Dave Mason, with altered workplace arrangements starting in early March.

"The club moved swiftly to isolate staff from each other and members and associated risks that may be placed on staff," explains Mason. "The staff were separated into three groups, five staff in each including a senior

member of the crew. Each team was given a colour – green, blue and yellow – and staggered start times by one hour (6am, 7am and 8am) as well as staggered meal breaks and finishing times. Colour coding was implemented in all aspects of the maintenance facility buildings, which included allocated seating, cleaning and disinfectant stations, vehicles, mowers and hand tools.

"Items that required touching by individuals (ear plugs, sunscreen, insect repellent etc) were removed and individuals given items for their use only. We have had no isolation cases within the course staff, although other departments have."

Rowan Daymond at The Grange Golf Club in Adelaide also instituted a split-crew set-up to manage their 36-hole facility: "We have two groups – Group A with 11 staff and Group B with 12," says Daymond. "Group A has a start time of 4.30am and knock off at 11.30am, with a 20-30 minute break. Group A works these hours Monday to Friday and rotate through that group to cover the Saturday shift which requires four to be onsite for 3-4 hours.

"Group B work the afternoon shift daily from 12pm through to 7pm, also with a break, and are required to rotate through the Sunday shift. This provides complete separation between staff teams at all times and also allows the morning team to disinfect all machinery 30 minutes prior to the afternoon shift arriving, with Group B doing the same before going home at night. Staff working through what are the quiet periods of the day (early morning/late afternoon) has proved to be extremely efficient."

Companies servicing the industry have also had to make sweeping changes to the way they conduct business. No longer can reps simply drop by a maintenance facility for

*To reduce mowing requirements, many clubs have sprayed out rough areas with reduced rates of herbicide to slow down growth*





PHOTO: IDRIS EVANS (WAGC)



*Increased hygiene practices surrounding the use of course equipment and inside the maintenance facility have become commonplace*

a catch up, machinery demonstrations have ceased, while many finance departments have had to get creative and be realistic. Interestingly, while there has been a drop off in the sports turf sector, those companies who have domestic or residential components to their operations have reported a boom in business as the general population has spent more time at home.

ASTMA Platinum partner Toro is just one company to make major changes to the way it conducts business, not only in Australia but also at its many international facilities.

"As a global company with offices, manufacturing facilities and employees all over the world, especially in some of the highest affected areas, we are trying to ensure that all our staff are taking precautions to stay safe while continuing to look after our customer's needs," says Toro Australia national marketing manager Elise Willemsen.

"Globally we have implemented a 'work from home' policy where possible, as well as put a ban on travel. Further to this, we had to make the difficult, but necessary, decision to postpone both international and local events such as the Turf Pros and Sports Fields & Grounds Forums. This has had a follow-on effect with the Australian golf and turf Graduate of the Year winners now having to move their travel experiences to next year."

## ON COURSE CHANGES

As well as making changes to staffing arrangements, superintendents and their clubs quickly developed measures with their on course operations to allow golf to continue and adjust to changed maintenance regimes. Some of the commonplace measures instituted included;

- Inverting cups to make ball retrieval easier or placing foam inserts or rings inside the cup to prevent the need to retrieve balls. Other clubs have taken to raising cups an inch above the ground so there is no need to touch cups or flags.
- Removing all bunker rakes, course furniture and ball washers. Drinking fountains isolated.
- Spraying roughs with reduced rates of herbicide to knock down growth to reduce mowing requirements. Increased use of PGRs to curb growth. Greens cutting heights raised to 4mm.
- For those clubs still allowed to conduct golf, one-tee starts only. Limiting tee times, limiting groups to two players and increasing the gap between tee times.
- Increased sanitisation of carts, trolleys and sand buckets.

## TAKING ADVANTAGE

For those facilities that closed their gates (and are still closed), superintendents and turf managers have made the most of a unique opportunity. With courses free of golfers, many

PHOTO: NATHAN BRADBURY (EASTLAKE GC)



*Ballwashers and other pieces of furniture have been removed from courses to reduce contact points*

superintendents chose to bring forward greens renovations as well as undertake various projects that would normally cause significant disruption for members. One such course was Melbourne-based Spring Valley Golf Club.

"The club has taken a very proactive approach to the course closure," explains assistant superintendent Nic Douglas. "Instead of standing down many of our ground staff, we moved forward with a range of project work that we would likely not be able to do if there was a busy golfing calendar."

"The main components included an extensive renovation of many bunkers, removing undesirable material, importing bunker sand, cutting away old eroded edges and levelling bases. We have been able to do the most extensive uplifting of trees on course ever done as well. With no time pressure to get the felled branches cleared, we were able to have chainsaws out lifting low branches and removing unsafe or undesirable limbs."

"Also on the agenda was lifting low fairway sprinklers and bringing forward our renovations by a few weeks and coring all greens and collars. Without the pressure of



PHOTO: IDRIS EVANS (WAGC)

*Many clubs have brought forward their greens renovations and taken the opportunity to undertake additional dusting and topdressing of surfaces*



getting the greens back into play quickly, we had the luxury of being able to topdress and then go over the greens as many times as necessary to make sure all holes were filled."

For NSW-based superintendents Luke Sligar (Dunheved GC) and Jeff McManus (Windsor CC), it wasn't project work that has kept them busy over the past six weeks. If contending with COVID-19 wasn't challenging enough, both courses were inundated by floodwaters in February. Windsor received 400mm, while at Dunheved the clubhouse, shed and course all went under, in some areas up to 4m.

McManus and his crew had to undertake substantial repair of their surfaces all in-house as they couldn't get help due to the COVID-19 restrictions. That saw them rebuild six greens, one half green which required modifications, eight greens surrounds which had to be stripped off, rebuilt and turfed and three tees. Some 900m<sup>2</sup> of fairway turf was replaced with more to come in spring.

While it wasn't on the side of McManus and Sligar, one blessing in all that has transpired since the pandemic hit has been the weather. So often the nemesis of turf managers, Mother Nature has prevailed to deal a pretty decent hand at the best possible time. Most turf managers shudder to think what would have happened had the pandemic struck in the height of summer or during last year's extended period of drought.

A wet start to the year – in many areas the year-to-date totals for 2020 have already exceeded the yearly total for 2019 – has meant some welcome moisture in soil profiles. Combined with reduced traffic and some increased cultural practices around renovations and topdressing, some superintendents and turf managers are saying, ironically, their surfaces have never looked better.

## LIFE IN LOCKDOWN

While Australia gradually ratcheted up its lockdown measures, across the Tasman it was a very different scenario for New Zealand superintendents and turf managers. On 23 March the NZ Government announced it was doubling down on COVID-19, effectively quarantining the whole country from 26 March.

Unlike many other countries, the maintenance of sports turf fell into the non-essential business category, with golf and sports facilities forced to cease operations entirely. Kiwi superintendents and turf managers were given just 48 hours' notice that they wouldn't be allowed to maintain their facilities for the foreseeable future, prompting a flurry of work before handing the keys back to Mother Nature.

For Royal Wellington Golf Club, which is celebrating its 125th anniversary this year, the lockdown came into effect just as



**Foam inserts placed inside the cup for easy retrieval and to reduce the need to touch the flagstick**

superintendent and ASTMA member John Spraggs had completed renovations to nine holes of the 27-hole facility. Fairways on the Terrace Course had been scarified and fed with a starter fertiliser, while greens had been aerated and applications made of gypsum and a renovation fertiliser. As this was going to cause a flush of growth, Spraggs put out increased rates of PGRs on greens, tees and fairways, as well as a fungicide and metsulfuron on fairways. On the day prior to the lockdown taking effect, Spraggs vented the greens on the championship Heretaunga Course to aid with rainfall penetration as the irrigation system was going to be decommissioned.

Through the early weeks of lockdown, NZ Golf, Sport NZ and the NZGCSA lobbied the government to allow essential maintenance. After three weeks, on 14 April, the government announced that urgent maintenance of golf courses and stadia would be permitted under Alert Level 4 restrictions. While it didn't permit full maintenance to resume, it enabled

superintendents to undertake any necessary work to prevent further degradation.

Spraggs set out a specific programme for each of his surfaces with cutting the first priority. All cutting heights were raised by about 10-15 per cent for the initial mow before being gradually returned to normal. His crew of 14 were allocated one machine each and tasked with maintaining a section of the course with that machine, ensuring there was no 'hot seating'. The mechanics would come in on the day a particular mower was not in use to service and set them for their next outing.

"The crew were fantastic," says Spraggs. "We aren't yet at 100 per cent as some tasks are not on our necessary list and some staff are feeling safer staying at home. But this limited care of the course has achieved more than I thought possible and we have nearly got the grass back to our normal mowing heights."

"The lockdown did present a few challenges and will mean a number of changes to our programmes going forward. Disease was apparent on the renovated greens and will require ongoing fungicide applications. Worms have been casting prolifically on our sand carpet tee tops as well."

"April would normally be a very busy month on course as we get ready for winter. Our coring plans and programmes have been thrown away, and new planning will need to be negotiated with management. The amount of leaves around the course is huge so we will need to clear them before we can do our usual selective weed spraying. We normally drill seed fescue through April but we have missed this too. Then there are the bunkers, paths and even the streams which need cleaning out, so there is plenty to do."

"I guess we have been fortunate in that we had a relatively dry and warm month. If we had our normal rainfall, we would have been struggling to get our grasses back under control."

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**Staff have had to adapt to new shift arrangements as well as measures around social distancing and hygiene**



## BUILDING BUSINESS RESILIENCE BY 'LEARNING' OUR WAY THROUGH COVID-19

The COVID-19 pandemic has hit the sports turf world in an unprecedented scale and speed, with the situation in a constant state of flux and workplace requirements changing almost daily. For example, e-par has created and updated more than 20 COVID-19 documents since the first instalment went out in late January. It is also unclear how long restricted businesses and services will be affected.

No doubt the decisions sports turf managers will need to make go well beyond environment health and safety (EHS). These are just one part of business continuity and resilience that will demand their attention. Unfortunately, there is no playbook for how to deal with COVID-19, but here are a few insights that may assist turf managers achieve the best outcome for their people and business.

We have identified critical safety considerations that we are seeing now and can see on the horizon. We have also identified opportunities to have workers 'learn' their way through this pandemic. Protecting the health safety and welfare of employees remains of paramount importance and it remains a key issue as the pandemic continues.

### HEALTH AND SAFETY LAWS

Safety regulator websites are reinforcing safety obligations, commenting "It doesn't matter if you're a worker or someone who is responsible for workers, you must identify and manage work health and safety risks, including the exposure to COVID-19. Businesses should also plan to respond to cases of COVID-19 at work in line with advice provided by the government." COVID-19 is considered a foreseeable hazard and all Australian Worksafe regulators are reporting that employers must have measures in place to eliminate or manage the risks arising from COVID-19.

Employers are duty bound to provide and maintain a safe workplace and sports turf managers should be:

- Ensuring they have safe systems of work in place that include directions and advice provided by health authorities;
- Actively promoting social distancing, good hand and respiratory hygiene and increasing the cleaning of common working areas;
- Monitoring the COVID-19 situation as it develops;
- Providing appropriate sanitary and hygiene amenities;

Some of the most important steps a sports turf manager can take are to:

- Be well informed with information gained through authoritative sources;
- Regularly communicate with workers and share relevant information;

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- Consult your workers on any risks to their psychological health and how these can be managed;
- Provide workers with a point of contact to discuss their concerns and where to find workplace information in a central place;
- Inform workers about their entitlements if they become unfit for work or have caring responsibilities;
- Proactively support workers who you identify may be more at risk of workplace psychological injury;
- Refer workers to appropriate channels to support workplace mental health and well-being such as employee assistance programmes.

Many sports turf managers are establishing their own CRC's (Coronavirus Resource Corner) where they can post information for their staff on a noticeboard (see photo).

In addition to the physical risks arising from a high-pressure working environment, the uncertainty created by COVID-19 also has the potential to create significant psychological risks in your workplace. Such fears may be as a result of working in isolated environments, or fears associated with job security. The reality is that this is a period of heightened anxiety and immense uncertainty and the psychological risks are real.

It is important to note also that workplace health and safety laws do not stop when you have your employees working from home. It is important to have records of a work from home safety check and to provide staff working from home with hygiene information, education and support.

### COMMON LAW LIABILITY

Legal firms are commenting on this issue. If an employer becomes aware of the risk factors and does not follow government advice, they may open themselves up to common law liability. Other materials being published are now also referring to 'negligence' if an employer fails to take the necessary steps to protect staff and the staff member can prove they contracted COVID-19 at work. It remains to be seen how the application of civil liability will play out over the coming months, though it should provide food for thought for anyone tempted to seek to avoid their responsibilities.

### LEARNING OUR WAY

Sports turf managers should be exploring opportunities to be super creative by having their staff 'learn' their way through this pandemic. With many businesses reporting they have staff working from home, and some likely to be supported under the government's new JobKeeper programme, now could be the ideal time to grow your team's talents and competence faster.

Remote work via the internet should be on every sports turf manager's radar. Staff can be trained, upskilled, made safety aware ready for when your business returns to normal operation. Now is the time for every employee to grow professionally in a time when others might be stagnant.

Workplace safety is a critical component of your business continuity strategy and now is the ideal opportunity for staff professional development and EHS engagement. It should be a major consideration for every sports turf manager's business resilience strategy.

All the above points illustrate the current burden on sports turf managers. Many issues may continue well after the current pandemic passes unless the need to do everything reasonably practicable is understood and actioned. If managed properly, sports turf managers can connect people in their business to important COVID-19 issues and provide a structured, 'safe' opportunity to validate, challenge, maintain and review their COVID-19 arrangements and build resilience.

After all, sports turf managers are key enablers. They, more than any other profession, have a proud history of operating and achieving results under uncertain, complex and unrelenting conditions.

- Terry Muir



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# Killara reborn

*Last September, after an intensive 16-month redevelopment, Killara Golf Club in Sydney reopened its new-look course to an eager membership. Course superintendent Ryan Fury looks back at the all-consuming project, some of its many innovative aspects and the lessons learned along the way.*





*A combination of rigorous planning, extensive trialling of new grass varieties and harnessing the combined skills of an expert team of staff and contractors, has produced a stunning result at the new-look Killara Golf Club. Pictured is the 12th*

PHOTOS: KILLARA GOLF CLUB





*The new Killara greens were built to USGA specifications in regards to drainage installation, gravel and sand depths. However, the sand used was borderline USGA spec due to a higher percentage of finer particles to provide a firmer surface*

**W**hat seems like an age ago – early May 2018 to be precise – Killara Golf Club in Sydney broke ground on the biggest project undertaken in its 120-year history. The new course has been open since last September and has so far been well received by the membership. It has made a massive difference to how golfers play the course and how course staff maintain the new playing surfaces.

As I wrote in ATM Volume 20.6 (November-December 2018), the club wanted to upgrade the course and its facilities to meet modern demands in time for its 125th anniversary in 2024. The project has seen the redesign and reconstruction of all greens and surrounds, bunkers and more than three quarters of all teeing areas.

Improving the playing surfaces, in terms of their condition, playability and ongoing maintenance requirements, was one of the key drivers of the project. Dealing with old *Poa* greens over the summers leading up to the redevelopment had become a constant battle and we really struggled to keep them alive during the warmer months.

A greens reconstruction project was an on/off for several years and we had done more than enough research in that time to determine what would and wouldn't work for our course which, like others on the north shore of Sydney, has a lot of shade issues and heavy soils. After starting the initial planning process, that quickly expanded to include several tees and fairway bunkers as well.

Once the board decided to do the works, things moved very quickly. Course architect Harley Kruse was appointed, while products, equipment, consultants and contractors were all sourced and locked in. It was decided by the club not to hire a large construction company to complete the works. We were confident we could manage the project, similar to how an 'owner builder' would build a house.

Six members of the Killara course staff were seconded to make up part of the construction team, while we also had some excellent former employees who returned for the project, one specialising in irrigation and the other in earthmoving, both very valuable skill sets for what we were about to undertake.

One of the first (and best) things the club did was engage John Neylan as our agronomist/consultant. John provided some solid advice, wrote the construction specifications, presented at several member information nights and made several site visits throughout the work. The fact that not one question was asked about our grass varieties or sand selection decisions was amazing, especially considering we were using new products that hadn't been used widespread in the industry before. Following John's appointment, the rest of the team followed – Miles Rachivich (Links Construction) was on the job for its entirety, main shaper Peter Waddell and support shapers Lindsay and Luke from Atlas Golf.

## PURE GREENS

The new Killara greens were built to USGA specifications in regards to drainage installation, gravel and sand depths, however, the sand we used was borderline USGA spec due to a higher percentage of finer particles. This was done to provide a firmer surface moving forward. The sand was selected

in conjunction with John Neylan after his extensive research and the club's needs. The sand was supplied by Vermont Sands and was a special blend from Eulonga quarry near Gundagai in rural NSW.

After trialling several bentgrasses and mixes over a five-year period and also trialling against Sydney's standard (A1/A4), Pure Distinction bentgrass was chosen after it proved superior in all facets of our trial work. The Pure Distinction is performing well now. We had a little bit of pythium break through after a large rain event at the end of summer and this autumn we plan to be more aggressive with their management after taking a conservative approach during their first six months in play.

## STANDOUT BUNKERS

Like any other clay-based course, we had major issues with bunker washouts during rain events. Over time, we changed the sand out of the bunkers and added new drainage, but that didn't last long – one downpour and the new sand was contaminated.

Over the past five years we have trialled all of the liners available and it was decided that Capillary Concrete was the best product for Killara. All new bunkers have Capillary Concrete installed on the faces and the bases. We also installed a 450mm x 450mm pit in each bunker that we can locate and access all the internal drainage of the bunker.

Most of the architect's vision for the bunkering was based on the Melbourne Sandbelt style with visible sand splashes and sharp edges. This look was going to be hard to achieve in the clay, but after some research into a possible solution, I found a product out of the UK – EcoBunker – which had been used to replace revetted bunkers in the UK.

Luckily the architect also liked the possibilities this product could have in making our bunkering really stand out. As it turned out,



*After extensive trialling of new bentgrass varieties and comparing against the Sydney standard of A1/A4, Killara chose Pure Distinction for its new greens*



Ellerston Golf had started using the product, so we made the trip to visit Rod Hinwood to check it out and soon discovered it would be a perfect fit for us. The bunkering is a real standout feature of the new works.

## ZOYSIA SURROUNDS...

As part of any greens construction, the surrounds will be impacted and together with the new greens and bunkers, we generally had quite large areas of ground open. Tying these new areas into the existing works required some considerable work around the greens. We were lucky enough to generate a lot of topsoil during the process so very little was brought onto the course. We installed a considerable amount of drainage into the surrounds, but not enough. We continue to add drainage to this day and realistically will be adding drainage for the entire winter.

Knowing these works were coming eventually, we had been trialling different grasses for use on the new surrounds and possibly tees. Harley wanted short grass wherever possible around the greens and with shade a major factor at Killara we started investigating some different options.

A new zoysia variety (Zeon) was gaining traction in other parts of the world and the foundation farm for this grass had some product left over. I was able to get 100m<sup>2</sup> to trial about three years ago before it had become commercially available in Australia.

This grass has been a gamechanger for Killara. The shade and wear tolerance was unbelievable in the trial work where we had it in full winter shade with high wear areas; it got through all seasons and tests with flying colours. Having trialled what has since been renamed Sir Grange zoysia for over 18 months, with the members walking over and playing off the surface, no questions were asked at any of the member information nights about our choice to go with this grass – quite staggering really.

I have said many times to my general manager that the club will want this grass everywhere within a few years. I feel this grass will boom in the next five years, especially for sites with a lot of shade and high traffic.

## ... AND ZOYSIA TEES

With the greens and surrounds scope of works increasing, it made sense to include tees as well with the construction of the new greens. The design of several surrounds and tees flowed together seamlessly and the decision was made to also use Sir Grange zoysia on the tees in addition to the surrounds. On our trial tee it performed extremely well and therefore the recommendation to use it on the tees was, in the end, an easy decision.

*Storms destroy reconstruction works. One storm in November 2018 set the project back a month*



*Killara is one of the first Australian golf clubs to install EcoBunker, a synthetic revetted bunker product*

## HIGHS AND LOWS

With a project of this nature, there are many things that must come together over the duration for it to be a success. With the project now behind us and the course crew focussing on maintenance of the new playing surfaces, the past six months have given me some time to reflect on the project and what did and didn't work. It was definitely a mix of the 'good, bad and ugly'...

## THE GOOD...

**Teamwork:** One of the most satisfying aspects of the project was the way everyone came together to pull it off. Course staff, casuals, contractors all got on like a house on fire and there were no blow ups (I may have had one or two, but not at any of the people mentioned here). It was a fun project overall.

**The result:** Like above, the result on the ground was great. The members love it and the guys are very proud to have supplied it for them. With that has come a level of great satisfaction for all those involved, especially seeing the members now enjoying the course and knowing the level of work that went into it.

### Working closely with the committee and general manager:

We had some very smart guys who managed this project from the club. Greens chair Laurie Glanfield was also the chair of the reconstruction committee and was so helpful during the project, pulling everyone together and providing a great sounding board to bounce things off. You learnt something in every interaction with him. General manager David Gazzoli was a real driving force in getting the board to pull the trigger on the work and dealing with the membership during some pretty testing times throughout the project. He had his finger on the pulse and picked up any issue they may have had and dealt with it extremely quickly.

**Success of the new grasses:** This is one of the most satisfying aspects for me. There are always the nay-sayers that voice their opinion on this sort of thing, so to see these grasses succeed has been fantastic, particularly the Sir Grange zoysia which has just been an outstanding product for the club.

**Finding great suppliers:** You need quality suppliers on a project like this. The supply chain is important to keeping things on







schedule and vital in the quality of the overall product. We used Dad and Dave's Turf for all our kikuyu and laying service; Jimboomba Turf for all the zoysia (first class supply, trucks rolled in through the gate at 6.05am every single delivery); Living Turf supplied all our seed and grow-in plant protection and fertility products; greens growing medium and gravel came from Vermont Sands; and bunker sand from Elite Sands and Soils.

## THE BAD...

**Dealing with different personalities:** With a lot of people involved in a project like this, there is a strong chance that you are going to clash with people. I had a few run-ins with our architect Harley over a variety of issues, however, with the benefit of hindsight you realise that this was a pretty natural thing. He had strong passion about the finished look of the project and I wanted to get it down on time, within budget and without too many maintenance issues moving forward. As it turned out we got a great product despite these differences. We did kiss and make up (pre-coronavirus) after these dust ups.

**A project like this is all-consuming:** A project this size very rarely leaves your mind. It takes up all of your thoughts nearly all of the time and you are always thinking forward to what you have to order and at what time, scheduling staff and works, maintaining a temporary course and, being on clay, checking the weather forecast at least 10 times a day!

**Family suffers/stress:** With longer hours and a project that is all-consuming, you don't have the time to do the things that you once used to do – things like school pickups, dancing and sport runs. You also arrive home pretty tired and cranky! Let's face it, a project like this is stressful and can get you down. You are always tired and at times wish you never undertook it and can't wait for it to be over.

*The use of Sir Grange zoysia has been a gamechanger for Killara, in particular its shade and wear tolerance*

**Financial hit for the club:** Trading obviously reduced during the works, however, the members enjoyed playing through the works where they got a bit of a tour of the golf course as construction progressed.

**Staff burnout:** This was a big one for us from the start. With long days in the heat, the cold, the dry and the very wet, it can wear people down. We tried to keep burnout at bay by having all of the construction crew leave at normal time one day a week and very rarely did we work weekends unless we had a wet week and had fallen behind. We tended to always have a beer, some food and a few laughs every Friday afternoon and there was always fun along the way. You soon learnt to never leave your car keys unattended, as a prominent Sydney superintendent's son (also the biggest human I have seen) found out (see photo top left, opposite page).

## THE UGLY...

**Weather:** You rely on the weather so much throughout a job like this and as the work progressed we experience mud, plenty of dust,



*The design of several surrounds and tees flowed together seamlessly and the decision was made, after extensive trialling, to use Sir Grange zoysia on the tees in addition to the surrounds*

47-degree days and a very cold winter where morning temperatures dropped below zero twice, which is rare for Sydney.

**Storms:** These absolutely destroy your work and we had a few cause major damage at the worst possible time. One storm in late November 2018 set us back one month. We were on track to have all greens comfortably seeded by Christmas until we received 90mm of rain in less than half an hour. Three prepared greens were washed away down to the sub-base and needed rebuilding, surrounds were badly damaged and recently seeded greens were washed away. We had three greens that required reseeding different areas up to six times. In the end we bought 500m<sup>2</sup> of Royal Canberra's nursery to repair these areas properly. It was hard to keep morale up during this period.

**Temporary course in play:** We thought we were doing the right thing and providing the members with good quality bentgrass greens built into the fairways after securing five greens from Concord GC prior to them rebuilding. All was good until an extremely hot Australia Day weekend cooked most of them. It was all downhill from there with the members playing the last 5-6 months on mown down, bumpy kikuyu temporaries... it was hard to watch.

**Massive pressure:** There was constant pressure to provide the results for the club. They entrusted me with the supervision and management of a \$5 million project and the fear of failure was always present.

## LESSONS LEARNED

For those superintendents looking at going on a similar journey to what we have been on, I can't emphasise enough the importance of the following things. They made my job and the club's job so much easier and the delivery of the final product possible.

### Get good help:

- **Consultants:** These will make all your decisions and communications with the membership so much easier and gives you someone to bounce ideas off. They also provide a buffer between your decisions and the members. The same message coming from you and a consultant will always be taken better when delivered by the consultant.
- **Contractors:** These are the people that deliver your scheduling and plans; having good contractors will save you time and money. Look for recommendations from courses in your area that have done this type of work. All contractors are different and phones can kill productivity; wheels turning is what gets things completed.





*It's important to have a little fun along the way...*

● **Staff:** You will have staff on your crew that will want to be involved in a project like this and others that won't. Involve the guys who are keen as much as possible. I was lucky to have 6-7 guys who were keen and an old 3IC and irrigation tech who came back full-time to assist on the project. My old assistant (who went to start a landscaping company) came back for several stints helping to build the EcoBunker bunkers. This, together with some good quality casuals, enabled us to do all the labouring for the contractor like delivering material, installing irrigation, drainage, Capillary Concrete etc... which enabled the contractors to keep their wheels moving.

**Good planning:** Realistically I had rebuilt the course thousands of times in my head and scheduled the different construction zones and



*The project saw the reconstruction of all greens and surrounds, bunkers and three quarters of all tees*

temporary courses several times to ensure they both rolled smoothly through the course with minimal impact. Once we got started it all worked out and that was down to the good planning the entire team had.

**Do your homework:** Research all the new products that are available to you and hit companies up to trial them on your site.

A project like this is fantastic for the resume and will give you a great understanding of a different perspective of the job – the 'bigger picture' as they say. You

will learn a lot about the business and people management component of your role, as well as gaining a thorough understanding of what it takes to build a golf course.

If your club is planning a project like this, get involved early (as you should be). Nobody will know the course better and make sure you back yourself in the decision-making process. I got so much out of this project despite the, at times, negative components. Would I do it again... well, that's another topic for another article! 🏌️

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# Royal inspiration

*Royal Adelaide Golf Club was again at its sublime best for the 2020 ISPS Handa Women's Australian Open in February, prompting one of the game's elite players to pay special tribute to superintendent Nathan Bennett and his crew.*



*An increase in staffing numbers and equipment enabled course superintendent Nathan Bennett to add the extra polish to the already superb conditioning of Royal Adelaide Golf Club for the 2020 ISPS Handa Women's Australian Open*





*The Royal Adelaide tournament crew*

**C**hristina Kim is well known throughout the women's professional golf circuit as one of the game's more flamboyant characters. A regular visitor Down Under, Kim has graced numerous tournaments over her 20-year professional career and was again a sponsor's invite to contest the 2020 ISPS Handa Women's Australian Open which returned to Royal Adelaide from 13-16 February.

After an opening round three-under 70, the three-time LPGA Tour winner shot a disappointing even par 73 second round. Speaking to media after her third round, where she bounced back with a superb five-under 68, she jovially summed up how she managed to turn her game around after a mediocre Friday.

"I'm much more content today," Kim commented. "Yesterday, I lost my mind. I really, really did. I went back home, cried it out, just didn't understand what was happening, had a bit of a strop and told myself 'just let it go'... nobody's died, it's okay, it's just golf. So, I woke up this morning and had a much better attitude and went out and enjoyed myself."

Unfortunately the rollercoaster ride continued in the final round and a 74 dropped Kim down into a tie for tenth, seven shots adrift of South Korean Inbee Park who collected her 20th LPGA Tour title comfortably by three


strokes. While most players would have 'slammed the trunk' and departed the course after such a disappointing end, Kim, true to her character, wasn't about to let that final round fade out get her down. Instead, as Park was completing her media obligations with the Patricia Bridges Bowl in tow, Kim and her caddy boyfriend Duncan French decided some fun was in order. And they knew where to head – the Royal Adelaide maintenance facility.

As course superintendent Nathan Bennett and his tournament crew were unwinding after two long, yet rewarding weeks, Kim and French gate-crashed their celebrations, taking the time to thank them all for their efforts in preparing the course. They posed for a group photo with the crew which Kim subsequently posted on her Instagram feed along with the following accolade...

*"So many thanks are in order for this week, but none greater to the staff at @royaladelaidegc. Your tireless hours spent preparing your national championship to be one of the finest courses in the world did not go unnoticed by the Moo (Duncan French) and me. We cannot thank you enough from the bottom of our hearts for the week's worth of 3am wake up calls, hours of careful tending and nurturing of the golf course and for the rollicking great after party that you all deserved!!!"*

*"I hope you all keep being a source of inspiration for the rest of the world of work hard, work towards perfection, as well as party like there's no tomorrow!!! Thank you for letting the Moo and me crash your party! I'm sure the reason you guys had to get up at absurd hours every morning was the last thing you wanted to see at your celebration, but thank you for being so gracious to little ol me!!!! You all are amazing!"*

It was the sort of recognition that nicely bookended the week for the crew which once again presented Royal Adelaide in picture-perfect condition. It was the second time the Women's Australian Open had visited the famous Adelaide sandbelt course since arriving in the state in 2016. It was also Bennett's second Open, having led the team back in 2017 when the tournament was held during the club's 125th anniversary year. A few lessons were learnt that year and, together with assistant superintendent Andrew Fraser, Bennett made a number of adjustments

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thechristinakim So many thanks are in order for this week, but none greater to the staff at @royaladelaidegc. Your tireless hours spent preparing your national championship to be one of the finest courses in the world did not go unnoticed by The Moo and me. We cannot thank you enough from the bottom of our hearts for the weeks worth of 3am wake up calls, hours of careful tending and nurturing of the golf course and for the rollicking

**US professional Christina Kim gate-crashed the Royal Adelaide crew's post-tournament celebrations**

*Cody Tucker leads the fairway crew. The common couch/Santa Ana fairways were cut at 8.5mm for the week*





**Above: The Royal Adelaide crew with 2020 champion and LPGA Player of the Decade Inbee Park**

**Left: UK seasonal Joe Brierley (Sunningdale GC) cuts Royal Adelaide's 17th green. The bentgrass mix greens were kept at 3mm**

**Below: The rugged sandy waste approach into Royal Adelaide's 11th green**



**Tournament casual Nigel Shaw on fairway detail**



around staffing levels and equipment for the tournament's return this February.

At the start of summer, the club put on a couple of seasonal greenkeepers from the UK (Sunningdale and Royal Mid-Surrey golf clubs), while two weeks before the Open Bennett added a further three tournament casuals from Melbourne, among them Metropolitan Golf Club foreman Andrew Anderson. A further three from Tasmania and Victoria joined the crew during tournament week and they all dossed together in a house near the course. They formed part of a 38-strong tournament crew for the week which also included volunteers from local clubs Kooyonga, The Grange, Glenelg, The Vines, North Adelaide and Mt Osmond.

"The course came up very well," reflects Bennett. "Having done it last time made it a little bit easier because you knew what to expect. In 2017 there were a few things that we wanted to do but couldn't get done because we didn't have the staff or the equipment. So this year we made sure we had some extra bodies and Toro also loaned us two extra fairway mowers, taking us to six, which meant we could cut from tee to green all in the one direction, as well as some extra mowers on surrounds. Having the extra staff meant we could take our time to get it all done to a high level. It really made a difference.

"The greens were really good. We would have liked them a bit firmer and faster earlier, but we were dictated by what Golf Australia

wanted. They were mindful of the wind we can get here and some of the exposed green locations. We didn't change our greens preparation much. They were cut at 3mm as they would for normal competition play and we did a final dust the Monday before the tournament. We did put a little bit more fertility out earlier on to make sure we had enough in them so they didn't thin out and we could work them a bit harder if we had to."

The lead-in weather-wise was also pretty good for Bennett's preparations. It was a normal hot and dry start to summer for Adelaide with no rain in December and a run

of 40-plus days in the lead-up to Christmas. The city recorded a little bit of rain throughout January, including a drop of 24mm two weeks out from the tournament which unfortunately greened up the roughs a little too much for Bennett's liking. Despite that you could not fault the presentation of the course one bit.

"It was a great week and we had a great crew," says Bennett. "Having more staff here this year made it a lot smoother and we had a number of apprentices volunteering which has been great to see. I can't thank enough all the clubs and superintendents for supporting the event by providing volunteer staff to assist us."



**Ben Taylor cuts the fairway perimeter on Royal Adelaide's 15th**



*Ryde-Parramatta GC assistant superintendent Aaron Cachia gets into one of the exercises during the presentation skills workshop held during the 2020 Future Turf Managers' Initiative*

# Learning and **listening**



**A**aron Cachia was first to put his hand up. As the Future Turf Managers' Initiative Class of 2020 wound down after the opening day's course walk at Peninsula Kingswood, they had one more task left to tick off. Earlier in the day the cohort had listened to various talks, among them one on creating and delivering effective presentations. As part of that they were asked to come up with a short, two-minute presentation to the group after dinner which they would be critiqued on.

While some focused their presentations on an aspect of their work, Cachia, assistant superintendent at Ryde-Parramatta Golf Club in Sydney, decided it would be a good opportunity to be candid about something closer to his heart. Like many in the industry, Cachia has had his own struggles over the journey and took the opportunity to start a conversation about mental health and to demonstrate that you are no less a person by talking about it.

"We all have varying levels of stress and anxiety in our jobs," Cachia stated afterwards. "I feel we all owe it to ourselves to be honest and recognise that we are not immune to it. I've had my own struggles like many of us in this industry and have learnt some effective tools to help manage our daily challenges. The presentation afforded me the opportunity to share a snapshot of a recalibration breathing exercise which I've found to be very powerful."

Getting up in front of your peers is hard enough, let alone also opening up on a topic that is extremely personal, but Cachia's presentation was just one example of what the FTMI is all about – taking you out of your comfort zone and challenging yourself. It was one of many exercises this year's group undertook across the two-and-a-half-days, with a range of presentations and group tasks designed to equip them with the essential skills to help them take the next step in their careers as sports turf managers.

Since 2016, ASTMA Gold Partner Jacobsen has teamed up with the association to deliver one of the most intensive professional development courses for up and coming turf managers in Australia. The FTMI, which Jacobsen founded in the UK back in 2012, recognises the importance of preparing sports turf management personnel to take on senior management roles.

The Class of 2020, brought together from across Australia and New Zealand, came from a diverse range of backgrounds. The group comprised **Mark Bateman** (Koorringal GC, Vic), **Simon Blagg** (The Lakes GC, NSW), **Shaun Bowden** (Pennant Hills GC, NSW), **Hamish Buckingham** (Commonwealth GC, Vic), **Sam Butler** (Barker College, NSW), **Aaron Cachia** (Ryde-Parramatta GC, NSW), **Brendan Dooley** (Peppers The Sands Torquay, Vic),

*The country's next generation of sports turf managers rolled up their sleeves and got down to business as part of the recent Jacobsen-sponsored Future Turf Managers' Initiative.*



**Nic Douglas** (Spring Valley GC, Vic), **Tom Griffin** (Queanbeyan GC, NSW), **Ryan McNamara** (Growling Frog GC/Programmed Turnpoint, Vic), **Jason Lemire** (Tara Iti, NZ), **Dave Nielsen** (The National GC, Vic), **Daniel O'Connor** (The Hills, NZ), **Daniel Ryan** (Royal Sydney GC, NSW), **Ryan Smooker** (North Adelaide GC, SA), **Adam Spargo** (UTAS Stadium, Tas) and **Hayden Westwood** (The Royal Melbourne GC, Vic). **Stephen Hudson** (Headland GC, Qld) had also been selected but was unable to attend.

Together they sat in on sessions that focussed on;

- Compiling a standout CV and job interview techniques;
- Personality profiling;
- Creating and delivering effective presentations and how to present a professional image;
- Understanding club/organisation budgets and developing and managing your own budget; and
- Situational leadership and effective modern leadership techniques.

Speakers included presentation skills expert Carmen Sederino, Royal South

Yarra Lawn Tennis Club CEO and former Huntingdale Golf Club general manager Stewart Fenton (budgets) and behaviour and leadership expert Mark Carter. One of the highlights again was the course tour of Peninsula Kingswood Country Golf Club where director of courses Glenn Stuart, together with North Course superintendent Ben Payne and South Course superintendent Shane Stuart, provided a fabulous insight into one of Australian golf's largest and most detailed course redevelopment projects.

At the end of this year's FTMI, the group were asked to write down a series of short-, medium- and long-term goals they wanted to achieve post-FTMI, as well as three 'commitments or actions' that they were going to undertake in the month ahead. Some of the responses to these were enlightening and included;

- Do a 360-degree assessment of myself;
- Step outside my comfort zone more often;
- I'd like to understand my staff better, grasp a better professional relationship with them to better not only their value, but the overall value of the team;
- Build trust with employees and the management team;
- Change the manner in which I give feedback to staff;
- Be an active listener and build a better/higher EQ;
- Be honest with my feedback with my manager around the state of the workplace;
- Develop 'my story' in preparation for potential interviews;
- Work on time management (delegate not dump);
- Be open-minded and take on new challenges;
- Spend more time individually with staff. Giving staff the time to think about solutions and coaching them to produce a better result;







*Carmen Sederino gave a seminar on creating and delivering effective presentations*

- Be a good coach when leading a team and continue to be a good example to younger staff.
- Start doing more presentations so I can feel more comfortable selling myself and what I need; and
- Engage with local associations for networking and future support.

For one of this year's participants, Spring Valley GC assistant superintendent Nic Douglas, the FTMI was a real eyeopener, with everyone involved engaging and sharing openly: "The FTMI has been by far the best learning experience of my working life," says Douglas. "Being in such an intense learning environment with peers in the industry was invaluable to me. Incredibly honest, engaging and worthwhile!"



*Sam Butler engages during Mark Carter's session on situational and modern leadership*

Those sentiments were echoed by Cachia: "The 2020 FTMI was an experience that I will always be grateful for. Being included in such a talented group of up and coming professionals was a great privilege. The FTMI has given me a strong base to grow upon personally and professionally."

## BRIGHT FUTURE

The FTMI delegates were assisted throughout the programme by mentors Stuart Campbell (superintendent Maroochy River GC, Qld), Leo Barber (Paraparaumu Beach GC, NZ) and ASTMA CEO Mark Unwin. The mentors were on hand to help guide the delegates through the sessions and provide some real-life context to the presentations and skills being discussed and taught.



*North Adelaide's Ryan Smooker responds to a question posed during Mark Carter's leadership seminar*

Barber, the dual superintendent/general manager of one of New Zealand's most highly regarded golf clubs, Paraparaumu Beach, returned as a mentor for the third consecutive year and was again imbued with a sense of optimism for the future of the industry.

"Although being my third year and I guess knowing what to expect, each group delivers their own special kind of energy," reflects Barber. "I always really enjoy listening and being able to share in the input from the individuals that have made the cut to be in that room."

"This is a really driven and highly spirited group and although they share aspiration for development and higher honours, regardless of the year I've always felt participants have been more willing to learn and listen rather than to demand or expect."

"Being a mentor is a thrill and as much as I am there to shepherd and assist their thinking, it has actually led to a lot of self-discovery personally with the high calibre presentations transferrable regardless of where you currently sit in your career."

For fellow mentor Campbell, this year's FTMI was akin to a homecoming. In

## FTMI FEEDBACK HAMISH BUCKINGHAM

"The FTMI was a great two-and-a-half days of growing and gaining key skills required for taking the next step. The engaging interaction between speakers, mentors and industry peers was insightful. Some of the skills that I took away that could be implemented immediately were around presentation skills, communication and learning more about budgets."

## ADAM SPARGO

"The biggest takeaway for me was understanding that there are many people just like me with the same thoughts, wants, worries/concerns, but most of all it was very refreshing to see that there are so many great guys and girls that share the passion that I do for the industry."

The FTMI was a fantastic experience and I feel very privileged to have had the opportunity to attend. It was great to have had the chance to meet and learn from/

with the industry's future leaders as well as the fantastic staff at ASTMA and mentors/speakers."

## RYAN SMOOKER

"The FTMI was a very insightful and worthwhile few days learning what it takes to be a successful turf manager in today's industry. The biggest thing I took out of it was the realisation that I am more ready than I thought to take that next step."

## SAM BUTLER

"My biggest 'take away' was the networking and meeting fellow colleagues with like-minded attitudes, knowing that we can contact one another when needed and that it creates opportunity. I enjoyed learning about the budgets and running your own facility along with the personality profiling. It was a great two-and-a-half days and I feel as though now I can take that next step with confidence."



FTMI delegates on the course walk at Peninsula Kingswood CGC



2016 Campbell was part of the inaugural programme intake in Melbourne when he was then assistant at Maroochy River. Now superintendent, having officially taken over the reins last year, he was able to provide some real perspective and insight for this year's participants.

"It was great to see such a dedicated and passionate group that will service our industry well into the future," says Campbell. "Being on the other side as a mentor was great as I was able to pass on some of my experiences through my journey in taking the next step

in my career. I also felt I was able to relate to some of the group's apprehensions and concerns in progressing theirs.

"What I personally got out of the programme was to reflect on what I had been educated in as a student of the FTMI and how I had implemented what I was taught four years prior and how it helped me to think differently in my approach to becoming a better leader.

"It would be remiss of me not to mention the efforts of both Simone (Staples) and Mark (Unwin) from the ASTMA. Despite being thrown numerous curve balls with



Queanbeyan GC's Tom Griffin inspects the Pure Distinction greens at Peninsula Kingswood

speaker cancellations due to the developing coronavirus situation, they held the programme together and delivered a seamless event. I'm sure everyone gained valuable knowledge from it and the tools that they will one day put into action."

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An aerial photograph of a golf course, likely at the University of Maryland Golf Course in Annapolis. The course features rolling green fairways, several sand traps, and a prominent water hazard in the upper left. In the background, a wide river flows, and beyond it, a city skyline is visible, including a large red container ship with the word 'ONE' on its side. The word 'TOURS' is printed in the top left corner.

TOURS

# Destination USA

*Last July, Rob Halsall from GB&S Australia led a group of Australian turf managers on a study tour of the US, visiting a number of the country's elite turf and university research facilities.*



**S**tudy tours are a great vehicle to get in-depth exposure to international management practices and classic course architecture together, as well as develop stronger critical connections with our overseas peers. Last July a group that included myself, Rod Tatt (superintendent, Mt Lawley GC, WA), Damien Winsor (assistant superintendent, Rosebud CC, Vic), Jeremy Clarke (assistant superintendent, North Course, Peninsula Kingswood CGC), David Phillips (superintendent, Spring Valley GC, Vic) and Dean Bailey (superintendent, Rosanna GC, Vic) departed with high expectations on a study tour which would incorporate visits to 20 golf courses and three horticultural universities throughout the USA.

The tour was based around many key objectives, but it was the idea of collective learning which excited us about the trip. Among our group we had studied at different universities, had varied points of reference, professional experiences and interests which gave our daily conversations and debates depth and vigour. A group of curious minds, we were all keen to flesh out our opinions as well as those of others. At the end of the three week tour we believe we achieved all of our objectives and more.

## LOS ANGELES

Our first stop was in Los Angeles and a visit to the exclusive Los Angeles Country Club (LACC). It was the height of summer in California which meant that turfgrasses were being tested under some extreme temperatures. LACC was in great shape with the abundant proliferation of rough fescue seedhead providing a spectacular backdrop against the bermudagrass fairways and bentgrass greens. The original Thomas/Bell (1927) course has undergone some major redesign works (Gil Hanse) over the past decade and is scheduled to host the 2023 US Open.

There is a zero tolerance to *Poa annua* throughout the golf course, so many prevention/eradication procedures were in place. We were particularly interested in Poacure (methiozolin) with this herbicide likely to be released in Australia in the near future.

Belair Country Club is located in one of the ritziest neighbourhoods of LA and it too has recently undergone a restorative makeover under Tom Doak. Pure Distinction bentgrass was selected for the greens after an exhaustive trial process. Similar to LACC, Belair has USGA construction profile greens where



*Inspecting the disease trial plots at the University of California's Riverside turf research facility*

water management includes regular penetrant applications and 'big dumps' of irrigation water once a week.

We also enjoyed visiting Wilshire Country Club which has a rich history of being one of LA's original golf courses. Oil was reportedly discovered on the golf course last century which helped fund this exclusive club in downtown Hollywood.

Rolling Hills Country Club is a 'new age' exclusive housing development in southern LA which includes a fabulous David Kidd signature golf course with a total of seven hectares of bentgrass greens and surrounds. Music is piped throughout an amazing practice facility and clubhouse surrounds which creates an incredible ambiance.

A constant theme through all of the LA courses was an intense focus on greens management, including: regular dusting with kiln-dried sand; low N inputs; Planet Air (aeration) regularly; brush/verticut as often as possible; coring at least twice a year; heavy

Primo applications; monitoring of organic matter levels; and deep watering once a week.

During our time in LA we had the pleasure of being invited to the University of California, Riverside to inspect their turf trial sites and have some highly credentialed university lecturers present to us. UC Riverside is one of the largest turf research sites in the USA and is a living laboratory for the exploration of issues critical to growing communities in the agricultural world. There is a particular emphasis on fine turf management and citrus research at the university.

Dr Jim Baird and his staff dedicated the entire day to our visit which was one of the highlights of our trip. Trial sites included: winter colour inputs; drought stress; wetting agent trials; USGA salinity lab testing; pre-emergent herbicides; anthracnose/summer patch control in *Poa annua*; wetting agent work using an infiltrometer; water conservation strategies; and advanced line testing for zoysia, bermuda seed, bermuda vegetative and kikuyu. Some key points emanating out of the day included:

- The use of glyphosate has been banned at all UC campuses and a form of hot foam is being used as an alternative;
- Wetting agent applications ideally begin early in the season and are applied every 28 days;
- Bermudagrass still sets the standard for water conservation;
- The disease trial plots on *Poa annua* showed that disease almost always followed drought stress through 'hot spots'. Wind had a major impact on irrigation efficacy. Important to cool down hot spots with syringe irrigation or hand watering. Two new DMI fungicides, including methitriconazole applied with Primo was the best control option.
- Oregon State University has done much work on biological control systems on turfgrass diseases and UCR is working closely with them.



*Los Angeles Country Club has undergone recent redesign works by Gil Hanse and will host the 2023 US Open*

*Main: Bayonne Golf Club is a manmade masterpiece. The impeccable bentgrass greens and fescue fairways are complemented with roughs consisting of fescue and a smothering of switchgrass, little bluestem, Indian grass and alkaligrass*





The tour group with Dr Ben McGraw and son Luke at Penn State's 107,000-seat capacity Beaver Stadium

- Can fungicides assist turf under stress? An emphatic 'no'!
- "Turfgrasses don't waste water – people and faulty irrigation systems waste water."
- With clean water such a valuable commodity throughout California, it is no coincidence that a 'salinity alleviation study' has been part of an ongoing trial mantra at UCR for a number of years. High saline irrigation water has been treated with more than 40 products including calcium based, organics, microbes, wetting agents etc. and applied to bentgrass greens. The results will make very interesting reading.
- Dr Jim Baird has been working with Pure Distinction clubs for more than five years and is a huge fan of the bentgrass. He describes Pure Distinction as 'Teflon to Poacure', reaffirming Pure Distinction's extreme tolerance to Poacure. There are a number of other Poacure trial sites throughout California including Coachella and the Napa Valley.

Kyung Han, representing Moghu, the manufacturer and worldwide distributor of Poacure, also gave a presentation outlining Poacure trial works at UCR. Some of the points he noted were;

- Poacure has been used in Korea for eight years and seven years in the USA;
- Recommended rates are 17.7ml/100m<sup>2</sup> to 35ml/100m<sup>2</sup>;
- Can be used at lower rates for *Poa annua* seedhead suppression – early autumn;
- Water in immediately after application – 12.5mm (greens) and 25mm (fairways);
- Oversowing can be conducted after four weeks;
- Solid tine only when under Poacure – hollow tining is fine four weeks after;
- Expect little or no root growth while under Poacure;

- No result with summer applications. Best results were through early/late winter.

The take home message was not to overdo Poacure applications – drop off Poacure if only a small amount of *Poa annua* is evident. Be patient and don't make the mistake of 'it's working, great, so let's do it again.' Wait a year or two for the next application.

## CHICAGO AND DETROIT

After three amazing days in LA we headed east for Chicago where our road trip would begin. It was with much anticipation and excitement that we drove into the patrolled entrance of Chicago Golf Club. The Seth Raynor classic is described as 'one of the greatest examples of how a boring, relatively flat piece of land can lend itself to a world class design with amazing architecture'.

Chicago is one of the most exclusive clubs in the world with only 120 members and has a current world ranking inside the top 25. Seth Raynor was not only a great golf course architect but also a qualified engineer.

He incorporated a surface and sub surface drainage system over the entire golf course which included seven miles of terracotta sub surface drainage built in 1923 which still works perfectly today.

Rather than rebuilding the thatch-accumulated greens, the previous superintendent around 15 years ago embarked on a massive topdressing programme that left the greens with an amazing sand-based, permeable profile. The golf course can be covered by up to two feet of snow from December to March, so turf covers are used to protect greens. The greens always emerge from their winter hiatus in remarkably good condition according to current superintendent Scott Bordner.

We were also fortunate to visit Medinah Golf Club as it geared up to host the 2019 BMW Championships. Medinah has 54 holes and employs more than 80 staff. Doak has recently completed renovation works on the No.1 course which included the removal of more than 3000 trees. Tom Bendelow's original No.2 course has remained untouched since the 1920s and Rees Jones renovated the tree-lined No.3 championship course in 2009.

The next leg of our journey took us further east along the shores of Lake Michigan to Detroit. The city has suffered a number of economic and cultural nadirs over the last century, but the Country Club of Detroit has remained a constant during these turbulent times. You couldn't help but feel that there was a real cultural and community responsibility associated with the club. The course recently underwent renovations to return to the original classic Colt/Alison design from 1927 by Doak.

## PENNSYLVANIA

The long drive from Detroit took us further south to the beautiful city of Pittsburgh, Pennsylvania which would be home for the next four days. Oakmont Country Club is located not far out of town and we spent



PNC Park, home of Major League Baseball side Pittsburgh Pirates





Oakmont's famous 'Church pews' bunker complex and (right) bunker face prep Oakmont style



most of our first day walking this big, bold golf course. Highlights included the 'Church pews' bunker configuration, extremely narrow fairways and the slick greens (Sam Snead once quipped that he tried to mark his ball on one of Oakmont's greens but the coin slid off!).

It was hard to imagine the golf course before 15,000 trees were removed 10 years ago. The original Fownes (1903) push-up greens are a mix of bentgrass/*Poa annua* which in this region is known as 'Pittsburgh Poa'. Aggressive renovations are conducted each year which remove around 32 per cent of the surface area. These works include double drill and fill, a Graden verticut, slicing and heavy dusting.

Other key management practices at Oakmont include: low N and heavy calcium inputs; fungicide at least once a week on greens and every 14 days on fairways (pythium and nematodes are the two main issues facing superintendent David Delsandro); Primo up to twice a week on greens; ethephon applications in spring; penetrants are the only type of wetting agents used; and divots are a priority – teams are sent out most days during the growing season to divot with sand and L93 bentgrass.

Another Seth Raynor classic is Fox Chapel Golf Club (1923) which is a prime example of keeping the layout true to the Raynor vision, that of a course which 'rewards the well-struck golf shot while appropriately penalising the ill-advised stroke'. The golf course includes one of the world's most famous Biarritz holes (No.17) and a great Redan par three (No.6). Tom Fazio has been engaged to 'modernise' the layout by taking bunkers forward and restoring some areas which have been lost over the years.

Laurel Valley hosted the 1965 USPGA and the 1975 Ryder Cup and is acknowledged as being Arnold Palmer's home course. The original greens were California style

constructions but are being replaced with the preferred USGA construction method. Environmental engineers have recently completed a drainage masterplan on this difficult site where high rainfall and intense humidity throw up constant challenges.

The Planet Air slitting machine is used on greens, described as a 'game-changer' by allowing increased gas exchanges through the profile. The installation of the SubAir system is being considered by the club with the cost for supply and install at \$40K per green!

While in Pittsburgh we took the opportunity to visit PNC Park, home of the not so mighty Pittsburgh Pirates. The stadium is an intimate, classic style ballpark with a prime location at the junction of the Allegheny and Ohio rivers, taking advantage of scenic vistas of the downtown skyline and riverfront.

## PENN STATE UNIVERSITY

The next stop was University Park where Penn State University associate professor of turfgrass science Ben McGraw took time out on a Saturday to take us on a guided tour of one of the great horticultural universities in the world. Ben is the turfgrass entomologist at Penn State who in between lectures conducts some amazing insect studies.

He is two years into a five-year study monitoring earthworm activity in turfgrass. He has already observed that there is a definite correlation between moisture levels and worm casting numbers. He also noted that: sand topdressing did nothing; the jury is still out on certain organic control products; removal of thatch has decreased food source for worms resulting in decreased activity; and applications of ammonium sulphate when the worms are near the surface has reduced numbers. Ben also noted that a specific insecticide was sprayed recently to eradicate worms at a very high end club which resulted in a wave of new insect issues never experienced before!

Other significant points from our time there included;

- Ben likes the idea of using entomopathogenic nematodes to reduce the potential for insecticide resistance;
- Penn State is currently conducting NTEP synthetic grass trials which includes working closely with NFL players;
- Tiger Woods impacted greatly on turf student enrolment numbers when he was at the height of his powers; and
- 60,000 students live on campus!

Within the college grounds lies the magnificent NFL Beaver Stadium which has a capacity of 107,000, the fourth largest capacity in the world. Ben and grounds supervisor Thomas Goyne took us on a tour across the facility. The surface is a three-way Kentucky bluegrass mix and has a drainage rate of 8-12"/hr. TDR target is 22 per cent and Clegg readings between 60-80 gravities. Stressguard Signature and Interface are highly rated and N/Fe/Macro-Sorb is used for colour.

## NEW YORK

Our road trip continued from Penn State to New York where we would be based for a week. A visit to Bayonne Golf Club was undoubtedly one of the highlights of study tour. The day began with a courtesy pick up from Manhattan on the Bayonne Golf Club ferry where our hosts for the day Dr Richard Hurley (Rutgers University) and Mike Blackwell (The First Tee) were there to meet us.

Bayonne GC is the brainchild of Eric Bergstol, founder of Empire Golf Management, who shaped Bayonne using waste and rubble from a flat industrial brown-field site into an undulating rollercoaster, links-like course. The result is dramatic and rather surreal as the course is located directly across the Hudson River from Wall Street. Panoramic views of the Statue of Liberty and the Manhattan skyline create an amazing backdrop.





*There's a reason why Pine Valley Golf Club is ranked number one in the world*

Bayonne is an authentic links layout and is truly reminiscent of British and Irish seaside courses with fairways tumbling through giant, man-made sand dunes and greens perched on raised plateaus. For a golf course that is so man-made, the golfing experience was unforgettable and the impressive clubhouse and amazing hospitality only added to the experience. The impeccable bentgrass greens and fescue fairways were complemented with roughs consisting of fescue and a smothering of switchgrass, little bluestem, Indian grass and alkaligrass.

A number of us were on a study tour back in 2012 which included a day trip from New York City to Merion and Pine Valley. We enjoyed this day so much we decided to replicate visiting two of the great courses in the world. We were particularly interested in Merion with Gil Hanse completing restorative works over the 36 holes in 2018. Those works included;

- Removal of hundreds of trees following an intense shade study;
- Construction of 11 new 'fun' tees for ladies and children;
- Modified USGA construction profile greens (five per cent soil added to the sand mix) with historical green contours scanned and replicated to the nearest mm;
- Underground water storage system installed which is the size of an Olympic swimming pool and has an elaborate irrigation/fertigation tank system attached. The water is sourced via gravity feed from a creek running through the golf course.
- Precision Air installation (\$75K/green) which helps to decrease profile temperature by 10-15 degrees.

Pine Valley is justifiably ranked No.1 in the world with a conglomerate of legendary designers – Crump, Colt, Alison, Tillinghast, Maxwell – all having a hand in the finished product. Tom Fazio is currently working

through historic photos as part of a restorative review, but there will be no massive changes.

The native push-up *Poa annua*/bentgrass greens have been oversown with a variety of bentgrasses over the years (the original greens are classified as South German bentgrass mix). Despite the plethora of bunkers across the property, there are no rakes on the course. Greens management includes regular dusting, weekly applications of Primo during the growing season, minimal fertiliser, phosphite weekly and solid rollers on greens mowers which have reduced the incidence of anthracnose.

## RUTGERS UNIVERSITY FIELD DAY

The timing of our tour was based around the Rutgers University annual Field Day which was another highlight. Drs Richard Hurley and Leah Brillman, two of the most pre-eminent plant breeders in the world, gave us a sneak preview into a number of trial sites on display just before the official opening. Richard has been involved in plant breeding since 1982. L93 was his first success and took 10-14 years' work before it was released into the market.

Some of the key performance indicators that the Rutgers bentgrass trials measure

and look for include upright growth, disease/drought resistance, seed viability, density, recovery from renovation, wear, genetics and shade tolerance. Some new generation bentgrasses which have trialled well include Pure Select, 777 and MGH (007XL).

The Rutgers sand topdressing/dusting trial work was amazing. Three sands were used – medium/coarse, medium/fine and fine/medium on Shark creeping bentgrass. Some of the key points from this work were;

- Fine sand increased water retention and reduces micropores;
- Coring is imperative, particularly to remove organic matter;
- Core cultivation and backfilling with medium-coarse sand had the best results in reducing surface wetness and OM concentration.

In their brown patch trial work, Navicon (BASF) was the best performed preventative fungicide. Preventative control was being achieved with applications every 28 days. Another well performed application was a mix of azoxystrobin and two strains of trichoderma applied at 14-day intervals.

Some other key messages coming out of the Field Day were;

- Compost and compost teas work;
- There are many modification options for USGA construction methods;
- Rutgers receives between \$4m-\$5m each year via seed royalties which is redistributed back into research and development;
- To help reduce the incidence of anthracnose – mow higher, apply K regularly, dust and roll as often as possible;
- Many plant health products work – seaweed extracts help maintain chlorophyll, microbial biological products increase root development, pigmented fungicides help reduce plant stress and the storage of carbohydrates can be enhanced using PGRs.



*Inspecting the Rutgers University sand topdressing/dusting trial plots*



- Hyperspectral sensors and cameras will inevitably be incorporated into agriculture and fine turf. Hyperspectral cameras monitor electromagnetic radiation from plants which can assess mechanical and biological traits. Early onset of disease can be detected and plant transpiration levels can be accurately documented;

## USGA HQ

We also had the opportunity to visit USGA headquarters in New Jersey where Green Section education director Adam Moeller was our host. Adam, along with his amazing staff, provided us with an unforgettable insight into the golf industry from another perspective. The Green Section provides educational content for superintendents and publishes a fortnightly newsletter which is viewed throughout 162 countries, while 1200 courses are visited by USGA agronomists each year.

During our time with Adam and his staff we discussed a range of topics and issues including;

- Variations in USGA construction profile specs;
- Biological inputs;
- Concerns over the next decade with P and chemical input restrictions;
- Importance of grass selection and renovating aggressively from day one;



*Transporting Merion's famed wicker basket flagpoles*

- Gravel/sand pH variations can cause major issues – check pH on gravel;
- Make sure the game is more welcoming by improving the golf experience. Look to build forward tee options;
- Embrace cultural practices;
- Always test sand selections to ensure sand doesn't stay wet;
- Poacure is an exciting new chemical but should be used sparingly;
- The use of Primo is critical.

Donald Trump has a collection of 12 golf courses throughout the world and one of the best is Trump National, Bedminster which is only a short drive from USGA HQ. The President's visits nearly every second weekend are accompanied by an extravagant

security entourage. The golf course boundary is even secured by sniper towers and drone sensors. Classical music played throughout the clubhouse/pro shop area and a hot dog/ burger shack in the middle of the golf course added to a unique experience. Trump National will host the 2022 US PGA.

## FINE FINISH

The final day of our study took us to the Long Island/Hamptons area where some of the world's classic courses are located – The National Golf Links of America, Shinnecock Hills and Sebonack. A hidden gem rarely spoken about is Seth Raynor's Southampton Golf Club which coincidentally shares a boundary with Shinnecock Hills. Seth Raynor was born and raised in Southampton and is buried in the local cemetery. The layout is littered with Raynor template holes (including the original Biarritz and Redan greens) on an amazing parcel of land.

The USA host superintendents, university lecturers and the guys at the USGA were incredibly generous with their time and information sharing on our tour. Many of these experiences will stay with us and continue to provide us with inspiration throughout our professional careers. It is hard to walk away from a trip with such intensity and commitment not feeling somewhat changed. 🏌️

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**S**ince the day Edwin Budding invented the first mechanised reel mower in 1830, there has been a steady improvement in the conditioning and playability of putting greens. Today, mowing and lightweight rolling are the primary practices used by superintendents to achieve smooth, fast greens.

Over time, advances in equipment technology have resulted in mowers that can cut grass to less than 2.5mm and a variety of lightweight rollers to provide fast, true putting surfaces on a consistent basis. In the quest for faster and faster green speeds, many superintendents have experimented with different mowing and rolling programmes to see what combinations are best for creating

smooth, fast greens while preserving the health of the turf.

Unfortunately, there have been situations where unreasonable golfer demands for faster and faster greens has resulted in turf loss as superintendents implemented excessively low mowing and frequent rolling over a prolonged period. Where is the balance and what is realistic? The goal of this article is to examine



*Combining mowing and rolling to achieve a desired green speed and improve smoothness is possible, but caution is necessary to not overstress turf, especially during the heat of summer*



# The right combo

*High quality putting greens are the result of balancing mowing and rolling with available equipment, labour and weather write USGA agronomists Elliott Dowling and Patrick Gross.*



the various factors associated with mowing and rolling greens and to put forth a practical guideline for developing an agronomically-sound strategy that achieves an appropriate green speed without risking turf injury.

## WHY MOW AND ROLL GREENS?

Frequent mowing benefits putting green turf in several ways;

- Controls vertical growth;
- Helps grass spread laterally;
- Promotes high shoot density;
- Produces smooth surface conditions;
- Creates less friction with the golf ball and increases green speed

Lightweight rolling has also become a common practice on putting greens. Primary benefits include;

- Increases green speed;
- Promotes smooth surface conditions;
- Allows for raising the cutting height while maintaining green speed;
- Aids with the incorporation of sand topdressing;
- Reduces algae and dollar spot disease.

The quality and frequency of mowing and rolling operations has a direct impact on both turf quality and surface conditions. Sharp, precisely adjusted mowers do a better job cutting grass blades cleanly and evenly. This benefits turfgrass health and putting quality.

Mowing injures the grass; therefore, healthy and actively growing grass is a prerequisite so that it can withstand and recover from the injury caused by mowing and rolling. If putting green turf is experiencing any type of stress – e.g., high temperatures and humidity or a pest infestation – mowing and rolling practices need to be adjusted and scaled back until the turf recovers, otherwise the risk of additional decline is possible.

## TYPES OF MOWERS

There are two basic styles of putting green mowers – walk-behind or triplex. Walk-behind mowers have an 18- to 22-inch-wide cutting reel and are propelled by a gear-driven rear drum. Walk mowers are lighter than triplexes, leading to less stress on the turf – especially on the clean-up passes.

Triplex mowers feature three mowing heads mounted on a three-wheeled motorised frame. In most cases, the actual cutting head is identical between the triplex and a walking mower. The major advantage to triplex mowers is that one employee rides the machine over the green rather than walking which, when combined with the larger cutting swathe at 60-inches, leads to quicker mowing.

Both walking units and triplexes provide excellent mowing quality when properly sharpened and adjusted. Improvements in mower technology have resulted in newer triplexes that cut grass with the same quality as walking units, which is why many courses are returning to triplex mowers. Additionally, labour shortages are forcing many facilities to utilise triplex mowers to save time. For example, an 18-hole golf course that uses four to six employees to walk mow greens could perform the exact same job in the same time with half the staff using triplexes.

## HEIGHT AND FREQUENCY OF CUT

Another basic concept of mowing putting greens is determining the height of cut. This adjustment is entirely course specific and is determined by the superintendent based on the type of grass, surface contours of the greens, seasonal growth rate and the desired green speed. What may be appropriate at one course may not be appropriate at another.

PHOTO: ANDREW ANDERSON (METROPOLITAN GC)





*Proper mower setup is critical to achieve a quality cut and limit bruising and mechanical stress to the turf*

One very important point that is often misunderstood is that not all grasses are equal. A mowing height that is considered appropriate for creeping bentgrass might not be appropriate for *Poa annua*, ultradwarf bermudagrass or seashore paspalum. Determining the mowing height is not only dependent on grass type but also equipment, expectations and labour availability.

All grasses have a height of cut tolerance. It is typical for the height of cut to be adjusted up and down throughout the year based on seasonal growth rates and in response to stressful environmental conditions. Proper mower setup is necessary to achieve the desired height of cut and playability. Proper adjustment is critical to producing the cleanest cut, highest quality putting greens and desired green speed.

Surface contours and architecture also are factors in determining the height of cut. Putting greens with sharp contours or undulations are subject to scalping from mowing too low. Once an area is scalped, recovery is often slow and

seeding or even plugging is necessary to accelerate recovery.

How often greens are mowed is dependent on staff size and budget, but grass type and weather also play a role. On average, greens are mowed at least five days per week and in some cases six or seven. Some courses will skip a day during periods of hot temperatures or moisture stress when the added mechanical pressure could damage turf.

## ROLLING BASICS

Rolling is a practice that improves surface smoothness, uniformity and increases green speed. There are a variety of lightweight rollers used on greens, including sidewinder units and roller attachments that can be mounted on a triplex mower. Some superintendents choose to roll in conjunction with regular mowing, often rolling two to four times, or more, per week. Conversely, some superintendents choose to alternate between mowing and rolling to reduce plant stress during hot temperatures or periods of slow growth.



Research from the University of Tennessee showed that there is no statistical difference in green speed between plots mowed six days per week and rolled three days per week and plots that alternated mowing and rolling. That same research showed that turf quality improved during stressful weather when mowing and rolling were alternated (Samples et. al. 2008).

Another rolling strategy sometimes used by superintendents is rolling a 20-30-foot diameter area around the hole location, a practice known as target rolling. Rolling a limited amount of area around the hole location takes less time while still achieving the speed and smoothness desired by golfers in the area where they are most likely to notice it. Furthermore, this strategy can be implemented daily while giving the remaining area of the green a rest as the hole location and rolling treatment are rotated.

## HIGH-LEVEL MAINTENANCE AND SPECIAL EVENTS

Nearly all golf courses host tournaments or special events where faster green speeds and a higher level of conditioning is desired. There are four critical areas that must be addressed to successfully bring putting greens into peak performance for such events;

- Putting greens must be healthy prior to the event and a sound agronomic programme must be in place for routine maintenance (i.e., aeration, topdressing, nutrient management, water management and pest control).
- There must be adequate staffing to perform the additional practices that will be implemented on greens. This must include an adequate budget for labour and overtime pay.
- There must be adequate equipment in the inventory that is in good condition for implementing the necessary practices.
- Sufficient time must be allowed to perform the necessary tasks ahead of play.

Preparing greens for tournaments and special events is mainly a function of increasing the frequency of mowing and rolling. Multiple mowing and rolling treatments each day imparts extra stress on the turf and should only be done for a short duration of seven to 14 days to avoid potential turf loss.

One of the main strategies to increasing green speed for special events is lowering the height of cut. Care must be taken to avoid lowering the height of cut too quickly and beyond the tolerance of the turf species. Aggressive height of cut reduction leads to

*Some superintendents choose to roll in conjunction with regular mowing, while others choose to alternate between mowing and rolling to reduce plant stress during hot temperatures or periods of slow growth*



thinning of the turf canopy, scalping, moss invasion and an overall reduction in colour and turf quality. Reducing the height of cut can be safely done in 0.1-0.2mm increments at two-to three-day intervals until the desired green speed is achieved. This process can take one to two weeks and must be planned well ahead of a tournament.

It is important to point out that there is no specific cutting height that correlates to a specific green speed. There are too many site-specific variables that influence cutting height and green speed including turf species, climate, season, slopes and surface contours of greens and other such variables.

Multiple studies have been done on the impact of lowering the height of cut on green speed. Michigan State University looked at the impact of 1/32-inch (0.75mm) height of cut reductions on *Poa annua* and creeping bentgrass putting greens. When the cutting height was lowered by 1/32-inch from 3/16inch (approx. 4.75mm) to 5/32-inch (approx. 4mm) there was an increase in green speed of 8-12 inches. Lowering the cutting height an additional 1/32-inch to 1/8-inch (approx. 3.2mm) resulted in an increase in green speed of only 6-8 inches.

The smaller increases in green speed with each reduction in cutting height is what Dr. Thomas Nikolai refers to as the law of diminishing returns (Nikolai et. al. 2005). Reducing the height of cut will only take you so far and is just one aspect of producing fast greens. To balance green speed and turf health, it is recommended to mow as high as possible to achieve the desired green speed, which preserves extra leaf material for photosynthesis and growth.

Increasing mowing frequency is another common method to improve surface quality and increase green speed. Double mowing in perpendicular directions removes additional leaf material from the turf canopy, resulting in smoother surface conditions. Interestingly, double cutting does not result in a rapid increase in green speed. It is typically necessary to double cut greens over several days to see an increase, often in the range of 6-11 inches (Nikolai et. al. 2005).

After multiple days of double cutting, green speed will tend to plateau. Although double cutting requires more time and labour, the main advantage is that an increase in green speed can be achieved without resorting to a drastically low cutting height. If double cutting in preparation for a tournament, the process must be initiated three to seven days in advance to achieve an increase in speed.

*Surface management plays a significant role in optimising green speed, firmness and plant health. A layer of sand at the surface protects plant crowns, improves resilience to compaction and helps to smooth imperfections*



*Triplex mowers can provide excellent mowing quality and require fewer employees to mow greens*

During a tournament, some facilities with adequate resources mow greens in the morning and in the evening. Although leaf growth from the previous 10 to 12 hours is removed, the resulting change in green speed is variable but can have a positive cumulative effect when practiced over several days.

Rolling greens is normally done as a supplement to mowing for tournament preparation. It is common to see an initial 6- to 12-inch increase in green speed immediately after rolling. In some cases, the increase in speed can last for hours or have a residual effect for one to two days. How long the rolling effect lasts is dependent on several factors including season, day length and turf growth.

One of the hazards of rolling greens daily during tournaments is the wear pattern and turf thinning that can occur on the edges of greens where the roller changes direction. Turning boards made of carpet, wood, plastic or other materials are often placed on the edges of greens and moved during equipment operation to minimise turf damage in the

areas where rollers and mowers are turned. If possible, rotating the direction of rolling each day helps to reduce the amount of damage on the edges of greens.

## THE RIGHT COMBO

The effects of various cutting heights, mowing frequencies and rolling programmes will be different for every course. Obtaining benchmark measurements for several days in a row is the only way to determine the effectiveness, or otherwise, of different mowing and rolling treatments.

The following protocol is typical for USGA championship preparation and can be used as a guideline for developing a mowing and rolling programme for greens at any facility.

- Identify relatively flat areas on greens for taking Stimpmeter readings. The surface slope should be less than one per cent in the measurement areas and preferably 0.1 to 0.2 per cent. The areas used for taking Stimpmeter readings should be marked with a felt-tip marker so that readings can







*Rolling greens for tournament preparation is normally done as a supplement to mowing to increase green speed and promote smooth surface conditions*

be taken in the same exact location each time. One or two greens will provide an acceptable amount of data, but taking measurements on more greens makes the information more dependable.

- Take Stimpmeter readings before and after mowing to determine the amount of green speed increase as a result of a single cut at the determined height.
- Take Stimpmeter readings before and after rolling to gauge the increase in speed from the rolling treatment.
- On a separate green, take Stimpmeter readings after a single cut. Place the grass clippings in a 5-gallon bucket (approx. 19L) that has markings on the inside at 1-inch increments. Mow the same green a second time, take Stimpmeter readings again and place the grass clippings in another marked bucket. Compare how much grass was removed with a single cut versus a double cut as well as the change in green speed. Note that this is a volume measurement of clippings and not a weight measurement.
- Take Stimpmeter readings at various cutting heights and record the results.
- Use a prism gauge to evaluate mowing quality and the effective cutting height in the field. Ideally, this should be done with the mechanic so that there is a better understanding of any adjustments that are needed to the sharpness and cutting height of mowing equipment.



*Sharp, properly adjusted mowers are critical for producing the cleanest cut, highest quality putting greens and desired green speed*

- Stimpmeter readings should also be taken in the morning, midday and afternoon to check the variability in speed and the amount of growth or 'bounce-back' from rolling that occurs.
- Record the amount of time necessary for each activity so that a realistic calculation can be done for labour requirements.
- Constantly evaluate turf quality throughout the process to monitor potential negative impacts to turf density and overall quality.

The measurements taken throughout this process will provide valuable data to determine the impact of different mowing and rolling treatments. It is typical to see a gradual increase in green speed over several days when multiple mowing and rolling treatments are implemented. Then it's up to the superintendent and other decisionmakers to determine what is realistic given the available resources.

## SURFACE MANAGEMENT

Mowing and rolling play an integral role in managing green speed and putting green performance, but other cultural programmes to promote surface smoothness, relieve compaction and remove/dilute organic matter also play a role. Light and frequent sand topdressing is one of the most important practices for maintaining quality putting greens because it smooths the surface and dilutes organic matter.

Topdressing throughout the growing season is a very effective practice for maintaining a firm and fast playing surface and is also effective at reducing anthracnose severity (Murphy et al. 2018). Cultivation is equally important, removing organic matter (OM) to maintain consistent and appropriate levels so that excessive moisture retention does not lead to soft surfaces. Some of the more common cultivation practices include;

- Core aeration with hollow tines set at a specific spacing and depth to remove a target percentage of OM.

- Vertical mowing is often used to remove OM from the very top portion of the soil profile and reduce leaf density. Vertical mowing is not a substitute for core aeration, but it is an effective way to remove OM and clean up dead leaf tissue without disrupting the surface as much.
- Grooming is a less aggressive form of vertical mowing, but it is no less effective in maintaining healthy, smooth putting surfaces. Grooming works much the same as vertical mowing without cutting as deep into the thatch layer.

## CONCLUSION

Mowing and rolling greens seems so simple, yet there are many nuances involved that must be executed properly if the desired green speed and surface conditions are to be achieved. Key considerations are;

- Maintain the highest possible cutting height to achieve the desired green speed so that turfgrass health can be preserved.
- Mow with sharp and properly adjusted mowers.
- Experiment with different mowing and rolling programmes (e.g., HOC, frequency and other variables) to see what produces the best results at your facility.
- Attend to basic agronomic programmes to keep the grass as healthy as possible so that the added stress of mowing and rolling can be tolerated.

There is no one-size-fits-all approach to managing green speed and turf performance. Before you even begin to develop or refine your putting green management programme, you must first detail what it is that you want out of your putting greens. This is the opportunity to take a hard look at your course, clientele, budget and labour force and set realistic goals that are achievable and repeatable.

Balancing mowing and rolling with available equipment, labour and current weather will help you achieve the smoothest and highest quality putting greens on the most consistent basis.

Coupling these maintenance practices with proper agronomics to provide your putting green turf with the best opportunity for optimal turf health, will help you achieve your goals effectively and efficiently.

## ACKNOWLEDGEMENTS

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# TORO Toro Turf Tour

**COURSE:** THE LAKES GOLF CLUB, NSW **SUPERINTENDENT:** ANTHONY MILLS



*Course superintendent Anthony Mills relies on Toro's range of industry-leading course equipment and irrigation products to keep The Lakes Golf Club in Sydney at its finest, week in, week out*

**T**he Lakes Golf Club in Sydney is one of Australia's pre-eminent private clubs and a leading major tournament venue. The golf course provides its members and their guests with a unique opportunity to play one of the country's most famous layouts in a serene environment on outstandingly presented playing surfaces.

Since its foundation in 1928, the club has played a major role in the Australian golfing landscape, having hosted no less than seven men's Australian Opens. The first came in 1964 when Jack Nicklaus collected the first of his eventual six Stonehaven Cups. In 1980, Greg Norman did likewise, winning his home Open for the first time and setting the platform for what would be a further four titles. After Steve Elkington won in 1992, The Lakes dropped off the Open rota for a number of years, but a major course redevelopment in the mid-2000s saw it make a welcome return in 2010. Since then it has hosted a further three Opens, the most recent coming in 2018.

That redevelopment was something of a reawakening for the club. Under the auspices of the Ogilvy Clayton design team, The Lakes was dramatically altered in a bid to return it to its origins. They opened up vast tracts of sandy wasteland, in particular on the front nine, re-establishing the once open, windswept dunescape that The Lakes had exhibited in its infancy. Additionally, a whole new set

of greens and bunkers were constructed, the greens being bigger, more undulating and far greater in difficulty.

Current-day custodian of this proud club is Anthony Mills who arrived at The Lakes a few months before the 2012 Open. Initially joining the club as assistant superintendent, within three weeks Mills found himself in the top role and with it the prospect of getting the course



*The Lakes purchases its Toro equipment outright and has a dedicated machinery replacement programme in place*





*The Multi Pro® 5800 spray unit is one of the most important pieces of equipment at The Lakes. Rarely a day goes by when their two units aren't out on the course, whether it's on fairways, tees or greens*

ready for his first national Open. Mills landed at The Lakes from Stonecutters Ridge where he had spent four years as the construction and grow-in superintendent, a role he held after spending the previous six years as an assistant at Oatlands Golf Club.

The Lakes sprawls across 55 hectares of some of the finest land in Sydney's eastern suburbs, sharing borders with Bonnie Doon and Eastlake golf clubs. Mills oversees a crew that comprises 18 full-timers, with two summer casuals that work six months (September-March) and two casuals who work 15 hours each a week year round. Mills is supported by two assistants – Simon Blagg and Aaron Taylor – while Adam Masters takes care of all the workshop requirements.

Together, the crew maintain two hectares of A4 creeping bentgrass greens, 25ha of kikuyu fairways and surrounds and 2ha of Santa Ana couchgrass tees. For most of the year, greens are kept at 3mm, although Mills will raise them to as much as 4mm during periods of heat stress. For three months (January-March) the fairways are cut at 12mm, but for the remaining months they are kept at 10mm, as are the tees. The course resides on land owned by Sydney Water and as such water features prominently on a number of holes, in particular 1, 11 and 14-17.

Due to its high profile (The Lakes recently ranked 16th in Golf Australia Magazine's Top 100 Australian Courses list), its tournament pedigree and a very active golfing membership (the course pumps through 48,000

rounds per annum), it is no surprise that The Lakes management places a premium on the presentation and conditioning of its championship-calibre course.

Assisting in meeting these exacting demands, throughout his tenure Mills has relied on Toro. The Lakes shed has been red for a number of years, even before Mills arrived, and he hasn't had reason to change that. Toro's industry-leading reputation for quality, reliability, serviceability and, ultimately, the end result out on the course, continues to make it an easy choice for Mills and the club.

## CUTTING EDGE

The Lakes purchases its Toro equipment outright, trading in its older units for new equipment as part of a proactive machinery replacement programme. Having new machinery helps to reduce downtime and also enables Mills to uphold the excellent quality that The Lakes is renowned for. Over the past couple of years he has changed over his fairway and driving range units, sprayers and



*The Lakes has six Greensmaster® TriFlex™ units – three for greens and three for surrounds and tees*

is currently in the process of upgrading his triplex greens mower fleet.

The cutting equipment at The Lakes certainly gets put through its paces and is one of the reasons why Mills likes to regularly keep turning them over. Most recently it was the turn of the Reelmaster® fairway units, with Mills making the decision to switch to the innovative Reelmaster® 5010-H, the industry's first and only fairway mower with a true hybrid drive system.

The 5010-H utilises a Kubota 24.8hp diesel engine in concert with an in-line motor generator and a self-recharging 48-volt battery pack to provide seamless power to the vehicle and cutting units. The combination of these two power sources comprises Toro's patented hybrid power delivery system called PowerMatch™. PowerMatch™ enables the 5010-H to match the power generated to the power required for all cutting conditions. The result is the availability of over 40hp, but only when cutting conditions require it, which saves on average 20 per cent fuel usage, improving operating costs and the vehicle's carbon footprint.

The Lakes' four five-gang 5010-H units replaced the previous fleet of three seven-gang Reelmaster® 6700-D units. In addition to the innovative features of the 5010-H, its lighter weight also appealed to Mills, as did the cheaper price tag which meant he could get an additional unit for the same price.

"The 5010-Hs enable us to do so much more than before," explains Mills. "Because





*The Lakes recently switched its three bigger Reelmaster® 6700-D fairways units for four Reelmaster® 5010-H hybrid drive units*

they are much lighter than the 6700-Ds, it has reduced the wear and tear on our kikuyu surfaces. We can get the fairway units closer to the greens as a result, which means we are reducing the area we need to cut with our triplex surrounds mowers.

"The 6700-Ds were a great mower, but as they were heavier we found that with the kikuyu, which can be a little thatchy at times, the wheels would lie the grass down under the back units. Since switching to the 5010-Hs we have seen a noticeable improvement in the after-cut appearance of our fairways. And having the extra unit now means we can cut a lot quicker and keep in front of golfers."

Creating greater efficiencies is also of paramount importance for Mills with his fleet of greens and surrounds mowers. The Lakes uses a combination of triplexes and walk-behinds to tend to the massive expanse of greens and surrounds (and tees as well). In addition to the fleet of 15 Greensmaster® walk-behinds – a mix Flex 2120s, Flex 2100s and

1000s – Mills employs three Greensmaster® TriFlex™ 3300s on the greens and another three for surrounds and tees. The three currently used on greens will shortly switch over to the surrounds and tees with the impending arrival of three TriFlex™ 3400s which will be assigned to the greens.

Toro has designed the TriFlex™ to take precision cutting to a completely new level. Adopting the proven Flex suspension of its walk-behinds, the cutting units float freely over contours and undulations of the green resulting in a superior quality of cut and after-cut appearance. Combined with the ease and speed at which triplex mowers can operate, they are a much-needed asset in Mills' maintenance arsenal.

"The TriFlex™ triplexes play such a vital role here at The Lakes," says Mills. "Because of the 2ha of undulating greens we have, the triplexes make it so much easier and quicker to get around, especially when we have competition days. On Wednesdays and at the

weekends the members tee off at daylight, so we need to get around ahead of the field.

"You will never beat the cut of a walk-behind, but the quality of the TriFlex™ is just as good and from a labour and efficiency perspective too we only need to use three of them compared to seven walk-behinds."

## ACCURACY AND EFFICIENCY

One of the biggest management challenges that Mills has to contend with at The Lakes is Sting nematodes. Due to their prevalence and the shallow root system they cause, Mills and his team have to be absolutely precise with their irrigation practices and spraying regimes. Fortunately, Toro has both of those aspects covered, giving Mills the peace of mind that his applications are getting to the target area quickly and efficiently.

## The Lakes' Red Shed

- 11 x Workman® MDXs
- 6 x Greensmaster® Flex 2120s
- 6 x Greensmaster® Flex 2100s
- 3 x Greensmaster® 1000s
- 6 x Greensmaster® 3300 TriFlex™ (3 greens, 3 tees/surrounds)
- 4 x Reelmaster® 5010-Hs (fairways)
- 2 x Reelmaster® 3100-Ds (step-cut and driving range tee)
- Groundskeeper® 4500-D (rough)
- Sand Pro® 5040 and 5020
- 2 x Multi Pro® 5800s
- Pro Force® blower
- Rake-o-Vac®
- 2 x Pro Core® 648s
- MH400 topdresser
- 5 x fairway scarifying units
- 3 x greens verticutting units

*Two years ago The Lakes upgraded to Toro's state-of-the-art Lynx® central control system*





For applying plant protectant products, wetting agents and fertilisers, Mills relies on two of Toro's flagship spray units – the Multi Pro® 5800. These heavy-duty units are a regular sight on course and their innovative design results in accuracy and precision every time they are deployed. In an industry first, the Multi Pro 5800 has an exclusive six-diaphragm pump which produces up to twice the flow to simultaneously achieve higher spray volumes and aggressive agitation needs. While spraying, the pump continuously agitates tank contents for a homogeneous mix and more accurate application of chemicals from start to finish, saving chemical costs and ensuring efficacy.

Another user-friendly feature of the Multi Pro® is the Pro Control™ XP system which helps to avoid waste and ensures maximum efficacy of chemical applications. This controller provides simple programming for two pre-set application rates and a manual override mode for spot spraying.

"For the size of the property and what we use them for, the Multi Pro® is one of the most important pieces of equipment we have," says Mills. "We replaced our old spray carts with two new ones about 12 months ago. The Multi Pro® has so many great innovative features, but we decided to go back to the basic unit which is working very well for us."

"They are definitely the workhorses here and I don't think there would be a day where they didn't go out on the course, whether it's on fairways, tees or greens. We put them across our greens, especially when we are putting out chemicals such as nematicides.

*The Lakes has a fleet of 11 Toro Workman® MDXs*



The Multi Pro® enables us to apply our plant protectant products safely, accurately and quickly too, which is especially important as we have such large greens. They are so easy to operate and make one of the more challenging jobs we have here a lot easier."

Spraying is one part of the equation, irrigation the other. To that end, two years ago Mills migrated from the old Toro Site Pro system across to Toro's new benchmark for irrigation excellence, the state-of-the-art Lynx® control system. The Lynx® system has been developed specifically to help superintendents address the unique challenges and changing priorities they face every day and as Mills will attest it has simplified one of the most critical aspects of their operation.

With the Lynx® system, turf managers now have all of their essential irrigation information readily available in one place, conveniently combined into a single, intuitive interface. They can access the system using Lynx® Apps, which gives the ability to access the irrigation controller from anywhere – at home, on the road or out in the field – simply and securely. Together with the Lynx® control system, The Lakes also has 855S Series

sprinklers across the course, ensuring that its most precious resource is delivered uniformly and with minimum wastage.

"For myself and the irrigation technicians, the new Lynx® system is so easy to operate and is perfect for a site like ours," says Mills. "Having the Lynx® Apps enable us to control the system from anywhere. I'm old school in that I like the hand-held radio controller, but the boys much prefer to use the app on their phones. They will even use it when they are watering in chemicals. It also means we can be proactive in the event that the weather changes unexpectedly."

## WHOLE PACKAGE

Toro's relationship with The Lakes has been one built on continuing to deliver the goods, just as Mills and his team do week in, week out. For Mills, it's a pretty simple choice to keep using Toro and its very much the sum of all the Toro parts which make it the right fit for this prestigious club.

"It's a combination of things," states Mills. "As our mechanic Adam will tell you, Toro machinery is well-built, well-engineered and easy to service. If there is ever a problem you have the peace of mind that their back up service is the best in the industry. Toro ticks all the boxes and continues to do so."

"You just know you can rely on them. They're good quality machines and you don't have the downtime with them. It's almost like you don't have to think about them – they just run themselves and keep doing the job that you want them to do. As a superintendent you cannot ask for more than that."



*With two hectares of undulating bentgrass greens to prepare each day, the Greensmaster® TriFlex™ triplex units make it so much easier and quicker for staff, especially on competition days*





JOHN NEYLAN

# Back to **basics**

*The fundamentals of turfgrass nutrition haven't changed for many years, but as ATM expert columnist John Neylan queries, are modern day turf managers overlooking the basics when it comes to formulating fertiliser programmes for their playing surfaces?*



**W**hen I joined the Turf Research and Advisory Institute in the early 1980s, it was a whole new world of learning compared to my time prior involved with effluent water, pastures and cattle. In particular, it was about understanding the grasses used and how they were prepared as playing surfaces. Central to this was understanding plant nutrition in the context of preparing golf greens, bowling greens and sportsfields.

Not surprisingly, my training as an agricultural scientist held me in good stead in understanding the basics of turfgrass nutrition – nutrients have the same effects and have the same important functions whether we are dealing with a creeping bentgrass putting green or perennial ryegrass pastures. It's more about the balance between the nutrients and the surface quality that is the key rather than producing large amounts of biomass. To this end Dr. James Beard's book 'Turfgrass: Science and Culture' (1972) was my guiding light and still is to this day. Have the fundamentals changed over the past 48 years? Absolutely not!

In the early 1980s fertilising fine turf was based around using sulphate forms of nitrogen and potassium with iron also thrown into the brew and then sprayed out as a solution onto the turf. On sportsfields and other areas of broad-acre turf, fertilising was about referring to the Pivot Fertiliser catalogue and selecting the most appropriate NPK mix.

In the early 1980s there were very few turf-specific fertilisers in Australia and I can only recall two products being available. Having done a quick count of the fertilisers now available for turf there are around 375, including granular, liquid and soluble forms. Most are typical combinations of the key elements of N, P and K, however, there is a multitude of formulations and additives that supposedly make 'one product superior to another'. Fertilisers have almost become a 'cure all' for not only soil chemistry imbalances and soil physical problems but any other malady affecting turf.

While much appears to have changed over the past 40 years, the basics still remain the same. The question that has come to my mind is – are we scrutinising these products sufficiently and working out;

- What is trying to be achieved?
- Are they appropriate?
- Do they actually work?
- What is the cost per N, P and K?

**Main:** The basics of plant nutrition probably haven't changed in 100 years. That is, turfgrasses require at least 16 nutrients for normal growth and development, with some nutrients needed in large amounts and others only in minute quantities



*In a recent sportsfield research project undertaken by STA Victoria, the best of the fields in terms of wear tolerance, recovery from winter wear and overall turf quality had a very basic nutrition programme*

An article by Zontek et.al. (2010) provides an excellent checklist with which to scrutinise any turf nutrition programme.

The area of nutrition that has intrigued me for many years is the inclusion of various additives such as carbon, humates and beneficial microorganisms. Having reviewed several commercial fertiliser programmes over the years, I decided to delve into the dangerous territory of questioning the rationale behind using a particular product, the claims and, to some, degree the cost. What I have done is to review some of these extra 'essential' components and claims in relation to the available research data through the Turfgrass Information File (TGIF).

## SUMMARY OF THE BASICS

The basics of plant nutrition probably haven't changed in 100 years. That is, turfgrasses require at least 16 nutrients for normal growth and development, with some nutrients needed

in large amounts (macro-nutrients) and other nutrients only in minute quantities. Regardless of the amount required, a deficiency of any of these nutrients will limit the growth and development of your turf (Landschoot, 2017).

Of the macro-nutrients, carbon, hydrogen and oxygen make up about 90 to 95 per cent of the plant's dry weight and they are never deficient in turfgrasses because they are derived from carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O). With the macro-nutrients, nitrogen, phosphorus and potassium need to be applied regularly to sustain good turf growth and health with nitrogen being the most important for manipulating growth, density and quality. So, do we need to be applying expensive liquids laced with varying amounts of 'organic elements'?

## CARBON AS A FERTILISER

There are numerous proprietary products that contain some form of carbon including straight



*It is important that turf managers scrutinise and evaluate the fertiliser products they use*





carbon, humic acid and fulvic acid. If we can get sufficient carbon from the atmosphere, why apply more? The primary reference that I have used to look at carbon as a fertiliser is by Hopkins and Hopkins (2018), an article I was first alerted to through a post from Micah Woods on his [www.asianturfgrass.com](http://www.asianturfgrass.com) website titled 'Is carbon the next frontier in fertilization?'

Again we need to start at the basics of how plants use carbon, along with oxygen and hydrogen, to produce the building blocks of plant tissues through photosynthesis. Photosynthesis is the process by which inorganic carbon (i.e., atmospheric CO<sub>2</sub>) is captured by certain living organisms and converted to organic forms, primarily carbohydrates (Alberto and Florencio, 2008).

The general equation to synthesise one molecule of glucose (the most abundant constitutive monosaccharide) can be written as follows:  $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6(\text{H}_2\text{O})_6 + 6\text{O}_2$ . Consequently, carbon is definitely essential. The energy necessary to make this reaction happen is taken by photosynthetic organisms from sunlight. It is important to note that there is an abundance of carbon as carbon dioxide (CO<sub>2</sub>) in the atmosphere and its increase in the atmosphere over the past decades is one of the main influences on global warming.

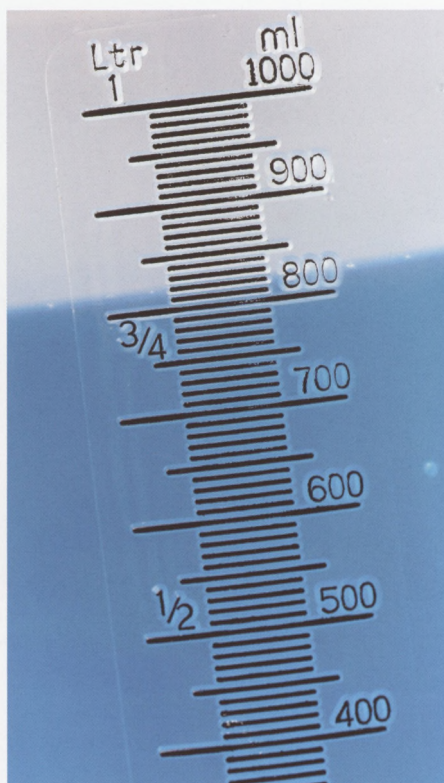
This is very basic knowledge that every turf apprentice and turf student will have learnt over and over again. So why do we ignore it when we are making decisions around fertiliser selection?

In the review paper by Hopkins and Hopkins (2018), they highlight several key points regarding soil organic matter (soil OM) and carbon;

- Soil OM is comprised of humin, humic acid, fulvic acid and other carbon-containing compounds derived from dead plants and organisms.
- Soil OM is about 58 per cent carbon.
- Soil OM benefits plants and soil organisms by improving water infiltration, permeability and water retention, nutrient cycling, improving soil structure and soil aeration.
- Carbon itself doesn't necessarily provide these benefits but the *carbon-containing molecules*.

If we consider a turf system, thatch is a significant component of the turf sward and is essentially organic matter. We want enough thatch to provide a surface buffer against being too hard, but we don't want too much as this impedes water infiltration, reduces soil aeration, restricts root growth and retains excess moisture. In turf we tend to allocate a lot of resources to minimise the accumulation of organic matter. So do we need more organic matter/carbon on a mature turf?

Hopkins and Hopkins (2018) posed the question, 'Should we be applying carbon



*With nitrogen being the most macro-nutrient important for manipulating growth, density and quality, do turf managers need to be applying expensive liquids laced with varying amounts of 'organic elements'?*

fertiliser? The answer is ... no'. They go on to say that plants capture carbon very efficiently and, as a rule, plants are not carbon deficient. They have conducted more than 24 trials over two decades on a variety of species from turfgrass to row crops comparing a negative control (nothing added) versus various 'carbon fertiliser'. As all of the products also *contained other nutrients*, the nutrient concentration was

matched (minus the carbon) and compared as a positive control.

The results have been approximately the same for all trials with fertilisation resulting in about a five per cent increase in yield/growth *regardless of fertiliser source*. The effect on yield/growth was due to nutrients other than carbon and the so-called carbon fertiliser did not impact carbon status in the plant in any case.

Through the TGIF I reviewed several other papers that referenced the use of humates and humic acid. In the work of Dorer and Peacock (1997), they concluded that improvements in bentgrass germination were largely due to treatment with a natural inorganic fertiliser, while the presence of granular humate assisted in the uptake of iron.

Aamlid and Hanslin (2009) found that on average over a two-year experimental period, none of the organic fertilisers/biostimulants caused significant improvements in the overall turfgrass appearance compared with the control mineral fertiliser treatments. They did demonstrate that a humic acid-based product, when combined with a mineral fertiliser, did have some positive effect.

The authors did also make a comment that any positive effects may be outweighed by the increased cost, with a 72 per cent increase in the grow-in year and 124 per cent in the subsequent year. They concluded that light and frequent applications of mineral fertiliser should always form the nutritional basis for sand-based greens and football pitches.

Maibodi et. al. (2015) conducted a series of experiments to evaluate the effect of foliar applied humic acid on qualitative and quantitative characteristics of perennial ryegrass (*Lolium perenne* L.). They concluded



*Soils under turf swards are complex microbial communities. They are not only complex, but they fluctuate with the seasons, with site location and host having a dramatic effect on the microbial population and makeup*



that foliar applications of humic acid might be of benefit to enhance some nutrient uptake and root development of ryegrass, possibly leading to improved drought resistance.

There are many research papers to read and the conclusions are often less than definitive. However, I will leave the final quote from Hopkins and Hopkins (2018) to sum up their thoughts on applying carbon: 'Forget about fertilising with carbon ... Use products proven scientifically in replicated research via unbiased, third-party sources.' I would endorse these sentiments.

## BENEFICIAL MICROBES

Over the past 20 years there has been an increase in the products containing beneficial microbes with various claims around plant protection, improved nutrient uptake, thatch reduction etc. Amongst these turf products there are fertiliser brews containing microbes such as mycorrhiza, rhizobium, bacillus and trichoderma, all of which have an important role to play in the natural soil environment.

*“Fertiliser comes in many different formulations, blends and price ranges, but does the grass know the cost? The answer is ‘no!’”* - Zontek et al (2010)

The scientific literature contains examples of where the positive aspects of microbes and biostimulants can benefit turfgrass health, however, for each positive result there will be an indifferent or negative result where the benefits are difficult to quantify.

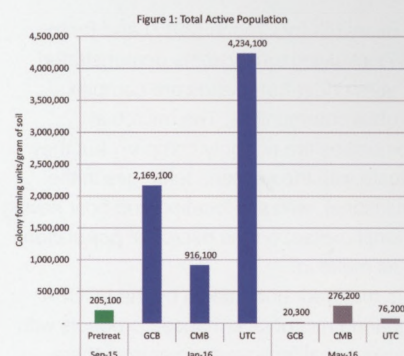
In reading through the literature, there are some key messages that can be gleaned about the microbial population in turf soils.

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. These include:

- Balanced nutrition;
- Active root growth; and
- Good aeration.

If these conditions are met it will ensure there is an adequate food source, good aeration and sufficient moisture to grow 'healthy' microbial populations within the profile. The question is then about whether there are sufficient numbers of the beneficial microbes within the rootzone and whether this can be manipulated. Natural materials, organic materials and microbial inoculants are used by the turf industry because there is an assumption there are few microbes present in



**Figure 1: In trial work undertaken by the VGCSA comparing microbial enhanced products with a conventional fertiliser programme, there were no significant effects on turf quality or substantial alteration of the soil microbial population**

source for microbes and stimulates a rapid increase in microbial numbers.

Research suggests that there is a greater level of bacterial diversity than previously believed and that the rootzone substrate may influence the type of microorganisms associated with bentgrass roots (Karp and Nelson, 2004). That is, the addition of various organic biostimulants can influence the microbial population and its diversity. While soil inoculums and additives may alter soil microbiology in the short term, their use on well-established turfgrass soils is still to be determined (Gaussoin and Shearman, 2000).

Studies continue to be undertaken into microbiomes to utilise microorganisms associated with plants to improve their resistance to stresses. Connor et.al. (2017) reinforced that this is an extremely complex area of study involving many microbes and their interactions with each other and the research has barely scratched the surface.

the turfgrass system or the 'wrong' microbes are present.

Research by Bigelow et al. (2002) found that bacterial numbers within the first six months after seeding a newly constructed green to creeping bentgrass can be close to the numbers found in a mature green. The rapid growth of roots, high nutrition and adequate soil moisture provides a good food

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Research by Crouch (2017) and Beirn (2017) involving turf systems demonstrated that soils under turf swards are complex microbial communities. The microbial communities are not only complex, but they fluctuate with the seasons (changes in the populations), with site location and host having a dramatic effect on the microbial population and its makeup.

In trial work undertaken by the VGCSA comparing microbial enhanced products with a conventional fertiliser programme, there were no significant effects on turf quality or substantial alteration of the soil microbial population (Neylan, 2016). When looking at the effects on the soil microbiology, the numbers and composition of the microbes and nematodes were variable and changed with the seasons and the treatments. There was no quantifiable benefit.

In an article by Neher (2010), soils are described as the final biotic frontier and it is suggested that we know more about outer space and the depths of the ocean than we do about the soil biology of our own backyard. This certainly puts the soil microbiology of turf rootzones into perspective and highlights the challenges of applying various microbial brews and hoping that it will have a dramatic effect on turf health.

In looking at the labels of many of the commercial products, there is little detail on the make-up of the microbial population and the numbers. In order to have any influence on the rootzone microbial population it is a *numbers game*. It takes vast numbers of microbes with repeated applications to even make a dent in the microbial population makeup.

So, do we give up on organic and biostimulants completely? In short, no. Biostimulants and microbes can be beneficial as part of a *well-balanced maintenance programme*, however, every site is different and the benefits may be localised. It is also important to reinforce that they are not a substitute but an addition to normal turfgrass management practices.

## COST EFFECTIVE PROGRAMMES

At a time when budgets are tight, it is important to evaluate the cost effectiveness of every operation involved in maintaining turf areas. In articles by Zontek et. al. (2010) and Meentemeyer and Whitlark (2016), they make several very pertinent points around the cost of fertiliser including;

- Fertiliser comes in many different formulations, blends and price ranges, but does the grass know the cost? The answer is 'no'.
- All nutrients enter grass plants in an inorganic form. It is important to remember that nitrogen controls turfgrass growth more than any other macronutrient.



**Don't expect fertilisers with additives to overcome fundamental soil problems such as excess thatch, compaction, poor drainage etc**

- When purchasing nitrogen fertiliser, it is important to calculate the cost per kilogram or cost per hectare of actual nitrogen.

Based on these points above, I reviewed a programme for a sportsfield where there were several aspects that intrigued me;

- The number of liquid fertiliser applications with more than a dozen applications over a year;
- High use of carbon-based and microbe-enhanced fertilisers;
- Rate of nitrogen applied was about 140kg/ha that is consistent with a field of moderate use; and
- The cost of the programme.

In reviewing this programme against the findings of myself and David Nickson (Neylan and Nickson, 2019), the type of fertilisers and frequency of application were the most interesting. In the research work that we undertook, the best of the fields in terms of wear tolerance, recovery from winter wear and overall turf quality had a very basic nutrition programme based around four applications of a granular NPK fertiliser providing about 200kgN/ha/year.

The cost was about 25-30 per cent of the programme based on the application of liquid fertilisers. In our research we also determined that once liquid fertilisers were introduced into a programme it could add about \$5000 - \$10,000/ha in fertiliser costs.

A few final points on fertilisers with additives;

- Nothing beats a well-planned fertiliser programme based on nutrient needs and turf condition.
- Look at the cost effectiveness of the products.

- Don't expect miraculous results.
- Don't expect these products to overcome fundamental soil problems such as excess thatch, compaction, poor drainage etc.
- Review your maintenance practices in relation to the physical and chemical management of the soils.
- Look for independent trial data on the product – don't rely on testimonials.
- Undertake your own trials and always have an untreated or standard practice control plot.

On a final note, the last word goes to an article in the 1923 USGA Bulletin of the Green Section – 'There is no mystery about greenkeeping. There are no secrets. The work has been going on so long that pretty nearly everything has been tried out'.

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# A good feed

*Following on from John Neylan's previous column, in the first of a two-part article spread over the next two editions, AGCSATech agronomist Steve Tuckett looks at the essentials when developing fertiliser programmes for sports turf.*



*Nitrogen (N), phosphorus (P) and potassium (K) need to be applied regularly to sustain good turf growth and health. Nitrogen is the most important macro-nutrient for manipulating growth, density and quality*



**D**eveloping fertiliser programmes to provide all the essential nutrients is one of the most important tasks for a sports turf manager. Correct nutrition underpins plant health, disease incidence and the playability of the surface.

The modern turf manager should be able to account for all the essential mineral nutrients and ensure the rates and ratios agree with evidence-based agronomic principles. This discipline includes the use of fertiliser calculations, interpretation of soil and tissue nutrient tests and having an understanding of environmental consequences associated with fertiliser use. It is also about ensuring you get the most bang for your buck, which in the current COVID-19 climate is more important than ever given the strain on facility budgets.

## NITROGEN

The key points to consider when developing a fertiliser programme are controlling the amount of nitrogen being applied and then avoiding deficiencies of all the other mineral nutrients.

Nitrogen is the most important mineral nutrient used in turf as it's a large component of protein that are the building blocks for cell structure. Plants have no control over the uptake of nitrogen and will take up all the nitrogen as quickly as it can and whenever it is available. This is because in a natural system, such as a forest, the plant that gets the nitrogen first will grow quicker and out-compete its neighbours, enabling it to catch all available sunlight and thereby shading its competitors.

Because nitrogen is only slowly available in natural systems through the breakdown of organic matter it can't harm the plant, but with the introduction of synthetic fertilisers plants can become unhealthy or even die as they will still take up all the available nitrogen even if it makes them sick.

It is also important to realise that if you don't apply any nitrogen the plant won't grow, so it will not have any need for the other essential nutrients to make plant tissue.

Assuming that soil temperatures are suitable for growth, when nitrogen is applied to turf the plant will begin producing new tissue which will create a demand for the other essential nutrients. If there is a deficiency of a particular nutrient, the plant will continue to make new tissue anyway but the tissue will not be as healthy as it would be if there was no deficiency of that nutrient.

A good example is when excessive nitrogen is applied to turf but the plant's needs for potassium and calcium cannot be met either because there was not enough available from soil uptake or recycling from old tissue. Therefore, the new tissue will exhibit poor

hardiness, poor drought and wear tolerance and higher disease susceptibility.

The growth rate of the turf determines the level of demand for the other nutrients because nitrogen sets the agenda for the other essential nutrients. Once the turf manager calculates the rate and frequency of nitrogen in the fertiliser programme, the requirement for the other nutrients is set according to a ratio which can be seen in Table 1 below.

**TABLE 1. NUTRIENT RATIOS**

Macro nutrients	Trace elements
Phosphorous (P) = 0.1	Iron (Fe) = 0.002
Potassium (K) = 0.6	Manganese (Mn) = 0.002
Sulphur (S) = 0.1	Zinc (Zn) = 0.001
Calcium (Ca) = 0.12	Copper (Cu)
Magnesium (Mg) = 0.07	Boron (B) = 0.003

The essential nutrients are required at a certain proportion to nitrogen so therefore a healthy plant cell will have its 13 or 14 mineral nutrients in a certain ratio. This varies from plant species to plant species, but in turfgrasses the ratio for a healthy plant has been known for several decades. This is known as the 'Rate and Ratio' theory.

## SOIL AND TISSUE TESTING

Soil tests give the turf manager vital information including pH, salinity, sodium, organic matter (OM) and cation exchange capacity (CEC) levels. Soil phosphorous (P) levels are a good guide to the potential for environmental pollution of waterways. The soil tests will also estimate available potassium and sulphur and show the level of exchangeable calcium, magnesium and potassium, all of which are valuable to know, but how much of this information is useful because soil tests guesstimate the level of nutrient that plants

have access to and they are wide open to interpretation depending on the consultant.

The big advantage of tissue tests is that they tell you exactly how much nitrogen is in the plant and they also identify deficiencies or excesses of the other essential nutrients. Soil interactions that affect nutrient availability, including pH, aerobic status and the solubility of competing ions, do not come into play when analysing tissue samples as you are only looking at what nutrients actually make it into the plant. The nitrogen level you require is site specific and grass specific and might also need to vary through the seasons.

Because tissue tests have now become relatively inexpensive, it is possible for the turf manager to test more frequently and by accumulating tissue test results get a picture to see what nitrogen level works best for their situation. A sensible approach would be to do several tissue tests each year, and do soil tests every 2-3 years.

Other factors that may need to be considered when determining the annual nitrogen requirement for the turf surface are;

- CEC of the soil;
- Maintenance procedures (i.e.; whether grass clippings are removed or not and the extent and frequency of renovation practices);
- Species and cultivar of grass;
- Amount of repair required (which depends on sport played and the extent of use);
- Whether plant growth regulators (PGRs) are used (i.e.; increasing nitrogen applications if paclobutrazol is used on bentgrass for wintergrass suppression).

Table 2 (next page), adapted from Neylan and Nickson 2019, is a generalisation of the yearly requirement of actual nitrogen necessary to maintain healthy turf in comparison to hours of ground use.



*Correct nutrition underpins plant health, disease incidence and the playability of the surface*



TABLE 2. SPORTSFIELD ACTUAL N

Hours of use/week	Actual N kg/ha
30+	350-500
20-30	250-350
10-20	100-250
<10	<100

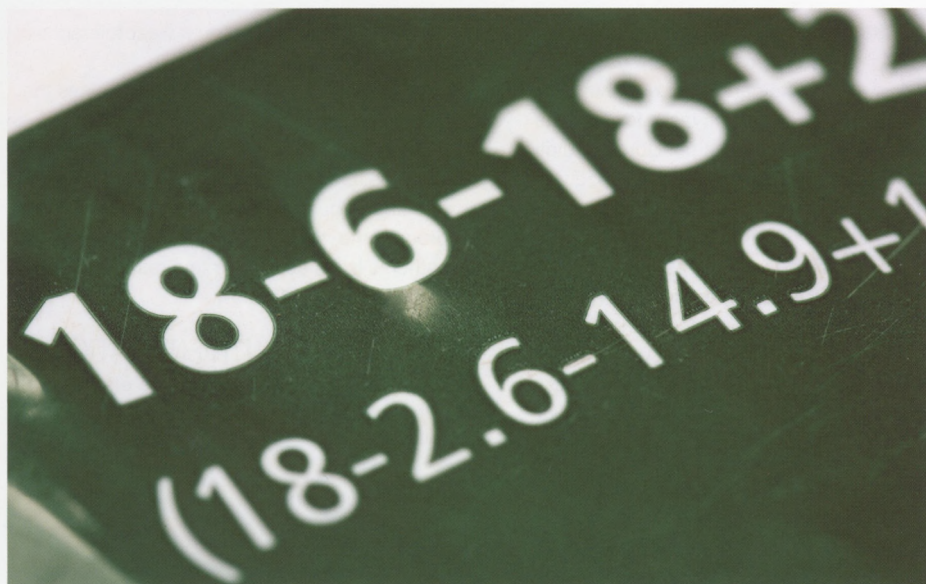
According to Ford (2018), generally target levels for tissue nitrogen percentage can be approximated to kilograms of actual nitrogen being applied to the turf. This conclusion has been reached after extensive observation of tissue N% tests taken compared to the amount of actual nitrogen applied in the field.

For example, on a perennial ryegrass football field you might want to set a target of 4%N within the leaf tissue, so therefore your aim for the whole year would be to provide around 4kg of actual nitrogen (4kg/100m<sup>2</sup> or 400kg/ha). Once you have determined the annual amount of nitrogen, you will need to look at the seasonal requirements and the frequency of application.

As a general rule of thumb, this could be monthly nitrogen applications around plus or minus 0.4kgN/100m<sup>2</sup> dependent on the time of year, which is illustrated in Table 3 below (adapted from Ford, 2018). If you prefer to apply the nitrogen more or less frequently, then simply divide the yearly nitrogen amount by the number of applications.

Seasonal variations in your programme would include increasing the nitrogen in autumn, to coincide with optimal soil temperatures for ryegrass growth and to boost vigour going into winter, and also late in the season to provide recovery from wear and to get good vigour going into September.

Bentgrass has a lower requirement for nitrogen than ryegrass so in your fertiliser programme you may set the target N% to be around 1.3 per cent (total annual actual N 130kgN/ha). This figure is only a guide as many turf managers may use much less nitrogen than 130kg/ha annually. An example for bentgrass growing in cooler climates is shown in Table 4 below (adapted from Ford, 2018).



*Nitrogen is the most important mineral nutrient used in turf as it's a large component of protein that are the building blocks for cell structure. Plants have no control over the uptake of nitrogen*

Once you have determined the annual amount of nitrogen, you will need to look at the seasonal requirements and the frequency of application, so in this case you would probably look at a 'little and often' approach, particularly if you are using a soluble nitrogen source.

During winter, in cooler climates such as southern Victoria, bentgrass is not actively growing and you don't want to encourage wintergrass, so nitrogen applications are reduced or eliminated. In spring, the nitrogen rate is increased as that is the main period of root growth and preparation for the summer.

Hybrid/common couches are now being grown on all types of sporting surfaces all around Australia with the exception of Tasmania. Obviously, the climate and the end use is ultimately going to determine the cultivar selected, so in developing a fertiliser programme all of these factors need to be considered. Research conducted in Australia on nitrogen requirements for optimum plant health for couch hybrids was around 300kg actual N/ha annually (Roche, M. 2010).

As an example, when maintaining hybrid couchgrass in warm climates, your fertiliser

programme will need to set a target tissue nitrogen to be around three per cent (total annual actual N around 300kg/ha). Once you have determined the annual amount of nitrogen, you will need to look at the seasonal requirements and the frequency of application.

In cooler climates, common/hybrid couch is mostly only used on sportsfields, fairways, tees and bowling greens where Tifdwarf is used widely. Also rates of annual actual nitrogen may be less, generally around 100-200kg, as the growing season is much shorter. Again this is a guide as rates may be above or below this range depending on couch species and cultivar, use and budget.

During winter in cooler climates, couchgrass is not actively growing and you don't want to encourage wintergrass, so nitrogen applications are eliminated. In spring a foliar application of nitrogen is usually applied to get the couch moving. According to Neylan and Nickson (2019) it has been well proven that maintaining a strong base of warm-season grass, either kikuyu or couch, provides the most resilient year-round surface. Therefore, your fertiliser programme should

TABLE 3. ACTUAL N – RYEGRASS SPORTSFIELD

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Actual N kg/100m <sup>2</sup>	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.3	0.2	4

TABLE 4. ACTUAL N – BENTGRASS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Actual N kg/100m <sup>2</sup>	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.2	0.2	0.2	0.1	1.3

TABLE 5: ACTUAL N – WARM-SEASON OVAL

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Actual N kg/100m <sup>2</sup>	0.5	0.5	0.3	0.2	0	0	0	0	0.2	0.4	0.4	0.5	3



include judicious applications of fertiliser during the growing season.

Table 5 shows an example of a fertiliser programme for an elite warm-season grass oval (not oversown) in a cool climate. Note that the seasonal requirements for nitrogen is only a guide and will vary depending on couch species and cultivar, budget and amount of use etc.

Many elite sports fields in cooler climates oversow with ryegrass in autumn so the fertiliser programme should reflect nitrogen application all year as opposed to only during the growing season where warm-season grasses are not oversown. Adequate phosphorous levels during establishment of the ryegrass are crucial, so soil testing should be done at this time to identify if phosphorous applications are required.

## STEPS FOR DEVELOPING A FERTILISER PROGRAMME

**Step 1:** What N% do you want in the tissue? It could be between 1-1.5% on a bentgrass green, 1% on a couch fairway, 4-5% for an elite ryegrass sportsfield, 2-2.5% on a hybrid couch green, 3% for a hybrid couch sportsfield and 2.5% on a wintergrass green. Obviously, the species and cultivar of the turf, the level of maintenance and the sport played on the turf



*There is misinformation within the industry that you need to change the type of fertiliser during the year and not keep using the same one. It doesn't make any difference to the plant if you use the same fertiliser all year, as long as it supplies the nutrients that it needs*

is going to determine the tissue N%.

**Step 2:** When you have decided on your tissue N%, it tends to work out that that's the rate of actual nitrogen you should be applying per year. For example, in the case of the ryegrass sportsfield where the optimum tissue nitrogen is 4%, this would equate to an application rate of approximately 400kg/ha of actual nitrogen per year.

**Step 3:** Determine frequency and rate of the nitrogen fertiliser applications taking into consideration maintenance applications as opposed to renovation applications for the species and cultivar you are maintaining. A few points to make here are:

- As a guide, maintenance application could be around the standard application rate of 0.2kg actual N/100m<sup>2</sup> per application



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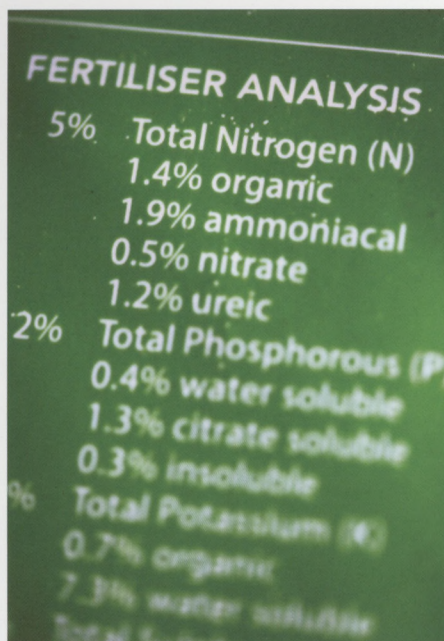
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FERTILISER ANALYSIS	
5%	Total Nitrogen (N)
1.4%	organic
1.9%	ammoniacal
0.5%	nitrate
1.2%	ureic
2%	Total Phosphorous (P)
0.4%	water soluble
1.3%	citrate soluble
0.3%	insoluble
0%	Total Potassium (K)
0.7%	organic
7.3%	water soluble
	Total Sulfur

Providing the plant with all the essential nutrients is one of the most important tasks for a turf manager

of active growth, but never exceed 0.5kgN/100m<sup>2</sup> in one application as this will lead to unhealthy, lush growth.

- If you are using slow-release nitrogen sources, remember to use less than the standard maintenance rate as a monthly figure, as the nitrogen is absorbed more efficiently and there are minimal losses.
- The ratio for all essential nutrients is according to their ratio to nitrogen, so the more nitrogen applied the more of all the other nutrients is also required.

**Step 4:** Choose the fertilisers to use considering soluble, liquid or granular, quick-release or slow-release or a combination and, if you are using a blended fertiliser, what is the NPK ratio. A few points to make here are:



Tissue testing is important as it will tell you exactly how much nitrogen is in the plant and also identify deficiencies or excesses of the other essential nutrients

- There is misinformation within the industry that you need to change the type of fertiliser during the year and not keep using the same one. This is incorrect as it doesn't make any difference to the plant if you use the same fertiliser all year, as long as it supplies the nutrients it needs.
- Depending on the CEC, nitrogen and potassium are readily leached so they need to be applied 'little and often' or use a slow-release form.
- Phosphorous, calcium, magnesium and the trace elements usually last longer in the soil and only need to be applied once or twice a year, unless the soil CEC is very low in which case those nutrients will need to be applied more frequently. Remember,

frequent tissue testing will identify any deficiencies that can then be corrected.

- Avoid sodium (Na) and chloride (Cl) in your fertiliser products as they are the cheapest form and can cause problems. For example, potassium is available as muriate of potash (potassium chloride), which is about 50 per cent chlorine and may only be okay to use on couch fairways growing on sand.

**Step 5:** Based on the actual nitrogen rates applied per application, calculate the amount of the chosen fertiliser that you want to apply. (Part 2 of this article will detail different calculation examples).

TABLE 6. FERTILISER BLEND – EXAMPLE 1

Maintenance blend	N	P	K	S	Ca
Sulphate of ammonia (1 part)	21	0	0	24	0
Calcium nitrate (1 part)	15	0	0	0	19
Potassium nitrate (1 part)	13	0	38	0	0
Total	49	0	38	24	19
Average (divide Total by 3)	16.3	0.0	12.7	8.0	6.3

TABLE 7. FERTILISER BLEND – EXAMPLE 2

Maintenance blend	N	P	K	S	Ca
Liquid N product (1 part)	42.5	0	0	0	0
Potassium nitrate (1 part)	15	0	38	0	0
Total	57.5	0	38	0	0
Average (divide by 2)	29	0	19	0	0

TABLE 8: RENOVATION FERTILISER BLEND

Renovation blend	N	P	K	S	Ca
DAP (1 part)	18	20	0	0	0
DAP (1 part)	18	20	0	0	0
Potassium nitrate (1 part)	15	0	38	0	0
Total	51	40	38	0	0
Average (divide by 3)	16	13	13	0	0

## DIY FERTILISER BREWS

According to Ford 2018, it is easy to create cost-effective blends as shown left. In the first example (Table 6) we use a blend of sulphate of ammonia, calcium nitrate and potassium nitrate, one part of each physically mixed together as they're granular products. The blend can be applied by a broadcast spreader and watered in, as each product is highly soluble, or you could apply them as a liquid through a fishmouth nozzle or boom spray.

The blend would supply nitrogen, potassium, sulphur and calcium, which is an excellent soluble blend. If you set out the nutrients as in Table 6, you simply add up the nutrient content of each then divide by three to get the final nutrient content of the blend.

Another good maintenance blend to use is the liquid formulation of nitrogen as the nitrogen source and add potassium nitrate as the potassium (K) source (Table 7). For example, if you wanted an actual N rate of around 0.2kgN/100m<sup>2</sup>, the nitrogen liquid fertiliser rate would be approximately



TABLE 9. COSTS OF COMMONLY USED FERTILISERS

Product	N:P:K	Rate kg/100m <sup>2</sup>	Cost/kg or L	Cost/100m <sup>2</sup>
Easy N (liquid)	42.5:0:0	0.47L	92c	43c
Potassium nitrate	13:0:38	1.54kg	\$1.60	\$2.46
Sulphate of ammonia	21:0:0	0.95kg	67c	64c
Urea	46:0:0	0.43kg	85c	37c
Sulphate of potash	0:0:41	0.48kg	\$1.35	65c
Magnesium sulphate			78c	
Trace element mix			\$4.00	
Dynamic Lifter	3.5:1.7:1.6	6kg	80c	\$4.80
Iron sulphate			\$1.50	
Mono-ammonium phosphate (MAP)	12:26:0		88c	
Di-ammonium phosphate (DAP)	21:24:0		\$4.00	

0.5L/100m<sup>2</sup> (i.e.;  $0.2 \times 100/42.5 = 0.47$ ). We'll add a further 0.5kg/100m<sup>2</sup> of potassium nitrate (13:0:38), which will deliver 0.065kg actual N/100m<sup>2</sup> which is negligible (i.e.;  $0.5 \times 13/100 = 0.065$  actual N)

For simplification, remember to use equal parts of each fertiliser as a one-on-one blend. In this case 0.5L of liquid N and 0.5kg of potassium nitrate. So, the final blend would provide 0.265kg actual N/100m<sup>2</sup> (i.e.;  $0.2 + 0.065 = 0.265$  actual N). For potassium,  $0.5 \times 38/100 = 0.19$ kg actual K/100m<sup>2</sup>.

In practice, if we were fertilising an 8000m<sup>2</sup> soccer field with that blend (Table 7), using a boom spray with coarse nozzles, you would add enough water to the tank to cover the 8000m<sup>2</sup>, then add  $80 \times 0.5\text{L}/100\text{m}^2$

= 40L of liquid N, plus  $80 \times 0.5\text{kg} = 40\text{kg}$  of potassium nitrate. You may need to dissolve the potassium nitrate in hot water, mix it all together and then apply to the field.

A one-to-one blend of the liquid N and potassium nitrate would give an NPK of 29:0:19, which is an excellent N:K ratio for a maintenance blend, applied little and often through a boom spray. If you wish, add in Fe and Mg or a soluble trace element package.

You can see that the ratio N:K is close to the ratio found in healthy turf grass leaves (i.e.; 1:0.6), so it makes sense to be applying a blend which has a similar ratio to replace what the plant has taken up from the soil.

A mix that is more suited to renovation time is two parts diammonium phosphate

(DAP) (18:20:0) to one part potassium nitrate (15:0:38). This mix (Table 8) would have an analysis of 16:13:13. A rate of 2kg/100m<sup>2</sup> would provide 0.32kg actual N/100m<sup>2</sup>, which is slightly more than the maintenance rate, but this is probably required at renovation. It would also provide 0.26kg P/100m<sup>2</sup>, which is close to the total phosphorous requirement for the year, and the potassium is within the correct ratio.

These do-it-yourself blends will save money and after the initial calculations are done, they can be implemented into your programme for any turf area. Out of interest, you may want to compare the cost of the products you are currently using to the costs of a range of commonly used fertilisers. Table 9 shows costs based on tonnes from the Incitec Pivot price list (figures given do not include transport costs). The rate kg/100m<sup>2</sup> is based on a standard maintenance application of 0.2kg actual nitrogen/100m<sup>2</sup>.

**Editor's Note:** In the second part to this article, which will appear in ATM Volume 22.3 (May-June 2020), Steve Tuckett will look at the different types of fertilisers available to the sports turf manager. Content from this article has been adapted from Phil Ford's 2019 Diploma of Sports Turf Management resource 'Monitor and manage soils – Nutrition'. Full references for this article can be obtained from the ASTMA. 📖

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# Alternative analysis

*ATM columnist Peter McMaugh AM looks at an alternative method of evaluation for sports turf growing media using 'as built' profiles.*

**T**here is a plethora of published literature for laboratory analysis of growing medium for putting green construction and other sports turf uses. The growing media examined are essentially near-pure sands with various amendment mixture components included to modify various aspects of the performance of the sands being used.

These laboratory analyses are, by and large, adaptations of the soil physical tests used by the engineering industry to characterise soils and to report on critical properties needed for soil stability, site hydraulic control, load bearing strength and other relevant measures.

The USGA system developed by Marvin Ferguson, and the de-facto benchmarking system used in the turf industry, has undergone several reviews and re-evaluations over the past 50 years. These have led to refinements of the recommendations and test methodologies published by the USGA.

From this, an analytical industry of many USGA-accredited laboratories offering their testing methods has developed. Most

laboratories which adopt these methodologies do not make recommendations on the test materials but merely report whether they fall within the USGA guideline parameters.

The USGA system is widely very poorly understood by many clients of these laboratories. Many of the laboratories also have a poor understanding of the simple basic physics underlying the testing methods they use, and how to interpret the results of this testing. Some of the published literature also fails this test. Many practitioners seem to have the attitude that if it is in print it must be right.

Some of these interpretations have become 'industry standards' that are quite wrong and have no solid scientific base. These laboratory test methods have practical shortcomings including slow turnaround times and relatively high costs when used for routine sample testing on large volume.

Because of my dissatisfaction with these restrictions, I have sought alternative analytical tools which, while they are less rigorous scientifically, are much easier to carry out, much quicker to turn over, much cheaper to do and much easier to interpret. They can

be done anywhere and the only expensive equipment needed is a good quality scale accurate to two decimal points. The rest of the equipment can be bought at the hardware store. You will probably be able to hire a set of sieves for the particle size distribution (PSD) grading. Here is my methodology...

## STEP 1

Do a PSD by dry sieve on the materials available for use. Choose the candidates and ratios you want in your blend. Mix these by agitating and tossing the materials in a plastic bag until uniformly blended. Analyse this mix for PSD. Check the sample for dispersible clay in a flocculation tube.

Note that dry sieving is chosen for convenience over wet sieving because for sand-dominant rootzone constructions the miniscule amount of clay and silt sticking to the sand is largely irrelevant. Before sieving, the sample is oven-dried in a microwave oven and lightly ground in a mortar and pestle if it has any notable clay adhesions. This sample provides the standard to which the quarry will blend its materials for volume supply.

## STEP 2

Arrange a 100-tonne pilot mix for initial assessment. Using the industry standard stockpile sampling technique, take several 5kg samples and blend these. Sub-sample 5kg of this mix. Split this into 3.5kg for your testing and send 1.5kg to a qualified laboratory to plot a moisture release curve.

This test is the only laboratory test that I rely on to choose the depth of consolidated sand required for the job. The integrity of this test relies on the perfect seal between the sample and the membrane of the testing table used by most laboratories. Choose your laboratory wisely.

You then need to interpret the curve you obtain to choose the height of the growing medium you require. Choosing the depth of the growing medium is quite simple because all you need to do is choose the moisture content you want at the top 100mm of the profile and read off the depth related to that.

## STEP 3

Using this sand depth, proceed to constructing an as built profile (photo 1 opposite). Take a piece of PVC tubing – 50mm diameter x 400mm long is the most convenient size. Find a convenient removable stopper to seal off one end. Drill at least six 2mm drainage holes above the top of the stopper. Place 100mm of drainage gravel above the stopper (this is normally 5-7mm minus crushed gravel). Pack the tube in 100-150mm layers tamping down each layer until the profile height chosen is reached. This is done in duplicate.



## STEP 4

Wetting up. It is critical that this is done well. The packed tube is lowered into a larger PVC pipe piece capped off and partially filled with water. It is essential to juggle the water height so that it comes close to the top of the packed pipe but does not go above it (photo 2).

The water then enters the pipe through the drainage holes, rising through a combination of gravity forcing the water level on the inside to come to equilibrium with the same level outside. The rising water level is also drawn up by capillary action. This forces the air out of the sand profile. The exterior water is kept topped up while the system equilibrates (generally less than 30 minutes).

When the water level is fully above the surface of the packed growing medium, it is topped to generally 80-100mm above the growing medium surface, removed and allowed to free drain. The process is timed using a stop watch. Once the head of water has fallen to the growing medium surface, then the rate of free drainage is calculated from the height it has fallen against the time (photo 3).

The sample is then wet compacted by dropping it six times through 150mm on a board (photo 4). This consolidates the tube content while it is at near saturation. The wetting up process is then repeated.

## STEP 5

The topped-up tubes are again removed from the water and set to free drain. The measurements are taken as before.

## STEP 6

The tubes are then left to drain to equilibration over at least six hours and preferably eight.

## STEP 7

The stoppers are removed and the gravel layer taken out. The growing medium core is slid carefully down the tube and collected in three equal sections (vertically) on microwave proof plates (photo 5).

A sub-sample of growing media is taken to fill a dish of known volume precisely. The top is levelled (photo 6) and the sample is weighed in the dish (photo 7) and then turned out onto a microwave proof dish and heated in a microwave oven for 10 minutes to dry. After 10 minutes it is extracted and weighed in its dish (photo 8). The difference in weight in the bottom saturated section is equal to the total porosity of the growing media.

The dishes I use are plastic and identical in volume. This volume can be calculated either by placing the dish on a scale and filling it with water, the weight in grams equates to the volume in millilitres, or by taking a known volume of water e.g. 500ml. Fill the dish and deduct what is left from 500ml and you have



the volume. The same process is then done for the mid and top sections and the air to water ratios calculated. This gives a moisture profile for the as-built column.

## STEP 8

Each section after drying is processed for PSD. Any vertical movement of fines can then be clearly seen. From this we now have this data;

- PSD of samples prior to test;
- PSD post-test in position (top, middle and bottom);
- Rate of field drainage (open head) – compacted, wet compacted; and

- Air to water ratios of each level of the profile.

The bulk density can be calculated roughly from the weights and volumes of the dishes' contents. These measurements can then be checked against the parameters set at the beginning of the exercise and the samples passed or failed for placement on the job.

**Editor's Note:** If you have any topics or questions that you would like Peter McMaugh AM, Australia's foremost agronomic doyen, to address in his column, please contact ATM editor Brett Robinson [brett@agcsa.com.au](mailto:brett@agcsa.com.au).





JOHN FORREST

# Under pressure

*In his latest column, WA turf expert John Forrest looks at the challenges of managing public active sports turf with increasing demands and the overlapping of sporting codes.*



**P**ressure on active playing surfaces for local governments has increased in recent years, one of the drivers being the increase in women's participation in active sport. Roy Morgan research shows that 550,000 women are participating in the four football codes – AFL, soccer, rugby league and rugby union. While soccer has the most female participants, AFLW has been growing strongly, especially with the popularity of the AFLW competition.

Reduced land block sizes and the importance of exercise for physical and mental health has communities heading to the natural grass of local parks and sports grounds for leisure. This increased demand has increased the required maintenance and budgets to maintain active sports grounds. These demands are only going to increase, leading to further inputs to maintain a satisfactory sporting ground. In addition to the increased demands, public safety is an issue and minimising surface deterioration is key.

In years gone by, the park's supervisor may have also had some responsibilities in the works department. The current demands have changed the role to a sports turf manager. Added pressures faced by those maintaining such surfaces here in Western Australia include contending with water allocations, stinging nematodes (*Ibipora loli*), increasing temperatures, reducing rainfall, reduced window for renovations and a reduction in chemical use.

## INTENSIVELY MANAGED TURF SURFACES

Local governments are faced with increasing budgets for sports ground maintenance. These budgets are paramount in meeting demands. In the past, surfaces were fertilised infrequently and renovated when problems arose. In today's world, turf health through adequate programming is essential like any stadium or golf course.

Identifying numbers that the ground can handle is often difficult to project as environmental conditions play a leading role. If a mild autumn occurs, then the grass cover is better when the colder weather arrives. A

*Right: Council budgets often have to spread renovations between grounds. In these cases, monitoring park surfaces by taking plugs and inspecting surface layers and organic matter build up is vital*

*Main: Achieving an adequate and high performing turf surface for local government sports grounds requires diligent programming on the turf manager's behalf, as well as a proactive and collaborative mindset between council and end users*



*Increasing demand on local government sports grounds is placing more importance on sporting clubs being proactive in managing wear. Commonplace is the high amount of wear near the clubrooms*

cooler, wet start with rain on the weekends puts early pressure on surfaces. Therefore renovation programmes need to be adaptable. Prioritising grounds into categories helps adjust budgets to meet requirements. Simple categories are a starting point (e.g.; high, medium and low profile).

## ANNUAL PROGRAMMING

To design programmes for each open space profile, monitoring is required for tracking ground conditions and to assist in making adjustments where required. In Western Australia, there are two very different variations – winter sports and summer sports. While the summer sports still require a good coverage

of turf, warmer weather helps the speed of recovery from wear or renovations. As the majority of active playing surfaces are warm-season grass, in particular kikuyu, having the surface in good condition by the end of March to early April is essential.

## RENOVATIONS

Pre-winter renovations may be a solid time with a slight kick if decompaction is required to maximise drainage before winter rainfall. Post-winter renovations, using hollow tines and top dressing with sand to de-compact the surface and dilute the mat/thatch layer, are essential. While summer in general puts less pressure on the turf surfaces, water infiltration is crucial







to maximise water efficiency leading into and during summer.

All turf surfaces in WA have a water license of approximately 7500 kilolitres per irrigated hectare and in areas under water supply pressure 6750KL per irrigated hectare. High wear sports grounds struggle to meet demands at these levels.

Major renovations can be timetabled for pre-winter and post-winter. Improved management practices increase the need for renovations as turf growth increases. Kikuyu growing on sand profiles creates a distinct mat/thatch layer and increased growth increases the layer very quickly. The bigger the layer gets, the harder it is to reduce.

Mat is made up of humus which is organic matter that the soil microbes have trouble breaking down and when accumulation is faster than breakdown problems can occur. Humus has a very high ability to hold on to moisture and nutrients. Keeping the organic matter in sports grounds under five per cent is important and when that threshold is reached, it can be used as a trigger for action in the maintenance programme.

Due to winter and summer sports blending together, the time between seasons does not exist making it very difficult to do major renovations that can impact the surface quality.

## SOIL TESTING

Part of increased management is soil testing to determine the plant nutrition requirements. Perfecting the nutrient requirements and applying only what the plant needs, while minimising any impact on the environment, can be achieved through soil testing.

With the irrigation season starting in September and finishing in April, soil sampling can be broken in to two dates, particularly for warm-season grasses. Pre-renovation sample in early September or late August depending on the weather. Sampling may be earlier if it is a warm finish to winter and growth starts. It is often said that kikuyu starts growing after winter on 1 September in WA. Pre-winter sports sampling needs to be completed early enough to allow time for the fertiliser programme to produce enough growth before the warm-season grass growth slows.

On some very high use surfaces ryegrass is sown. Planting ryegrass in public open space is a challenge as pre-season training has started before cricket has finished. Cricket requires a tight, fast running outfield that certainly out-competes any rye while the temperatures are warm and kikuyu is growing quickly. Opening up the surface to ensure good seed to soil contact can annoy cricketers.

Splitting sampling into these dates also assists in monitoring the flushing impact winter rains have on the soil, in particular sodium.

Often by the end of the irrigation season the sodium levels have increased due to sodium in the irrigation water. Levels can increase during the irrigation season as there is a draw down affect in the aquifer.

Sodium levels can be seen to increase during the irrigation season and reduce with

**TABLE 1: SOIL SODIUM LEVELS (PPM)**

Ground <sup>1</sup>	Post-winter <sup>2</sup>	Pre-winter <sup>3</sup>
1	155 <sup>4</sup>	228
2	21	183
3	14	219
4	11	164
5	10	146
6	14	119
7	12	85
8	14	129
9	18	122
13	27	155
14	12	106
15	15	174
16	21	258
17	33	350
18	22	124
19	43	312
20	61	194
21	35	260
22	33	211
23	28	256
24	51	113
25	25	165

**Note:** <sup>1</sup> Locations considered 'high profile' grounds; <sup>2</sup> August 2019; <sup>3</sup> February 2020; <sup>4</sup> Sodium levels in ppm.

**TABLE 2: SOIL ORGANIC MATTER (%)**

Ground <sup>1</sup>	Post-winter <sup>2</sup>	Pre-winter <sup>3</sup>
1	4.4 <sup>4</sup>	6.4
2	4.5	5.9
3	2.9	6.2
4	3.5	4.3
5	3.2	5.1
6	3	3.5
7	2.6	3.9
8	4.3	6
9	3.9	5.1
13	3.9	4.2
14	3.1	4.1
15	3	5.8
16	3.2	6.1
17	2.9	3.9
18	2.9	6.4
19	3.8	6.6
20	2.9	4.8
21	3.5	5.3
22	3.4	4.9
23	3.9	5.4
24	2.5	4.4
25	2.6	5.4

**Note:** <sup>1</sup> Locations considered 'high profile' grounds; <sup>2</sup> August 2019; <sup>3</sup> February 2020; <sup>4</sup> Organic matter levels given in percentage

the winter rainfall flush. As shown in Table 1, 'Ground 1' is the only location where sodium levels didn't drop to a manageable level. If sampling is not completed, it is very difficult to make informed decisions.

Turf health that is improved through soil testing and improved nutritional programmes can increase growth. The consequence of increased growth is increased organic matter can also occur if not monitored and controlled (Table 2). Often budgets have to spread the renovations between grounds and in these cases monitoring park surfaces by taking plugs and inspecting surface layers and organic build up is vital.

A direct correlation can be seen between organic levels and the accumulation of sodium. Higher organic matter accumulation decreases the sports surface's ability to handle high use and wet days.

## GROWTH RETARDANTS

During late summer and early spring 2020, summer thunderstorms in WA created a huge surge in growth. Typically, the rain has come from the north, therefore warm days and nights. These conditions support the use of growth retardants such as Primo to minimise the apical growth.

Once the turf coverage has been achieved after the post-winter renovations, a monthly programme can be used to reduce the mowing requirement especially through the short weeks over the Christmas and New Year breaks.

## THE ROLE OF CLUBS

Increasing demand is placing more importance on sporting clubs being proactive in managing wear. Commonplace is the amount of wear near the clubrooms and the lack of utilisation of the areas further from the clubrooms.

Unless sporting clubs start to appreciate the importance of moving training sessions around the ground and understanding the difficulty of managing playing surfaces through the cold, wet times of year, it is hard for local governments to improve the surfaces to meet the ever-increasing demands. 🏏



**Higher organic matter accumulation decreases a surface's ability to handle high use and wet days**





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PHOTOS: ANDREW GLEN

*Kate Torgersen enlists the help of Andrew Glen, superintendent at KDV Sport precinct on the Gold Coast, who outlines the alternative, and successful, management approach he is taking with his turf surfaces.*

I have always been interested in reading articles on 'going organic', whether that be on golf courses, racetracks, wineries, schools or councils. Recently I received an email from Andrew Glen, superintendent at KDV Sport located in Carrara on the Gold Coast, literally a drop punt from Metricon Stadium. Andrew reached out about the organic programme he has established at his facility and kindly submitted the article below which I'm sure you will find very interesting and inspiring.

Andrew has been involved in the turf industry for 35 years, having worked throughout Australia and around the world in the construction and maintenance of golf course and sports facilities. This has given him extensive experience working in very different environments and climates.

KDV Sport is a multiple sports complex which has been up and running for the past three years. It comprises a 12-hole short course, golf academy, driving range, sportsfield, 20 tennis courts (hard and clay courts), three paddle courts, 18-hole mini golf course, gymnasium and swimming pool. Most recently, a new hotel – Elite Gold Coast – was opened within the facility.

The precinct lies on a floodplain and has sensitive waterways running through it. With this in mind, and with the blessing of KDV Sport management, in January 2018 Andrew decided to eliminate chemicals and synthetic fertilisers completely from the site and transfer across to a 100 per cent organic programme. Through the programme Andrew has re-established the natural biology back into the soil. With that base in place, he has then been able to manage and feed the biology within the soil which in turn feeds the plant.

It has taken time to develop the programme and Andrew is continually improving on it, but as of now the results are very impressive both with the condition of the course and the cost savings realised. The methods are quite innovative within the turf industry and could change the way turf managers approach maintenance practices in the future. Andrew takes up the story...

### STEP BY STEP

"The first goal in switching to an all organic programme here at KDV Sport was to re-establish the soil biology. Due to there being very little information on doing this in the turf side of the industry, I had to look at methods

being successfully used in the horticultural and agricultural sectors. By utilising these already established practices and adapting them to suit a turf situation, I have been able to re-establish the microbiology within our soil, back to the way nature does.

I utilise only indigenous microbes which are better suited to our environment and sourced locally. A lot of my inputs I produce on site which has a large cost saving. All other products I use are 100 per cent Australian and 90 per cent of what we use is sourced in the southern Queensland and northern NSW area. Supporting local products is important.

Each of these techniques brings a diversity of microbes to the soil, the more diverse the better and the use of indigenous microbes which are better suited to our environment. It took about a year to build the biology in the soil to a healthy level and I am continually building and establishing our soil microbial web.

The next step was to get the correct inputs to feed the turf to get consistent healthy growth. To achieve this, I had to re-programme my normal approach where you are feeding directly to the plant. To do this, I had to concentrate on feeding the microbes with



*Left: Now into the third year of a 100 per cent organic programme, KDV Sport on the Gold Coast is reaping multiple benefits in terms of plant health and reduced costs. Pictured is the Golf Academy putting green*

microbial foods which consume the product and pass on the nutrients to the plant in exchange for exudates from the plant.

There are several products that I use to achieve this and I am continually trialling new products, all organic. I did a trial with one of our microbial food sources on one of the greens which is now fully adapted into the programme. You can see the results from this trial in the photo (right). Another input is basic – eliminating catchers and returning clippings back to the soil. The bacteria in the soil quickly consume the dead clippings and recycle the nutrients back to the plant.

I am continually learning and improving on the programme and the one thing I am finding is that the more you build up your soil food web the less inputs that are required. I have had my challenges, but whenever we do run into obstacles we refer to nature and ask what it would do.

We recently built a sports field in front of the hotel which I have been growing in on the organic programme as well. This has been difficult due to the drought period we went through last year, which meant we had virtually no water available during grow-in. Despite that, it is progressing well. The best part of maintaining the sportsfield on the organic programme is that players, especially children, aren't exposed to any chemicals. Such a programme could be applied to any sportsfield or turf area.

## MULTIPLE BENEFITS

At KDV Sport we have realised many benefits by going 100 per cent organic. These include;

- Greatly improved root depths;
- A significant reduction in water requirements. This is due to the biology in the soil which in time improves the soil structure, thus the capability of the soil to retain moisture. Also, the re-establishment of mycorrhizae fungi, which attaches to the root system of the plant and draws up minerals and water from depths that would be previously unavailable to the plant, in exchange for exudates from the plant.
- Minimal disease or pest infestations for over two years. You have always got the bad guys in the soil; it is part of a balanced environment and they too have their role. By having a balanced biology in your soil and by regular applications of beneficial microbes, it helps keep everything in check. In the few instances where we have had pest issues, we have controlled these with beneficial microbial applications.
- As mentioned above, I have eliminated using catchers when cutting greens. The



*Glen uses a number of organic products at KDV Sport and is constantly trialling new ones. Pictured is a trial of a microbial food source on one of the greens which has now been fully incorporated into the programme*

clippings are consumed by the microbes which in turn recycle the nutrients back to the plants. This also reduces the inputs required, thus reducing costs.

- With increased soil biology, the thatch is kept under control due to the biology consuming the dead material and recycling the nutrients back to the plant.
- Due to the microbes keeping the thatch under control, it has changed my cultural practices in that I now have no need for annual coring or dethatching which, in turn, has a large cost saving and reduces disruption to play. Instead, we carry out regular spiking to assist with soil aeration. See photo (page 70) of a cross section sample from one of our greens showing no thatch after three years.
- The wildlife on the property has increased dramatically, bird life especially; they are

like a little workforce, consuming pests and returning rich droppings back to the soil. I have also recently connected with David and Heidi from 'Koalas On The Green' who are doing a commendable job in trying to re-establish habitat for koalas and other native wildlife on the Gold Coast, by planting native species which are a food source for these animals. We plan on helping them out with their programme.

- Reduction in weed infestation, especially annual weeds. This is achieved by having a strong healthy turf to out-compete them. We are able to keep the annual weeds under control by keeping our biology on the fungal dominated side which is more conducive to perennials than the annuals.
- The programme has had large cost savings with the elimination of expensive chemical storage facilities and specialised



*A new sports field in front of the newly opened Elite Gold Coast hotel was constructed and grown in using the organic programme as well. Despite challenges with drought and floods, the surface is performing very well*





*Glen has noticed a big improvement in root growth since converting to a wholly organic programme. This green core sample is 250mm and shows roots coming out the bottom*

chemical wash down facilities. It also eliminates the cost of expensive protective spray equipment.

- There is zero risk to the health of staff, golfers, wildlife, neighbours and the environment.
- There is no requirement to contact neighbouring property owners when spraying is required.
- The WHS and EMP requirements are reduced, saving time and money.
- No risk of expensive fines and penalties that can come from the all too frequent misuse of chemicals.



*A cross section sample of one of the KDV greens showing no thatch after three years. With increased soil biology, the thatch is kept under control due to the biology consuming the dead material and recycling the nutrients*

- And finally, one of the most important things, is that the cost of this organic programme is very inexpensive which would greatly reduce clubs' maintenance budgets.

We have only seen benefits from going down the organic path and it is something that can be implemented into any turf situation, whether golf courses, sportsfields, parks or lawns. The transition to the organic programme had no effects on play, other than it took a little time to start getting the growth, but nothing drastic.

Because you are not feeding directly to the plant like you are when you use synthetic fertilisers, you have to wait until your biology is built up before you start getting the food source to the plant. This was barely noticeable and knowing what we know now, it could have gone a whole lot faster.

The benefits we are receiving now makes it well worth the effort. The golfers barely noticed the difference and once they understood that we were managing the facility chemical free, were quite pleased they weren't being exposed to any chemicals.

## GOALS AND CONSIDERATIONS

There are a lot of little things that you must understand when instituting an organic programme and what follows are some recommendations;

- You should always keep your supplies in a cool storage area, no greater than 28°C degrees and out of direct sunlight, otherwise the products will go off.
- Any applications should be done early in the morning or late in the evening and followed up with watering to give your microbes the best chance of survival (the microbes don't like UV light).

- Never use chlorinated water in your spray tank with the microbes (it will kill them).

The main goal if you wish to go down this path is to keep it simple. First, re-establish your biology with regular applications of beneficial microbes, then feed your microbes, not the plants, with microbial foods. If anyone is in two minds about transferring over to a full organic programme, then take an area, like a nursery, driving range or a putting green and undertake a trial to convince yourself first. One thing I always go back to when I come across hurdles is not to panic and think what does nature do; don't be afraid to think outside the box.

I essentially have four goals with my programme – it must be environmentally friendly, it must be easy, it must be cost effective and it must work. It is very rewarding to know that what you are doing is working with the environment and is good for the environment – promoting the natural ecosystem you are in, to the benefit of all, the health of the flora and fauna, the health of the golfers and the health of the staff.

## ULTIMATE TEST

As a footnote to all of this, we have recently gone through a long period of drought, followed by significant rain and now an economically challenging period with the coronavirus pandemic, the end date of which is unknown. Through all these situations we can see advantages to surviving these periods by having an organic programme in place.

In regards to the drought period, for the reasons mentioned above, we were able to survive this period quite well, despite running out of water for three months which meant we couldn't irrigate tees, fairways or roughs. With the subsequent rains and flooding (the facility was under one metre of water after more than 300mm in one hit), the programme got us through without any disease infestations.

With the current economic situation brought about by the coronavirus, which how long and deep it will go is unknown, an organic programme is more budget friendly and could help clubs through tough economic periods. Another thing is that unlike conventional programmes being used, when stopped the benefits stop. With an organic maintenance programme, once you build up your biology, it will continue on, even if the inputs stop.

Hopefully we will get through this current situation soon and that most clubs can survive this. Following this, clubs may be more willing to look at this approach in their future operations."

**Editor's Note:** If you would like to find out more about the organic programme in place at KDV Sport, contact Andrew Glen on 0419 013 531 or email [andrewglen@hotmail.com](mailto:andrewglen@hotmail.com).



# DINT

## Golf Solutions

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*The art of the constructive conversation is to engage and steer people towards finding a solution*



# Constructive conversations

*HR expert Vicki Crowe looks at the importance of constructive dialogue in the workplace.*

**W**e hear a lot about having 'constructive conversations', but what are they and why are they important? In their essence, constructive conversations are solutions focused rather than focusing the conversation on the problem.

Solutions, not problems, help you get what you want by keeping on track, not wasting time discussing what you don't want. 'Problem talk' talks about the problem itself. It includes descriptions of what the problem is, analysis of where it came from, elaboration of the effects it is having, how people feel about it and speculation about what it is leading to.

While there is merit in having some problem-solving conversations, especially if they are successful in learning to understand what the problem is or for getting something off your/their chest, the value of problem talk is now seen as over-rated and unproductive.

Often, problem talks don't bring about change and fail to help solve some of the more complex issues people face; in fact they can make matters worse. They can bring about destructive conversations, where the talk leads to 'stuckness' or further difficulties. Focusing on problems can also magnify the perception of the problem, making people

more miserable, angrier, more vengeful and less optimistic and resourceful.

An alternative means of communication is 'solutions talk'. Solutions talk is about what is wanted. It includes descriptions of how matters will be when they are the way people want them to be and includes talks of strengths and skills, resources, successful examples and actions that will help to get to the desired state. The most constructive conversations result in something being different.

The art of the constructive conversation is to engage and steer people towards finding a solution. For example, you might be a manager dealing with a member of staff who is consistently late to work. Focusing the conversation on what you don't want (the employee turning up late) is likely to lead to accusatory-sounding questions such as 'Why are you always late?' followed by denials, defensiveness or excuses, none of which get you any closer to your desired outcome. What you want is the employee turning up on time, so you need to make that the focus of the conversation with more constructive questions, such as 'What has to happen for you to get here on time?'

When planning for the discussion, ask yourself in advance what it is you want from

a conversation and then preparing questions and statements that will inject these terms into the discussion. 'Let's talk about how we can ensure you get to work on time... You arrived in good time three days last week – how did you achieve that?'

Ensure you maintain your focus on solutions during the conversation by checking that it is still about the desired aspects of the topic and not wandering into the dangerous and less helpful territories. Think about what you might be willing to compromise on and make it clear during the conversation that you are interested in the other party's outcomes. Prior to having a difficult conversation, try to not assume how the conversation is going to go as this leads to a negative mindset.

Constructive conversations use clear not complicated language. Whenever possible, use the words spoken by the other person. Speak their language; this will indicate to the other person that you have been listening carefully and that they have been heard.

If you find yourself in a conversation where both parties have conflicting views, you need to discover early in the conversation what the other person wants and needs that will satisfy them. Then, by asking the right questions, you can construct a better joint solution. 🌱



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*John Deere's new triplex mowers feature offset cutting units, right hand CommandARM-mounted controls and easy serviceability. Pictured is the PrecisionCut 2400*



## JOHN DEERE ADDS NEW TRIPLEXES TO COMPLETE GOLF COURSE FLEET

**A** STMA Silver Partner John Deere has unveiled three new triplex mowers – the 2400 PrecisionCut, 2550 PrecisionCut and the 2550 E-Cut Hybrid.

With the addition of the new models, John Deere now offers a complete range of seven triplex mowers, supplying golf courses with a variety of solutions. The new models feature offset cutting units, right hand CommandARM-mounted controls and easy serviceability.

"We know every customer has a unique set of needs and, with that in mind, we have created a full line of triplex mowers so we can support every course," says Brad Aldridge, product manager for John Deere Golf. "The additions of the 2400 and 2550 models are the final pieces to our triplex mower offering. Each machine is designed to offer a premium cut quality, while also providing solutions to manage course conditions, machine control and routine maintenance."

All three of the new models feature an offset cutting unit design, eliminating triplex ring by staggering the wheel tracks. With this design, operators can avoid triplex ring and compaction by changing the direction of travel each day, especially in clean-up passes, giving turf an additional day to recover before being driven over again. Equipped with the Quick-Adjust five-reel cutting units, the new models are designed for optimal cut quality and ease of adjustment. In addition, the new triplex mowers offer right-hand CommandARM controls which move with the seat.

The 2400 machine features a petrol-powered 14.2kW (19hp) V-Twin electronic fuel injection (EFI) engine. The EFI engine requires no mechanical choke to start the engine and offers better fuel efficiency. The 2550 machines utilise a 14.6kW (19.6hp) three-cylinder, liquid-cooled diesel engine. The 2550 E-Cut Hybrid model features an electric reel drive system, eliminating 102 hydraulic leak points to minimise leak opportunities, while also reducing fuel consumption and sound levels.

With the addition of the new models, John Deere has completed its triplex mower range. Launched in 2019, the 2700 and 2750 PrecisionCut triplex mowers, and the 2700 and 2750 E-Cut Hybrid triplex mowers, feature an open platform design with easier grass catcher access and premium cut quality, regardless of operator. Featuring the proven passcode-protected advanced TechControl system, the supervisor is in more control of operator performance.

With the TechControl system, managers and technicians can input a variety of commands, controlling nearly everything regarding the operator's performance, including frequency of clip, turn speed, clean-up pass speed and how fast the cutting units raise and lower. The TechControl system ensures that regardless of the operator the end results are the same, providing consistent cut quality on the course.

With three models featuring offset cutting units and four with open platform designs, the John Deere line offers superintendents

the flexibility to create a mower combination that can provide the best cut quality and appearance for their course.

The 2400 PrecisionCut and 2550 PrecisionCut will be available in late 2020 and the 2550 E-Cut Hybrid model is available now for order. **For more information about the John Deere line of golf equipment, contact your local John Deere Golf dealer or visit [www.JohnDeere.com.au](http://www.JohnDeere.com.au) for the latest news and product information.**

## SYNGENTA LOOKS TO THE FUTURE

**A** STMA Gold Partner Syngenta has launched its latest generation SDHI fungicide Posterity onto the Australian market. Posterity delivers exceptional dollar spot control and is a great option to add to tank mixes to deal with this difficult-to-control disease. According to Syngenta technical manager Mike De Luca, Posterity sets a new standard for power and longevity of control.

"Trials in Australia and USA have demonstrated that Posterity is the next step in dollar spot control, delivering superior control when compared to other technologies," says De Luca. "It is designed to remain in the plant longer for consistent control even under high pressure. With fast uptake and optimal distribution within the plant, turf managers





managing dollar spot now have a product that will deliver a step change in control of the disease. Posterity has proven to deliver powerful effective control combined with endurance.”

Posterity fungicide offers:

- Long-lasting curative and preventative control against dollar spot;
- A step change in dollar spot control versus traditional controls such as older DMI fungicides containing, for example, propiconazole and tebuconazole;
- Smarter chemistry that is exempt from poison scheduling;
- A highly effective option at rates as low as 500mL/ha to 1L/ha;
- A formulation that is compatible with a wide range of commonly used fungicides, insecticides, herbicides and Primo Maxx.

For more information visit [www.greencast.com.au](http://www.greencast.com.au) or contact your local Syngenta agent.

## BUSINESS AS USUAL FOR VENTRAC AUSTRALIA

**A**STMA Bronze Partner Ventrac Australia issued a statement following the announcement in February that The Toro Company Inc. had acquired parent company Venture Products Inc (VPI), the manufacturer of Ventrac products. Ventrac Australia wanted to update its customers as to the purchase and the proposed activity post acquisition.

“Ventrac Australia has met with our VPI representatives in the US to try to understand the way forward,” the statement read. “After these discussions the future direction became much clearer and tended to take away a lot of the negativity as a result of the purchase.

“As was stated by Rick Olsen, chief executive of Toro, there is no intention of moving any of the production out of the current facilities in Ohio and they intend to continue to build the Ventrac brand within those facilities. We understand that there is no intention to rebrand the Ventrac product range. We understand that Toro will operate Ventrac on a similar basis to the way they have marketed Exmark, Boss and Ditch Witch, (i.e.; leave it as it currently operates).

“We know Toro and VPI are both very aware of our standing in the market and we are confident that we will continue to provide the best possible service for the best possible machine. We at Ventrac Australia will continue business as usual and we intend to increase our efforts throughout the eastern states to maximise what we have established.”

## TIFTUF'S WATERSHED MOMENT



**T**iftuf hybrid bermudagrass has recently received certification and is the first and only turfgrass to receive the Smart Approved WaterMark in Australia and across the world. In the US, Tiftuf will now automatically be approved for the 'Water Sense' programme. This means Tiftuf is the first turfgrass not just in Australia, but throughout the world, to receive recognition to this level of water saving efficiency.

In order to receive the Smart Approved WaterMark, there is a significant process that is undertaken and a strict set of criteria the product needs to adhere to. A technical expert panel independently assesses the applications of products and services undertaking the accreditation process. The panel of seven members and an independent chair examine all aspects of the product application and the associated evidence of water efficiency.

Tiftuf was entered into consideration for the Smart Approved WaterMark four years ago and now after many years of extensive independent scientific-based testing and

research for decreased water use and superior drought tolerance, has now been formally recognised and certified with the Smart Approved WaterMark.

Tiftuf Bermuda is the product of almost 25 years of research and development from one of the world's leading turf grass breeders, the University of Georgia. Tiftuf has been hand selected out of almost 30,000 different bermuda varieties, showing superior qualities in drought tolerance, shade tolerance, wear tolerance and winter colour while at the same time maintaining excellent turf quality.

## LABEL CHANGE FOR WALDO

Waldo miticide, produced by ASTMA Bronze Partner Turf Culture, has had its re-entry period restrictions reduced following approval from the APVMA. Turf Culture recently conducted a project (toxicity and OH&S) to alter the re-entry period on the product, meaning it now has less restrictions imposed upon its use than other turf-registered products in the market containing the active ingredient diafenthiuron.

The re-entry period instruction on the new Waldo label now reads: “Do not enter treated areas until the spray has dried unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow-length chemical resistant gloves. Clothing must be laundered after each day's use.”

For more information on Waldo miticide visit [www.turfculture.com.au](http://www.turfculture.com.au).

## INDUSTRY APPOINTMENTS

### BILSTON JOINS LIVING TURF

Turf ecology specialist and ASTMA Silver Partner Living Turf has appointed **Tim Bilston** to its Victorian sales team. A highly regarded turf agronomy specialist, Bilston brings a strong network of professional contacts and a wealth of turf industry knowledge and experience.

His professional history includes five years as superintendent of Heidelberg Golf Club in Victoria, prior to a commercial role in turf product sales. Most recently he was a territory manager (Victoria and SA) for ASTMA Gold Partner Syngenta. Bilston complements Living Turf's experienced Victorian team that also includes Mark Prosser and Mac Ross. Bilston can be contacted on 0418 322 622 or email [tbilston@livingturf.com](mailto:tbilston@livingturf.com).

### LEACH ON THE MOVE WITHIN BAYER

**Matthew Leach**, currently territory sales manager (turf) for NSW, Queensland and

ACT with the Environmental Science (ES) business unit at ASTMA Silver Partner Bayer, has now been appointed to a similar role but in vegetation management based in Queensland. Leach will start the new role on 1 May and will provide ongoing service and support to turf customers in his existing territory until his replacement is officially appointed.



### WRIGLEY MOVES ON FROM CCI

After 10 successful years at ASTMA Bronze Partner Country Club International (CCI), **Matt Wrigley** has taken on a new role with Melbourne-based ADE Turf Equipment. According to CCI managing director Mike Baker, Wrigley's departure is a loss for the business both personally and professionally, as he played an incredibly important role in the growth of CCI over the past decade. CCI recently gained the services of **John Mansfield** to bolster the company's Victorian, South Australian and Tasmanian markets.



I write this report from the isolation of my own home as my wife Mandy and I returned home from Japan eight hours after the 14-day isolation ban was enforced by the Australian Government on everyone entering Australia. It has only been a few days and I am already feeling like a lab rat! Normally the only time I would spend longer than an hour indoors at home is to sleep!

It is extremely worrying what the effects may be to our industry after the recent bushfires and now the downturn in the economy moving forward, as we are already seeing reduced playing numbers and golf bookings cancelled. We understand it is a challenging (and stressful) time for everyone, with the need to make many major operational changes in the workplace to help slow the spread of COVID-19.

In the interest of health and safety and enforcement of measures to minimise the spread of COVID-19, the VGCSA committee and CEO are currently reviewing our 2020 events calendar. We have seen the COVID-19 situation change rapidly over the course of a very short timeframe and therefore must implement contingencies to ensure our members' health and wellbeing, which may entail cancellation or rescheduling of events. The first of these – the May AGM – has been postponed.

## VICTORIA, SANDRINGHAM DAY

Our first education day of 2020 was hosted by the Victoria and Royal Melbourne golf clubs and Sandringham Golf Links. It was a great success with 130 in attendance for the Glenmac Sales & Service (John Deere) and Nuturf sponsored day.

The meeting began at Victoria with a presentation from **Dr Mark Walker** (Nuturf), before host superintendent **Steven Newell** and assistant superintendent **Jacob BurrIDGE** led a course walk. It has been 12 months since Victoria reopened the course after undergoing a major revamp between July 2018 and February 2019.

Under the auspices of Ogilvy Clayton Cocking Mead (now Ogilvy Cocking Mead), the project saw all greens reinstated to their former glory and sown with Pure Distinction creeping bentgrass. In addition, six hectares of cool-season turf surrounding greens and tees was sod cut out and replaced with Santa Ana.

With the greens, 12 were reinstated to their original contours, while three – 6, 11 and 13 – maintained their contours but had



*The first VGCSA meeting of 2020 took in Victoria Golf Club which recently underwent a major greens resurfacing project. Pictured is the 17th*

the severity of slope adjusted. The biggest changes were to holes 5, 12 and 17 where greens and bunker complexes (both greenside and fairway) were significantly altered. The tour took in holes 6-9 and 16-18 with Steven discussing the construction process, some of the challenges they faced and the performance of the greens and their ongoing management. The course is set to host the Men's Australian Open in 2022.

Following Victoria, attendees then headed to the Royal Melbourne Golf Club maintenance facility for morning tea and a quick tour. The \$5 million complex, completed in 2016, allows for all machinery to be housed under the one roof, with efficiency of movement underpinning

the entire design. From there the group headed across the road to Sandringham Golf Links to inspect the ongoing course redevelopment works.

RMGC has held the lease on the Sandringham site for the past 10 years and maintains the public access facility along with the East and West courses. The course redevelopment is part of a major overhaul of the site which will eventually see it become the new home for Golf Australia, Golf Victoria and the PGA of Australia.

The Sandringham Golf Links Redevelopment Project has been a number of years in the making after those three entities received funding from the Victorian Government to develop a high-performance training and administration facility back in 2014. After an involved two-year scoping process, Sandringham Golf Links was identified as the preferred location with works approval finally granted last year. The project incorporates;

- Full redevelopment of the 18-hole golf course staged across two nines (nine holes to remain open at all times). Ogilvy Cocking Mead (OCM) appointed as course architects with Waypoint as project consultants and managers.
- Increasing existing water storage capacity from 15ML megalitres to 30ML, reducing the course's reliance on potable water.
- Upgrading the irrigation system.
- An extensive revegetation programme to increase the number of indigenous trees, vegetation and overall biodiversity value of the site.
- Construction of a new two-storey 'clubhouse' facility incorporating office administration space for Golf Victoria/Golf



*Victoria Golf Club superintendent Steven Newell addresses the group during the course walk*





*As part of the greens redevelopment, Victoria converted all greens to Pure Distinction bentgrass*

Australia and Sandringham Golf Links staff, meeting rooms, education spaces, new public amenities/changerooms and indoor high-performance golf training facilities.

- Construction of a 350m-long, covered, 30-bay public access driving range, public short game practice area comprising a chipper and 3000 square metre putter.

Stage one course works began last May with RMGC staff playing a key role. Led by construction superintendent **Nic Staff** and foreman **Darcy Jones**, the RMGC team undertook preparatory works including setting up a nine-hole temporary course and all tree removal. During construction, they assisted OCM in preparing greens, tees and surrounds for grassing and the subsequent grassing and grow-in. Stage one works included the expansion of the course's water storage to 30ML and a new irrigation system (installed by Superior Green).

In order to maintain consistency, the decision was made to use Royal Melbourne's famed Suttons Mix bentgrass on the new greens, as well as a fine fescue mix for the surrounds. Time will tell whether the varieties will stand up to the increased traffic, but to date the surfaces are performing well since opening in January. Works have now begun on the second stage with an expected completion this October.

The camaraderie and support of our association is amazing to watch. Standing in the function room of the Royal Melbourne Golf Club clubhouse at the end of the day, watching everyone interact and network over lunch, truly shows the strength and support we have for our peers.

## MALLACOOTA MISSION

Finally, in mid-March, **Adam Lamb** (VGCSA committee member) led a small but efficient team of volunteers to Mallacoota Golf Club with the support of VGCSA sponsors. This team arrived armed with their knowledge, passion, product and expertise which will hopefully help the club in achieving normal operations as quickly as possible. Members will have the chance to read the full detailed report in our next newsletter.

We commend Adam (Barwon Heads GC) for coordinating the project, along with our vice



*Sandringham Golf Links construction superintendent Nic Staff discusses the project works to date*



*Stage two works of the Sandringham Golf Links course redevelopment is now underway*

president **Shane Greenhill** (Sorrento GC), those companies who donated supplies and the clubs who allowed their staff the time to make the journey. Another great example of how we as an association and industry rally together in times of need.

**UPDATE:** How the situation can change so rapidly! From the time of submitting this report last week to, only days later, the update of further federal and state measures to implement a shutdown of all non-essential activity across the country. The VGCSA committee has met to initiate contingencies and regular meetings (via Skype) will be taking place to form strategies to ensure ongoing information and support to our members. It is so important for us all to maintain camaraderie throughout these coming months. Stay safe everyone!

**BARRY PROCTOR,  
PRESIDENT, VGCSA**

**Editor's Note:** Some of the state association reports were submitted prior to the Golf Australia recommendation that all golf clubs be closed due to the coronavirus pandemic. Full reports on the impact this has had is reported on earlier in this edition, while states will also provide an update of their situations in the next edition.

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# NSWGCSA

**D**rought, fires, floods and coronavirus shut downs... I have no clue where to start this report. It was a brutal 2019 that most were happy to see the end of with areas of NSW seeing major fires taking out entire communities, from north of the state around Coffs Harbour and Forster-Tuncurry down to the far south coast of Pambula-Merimbula and Bermagui.

The rain finally came in February and when it did so did the floods! The western suburbs of Sydney was hit hardest with Dunheved GC, Lynwood GC and Windsor Country Club hit worst. At the time of writing this report (mid-March) Dunheved is currently still closed by insurer's orders and Lynwood GC was overseeding greens that were under water for 5-6 days.

Speaking with Windsor superintendent **Jeff McManus**, he received over 400mm of rain plus all the catchment into the Nepean River which caused major flooding to the course. Following on from the floods, a severe storm ripped through with Windsor losing more than 20 large eucalyptus trees.

Here at Eastlake, I have had 606.5mm since the start of the year; to put that in perspective it took 10 months of 2019 to register that amount! The race is now on to get turf surfaces repaired before the weather turns cool and the growth slows for these guys out west.

The NSWGCSA is currently running a competition to give a spot away at the upcoming Turf Leadership Forum hosted by **Ben Gibson** (The Toolbox Team). The prize includes registration to the two-day forum and one night's accommodation in Sydney. It is open to all NSWGCSA members and to enter



*Long-serving NSW course superintendent Brendan Warby has departed Narooma Golf Club to take on a private property management role. Warby was appointed Narooma superintendent back in late 2014*

all you need to do is send your name and contact details to [super@eastalkegolfclub.com.au](mailto:super@eastalkegolfclub.com.au) or 0418 215 407. It will be drawn on 15 May.

Due to the coronavirus crisis, the NSWGCSA Board has made the decision to postpone all events moving forward, among them the Annual Ambrose Event at Cypress Lakes Resort in the Hunter Valley and planned walk 'n' talk events. The Board will reassess the situation on 1 June.

And finally, after many years a course superintendent, **Brendan Warby** has decided to move out of the industry and into a property maintenance/management role on a private facility in Narooma on the NSW south coast. Brendan started his apprenticeship in December 1983 at Highlands Golf Club at Mittagong and was in charge by his fourth year. An 18-month stint as assistant at Concord followed before he headed back to Highlands at the end of 1989.

In 1992 Brendan went to Camden Lakeside as the construction assistant and

stayed there until 1998 before heading back to Highlands for another 14 years. During that time he also operated a small laser-levelling business, before taking on his most recent role as superintendent of Narooma Golf Club in November 2014.

Writing in the latest NSWGCSA newsletter, Brendan notes: "Narooma has been by far the most enjoyable posting of my career up until this point. It is an amazing golf course and I'm glad to be able to remain a member of the club. The best part of the industry is the friends, colleagues and support I've gained along the way and I love preparing an excellent putting surface for important events and getting feedback. I'd just like to thank everyone for their support during my time at Narooma and wish the incoming superintendent the very best." We wish Brendan all the very best for the next chapter of his career.

**NATHAN BRADBURY**  
PRESIDENT, NSWGCSA

# SAGCSA

**T**he weather vagaries continue here – no orphans there though! Well below average rainfall in December (0.00mm at Royal Adelaide Golf Club) coupled with strong winds and above average temperatures led into some very welcome rain and below average temperatures in January and generally mild conditions in February.

Locally, and throughout the eastern states, bushfires have ravaged large swathes of the countryside. Our thoughts are with all those in the golfing and broader communities who have been impacted by the destruction they have wrought.

In February, Royal Adelaide hosted the 2020 ISPS Handa Women's Australian Open which was well received by the players, officials and spectators alike. My sincere appreciation and thanks to the respective superintendents and their clubs (local, interstate and overseas) for supporting the event by providing volunteer staff to assist us with our course preparations. Also a huge thank you to our trade partners Toro, Waterpro, Globe Australia, Turf Equipment SA and Living Turf for providing equipment and meals.

Contrast our team for the Open to those of the recently completed Southern

Ports Golf Week hosted by the Kingston SE, Robe and Beachport golf clubs. One super at each club with support from local club member volunteers, if and when available. Congratulations to the respective superintendents on their outstanding course presentations. On Sunday 12 January, **Tim Warren** and his team at Glenelg Golf Club presented an immaculate course for another highly successful round of the Blitz Golf Pro-Am, golf's version of T20.

**NATHAN BENNETT**  
PRESIDENT, SAGCSA



**W**ow! As I write this report I am feeling very anxious about the global pandemic situation at the moment and how it will affect everyone. The sporting industry alone at all levels has been thrown into disarray in an effort to contain COVID-19. I do believe if everyone practices good hygiene and has consideration for others, this pandemic will not get out of control. The Federal and State Governments have been very proactive in their approach and should be commended for that.

Things have been very quiet down here on the Apple Isle as everyone has been busy over the summer months trying to hold things together due to a lack of rainfall/drought. This, however, has not stopped some construction projects which have moved forward apace.

**Steve Lewis** (Royal Hobart Golf Club) has started his masterplan project with architect **Richard Chamberlain**. Stage one works are well underway with the realignment of the par four 7th hole completed and growing in. The 8th tee has also had some work and works are being finished off on the new practice tee and chipping and putting green.

Construction has also started at Barnbougle on the Coore-Crenshaw designed third course – Bougle Run. It will be a 14-hole short course comprising 12 par threes and two par fours. The Coore-Crenshaw shapers were on site in March and at the time of writing are way ahead of schedule, with mainline irrigation being installed.

Bougle Run literally came about by accident. It all started last September with a small burn off which got slightly out of control on a sandy ridge internally of the Lost Farm course. **Richard Sattler** came up to inspect the damage (which was minimal) and was amazed at the dunescape that was exposed.

The following week a phone call and some photos to Coore/Crenshaw were followed by some Google Earth imaging and things gathered momentum very quickly. In late December, **Bill Coore** was on site doing a rough routing which fitted 14 golf holes comfortably on the site. It is going to be a fun layout with some great greens complexes and bunkering that golfers of all abilities can enjoy and even add onto the end of a day's play on either of the other two courses.

Hydroseeding is scheduled to start mid-April and completion at the end of June. This will allow a full spring growing season before an expected opening in late December 2020/early January 2021. Will be a busy winter...



*Shaping of the new Bougle Run 14-hole short course at Barnbougle has commenced. The new course, located on a sandy ridge within the existing Lost Farm layout, will comprise 12 par three and two par four holes*

Elsewhere, **Bryan Dunn** had the opportunity to showcase the magnificent new surface of UTAS Stadium for a recent AFL practice match. It is a credit to all involved as it is a truly spectacular surface. **(Read our feature on the UTAS Stadium redevelopment earlier in this edition – Ed)**. Also well done to **Brad Marsh** (Twin Ovals, Kingborough), **Kane McDonald** (Dial Park, Penguin) and **Todd Struthers** (North Hobart Oval) who also recently held AFL and AFLW matches recently.

A big congratulations also to **Adam Spargo** (UTAS Stadium) who was selected to

attend the Jacobsen-sponsored Future Turf Managers' Initiative (FTMI) in Melbourne in mid-March. I'm sure he gained lots of great knowledge to help him progress his career.

And on the topic of education, discussion and conversation is currently underway with TAFE Tasmania to improve the training of our turf graduates to bring the training hours in line with other states. The ASTMA's **Mark Unwin** and **Simone Staples** are involved in this process which we hope will have a very positive outcome.

Elsewhere around the traps...

● **Scott Reid** has been appointed superintendent at Launceston Golf Club after a long stint under the guidance of **Steve Wilson** at Country Club Casino. Scott is a former FTMI graduate and we wish him all the best at LGC.

● **Craig 'Tangles' Walker** has also taken on the superintendent role at Ulverstone Golf Club in addition to his current superintendent role at Devonport CC. Congratulations to Tangles also after recently hosting the Tasmanian Open at Ulverstone. From all reports the golf course was in superb condition.

● **Mark Goodger** has been appointed the superintendent at Riverside Golf Club after serving his time at Launceston Golf Club. We wish Mark all the best on his appointment where he can use his skills gathered over the years.



*Stage one masterplan works are currently underway at Royal Hobart Golf Club*

**PHIL HILL**  
**PRESIDENT, TSTMA**



# NZGCSA



Today is 1 April 2020 and there is no April Fools antics about the place. It is Day 7 of an imposed 28-day minimum lock down here in New Zealand. What does that mean? It means that unless one (and I mean only one) is going out for medical or supermarket necessities, then people are to remain in their homes. A four-wall exile for 28 days in which the walls get smaller each day.

'Bubbles' are the terminology for the people staying within each household. People within that bubble can have contact with each other but not with persons outside of their own bubbles. Simply this is to avoid further spread of COVID-19. People can go out for a walk but only with those within their own bubble and are to remain two metres plus from anyone else they may encounter when out walking. Or they may cycle using the same rules and in all cases within their own local area.

As with all rules, there are always those that don't think they apply to them, just others. Beaches, playgrounds and the like have been closed off because of mass gatherings, as has the odd game of touch rugby that some found necessary.

How is our industry coping with the shut down? The turf industry here in NZ has not been deemed an essential service and as such we cannot set foot on our work sites. We have made submissions to the government for the okay to be able to go into work on a solo basis to cut greens and other necessary greens maintenance, but at the time of writing we haven't found a sympathetic ear yet.

It is understood they are working through over 1000 submissions from varying industries, so hopefully the delay is with volumes and not reasoning. NZ Golf is the vehicle for this with assistance from NZSTI and Sport NZ.

Our industry is somewhat unique in that

we all invest a considerable amount of blood sweat and tears into something that we don't own and is for the benefit of others to use. This passion is hard to describe to those outside the industry, but it is what keeps us all going through tough times when others may have given up. It is a brotherhood, a mateship that exists in few other jobs. And it is this passion that makes it all so hard for us to be able to attend the places we all so dearly love and nurture. A completely frustrating and stressing time.

As I write, there has been one death from COVID-19 already in NZ with another 61 new cases today and we now total 708 cases. Australia stands at nearly 5000 cases detected and globally nearly 860,000 cases and unfortunately this silent assassin has claimed over 42,000 lives throughout the world.

So, things have progressed severely since writing my original article and the world (even Trump) is finally taking notice that this pandemic is serious and should be taken as such. Rants and tweets won't make it go away, but we as individuals all have the opportunity to contribute to its demise. Simply stay at home. The virus doesn't move about. People move about. If we all stay home the virus can't move and it will die out. Easy.

Given recent events, the past summer seems but a distant memory. We have just said goodbye to what was a contrasting season throughout most parts of New Zealand. While many areas of the South Island have received unseasonal amounts of rainfall throughout their summer, it was a completely different story for those based in the North Island.

The far North and the Waikato experienced drought-like conditions with very little, if any, rain. Many courses have had limitations put on their water usage and some have had total

water restrictions placed upon them. It is a difficult thing to see the course that you have loved and nurtured dry out and naturalise, all the while hoping that a break in the weather will see a return of some much-needed rainfall. Alas, I think these summers will become more regular in the future.

The use of water, the allocation of water and how we harvest it going forward will play a big part in our lives on the golf course. In NZ we have traditionally had more rainfall than we need and haven't had to consider too much about stocks of it, let alone restrictions being placed on it. So, a re-education is warranted going forward over water use, but also consideration of whether our water use on golf courses is sustainable going forward.

Do we really need to keep our courses 'green' throughout the summer months and are the wishes and desires of golfers to have these conditions year-round justified and sustainable both in water use and in financial terms? Does it really matter playing of brown fairways for a few months and playing golf naturally as the elements allow? No doubt there will be many opinions around this, but the subject is worthy of discussion and consideration by all those in the industry. But that is for another time given the current climate we find ourselves in.

**UPDATE:** As this edition was going to print, the New Zealand Government announced that urgent maintenance of golf courses would be permitted under Alert Level 4 restrictions from 14 April. This followed an earlier exemption granted for the upkeep of turf surfaces at schools and other sports facilities.

**STEVE HODSON**  
PRESIDENT, NZGCSA

## GCSAQ



2020 has been a very wet year to date with extremely high rainfall figures being recorded across the state. The average rainfall in southeast Queensland has exceeded 1100mm year to date compared to just 900mm for the entirety of 2019!

The much-needed rain has had a significant impact on all golf courses throughout Queensland. As with any major weather event, the man hours that have been invested into course recovery has had an impact on seasonal project progression.

The GCSAQ welcomed a new committee member at its February meeting – **Luke Helm**. Luke is the superintendent at Meadowbrook Golf Club and as the youngest committee member has brought to the table some new ideas which we look forward to rolling out in coming months.

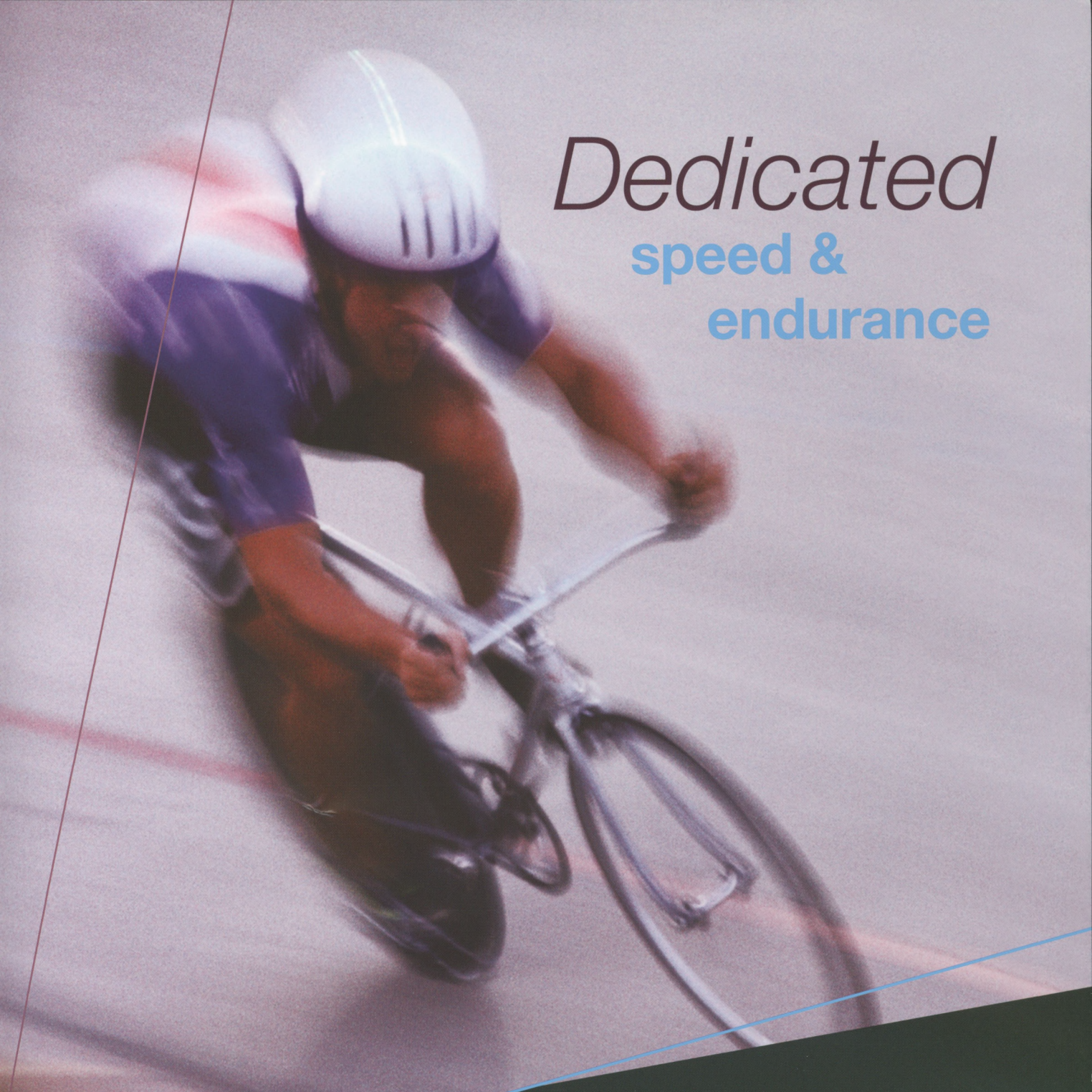
The 2019 Queensland Golf Industry Awards were scheduled to be held at RACV Royal Pines Resort on 31 March 2020. With regret, the awards had to be cancelled in line with the government guidelines due to

the coronavirus pandemic. At the time that this addition went to print, options are being considered to either deliver the event via an online channel or host at a later date.

With the current global crisis that we are all facing, I would like to take this opportunity to wish all golf clubs and their staff the best. Stay tuned to our website for the latest updates or email [info@gcsaq.com.au](mailto:info@gcsaq.com.au)

**PAUL MCLEAN**  
PRESIDENT, GCSAQ





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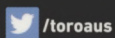
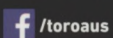
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