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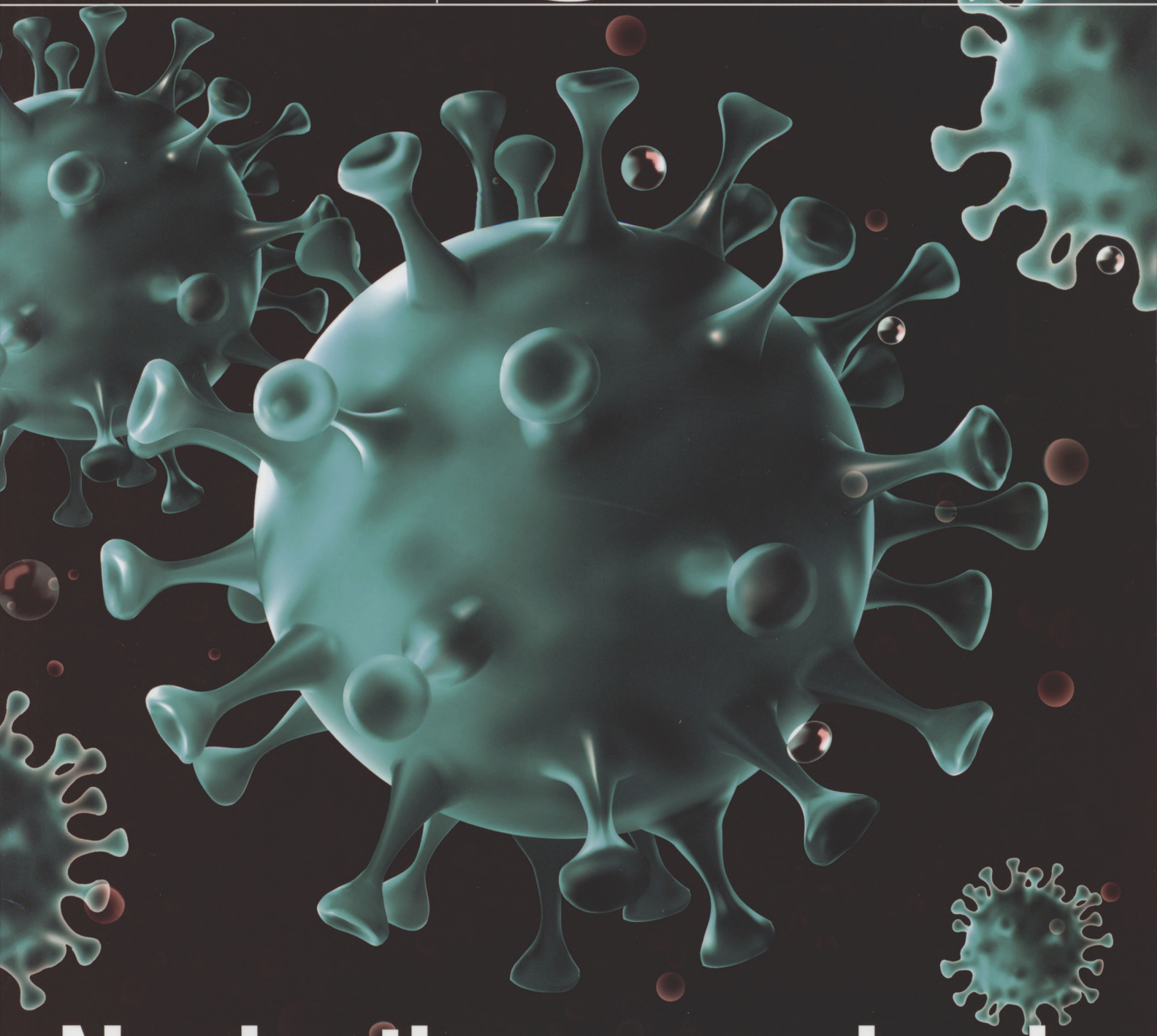
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Turfgrass



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MANAGEMENT JOURNAL



Navigating a pandemic

Melbourne sports turf managers reflect on enduring
two COVID-enforced lockdowns

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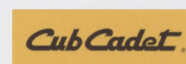
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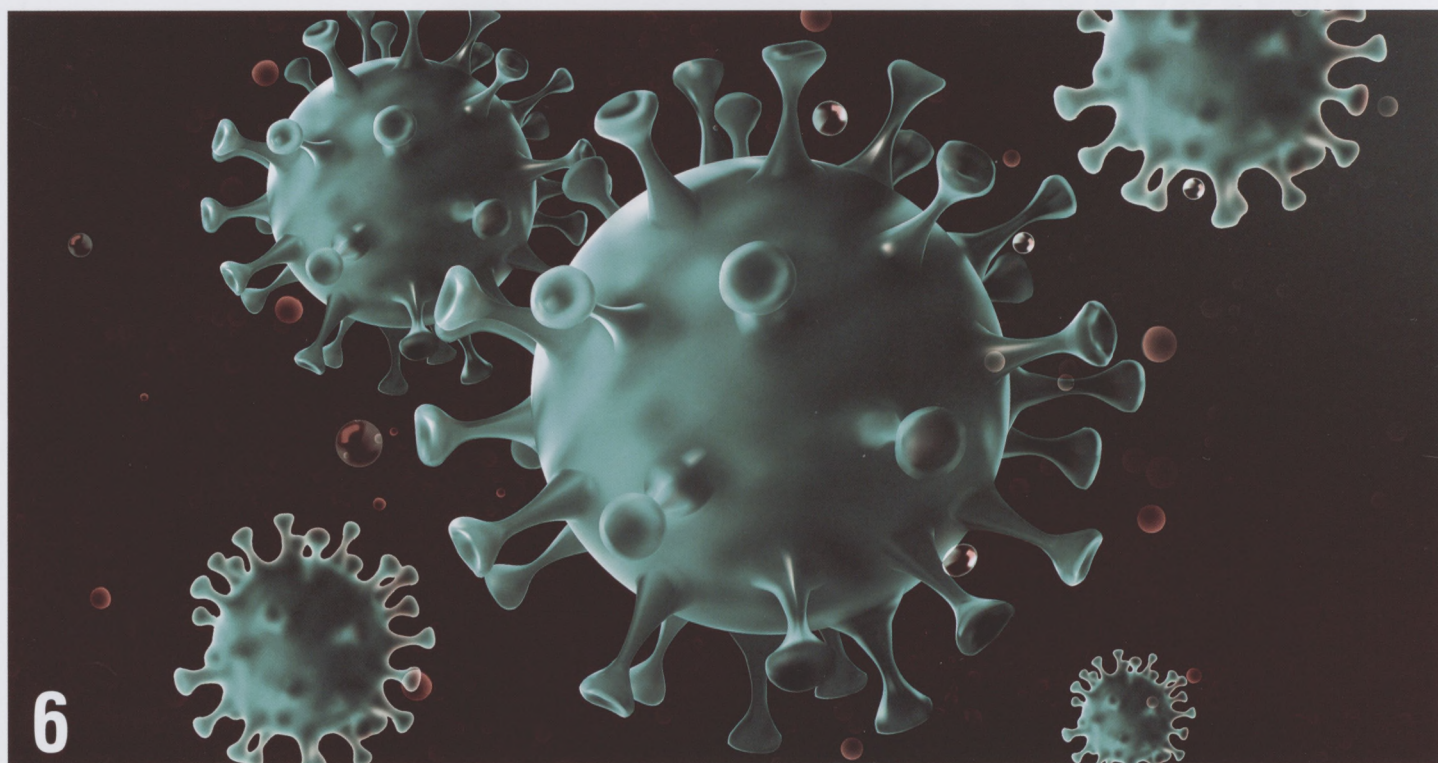
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COVER STORY LIFE IN LOCKDOWN

6

COVID-19 impacted every part of our existence in 2020, but for sports turf managers based in Melbourne it would prove particularly challenging. After the first lockdown in March, for an 11-week period between July and October the state capital was plunged into a Stage 4 lockdown which truly tested the resilience of all. ATM canvasses a range of Melbourne sports turf managers to see how they, their teams and their facilities fared during the two lockdowns, some of the lessons they learned and what challenges they foresee in the coming 12 months.

Cover: Novel coronavirus COVID-19 has affected every industry in 2020, including sports turf management. **Illustration:** Gilang Prihardono/adobestock.com.

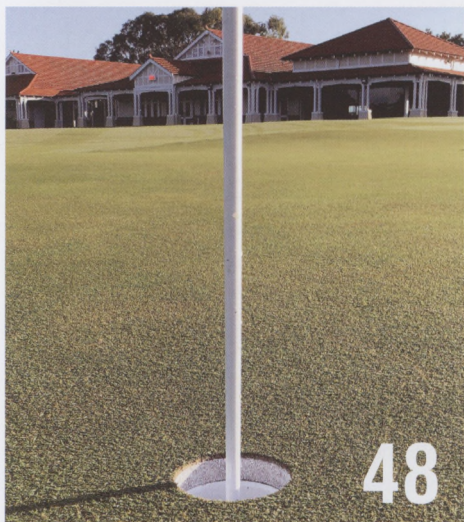


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We got there!

2 020 is done and dusted (collective sigh!) and no doubt all of us will be celebrating long and hard once the New Year ticks over. It has been a slog, but as the saying goes 'what doesn't kill us makes us stronger' and I think we will all head into 2021 having learnt some valuable lessons, not only about ourselves but the manner in which we approach our jobs. If there has been one thing to come out of 2020 it has been that we can never take anything for granted.

Flicking through this year's editions of Australian Turfgrass Management Journal (ATM), it is hard to believe that this time last year Australia was gripped by a bushfire crisis of unprecedented proportions. COVID-19, however, quickly overtook the headlines by February and with it all manner of changes as the industry adapted to a completely different way of operating.

For ATM and my colleagues at the Australian Sports Turf Managers Association (ASTMA), it meant working from home, Zoom meetings (Phil, you're on mute!) and doing everything remotely. My lounge room became magazine production HQ (and still is) and more than ever I have relied on the wonderful people in this industry to graciously contribute material in order to produce each edition.

In among the initial maelstrom wrought by COVID and the subsequent juggling of work and home-schooling commitments (I still have nightmares over the latter), I somehow managed to notch up my 100th edition as editor. Yes, Volume 22.2 (March-April 2020 edition) which featured UTAS Stadium on the cover, was the milestone edition. Quite hard to believe really...

That edition happened to carry our first coverage of the whole COVID saga and in this, our final edition of 2020, we lead with a look at how Melbourne sports turf managers navigated their way through two COVID-enforced lockdowns, the second of them an 11-week marathon which tested the resilience of all. As long-serving Medway Golf Club superintendent and VGCSA life member Col Winterton notes in the article, the pandemic will no doubt continue to provide challenges for the foreseeable future, but "as a group, turf managers are an innovative, problem-solving, can-do type of beast, so whatever comes we will prevail."

To all ATM readers and contributors over the past year, a very big thank you for your support and feedback during what has been one of the most challenging years I have witnessed for our industry. I hope the pages of this magazine have provided some momentary respite from the daily challenges you have all faced. Also a big thank you to our loyal trade companies and advertisers without whom we wouldn't have a publication. Initially when the pandemic hit there was some concern about how advertising would be affected, but pleasingly we have received tremendous support – actually an increase – which as an editor is very encouraging and speaks volumes of the strength and resilience of this industry.

Most of all I want to thank my colleagues at the ASTMA. Working remotely since March hasn't been without its challenges. Sure, I haven't missed the two-hour round commute to the office every day, but that disconnect with your colleagues has been acutely felt. As City of Kingston sportsfield coordinator Luke Armstrong poignantly notes in our COVID lead, "nothing beats the real life feeling of being surrounded by quality people and a dedicated team on a daily basis."

To end 2020 on a positive note, as this edition was being put to bed the news came through that ATM had been recognised at the annual Australian Golf Media Awards. Our story on former Townsville Golf Club superintendent Jason Foster (now curator at Townsville's Riverway Stadium) and his remarkable recovery from a horrific workplace accident which featured in ATM Volume 21.6, collected the 'Best long form story' category at the awards. A very nice way to cap off what has otherwise been a year to forget.

Have a wonderful and safe Christmas and New Year and I look forward to doing it all again in 2021. Enjoy the read...



Brett Robinson, Editor



A year that challenged all, but brought out the best

As an extraordinary year draws to a close, it's an opportunity to reflect on events and assess how much has changed over the past year.

This year has been referred to as a year of chaos, where almost every element of our daily lives were impacted to some degree or another. Whether it be impacts and changes to our personal or professional lives, it's fair to say that 2020 will be remembered for a long time and many of the changes resulting from restrictions and changing regulations will be with us for some time yet.

For the Australian Sports Turf Managers Association (ASTMA), the changes to restrictions and regulations resulted in the need to significantly adjust our way of operating. Despite that, I remain very pleased with the level of support we were able to provide when it was needed the most.

2020 also saw the induction of a new Board, with **Peter Lonergan** (Coolangatta & Tweed Heads GC, NSW) taking over the reins as president from **Brett Balloch** (Anglesea GC, Vic) in August. We also welcomed **Ben Tilley** (Headland GC, Qld) and **Damian Hough** (Adelaide Oval, SA) to the Board and with this change we have developed a clear approach to deliver on industry priorities for 2021.

One constant that changes very little from year to year are the challenges that summer brings with it for sports turf managers. Presenting a range of challenges already, this year is perhaps further compounded with long-term forecasts predicting either an exceptionally long dry summer or a very wet few months ahead, depending on which part of the country you are in.



Australian Sports Turf Managers Association

The previous months have seen golf rounds continue to increase right across the country. While this is a great sign for the sport as it bounces back from COVID, it does place further pressure on already stretched teams to manage their playing surfaces and conditions.

MEMBER FEEDBACK

The ASTMA recently completed a comprehensive member survey with a fantastic response rate. Members provided feedback on the activities and performance of the association, as well as a great deal of insight into the areas they would like to see us continue our focus into 2021 and beyond. (See page 34 for a summary of the survey results).

As noted in member feedback, one of the largest areas of concern for turf managers at facilities right across the country in 2020 is staffing. Both bringing new talent into the industry and the retention of qualified staff are high on the priority list to work through.

We started working with government departments in various states on this issue, with the first programme of work a range of sports turf management advocacy videos being released in Victoria. Further activities

across other states have been delayed due to COVID-19, however, the work will pick up again in 2021 to continue to attract talent into the industry and improving conditions.

Through a difficult year, the ASTMA has continued to undertake and deliver some great work and I would like to take the opportunity to thank the team for their stoic approach to continuing to support the industry through a trying 12 months. In addition to the employment videos, the team delivered a suite of initiatives, among them including;

- The launch of the 2020 Golf Course Sustainability Project;
- Becoming a signatory to The R&A's Women in Golf Charter;
- Completing an affiliation agreement with the US Sports Turf Managers Association;
- Delivering leadership development support for members;
- Embarking on the ANTEP 5 trial and couchgrass variety trial;
- Developing essential turf maintenance statements for sports turf facilities for State Governments through COVID;
- The development of the ASTMA Certification Program;
- In conjunction with the Australian Golf Industry Council, support was also provided for bushfire relief, research into golf participation and mental health;
- 2021 will also see the launch of the Golf Course 2030 programme which is being led by the ASTMA and Golf Australia.

As I have taken the opportunity to reflect, I am constantly thankful for the support we have received over the past 12 months. I therefore would like to take the opportunity to pass on our gratitude to each of our trade partners who continue to support us. Your assistance and collaboration are truly valued and the programmes we are able to develop and deliver to thousands of sports turf managers wouldn't be possible without your support.

Lastly, but by no means least, I would also like to thank the diligent and continually hardworking team at the association who push forward despite the challenges, collectively strive to deliver the best support possible and who all remain committed to taking the industry forward.

This year, more than ever, stay safe. 🙏



AGCSATech embarked on a number of turf trials in 2020, including a couchgrass variety trial recently planted out at Sorrento Golf Club, Vic



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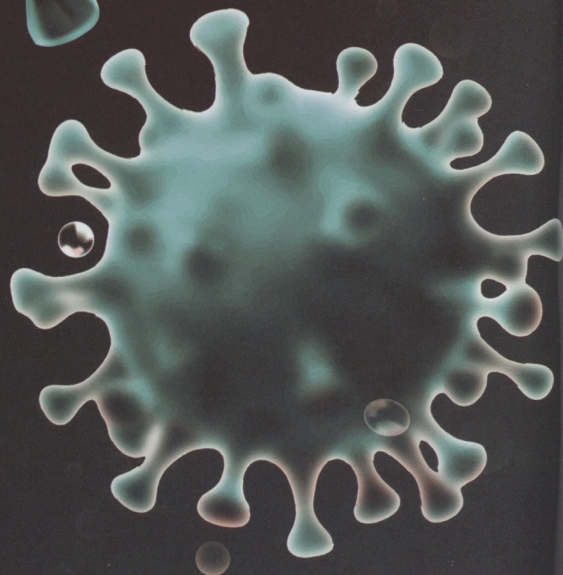
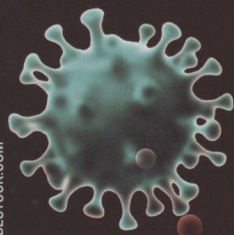
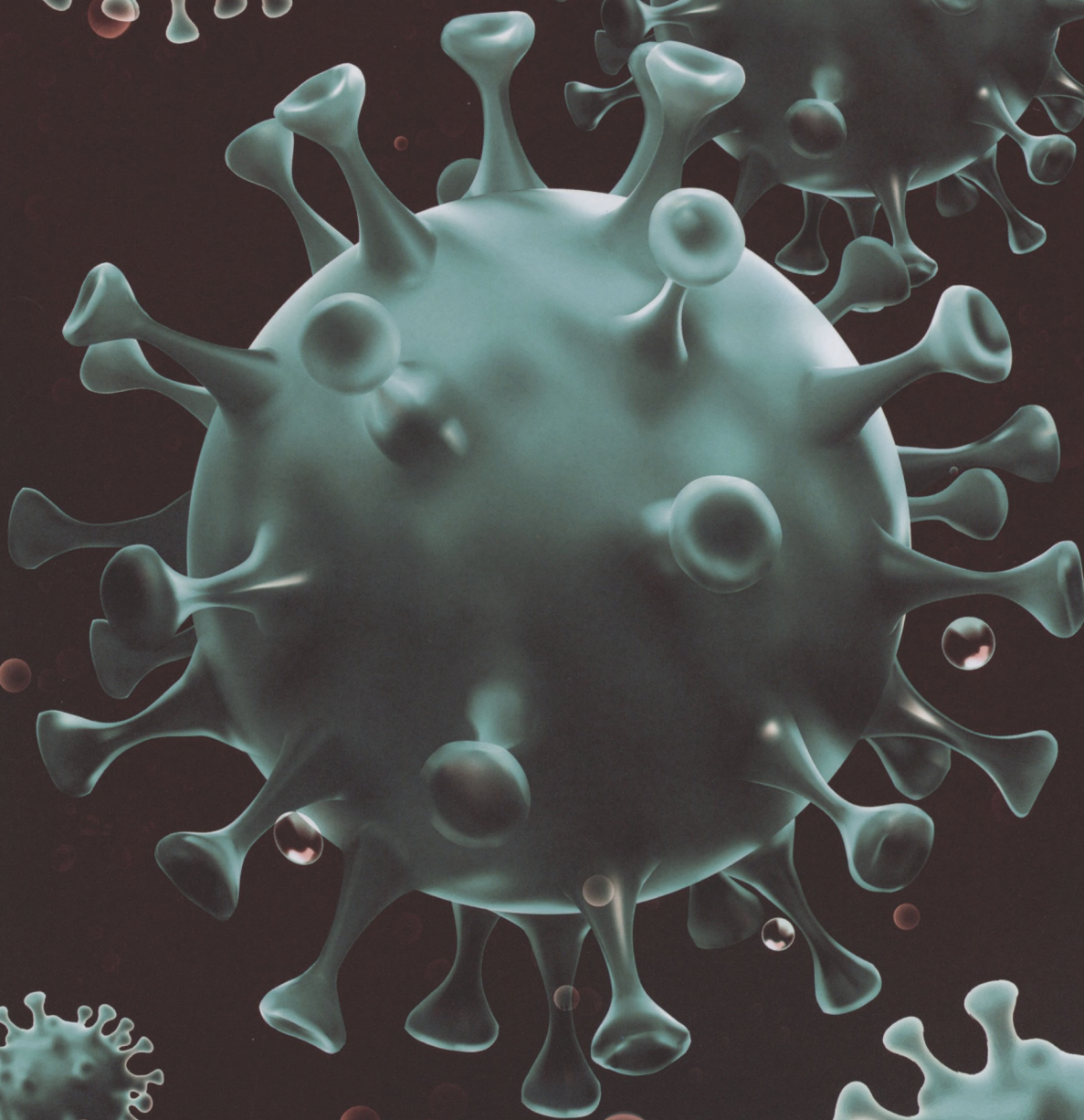
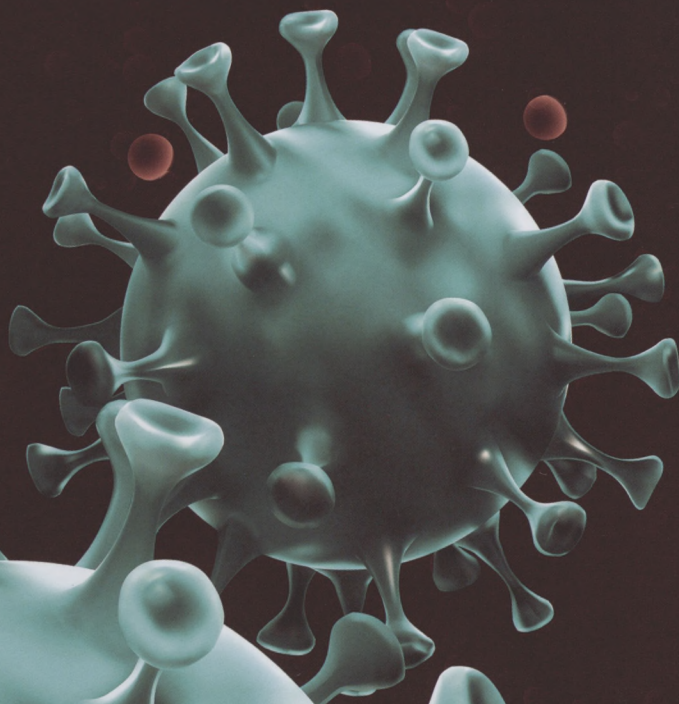
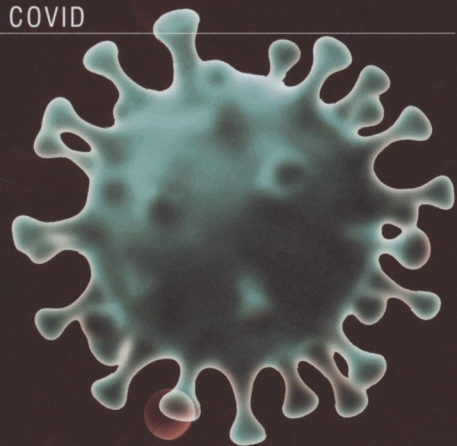
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®

COVID



Life in

lockdown

ATM canvasses Melbourne sports turf managers to see how they, their teams and their facilities fared during two COVID-enforced lockdowns in 2020, the lessons they learned and the challenges ahead.

C OVID-19 impacted every part of our existence in 2020, but for sports turf managers based in Melbourne it proved vastly more challenging. After enduring the first lockdown in March, for an 11-week period between July and October the state capital was plunged into a Stage 4 lockdown which truly tested the resilience of all.

The restrictions were felt differently by clubs and facilities, with some taking advantage of the situation to fast-track renovations or disruptive works/improvements, while others halted all major projects and simply concentrated on essential maintenance. Staffing structures varied from full staff and full-time, to others working just a few days per week and supplemented with annual leave or leave without pay. Casual staff were the first to be cut, with JobKeeper instrumental in keeping staff employed in many instances.

The pressure placed on sports turf managers has been immense, not only having to worry about their course/facility but also their families, their mental health and that of their entire staff. If there is one thing COVID has highlighted it is that adaptability and resilience, the hallmarks of any good sports turf manager, have never been more important.

To see how they have fared through two COVID-enforced lockdowns, ATM canvassed a number of Melbourne sports turf managers to see what lessons they learned out of it, the differences between the two lockdown periods and what they see as the key challenges for their facility in the coming 12 months. We also ask Royal South Yarra Lawn Tennis Club chief executive and former Huntingdale Golf Club general manager Stewart Fenton to provide some thoughts on the opportunities for clubs going forward as the industry heads into 2021.

MATHEW FITZGERALD

Assistant Superintendent, Ringwood Golf/Maroondah City Council

"I think the key lesson from 2020 was learning how we can be more efficient. We've restructured our hours out of necessity to split the work teams up, but are now finding we are much more productive by only having the one break during the day and scheduling our second break for the end of the day, allowing the team to go home earlier each day.

"Some positives out of the lockdown also related to efficiency. We now run a lot of our catch-up meetings online using Zoom instead of eating up valuable time physically going



PHOTO: PAUL LOCKE

After three months of no patronage, the normally heavily utilised public access Freeway Golf Club was looking immaculate ahead of golf returning in October

to meetings. While it's not always practical, hopefully this continues into the future. I also think lockdown gave us a real chance to revisit many of our programmes and practices. It is interesting to see and hear comments from golfers and other people in the industry saying how play is moving faster by not taking out flags, using pool noodles to stop the ball dropping into the cup and even how the work we do raking bunkers isn't really necessary.

"I think in the second lockdown we were more prepared and had more of an idea of what we could and couldn't do. We were able to work right through and we even had some staff from other facilities redeployed to our team. Being restricted to work teams made it tough as we were limited to working with the same people for the whole period. We normally rotate our apprentices around our golf and sportsfields teams and during this period we had to stop that. I think the biggest challenge was keeping the team motivated and productive while also keeping up to date with the never-ending stream of paperwork, documents, log books and work permits.

"We've been lucky to retain the same staff levels, however we have had a couple of staff move on and instead of recruiting permanent staff we've been asked to put casuals on until the end of March as there is a recruitment freeze. Given the nature of our work and this being the busiest time of the year, we will run fewer numbers from March to September 2021 to do our bit for the organisation.

"Budgets have also taken a hit as some of our other sporting facilities, such as the pools and gyms, were closed only until recently. We have had to revisit our budgets numerous times and make as many savings as possible. This has seen us need to source different products and reduce or eliminate some of our programmes, but so far there hasn't been a negative impact to the playing surfaces.

"On the plus side we are now seeing numbers of golfers on the course that we haven't seen since 1998, so that will help with the financial side of things. The biggest concern of course is if we see the return of the virus in 2021. I guess all we can do is make hay while the sun shines."

CAMERON HALL

Superintendent, Kew GC

"Without a doubt 2020 has been one of the most challenging years I have dealt with as a superintendent. The thoughts of potentially having to let staff go if restrictions didn't ease was always in the back of my mind and knowing how these decisions would impact on people's lives was a hard thing to deal with. Usually coming into summer I am refreshed after a break over the winter, but this year I feel like I have been through a summer already.

"The second lockdown was different to the first which almost seemed like a novelty. At some stage in our careers we have all wished to work on a course with no golfers and this enabled us to complete all our capital works for 2020 during the first lockdown and have the course in a really good place leading into winter. The second lockdown, however, was glummer with reduced staff numbers, essential maintenance only for the majority of it and a real sense of apprehension about how long we could continue to operate like this as a business with no income coming in.

"The lockdown was of great benefit to our turf quality with the period of no play enabling areas that take high amounts of traffic the chance to recover. We also took the opportunity to be quite aggressive with our Poa control. With no golfers on course, the risk of tracking was greatly reduced. We went early (early September) with an aggressive renovation on the couch which has produced great results, while we also verti-drained greens fortnightly through the second lockdown and got a number of extra dusts onto the surfaces.

"Without a doubt the financial side will be the biggest challenge moving forward. The



Kew Golf Club took the opportunity to aggressively dethatch their couch fairways during the second lockdown

loss of corporate golf days, weddings and functions has greatly affected our bottom line and we need these to return to enable us to get staff numbers back to what they were plus return the cap-ex purchases."

LIAM O'KEEFFE

Racecourse manager, Flemington

"It was certainly a very different Spring Carnival this year. We have been crowd-free since March, but despite that it didn't really affect our work that much. We have been fortunate that racing has continued all the way through which has really helped the industry and kept everyone employed.

"In the first four months of COVID we went down to a skeleton staff – about 60 per cent – but by August we were back to pretty much a full crew with the exception of about six casuals. To cover that a bit we used some head office staff who were stood down early on who worked with us on race days. It was great for them as they got to see a different side of what we do and gave us an extra set of hands on the track."

SAM HEWITT

GM operations and capital, City of Darebin

"The big lesson to come out of lockdown was how important open space is to our community. The big increase in use did put pressure on the grounds but we were thrilled to see our community loving their use in new and creative ways. We learnt it's possible to manage our turf operations at a reasonable capacity remotely, across administration, contractors and staff. We had good operational turf programmes in place pre-COVID, which proved valuable when staff needed to operate without the usual level of direction. We also learnt the need to be prepared for significant change at short notice.

"Darebin Council didn't stand down any staff during lockdown. Staff were redeployed in other roles and were super flexible and willing to have a go at a range of duties. Our staff were allocated to online training and other computer-based work which has been good to expose staff to new skills and opportunities.

"With sports clubs losing time on the pitch over the lockdown period, we need to balance

the demands of winter sports playing catch up while summer sports get underway. The extra demand also places strains on our grounds."

MARK FINDLAY

Superintendent, Sanctuary Lakes GC

"Respecting each other more and communicating a lot more were the key lessons we learned at Sanctuary Lakes. I think the first lockdown was harder because it happened so quick, but all you can do is communicate with the staff and make sure you understand their needs. I think the second lockdown was easier because clubs had JobKeeper in place and we all knew what to expect and what the working conditions were.

"Budget-wise we are doing okay and we saved a lot of money by doing renovations during lockdown ourselves. Staff levels are back to normal and we have even recently put on an apprentice and a casual. Without doubt one of the big positives of the lockdown was staff training. We were able to teach staff new jobs and they are all now capable of operating any machine which provides greater flexibility."

COREY BUDDEN

Superintendent, Sandhurst Club

"Prior to JobKeeper our courses at Sandhurst were put into 'caretaker mode' meaning only one person per nine holes and no more than four guys on site on any given day. Once JobKeeper came in everyone breathed a sigh of relief and all staff (except casuals) were able to return. The lockdowns were very hard especially for the younger guys who normally work hard and then need to let their hair down on the weekend. It was a mundane existence for a period. The constant reminding of the crew to wear all the PPE was challenging at times. We had to be very vigilant as at Sandhurst there are 1300-plus houses watching our every move!

"Not originally being from Victoria, the second lockdown was devastating, especially having to put up with my friends interstate constantly filling their Facebook feed with them having fun. I was that bored I mowed my lawn every week! On the course things weren't as bad as the first lockdown as we knew what to expect. I had a long list of course improvement works and the club was great and very supportive of all these projects.

"Post-lockdowns we have seen over 300 new members join the club. We were very fortunate that our subs were due on 1 March so we had that money for projects. The club will be offering discounts to members for 2021 to compensate for lost golf in 2020."



In the first four months of COVID, the track crew at Flemington went down to a skeleton staff – about 60 per cent – but by August we were back with racing continuing throughout the year

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PHOTO: LUKE ARMSTRONG



From a turf management perspective, a major challenge over the next 12 months will be managing increased thatch levels on sportsgrounds due to no usage over the winter months

TRAVIS SCOTT

Superintendent, Riversdale GC

"I think we all as staff have been very grateful to the club for being able to come to work when so many have been out of work or had to work from home. It was actually great for the staff's mental wellbeing to be able to have that normality of coming to work when the world was changing nearly weekly.

"The second lockdown was a little harder to navigate; staff were getting frustrated. Splitting the crew into teams and balancing start and finish times was certainly challenging. We brought in a temporary lunch room to ensure we were social distancing. The club reduced the staff's hours for a few weeks initially and it was then decided to complete course renovations prior to the return of golf to ensure no restrictions on play and from then we have worked right through.

"The biggest lesson for me was to only worry about what you can control. There's no joy in watching the Premier's daily press

conference in the hope that something will change. Presenting a positive outlook each day to the staff went a long way to keeping them engaged and motivated. The staff were offered to participate in a mindfulness/wellness programme which a few participated in. Personally, it certainly was difficult at times, juggling home-schooling and a partner that works in the health industry. Mindfulness assisted myself through this along with being able to come to work.

"The course has certainly benefited from the lockdown. We are a busy club and we have seen development in turf and out of play areas that we haven't seen before. I think golfers are generally appreciating the course a little more and we have seen improvements in pitch mark and divot repair.

"Managing our staffing levels will be the big challenge going forward. We are still seeing good staff leave the industry to move into other fields. It's quite worrying and the bottom line is it's about wages."

PHOTO: LUKE ARMSTRONG



NIALL MARTIN

Coordinator - sportfields, reserves and capital works, Knox City Council

The second lockdown was more difficult due to tighter restrictions and staff felt it more. Our connectivity was much improved the second time around, but the face-to-face disconnect from the field staff was extremely difficult. Working from home while the team were in the field was difficult, as was having school-aged children around if a report was due or a meeting was in progress!

"Lessons learned? Expect the unexpected and prepare surfaces that can withstand two weeks' neglect. It would appear that the virus will be around for a while, so pandemic response now becomes a normal part of business. Working remotely and connectivity also become critical components of the operation. We are using Surface Pros to ensure staff connectivity is easier and team meetings will continue in this format. Irrigation systems across 67 fields are being converted to cloud-based operation. This would be vital if a lockdown occurred in warmer months."

DAVID JOHNSON

Superintendent, Patterson River GC

"I'm not too sure if there have been any lessons except that you can't be complacent and take your jobs for granted. The future isn't always rosy and things can change at any time in a flash as we have all found out. Planning for events and staffing levels certainly got thrown out the window and placed us all under a bit of uncertainty. It was the first time I have ever felt this way about my future and my career.

"For us the first lockdown was completely different to the second lockdown. In the first lockdown we took advantage of having no golfers on course and we started our Course Master Plan, so in a sense we were more productive. All staff were working normal hours with the golf club supplementing our wages, so there was little effect to our hip pocket. The second lockdown was completely different. We were working at JobKeeper pay rates and shortened hours with no wage supplement from the club. Minimal work was done just to keep the golf course ticking over with two split shift teams working roughly five hours per day.

"I think the key challenges heading into 2021 will be around budgets. Cash flow was next to zero during lockdown so I'm not too sure how this will affect my budget yet. There has been one massive positive side to all this – we have had a huge influx of new members and have reached membership numbers we

Despite an altered maintenance schedule and the requirement to only deliver essential works, the Kingston City Council sportsground team had a very busy period getting their grounds in top condition ahead of restrictions being eased

haven't seen in years. But this now presents its own challenges with traffic on the golf course being at incredible daily numbers. It does make it a bit more difficult to get things done, but I'd rather take that than the past few months of uncertainty."

KYLE WILSON

Superintendent, Moonah Links

"As we had casuals replace full-time staff in the latter half of last year, when COVID hit we had four staff that did not qualify for JobKeeper, so unfortunately that put a dent in numbers. When the subsequent restrictions took full effect and due to the split shifts, we only had 4-6 staff present at the same time over 36 holes. We also changed to a rolling six-day roster and had to focus more than ever before on prioritising jobs.

"With our business also reliant on hotel accommodation, we have taken a financial hit on both sides. As a result our budget has become almost non-existent as all departments have had to be mindful of COVID's economic impact, with spending only on an 'as need' basis. We may require a good summer for business before we are getting close to the staff numbers we feel is acceptable.

"With a reduction in staff numbers and split shifts, keeping staff motivated and engaged was certainly the hardest facet of the



"It was great for the staff's mental wellbeing to have that normality of coming to work when the world was changing nearly weekly." – Travis Scott, Riversdale GC

lockdown. Even simple things like not being able to share the lunchroom and the banter that goes on and having to forego the Friday frothies created a disconnect.

"The challenges for us going forward will definitely be staffing, budgeting and replacing machinery. We are going to have to be even more resourceful than we already are. As an aside, I think more clubs should be working in with each other, with possibly regional meetings with other course managers to share staff for respective projects. It would be a great learning experience for the staff members involved, improve morale and complete projects that might not otherwise get done."

LUKE ARMSTRONG

Sportsground coordinator, City of Kingston

"Having a flexible, adaptive approach with a situation as uncontrollable as COVID has been important. Always make the most out of a negative situation and utilise maintenance downtime to focus on capital projects and other tasks that often get forgotten. Focussing on staff welfare and team morale has also been important.

"During the Stage 4 lockdown we had to identify and make a call on 'essential' tasks, ensuring council led from the front while also delivering adequate maintenance so our open spaces continued to meet high community expectations. This was certainly a challenge and open to interpretation depending on who you spoke to. Mowing was reduced to a monthly cycle, ground change-over tasks were

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delayed and the team worked in isolation for a two-month period, minimising the sharing of vehicles and equipment. Spring renovation maintenance tasks were delayed until after lockdown restrictions had eased. The focus turned to reactive/emergency works with safety and auditing of assets a priority.

"Operations had to become more fluid with greater flexibility shown as the landscape was changing daily. The most challenging aspect was working from home and losing that face-to-face connection with staff and community stakeholders. Online meetings don't have the same connection and nothing beats the real life feeling of being surrounded by quality people and a dedicated team on a daily basis and feeding off that.

"From a turf management perspective, a major challenge over the next 12 months will be managing increased thatch levels on our sportsgrounds due to no usage over the winter months. With this comes an increase

in disease activity which has already come to realisation on some grounds. One major concern is managing stakeholder expectations moving forward. Hopefully summer tenant clubs don't expect the immaculate fields they were handed over in November this year all the time!"

COL WINTERTON

Superintendent, Medway GC

"2020 has taught us to be flexible at a moment's notice. We held key meetings with management to outline non-negotiable course management issues (greens programmes and maintaining staff numbers) and then forsake all other issues as the club assessed its likely impact. As a group we worked alone, ran separate meal breaks, sanitised everything that moved or looked like it had moved and stuck to our COVID-safe plan. Upon reflection we were pretty safe – 50 hectares, six staff and no golfers.

"During the first lockdown we sought to maintain the course as normal, albeit with less frequency and with limited staff. It was challenging but achievable. The second lockdown was much more difficult, as there seemed to be no end in sight. Staff morale during the first lockdown remained high, but with the second all issues in and out of the workplace seemed to compound and a few heads were down. As government financial assistance arrived we found that we could have more staff on site and as our membership backed the club by fee paying even while not golfing, we found ourselves in a position to commit to some course works which gave our members a lift when they returned.

"Going forward, if this thing hangs around there may well be some sort of limitations placed on us all, hopefully minus the severity. As a group, turf managers are an innovative, problem-solving, can-do type of beast, so whatever comes we will prevail." 🙏

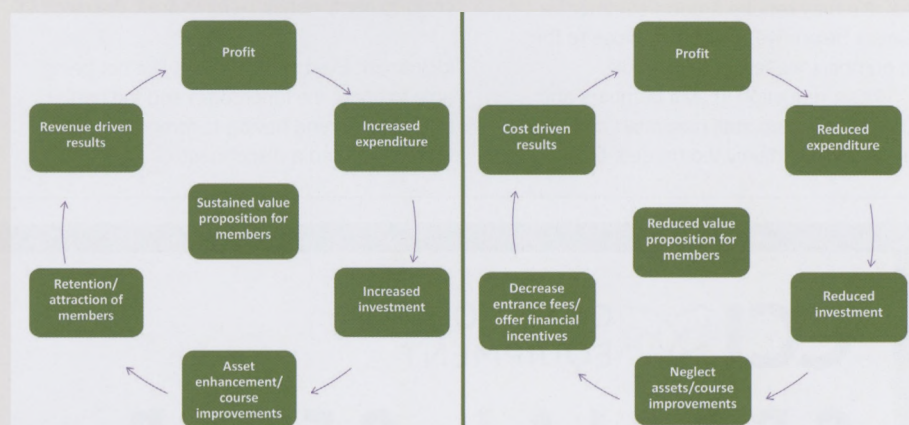
A ONCE-IN-A-LIFETIME OPPORTUNITY FOR CLUBS TO RESET

What a challenging year 2020 has been, not just for our clubs but for all working in the industry. It has certainly created some mental challenges with the uncertainty around the sustainability of our clubs and COVID's impact on jobs. As has been well reported, golf during and post COVID has experienced a boom in membership and increased rounds which is great news.

When I spoke at the Jacobsen Future Turf Managers' Initiative facilitated by the ASTMA back in March, I made the comment that I felt the industry was going to get a once-in-a-lifetime opportunity to reset. Clubs can either grab this opportunity with both hands and create a business model that is sustainable for the future, or fall back into the trap of just doing what it has been doing and continue the rollercoaster ride (peaks and troughs in financial performance) that many clubs have experienced in recent years.

For most clubs the increase in membership income has been much stronger than the associated but significant falls in visitor, corporate and food and beverage revenue. Together with significant government financial support (e.g.: JobKeeper) and it is fair to say that the large majority of clubs are in a stronger financial position right now than they would have expected to be back in March. Against this backdrop, golf courses, generally speaking, are in great condition and this has been common across the industry.

So when I say reset the bar, what do I mean? To answer this question, I would refer to the accompanying diagrams which I call



Sustained Value (left) vs Reduced Value (right) proposition models

'value proposition models' – the Sustained Value Proposition model (left) seen generally in successful clubs and the Reduced Value Proposition model (right) seen generally in struggling clubs.

COVID has provided clubs with a simple choice to make. They can follow the route generally followed by successful clubs time and time again, or they can revert back to what I have been seeing far too often in golf clubs in more recent years, which leads to a downward spiral of struggle for so many clubs across the country.

Believe me, the difference between following the Sustained Value model as opposed to the Reduced Value model has a major impact on member retention, member satisfaction and continuous improvement in your club's offering out in what is a highly competitive marketplace.

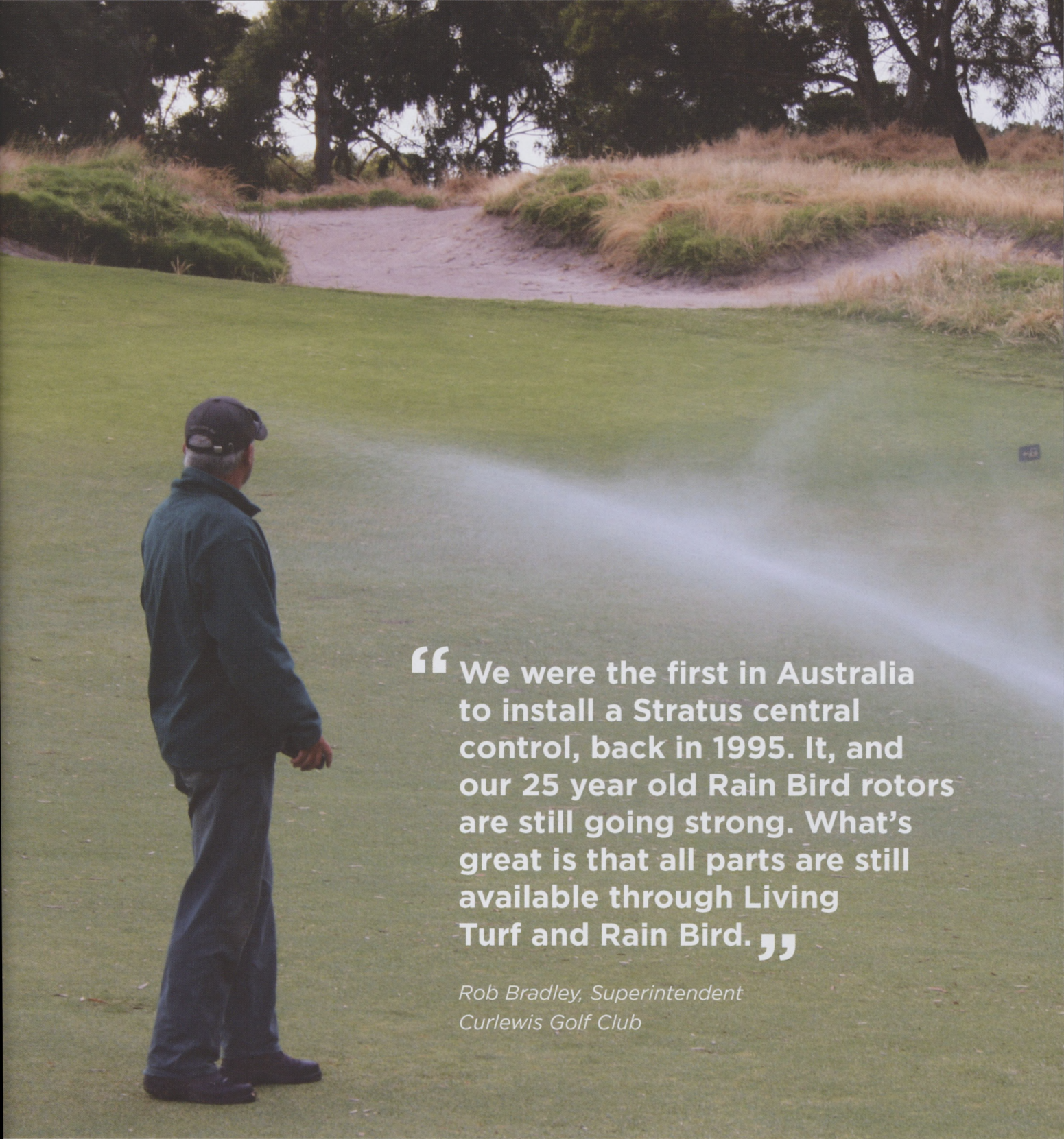
I would encourage all to speak openly to your managers and boards about what you

have learnt throughout this pandemic and the vision for the way forward. The improvements in the quality of the golf course has not happened by chance; they have happened off the back of being proactive.

The challenge for boards is to take this opportunity with both hands – to reset, establish a clear vision and strategy for the club, to listen and actively engage with their leaders (the general managers and superintendents) in developing realistic goals and then providing financial (budgets) and other resources (staffing, access etc) that will allow the management team to deliver revenue-driven rather than cost-driven results.

This is the time for bold decisions, strong leadership, ongoing investment in the future sustainability of the club and a clear understanding that boards are the custodians of the club for future generations.

– Stewart Fenton, CEO, Royal South Yarra Lawn Tennis Club



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*Rob Bradley, Superintendent
Curlewis Golf Club*

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Public course, **private pedigree**

Opening in November, the new-look Sandringham Golf Links is the centre of attention in more ways than one. Royal Melbourne director of courses Richard Forsyth looks at the redevelopment of the public access course which forms part of the soon-to-be completed new home of Australian golf in the heart of Melbourne's Sandbelt.



Sandringham's new 13th hole runs parallel to Royal Melbourne's 15th West (seen through the other side of the tree line). Royal Melbourne has maintained Sandringham since 2010 and it is now referred to as the 'North' course as part of its maintenance operations

The opening of the new 18-hole Sandringham Golf Links on 24 November 2020 was a significant milestone in the Victorian Government-backed Australian Golf Centre development. The reconstruction of the existing Sandringham public course, which sits adjacent to Royal Melbourne Golf Club, started back in May 2019. It is part of an overall \$18.8 million redevelopment of the site which will see it transform into the new home for golf in Australia, with both Golf Australia and the PGA of Australia to be headquartered there once finished.

Reconstruction of the golf course was completed in two stages over the past 18 months, with Stage 1 encompassing the most work. That stage consisted of nine holes, a new irrigation system, increased irrigation water storage, a 350-metre driving range with target greens and Golf Australia's high-performance tee, short game and target green zones. Stage 1's nine holes opened for play in January 2020 with the second nine-hole reconstruction (Stage 2) then beginning.

The construction of the building component is due to be completed by June 2021. This will include office and administration space for both golfing bodies, a café/golf operations facility, gymnasium, putting lab and three teaching labs, physio treatment rooms, lecture theatre and a 30-bay undercover driving range with public access. Once building works are closer to completion, a 3500m² 'Himalayas style' putting green will also be finalised. Located at the entry to the Australian Golf Centre, it will provide a unique setting as people come into the facility.

UNIQUE PROJECT, DESIGN

Since 2010, Royal Melbourne Golf Club (RMGC) has held the head lease agreement



Sandringham construction superintendent Nic Staff

for the Sandringham property from Bayside Council and been responsible for maintenance of the course. The operation was initially run separately, with some hiring of maintenance equipment from the RMGC fleet. Following completion of the new RMGC maintenance facility in 2016 and the need to upgrade compliance of the facility at Sandringham, it was decided to integrate the operation into the RMGC facility.

As part of the Australian Golf Centre project, RMGC has had the unusual circumstance of being both a client and a contractor to the project. As the operator of the course and facilities, the club was a client of the project, but as a provider of services for the construction of the golf course it was also a contractor.

Ogilvy, Cocking and Mead (OCM) provided design and construction services, but RMGC were contracted to complete tree removal, final preparation works, grassing and grow-in. Initially a price was given to provide labour, equipment and grassing services to complete the 18-hole development. This was in the form of a fixed price contract, with provisional amounts for irrigation water and drainage, charged to the project monthly upon percentage completion.

Early in 2018 and with the project start imminent, Nicholas Staff was appointed from the RMGC links team as construction superintendent and all staff were appointed under the RMGC banner. Labour was charged back to the Sandringham operation, or in the case of construction work charged back to the project. This created a need to accurately track labour allocations across all three courses and the development project. The taskTracker system has proved very helpful in allocating and tracking resources and charging to the relevant cost centre.

To achieve a modern driving range length and width requires a significant area of land which basically encompassed the footprint of the 1st and 9th holes of the original Sandringham layout. Mike Cocking was the lead architect from OCM and developed a new layout to achieve the desired 18-hole format on the remainder of the site. The end result is a par 65 layout measuring 4875m off the back tees and 4290m off the front.

SANDBELT CHARACTERISTICS

Stage 1 works involved the holes where most significant change was needed to achieve the design. This included orientating holes 1, 2 and 3 in a different direction, while sections of 15 and 16 were moved into land previously not part of the playing area of the original holes.



PHOTO: GARY LISBON

The opportunity to redevelop the Sandringham public golf course as part of the Australian Golf Centre project has provided a chance to embrace its location in the heart of Melbourne's famed Sandbelt region. Pictured is the new par three 12th green complex



Stage 1 works saw Sandringham's existing irrigation dam expanded from 15ML to 30ML



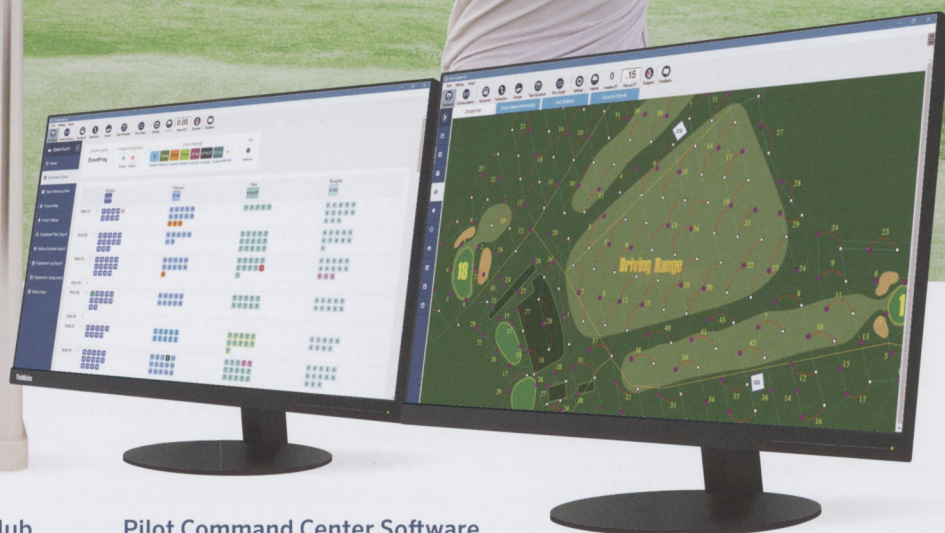
OCM's Nick Henry mines sand from the 11th hole

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PHOTO: GARY LISBON



In order to provide consistency between Royal Melbourne's two courses, the new Sandringham course boasts Suttons Mix greens and fine fescue surrounds

Other holes were split to create two holes where there was previously one. Stage 1 also required the construction of Golf Australia's high-performance programme training zones. This all meant that Stage 1 would have the most work involved, whereas Stage 2 primarily orientated holes through the existing corridors with new greens, tees and bunkering.

The opportunity to redevelop the course was a chance to embrace its location in the heart of the Melbourne Sandbelt region. To have a public access course nestled between Royal Melbourne and Victoria golf clubs was a unique opportunity and this desire certainly influenced Mike's design and style of course.

Although the location of the property suggested deep dune sand conditions, the reality was only 50 per cent of the site presented the sand profile ideal for constructing greens and bunkering. The budget was arranged on the basis there would be no importing of sand required, but sand mining and relocation within the site was required to provide the necessary sand volumes for construction. As can be seen in the photo at the bottom of the previous page, the grey sand mined from the surface was used for greens and bunkers, with some of the brown sand deeper down used on tees.

In addition to mining sand, the subgrade for four greens on the course and the practice putting green required drainage. In general, the central higher areas of the course have the deepest sand, while the flatter ground to the east and west consists of heavier soil with clay at the surface.

Discussions about utilising parts of the existing irrigation system and renewing only on the holes that changed completely were short lived and fortunately funding of a full replacement system was forthcoming. Superior Green won the contract to install a new Toro hub system which has back-to-back heads on the greens and full circle valve-in-heads on the fairways. The central control is wired back to the RMGC irrigation room.

A shortage of irrigation water is a perennial summer issue at Sandringham so the Stage 1 extension and improvements to the existing dam were important in taking capacity from 15 megalitres to 30ML. The existing stormwater harvesting system produced higher volumes than could be stored so the extended capacity will prove beneficial although likely to still fall short during extended dry summer periods.

KEEPING CONSISTENT

Both the Sandbelt nature of the new design and the integration of the operation with RMGC

influenced the grass selection process. The previous course was very low maintenance with predominantly bentgrass greens and kikuyu/couchgrass fairways and tees. There was no budget or appetite to convert to couchgrass fairways, so any reinstatement of fairway areas was a combination of seeded couch and coring of existing areas spread into the cultivated ground.

The greens grassing decision came down to either one of the latest creeping bentgrasses or RMGC's famed Suttons Mix. We decided on the latter for consistency with the maintenance at RMGC to keep similar practices and versatility with mowing and rolling equipment. The potential options for *Poa annua* control was a factor along with lower inputs, in terms of topdressing and cultivation requirements, favouring the Suttons Mix selection. There were some concerns about its resilience to withstand the level of traffic, but at this early stage all indications are positive.

Several of the greens were treated with Basamid prior to seeding, particularly those that were being established where previous green profile material was used which had potential *Poa annua* and couch contamination. The greens were hydroseeded at a rate of 750 grams per 100 square metres by veteran hydroseeder and part-time comedian Michael Riordan. We were delighted with the establishment of the greens, even those sown in June and July. They have quickly produced a quality putting surface and display all the firmness and trueness of their more mature siblings on the south side of Cheltenham Rd.



Hydroseeding the fescue surround on 18 after first seeding directly into the soil. A barrier was installed to achieve a hard line between seeding the bentgrass green and fescue surround

The fine fescue surrounds were considered necessary to keep a clean buffer between the greens and kikuyu surrounding. The issue of wear in the high traffic areas was a concern with the fescue as well, but hopefully this is offset by the opportunity to selectively remove both *Poa* and kikuyu.

One of the important learnings of establishing the fine fescue was to maximise soil contact. We seeded at 4kg/100m² split in two. The first 2kg was broadcast via a spinner and drop spreader and dimple rolled into the sand. The second 2kg was hydroseeded over the top. Again, we were very happy with the results from this method and it assisted in getting the normally slow-to-establish fescue up to maturity in a short space of time for opening.

Stage 1 tees were sprigged with Santa Ana couchgrass in October 2019 for the January 2020 opening. The options were limited for Stage 2 tees with establishment during September for a November opening. We therefore decided to seed with a ryegrass/fine fescue mixture, using the Barolympic variety of rye. Although not ideal having two different grass varieties for tees, it is giving us a chance to assess the value of one over the other in the high intensity public golf tee space. At some stage in the future we will either overseed the couch tees with the rye or overplant the couch into the rye.

CUP THEN COVID

Hosting the Presidents Cup in December 2019 was a significant challenge we needed to consider in our planning with the Sandringham project. Establishing new fairway areas, greens, tees and surrounds and then opening



PHOTO: GARY LISBON

The construction of the building component of the Australian Golf Centre project, including a 30-bay undercover driving range with public access, is due to be completed by June 2021

the site up to parking 5000 cars, the main tournament village areas and entry for up to 30,000 spectators a day was a significant risk, but one the team managed to achieve with great success.

Following the pack up of the tournament infrastructure, we had four weeks to concentrate on getting the Stage 1 holes ready to go for their January opening. Fortunately, the dry conditions in the lead up and during the Presidents Cup kept damage to a minimum. If we had experienced wet weather it could have been a very different story. The construction of the range target greens and bunkering was delayed to give the maximum area of level ground for the PGA Tour to establish the spectator village and entertainment area.

In the time since the start of construction in May 2019 we have worked through the Presidents Cup impacts and then two COVID-

19 lockdowns. Other than the financial impact, the lockdowns worked in our favour with getting heavy topdressing onto the new greens and surrounds without the pressure of play. It also allowed better interface of the construction site holes and the holes in play, allowing machinery and finishing works to move more freely between the two areas. Controlling the interaction of the public with the construction site during both stages required significant temporary fencing which then had to be relocated every time irrigation or earthmoving needed to connect from one to the other.

Waypoint are the project consultants and project managers. Barb Gaiotto is the project manager for Waypoint and has done an amazing job from planning applications, consultation with community groups, assisting us with our contractual requirements and coordination of all of the various contractors



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REDEVELOPMENTS

and sub-contractors. 2construct were our contractors for the civil works on the water storage enhancement and subsequently the successful bidder on the building construction.

There remains much to be done by our team including the landscape planting surrounding the building, the Himalayas putting green establishment, additional tees for the high performance area and the lawns surrounding the building. However, in comparison to what has been achieved to date this will be relatively straight forward.

There is much to be done in the vegetation space with the current situation very degraded and in many places engulfed by invasive weed species. We have a multi-year plan to progressively remove the undesirable species, cut back laterally growing tea tree and replant with indigenous plants, using some of the heathlands at RMGC as inspiration.

Part of the planning approval was for 600 trees to be planted back into the site which has been done. Most of this planting was done in newly-created spaces between holes and around the boundary, but the future will focus on the existing areas and develop small pockets each year. RMGC horticulture foreman Stuart Moodie has already started some work with immediate impact. This is the area of the course which will have the biggest upside going forward and will really enhance the golf course features expertly constructed by Mike Cocking and shaper Nick Henry.

PEOPLE POWER

Construction superintendent Nic Staff has directed the project for our team with outstanding results. Relatively inexperienced as a supervisor prior to this project, he has adapted and learnt on the job dealing with all of the complications of contractors, management, project managers, staff, changing conditions, timelines and budgets in a calm and controlled manner. He was



The Suttons Mix on the 3rd green after six months

assisted initially through Stage 1 and much of Stage 2 construction by foreman Darcy Jones who has now rotated to the East Course with Geraldine O'Callaghan now in the 2IC role at Sandringham. Gerri has returned to that role after being in the same position on the East Course for several years.

All RMGC staff have rotated through the tree removal and construction phases, doing an excellent job through at times difficult circumstances and aggressive timelines. Our arborist Tom Walsh handled the daunting task of tree removal without incident. Mark Stravato, our skilled equipment manager, has dealt with the changing requirements and harsh environment for the equipment through construction with his usual adaptable and professional manner.

There have been many hours of planning, budgeting and managing of the project. Paul Thomas (West Course superintendent) and

Craig Anthony (East Course superintendent) have taken more responsibility for managing their own courses during my shared focus with the project and I thank them both for dealing with the various issues when I was not so accessible.

Overall, our staff have overachieved in the past 18 months. To take on the reconstruction of a golf course in the middle of preparing for a Presidents Cup was an ambitious plan, but in the end the team have delivered both an excellent tournament presentation and a project on time and on budget, an outstanding effort from all. I am very proud and very much appreciate the efforts from all. The club and all of the interested parties are very appreciative of the effort from all contractors and staff to deliver this exciting combined public access and elite player facility.

As we move into the maintenance phase, the new Sandringham Golf Links will continue to evolve. Although up weighted from the previous budget, the resources specific to Sandringham remain tight. We expect as the 18-hole income returns and the public driving range comes online, we will be able to reinvest more resources into the course.

At present we operate the course with six full-time staff rotated from the RMGC team. The consumables are taken from RMGC stock and charged back to Sandringham. The same applies to the equipment fleet which is RMGC equipment charged back as a hire charge to Sandringham. Our management now refers to the 'East', 'West' and 'North' courses with staff on a fortnightly rotation.

There is much improvement to be made on the 'North' course, but our philosophy is to continue to develop the whole facility and apply similar standards of maintenance to all three courses, subject to available inputs. The goal is to provide a public access facility at least equal to the best comparable facilities in the country. ۞



PHOTO: GARY LISBON

RMGC's philosophy is to continue to develop the whole Sandringham facility and apply similar standards of maintenance to that of its renowned East and West courses

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Hoiana's a Shore thing

Over the past 10 years Vietnam has become a burgeoning golf market in the Asia region, with many new courses being constructed and the Vietnamese people embracing the game wholeheartedly. The country's central region has been a real focal point for golf course and resort development in recent times, with one of the biggest being Hoiana Shores Golf Club.

Located on the shores of the East Vietnam Sea, about eight kilometres south of the UNESCO World Heritage Listed city of Hoi An, known as 'The City of Lanterns', the golf club is part of the US\$4 billion Hoiana Integrated Resort which harbours the ambition of becoming one of the most compelling golf experiences in Asia. Designed by the Robert Trent Jones II company, the golf club

is one of the stellar features of the beachside resort which also boasts four luxurious hotels and cutting-edge entertainment and gaming facilities.

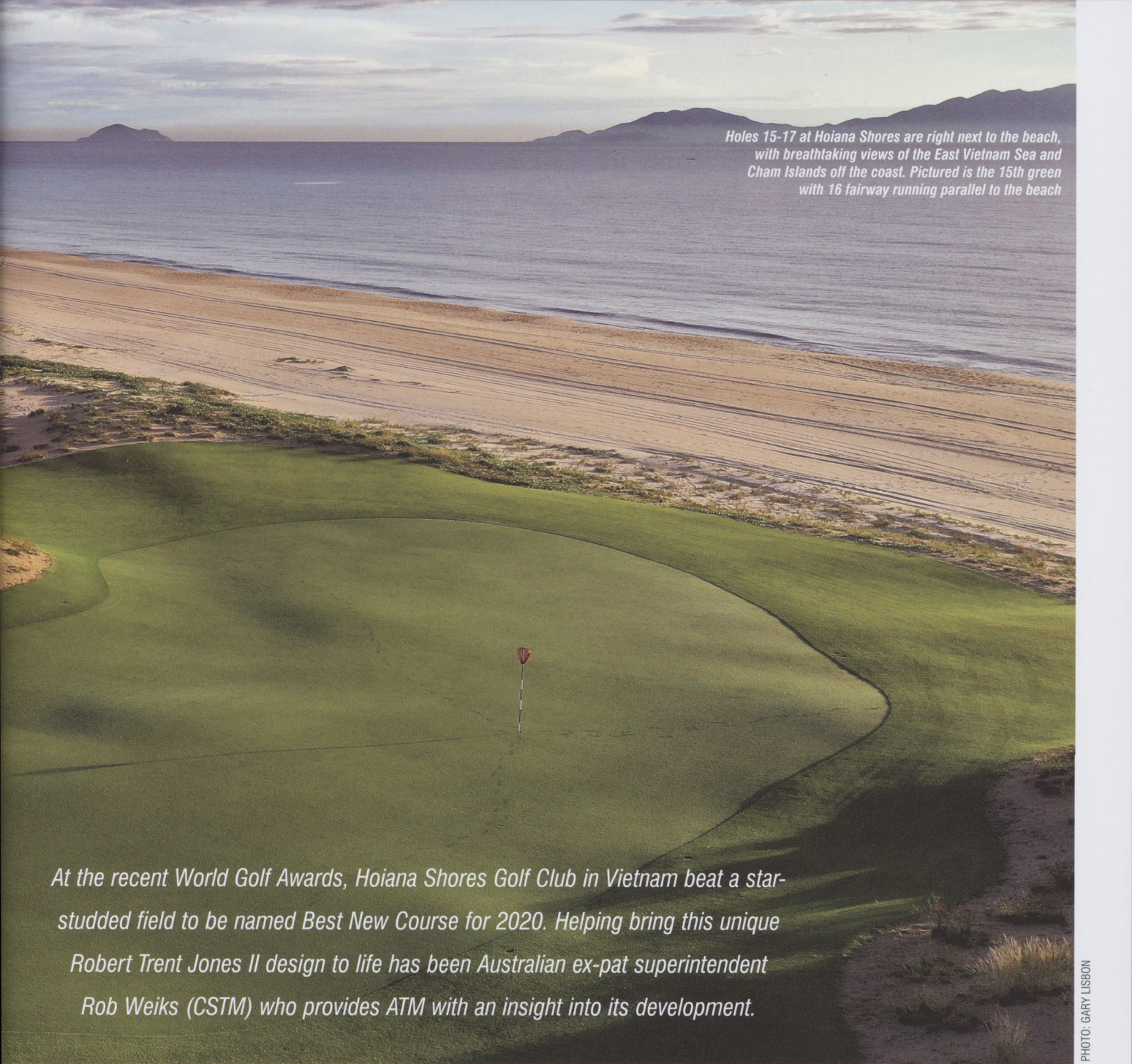
Constructed between July 2017 and October 2019 and opening in March 2020, Hoiana Shores was recently named Best New Course for 2020 at the World Golf Awards, one of a number of accolades it has already achieved in its short history.

In winning the award it bested the likes of Old Toccoa Farm and the Tiger Woods-designed Payne's Valley GC at Big Cedar Lodge, Dumbarnie Links (Scotland), PGA National (Czech Republic), Education City GC (Qatar) and Dubai Hills GC (UAE). It was very humbling to receive the accolade and a real credit to those who have brought what is a very unique course for Vietnam to life.

SPECIAL PLACE, SPECIAL DESIGN

Vietnam holds a special place in my heart as it was here that I took on my first superintendent role having served my formative years in Brisbane before heading to the Middle East. At Van Tri Golf Club in Hanoi, I worked under GM Rick Blackie who allowed me complete autonomy to make any improvements.

From there I took on roles in construction and grow-in at Chi Linh/Dai Lai and Saigon golf clubs, before spending a short time in China and then settling into a role with Atlas Turf International based in Malaysia. I then went back into golf course maintenance at the 27-hole Twin Doves facility just north of Saigon and then moved to Azerbaijan for another cool-season grow-in and pre-opening role before heading back to Australia and undertaking the reconstruction of Brookwater.



Holes 15-17 at Hoiana Shores are right next to the beach, with breathtaking views of the East Vietnam Sea and Cham Islands off the coast. Pictured is the 15th green with 16 fairway running parallel to the beach

At the recent World Golf Awards, Hoiana Shores Golf Club in Vietnam beat a star-studded field to be named Best New Course for 2020. Helping bring this unique Robert Trent Jones II design to life has been Australian ex-pat superintendent Rob Weiks (CSTM) who provides ATM with an insight into its development.

After three years at Brookwater, the opportunity then arose to head back to Vietnam to be superintendent at Hoiana Shores. The attraction to return was two-fold. First and foremost it was the people I would be working alongside, among them Australian Ben Styles (VP of the project) and the construction team of Dan Brown, Darry Koster and Matt Flint.

Ben's experience in Vietnam is second to none and I like working with him because he is a straight shooter and has a passion for golf. We had worked together previously at Chi Linh/Dai Lai and for a short time at Van Tri. He understands a superintendent's passion for his grass and having him here at Hoiana clears the way for me to be able to use my skill sets.

The second attraction was that it was a Robert Trent Jones II (RTJ) design, the

company's first championship course in Vietnam. Aside from being in a mint golfing destination, the design they have come up with is unlike any other in Vietnam. Links golf is a new experience in Vietnam and the dunescapes offer a very different environment to what golfers are used to here. The course is very open to the elements which makes it a unique experience as most Vietnam courses are tree lined, even those on the coast.

Prior to being developed, the land was originally low-level fish farms and cashew tree plantations. The site is unique for its proximity to the actual beach front and for the fact it is pure native sand. Indeed, the untouched land we were given to develop offers so much direct interaction with the ocean, with holes 15, 16 and 17 right next to the beach with breathtaking views of the Cham Islands.

LINKS LAND

The design brief was always to produce a course that was firm and fast, with the ground ball game favoured over the lofted shot especially around the greens. The course has a native sand base, most of it dredged and trucked from the local lagoon just 100 metres away. Tee to green is all push up, with a lot of the bunker and edge of fairway shaping done using high pressure hoses and water to obtain some of the funky shapes that have since been smoothed out by wind and rain.

The greens are huge. In total we have 2.3 hectares of TifEagle couchgrass that coupled with the contouring can make for some tricky putting. The average green size is 1045m² – the largest measures 1556m² – with plenty of slope changes throughout around 6-7 pinnable areas. The greens had five per cent



Weiks (far left) has a team of 68, all Vietnamese, that assist with maintaining the Hoiana Shores course

zeolite incorporated through the top 100mm via a roto-tiller. They have high percolation rates (638mm/hour) with high areas of ground water throughout the wet season.

The ribbon tees mimic and flow into the wide undulating fairways which weave their way through a dunescape that changes with the seasons (very dry and powdery in summer and firm in winter after rains). The fairways have plenty of play in them as they were bunker rake floated before grassing. Tees, fairways and green surrounds are all Zeon zoysia which was chosen for its strong stress tolerances in this region, from low light to extreme heat and high ET rates.

The bunkers and large sand areas blend down from the dunes and from grassed areas on both sides. The design gives a feeling that each hole, while linked, is privately separated by the dunes and bunkers. The bunkers for the most part are left to the natural elements. We broom them daily to keep them as smooth as possible, but if the wind has come through and

there are small corrugations then this is the exact look we are wanting.

Indeed, that wind was the biggest challenge the construction crew faced during final shaping, with some holes needing to be reshaped a few times due to the wind blurring the definitive design lines. Irrigation had to precede shaping and finalisation of grass lines which necessitated the remediation of numerous heads to grass lines since completion of construction, as these weren't corrected during construction.

I arrived at Hoiana Shores just as final shaping was being finished and the fairways, tees and greens had been floated on the beach holes 16 and 17. Most of the green wells had been pegged and rough shaped, except for the 6th which was the last hole completed. Working with Matt Flint originally and then Don Paige was awesome. These guys have loads of experience and understand what they shape is only as good as what can be maintained.

Grow-in contractors John Gibbs and Mick Pascoe did a fantastic job and I could not have wished for a better handover than I received. Their challenges for the most part were the wind and the localised dry patch it caused. The irrigation design had to be changed as we had heads throwing water onto greens from the surrounds which created some issues, especially on holes 8, 10, 16 and 17.

Grow-in for the Zeon was around 16 weeks. It burst out of the gate and around the 8-9 week mark slowed down and then from around the 11th week sharpened up to complete coverage. Simple organics (chicken meal) and calcium nitrate were the staples throughout and we had very few weed issues and contamination of native Bermuda.

GEO CERTIFIED

A unique aspect of the Hoiana Shores development is that it earned GEO Certified Development status for being designed in adherence to sustainability principles as set out by the Scotland-based GEO Foundation. Through our diligent planning and control during construction, we became the first and only golf property in the Asia-Pacific region to achieve this designation and one of only half a dozen worldwide. Darryl Koster and Stu Stone from Linksshape, the construction contractor, onboarded our goals and passion for this accreditation and were very understanding of our requests to achieve it.

It meant that during construction a plethora of accreditation milestones needed to be met, including both socio-economic and environmental. The latter included water use and drainage, dunescape management, coastal erosion controls and the vegetation of those areas, earthworks, grass selection, restoration of habitat for local and migratory



Hoiana Shores is constructed on pure native sand. Prior to being developed, the land was originally low-level fish farms and cashew tree plantations

bird species, native sand use, resource and contractor management and irrigation.

As part of this we restored 23 hectares of degraded former fish farms to native coastal shrub vegetation without importing any growing materials. The vegetation on site today is 100 per cent native and locally sourced, while an additional 17ha of native landscape habitats and 2ha of coastal dunes were established in and around the golf course. We also utilised recycled elements on course. Our tee signs are made from washed up driftwood, while our traffic control stakes, driving range bench seats and bag holders are made from recycled local Kinh Kinh wood.

From a socio-economic perspective, a couple of years ago Hoiana Shores took the initiative to set up an agronomy college where golf course staff receive an official government-recognised accreditation. This is the first ever in Vietnam and has played a key role in building an amazing team of talented staff.

In addition, we also wanted to celebrate the traditions of this culturally rich area and decided to go ahead with a unique idea to use traditional lanterns, which Hoi An is famous for, on top of our flagsticks (see photo page 26). It took us about six months to get it right as far as the local craftsman to agree to the change of shape and size, but the lanterns are now a nice touch and a great point of difference.

FINE-TUNING OPERATIONS

When the course opened in March, we were originally going for the classic links look of a drier, hungrier turf look and feel. This wasn't received as well as first thought so we have gone for a greener look while staying pretty close to the firmness we had initially. The dunes have matured nicely. We had a stitched type appearance due to a lack of understanding about how the landscapes needed to present from construction, but through replanting and maturation of the dunes it now looks more natural.

The greens have taken a long time to settle, first due to irrigation head placement issues which forced us to add additional heads and level heads for better uniformity and coverage issues around the greens and also having product on hand early set us back a few months after grow in. We also recently had 2.2m of rain in 42 days with next to no sunshine which also presented challenges.

As mentioned, our 15th green, the entire 16th and 17th holes and 18th tee are literally on the beach. This creates some agronomic challenges in relation to wind speed and sand cast controls, not to mention the odd sand crab or two!



A good example of the movement in and around the greens at Hoiana Shores and how the dunes keep each hole private to themselves. Pictured are holes 7 and 8 (top) and 3 (middle)

All of my staff are Vietnamese and number 68 in total. Our golf course facilitator Hien deals with purchasing, HR, the staff canteen and agronomy college enrolments. I have an assistant, golf course foreman and assistant foreman, two supervisor/senior operators, a head mechanic (who manages a team of five) and a store person. The head of irrigation has a team of six irrigation techs, with the rest of the crew made up of 51 turf and landscape operators, include five spray techs.

We run a full shed of Toro equipment with Bernhard grinders. The irrigation system is a Rain Bird IC with 1900 heads ranging from 900 Series to 700 Series to some smaller landscape heads. The Flowtronex pump system has three main pumps and a jockey with a fertigation system attached. Our primary water source is ground water which while low in sodium has quite high Fe levels. Because of our percolation rates and constant wind, we dry down fast so the IC system works well with individual head control. We POGO morning and afternoon and hand water accordingly. Wetting agents are applied at low rates weekly which keeps uniformity through the profile.

Working with the Zeon zoysia has been an interesting experience. It is very malleable and you can really get out of it exactly what you want by controlling fertility and cultural practices; it really is that responsive. Light and frequent seems to be the key in regards to cultural practices and it doesn't like to be ripped apart, especially on this profile and in this environment. Fertility comprises low rates of granulars as a good base then followed up with light foliar (it loves calcium nitrate and a little iron) and frequent to avoid that puffiness that some zoysia courses here can produce with nitrogen overload and excessive irrigation.

In regards to nutrition management, our profile retains very low organic matter therefore low CEC and EC. Our pH is around 6.3. We use controlled N, high K 1:3 ratio not K as a standard and high calcium applications (20L/ha) ranging from 0.5g-0.85g actual Ca/m² per application depending on rainfall for our weekly soil applications coupled with liquid organics (Bolster and Maxiplex).

It became evident we needed a base here, especially on greens, so my mindset on granulars has changed dramatically. We pretty



Hoiana Shores' greens are huge, totalling 2.3 hectares of TifEagle couchgrass. Zeon zoysia has been used on tees, fairways and surrounds

PHOTO: GARY LISBON



PHOTO: GARY LISBON

With the 15th green, 16th hole, 17th hole (pictured) and 18th tee literally on the beach, Weeks has some agronomic challenges in relation to wind and sand cast controls, not to mention the odd sand crab or two

much go out all year round with an application every 4-6 weeks ranging from 2kg-4kg/100m² of product with a Lebanon Turf 60% MU 12-0-24 or Sustane 7-2-20. We alter our cultural with these applications to counter any flush of growth with verticutting and topdressing.

Foliars are normally an alternate between calcium nitrate and potassium nitrate with some amino and phosphite products added (depending on weather) and some gibberellic acid added when required. Green foliars are usually around 0.2g actual N/m² and 0.6-0.7 actual K/m² as previously mentioned. I run 0.3g of actual Fe/m² as a standard, again depending on weather. Traces go out once per month and I also use a cal-mag product at least two times a month to keep that ratio healthy. The end goal is to control growth but keep pushing the organics to increase CEC.

With the tees, fairways and surrounds we rotate between Sustane 4-6-4 and Yarra Triple 15 at low rates (between 1.5kg-2kg/100m²). This is followed up with foliars every 2-4 weeks,

again depending on environmental conditions. Primo applications are 3ml/100m² again depending on weather and this can change from application to application. Nitrogen goes out around half to 0.75g of actual N. In the coming year we will add some greens-grade Profile into our greens and on some areas out on the fairways and tees that are very hydrophobic/sloping.

With our course renovations, our tees, fairways and surrounds receive a verticut up and back on the same line three times per year along with a 16mm solid tine (51mm spacings, 100mm deep) during the cooler part of the year. If we did it in June, when we receive hot westerly winds from Laos, we run the risk of cooking the turf with our profile.

The greens receive a -3mm verticut up and back on the same line then one pass directly opposite as needed (about 3-4 times per year) and a solid tine, again in the cooler months to avoid a massive dry down. We dust/topdress weekly, so coupled with our current fertility

practices our organic matter is well under control. We also groom and brush greens 2-3 times per week depending on environmental conditions. We normally groom before a topdress and we often double cut in summer and circular drag mat the greens once or twice a month before a cut also.

CONTINUAL IMPROVEMENT

I am very lucky to have a good crew and good people above me here at Hoiana Shores who have the same passion for golf and long-term goals and directives. Having something to look forward to is the meaning of life and I am lucky to be in an environment where continual improvement is deemed a priority.

While the Best New Course award was a great accolade for the team to have, these types of things are not really my personal focus. My main priority is to ensure that we keep improving the facility year to year and season to season. We still have plenty of goals to achieve here, among them our irrigation audit completion, ground water controls as a priority and several other items to complete from construction.

The COVID-19 pandemic has definitely affected golf and our entire facility, but through some proactive management we have been able to keep things going and are looking forward to 2021 and less stormy seas ahead. Golf has a firm foothold in Vietnam and especially in the central region, so the local golfers can still drive the golf economy to a point until foreign travel resumes.

The Vietnamese are very passionate people and golf permeates to their passion for things with the country really embracing the game in the past 10 years. Hoiana Shores embodies the warm, genuine hospitality of the Vietnamese people and I am excited to see what the future will hold for what is a very unique development. 🙏



Traditional lanterns, which nearby Hoi An is famous for, are a unique touch on top of the Hoiana flagsticks



PHOTO: GARY LISBON

Designed by Robert Trent Jones II, Hoiana Shores is the company's first championship course in Vietnam. The links design is unlike any other in Vietnam. Pictured is the 4th from behind the green

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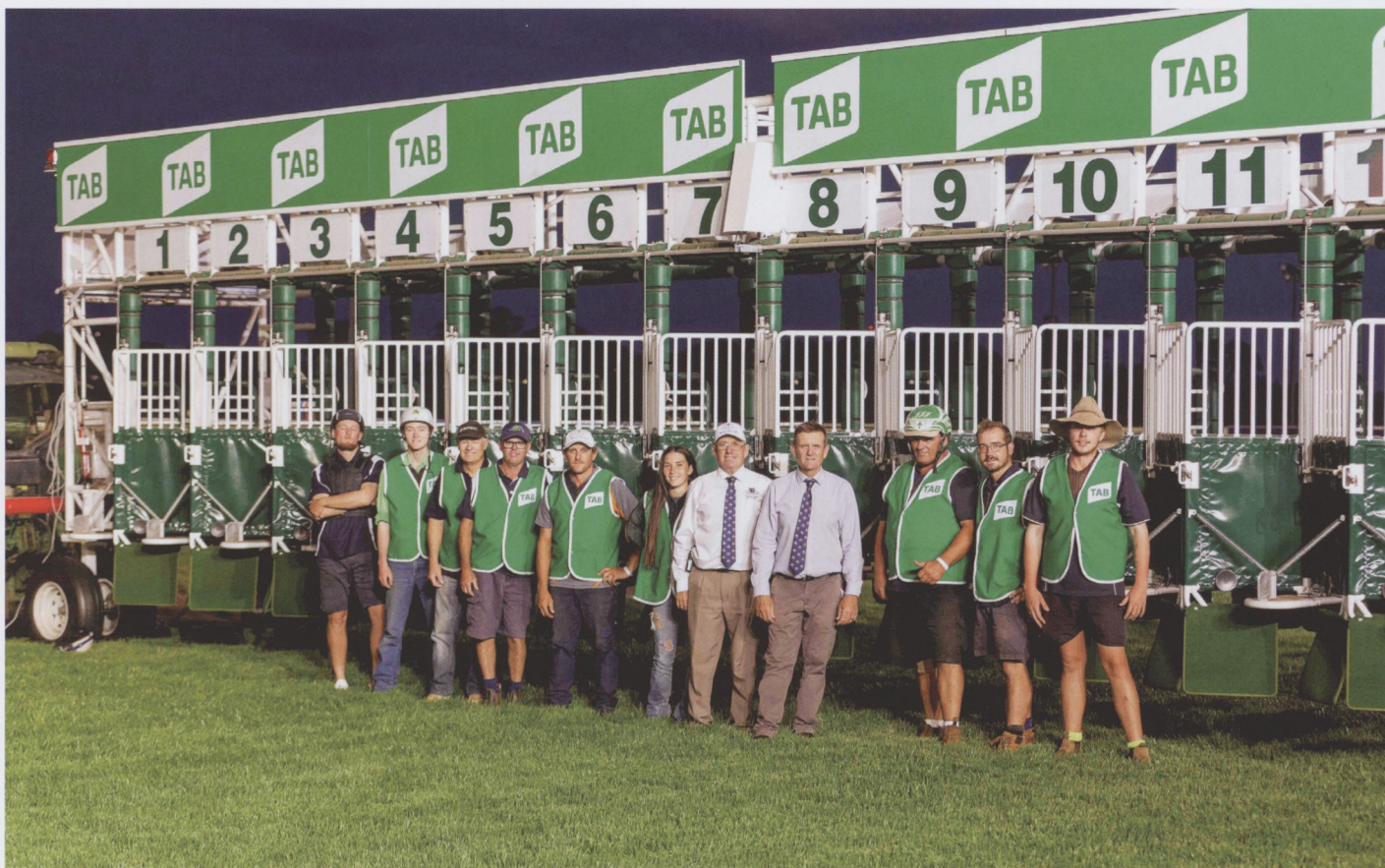
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Morro's move paying dividends

ATM editor Brett Robinson catches up with former golf course superintendent David Morrison who for the past three years has been track manager at Clifford Park in Toowoomba, one of the country's premier twilight racing venues.



Clifford Park, home of the Toowoomba Turf Club, is one of Australia's premier twilight racing venues. It hosts 48 meets a year with a minimum seven-race meet held almost every Saturday



Morrison, fourth from right, heads a team of four full-time track staff as well as a small group of casual staff who assist on race day and with repairing the track post-meet

If there is one truism in the sports turf management industry it's that you never stop learning, no matter how many years you have been in the game. Take David Morrison for instance. It was 1982 when he took his formative steps in the turf management profession, leaving school to take on a position at Brisbane's Oxley Golf Club. Over the years he would rise to be course superintendent at Jindalee Golf Club for two years, Hills International Golf Club for a decade and finally Windaroo Lakes for seven.

Towards the latter part of his time at Windaroo Lakes, Morrison openly admits he was getting stale. He had achieved what he had wanted to do there and felt that a change was in order, but didn't want to leave the industry. Like many superintendents before, he decided to give a trade role a go, picking up a job as a technical sales rep with Living Turf. In that role for three years and despite enjoying the change, it ultimately wasn't for him, so when an opportunity to get 'back on the tools' came along, albeit in a different sector of the industry, he invested all his resources into making it happen.

With over 30 years under his belt in golf, including the best part of a decade on the committee of the Golf Course Superintendents Association of Queensland, racing had only ever been a fun hobby for Morrison. He was part of syndicate run by a well-known current-

day Gold Coast superintendent and loved a punt and a few coldies with his mates. While he admired and respected the work that racecourse managers did, he had never considered it as a possible career choice.

All that changed when Toowoomba Turf Club advertised for a new racecourse manager for their Clifford Park facility. Popular track manager Chris Nation had just secured the plum gig over at Belmont in Perth and they were looking to hire. Living on the Gold Coast at the time, Morrison saw the ad but didn't apply, but after telling his wife about it and being summarily told "why aren't you putting your hand up, that role is so you!", Morrison rang Nation to sound it out. "Go for it" was the response and within a week he was being quizzed by the club's chairman and then interviewed by the chief executive. In July 2017, at the age of 52, Morrison was officially appointed as Clifford Park's new racecourse manager and found himself moving to Toowoomba.

TWILIGHT PIONEER

Clifford Park has a very long and fascinating history. The site was acquired as a 160-acre block in 1861, with the first meeting conducted by the Darling Downs Jockey Club on what was then called the Drayton and Toowoomba Racecourse in March 1862. The Toowoomba Turf Club was formed and conducted its

first meetings in June that year, with the first recorded Toowoomba Cup run in 1919.

Fast-forward more than 70 years and in 1992 the Toowoomba Turf Club made Australian racing history by staging the first race ever run under electric lights, the Fosters Toowoomba Cup. Four years later it staged the first ever night race meeting in Australia and since then Clifford Park has become synonymous with twilight racing around the state and country.

Clifford Park currently packs 48 race meetings into a heavy annual schedule. Aside from one or two day meets throughout the year, racing is held literally every Saturday under lights, starting around 4.30pm and going through to 8.30pm-9pm depending on the number of races. A normal meet comprises seven races, but if there are a large number of nominations that can go higher. The only downtime the track gets is in the week preceding its biggest event of the year – the Weetwood in September – and when track renovations are undertaken in December.

The track itself has also had an interesting history, especially over the past decade. Up until 2009 it was a turf track, but due to drought and water storage issues it was converted to a cushion track. Ultimately proving unpopular with both trainers and punters alike, the cushion track was short-lived and in 2014 the club installed a StrathAyr track.



Clifford Park's Course Proper measures 1800m and is 18 metres wide, except where the 1000m chute is. The StrathAyr design consists of a 100mm drainage gravel layer and 300mm sand profile with a fine mesh material incorporated. Due to Toowoomba's unique climate, the track is a mixture of kikuyu and a ryegrass blend. Each April the track is oversown with a 70 per cent perennial/30 per cent annual ryegrass mix at 250kg/ha to keep the surface in optimum condition for the winter months. The course is irrigated using mainly potable and dam run off water which is put out through a Toro Lynx irrigation system.

Inside the Course Proper is the B grass track which is used for trackwork three days a week, jump outs weekly and trials every three weeks. The B grass is built on a red soil material and is solely kikuyu. There is also a sand track and cushion track for training, a trotting track, bull ring, as well as extensive stabling for the local Toowoomba trainers, horse walkers and an equine pool all of which Morrison and his crew oversee. Six days a week, on an average morning Morrison can have up to 300 horses out doing track work, with the training facilities needing to be maintained and presented each day in addition to preparing the Course Proper for its weekly outings.

Clifford Park's 'grand final' each year is the Weetwood. It literally is a grand final as it is held on the same day as the AFL's Grand Final which, with Morrison being an avid Richmond Tigers fan, has proved tricky in recent years. The Weetwood is Toowoomba's main metropolitan meet of the year and it attracts some of the best trainers, horses and jockeys from across the country. The Weetwood comprises a nine-race card with

four feature races including the Toowoomba Guineas (1625m), Pat O'Shea (1000m), Toowoomba Cup (2000m) and the main event, the Weetwood Handicap (1200m).

As racecourse and venue manager, Morrison is one of just four full-time track staff. Under him are a racecourse foreman, leading hand and an apprentice, as well as a small number of casuals who help to repair the track after racing, back up as barrier attendants on race day and assist with setting up and moving the rails.

That team was certainly under the pump this year with COVID-19 having a significant impact on their operations and the number of races on track. With racing continuing throughout the country during the pandemic, albeit with no patrons, and with Racing Queensland instituting zones, the number of horses wanting to get into races increased significantly.

In the case of Clifford Park, some of their weekly meets increased from seven races to 10 or 11 races in one day. In one two-week period the track held 28 races. That increase in use placed additional wear and tear on the track and meant that Morrison had to carefully plan his rail movements and cultural practices.

TAKING THE REINS

Although well over three years into the role now and at a level of comfort with how he manages the track, Morrison admits taking on the new role was certainly a big learning curve but one he immensely enjoyed. While his 30 years of agronomic knowledge stood him in excellent stead from a turf perspective, Morrison knew he had to get up to speed quick on the very different requirements of racing – rail movements, presenting the



After switching to a cushion track for a five year period (above), in 2014 Clifford Park installed a StrathAyr turf track (left). The Course Proper measures 1800m and is a mix of kikuyu and a ryegrass blend

track on race day, repairing the track post-racing, renovations and the big one, irrigation practices.

To assist with that, Morrison sought out his more experienced racecourse manager colleagues at the likes of Doomben, Ipswich and Sunshine Coast to get an insight into their programmes and how they operated in the lead-up to and on race day. At one point he also took a trip down to Sydney to visit Royal Randwick.

Without question Morrison rates irrigation as perhaps the biggest difference he had to get his head around. As a golf course superintendent he could set the irrigation system to put out a megalitre of water each night and sleep easily, but in his new role irrigation plays such a critical part in setting up the track to ensure it performs as expected during the meet. Adding to the complexity of that is having the majority of races late in the day. With tracks rated early morning of a race meet, Morrison cannot irrigate between when the rating is made and the start of the meet, so he has to ensure there is adequate moisture in the profile to see the track through to when the meet starts.

"Coming to the track I had no issues with the turf management side of things," explains Morrison. "I felt comfortable agronomically in my abilities, it was more getting my head around the ins and outs of racing and preparing the racecourse for meetings. I spent a lot of time talking to other track managers and racing administrators to get all the information I needed. Irrigation was the big thing for me and getting to a point where I was comfortable that I had the right amount of moisture in the track on race days.

"Wear and tear is also a big difference. As both a superintendent and racecourse manager you want your turf as strong and as healthy as possible, but here you are dealing with a surface that is getting smashed by horses that weigh up to 500-600kg each, with all of them going over the same part of the track 7-8 times in a meet. And then you have

the added pressure of the track being on TV each week both here and overseas. Twilight racing means we are in the prime timeslot for overseas betting, so knowing that was definitely something different to contend with.

"When I arrived at Clifford Park I did so just prior to renovations which were then in August. Chris had handed the track over in great condition, but with the prospect of the club's biggest meet just a month after renos – which was my first major meet in charge – I certainly felt the pressure. I tell the golf guys, and they think I'm joking, but during those renovations I was waking up in cold sweats every night having these wild dreams about the track collapsing. I have never had that happen before as a superintendent and I guess it just goes to show how much you invest yourself into a new role and how in the moment you become."

CHANGES MADE

As he has settled into his role, Morrison has gradually made a number of changes to help improve the track's performance. One of the key changes was shifting track renovations from August to December.

Going through his first renovation shortly after starting, in his second year Morrison switched them to December for two reasons. August in Toowoomba's unique climate can be an unpredictable month at the best of times and with temperatures warmer in December he could afford to be more aggressive with the track and know it would recover better and quicker. And that has certainly borne true.

Due to a small crew, renovations are carried out in a staggered fashion and normally start in early December and follow the rail. As the rail moves out from its true position, Morrison and his staff will then renovate that section of track and progressively move out as the rail moves with each meet. Renovations involve a heavy scarifying followed by hollow coring, topdressing and fertilising.

Morrison has also fine-tuned a couple of other elements of their standard week-to-



One of the major changes Morrison has instituted since taking over as racecourse manager at Clifford Park is moving track renovations from August to December

week and month-to-month programmes. After each race, preparation begins for the next with a dethatching rake going over the track to pick up any loose material. The new rake he has brought in is mainly used only in the warmer months as it can be too aggressive on the ryegrass in winter. Morrison slices and vertidrain the Course Proper on a monthly basis, having made the shift from 12mm to 18mm solid tines which has made a difference to compaction levels.

To aid the track's recovery, Morrison now uses an upfront granular about every five weeks instead of the previous slow-release that was used. The custom blend he has made up works very well and helps with recovery of the track and forms part of a programme which also includes application of root stimulants and other liquids, silica and, of course, fungicides.

"It has been a huge learning curve, but it is one I have really enjoyed," says Morrison of his transition from golf to racing. "You are always trying to improve and you are always learning.

Coming from a golf background, I'm trying to bring a bit of that culture into our operations – things like having an eye for detail, management of machinery and compliance. We will start building a washdown bay and fuel storage over the next few months after getting a grant approved to fund it, which is something we have been trying to get for a while. We are also possibly looking at changing some of the old rail on the training tracks and bringing the B grass track up to proper spec.

"We are also in the process of introducing the Going Stick to do our track ratings. We normally use a penetrometer, but Racing Queensland is rolling out the Going Stick across all Tier One tracks in Brisbane, so we have been trialling it and trying to match it up with our penetrometer readings. The benefit of the Going Stick is that it also provides you with an indication of root strength. It is a lot quicker, all electronic and provides a lot more information which down the track the jockeys and trainers will have access to."

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Coonamble back on track

*A new irrigation system has helped to put country NSW's Coonamble racecourse back on the map
writes HydroPlan's Scott Johnstone.*

On the Coonamble Jockey Club's Facebook page it says, "You'll find us out west where the people are friendlier, the dirt is redder and the beer is colder." Well, they can now add "and the track is greener" after the club completed a major irrigation system upgrade ahead of hosting its biggest race meet in years this past March.

Boasting a population of around 3000, Coonamble is located about 160km north of Dubbo in the central-western plains of NSW. Country racing meets are significant events for regional townships like Coonamble and on 15 March 2020 it hosted one of its biggest for the first time – the Western Country Championship Qualifier run over 1400m. An initiative of Racing NSW, The Country Championships were launched in 2015 and

comprise seven qualifying races at various regional racecourses, with the first and second place-getters going on to race as part of The Star Championships meet at Royal Randwick in Sydney during the autumn carnival.

To ensure the Coonamble track was at its peak for its Country Championship debut, in 2019 Racing NSW and Coonamble Jockey Club jointly funded a major upgrade to the track's irrigation infrastructure. HydroPlan was commissioned to design and project manage the complete upgrade of the Course Proper, which included installation of a VFD pump station, auto filter, PC and remote-controlled central control system and valve-in-head rotors. The new infrastructure tapped into the existing track ring main and course's recycled water storage which were completed a number of years earlier.

Racecourses have very specific requirements in relation to how they irrigate the track leading into a race meeting, as well as the limited hours each night available to irrigate due to early morning training and track work. Prior to doing a detailed design, there are several unique parameters which require close communication with the track manager or stakeholders that operate and use the track. They include;

- The system must be designed to have the hydraulic and control capacity to deliver a full irrigation cycle to the entire track during peak season within a limited time window and on the available days.
- The placement of rotors in relation to posts and running rails to ensure minimal interference with the rotor stream and safety of the horses.



One month after installation of the new irrigation system was complete, the transformation of Coonamble Jockey Club's racecourse was striking



Coonamble's home straight a month out from hosting its first Western Country Championship Qualifier in March

surface, along with optimising water and power inputs in the future.

Aside from the common irrigation control requirements, the new Rain Bird IC central control system is set up with the ability to manage three vital features that are extremely important in effectively irrigating the Coonamble track;

- Matching evapotranspiration and application rates to reliably manage plant requirements for optimum growth and water budgets, along with weather sensor inputs to manage rain delays;
- Flow management system is set up to manage both the system's hydraulic limits plus accurately monitor actual flows (flow sensor) and compare database flows to help determine underflow (blockage), overflow (leaks), water use data (volume vs budget) and pause or stop irrigation in an alarm event;
- Communications with smart devices that allow off-site volunteers to monitor and manage the system remotely, including receiving alarms and making adjustments.

HydroPlan worked closely with the Coonamble Jockey Club team to help train club volunteer operators on the new control system and implement an effective site-specific irrigation water management plan (IWMP) that accurately meets fluctuating seasonal irrigation demand. An effective IWMP has a massive impact on surface quality, plus a whole range of other inputs including water, energy, chemicals, fertiliser, fuel and labour which help to reduce operating costs.

Local electrician and club committee volunteer Adam Firth plays a key role in operating the system and has embraced the new smart technology to fine-tune the irrigation requirements, with the technical support of local agronomist and fellow club volunteer Graham Proctor. The Coonamble Jockey Club is very fortunate to have a number of dedicated volunteers that help maintain the track well beyond the irrigation. Many of them are farmers who offer an eclectic blend of skills and have the capacity to overcome the most intriguing challenges, whether it's fixing a mower or spiking a keg!

Timing of the Coonamble irrigation upgrade was crucial to ensure maximum growing time between completion date in December 2019 and the Country Championship meet in March 2020. The end result was an amazing transformation from a brown track to emerald green grass in just a short three-month irrigation period.

The Coonamble Jockey Club committee could not be happier with the outcome. Club president Ken Waterford worked extremely hard to fund the project jointly with Racing NSW's country racing development fund and was highly involved in the design to make sure the club's expectations were met.

Racing NSW project manager Andrew Small was instrumental in his professional approach, along with his knowledge of racecourse requirements, and worked in with maintenance manager Dave Hodgson to guide the team. Nutrien Water from Dubbo, supervised by Nick Connors, did a good job of installing the new system.

Following a very successful Country Championship Qualifier, Waterford declared the track improvement as phenomenal. During the meet a number of Australia's top jockeys, among them Hugh Bowman, complimented him by saying the track was as good as any they have ridden.

The high-quality surface now attracts better trainers and more racehorses, the crowds have returned in their largest numbers since peaking back in the 1960s, while sponsorship is up by more than 500 per cent on previous years. The racecourse is winning high praise from all quarters and is now considered one of the best in the country west of the range. 🏇



Placement of rotors in relation to the running rail is important to ensure minimal interference with the rotor stream and safety of the horses

The new valve-in-head rotor system installed at Coonamble allows for precision water management, considered critical in the application of recycled water. Within budget constraints, a single-row rotor system was designed to deliver a good level of uniformity across the 20-metre-wide track, using a high performance DN40 rotor at 18m spacings along the inside rail and chutes, with 25m radius to ensure good overthrow (5m) beyond the 20m outside rail.

While the single-row system is performing very well and the overthrow has no negatives as ample recycled water is available, to future-proof the system it has been designed with the hydraulic and control capacity to readily convert the irrigation layout to a full two-row system when required. The two-row system can be achieved by adding rotors to the outside rail for a full grid and reducing the rotor nozzles on the inside rail. In combination, this will maximise uniformity from a scheduling coefficient of 1.3 to 1.1 within the 20m track

Staying connected to friends and peers and adjusting to new ways of working brought about by COVID restrictions have been the biggest challenges over the past 12 months



Valuable feedback

ATM looks at the key findings from the Australian Sports Turf Managers Association's recent membership survey.

Staying connected to friends and peers, adjusting to new ways of working and dealing with mental health have been among the biggest challenges over the past 12 months according to results from the Australian Sports Turf Managers Association's (ASTMA) comprehensive member survey conducted during October.

Members said they were looking to the association over coming months to help them stay on top of government updates and changes brought about by COVID-19, to continue the focus on professional development programmes and to maintain advocacy efforts on their behalf on issues of importance to sports turf management.

Satisfaction with the work being undertaken by the ASTMA has risen notably since the last member survey conducted in 2015, with significant improvements noted in the association's communication, support



and delivery of programmes. There was also an overwhelmingly positive response for the approach to unite the sports turf industry to increase awareness and recognition of the profession.

While more than 90 per cent of respondents noted that providing information, education and networking opportunities to members was a key responsibility of the association, a further 65 per cent also noted that active collaboration with government, water and environmental authorities and sporting bodies was an important area of activity that the industry looks to the association to provide.

ASTMA chief executive Mark Unwin says it was pleasing to see the response rates for the association's survey and approach to services over the past three years.

"We saw a significant increase in responses from members, providing feedback into the areas of operation and their thoughts on our performance, both good and bad," says Unwin. "There are a number of areas where members are telling us that we are performing really well in, but just as important some noted areas that they feel we need to continue to improve or perhaps haven't delivered on as effectively as they would want.

"We will use the responses to tailor further support for members, including communication and delivery of programmes to support education and, importantly, over the coming 12 months, the approach to practical resources, advocacy and mental health support as the industry moves into a 'COVID normal' way of facilities operating."

2020 – A YEAR OF CHANGE

Although not directly covered in the survey, a large number of respondents indicated that 2020 had been a year of substantial change to operations brought about by COVID-19 which had a bearing on their need for assistance from the association. Almost one in five respondents noted that their employment status had resulted in staff working fewer hours per week throughout the winter months, with nearly 15 per cent noting that changes implemented at their workplaces were resulting in additional workload to meet regulations and requirements.

A common theme was the challenges this year has brought about for themselves and their team relating to wellbeing and mental health, with the various ASTMA webinar support for mental health for members cited as a positive benefit, with a clear desire for these to continue.

The efforts of the association in further developing advocacy with Federal and State Governments came through strongly in member feedback, with a strong push for the association to continue this work relating to the perception of the industry and trade qualifications. Nearly 57 per cent of respondents noted this as the primary area for advocacy efforts, with a further 53 per cent listing education and training as the second key issue that we should be focusing advocacy efforts on.

Continuing to address with both Federal and State Governments the issues relating to staff and labour shortages (50 per cent) and challenges relating to water restrictions (43 per cent) were also seen as important areas, with overall support for advocacy highly desired by members. One member noted, "Most importantly continue to represent and fight for our whole industry as the association has recently developed a great record of doing".

"It certainly has been a challenging year for many, not only in relation to changing of work requirements, but also due to our ability to support members when they needed it most," comments Unwin. "The ASTMA team, in my opinion, did an outstanding job in supporting members, engaging in communications to keep the industry updated and also work on behalf of supporting the industry at government level far more than we have ever needed to before. This has had its positives in terms of things like awareness of the industry and the value of turf managers, but also some negatives in that we perhaps didn't communicate as well as we could have in some areas."

CHALLENGES

When asked about the most challenging aspects of their role, labour and skills



Zoom meetings became the new means to connect during COVID-restricted times, with the ASTMA hosting a series of webinars delivered by industry experts which proved very popular

shortages was a clear standout for members with almost six out of 10 respondents noting that it was their primary concern at their facility. In addition, many noted that this is expected to increase further throughout summer and into 2021 with restrictions in travel continuing.

Dealing with budget constraints remains an important challenge regardless of facility type and location. Similar to the approach for advocacy, nearly one-third of respondents highlighted that the perception of the industry and qualifications was an area of concern.

Members noted that the top five challenges being faced right now at their facility are:

- Staff and labour shortages (59%);
- Budget constraints (46%);
- Perception of the industry and qualifications (32%);
- Climate and environmental management (27%);
- Water availability and restrictions (25%).

"There are clear areas for us to continue working on into next year," notes Unwin. "Continuing to invest in programmes to attract and retain talent to the industry is critical long-term and there are parallels between this and the feedback relating to perception of the industry and qualifications which limits industry appeal. These are both areas where support for the industry and the value of sports turf managers is something we absolutely need to keep promoting to government."

COMMUNICATION

The flagship publication of the sports turf management industry – Australian Turfgrass Management Journal – continued to be popular with members with an overall positive satisfaction rating of nearly 98 per cent. The last 12 months has seen an increase in the number of members following the ASTMA on social media, with nearly 68 per cent of respondents noting that they follow the

association across various platforms, an increase from 41 per cent in the previous survey. The Cut remains an important part of the association's communication to members, with 96 per cent subscribing and noting it as a regular read each week.

The challenges brought about from COVID-19 also included the need to cancel the 2020 Sports Turf Management Conference, which was noted as "necessary although disappointing" as this event is understandably popular with turf managers from an education perspective and also for the ability to network and discuss challenges with peers.

Following the cancellation of the 2020 event, the association delivered its educational and professional development content online, providing members with a webinar series that proved popular (86 per cent rating) and a number of requests for additional webinars to be held in the New Year.

PROGRAMMES AND INITIATIVES

When asked which programmes and initiatives for members and the sports turf industry delivered by the association were of most value, members highlighted the establishment of the ASTMA Certification Program had the most impact, with more than 56 per cent of respondents noting the Certified Sports Turf Manager initiative as the most important facilitated by the association.

Recognition for an established programme offering support to the next generation of managers and leaders in the industry was also strong, with Jacobsen's Future Turf Managers' Initiative (FTMI) listed by more than 54 per cent of respondents as an important programme. Members rated the top five programmes and initiatives facilitated by the ASTMA as being:

- Industry certification programme (56%);
- Future Turf Managers Initiative (54%);
- Turf management webinars (43%);



Providing programmes, such as Jacobsen's Future Turf Managers' Initiative, were deemed as very important

- Professional development education seminars (38%);
- Volunteer employment and experience opportunities such as the John Deere TPC Volunteer Program (32%).

It is also worth noting that responses relating to the work undertaken by the association for the revision of the sports turf management education curriculum (32 per cent) was also rated as highly important.

Additionally, some new programmes were put forward by members for the association to investigate in the future, including the development of mentoring programmes, national apprenticeship education and training workshops and national education seminars focussing on management and leadership.

It was noted, however, that the association still has more work to do around regional areas of Australia, in particular the ability to engage regional turf managers in events, communications and certainly in the planning for involvements in future programmes.

INDUSTRY UNITY

The survey also asked members to give feedback on the number of associations involved in the turf industry and the approach by the ASTMA to work together with all associations to unite in order to better support members and advocate on behalf of the industry.

Noting that the current environment severely limits the ability for the industry to

effectively engage with government and advance our industry, members were asked to note their level of support for all associations to unite and work together as one body representing the industry. Overwhelmingly 96.6 per cent were supportive and just 3.4 per cent were unsupportive.

"This was a clear stand out from the survey in terms of the overwhelming support to bring the various industry bodies together," says Unwin. "More than just supported by members, many highlighted that they unequivocally want this to happen and see this as a crucial element to being able to address a number of issues including recognition, employment conditions, education support and investment into research."

"As many members commented in their feedback, uniting the industry 'simply made sense' and was 'in the best interests of the industry,' with 'far more being able to be achieved as a united group rather than being fragmented'."

AREAS WORKING WELL

Members told us overwhelmingly that the level of satisfaction with the association remains extremely high with an overall member satisfaction rating of just over 97 per cent.

The Sports Turf Management Conference and Trade Exhibition continues to be an important item in the calendar of turf managers, with 71 per cent of members responding that they attend the conference

regularly. The quality of sports turf management education (40 per cent) and networking with peers and colleagues (33 per cent) continue to be the most important drivers for members attending.

The range of member benefits offered by the association is seen as very rewarding, with more than 98 per cent of members rating the benefits as good or better. Viewed as the most important benefits offered to members were;

- Access to turfgrass research and management resources (69%);
- Subscription to ATM (68%);
- ASTMA Certification Program (63%);
- Member employment and experience opportunities (58%);
- Access to Michigan State University's Turfgrass Information Centre (46%); and
- Members rates for the annual conference and turf education seminars (45%).

AREAS TO IMPROVE

As noted earlier, the association has more work to do around regional areas of Australia, in particular the ability to engage regional turf managers in events, highlight the work undertaken by turf managers in regional and remote areas, communications and involvements in future programmes.

Some members also noted the ability for the association to continue working at ensuring communication remained consistent, especially in areas relating to changing government regulations and areas of compliance. Further, it was also noted that the association could perhaps do more to develop regular opportunities to provide information to members on activities and initiatives and could investigate the opportunity to develop a regular Q&A session or forum where members could ask questions on activities and the strategic direction. This could also provide an opportunity to receive member feedback on a more regularly basis.

THANK YOU

The 2020 ASTMA Member Survey results will be used to inform the priorities for the association and strategic planning for the 2021/2022 year and beyond and also assist the association with specific member engagement priorities into the future. A summary of the survey and results is being finalised and will be available to members in the New Year, along with a more in-depth presentation planned for the 2021 conference on the Gold Coast, which is likely to include an open forum with CEO Mark Unwin.

The Australian Sports Turf Managers Association would like to thank all members who participated in the survey and took the time to provide their feedback in relation to the performance of their association. 🙏

Cancellation of the 2020 conference was acutely felt



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JOHN NEYLAN



It's all in the mix

ATM expert columnist

*John Neylan looks at the basics
of sand selection and rootzone
specifications and the importance
of these in delivering predictable
and high quality surface
performance.*

As I have written on many occasions, the basic principles of constructing turf profiles are well-founded and haven't really changed in the past 40 years. However, the discussion around the selection of materials for turf rootzones has come to the fore in the past two years due in part to the availability of suitable soils/sands and a desire to create more sustainable profiles.

The source of suitable materials for constructing turf profiles has changed considerably in recent times as quarries are depleted, new quarries are opened up and the turf industry competes with the demand for materials for infrastructure projects. Consequently there has been a need to reassess the materials available and whether they meet the criteria for good turf growth.

With the increasing costs of water there is a desire to design sportsfields that are 'more sustainable' in terms of water use and presumably water conservation. With this focus on 'sustainability' there has been a move towards finer textured soils and away from sands. The concept of sustainability is the basis of an article in its own right and far more complex than the promoters of this concept would have us believe. However, it is fair to say that sustainable design is a combination of numerous factors across the life of the turf system and it is not just related to the rootzone composition.

This article takes a 'back to basics' look at soils for turf rootzones and to re-emphasise that in turf management there are several 'non-negotiables' if a successful outcome is to be achieved.

Plant growth suffers when soil porosity is out of balance. Too many micropores due to compaction will result in poor growth

PERFORMANCE OF SPORTS TURF AREAS

The performance of sports turf areas are a combination of several key aspects including:

- Soils and soil management – the foundation for growing strong and healthy turf and provides a resilient surface that has good recovery from wear.
- Surface shape – surface shapes that allow the free movement of water off the playing surface is still important even where high drainage rate sands are used.
- Drainage design – drainage design needs to be able to cope with the water that moves through the profile and then the discharge points have the capability to remove the water off-site.
- Irrigation – good irrigation design equals good water use efficiency (see ATM 21.6 – Improving your irrigation, pages 48-52 and last edition's – Volume 22.5 – series of articles on scheduling, improving efficiency and alternative water sources, pages 26-40).
- Grassing – selecting grasses that are suited to the site and to the maintenance resources available.
- Quality of the construction – this is where many projects fail. The best design will fail if construction supervision is poor and there is a lack of quality control procedures in place.
- On-going maintenance – is the available maintenance budget and greenkeeping expertise at a level that can manage the asset.

SOILS AS A FOUNDATION FOR HIGH-QUALITY TURF

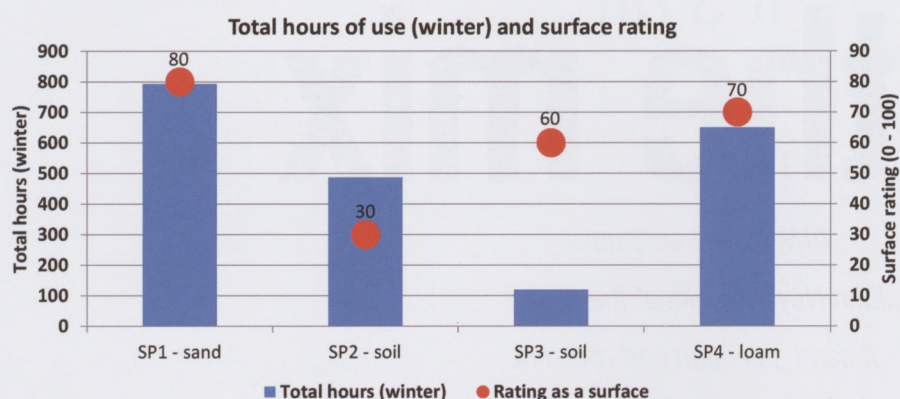
The soils used in the turf rootzone are the foundation for maintaining strong, healthy

and resilient turf across the seasons and have many important functions including:

- Acting as a water reservoir to sustain healthy turf.
- Providing good profile aeration for the movement of oxygen into the profile and the removal of carbon dioxide.
- Adequate drainage rate to ensure that in high rainfall events excess water can pass through the profile at a rate that allows a return to play in a reasonable time period. This will vary depending on the sporting application (e.g.: golf greens will require a higher level of drainage capability compared to a low-level community sportsfield).
- Resistance to compaction to provide a high level of soil aeration, good drainage and strong root growth. In my experience, good soil aeration and a well-developed root system goes a long way to having a high quality turf.
- Storing nutrients is important to some degree, however, a sandy soil will never have the nutrient storage of a clay soil no matter what is added to the sand.
- Providing a suitable playing/sporting surface varies depending on the particular sport (e.g.: a racetrack has a different requirement compared to a putting green).

SURFACE CHARACTERISTICS FOR DIFFERENT PLAYING SURFACES

Understanding the specific requirements of the sport will assist in making the correct decisions around profile construction and the selection of the most appropriate rootzone media. For example, golf greens typically require dry and firm surfaces that are going to provide good speed. In recent times there has been a move towards a finer, loamy sand that is typical of



the older Melbourne Sandbelt greens. The challenge has been to find a sand that is able to provide the firmer surface while maintaining adequate drainage.

Sportsfields can have a wide range of requirements or expectations though as a general rule they need to be well-drained, hard-wearing and able to cope with high hours of use. In the research by Neylan and Nickson (2019) it was demonstrated that for winter sports a sand-based profile was going to provide the most durable surface with a high hours of use (see Figure 1 above).

Cricket wickets represent a unique turf application where the soil represents everything that you don't want for strong turf growth. That is, the soils can be compacted to produce a very hard surface that produces excellent ball bounce. While the basic characteristics are not ideal, wicket soils also need to have the ability to crack as they dry which in part helps to restore soil structure.

With these few examples it is obvious that we can't have everything in the one soil and we often need to compromise some of the desirable elements for turf growth to achieve the sport surface requirements. In order to find the 'best fit' soil it will be based on soil physics principles and when we understand the soil physical characteristics we can then manage the profile accordingly.

BASIC SOIL PHYSICS

The principles of soil physics tells us everything we need to know to make a decision on the suitability of the soil as the rootzone medium for any sports turf profile. The best example of where soil physics have been used to design sports turf profiles is the USGA's 'Guidelines for a Method of Putting Green Construction' which is based on research that commenced in the 1950s with a strong emphasis on soil physics as it related to turf growth and health.

The right rootzone soil provides the foundation for a high quality turf and a high quality playing surface and has to perform several important functions including:

- Water reservoir (capillary porosity) – adequate moisture retention is important for grass growth and health.
- High aeration (aeration porosity) – essential for strong root growth and adequate gaseous exchange.
- Well drained – keeps the surface dry and improves winter playability.
- Resists compaction – maintains good drainage and soil aeration.

So as to avoid the damage associated with high traffic and wet soils, sand is the preferred rootzone medium. This allows for frequent use of the sports playing surface and the ability to withstand variable weather conditions.

Figure 1. Total hours of use (winter) and surface rating for different profile types

Interestingly, in some quarters when 'sand' is mentioned, there can be an immediate rejection. The standard responses are it's droughty, can't hold nutrients and is unstable. Fundamentally this can be true if the wrong sand has been selected and this is usually as a result of the lack of understanding of the basic criteria required to optimise the advantages and to minimise the disadvantages of sand.

The key structural element of soils and soil testing is soil porosity. This is where we are interested in the spaces or pores between the solid particles. Of the total soil volume about 35-75 per cent (30-40 per cent in sand) is pore space and controls most of the functions of soil. It is not just the total amount of pore space that is important, but the size distribution of the pores and the continuity between them which determines the function and behaviour of a soil. The function of pore spaces are detailed in Table 1 (below) and the proportion of each determines the balance between water storage and transmission pores.

TABLE 1: RANGE OF PORE SIZES AND FUNCTION

Pore Size (mm)	Description and Function
0.5 – 0.05	Transmission Pores (macropores) Drainage Aeration Roots
0.05 – 0.005	Storage Pores (micropores) Water storage Root/root hairs
0.005 – 0.0002	Storage Pores (micropores) Water storage
<0.0002	Residual Pores

Reference: Handreck and Black, 2010

The transmission pores are often called macropores and the volume of a soil occupied by these pores should be greater than 10 per cent if plant roots are to get adequate oxygen. Coarse-textured, sandy soils, and well-structured soils with a lot of biological activity, have a large proportion of pores in this size class.

Storage pores or micropores retain water which is then available for use by plant roots and soil organisms. The proportion of these pores in a soil controls the plant available water capacity. There are even smaller pores (mainly in clay soils) that hold water so tightly that it cannot be extracted by roots or soil organisms. These are the residual pores.

Waterlogging of a turf surface is caused due to a lack of macropores that provide free drainage





Black layer is a result of an imbalance between drainage pores and water retention pores

the USGA in the late 1950s and early 1960s that clearly demonstrated that sand-based profiles provided the best playing surfaces.

SAND SUITABILITY AND PROFILE DEPTH

While a sand-dominated growing media is preferred, there needs to be a balance between coarse and fine sand particles (see Table 2 below). This ensures that the critical aspects of drainage rate and capillary and aeration porosity are achieved. With the changes in many sand resources, what was once considered to be the 'ideal' sand may no longer exist. Consequently, any new sources of sand need to be tested for particle size distribution, moisture retention, aeration porosity and hydraulic conductivity (drainage rate).

TABLE 2: TYPICAL PARTICLE SIZE DISTRIBUTION – SAND PROFILE

Particle Size	% Retained
Gravel (>3.34mm)	0
Fine gravel (2.00mm)	0
Very coarse sand (1.00mm)	<10
Coarse sand (0.50mm)	<20
Medium sand (0.25mm)	40 – 60
Fine sand (0.15mm)	<30
Very fine sand (0.05mm)	<10
Silt and clay (<0.05mm)	<5

Plant growth suffers when soil porosity is out of balance and can be manifested as:

- Waterlogging due to a lack of macropores that provide free drainage;
- Low capillary porosity due to there being too few micropores;
- Increased carbon dioxide and hydrogen sulphide levels that are toxic to plant roots due to a lack of macropores in the soil;
- Low nutrient retention is a result of too few micropores, an excess of macropores that allows for nutrients to be "washed out" of the rootzone and low CEC.
- The soil is too strong (compacted) for roots to penetrate because the macropores have been crushed which results in too many micropores that plant roots can't penetrate.

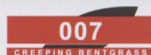
Irrespective of what components are used to provide a rootzone mix, most of the turf-related research on soil porosity specifies the need to have a;

- Total porosity (TP) of 33-50 per cent v/v;
- Non-capillary porosity (NCP) of at least 10-15 per cent v/v (aeration porosity);
- Capillary porosity (CP) of 15-20 per cent v/v (water retention);
- Hydraulic conductivity > 150mm/hr (>300mm/hr in high rainfall regions).

In considering all of the requirements for sports turf rootzones the critical aspects are good drainage, good aeration and adequate moisture retention. A soil dominated by sand is the preferred growing media and this goes back to the original research undertaken by

Once the sand is selected it is important that it is installed at the correct depth to ensure there is a good balance between moisture retention, aeration and drainage. At the bottom of a sand rootzone there will be an accumulation of water following irrigation or rainfall. Through the attraction between

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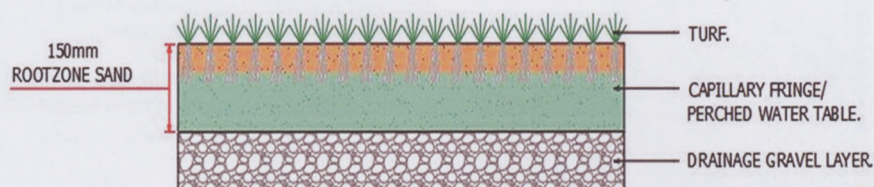
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Shallow sand layer results in a capillary fringe that intrudes into the upper rootzone

water molecules and soil particles in the pore spaces, water will move upwards against gravity. This is commonly referred to as capillary rise and forms what we know as a perched water table. As water moves upwards there is a critical point where gravity breaks the tension between the water and soil particles and allows the water to drain through. At this point air can enter the rootzone (this is the air entry point).

The perched water table provides a method of 'storing' water in the profile, however, it is important that there is a depth of sand above the air entry point to ensure there is adequate aeration in the upper rootzone. A rootzone that is too shallow can result in a playing surface that is excessively wet (as shown in Figure 2 above) or alternatively a rootzone that is too deep will be droughty. Based on this, the depth of the sand layer must not be decided without undertaking a thorough laboratory analysis of the sand and understanding the ramifications of making an arbitrary decision to reduce the depth.

SPECIFYING THE ROOTZONE

When the rootzone is specified, it needs to be understood that one size may not necessarily fit all. The question needs to be asked, "What is required of the playing surface?" Depending on the sport, the following are some of the key considerations around sand selection:



Increased carbon dioxide and hydrogen sulphide levels are toxic to plant roots due to a lack of macropores

"When we understand the soil's physical characteristics, we can then manage the profile accordingly."

- John Neylan

- For golf greens there is an increasing requirement for firm and dry surfaces while having adequate drainage rates.
- With sportsfields there are several questions;
 - What is the likely use in the medium- and long-term? This is very important for community sports fields.
 - What is the level of competition to be played? Elite level fields or fields that may host elite level teams will have stricter requirements around drainage.
 - What is an acceptable drainage capability for the field and how does it relate to rainfall and return to play?
- With racetracks there will be an emphasis on surface stability as well as drainage. One of the more recent concerns regarding sports fields is that sand-based profiles are 'too droughty'. There are two aspects to this – the sand may be too coarse and has an excessively low capillary porosity and/or there is a lack of understanding around irrigation management. As discussed in ATM 21.6 there has been a move towards fine-textured soils (i.e.: not sands) because of the misunderstanding that the water demand will be less. On this I want to make two points;
 - What is the drainage capability of the finer textured soil and what does winter play look like?
 - Is there a thorough understanding of irrigation management as it relates to soil type and the deep root systems of warm-season grasses? Remember that plant water use drives irrigation demand and soil type determines irrigation frequency.

WHAT NEXT?

The next steps are all about testing and reviewing and establishing a quality control programme. Once the decision is made about the expected performance of the turf area, start the search for a suitable sand. Do your homework – discuss with colleagues, agronomists and sand suppliers about what is

Figure 2. A rootzone that is too shallow can result in a playing surface that is excessively wet

available and how the sands have performed. Take samples for analysis and use a laboratory with a proven track record to do the testing.

Another question that is often asked is whether the sand requires an organic amendment? In my experience the main reason to add organic matter such as coir fibre or peat moss is to improve water retention. If so, test the proposed organic amendment for the organic matter content (min 90 per cent w/w) and then undertake sand/organic matter blends and test for moisture retention and hydraulic conductivity. Once this is all completed a quality control programme must be developed to make sure that the final rootzone mix meets the specification and is consistent across all batches.

CONCLUSION

The basics of soil physics as it relates to turf growth and playing surface qualities has been well established over the past 40 years. If we stick to these fundamental principles the outcomes will be predictable and a high level of surface performance can be expected. As we stray from the basic principles of adequate drainage, good aeration and adequate moisture retention the opportunity of failure increases. The keys are:

- Understanding the required surface performance criteria;
- Testing a range of potential sands;
- Initiating a quality control and testing programme during construction. ۞



Soil profile showing excellent root growth due to a good balance between macropores and micropores

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Trust science, not spin

Leading turfgrass mind

*Peter McMaugh AM stresses
the importance of having faith in
science and hardened data over
anecdotal claims and sales pitches.*

Following on my previous article about data, which was stimulated by a webinar presented by Cornell University's Dr Frank Rossi, I was treated to another webinar from Dr Doug Edmeades, a famous pasture agronomist from New Zealand. During that webinar he took to pieces the theories of soil mineral ratios that dominate a lot of the advice that comes to us from analytical chemical companies based on that piece of nonsense.

When you need to understand what soil testing can tell you there are some things that you need to have well placed in your head about how plants work. These are in essence quite simple concepts, but the muck and mystery people out there keep trying to turn them into magic, to fool you into buying products you don't need, and which the plant doesn't need either.

As turfies we are growing grass. As a family, the monocotyledons, which include

grass, are generally able to survive and grow on relatively low levels of phosphorus when compared with the needs of dicotyledons. For us in Australia, the needs for dicotyledons in turf went out the window with the demise of the Weston Research Centre for ACT Parks and Horticulture.

For almost half a century strawberry clover was an essential ingredient in the mix of seeds sown for turf establishment in cool climates. If you have strawberry clover in your mix of plant species, by definition you need phosphorus at a much higher level than needed by the grass component. Then supposedly you didn't need nitrogen applications because theoretically the strawberry clover gave you all you need.

It is an interesting fact that mixed swards of this type are still encouraged in the northern most lands in Europe for use in sports turf. This may well be because in many of these countries their soils are relatively young, and by contrast with Australian soils, nutrient rich.



As the old saying goes, if it's too good to be true then it probably is. Making product application decisions should be based on data not a sales pitch

Many of these grasses were fescues, a very hardy group of grasses, and bentgrasses. The *Agrostis capillaris* of those old mixtures was a very different plant from the *Agrostis tenuis* and the *Agrostis stolonifera* that we use today. Why are they so different? Because they don't thrive in higher nutrient situations when compared with grasses which originate in these richer soils. Perennial rye is a typical example of this. Our modern, highly selected and reselected sport turf types are still ryegrasses. They don't lose the influence of their nutrient-rich natural lands when they are dwarfed.

While there is an innate genetic component which regulates the grass' response to its environment, the mechanisms by which they take up nutrient is the same for all. The controlling principle is the concentration gradient between the concentration of the ions in the plant sap and the concentration of the ions in the soil solution. If in its metabolic processes the plant is removing a lot of ions such as NH_4^+ in building new proteins then there will be a deficit in the plant which must be filled with ions from the soil solution. This is also controlled through a semi-permeable membrane in the cell wall which controls selectively the flows of some specific ions. In other words, the higher the concentration there is in the soil, the higher you will expect to find in the plant. The plant will contain luxury levels that will be stored rather than used if there are luxury levels available in the soil.

This is also a reason why you can't rely on leaf tissue analysis for cations to tell you anything other than they are there at concentrations reflecting those available from the soil. This word 'available' is critical because just as pH is the overall key to solubility concentrations in the soil solution, it also applies inside the plant in the pH of the plant sap. In the case of the ammonia ion, it loses one hydrogen ion (H^+) which is then extruded into the rhizosphere making it acid.

You can apply as much fertiliser as you like, but the pH will determine what goes into soil solution. For some cations the parameters are quite wide but for others they are quite narrow. It is quite surprising what a pH test and a total soluble salts (TSS) test can tell you when it is done properly on soil.

Australian soils are old and when we talk about a five per cent carbon level as being high, others would consider that as low. I go into this area because we, by and large in this country, are lemmings who follow the idea that if something comes from the USA it must be right. Well, the denizens of the turf world in the USA are lemmings too who blindly follow discredited ideas.

Many years ago in New Zealand I was on a conference panel with Dr Vic Stewart, the professor of soils at Aberystwyth University. I had made some remarks about the suitability of pelleted chicken manure for use in growing medium mixes for golf greens. Vic commented, 'I was glad to hear Peter talk about this, up until now I had thought that Australians were just other Americans and spoke nonsense'.

He went on to talk about the importance of how organic matter is organised in growing mediums. Dispersed fine organic matter does not affect the way roots grow in the way that

lumps of organic matter do. When a plant root hits a lump the root branches, putting out multiple feeder roots. The organic lump quickly becomes encased in fine root hairs. How many times have you seen the grass roots in new sand constructions hanging out of the bottom of a plug 250mm deep with not a branched root in sight? The plant roots sit in a growing medium. This may be a natural soil or it may be a concocted growing medium made up to serve special purposes such as golf greens. There are many others too but we don't need to go there.

In nature, soils vary from nutrient-poor sands to nutrient-rich cracking clays. Their natural vegetation reflects this. Golf originated along with its vegetation on nutrient-poor soils. To put it not too kindly, the original grasses we look at on these courses are scavengers and successful ones at that for extracting their mineral needs from these soils. The typical CEC of these soils are usually below 5ppm.

PHOTO: PETERSCHREIBER.MEDIA/ADOBESTOCK.COM



In recent years I have both read and heard speakers from the USA espousing the stratified testing of soil samples with strata as close together as 1cm. Anybody worth their salt has been doing this for the past 50 years. It is not some great new discovery. It really identifies how slack the method of sample preparation has been in many labs over many years. When I was at ATRI we analysed the fertilised plots which by that time had been down for 10 years. Of particular interest was the vertical distribution of calcium and phosphorus.

Following up an inspiration derived from the work of Dr LT Evans of CSIRO on how these elements were distributed over time in pasture soils following surface applications, it showed very clearly that where adequate and regular applications of calcium were applied that the phosphorus moved from the surface to a more even distribution in the vertical profile of the soil. When it lacked calcium the phosphorus mostly stayed where it was put near the surface. This means that apart from anything else calcium plays a role in how phosphorus moves in the soil as well as in the plant.

When we move across to leaf testing for nutrient all we are seeing is the reflection of what the plant is taking up from the soil, not a reflection of what it needs. If you use leaf tissue testing alongside a soils test it may occasionally pinpoint a deficiency, but it is far more likely to tell you when you are wasting money on things the plant doesn't need and you don't need either.

Another piece of nonsense I hear is when practitioners tell me what the 'brix measurement' of their leaves is. Brix is a specialist horticultural measurement of sugar concentration in the plant sap that tells you

when fruit, grapes and sugarcane are ready for harvest. It has no meaning for turf grasses.

But what about the special 'organic' potions that are 'essential' for solving those terrible mystical problems that your grass has? This is precisely where Dr Edmeades became famous. Famous because he was sued by Maxicrop when he published a report on growth trials of their products on pasture and said 'You might as well use water'. Maxicrop lost, because they lost on the evidence – data! One of the people he took special

donations. It keeps them motivated to keep knocking on your door.

I don't know of any other industry that is as incestuous in its gossip train as this one. It thrives on fear. The 'don't miss out' sales pitch is alive and well for the gullible. Ask yourself, how many testimonials add up to data? And how many times do claims have to be repeated before they become data?

That is one of the questions that Dr Edmeades was asked and is where he displayed his high intellect when he explored

“I can't believe the amount of money wasted on muck and mystery products by this industry. The 'don't miss out' sales pitch is alive and well for the gullible. Ask yourself, how many testimonials add up to data?” - Peter McMaugh AM

aim at presented at an Australian Turfgrass Conference a few years back and having talked to some superintendents afterwards, whom I respect as good practitioners, they couldn't believe some of the information that was forthcoming.

Any good turf manager worth their salt knows there are three things you need to be aware of;

- If the speaker is an evangelist for the product, beware!
- If the product is inordinately expensive, then it is a rip off.
- If what it promises seems too good to be true, then it is a scam.

I can't believe the amount of money wasted on crappy muck and mystery products by this industry. But then, the purveyors don't consider it wasteful, they appreciate all your

the link this type of thinking has to post-modernist philosophy. Post-modernism is the cancer in societal thinking that says my opinion is as good as or better than your thinking. In other words, I have just as much right to express it as you have, despite your data. It is at the heart of the anti-vaxxers and other pseudo medical claims. It leads prominent exponents to declare that hard data is just fallacy or trickery and have we ever seen it at its peak in recent years, especially in politics.

This is the cancer that is eating at the heart of society because its god is greed – my greed is as good as your greed and greed is good. Indeed god rewards greed. This is the anti-god of science. Unless we are very careful the anti-scientists will win and that is a very scary thought. 🕌



A good turf manager will scrutinise whether every product they are applying is really needed by the plant



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JOHN FORREST

*Between late April and August, Mt Lawley Golf Club embarked on a greens improvement programme using herbicides to remove *Poa annua* and oversowing with 007 bentgrass*



PHOTOS: JOHN FORREST AND ROD TATT

Mt Lawley's green light

John Forrest looks at the bold greens improvement project that has dramatically transformed the putting surfaces at Perth's Mt Lawley Golf Club.

C OVID-19 created a lot of uncertainty when it sent shockwaves nationally and internationally as golf courses were forced to close their gates. Very quickly COVID plans were put in place, with golf clubs showing a strong duty of care as many had older members who needed protection. Zoom meetings became commonplace, while from a staffing perspective Job Keeper enabled many clubs to keep their staff on across the various departments.

Superintendents and sports turf managers had to make some significant adjustments, exploring different ways of maintaining their turf surfaces due to reduced resources. Standing down staff, with no clear pathway or future for golf clubs, was extremely stressful for managers and it has certainly tested the mettle of all.

With adversity comes opportunity and as has been well documented since the pandemic first hit Australian shores, many golf clubs and sports turf facilities have taken the opportunity to fast-track or undertake various projects while their facilities were either shut or play was reduced due to restrictions. As seen in Victoria during the first lockdown in March, many clubs brought forward their course renovations or carried out other course works that would normally be disruptive or difficult to carry out under normal circumstances.

One Western Australian-based superintendent to do likewise was Mt Lawley Golf Club's Rod Tatt. Like a number of his counterparts, Tatt took advantage of the situation by putting forward a programme to improve Mt Lawley's greens through the use of herbicides to remove *Poa annua* populations and oversowing greens with 007 bentgrass.

Mt Lawley members had been crying out for green surface consistency for some time and for a multitude of reasons it had not been happening. Among the many factors working against Tatt were high traffic (the course pumps through 70,000 rounds per annum), the size of greens, a thatchy organic surface layer and sting nematodes.

A key trigger in making the decision to undertake such a project was the registration around that time of PoaCure (a.i. methiozolin). A root-absorbed pre- and post-emergent herbicide new to the Australian market, Tatt had seen the product in trial situations during his previous superintendent postings in Melbourne. The results he had witnessed were promising, with little or no phytotoxic impact to the bentgrass, and he could see its potential to remove *Poa annua* from Mt Lawley's existing 1019/1020 bentgrass surfaces.

Mt Lawley's 10th green a week after a second application of endothal was made in late April

Label instructions are clear that PoaCure is best applied with 10mm of water when daily temperatures are between 10°C and 26°C. With Perth heading into the cooler months the timing therefore was perfect. If not for PoaCure being available, the project would likely not have been considered.

For the plan to work, all greens had to be taken out of play for three months and temporary greens put in place. At that point competition golf had been suspended due to COVID-19 with only social golf being played. Tatt, together with Mt Lawley general manager Troy O'herm, took the greens improvement proposal to the Board and members to seek their support.

There are few opportunities to take 18 greens out of play for three months, so it was a gutsy move on the club's behalf, but one that was backed by a strong belief in what was about to be undertaken. There was a clear view of the procedure and the desired outcome. Heavy renovation and herbicide applications were selected rather than any major work, as a greens rebuild is already earmarked for late 2021. Tatt's background as superintendent at the likes of Cranbourne, Woodlands and Yarra Yarra golf clubs in Melbourne prior to his arrival at Mt Lawley in September 2018, also gave him the confidence and experience to ensure a successful outcome.

GREEN FOR GO

On 27 March, as COVID restrictions hit, all club staff at Mt Lawley were stood down except for the general manager and superintendent. Just over a week later a skeleton crew of ground staff returned to resume maintenance of the course. Over the next 10 days the greens improvement proposal was developed and discussed via Zoom meetings between the greens committee and Board.

The proposal was approved subject to member sanction via a survey and between 17 and 20 April the members were asked to vote on it. Comprehensive support was forthcoming, with 83 per cent of members in favour of the project proceeding. By the time the survey results had come through, Tatt had welcomed his full contingent of staff back to full-time hours which meant the project could proceed at speed.

On 23 April all greens were closed and endothal applied. Taking the greens out of play saw a turf health improvement after two weeks. After 2mm rain fell on ANZAC Day, the following day a second application of endothal was made, tank mixed with Primo at 1.5L/ha. The aim of this was to kill the *Poa* and heavily regulate the existing bentgrass, allowing the



soon-to-be oversown 007 to germinate and grow with limited competition. Between 27 and 30 April the greens were renovated with 16mm hollow tines, topdressed and TX10 fertiliser applied along with gypsum and humibase.

On 1 May, all greens were oversown with 007 bentgrass at 1.2kg/100m² with two passes of a drop spreader, before the surface was rolled with a Sarel roller to ensure good seed-to-soil contact. The timing of the project proved ideal to plant and grow bentgrass in the cooler months. Often WA greens are seeded at the end of the golf season due to playing commitments. Planting bentgrass during a hot spring or summer period exposes the new surfaces to high temperatures and evaporation. The other important part about the timing was it suited the requirements for PoaCure and endothal applications for best efficacy.

By 4 May germination of the 007 bentgrass could be seen and a week later a pre-seeder fertiliser was applied. That was followed another week later by a preventative fungicide and the start of a weekly foliar fertiliser programme. The greens received their first mow at 7mm 21 days after seeding, with mowing height reduced to 5mm a week later and remaining at that height until opening day on 1 August 2020.

During May a weekly topdressing programme started and continued through winter. In June, with *Poa annua* emerging, Primo was applied at 1L/ha to settle growth of *Poa* until the PoaCure programme could commence. On 22 June the greens also received an 8mm solid tine.



On 1 May all greens were oversown with 007 bentgrass at 1.2kg/100m² with excellent germination (left) and coverage attained by the two-week mark (right)

The first application of PoaCure (2L/ha) was made on 20 July, 11 weeks after seeding with the 007 at the four-leaf stage. The greens were reopened on 1 August, cut at a height of 4.5mm, and two days later a second application of PoaCure was put out, also at 2L/ha. Three more applications of PoaCure were then made over the following month:

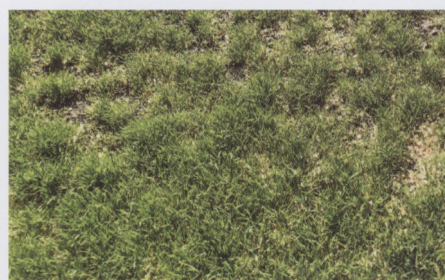
- Third application (17 August) 2L/ha;
- Fourth application (31 August) 2L/ha; and
- Fifth application (18 September) 4L/ha.

During September the greens started being lightly vertimowed and brushed and at the start of October they were given a 6mm hollow tine aeration and light topdress. On 19 October a sixth application of PoaCure was made at 4L/ha on half of the greens. (Rates were increased for the fifth and sixth applications due to some biotypes that were persisting). Come 24 October and the first round of the Mt Lawley club championships, the greens were performing well, were firm and running at 12' on the stimpmeter.

LONG-TERM VISION

Tatt notes that at times it looked like the PoaCure was not as effective as anticipated, but with a little bit of patience came the desired result. While the *Poa* plants looked like they were not being affected initially, over time they eventually melted out.

As expected, there are still some *Poa* plants persisting and Tatt was under no illusion that they would all disappear after just one season of applications. It will be an ongoing commitment to keep *Poa* to a minimum and





The greens received their first mow at 7mm 21 days after seeding, with mowing height reduced to 5mm a week later and remaining there until opening day on 1 August

most importantly presenting a surface that the members enjoy putting on. PoaCure will be applied once again in autumn and a spot spraying programme will be implemented. No paclobutrazol has been used on the course for nearly two years due to concerns about the impact on an already weak root system.

Mt Lawley has Santa Ana couchgrass fairways as well and part of the *Poa* control strategy is looking at areas around the course, especially those close to the greens. Nominee (bispyribac-sodium), a post-emergent herbicide, was applied on greens surrounds to remove existing *Poa* plants. A slight phytotoxic reaction occurred on the Santa Ana but recovery was quick. The *Poa* kill was excellent and stopped any *Poa* seed being trafficked onto the greens. Care was also taken not to get any Nominee on the new green surfaces.

As mentioned earlier, planning is currently underway to reconstruct all of Mt Lawley's green complexes as part of a Course Master Plan starting within the next two years. With such a major rebuild in the pipeline, Tatt has set up a trial on the club's turf nursery looking at various soil amendments to analyse their performance from germination to maturity through all seasons. As part of the analysis, the plots will be tested for moisture retention and firmness (using a Clegg hammer and penetrometer), surface coverage, uniformity, colour and nutrient retention. The trial plots comprise;

- 5% compost;
- 10% compost;
- 15% compost;
- 10% biochar;
- 20% biochar;
- 30% biochar;
- 10% biochar and 10% compost; and
- Profile porous ceramic.

BACKING THEIR SUPER

One of the highlights of the whole project according to Tatt was how the whole club worked as a team to undertake the project. It also showed how important good communication is between superintendent, general manager, the Board and committees so that the members are clear on what is taking place. The survey for the members gave them some ownership of the process and in this case a clear indication of support.

In October, after the greens had been opened, a YouTube video was posted by the club with O'hern interviewing Tatt about the outcomes of the programme and other aspects of course management.



Between five and six applications of PoaCure were made to the greens between 20 July and 19 October. Pictured above is the 4th green and below the 15th

"The programme has worked really well," Tatt explains in the video. "We had *Poa* germinate over the winter period as expected but we treated that with PoaCure. We will still have some *Poa* visible, but next year we will continue with the programme and get the greens as clean as we can. The 007 has worked very well and we now have the best density of grass coverage and a lot deeper root system and better structure which will set us up nicely for the warm summer ahead."

Tatt, together with his crew, have transformed the greens into surfaces that the members are now enjoying and proud of. No, *Poa* has not been completely removed, but the population is now at a far more manageable level. Perhaps the most refreshing aspect of this project is seeing a golf club back their superintendent and now reaping the rewards of his strong agronomic understanding. 🏌️



Tatt says the greens currently have their best density, root depth and root structure for many years



With a likely greens replacement programme in the pipeline come the end of 2021, Tatt is undertaking an amendment trial on the club's bentgrass nursery green

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The introduction of 'sit-down', electric and petrol-driven, multiple-head rollers for bowling and golf greens in the late 1960s by Ron Kaye marked a huge step toward modern greens rollers

Rolling with it



In the second part of their historical look at the use of mechanised rolling as a key cultural practice in presenting sports turf surfaces, Peter McMaugh AM and Gary Beehag discuss the science behind the development of lightweight, multiple-head bowling and golf green rollers and some of the key personalities involved.

In the last edition ('Rolling with it' – ATM Vol 22.5 Sep-Oct, pages 52-54) we emphasised use of lightweight, mechanised rollers on golf putting greens was developed in the current era of golf course management, but hypothesised that a de facto relationship has always existed between mowing and rolling golf greens. In contrast, rolling of bowling greens has always been viewed as separate from mowing.

Readers may still be wondering about the driving forces behind conception design, manufacture and universal acceptance of lightweight roller units for bowling and golf greens. In this follow-up article we answer these questions and discuss the significance of two key personalities – Australian aeronautical engineer Ron Kaye and renowned turfgrass scientist Dr. Jim Beard (United States).

RON KAYE – DESIGNER

Conception, design and early manufacture of multi-roller machines for bowling and golf greens can be largely attributed to Australian engineer Ron Kaye way back in the mid-1940s. Ron's association with turfgrass rollers

began by first modifying existing rollers then manufacturing his own walk-behind, electric-driven, large-diameter, single steel rollers for bowling greens in Victoria. These beasts weighed around 400kg with a single, hollow steel roller approximately of the same width and diameter of around 90cm or more. Early Kaye walk-behind bowling green rollers and other roller brands were sold Australia wide.

Ron subsequently recognised the undesirable 'bow-wave' effect created by a single large-diameter roller on bowling greens of the time and understood the relatively wide contact angle with their surface. Ron's engineering theory behind conception of multiple roller units was their sequential forward rotation, each with a relatively narrow contact angle, progressively evened out any imperfections by their downward pressure on any slightly higher points on a green.

The first thing you realise when you start looking for technical information about turfgrass rollers is there is a paucity of science-based data and in its place is often somewhat suspect almost pseudo-science efforts to develop equations for rolling factors. There

is however one outstanding paper which is the PhD thesis of Peter Shipton (UK) as was mentioned in our article last edition.

The first concept you have to get very clear about rolling is that the overall weight of the roller is not what compresses the contacted surface. The overall weight only matters when it is taken into consideration with the area of the roller which is in contact with the surface. The area over which pressure is directed is not only governed by roller diameter but also the width or length of the roller. The wider it is the less pressure is going to be.

The other critical bit of thinking is the width of the actual area of contact. This can be calculated by the contact angle that the steel drum makes with the surface. This in turn is controlled by the radius of the roller. If we look at the diagrammatic representation of roller diameters in Figure 1 (top of next page) and consider that each one of these three is of the same width and carries the same weight, then the greatest pressure is going to be on the smaller diameter roller. If we view different diameter rollers from the front (see Figure 2), the narrower the load bearing



PHOTO: BRETT ROBINSON

rollers is attested to the hundreds of units sold throughout Australia. These early 'stand-on' type electric-driven rollers allowed a bowling green to be rolled with considerable ease in around 40 minutes. The Rankin Roller, while no longer manufactured, is still used today by many bowling greenkeepers. Why? Because of its weight, number of rollers and for bringing greens back into play following major renovations which may include 'shaving'.

Introduction of 'sit-down', electric-driven, multiple-head rollers for bowling greens (see photo below) and later petrol-driven golf green rollers in the late 1960s by Ron Kaye marked a huge step toward modern greens rollers. Ron sold his manufacturing company to Victa Sunbeam Corporation (USA) in 1970, retiring to Queensland's Gold Coast. Despite his partial retirement, Ron remained active for many years in the design of subsequent makes of bowling and golf green rollers. It was during the early 1980s the second author (Gary Beehag) met and interviewed Ron at his Gold Coast home where he provided information and hand-drawn sketches of his series of roller designs. The drawings and associated words make interesting reading, thus providing insight of Ron's philosophy.

Victa manufactured the 'sit-on' Kaye roller under licence to Ron for five years. The Victa Multi-Roller (1973) of 76cm width and their later 'Mark II' version (1976) of 100cm width were introduced by Victa for bowling greens. These two sit-on models were petrol-driven, comprising one larger-diameter drive roller and four small-diameter rollers in the steering head. The later bulky design, difficulty in moving between greens, severe engine noise and vibration and reliability problems resulted in them not being widely successful. Notes from Ron's Queensland interview simply state, "they (Victa) stuffed their own design".

surface the deeper the pressure lines extend. What Ron may have not fully understood is the downward pressure patterns created under load by various diameters at uneven spacing.

PIONEERING DECADES – MULTIPLE-HEAD ROLLERS

Ron did, however, recognise the necessity to make it far easier and quicker with less manual effort for greenkeepers to manoeuvre a roller and roll a green. So, in the 1960s he conceived for bowling greens electric-driven machines with smaller-diameter, multiple rollers. The original Kaye Triple Rollerator and later improved models weighed around 150kg with a rolling width of 80-90cm. The early units were of walk-behind design with 3-4 rollers, depending on model. Later versions had smaller-width 'outrigger rollers' allowing the greenkeeper to stand while operating, thus creating additional rolling factor.

Later bowling green rollers included Roll-Tru (Alex Graham 1965), Scott Bonnar Roller (Scott Bonnar 1967), Rankin Roller (Carco 1976) and Automatic Pressure Control Roller (Winston Suttle 1980s). Success of these

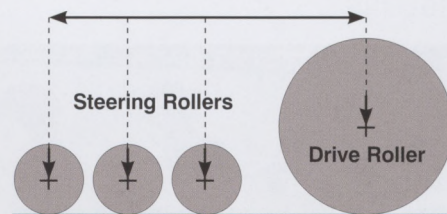


Figure 1. Diagrammatic concept of multiple rollers

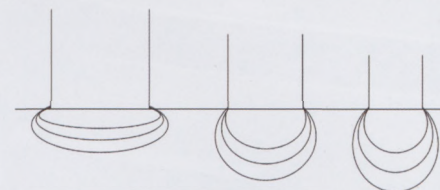


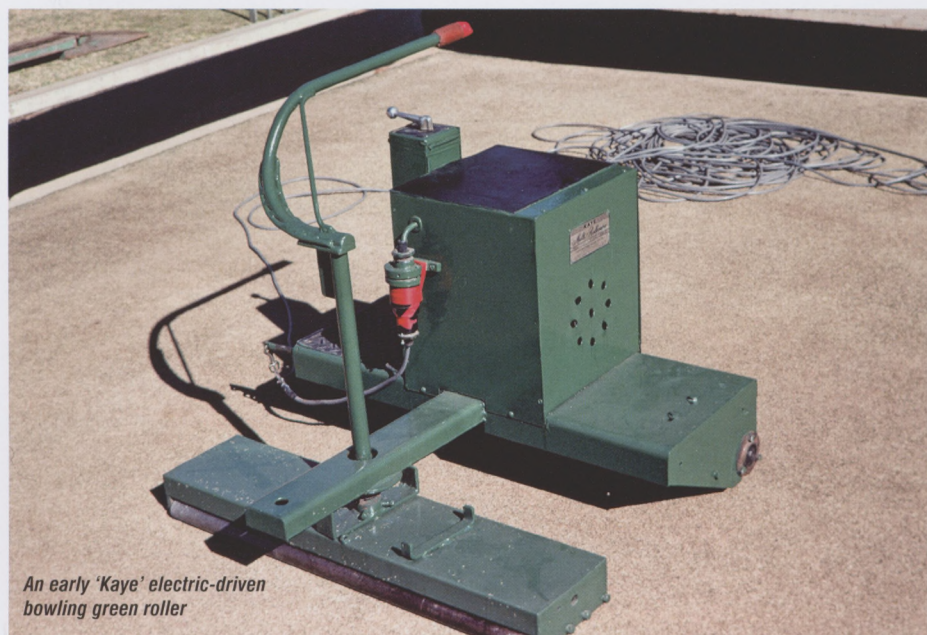
Figure 2. Front view of roller loads

THE MODERN ERA – LIGHTWEIGHT ROLLERS

In his 1906 book 'Golf Greens and Greenkeeping', H.G. Hutchinson referred to steel (single) rollers but which may be useful "3 foot or so in width, and weighing a hundredweight to a hundredweight and a half". One hundredweight is around 50kg. Although an early description, it provides one definition of lightweight albeit of a single roller.

Introduction of the Forrest Greens Roller in 1978 truly heralded the modern lightweight, multiple-roller for bowling greens, in other words a true 'lightweight, surface-finishing roller' (see photo top of next page). This simple-design roller unit weighed approximately 152kg (without operator) and had a 162cm rolling width. Electric-driven through a series of belts and pulleys, the unit had one 13cm-diameter front drive roller and two 8cm-diameter steering rollers. The simple but effective separate handle and wheel system also designed by Ron provided relative ease of transport between bowling greens.

A relatively narrow distance between the drive and steering rollers proved



An early 'Kaye' electric-driven bowling green roller

PHOTO: GARY BEEHAG



PHOTO: GARY BEEHAG

Introduction of the Forrest Greens Roller in 1978 heralded the modern lightweight, multiple-roller for bowling greens

somewhat problematic of the unit's stability for the operator when starting to roll a green. Nonetheless, the Forrest Greens Roller designed by Ron gained huge success in Australia. The roller design gained significant recognition overseas when Ron was invited to demonstrate improvement in pace of the bowling greens at the 1978 World Bowls Championships in Edmonton, Canada (see newspaper clipping above right). Many later versions of the Forrest Greens Roller and similar early units (e.g.: Turf-Tec and TurfTrak) although not made are still used on bowling greens throughout Australia.

DR. JIM BEARD – LIGHTWEIGHT ROLLER ENTHUSIAST

One evening during one of his 1980s visits to Australia, the late Jim Beard visited the principal author (Peter McMaugh) in Sydney and asked what he thought of the quality

differences between golf green surfaces prepared with triplex and walk-behind cylinder mowers? The principal author agreed with Jim that the surface quality from walk-behind mowers was superior to that produced by the triplex mowers, because with the latter you have taken away the rolling factor. This was a light bulb moment for Jim.

He was even more impressed when told that Frank Forrest, then manufacturing rollers under license to Ron Kaye, had started work on a mechanised machine suitable for rolling golf greens. Jim made a trip to Melbourne to see it for himself and to meet Forrest.

Jim returned to the USA as the white knight on fire with a new cause. From the early 1990s, Jim published several extension-based articles in US turfgrass journals and magazines promoting the Forrest Greens Roller concept and associated agronomic benefits and some precautions of rolling golf greens.



PHOTO: GARY BEEHAG

The Smooth Roll unit was initially designed by John Euell of Melbourne and is now manufactured in Victoria



CLIPPING: RAY DUFTY AND DOROTHY RIX

A newspaper clipping showing Ron Kaye rolling the greens at the 1978 Edmonton World Championships

Arguably, his writings of rolling golf greens were largely responsible of greater awareness among North American golf superintendents and others of the Australian-designed and built machines. Improved smoothness and green speed attained from this early roller subsequently opened the door to export to numerous countries future Australian-built bowling green and golf green rollers.

KAYE'S LEGACY

Ron Kaye passed away many years ago but left many legacies from which many have benefited. Other makes of Australian-made bowling green rollers were manufactured during the 1980s. Smooth Roll (1982), Rankin Sidewinder (1986) and PSM Greens Roller and others all made lightweight, multiple-roller units weighing between 150kg and 220kg. Drive mechanisms in these units were either belt/pulley, chain/sprocket and/or hydraulic, depending on machine make. The PSM Greens Roller (Queensland) and Smooth Roll (Victoria) units are still manufactured for bowling greens.

The Smooth Roll unit was initially designed by John Euell of Melbourne and is now manufactured in Victoria. The Smooth Roll roller (left) weighs 220kg (without operator) and has been exported to England and New Zealand. The Smooth Roll golf green roller was displayed at the 1993 GCSAA Conference and has attained some success overseas.

Interestingly, roller width on bowling green models has remained around 150cm. This allows a bowling green to be single-rolled in around 15 minutes. Whilst bowling green rollers can afford relatively wide rollers given their level surface, excessive width (whatever length) may result in a degree of roller flexing and roller bearing wear. However, greater length means less pressure.

For golf putting greens, petrol-driven lightweight, multiple-rollers have been manufactured in Australia since the late 1970s. Early ones were made by Ron Kaye and Turf-Tec. Some units of the American-made Smithco Tournament Ultra, weighing a massive 345kg (without operator), are still used on golf greens in Australia.



The Tru-Turf golf green roller is an Australian export success story and is now sold the world over

These early units were relatively bulky, requiring a towed trailer for their transport. One model possessed a roller width of 91cm, far too wide for golf greens thus proving unsuccessful. Today, golf green roller units are manufactured in Australia by Smooth Roll (Victoria) and Tru-Turf (Queensland). Both these units have a steering handle. The Toro GreensPro roller (above right) which has a car-type steering wheel is imported into Australia.

A feature common to lightweight, multiple-rollers is the small-diameter front steering rollers around 50mm diameter of split design, enabling effective rolling across surface contours. The single drive roller is of greater diameter having a rubberised-surface for greater traction. An integrated system of handle, quick-attachment system and inflatable 'caddy-wheel' design remains a feature of these lightweight rollers for golf greens. Aside from aiding safe transport between greens, the various systems avoid damage and possible misalignment of rollers and bearings.

The Tru-Turf golf green roller (above left) is an Australian and export success story. Tru-Turf rollers were introduced into the Australian market in 1989 based on a design of Ron

Kaye. Tru-Turf rollers have been exported worldwide, first to the US in 1992 which is now the single largest market. The Tru-Turf rollers are also sold in Europe, the United Kingdom, South East Asia even Central and South America. Tru-Turf introduced a 48-volt electric golf green roller in 2013.

A key design of effective rollers on golf green units is their centre-pivot point above the steering roller head, allowing the ability to follow not modify existing golf green contour integrity. This is achieved on most golf green rollers by having split, small diameter rollers. Derivative and copy models of lightweight, multiple-rollers are manufactured in the United States, United Kingdom and South Africa for bowling and golf greens. Now turfgrass rollers are being designed and manufactured for use on high-value sportsgrounds and golf course fairways. Many Australian and overseas manufacturing companies continue to benefit from the opportunity provided from lightweight, multiple rollers.

UNANSWERED QUESTIONS

Given the understanding we have to date of some of the science behind rollers, it still



The Toro GreensPro has a car-type steering wheel

leaves us in the dark about a lot of questions. It is obvious that the width of rollers suitable for various turfgrass sites will be different especially if the playing surfaces are undulating as they are for golf. However, arguably we still do not know how spacing of rollers in multiple roller units work for achieving the most uniformly level surfaces. Furthermore, we still do not have any published scientific data on the spacing of rollers in a small diameter rack. Is it better to have the spheres of influence of pressure for each roller overlapping or is it more effective to keep them separate?

While lightweight, multiple-rollers in combination with mowers have improved bowling and golf greens surfaces, as attested to measurement of their pace, what criteria do you use when purchasing a roller. Do you use a Stimpmeter or similar device to compare rollers?

ACKNOWLEDGEMENTS

The authors sincerely acknowledge information freely provided by Peter Hartshorn, John Ellul, Geoff Burnside and Ray Dufty and Dorothy Rix and turf managers who allowed taking photographs of rollers at their facilities. ㊦

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Workers operating plant and equipment with an alcohol hangover may be significantly compromising your workplace safety and environment protection efforts

PHOTO: WASAN/ADOBESTOCK.COM

Sobering thoughts

As we move through December it's fair to say Christmas cheer is well and truly on. This also means the shed/work Christmas party is fast approaching and the Christmas function rules are being communicated to all staff. Those rules will likely include a reminder to staff that they are still at work and to be on their usual good behaviour, the appointment of a couple of guardian angels and notification of function starting and finishing times. All of this is pretty obvious and was recently communicated in epar's Christmas Function Stand-Up Talk, but have you considered the worker who presents at work the next day with a hangover?

Hangovers develop when blood alcohol concentration (BAC) returns to zero and is characterised by a feeling of general misery that may last up to 20 hours after alcohol consumption. A study has shown that people driving and operating plant and equipment with a hangover showed the same degree of driving impairment as drivers who were intoxicated. The study reported, "The magnitude of driving impairment during alcohol hangover is comparable to a BAC between 0.05 and 0.08%."

For the study, the researchers recruited participants prepared to consume 10 alcoholic drinks while out partying. Tough gig! They then completed a simple driving simulation task and found that:

- Even with a BAC of zero, their driving was so bad that they could have been drunk.
- With a hangover, drivers showed the same pattern of weaving in and out of their lane as drivers who were over the legal limit.
- The hungover participants could tell that they were not driving well.

With Christmas parties in full swing at sheds around the country, compliance expert Terry Muir writes that working the following day with a hangover could have serious consequences.

- The hungover participants reported their driving quality was significantly poorer and less safe, less considerate, less predictable and less responsible.
- The hungover participants also reported being significantly more tense while driving.

Another study published in May 2020 investigating the impact of alcohol hangover on driving performance subjected participants to a demanding driving scenario including traffic and pedestrians, traffic lights and other potential hazards in a mixed rural and urban setting. This study focussed on driver attention, steering control and driving violations in a hangover condition.

The next-day consequences of a social drinking session like your Christmas function could be significant. Of interest in this study is that participants were relatively young and inexperienced drivers. Their inclusion is warranted given that this age group is highly represented in road and workplace incidents that are contributed to by a lack of observation and anticipation skills, increased recklessness and thrill seeking and feelings of invincibility and over-confidence.

These combine to create skill-risk whereby young operators of cars and plant and equipment believe they possess high level operating skills and are unlikely to have an accident in risky-driving scenarios such as driving following a night of alcohol consumption. Overall, driving and plant and equipment hangover performance is significantly compromised by a hangover.

If workers operate plant and equipment with an alcohol hangover they may be significantly compromising your workplace safety and environment protection efforts. And a final note for those hardcore partiers, the study also concluded that there's no way to avoid a hangover after a night of heavy drinking. "Those who took food or water showed a slight statistical improvement in how they felt over those who didn't, but this didn't really translate into a meaningful difference. From what we know from the surveys so far, the only practical way to avoid a hangover is to drink less alcohol."

Surveys have shown that hangovers are causing 11.5 million 'sick days' a year at a cost of \$3 billion to the Australian economy. And there are the tell-tale signs of a shell of a human who does come to work the morning after going too hard at your Christmas function - sore head, red eyes and coffee in hand.

Hand on heart, you know if you have turned up to work with a hangover. You also know that you are likely to be less productive and a risk to yourself, others, and the environment. All tasks in a sports turf or in a hospitality setting are EHS-sensitive tasks and the boss can, and most likely will, ask you to leave the workplace because by sending a hungover worker home, untoward incidents can be avoided. It's a sobering thought. 🍷

It has been a challenging years for apprentices and trainees with COVID impacting not only their workplace but also the delivery of their training

PHOTO: ANTHONY MILLS (THE LAKES GC)

Critical partnership

In the January-February 2018 edition of ATM (Volume 20.1), I stated that the key to success in any partnership is consistent and solid communication.

In turf management education this is particularly necessary between the major players – the trainee (or apprentice), the employer and of course the registered training organisation (RTO) – and still stands true to this day. Training is all about the partnership.

TAFE has consistently been endorsed as the main supplier of training to the sports turf industry. This has been possible due to our ongoing commitments to quality training and a continued focus on our relationships with major industry partners including the Australian Sports Turf Managers Association, the Sports Turf Association of Australia, the Bowling Greenkeepers Association as well as through all state and territory associations.

We meet as the National Turf Education Working Group (NTEWG) biannually, discussing issues relating to the curriculum and training. The main function of the group is to facilitate a consistent approach to the training and delivery of sports turf qualifications across Australia, meaning that a graduate who completes their training in regional Victoria will have the same education and training as someone in Perth, or elsewhere in the country. This is critically important as our qualification is a National Training Product widely accepted across the globe.

As a by-product of this, the NTEWG produced the industry benchmark standard for each sports turf qualification, setting out how trainees and apprentices are assessed in each unit of competency. These are available via

COVID-19 has highlighted the importance of having a strong partnership between TAFEs, apprentices and employers writes NTEWG co-chair Albert Sherry.

your association websites and are an excellent tool for all employers to enhance your role in the partnership.

For a variety of reasons the roles of RTOs often come under the spotlight, but critically, as an employer, you are the main player in the training partnership. Quite simply, you must know what your obligations are and the expectations of your trainee. Of course, issues can be overcome with communication and a knowledge of the training product and the responsibilities of each player.

Importantly, private RTOs have never communicated with our industry nor are they aware of the standards endorsed by the associations and TAFE colleges. Therefore, it is certainly a case of buyer beware!

COVID IMPACT

In light of COVID-19 lockdowns, displacements and restructures, and significant revenue losses, training has changed dramatically in 2020. This is not to mention the effects of fatigue on the mental health of all in the workplace during this time. As TAFE institutions started delivery in very different formats via online forums such as Zoom, Google Classroom, MS Teams and Moodle

platforms, having employers knowing what their trainee is doing adds validation to what we are trying to achieve.

As the employer, it gives you the opportunity to provide tasks consistent with the training programme, gives the trainee time to practice and for you to gauge whether their knowledge and skill level consistently meets industry benchmark standards. There are of course benefits in having a mix of an online form and face-to-face, but again this must be carefully managed and serve the purpose of our industry, our clients and the trainee.

It is clear that this style of training has been very difficult, with many of the so-called tech-savvy generation left behind. This should make sense as we are very practically-oriented people and so motivation or lack of engagement has been a factor that must be considered, carefully planned and managed if we are going to use these tools in the future.

Sadly, industry has lost some good talent throughout the year for a wide variety of reasons, including some of the above listed. That said, I must mention the efforts of our diligent and hardworking turf teachers during and now (thankfully) post lockdown to motivate your employees to continue to push through in very difficult circumstances.

As educators, our obligation continues to be to you and your employees to provide the tools your trainee needs to make them the best turf manager they can be, possessing the skills and knowledge needed to be work-ready for the challenges of an environmentally diverse industry. On behalf of all teachers, thank you as the major player in the training partnership for your ongoing and amazing support. 🌱



Worrigeer Links was built in the early 2000s and opened on 1 January 2004. It forms part of the Worrigeer Sports precinct on the outskirts of Nowra on the NSW South Coast

Worrigeer Links/Ex-Servos, NSW

An 18-hole golf course, two bowling greens and a cricket oval with turf wicket block. Chris Regan and his small team at Worrigeer Links, part of the Shoalhaven Ex-Services Group on the NSW South Coast, certainly have their work cut out managing three separate facilities.

Superintendent: Chris Regan (50).

Nickname: Rego.

Family: Wife Kerrie, children Hugh (14) and Grace (9).

Social media: On all of them, only to keep an eye on my 14-year-old son, to ensure he's doing the right things!

Period as a superintendent: 12 months.

Association involvement: ASTMA and NSWGCSA.

Career: Nowra Golf Club (casual, apprentice and 2IC 1990-1998), Elanora Country Club (1998-2002), Worrigeer Links (2003 to present, including 13 years as assistant).

Qualifications: Trade Certificate Greenkeeping and Cert III in Landscape and Design.

Major hobbies/past-times: Coaching my son's rugby league team, riding motorbikes, listening to good Aussie rock music and family time with our dog Maggie. I'm also a mad supporter of the St George Illawarra Dragons.

Where in Australia is Worrigeer Links and what is the club/township famous for? We are situated on the south coast of NSW, two hours south of Sydney. Nowra is the main town which sees us in the catchment of the City of Shoalhaven. Nowra is famous for the horse Archer that won the first two Melbourne Cups. Legend has it that Archer was walked from Nowra to Melbourne! Arwon, which is 'Nowra' spelt backwards, also won a Melbourne Cup. We have had many sporting stars come from our region who have represented Australia in rugby league, rugby union, athletics, cricket, basketball, hockey, swimming, bowls and golf.

Tell us a bit about your background and how you started out in the turf industry. I finished school in 1988 and started at Nowra Golf Club as a casual under superintendent Ed Watts. I finished my apprenticeship there before moving up to 2IC. I then had the great

opportunity to continue greenkeeping at Elanora Country Club in Sydney under another influential superintendent Peter Schumacher. I really enjoyed my time on the Northern Beaches and made some wonderful life-long friends. In 2003 an opportunity arrived to move back home and start as 2IC under Tony Webster at Worrigeer Links.

The Regan family name is quite renowned in our area as my grandfather, father and uncles all played a lot of sport in the region. I am involved in an organisation called The Bernie Regan Sporting Trust which is named in honour of my father who passed away in 1984. From his sports store in Nowra, he assisted local children financially to achieve their sporting goals. On his passing, the Trust was set up to continue his vision of helping families financially. To date over \$360,000 has been awarded in grants, something that we are very proud of.

Why did you choose to go down the turf management path and how did you end up at Worrigeer Links? I have always been an outdoor person, so greenkeeping was a natural fit. My wife is an art teacher and when we were living in Sydney she was offered a job back at the local high school. Worrigeer Links was about to start construction at the time the 2IC role was offered to me. As they say, timing is everything.

You have recently taken over following the retirement of Tony Webster. Talk a little about Tony's legacy there and the role he played in the facility that is there now. Tony had been employed at the club for 39 years, firstly looking after the one bowling green at the main club in town before moving out to our current location in Worrigeer in 2000. Tony saw the site grow from vacant farm land to a first class sporting facility providing much entertainment for the local community and visitors to enjoy. He should be very proud of his contribution to Worrigeer Links.

How have you adapted moving into the primary role there? Was it an easy transition? I have had many challenges in the first 12 months. First was the south coast bushfires at Christmas/New Year, the floods we received in February, July and August and then throw COVID-19 into the mix and you can see it has been a rather eventful initiation into the leading role. Other than the mentioned events, the transition has been rather smooth.

Give us an overview of the facility. Obviously it is a very big community facility with a golf course, bowling greens and cricket oval. We are in a fairly unique situation in that we provide such a range of sporting facilities to the local community. The sporting precinct comprises the 18-hole golf course as well as two bowling greens and a cricket oval with turf wickets. Our golf membership has grown significantly over the past five years, with the course opening back on 1 January 2004. The bowling greens and cricket ground were opened earlier in 2001 and have also seen considerable growth in members.

The golf course was constructed on former farming land that was extremely swampy, thus drainage has been a major issue over years. We have managed to install thousands of metres of drainage lines throughout the course to ease the situation. One of the unique features of the layout is the 10th/15th double green which measures 1600m² in size. A golfer can be on the green putting, but not have a



The Worrigeer Sports crew (from left) Troy Sheehy, Greg Judd, superintendent Chris Regan, David Laurie, Brandon Mallia and assistant Adam Fortier. Absent is Jason Daniel

straight line of sight to putt at the pin, causing some frustration at times. Such is golf...

How do you structure your team to maintain each of the respective areas? Is it an easy/hard facility to manage? My staff all work on the three different sporting facilities. It is challenging at times to manage each turf surface. For instance we have our club cricket games on a Saturday, then representative games on some Sundays and then school cricket during the week. Throw in the golf course and bowling greens and as you can imagine we are on the go constantly. It is both hard and sometimes easy to manage the facility at certain times, depending on the weather. The staff all know what is expected of them and they all contribute greatly to the running of all three facilities.

One of the most challenging aspects would be the differences in maintaining a golf green compared to a bowling green, then onto the cricket wickets. All have their varying wants and needs agronomically. We want our golf greens to be firm and drain adequately, but not too compacted on their sand profile, then we spend hours upon hours rolling the cricket wicket to gain good bounce on a clay profile. It is definitely a challenging occupation, but at the same time very rewarding.

How has COVID-19 impacted your operations there and what changes have you had to make? When COVID first hit all 110 staff across our two clubs were stood down – bar, office, restaurant and greens staff. We were offered to take sick leave, annual leave or long service. After some consultation with



Regan's team of six work across all three facilities – the golf course, sports oval with turf wicket block and two bowling greens – a total of 68 hectares of maintained turf surfaces



The club's two bowling greens are Tifdwarf. The bowling greens and cricket wicket were opened in 2001 ahead of the golf course, with membership experiencing considerable growth in the years since

our CEO and HR department, it was decided that all six greens staff would work three days per week so the sports turf facilities could be sufficiently maintained and the offered leave would supplement the other hours lost. Thankfully Job Keeper was implemented by the Federal Government and we were back to normal within two weeks of COVID hitting. The golf course, bowling greens and cricket wicket remained closed for a further 32 days and it was certainly nice to maintain our facilities without any interruptions.

What changes have you implemented since taking over? I have approached the change in management with a fair amount of enthusiasm. 'Lead by example and they will follow' has been my main train of thought. I can't praise my staff enough. All have jumped on board and shown a great deal of interest, enthusiasm and pride in the way we present all three sports facilities.

Any special environmental considerations that you have to incorporate into the management of the precinct? We do have a large wetland surrounding one third of the golf course. There is a 20 metre buffer zone which protects the area from encroachment by golfers. We have a large amount of wildlife, migrating birds, snakes and frogs inhabiting the area. We also have three retention basins situated throughout the golf course which pump rain water and car park run off back to our main dam for irrigation purposes.

What are some of the major challenges facing Worrigeer Links from a turf management and general club management perspective? Like the majority of sports turf facilities in our country, water is and can be a major challenge at times. At Worrigeer Links we are very fortunate to have our local council (Shoalhaven City Council) on board supporting us. Eighteen years ago the council invested

heavily in a Reclaimed Water Management Scheme (REMS). We receive an allocated amount of water free of charge to irrigate all of our sports facilities, thus taking away the burden to pay for local town water. This water, combined with any rainfall that we receive on our facility, is enough to keep us self-sufficient.

Outline any major course/facility improvement works recently completed. In the past six months our attention has been diverted to the new Growers precinct, which is a new restaurant the club has built. We lost two thirds of our putting green and have had to rebuild a new one, reconstructed the 6th tee complex, relocated our practice nets, installed new cart paths and finally work around the new 48-cart storage sheds that were constructed for our members' carts that back onto the bowling greens.

The weather and climate are always a great leveller for a sports turf manager. How has Mother Nature treated the course/facility in recent times? We have received 632mm more rain than this time last year, so there are times when the course has been closed for days at a time. There have been occasions over the years where corellas have decimated the golf greens, bowling greens and cricket wicket with their anti-social behaviour. We installed a solar-driven mirrored prism to deter the corellas from landing, which seems to have worked as the damage has stopped.

The one product I couldn't manage my course/facility without is... Like all turfgrass managers, wetting agents and/or growth regulators. I can sleep at night knowing we will be fine in the morning.

What are some pros and cons of being a regional superintendent/sports turf manager? We are still close enough to major areas to receive our products the following day after ordering from the sales reps. At times it's difficult to get away to seminars or information sessions when the pressure is on. But sometimes you just have to make the effort to go.

Are expectations of course presentation and conditioning any less than that placed on your metropolitan counterparts? There is an expectation to produce a high-quality product by the members; they see it on TV and want the same. Then reality hits when you explain

The Worrigeer Links course has 1019/1020 bentgrass greens, kikuyu tees and fairways, while the rough is a mix of kikuyu and ryegrass



costs and staff numbers involved to produce that product. The pressure is certainly higher for the metropolitan supers.

If you could change one thing about your job as a regional superintendent/sports turf manager what would it be and why? I would ideally like 2-3 more staff; I'll keep asking.

How important are the relationships you have with other sports turf managers/trade reps as well as the local community? It is extremely important to have that contact with other supers; we need to get things off our minds and share our thoughts for our own wellbeing. We are very fortunate to have some great trade reps on the South Coast who help out when needed and can provide some sound advice when all seems pointless at times.

What are some of the more unusual requests/things you have had to do as a superintendent of a regional course/sports turf facility? Where do I start... packing up the dance floor at the club and moving it to the other venue, pumping out an over flowing swimming pool and plenty more that I don't think I can mention.



PHOTO: NEARMAP

The Worribee Sports precinct is a major community hub for the township of Nowra

Do you think regional/country superintendents have a better work-life balance than their metro counterparts? We are situated on the NSW South Coast, two hours south of Sydney, so I feel we have the best of both worlds. We are in close proximity to a major city and far enough away to enjoy the relaxed (at times) lifestyle of the country. The work-life balance does work well for me.

What have you got in your shed, what's next on the list to purchase and what one piece of equipment would you like to have? Three Toro triplex mowers (greens, tees and cricket wicket), two Toro Sidewinders, two Toro Workman utilities and Kubota utility, Toro Reelmaster, Toro Groundsmaster, Bobcat, Kubota tractor, bunker rake, Enviromist spray unit, Kubota zero-turn, truck, soil reliever,



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The golf course was constructed on former farming land that was extremely swampy, with lots of work spent remedying drainage issues since its opening



topdresser, sweep and fill brush. I do like the Enviromist spray unit as we cop a lot of wind at Worrigee. This unit means we can spray any time it's required, but it is on its last legs. Our next major purchase will be a Toro Multi Pro. I would love an excavator – there's so much we could do to improve the course with one.

Favourite spot on the golf course?

My favourite spot at Worrigee Links is looking out over the whole facility from the clubhouse while enjoying a cold beer. You can see the golf course, bowling greens and cricket oval all from one spot. However, there have been times when I haven't enjoyed seeing a golf cart driven over the top of the 11th green – the golf pro did receive a rather angry phone call from me in that instance!

Best advice you have received about being a superintendent/sports turf manager and who gave it to you.

I've worked under some fantastic and dedicated supers – Ed Watts, Bryce Russell and Peter Schumacher. It's not so much about advice I received rather the way they led, set high standards and had high work ethics that I took on board. I see my role similar to that of a captain of a sporting team – lead by example and make yourself approachable to your staff.



The oval has a four-deck Legend wicket block with the outfield a mix of Greenlees Park couch and kikuyu

What do you think is the most challenging aspect of a superintendent/sports turf manager's role today?

Dealing with staff and understanding all of their different personalities is a challenge at times. Social media has also changed our lives. Throw in our ever-changing weather conditions and that is a challenge as well.

What have you worked on personally in recent years to improve your skills as a sports turf manager?

Taking a few deep breaths when the pressure of the job takes over. Having a bit more patience when dealing with our three different sporting groups.



In addition to wetland areas surrounding the course, Worrigee Links has three retention basins which pump rain water and car park run off back to the main dam

What gives you the most job satisfaction?

Receiving positive feedback from the golfers, bowlers and cricket club. We as turf managers don't always hear the good reports, only the negative ones, so it is nice when the good feedback is relayed to us.

Most pleasing/rewarding moment during your time at Worrigee Links?

An A grade golfer approached me on a Friday afternoon, the day before our Worrigee Open recently. He commented that it was the best he's seen the course in the last 10 years.

Editor's Note: If you would like your regional course or sports turf facility profiled in Australian Turfgrass Management Journal, contact editor Brett Robinson on 0434 144 779 or email brett@agcsa.com.au 📧

AT A GLANCE – WORRIGEE LINKS/EX-SERVOS, NSW

Facility specs: The Worrigee Sports precinct comprises an 18-hole golf course, two bowling greens and a cricket oval with turf wicket, all up around 68 hectares of maintained turf. On the golf course we have 1019/1020 bentgrass greens, kikuyu tees and fairways and the rough is a mix of kikuyu and ryegrass. The bowling greens are both Tifdwarf and the cricket wicket is Legend couch, with a mix of Greenlees Park couch and kikuyu in the outfield.

Members/rounds: 365 golfing members and 15,000 social club members. Golf course pushes through 26,000 rounds per year.

Major tournaments/events: Worrigee Open, Club Championships, golf and bowls and representative cricket games.

Staff structure: Superintendent Chris Regan, Adam Fortier (assistant), Brandon Mallia (3IC), Troy Sheehy (mechanic) and groundsmen Greg Judd, Jason Daniel and David Laurie.

Climate/rainfall: Warm and temperate climate with an annual rainfall of 1219mm.

Terrain/soils: Mostly flat, slightly undulating course. Loamy soils.

Water sources/irrigation: Reclaimed water dam (four megalitres) mixed into 30ML main dam. Toro Lynx irrigation system.

Cutting heights/regimes: Greens 3.5mm, tees 8mm, fairways 15mm, rough 75mm. Bowling greens 2.5, cricket wicket 4mm, wicket table 6mm, oval 15mm.

Renovations: Our golf greens get a major renovation every September – we scarify, solid tine, topdress and fertilise. Minor renovations include a groom, dust and solid tine. Bowling greens are renovated in December/January – scarify, hydroject/solid tine, topdress and fertilise. Cricket wicket reno carried out in March/April – scarify, topdress and fertilise.

Major disease pressures: Dollar spot and brown patch on golf greens, helmo and spring dead spot on bowling greens.

Nutrition management: Monthly spray programme with soil and water conditioners and light amounts of foliar applications.

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HG'S TURF PRINT TECHNOLOGY TAKES CENTRE STAGE AT THE MCG



HG Turf's new Turf Print technology uses compressed air to create visual messages and images on turf

HG Turf Group's new Turf Print technology got a spectacular debut in the lead-up to this year's AFL Grand Final. With the 2020 Grand Final moving north to The Gabba due to the COVID-19 situation in Melbourne, the opportunity presented itself to use the vacant MCG surface as a giant canvas on which to print a message of support from the traditional grand final venue to the AFL community.

Turf Print is a GPS-guided printing machine that does not require chemicals or paint to create visual messages on turfgrass. The technology was developed in the USA by a company called New Ground Technology and uses compressed air to force blow the grass in a certain direction to create dark and light contrasts in the grass. The beauty of Turf Print is that the images can literally be erased after a day or two simply by mowing or brushing the grass.

The process to develop the print starts with the creative department at New Ground Technology in the US. They take any graphical image or worded message and turn it into a pixelated file format that is then sent to the Turf Print machine which is a modified zero-turn mower. The machine has a unit at ground level with a series of jet nozzles that are controlled by actuators and valves electronically. The jets open and close to blow the grass in small pixel blocks of 70mm x 70mm, all of which is controlled by the GPS guidance system and the creative file uploaded to the machine.

The initial idea and concept for the AFL Grand Final was put to the MCC's general



manager – facilities Peter Wearne about six weeks before the game. Receiving unanimous approval, the baton was passed on to Jen Watts (general manager – commercial operations and partnerships) and her team along with the MCG's executive manager – turf Michael Salvatore. The team worked together over the next couple of weeks to finalise the creative content for the print, while the Turf Print machine winged its way to Australia.

After completing commissioning of the machine and some on-the-ground training at HG's Alexandra turf farm, on the Monday before the Richmond v Geelong decider HG staff created the good luck message on the MCG surface. The message – which read 'Good luck from the people's ground... May the best team win' – also featured images of the captains of both competing teams – Trent Cotchin and Joel Selwood – as well as the 2020 AFL Premiership Cup. The print, which was 80 metres wide and 90 metres deep, took around six hours to complete and according to HG Turf Group's business development manager Erik Kinlon is the largest ever placed on a sports field.

"HG has been a long-term partner and supplier of turf technology to the MCG since 1998, so when the opportunity came to introduce this technology in Australia it was the

first stadium we contacted," explains Kinlon. "The MCG print was well received across all media platforms with over 200,000 views and plenty of comments, most in disbelief of what we were able to achieve. The technology has been used all over the world, but this was its maiden voyage in Australia and we were thrilled at what we were able to produce."

VELISTA LAUNCHES IN NZ

A STMA Gold Partner Syngenta recently announced the introduction of Velista turf fungicide to the New Zealand turf market. With its highly efficacious novel turf registered mode of action and powerful preventative and curative action, Velista's turf-specific formulation protects green spaces during high pressure periods.

It is a powerful broad-spectrum fungicide (a.i. 500g/kg penthiopyrad) that can be used all year round, controlling all the major turfgrass diseases from anthracnose to spring dead spot and the hard-to-control fairy ring complexes. It is the first turf registered option for control of fairy ring, leaf and sheath spot and brown ring patch in New Zealand.

The result of many years of R&D, Velista's new active ingredient, penthiopyrad, is a succinate dehydrogenase inhibitor (SDHI) fungicide. It works by blocking the pathogen cell's energy production and shutting down any further spore or fungal growth leading to pathogen death. Velista moves into the turfgrass leaves and roots providing excellent residual activity which is ideal for preventative applications. For more information on Velista visit www.syngentaturf.com.au.

LABEL CHANGES FOR MONARCH, SILVERADO



TURF
culture



A STMA Bronze Partner Turf Culture was recently granted APVMA approval for new uses and new pests for its Monarch 100 insecticide (a.i. 100g/L fipronil). New uses and pests include control of red imported fire ant and yellow crazy ant (spot application to nests) as well as new pests for turf with control of nuisance and nesting ants (it is now registered for all ants, not just funnel ants).

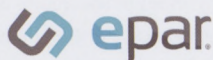
The APVMA has also granted changes to the Silverado herbicide registration/label, with

additional turf species added to situation of use and a re-entry period change. Previously registered for use on golf and bowling greens and turf farms, it is now registered for use on all turf surfaces (i.e. surrounds, fairways, tees, ovals and general turf areas). Tall fescue and ryegrass have also been added as turf species that Silverado can safely be used on.

Previously Silverado herbicide had a 14-day restriction for high exposure activities such as hand-weeding and transplanting, but these restrictions are now gone under the new registered re-entry periods.

Turf managers wishing to use the latest registered claims when using both Monarch 100 insecticide and Silverado herbicide they already have in stock, can simply print the leaflet from the respective product pages on the Turf Culture website – www.turfculture.com.au. Turf Culture reminds users they must attach and keep the latest leaflets with their existing bottles.

ESP, EPAR JOIN FORCES



ESP (Environmental Safety Professionals) and epar have announced they have entered into a national partnership that will bring together environment and safety know-how and environment and safety technology. The direct partnership between ESP's environment,

safety, hygiene and consulting operations with epar's environment, health and safety technology software solutions, will allow companies to quickly deploy and optimise the best EHS solutions in the market.

ESP has spent over 35 years working in the EHS consulting arena all over Australia. With epar's new mobile EHS technology and the ease of access to ESP's global information, certified laboratories and leading EHS practitioners and academic minds, this new partnership opens up new doors for new EHS practices and behaviours.

"We have been working on bringing together two of Australia's strongest EHS and sustainability brands since 2019," says epar managing director Terry Muir. "This exciting partnership will allow us to deliver an enhanced and expanded range of environmental, health, safety and sustainability products and services to our customers on a national and international basis."

For find out more about ESP visit <https://enviromet.com.au>.

PGG WRIGHTSON TURF LAUNCHES NEW WEBSITE

New ASTMA Bronze Partner PGG Wrightson Turf has unveiled its new Oceanic website – pggwrightsonturf.com. The website is an amalgamation of four older websites and is a one stop shop for all things turf according to PGG Wrightson Turf's marketing coordinator Sean Zumbraegel.



PGG Wrightson Turf's new-look Oceanic website

Featuring distinctive sections for Australia and New Zealand, the product catalogue diversifies down to categories including professional turf, environmental rehabilitation, landscaping and aviation. With a new 'Add to Enquiry' function, users can now add products to their enquiry cart before submitting their query directly to the PGG Wrightson Turf customer service team.

Over 300 products are listed on the website, all of them with key information such as technical information, safety data sheets and pack labels available for download. The resources section is kept up to date with the latest case studies, product information and industry news.

LABEL CHANGES FOR BAYER'S SPECTICLE HERBICIDE

ASTMA Silver Partner Bayer recently announced some key label changes for its pre-emergent herbicide Specticle (a.i. 200g/L indaziflam) after receiving APVMA approval in October. The changes relate to the addition of more weed species to its list of weeds controlled, as well as an extension of the labelled use patterns. Both changes will enable turf managers to re-think traditional weed control practices in warm-season turf and in bare ground situations around their facilities.

In addition to the weeds that have been on the Specticle label since launch in 2016 (*Poa annua*, crowfoot grass and summer grass), Specticle is now labelled for pre-emergent control of key broadleaf weed species in turf such as bindii, white clover, plantain, capeweed and

chickweed, as well as a new grass species, brome grass.

"It wasn't long after launch in mid-2016 that we began to receive positive feedback from customers about how Specticle helped improve consistency of their surfaces and reduced the need for post-emergent herbicide applications," says Bayer's James Royal.

"Results achieved with Specticle in 2020, one of the most difficult winter seasons in terms of weed infestation in recent times (especially bindii and *Poa annua*), across sportsfields, golf and passive recreational turf, has only reinforced the value of Specticle to turf managers seeking to maintain weed-free turf surfaces."

The new Specticle label also includes a use pattern to allow the product to be used for pre-emergent



weed control to maintain bare ground in many landscape and hardscape areas in and around maintained sports turf facilities, such as fence-lines, cart paths and other pathways, gravel and sandy waste areas and car parks.

The addition of this use pattern will allow turf managers to reduce maintenance time to manage weeds with mechanical (e.g.: whipper-snippers) or chemical means (e.g.: reduce glyphosate applications) and improve the efficiency of presenting the desired aesthetics around their facility.

The new Specticle label also contains additional guidance on product application to ensure best results and turf safety on sites with very sandy soils and low organic matter content, and also on kikuyu turf. For further information on the latest trial work, contact your Bayer turf team representative or to view the new Specticle label visit the product page at www.es.bayer.com.au.

NZGCSA



Greetings and best wishes for the festive season to all our fellow greenkeepers and turf managers on the western side of the Ditch. It is a privilege to write my first ATM report as the new president of the NZGCSA following our AGM back in August. I'd like to take this opportunity to thank immediate past president **Steve Hodson** for the outstanding job he did guiding our association and for his time on the committee.

What a year 2020 has been! The only constant from previous years has been the All Blacks locking away the Bledisloe Cup for another year, but everything else has been turned on its ear! It just so happened that I turned 50 on 25 March 2020, the same day that New Zealand entered Level 4 lockdown due to COVID-19. 'Happy birthday' I said to myself as I sat in my office and looked out at all the pins, flags, cups, tee markers and rakes piled in the corner of my shed and wondered how long they would have to stay there. The 'Course Closed' signs were up, the gates were locked and we all went home for an unknown timeframe. Never before in 32 years of greenkeeping had I seen such strange happenings.

Thanks to the efforts of NZ Golf, Steve Hodson and some well-aimed media coverage, we were back tending our golf courses after only three weeks absence. The dire predictions of foot-long greens riddled with disease and three-foot high rough proved to be fallacy and a few weeks later the gates were unlocked and the golfers came back. And did they come back! All of a sudden golf was in a boom everywhere! You couldn't get a tee time on a Saturday for love nor money. The time and money that may have been spent on an overseas holiday was now being spent on golf.

The amount of golf being played has caused some headaches – heavy wear on turf, no gaps for mowers in busy fields and full car parks. Because of the boom, golf clubs have been able to weather the COVID-19 storm, keep their greenstaff (I don't know of many layoffs) and get their clubs back in the black. Most clubs took advantage of the NZ Government wage subsidy and it made the difference between keeping most employed and making redundancies.

2020 has been a tough year on many fronts with a number of 'one-in-a-hundred-year events'. Our industry, and the people in it, have once again proved how resilient they can be. Getting courses back up to standard after a lockdown was no easy task in some cases and



Omanu Golf Club superintendent Jason Perkins was elected president of the NZGCSA at the August AGM

everyone should be proud of how we have come through it. I'm not sure if we have seen the worst of it. Borders are still closed and the economic effects are still being felt.

The most common words in reports I have written this year seem to be "Postponed due to COVID" and this one is no different. We have not travelled to field days, seminars or conferences. Our annual awards programmes have been decimated but there is a glimmer of hope. We will be running a Graduate of the Year in February/March of 2021. A new exam has been written to examine those who will go forward to the finals day and from there our Graduate of the Year will be found. The prize for the winner is usually a trip to the US Golf Industry Show, but as the 2021 event is being held virtually and travel restrictions are still in place, discussions are underway for a suitable replacement prize.

The NZGCSA, in conjunction with the NZSTI, has been holding a series of webinars in an effort to keep our technical knowledge up in the absence of field days and conferences. In changing times, the NZGCSA sees this option of delivery as a platform of professional development for its members as well as an opportunity to interact with fellow peers on topics and issues that are dealt with in golf course turf management. To date we have focused on issues such as soil and tissue testing, fertiliser plans, nutrient budgeting, summer disease management and more effective water use. We hope to keep these going as we move forward into next year.

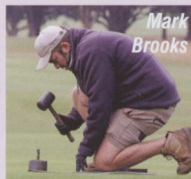
Another event that isn't cancelled or postponed due to COVID-19 is the GMANZ and NZGCSA Combined Summit and Fine Turf Seminar being held in Auckland on 13-15 June 2021. The focal point of this combined summit and seminar is 'Prospering in an unreal world'. This will be the first time we have run an event in collaboration with the General Managers Association (GMANZ).

Both associations are working on some great topics and speakers with an opening night networking session in the supplier's pavilion followed by the first day of the Summit with experts from within the industry sharing their knowledge in Q&A sessions and workshops. The second day will see a split with the Fine Turf Seminar following the same presentation format with the topics addressed being very specific to the turf industry.

Merry Christmas and a happy and safe New Year to everyone.

JASON PERKINS
PRESIDENT, NZGCSA

ON THE MOVE...



Mark Brooks

MARK BROOKS:

Finished up as assistant superintendent Riversdale GC, Vic on 18 December to take on assistant

superintendent role at Jupiter Hills Golf Club, Florida in early 2021.

FRASER HEALY: From greenkeeper at Cottesloe Golf Club, WA to superintendent Collie Golf Club, WA.

ANDREW IKSTRUMS: From assistant superintendent Education City Golf Club, Doha, Qatar to superintendent Dreamland Golf Club, Baku, Azerbaijan.

MARK LEWIS: Resigned as superintendent

Margaret River Golf Club, WA.

DEAN MCCALLUM: From superintendent Crescent Head Country Club, NSW to superintendent Gunnedah Golf Club, NSW.

BRAD PALMER: From Llanherne Golf Club, Tas to Hobart City Council, Tas.

TODD STRUTHERS: From Hobart City Council, Tas to Brighton Council, Tas.

LEE VEAL: From superintendent Mt Derrimut Golf & Community Club, Vic to superintendent Werribee Park Golf Club, Vic where he replaces the outgoing Steve Green.

DAVE WALLACE: Resigned as superintendent Denmark Country Club, WA.

EARL WARMINGTON: From assistant superintendent to superintendent Newcastle Golf Club, NSW.

GCSAWA

Perth has just recorded its wettest November on record with 92mm giving the WA state capital a total of around 650mm for the year so far. Here at Mosman Park, I had all my bores and pumps off for the first 15 days of November which was unusual but very welcome. It gave everything a bit of an extra kick along following renovations and heading into summer and should help with water budget management come the end of the watering season. The records kept falling with Tuesday 1 December seeing the coldest summer morning recorded in 124 years – a chilly 6.5°C!

In early November, 19 members and industry representatives travelled down to Denmark and Albany golf clubs for two nights for a 'walk 'n' talk' and round of golf. It was the usual windy weather, especially in Albany where we played golf, but both courses were in good shape and it was good to see the country courses and how they operate.

It was a chance to catch up with GCSAWA life member **Geoff Osbourne** who talked to the group on his history starting in NSW and then really taking off once he moved to WA by constructing Sun City CC, Joondalup Resort, Araluen Golf Resort and finally The Cut. It was good to see a few assistants and groundstaff make the trip also.

VGCSA

On 19 October, after 11 weeks of Stage 4 lockdown, golf clubs in metropolitan Melbourne were once again allowed to welcome back golf in pairs. It was a welcome sign that life was beginning to get back to some sort of normality, after weeks of social and travel restrictions including night curfews. Since then, there has been a further easing of restrictions, with golf in fours permitted and competitions allowed to recommence.

At the time of writing, Victoria has recorded over 40 consecutive days of zero cases and is heading towards 'COVID normal' by Christmas. This has provided the VGCSA committee with optimism to plan events for next year. After a number of Zoom meetings this year, it will be a welcome return to the outdoors and fresh air next year.

All meetings will be a return to regular formats, except the first meeting of the year where we visit Lonsdale Links and Portarlinton Golf Clubs. Playing it COVID safe, the group will be split into two and swap



The WA industry gathered in mid-November to celebrate 30 turf management students on their TAFE graduation

Mid-November was the TAFE graduation night held at the Swan Yacht Club. About 115 people from all the different parts of the turf industry attended to congratulate the 30 students on their graduation. **Dave Cassidy** (CSTM, The Cut) gave a presentation on his career so far from all different corners of the globe, followed by a quick slideshow from last year's STA Sports Turf Graduate of the Year winner **Matt Wolfe** (formerly City of Albany, now Perth Racing).

Congratulations to **Adam D'evelynes** from Wanneroo Golf Club (superintendent **Jon Carter**), **Gary Wallam** from Lake Kariyup (superintendent **Fraser Brown**, CSTM) and **Tyler Robertson** from Golf Oracle (who manages both the Armadale and Lake Claremont golf courses under superintendent **Neil Jones**) on taking home awards.

The Waterwise Program is running well with close to 20 courses signed up and participating. Recently both Wembley

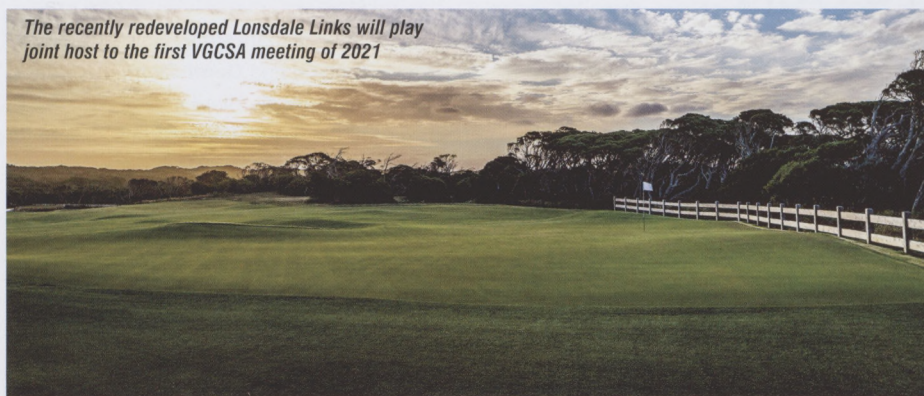


Wembley Golf Course and Hartfield Country Club were recently awarded their Waterwise Program Bronze certificates at a special ceremony at Wembley

Golf Course (superintendent **Darren Wilson**, CSTM) and Hartfield Country Club (superintendent **Nick Kinley**, CSTM) were awarded their Bronze certificate at a ceremony at Wembley in front of the Perth mayor and government officials.

Planning for next year is well underway with the main event being the Margaret River Conference from 8-11 August. **Leigh Yanner** from The National Golf Club has agreed to be one of our main guest speakers for the conference. We are planning things with the hope all travel restrictions are lifted. It's a great event with all the accommodation, meals, drinks, golf and conference itself included in the one price and is open to everyone, so if you're interested in coming over for it please reach out for more information. Good luck to everyone for the summer ahead.

SHANE BAKER
PRESIDENT, GCSAWA



The recently redeveloped Lonsdale Links will play joint host to the first VGCSA meeting of 2021

over during the day. The popular Country Meeting will venture to Murray Downs Golf & Country Club, while the November Golf Day concludes the year at the Barwon Heads Golf Club. Let's hope we all stay safe and can enjoy another year of course visits, education and networking.

The VGCSA event schedule is planned as follows:

- **Tuesday 2 March:** VGCSA Education meeting (Lonsdale Links & Portarlinton Golf Club);
- **Tuesday 11 May:** VGCSA Annual General Meeting (Woodlands Golf Club);

- **Monday 7 June:** VGCSA 2IC 3IC Groundstaff meeting (Cranbourne Golf Club);
- **Monday 2 – Wednesday 4 August:** VGCSA Superintendent 2IC Country meeting (Murray Downs Golf & Country Club);
- **Wednesday 13 October:** VGCSA; Education meeting (Koorlingal Golf Club)
- **Monday 15 November:** VGCSA Open Golf Day (Barwon Heads Golf Club).

SHANE GREENHILL
PRESIDENT, VGCSA

PHOTO: NICK WALL/AIR SWING MEDIA

NSWGCSA

2020 has been a write-off for all NSWGCSA events. The Board decided early that it could not host any events and guarantee that all attendees would be safe from COVID-19. However, with life returning to somewhat normal again, the NSWGCSA has decided to hold the 2020 Elite Sand and Soil Rube Walkerden Trophy at The Lakes Golf Club (superintendent **Anthony Mills**) in February 2021. This will mean 2021 will see two Rube Walkerden events with the second to be hosted by Killara Golf Club (superintendent **Ryan Fury**) later in the year.

On 18 November myself and **David Somerville** (vice-president), along with two representatives from the NSW Bowling Greenkeepers Association, met with the Minister for Water, Property and Housing Melinda Pavey to discuss the drought and water restrictions that were in place over the 2019/2020 summer period. The Minister has requested that we present a document outlining our industry requirements through each level of restriction to be discussed at our next meeting. This is going to be a long process but it is really positive that we have started open communication between the industry and the State Government.

TSTMA

You little ripper! We can now welcome visitors from all States and Territories at last! Although we have been very isolated from mainland Australia, which in a pandemic situation was a good thing, it is so very encouraging to see the flood gates open as we welcome everyone back.

We did hold a training day in September at Invermay Bowls Club. With 50 attendees and quite a few new faces it was a very successful day. Theme was 'back to basics' which was focused mainly on apprentices and volunteers but also a bit of a refresher for us long-standing turfies. **Andy Byard** discussed spraying application and a machinery demonstration on Invermay Park by Pellows (Toro) capped off a great day.

Our day finished at UTAS Stadium where **Bryan Dunn** explained his management practices on the new turf. Shortly after the meeting Bryan announced he was leaving UTAS Stadium after 16 years, including 14 in charge, to take on the northern operations manager role with Tas Racing. Congratulations go to **Adam Spargo** who has taken over the reins from Bryan.



Northbridge GC superintendent Mal Harris was awarded NSWGCSA life membership at the AGM

The 2020 NSWGCSA Annual General Meeting, sponsored by Syngenta, was held on 7 December via Zoom conference. **Ian Elphick** (Gunnedah Golf Club) stood down from the Board after departing the club to concentrate on his own business. **Peter Donkers** (Long Reef Golf Club) was nominated and accepted for the vacant position of director.

Long-serving Northbridge Golf Club superintendent **Malcolm Harris** was honoured

at the AGM with life membership. Mal has spent over 35 years at Northbridge after taking on the superintendent role three years after starting as an apprentice in 1982. Mal served nine years on the NSWGCSA Board where he looked after the education portfolio. Mal's life membership will be celebrated at February's event at The Lakes Golf Club.

On 10 December NSWGCSA Board member **Pat Wilson** (Pambula-Merimbula Golf Club) hosted an education event for the Far South Coast greenkeepers. Talks from Nuturf's **Dr Mark Walker** and **Dr Brett Morris** were coupled with machine demonstrations from LandHQ/John Deere and Turf Air. The attendees were also treated to a Zoom interview with **Steven Britton**, superintendent at The Chevy Chase Club, USA. This was a great format and will be adopted for an event on the Far North Coast in 2021.

I would like to wish everyone a Merry Christmas and Happy New Year; I think we all have had enough of 2020 and fingers crossed summer is much kinder than last year.

NATHAN BRADBURY
PRESIDENT, NSWGCSA

SAGCSA

Until recently, South Australia remained largely unaffected by COVID-19. That changed dramatically when the SA Government imposed a full lockdown on 19 November (thankfully now lifted) and for a few days we obtained a better understanding of the inconvenience endured by our interstate counterparts.

Metropolitan Adelaide notched 15 days over 30°C for November including our first 40°C of the season. After some decent spring rain most SA clubs have sound water storage capacity as we enter summer.

With continued uncertainty surrounding COVID-19, the SAGCSA committee is reviewing its events programme for 2021 and looks forward to being able to offer a full and varied offering in the near future.

We wish all superintendents, their staff and clubs all the best for the festive season and trust 2021 will be the dawn of much improved health and economic situation for all.

PHIL HILL
PRESIDENT, TSTMA

NATHAN BENNETT
PRESIDENT, SAGCSA

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Creating a legacy

Paraparaumu Beach Golf Club dual general manager and course superintendent (and rugby union diehard) Leo Barber draws inspiration from one of the world's most successful sporting institutions to discuss leadership, decision-making, self-mastery and legacy.

Like many young kids growing up in New Zealand, I was born with an aspiration to one day pull on the black jersey of our national rugby team, the All Blacks, and represent my country. The sport of rugby in New Zealand is more akin to a religion, much like AFL and NRL to those of you on the western side of the Ditch, and it's almost with an inbuilt predisposition that Kiwis enter this world ready to worship.

I played the game all through my youth and into my early adult years and upon hanging up the boots with the realisation that the ultimate status of becoming an All Black was unfulfilled (like most I hadn't even come close), my love for the game, as with many fellow New Zealanders, has never waned.

For a small country of just five million situated in relative isolation at the bottom of the world, New Zealand has always prided itself in punching well above its weight on the global scene in all manner of disciplines, but it has been the All Blacks that have dominated the world of rugby for well over a century and, in



The All Blacks have one of the most enviable records in the era of professional sport. In maintaining a high level of performance, the All Blacks have created a culture where no one is bigger than the team and developed an ethos built around work ethic and continuous improvement

are the biggest opportunity to learn. The All Blacks created a culture in which players are accountable not only to their coaches but even more to their teammates. Performance = capability + behaviour. Character triumphs over talent.

2. ADAPT

Go for the gap — when you are on top of your game, change your game. Four steps to drive change. Make a case for providing a compelling picture of the future, sustain the capability to change and create a credible plan to execute. Culture is subject to learning, growth and decline. This continuous improvement was able to lift the All Blacks to an even better win rate.

3. PURPOSE

Play with purpose, ask why? Understand the purpose for which you are playing. Better people make better All Blacks. Leaders connect personal meaning to a higher purpose to create beliefs and a sense of direction.

4. RESPONSIBILITY

Be a leader, not a follower — pass the ball. Create a structure of meaning, a sense of purpose, belonging, teamwork and personal reasonability. Empower the individual by empowering them with the success of the team. Leaders create leaders by passing responsibility, creating ownership, accountability and trust.

5. LEARN

Create a learning environment. Leaders are teachers. By finding the 100 things that can be done just one per cent better, you achieve marginal gain which creates an incremental and cumulative advantage in performance and results. The first stage of learning is silence, the second stage is listening.

6. WHANAU (FAMILY)

The All Blacks stated policy of 'No dickheads' excludes highly talented prima-donnas. One of the first steps in developing a high-performance culture is to select on character. Fly in formation, be of one mind, or as Maori mythology depicts whanau — follow the spearhead. Everyone works together towards the same goal. The strength of the wolf is the pack, the strength of the pack is the wolf.

7. EMBRACE EXPECTATIONS

Aim for the highest cloud so if you miss it you will hit a lofty mountain. The All Blacks are expected to win every time they play and

fact, are arguably the most dominant team of any sporting code globally with an 86 per cent win rate in the professional era.

Caught up in the Netflix and smartphone generation, my once keen interest in reading had sadly fallen away in recent years, much to the detriment of my lifelong thirst for escaping in a good book. This year I set myself a modest target of getting back to turning some pages once again and having put in a request to the North Pole, last Christmas I was delighted to unwrap a book called 'Legacy — What the All Blacks can teach us about the business of life'. It was the perfect way to reignite my interest.

Written by author James Kerr, who was given largely unfettered access behind the scenes of this mighty sporting dynasty, its 15 chapters capture the valuable lessons learnt from the success of the All Blacks that are easily transferable in their application to everyday life. It is a book that is practical and easy to read and while it draws upon stories about All Black culture it also lends examples from other sporting codes, coaching greats,

business leaders and psychological theories to come to quite common-sense conclusions.

In maintaining a high level of performance, the All Blacks created a culture where no one was bigger than the team — "A collection of talented individuals without personal discipline will ultimately and inevitably fail." They developed an ethos built around work ethic and continuous improvement — "leaving the jersey in a better position than what you found it."

The book is extremely insightful. It is about leadership, decision-making and self-mastery. The lessons of this book I feel, are as adaptable to our personal lives as they are to our roles as turf managers. Here then, is the 'First XV' lessons that the book presents...

1. CHARACTER

Character begins with humility and discipline. Even after a major win, the All Blacks finish their celebrations and "sweep the sheds — because no one looks after the All Blacks, the All Blacks look after themselves." Don't be too big to do the small things. Your failures



embrace a fear of failure to lift performance. Successful leaders have high internal benchmarks, they set their expectations high and try to exceed them.

8. PREPARATION

Train to win, practise under pressure. Practise with intensity to develop the mindset to win. Intensified training in preparation to win will condition the brain and body to perform under pressure and make peak performance automatic. Get out of your comfort zone. If you are not growing anywhere, you are not going anywhere.

9. PRESSURE

Bad decisions are not made through lack of skill or innate judgement; they are made because of an inability to handle pressure at the pivotal moment. Know how to manage, deal and embrace pressure. Control your attention. Switch from 'red head' – tight-

inhibited, result-oriented, anxious, aggressive, overcompensating, desperate – to 'blue head' – loose, expressive, in the moment, calm, clear, accurate, untasked.

10. AUTHENTICITY

Know thyself, keep it real. If you succumb to peer pressure and do things because others want you, you will be cut off. Be genuine, stay true to yourself and be honest with your environment. Adopting the behaviours and values of others will often conflict with what got you there in the first place. Leaders need to create an environment that encourages safe-conflict, honesty and integrity, in which people genuinely know one another.

11. SACRIFICE

Find something you would die for and give your life to it. Do the above and beyond for a cause, activity or mission you believe in. Champions do extra. Bleed on the field and

Barber's first game of rugby as an eight-year-old (he is the one holding the ball). Rugby is religion in NZ and despite not going on to wear a version of that black jersey which carried the silver fern insignia, Barber's passion for the sport has never waned

know that your teammates will do the same for you. Be the first to arrive at the gym, be the last to leave. Push yourself outside of your comfort zone.

12. LANGUAGE

Let your ears listen. Invent a language – sing your world into existence. A system of meaning that everyone understands. A language, vocabulary and a set of beliefs that bind the group together. Meaning, rituals, stories, heroes all bound together. An oral culture – a common story. Leaders are storytellers. Great organisations are born from a compelling story. The central organising thought helps people understand what they stand for and why.

13. RITUAL

Ritualise to actualise. Create a culture, a culture of continually growing and improving. Inspiring leaders establish rituals to connect their team to its core narrative, using them to reflect, remind, reinforce and reignite their collective identity and purpose.

14. WHAKAPAPA (GENEALOGY)

Be a good ancestor. Plant trees you'll never see. Connect the past, present and future. True leaders take responsibility for adding to the legacy. Ensure knowledge transfer. Know that you are standing on the shoulders of giants; live up to that expectation and know that you will be looked upon as one.

15. LEGACY

Write your legacy. Be purposeful. Add to the ethos, make your mark. 卐



The All Blacks, while being sporting giants for New Zealanders, remain accessible and easily approachable. Barber often has them visit Paraparaumu Beach when a game is in town and true to their ethos they are polite, grounded and always appreciative. With Barber are All Blacks (from left) Damien MacKenzie, Beauden Barrett (World Rugby Player of the Year in 2016 and 2017) and Jordie Barrett



The All Blacks have had their hands on the William Webb Ellis Trophy three times. Awarded for winning the Rugby World Cup on the back of blood, sweat and tears, it is graciously shared with fans across NZ

Don't gamble with mite resistance

ROTATE

ROTATE

ROTATE

1 : 1

The best way to start your resistance management is spraying 1 for 1, if more mite treatments are required after an application of Thumper, then Waldo should be your next treatment, then Thumper, then Waldo etc.

Rotation is key



Thumper Insecticide

GROUP 6 INSECTICIDE



Waldo Miticide

GROUP 12A INSECTICIDE

The key to any insect control program is the rotation of chemistry between Mode of Action groups.

For many years Thumper has set the industry benchmark for mite control.

Knowing the reliance turf managers have on Thumper, Turf Culture has launched another miticide with a different Mode of Action to ensure turf managers have rotation options.

Newly launched Waldo Miticide gives turf managers a Mode of Action Group 12A, making it the ideal rotation partner with Thumper.

Mite Management Strategy

- Use miticides with different modes of action in rotation
- Spray coverage and water volumes are essential for good mite control.
- Avoid overuse of a single miticide.

Principles of Resistance Management

Insecticide or acaricide resistance management strategies seek to minimise the selection for resistance to any one type of insecticide or acaricide. This requires an understanding of insecticides as they are grouped according to similarity of Mode of Action (MoA) in controlling insects and mites.

In practice, sequences or rotations of compounds from different MoA groups provide an effective approach to resistance management.

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