

AUSTRALIAN

ISSN 1442-2697 [www.agcsa.com.au](http://www.agcsa.com.au)

# Turfgrass



VOLUME 18.6 NOV-DEC 2016

MANAGEMENT JOURNAL

***Poa annua* control**  
Survey highlights growing issue

## **Hazeltine homage**

Behind the scenes at the  
2016 Ryder Cup



**Greens  
conversions**  
Brookwater and  
Coolangatta &  
Tweed Heads

## **On a fast track**

Etihad Stadium hosts 2016  
Australian Speedway GP







# We've got you covered for all your fungicide needs

Ensuring your greens get the best start for the peak golf season is a key priority at this time of year. A good fungicide program will help protect your club's investment and set the course up for the challenges of mid-summer.

Underpin your pythium program with SUBDUE MAXX in spring and minimise the impact in summer.

Entrust the prevention of crown and foliar diseases to the long lasting triple action of INSTRATA and the proven track record of HEADWAY MAXX, HERITAGE MAXX, BANNER MAXX and DACONIL WEATHER STIK. Bump up your protection with new MEDALLION for contact action with a difference.

 **Banner<sup>®</sup>Maxx**  
Turf fungicide

 **Daconil WeatherStik<sup>®</sup>**  
Turf fungicide

 **Headway<sup>®</sup>Maxx**  
Turf fungicide

 **Heritage<sup>®</sup>Maxx**  
Turf fungicide

 **Medallion<sup>®</sup>**  
Turf fungicide

 **Instrata<sup>®</sup>**  
Turf fungicide

 **Subdue<sup>®</sup>Maxx**  
Turf fungicide

**syngenta<sup>®</sup>**

For more information ask your Syngenta Agent or go to [www.greencast.com.au](http://www.greencast.com.au)

Syngenta Australia Pty Ltd, Level 1, 2-4 Lyonpark Road, Macquarie Park NSW 2113. ABN 33 002 933 717.  
®Registered trademark of a Syngenta Group Company. ™Trademark of a Syngenta Group Company.  
All products written in uppercase are registered trademarks of a Syngenta Group Company. AD 16-305

®

I wish to apply for:  
**One year's subscription  
 to Australian Turfgrass  
 Management**  
*(Six editions per year)*

PLEASE TICK BOX

ONE COPY PER EDITION

☐ \$65.00

O/S ONE COPY PER EDITION

☐ \$105.00

Prices include GST.



**SUBSCRIBE  
 NOW**



**ORDERS CAN BE MADE SECURELY ONLINE THROUGH [www.agcsa.com.au](http://www.agcsa.com.au)**

Name: .....

Company: .....

Postal Address: .....

Town/Suburb: ..... State: ..... Postcode: .....

I enclose cheque for (amount): .....

Please charge my credit card: ☐ MasterCard .....

☐ Visa .....

Card Number: \_\_\_\_\_ Expiry Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Cardholder Name: .....

Address: .....

Signature: .....

☐ Funds have been paid by electronic transfer to Westpac BSB 033 380 Acc 385360

☐ Please send me more information about becoming an AGCSA member

Forward to: **Australian Turfgrass Management**  
 Suite 1, Monash Corporate Centre, 752 Blackburn Road  
 Clayton, VIC 3168  
 FAX: (03) 9548 8622

## Australian Turfgrass Management Journal published by:

Australian Golf Course  
 Superintendents' Association

ABN 96 053 205 888

### Production:

### Editorial:

Brett Robinson Ph: (03) 9548 8600  
[brett@agcsa.com.au](mailto:brett@agcsa.com.au)

### Art Direction & Design:

Jo Corne Ph: (03) 9548 8600  
[jo@agcsa.com.au](mailto:jo@agcsa.com.au)

### Advertising:

Craig Wood Ph: (03) 9548 8600  
[craig@agcsa.com.au](mailto:craig@agcsa.com.au)



### AGCSA

Suite 1, Monash Corporate Centre  
 752 Blackburn Road, Clayton, VIC 3168  
 P: (03) 9548 8600 F: (03) 9548 8622  
 E: [admin@agcsa.com.au](mailto:admin@agcsa.com.au)  
 W: [www.agcsa.com.au](http://www.agcsa.com.au)

[www.facebook.com/our.agcsa](https://www.facebook.com/our.agcsa)

[www.linkedin.com/in/agcsa-australia-289055127](https://www.linkedin.com/in/agcsa-australia-289055127)

[www.instagram.com/ouragcsa/](https://www.instagram.com/ouragcsa/)

[@AGCSA2](https://www.twitter.com/AGCSA2)

### AGCSA Board

President: Brett Balloch

Directors: Darren Wilson  
 Peter Loneragan  
 Stephen Lewis

### Chief Executive Officer

Craig Wood  
[craig@agcsa.com.au](mailto:craig@agcsa.com.au)  
 Twitter: @AGCSACEO

### Events and Education Manager

Simone Staples  
[simone@agcsa.com.au](mailto:simone@agcsa.com.au)

### Membership Coordinator

Allison Jenkins  
[admin@agcsa.com.au](mailto:admin@agcsa.com.au)

### Accounts

Philip Horsburgh  
[philip@agcsa.com.au](mailto:philip@agcsa.com.au)

### AGCSATech

Andrew Peart  
[andrew@agcsa.com.au](mailto:andrew@agcsa.com.au)

Bruce Macphee

[bruce@agcsa.com.au](mailto:bruce@agcsa.com.au)



### Printed By

Southern Colour Pty Ltd  
 2 Southpark Close  
 Keysborough Vic  
 3173

Copyright © 2016

The AGCSA believes that material sourced and produced for Australian Turfgrass Management is accurate, but gives no warranty in relation thereto, and disclaims liability for all claims against the AGCSA, its subsidiary companies, its employees, agents or any other person which may arise from any person acting on the materials contained within. No portion, in whole or part, may be reproduced without the written permission of the AGCSA.





## COVER

**Chris Holder:** Aussie rider Chris

Holder celebrates in style after winning the 2016 QBE Insurance Australian FIM Speedway Grand Prix at Etihad Stadium in October.

**Photo:** Brett Robinson, AGCSA



## LEAD STORY: Etihad on a fast track

6

For the second year running Etihad Stadium was transformed mid-October into the world's largest temporary speedway track for the 2016 Australian FIM Speedway Grand Prix. For head of arena management Gavin Darby the event is perhaps one of the most unique that the multi-purpose venue hosts, involving the spreading of 4300 tonnes of speedway dirt which is a real exercise in logistics. ATM editor Brett Robinson was trackside for the construction of the track and the event itself and takes an inside look at what goes into such a build.

## FEATURES

### Hazeltine homage

12

Simon Winzar capped off a remarkable time on The Ohio Program with a placement at Hazeltine National Golf Club for the 2016 Ryder Cup. Here the Lakelands Golf Club assistant superintendent looks back on his time in the US and provides a behind-the-scenes look at course preparations for the game's greatest of rivalries.



### Kooralbyn reborn

22

When Kooralbyn Valley Golf Resort closed its doors in 2008, a unique slice of Australia's golfing landscape was seemingly lost. As ATM discovers a new owner has helped to breathe new life into the country's first proper golf resort.

### Brookwater's back

26

Heralded as one of Greg Norman's most stunning Australian designs, Brookwater Golf & Country Club has recently undertaken some major refurbishment works to improve the agronomic performance of the greens and enhance the playability and strategic elements of the course.



### The long road to Tif

30

Coolangatta & Tweed Heads Golf Club has just embarked on a project to convert its West course greens from bentgrass to TifEagle. As course superintendent and AGCSA Board member Peter Loneragan writes, it has been a project more than three decades in the making.

### Getting ready for the GHS

38

We've had OHS and WHS, now get ready for GHS. Frank Dempsey looks at the new Global Harmonisation System for chemical labelling.



## TIME FOR WATER QUALITY TESTING!

Let us provide you with a **truly** independent water quality report

Send samples to **AGCSATech**  
Analytical, Diagnostic and Consultancy Services

Ph. 03 9548 8600  
Fax. 03 9548 8622  
Email. [andrew@agcsa.com.au](mailto:andrew@agcsa.com.au)  
[bruce@agcsa.com.au](mailto:bruce@agcsa.com.au)

Suite 1, Monash Corporate Centre  
752 Blackburn Road  
Clayton 3168 Vic



## Champion-ship test

48

After an absence of 25 years, the Queensland Open returned to Brisbane Golf Club in October. ATM checks out preparations on the country's only course to boast Champion ultradwarf greens.

## Murray becomes the Murray

52

Record rainfall in the Murray-Darling Basin caused a few headaches for Chris Burgess and his crew at Yarrowonga Mulwala Golf Club Resort in September.



## GRASS-ROOTS WITH JOHN NEYLAN



### *Poa annua* control in warm-season grasses survey

42

ATM columnist John Neylan presents findings from the extensive *Poa annua* control in warm-season grasses survey that was conducted earlier in 2016.

## Also in this edition...

Foreword Thinking	4
AGCSATech Update – Roots	34
Projects – NSW Golf Club, NSW	54
Regional Profile – Wagga Wagga CC, NSW	58
Around the Trade	64
Association Reports	66

### Contributors to Australian Turfgrass Management Journal Volume 18.6 (November-December 2016)

Bazz Bryant (SAGCSA); Chris Burgess (Yarrowonga Mulwala Golf Resort); Shaun Cross (GCSAQ); Gavin Darby (Etihad Stadium); Frank Dempsey; Stuart Gill (NSWGCSA); Neil Graham (GCSAWA); Tony Guy (STA WA); Gareth Hammond (NSW GC); Mitch Hayes (Brisbane GC); Dean Lenertz (NSW GC); Peter Lonergan (Coolangatta & Tweed Heads GC); Bruce Macphee (AGCSATech); Brenton Morey (Wagga Wagga CC); John Neylan (Turfgrass Consulting and Research); Jeremy Parry (Ramada Resort Kooralbyn Valley); Mat Poultney (VGCSA); Richard Stephens (Turf Australia); Chris Tritabaugh (Hazelton National GC, USA); Rob Weihs (Brookwater G&CC); Simon Winzar (Lakelands GC); Craig Wood (AGCSA).

# World class

Nothing beats covering major golf tournaments and again I was privileged to spend time observing the crews at Royal Sydney and Kingston Heath golf clubs as they prepared their respective courses for the recent 2016 Emirates Australian Open and 2016 ISPS Handa World Cup of Golf. (ATM's in-depth coverage of both will run in Vol 19.1)

Where do you start with the plaudits? The courses were superlative and given the challenging conditions that prevailed for superintendents Steve Marsden (Royal Sydney) and Hayden Mead (Kingston Heath) in the lead-up to both events, it's a credit to their skill and expertise, and that of their crews, that they presented their courses at the highest level.

The players and officials couldn't have been more effusive in their praise and it was extremely pleasing to see the recognition given to both crews by tournament organisers. Addressing the Kingston Heath crew after their final around preparations, the PGA of Australia's Andrew Langford-Jones commented: "I'm pretty lucky in that I get to travel from tournament to tournament and see some great courses, but can I just say the course here this week is simply world class. All the players are telling us that and you should all be immensely proud of what you have achieved. It's just a pleasure and I am so proud as a member of Kingston Heath to have you guys do what you do."

World Cup of Golf executive director Matt Kamienski echoed those comments: "I take my hat off to you guys. You are the hardest workers out there and what you've put out there this week for the best players in the world is phenomenal. Kingston Heath has made a presentation to host the Presidents Cup in 2019. We haven't made a decision yet on the venue, but I can tell you right now, before I came down here I would have said 99 per cent that we were going to Royal Melbourne. After this week it's definitely going to be a much harder decision and that's a testament to what you guys have done with this golf course."

While I love watching the world's best players tackle our illustrious courses and hearing the superintendents and crews being recognised for their hard work, what really fascinates is the way in which each crew operates under the pressures of a tournament. At both events it was hugely impressive to see the level of organisation, control and professionalism on display, as well as witnessing the dynamics of each team at work. It was also fantastic to catch up with some of the many characters who make up this wonderful industry.

A major part of these tournaments is the volunteers and again this year both Steve and Hayden had healthy contingents assisting them. They came from all parts of the country and overseas, but it was a conversation with one particular volunteer that really stuck with me.

Many will know Mal Grundy, the long-serving course superintendent at Murray Bridge Golf Club, SA. One of the nicest and most jovial superintendents you will ever meet, Grundy clocked up 35 years in the industry at the start of 2016, 22 of those as superintendent at Murray Bridge. Taking annual leave, Grundy made the 1400km round trip to volunteer for two weeks at Kingston Heath. Talking to him after the crew had clocked off on the Sunday, it was almost with tears in his eyes that he recounted his experiences.

"If you ever want to reinvigorate your passion for the industry, come and do something like this," he said. "The level of professionalism and attention to detail was incredible. Just to be at Kingston Heath was invigorating. I was blown away by the heathland and walking into a MacKenzie bunker for the first time the hairs on the back of my neck were standing up. Seeing the way Hayden, Jarrod (assistant) and the whole team worked was fascinating. The whole two weeks have been amazing. I should have done this 20 years ago!" Enjoy the read.



*Brett Robinson*

Brett Robinson, Editor

## LOOKING FOR GREENKEEPING STAFF?

Advertise on the AGCSA website - the Australian turf industry's LEADING online job resource  
Post your job online now at [www.agcsa.com.au](http://www.agcsa.com.au) or email [admin@agcsa.com.au](mailto:admin@agcsa.com.au)



# A new vision for the future of this great association



I remember my first day as a naïve but eager first year turf apprentice many years ago on a regional golf and bowling club like it was yesterday. I truthfully had no real idea what 'turf management' entailed (many of you who know me may say that I still don't!), but all this young fellow with a background driving dozers and scrapers in a family earthmoving business could see was that it was a job still driving various forms of boy's toys, it was outside, grass just grew anyway and I got paid (barely)! And at the end of four years I would have a real qualification that would get me a job anywhere on the planet. If only...

Immediately I fell in love with all things turf. I enthusiastically learned my bentgrass from my fescues, my *ophiobolus* from my *fusarium* and my NPK from my ABC. But, undoubtedly the toughest thing to learn was just how busy my boss and his only dopey sidekick (yours truly) had to be to prepare 18 golf holes and an 8-rink bowling green for play week in, week out! With a ridiculously small budget, dealing with the vagaries of Mother Nature and having very little turf-specific equipment, it was certainly a very steep learning curve.

Travelling to Melbourne for trade school was a revelation. I met guys and girls from clubs big and small. Then my instructors at NMIT took me to places I had only ever heard of – Royal Melbourne Golf Club, Royal South Yarra Lawn Tennis Club and the hallowed turf at the MCG. I saw machines that only existed to me in glossy magazines like this one, driven often by people who did only specific tasks like mowing greens or fairways. I then realised how lucky I was coming from a club with little resources because I did all of these things in the first week I worked!

Don't get me wrong, I was always jealous (still

am a little bit) of those of you who get to work at the many magnificent golf courses, stadia and other sporting facilities we enjoy in our great country, but I still 'dips me lid' to those who have to make do without much of what many of us now take as standard fare. I assure you, these people are just as important to the Australian turf industry, and to your AGCSA, as those lucky enough to work at a world-famous golf club, racetrack or football ground.

"I want the AGCSA to take the lead in turf research in our region of the world"

I have had a diverse career in the Australian turf industry as well as other varied specialty markets mainly in the agrichemical sector, but the professional Australian turf market remains my true love. To be able to write this piece to you from the CEO chair at the AGCSA is a realisation of many goals.

I am thrilled and humbled to have this exciting opportunity and I want to thank the AGCSA Board for giving me the chance to make a mark on our association as well as the entire AGCSA team in Clayton for embracing my vision. I also want to acknowledge my predecessor **Peter Frewin** for his terrific achievements in the role.

## MOVING FORWARD

As with any new CEO, I want to build on past achievements and I want to build for our industry's future. I'd like to share with you a few morsels of the vision I have for the AGCSA and the Australian professional turf industry.

First, with your Board's support, I want our association to take the lead in turf research in our



## The leaders in sports field drainage & sports field construction using the latest machinery & technology.

Staff with over 60 years combined golf course and sports field drainage, sports field construction & horticultural experience. Choose the specialists – 100% of our projects are either the drainage or construction of sports grass surfaces.

### Our Services include:

- Slit drainage • Laser controlled trenching • Sand grooving • Turf wicket construction to international level
- Sports field design & construction • Bowling green construction • GPS guided and two-way laser controlled grading

## Proven methods. Proven results.

PO Box 112, Mt Kuring-gai, NSW 2080 | Phone: (02) 8117 8100 Fax: (02) 8117 8101 | Email: info@turfdrain.com.au [www.turfdrain.com.au](http://www.turfdrain.com.au)





region of the world. We have vast knowledge and resources available to us in Australia and a market serviced by the best R&D companies in all sectors of the industry, from equipment to seed to nutrition to chemicals. We need to encourage and leverage these people and organisations to become the hub of turf research for the Asia-Pacific region in the medium-term. If we don't move on this now, our opportunity will be embraced by one of our dynamic Asian neighbours.

I also want to provide our most valuable asset, its members, with the best industry-specific training and education we can deliver. Our world is changing at a staggering pace and to ensure we can deliver job-ready people at all levels we need to continually improve our product. And the ONLY way we can get a traditionally low paid industry to be better rewarded is to ensure our people are educated to do their job better.

I also want your AGCSA to embrace all sectors of the turf industry. Yes, we are and always will be a golf course superintendent based organisation, but to achieve the two things I mentioned above we need the lobbying power and financial clout of our entire industry. That is sports turf, racetracks, local government, landscapers... anywhere that turf is a profession. The benefits of sharing knowledge and expertise are obvious. The reality is we all operate in what is a relatively very small market sector of Australian horticulture. Our industry sectors will always have different specific requirements, but to progress in the big picture we must speak as one voice.

Another of my broad objectives is to deliver our members, your clubs and your families a range of benefits that will make the AGCSA a compelling body to be part of. Right now we deliver a world class magazine, website and range of outstanding business services such as AGCSATech and the Australian Turfgrass Conference, but I want to expand these services to offer things that benefit you personally and professionally. Space is limited so I will expand on these soon.

I am trying to see as many members, sponsors and industry people as I can in the first few weeks and I apologise now if I miss you. If you would like a chat about any ideas, suggestions or concerns you have, please call me on 0436 007 782 or email [craig@agcsa.com.au](mailto:craig@agcsa.com.au). And make sure you connect on Twitter @AGCSACEO and @AGCSA2 or through Facebook ('Our AGCSA') and LinkedIn (AGCSA Australia). I look forward to hearing from you. 🙌



## PREMIUM PARTNERS

The AGCSA is indebted to the support of the following premium partner companies



The AGCSA encourages all members to support these companies who support your association





# On a fast track

For the second year running, Etihad Stadium hosted the final round of the FIM Speedway Grand Prix World Championship in mid-October. ATM editor Brett Robinson caught up with head of arena management Gavin Darby to look at one of the more unique events the multi-purpose venues hosts.

**The 2016 Australian FIM Speedway Grand Prix was held at Etihad Stadium in mid-October. The event saw 15 of the world's best bike riders, plus a local wild card, contest the final round of the Speedway GP World Championship**

**F**ew soccer fans will forget Tim Cahill's debut for Melbourne City at Etihad Stadium back in October. In typical fashion, the Socceroos' most prolific goal scorer announced himself to the A-League with a 35-metre half-volley screamer as City went on to trounce cross-town rivals Melbourne Victory 4-1.

Watching the game live on TV from the comfort of his living room that evening was Etihad's head of arena management Gavin Darby. It was yet another memorable sporting moment he has been fortunate to witness during his 12 years in charge, but on that particular evening his thoughts were far away, contemplating one of the more unique builds he and his crew would be orchestrating in just a few hours' time.

In 2015, Etihad Stadium entered into a five-year agreement with BSI Speedway to host the final round of the FIM (International Motorcycling Federation) Speedway Grand Prix World Championship. In doing so it would involve constructing and then

deconstructing the largest temporary speedway track in the world all within a 10-day period.

When the deal to have an Australian Grand Prix added to the circuit was inked, it was greeted with much celebration by Australia's small but fanatical speedway community. Australia has a proud history in the sport on the international stage and you can go all the way back to September 1936 when Queenslander Lionel van Praag won the very first speedway world title in London.

That same year, a New South Welshman by the name of 'Bluey' Wilkinson would finish third and two years later he too would go on to be crowned world champion. South Australian Jack Young won back-to-back titles in 1951 and 1952, but it wasn't until 2001 that the Australians again started to dominate the world stage.

That would come courtesy of the now legendary Jason Crump who was simply peerless in the first decade of the 2000s. He collected three world titles (2004, 2006 and 2009), finished runner-up on five





Speedway bikes are 500CCs, have a single fixed gear, no brakes and run on pure methanol

occasions (2001-2003, 2005 and 2008) and third twice (2007 and 2010). Chris Holder continued Australia's golden run in 2012 and were it not for a season-ending injury in the penultimate round of the 2016 championship in September, Australia's newest speedway star Jason Doyle would have made it the sixth Aussie rider to win the world title.

The current world championship format comprises 11 Grand Prix (GP) events and takes 15 of the sport's best riders around the world. The 2016 championship, for instance, kicked off in Slovenia and before arriving in Melbourne in October had stopped off in Denmark, the Czech Republic, Wales, Germany, Sweden twice and Poland three times.

Bringing the elite of speedway Down Under required a substantial amount of groundwork and financial outlay by Etihad's then owner Melbourne Stadiums Limited (MSL). As part of that, Darby initially returned to his native New Zealand where he visited Western Springs Speedway in Auckland to see how the track was set up and the dirt used.

Once Etihad had the GP contract, Darby also flew to Stockholm, Sweden to watch the construction and removal of the temporary track at Friends Arena.

The 65,000-seat stadium is very similar to Etihad in that it's a multi-purpose venue, but for the vast majority of the year hosts soccer. There for nine days, Darby was able to get a critical insight into the construction process from start to finish, the impact the track had on the turf, the specifications of the dirt used, as well as the machinery required.

Etihad is one of five temporary tracks currently used on the Speedway GP rota and at an official FIM length of 346 metres is the largest by a considerable margin. (The length is measured from one metre inside the inner kerb – the inner kerb measures 339m in length and the outer fence 427m). Aside from the Friends Arena track in Stockholm which is 275m, other temporary tracks include Millennium Stadium in Cardiff (272m), PGE National Stadium in Warsaw, Poland (274m) and CASA Arena in Horsens, Denmark (272m).

The 2016 Grand Prix was won by Aussie Chris Holder (left) who celebrated in style along with runner-up Tai Woffinden (right)







Etihad Stadium is one of five temporary tracks currently used on the Speedway GP rota and at an official FIM length of 346 metres is the largest

## ON TRACK

So how do you construct a speedway track? Well, the first act takes place a few metres below ground. Etihad Stadium is unique in that the playing surface sits on top of a car park and in order to handle the additional weight of the track and the heavy machinery required to construct it, extensive underpinning of the concrete slab is required.

Underpinning is necessary for a number of events Etihad hosts, primarily major concerts where heavy machinery is required to erect staging and for the crane which is used to bring the portable cricket wickets in and out. Speedway, however, requires the most underpinning of any event. A total of 250 points in the car park are underpinned (see photo below) and they essentially mirror the shape of the track above, with more underpinning required around the corners where the track profile is built up.

While the concrete slab can easily take the additional weight according to its design spec, it's the proximity to point loading that is the key consideration. In addition to the underpinning, the logistics of managing machinery on the surface is paramount. To that end, cones are set out around the ground during track construction to indicate where the columns are below the ground and there is a strict set of rules regulating traffic flow.

For example, if a 20-tonne excavator is working in one zone, then a tipper truck should only be

allowed to work in the zone directly opposite. An empty tipper truck can pass a fully-laden truck in the same zone, but a fully-laden truck cannot pass an excavator, another full truck or a grader in the same zone. To make sure this is adhered to, the stadium has a dedicated spotter overseeing all machinery movement.

With the underpinning completed well in advance by Etihad's facilities department, the first part of the track construction begins with the rolling out of geofabric across the turf where the track is to be constructed. In the case of the 2016 GP, that process started a few hours after Ca hill's theatrics (7am, Sunday 16 October) and involved nine 6m x 250m rolls.

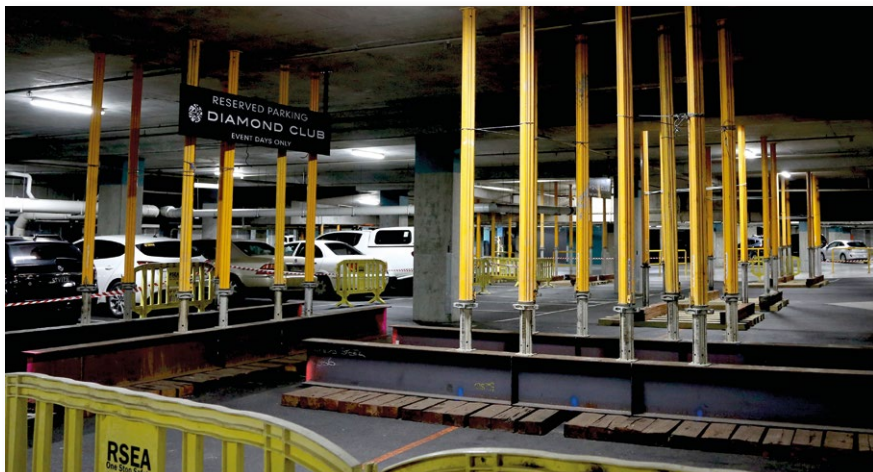
A layer of Etihad's profile sand is then spread over the geofabric which helps prevent the dirt from sticking to it and makes removal far quicker post-event. From a turf perspective, the lead-up to the track construction sees Darby employ a standard programme as he does for all of the stadium's non-sporting events which essentially involves low N, high K inputs, silica and plenty of Primo Maxx.

## FROM GREEN TO BROWN

With the geofabric and sand down, it's then all about the dirt – all 4300 tonnes of it! Initially a roadway is formed to get all the parts for the inner kerb and outer fence into position. The outer fence is constructed using Peri temporary formwork panels which MSL purchased prior to the 2015 GP. The outer fence is 1.7 metres high around the bends and 1.2m high along the straights and has an FIM-approved 'air fence' (an inflatable safety barrier)

Below right: The track build is overseen by a specialist crew from Danish company Speedsport, which constructs all the temporary tracks and supervises maintenance of the permanent tracks on the Speedway GP circuit

Below: With 4300 tonnes of speedway dirt being placed on the arena, substantial underpinning needs to take place before construction of the track starts





attached to the inside. The formwork, along with the inner kerb which MSL also purchased, goes up at the same time as the dirt is brought in.

Over a three-day period, some 360 12-tonne truckloads of dirt is brought into the arena, spread and compacted to form the track. As Darby quips, the 'dirt' is "not much good for anything else apart from building speedway tracks" and is made up of a 25 per cent 7mm crushed rock and a 75 per cent silt/clay mix. Basically, it doesn't like water and turns to soup if there's too much, but when it has the right moisture content (around the 8-10 per cent mark) it packs like concrete. Ideally you should be able to grab a handful of the dirt, make a snowball and then crumble it in your hands.

As part of his trip to Friends Arena in Stockholm, Darby was given the specifications used there from which to work off. The Grand Prix venues in Europe are unique in that they all use the same dirt which is sourced from a quarry in Wales, with each stadium having its own stockpile. Using those specifications as a starting point, Darby went through an extensive process back home before sourcing Etihad's dirt from Hanson.

As it happened, Hanson had some overburden from one of their rock quarries in Werribee which fitted the specifications, with MSL purchasing \$120,000 worth. Leasing land off Places Victoria a kilometre down the road from the stadium, the dirt was stockpiled there last July and after being used



to construct the track for the 2015 GP was put back there and covered with an 80m x 20m tarpaulin.

In the six months leading up to this year's event, Darby undertook extensive testing of the stockpile to check its moisture content levels. Due to a wet Melbourne winter and spring, there was some seepage of water which meant parts of the stockpile were quite wet. However, during the trucking in phase they were able to blend the stockpile with an excavator to achieve the desired levels.

While Darby and his crew are responsible for the dirt and organising all the machinery, the actual track construction itself is overseen by a specialist



**Etihad Stadium's speedway track is constructed using a 25 per cent 7mm crushed rock and 75 per cent silt/clay mix**

# \$0 Deposit Finance Solutions

## Upgrade to a Rain Bird Irrigation System today!



Upgrading to the latest irrigation technology presents your course at its best, with the added benefits of saving up to 30% of water, power and labour costs.

Together we can offer:

- \$0 deposit finance
- On and off balance sheet payment solutions
- Flexible payment options
- We make the process as simple as possible
- Competitive Rates

### FOR MORE PRODUCT INFORMATION, CONTACT:

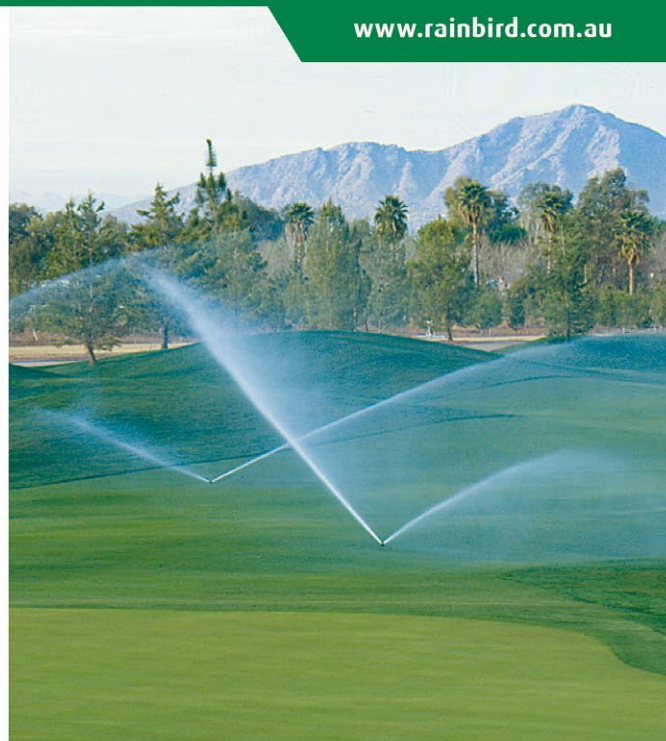
Mac Ross – 0427 720 139 | [mross@rainbird.com.au](mailto:mross@rainbird.com.au)  
Paul Woloszyn – 0409 115 000 | [pwoloszyn@rainbird.com.au](mailto:pwoloszyn@rainbird.com.au)

### FOR FINANCE SOLUTIONS, CONTACT:

Jonathan Hill – (03) 8567 3555 | 0418 226 376  
[jhill@mkpfinance.com.au](mailto:jhill@mkpfinance.com.au) | [www.mkpgroup.com.au](http://www.mkpgroup.com.au)

**M K** Moody Kiddell  
**& P** & Partners

[www.rainbird.com.au](http://www.rainbird.com.au)







Chris Holder (23), world champion in 2012, led from start to finish to secure the 2016 QBE Insurance Australian FIM Speedway Grand Prix

crew of nine from Danish company Speedsport. Owned by former three-time Danish speedway world champion Ole Olesen, Speedsport is engaged by BSI Speedway to oversee the construction of all temporary tracks on the circuit and supervise the maintenance of the permanent tracks.

With the dirt brought in by truck, it is then spread by excavators. On the front and back straights the dirt is approximately 150mm deep on the inside of the kerb and 350mm on the outside, while around the outside of the four corners the profile gets up to 650mm. Due to the nature of the dirt it packs very quickly and all that is required is a bit of rolling and final grading to provide the desired finish. Once the base is packed, the top 10mm-20mm of the track is loosened to give the bikes grip. During the actual GP, in between heats the track is groomed and if the organisers deem necessary water can also be sprayed via a water tanker.

"It's definitely one of the most challenging event builds we have here at Etihad Stadium," says Darby. "The logistics surrounding it and coordinating everything make it very demanding. The Speedsport guys are very good and thankfully their English is much better than my Danish. Half the crew are road construction guys and work for a large company in Denmark so this sort of build is bread and butter for them. The other half construct the fence and deal with the infrastructure set up like the electronic timers, pits and the spring-loaded starting gate.

"Having held the event for the first time last year we knew what to expect this time around. We didn't change anything too dramatically and just made a few tweaks with the sort of machinery we used. We also had a better handle on the logistics of machinery movement. Last year it was quite challenging to get it right, but we had the same crew again this year and they had a much better understanding of what was required.

"The biggest consideration we had this year was the moisture content in the dirt. We did a lot of testing on it in the weeks leading up as we had some seepage in the base. In Europe they normally operate with levels around the 7-8 per cent mark. For last year's event I think we were up around the

11 per cent mark but the track performed fine. With our testing this year we had parts of the stockpile that were at 7-8 per cent and others nearer to 15, but we had an expert excavator operator who was able to blend the dirt as we were trucking it in."

## MULTI-TASKING

The two Australian Grand Prix events to date have been extremely successful and despite being held, somewhat unfortunately, on the same weekend as the MotoGP at Phillip Island, have attracted in excess of 45,000 fans. The 2016 event provided a fitting finale to the season with Chris Holder edging out two-time world champion Tai Woffinden to claim his first Australian Speedway GP title.

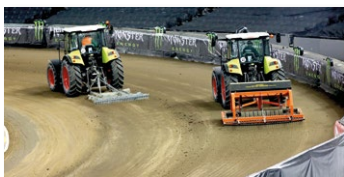
Just as the construction of the track had started a few hours after Cahill's sensational goal a week earlier, a few hours after Holder had left the arena with trophy in hand the bump out of the track began in earnest. By 4am on Sunday the outer fence had gone and by the following Tuesday (25 October) all the dirt had been returned to its home in Docklands.

Due to the larger size of the Etihad temporary track, it doesn't encroach as heavily onto the playing surface as at other GP-hosting stadiums. At the end of this year's event Darby only needed to replace four 70m<sup>2</sup> sections of turf (the corners of the soccer pitch) with the venue hosting its second A-League match the following Monday (31 October).

The hosting of an event like the Speedway GP again highlights the multi-purpose nature of today's modern stadia and since that night Etihad has hosted a number of A-League games, a two-day freestyle football event and two Coldplay concerts (9-10 December). On 14 December Etihad hosts RMIT's Graduation Ceremony which features some 7000 students and 31,000 guests.

The following day the excavators move in to create the holes for four drop in cricket wickets (two in the centre of the ground and two practice decks) for the Big Bash League which returns on 22 December. Then there's the Justin Bieber and Adele concerts to look forward to in March, although you can probably hazard a guess that Darby will be staying home those nights too! 🏠

In between heats the track is groomed and watered if required





# High performance and quality of cut, even in challenging conditions.



The 9009A TerrainCut™ Rough Mower is the latest addition to the John Deere golf course maintenance equipment range.

You can now maximise both your productivity and the quality of cut while having more control over how it performs on the course. It has a deep shell deck design, contour following double yoke, Tech Control display, and a large 2.7 metre cutting width.

Mow wide, mow better, with the new John Deere 9009A TerrainCut Rough Mower.

See your local John Deere Golf dealer for more information.



**JOHN DEERE**  
GOLF

[JohnDeere.com.au/Golf](http://JohnDeere.com.au/Golf)



A regular major tournament host over the years, Hazeltine National Golf Club in Minnesota held the 41st Ryder Cup between 30 September and 2 October 2016



Former GCSAQ Graduate of the Year Award winner Simon Winzar capped off a remarkable 18 months on The Ohio Program with a placement at Hazeltine National Golf Club for the 2016 Ryder Cup. Here he looks back at course preparations for the game's greatest of rivalries.

**The infrastructure set up at Hazeltine National for the 2016 Ryder Cup was one of the biggest in the tournament's history**



**T**he Ryder Cup has given the game of golf some of its greatest moments over the years. There was the 'Miracle at Medinah' when, in 2012, the Europeans came back from the dead on the final day of singles matches to score an improbable one point victory. Similarly, there was US team's famous comeback in the 1999 'Battle of Brookline' when Justin Leonard sunk a 45-foot birdie on the 17th to halve his match with Jose Maria Olazabal, prompting the US team to famously invade the green in wild celebration. US captain Ben Crenshaw even got down on his knees and kissed the green!

The Ryder Cup stirs up great passion for the players and fans alike and without question rates as one of the great sporting contests in the world. To watch it as a spectator would be on the bucket list for any keen golfer, while from a greenkeeping

perspective the chance to work inside the ropes and prepare a course for such a unique event would rank among the highlight of a career.

When I took up my first placement on The Ohio Program (TOP) in early 2015, the 41st Ryder Cup, to be held the following September at Hazeltine National Golf Club, was the furthest thing from my mind. I was looking forward to working initially at Plainfield Country Club, host that year of The Barclays US PGA Tour event, before heading south for the winter to work at the exclusive Isleworth Country Club in Florida.

It just so happened that when Plainfield hosted The Barclays, TOP manager Mike O'Keeffe volunteered at the tournament. Here was a unique opportunity for me to show to him first-hand my capabilities under the pressures of a major tournament. During the week Mike came to me and asked where I wanted to go after Isleworth to which I replied, "Mike, only you know that. I just want another big challenge." He agreed. Little did I realise that he would come back a few weeks later with a proposal of working the 2016 Ryder Cup at Hazeltine. No prizes for guessing my response!

## SETTLING IN

Hazeltine National is located in Chaska, Minnesota and when I arrived there it was cold, bloody cold. For those not familiar with US geography, the state of Minnesota is located at the very top of the US





PHOTOS: SIMON WINZAR

Midwest. It is known for having winter temperatures down to -40°C degrees, though when I got there in May it was starting to warm up and the first new leaves of the season were starting to appear.

Hazeltine was built in 1962 by a group of members from another golf club in Minnesota with the sole purpose of hosting major tournaments. The architect behind the original build was Robert Trent Jones, however, it came in for heavy criticism and it wasn't until his son Rees Jones redesigned it years later that the course rose to acclaim. Over the years the course has hosted a raft of major events including two US Opens (1970 and 1991), two US PGA Championships (2002 and 2009), two US Women's Opens (1966 and 1977) as well as the 2006 US Amateur.

If you look at an aerial of the property you can see multiple fields next to the course with nothing on them. I remember thinking to myself when I first arrived that there was a lot of wasted space and I wasn't overly impressed. However, there was a reason for all this extra space and as soon as the infrastructure started rolling in for the 2016 Ryder Cup it quickly became apparent why.

Course superintendent at Hazeltine is Chris Tritabaugh. I first met Chris outside the Toro stand at the Golf Industry Show in San Diego earlier in the year. He had a thick beard, was wearing a 'flanno' shirt, jeans and a pair of high top All-Star shoes. This is certainly not what I thought I'd see a Ryder

Cup-hosting superintendent wearing eight months out from the event.

We talked about the GIS, his expectations of me during my placement as well as some background on his operations and staff, including senior assistant Ryan Moy. What struck me initially was just how relaxed Chris seemed to be even with the tournament just a few months away. As I would later discover, that calmness was borne out of being extremely well prepared.

From a condition point of view, when I arrived at Hazeltine the course was like a blank canvas. All of the hard work had been done in regards to *Poa* control in the Penn A4 bentgrass greens, while the club had recently installed the Billy Bunker liner system in all bunkers. All we had to do for the next few months was maintain the course and then prepare it for the biggest event on the golfing calendar that year. Chris had set a goal that he never wanted to have a week throughout the season where the golf course went backwards. That, however, was easier said than done.

To give you a run down on how the average year pans out at Hazeltine, the golfing season normally starts at the beginning or middle of April and, weather dependent, runs through until the end of October. Hosting the Ryder Cup changed that timeline significantly. The 2016 season started as normal on 16 April but finished on 1 August, with golfers from that point on required to hit off a synthetic turf mat.

This lasted for four weeks until the course was closed three weeks out from the tournament. A turf manager's dream some might say and yes from a tournament perspective it was, but it did cause some challenges. Given the truncated season, all the usual golfing fixtures had to be squeezed into three-and-a-half months. The amount of golf played during this time was crazy. In the summer the first tee time was 7am and with the sun not setting until 9pm there were golfers out on course 14 hours a day, seven days a week.

## BUNKER KING

Chris had the year planned out meticulously so that the whole way through the golfing season we would practice making our procedures perfect. This

**Hazeltine superintendent Chris Tritabaugh had set a goal that he never wanted to have a week throughout the main golfing season where the golf course went backwards**







◀ **Hazeltine's normal golf season was shortened due to hosting the Ryder Cup. In the four week period before the course closed three weeks out from the tournament, members had to play off synthetic mats**

included picking out the strengths and weaknesses of each staff member so that by the time it came to delegate jobs for the tournament we were aware of everyone's capabilities.

I think a huge part of my ultimate success at Hazeltine was because I made myself available 24/7. I told Chris and Ryan that I would work around the clock if needed and gave them the confidence that I could tackle anything they threw at me.

This led to my first project which was overseeing the straightening of all tee boxes on the course. Each day after we finished our normal course work at 3pm, I would gather a small group together to stay back and work on re-aligning the boxes. This took about a month to complete and once we finished doing that project, our afternoon/night sessions turned into mowing fairways dry and focusing on miscellaneous jobs.

About a month out from the Ryder Cup I was approached by Chris and Ryan about taking on the project of overseeing bunker preparations for the tournament. They had both talked and agreed that would be the best position for me with my skill set.

To give a bit of an insight on how the bunkers had been previously, two years prior Hazeltine had invested in the Billy Bunker liner system to assist with drainage. The club, however, opted for cheaper sand and soon ran into problems. They couldn't get compaction or get the sand to hold moisture, so Chris had to dedicate three staff to hand-water bunkers all day every day so balls wouldn't plug.

At the end of 2015, only a year after the sand had gone in, the excavators were back in digging it out. New bunker sand from Ohio was trucked in and installed. When I arrived at Hazeltine the new sand still hadn't settled because the course was just

coming out of winter. It pretty much took the whole season to really settle and for us to become familiar with how the sand needed to be managed.

From working at other tournaments in the US, I had a fair idea of what we needed to produce in order to keep the rules officials happy. Our process for preparing them was;

- **Step 1:** Edge, blow, hand-weed and remove any rocks and debris.
- **Step 2:** Check depths, ensure that every bunker had 3" (75mm) of sand on the faces and on the bottoms. If we had to move a lot of sand around I wanted a little more on the faces as they were going to pack down to 3".
- **Step 3:** Smooth the faces with the teeth of an Accuform rake and Sand Pro the bottom.
- **Step 4:** Have two guys on hoses watering the faces to keep them soaking while four guys track roll the whole bunker with the Sand Pro. This really compacted the faces enough to give us perfect playability.
- **Step 5:** Smooth the faces with the back of the Accuform rake, apply more water and leaf rake the bases.

This process really set up the bunkers perfectly for tournament week. The only thing we did in addition to the above was machine rake the bases every time it rained so we didn't get algae in the bottoms. During tournament week we touched up the faces with the back of the Accuform again, applied the right amount of moisture and leaf raked the bottoms. We wanted a white, firm, smooth face with a darker coloured base to show definition of the raked bottom.

## EXPECT THE UNEXPECTED

When the course closed three weeks out, that was the time when we started to dial everything in. With no golfers to worry about we could take our time and really concentrate on getting everything right. What could go wrong!?

A total of 355mm of rain would fall in the six weeks leading up to the Ryder Cup. In a normal year Hazeltine would record an average of 136mm during that same period. As you can imagine stress levels were at an all-time high and after every major rain event we would be out squeegeeing fairways so we could continue our mowing practices. I can recall one particular dump of 45mm which wasn't forecast and that was the only time I saw a real low among the crew.

Another unexpected curve ball in the lead-up came courtesy of US team captain Davis Love III. In the Ryder Cup the home team captain gets to choose how the course is maintained and set up. Four weeks out from the tournament Davis Love III informed us that he wanted all of the rough to be mown at 1.5" (38mm) when we were maintaining it at twice that length.



**Hazeltine copped 355mm of rain in the six weeks leading up to the Ryder Cup. In a normal year it would normally average just 136mm**

CONTINUED ON PAGE 18



**PGG WrightsonTurf**

**DURATurf™**  
Trialled, tested, proven

**SportsOval™**  
Turf Rye Blend

  
**Colosseum**  
turf ryegrass

***With Mediterranean germplasm  
for winter growth. Ideally suited  
for oversowing.***

Visit [www.pggwrightson.com.au](http://www.pggwrightson.com.au) to download our 10 point plan,  
a Guide to Winter Oversowing, developed by Dr Phil Ford or email us at  
[info@pggwrightsonturf.com.au](mailto:info@pggwrightsonturf.com.au) to have a copy sent to you.

***Further innovation from PGG Wrightson Turf***

**Freephone: 1800 Duraturf    [info@pggwrightsonturf.com.au](mailto:info@pggwrightsonturf.com.au)**

[pggwrightsonturf.com.au](http://pggwrightsonturf.com.au)





Simon Winzar's three placements in the US over an 18 month period exposed him to a range of turf management practices and major tournaments that have helped to further his career

# 'Whatever it takes'

Already passionate about the profession of turf management, an 18-month stint in the US has served to reinforce Simon Winzar's love of the industry.

**T**wo-and-a-half years ago Simon Winzar was a young greenkeeper going places. He had collected the GCSAQ Graduate of the Year Award in early 2014 and was a finalist in the AGCSA Graduate of the Year Award in June that year. He was working at Lakelands Golf Club, one of the most respected courses on the Gold Coast, and to top things off he had his own successful lawn mowing and landscaping business on the side. Not bad for a 20-year-old. The passion was there for all to see but within himself Winzar knew he was looking for something more to complete the picture.

Winzar's turf management career had started out six years earlier in 2008 when he landed a school-based traineeship at Lakelands Golf Club on the Gold Coast. It gave him a little taste of what golf

course maintenance was about while still at high school and made the decision to eventually take on an apprenticeship a lot easier.

Winzar attended Northern NSW TAFE's Wollongbar campus under the tutelage of head teacher Greg Holihan. Between Holihan and Lakelands superintendent Phil Soegaard, Winzar was taught the technical aspects of the trade and they helped to instil a passion in Winzar that continued to grow. Not surprisingly, Winzar was named the 2013 GCSAQ Graduate of the Year which qualified him for the AGCSA Graduate of the Year Award for 2014. Although not winning, the experience of being interviewed by a panel of judges along with the networking opportunities that came with attending the Australian Turfgrass Conference was invaluable.

While at Lakelands as an apprentice, Winzar was involved in all day-to-day operations of the course. In the six years he was there he was involved in countless bunker re-construction projects and two green rebuilds. Following his apprenticeship he enrolled in the Diploma of Sports Turf Management at NSI Ryde where he spent a year learning the ins and outs of what superintendents go through. The course covered everything from construction, presenting to a board, preparing chemical application programmes, budgeting and analysing technical data.

Right throughout the early years of his career Winzar had often heard of The Ohio Program (TOP). As a result of making it to the final of the AGCSA award, Winzar was put in the running for and ended up receiving the John Hood Memorial Scholarship by the Australian Golfing Fellowship of Rotarians.



Winzar was part of the crew at Plainfield Country Club where Jason Day won the 2015 Barclays event



This scholarship is available to young Australian greenkeepers to help them get across to the US and partake in TOP. It proved to be the in that Winzar wanted to enhance his professional development and he never looked back.

## GETTING TO WORK

Winzar's first placement was at Plainfield Country Club New Jersey. Under superintendent Travis Pauley, Winzar was taught a totally new way of looking at the profession and on his first day was left with no illusions as to what was expected of him.

"He told me exactly how it was," recalls Winzar, who would be heavily involved in spraying procedures and also day-to-day maintenance and irrigation during his time at Plainfield. "He certainly didn't leave any grey areas about what he expected of me. I specifically remember him saying, 'You are either going to sink or learn to swim here; there is no in between'. Taking that all on board, I went out and did the jobs assigned to the best of my ability and that was all he asked. When the Barclays tournament came around in August he trusted me enough to change holes on the back nine so I must have done something right."

After renovation week at Plainfield, Winzar headed off in mid-October 2015 to his second placement at Isleworth Country Club, Florida. Working at the exclusive private golf club was a big eye opener for Winzar and gave him yet another insight into how golf courses can be managed. While Isleworth lacked little in resources, it was the simplistic approach of superintendent Sean Duffy that resonated with Winzar.

"Sean is one of the most genuine superintendents I have had the pleasure of meeting and working under," states Winzar. "He was all about keeping everything out on the course simple so he could understand it. This was everything from what went in his mix tank to how much he irrigated. He was all about having a 'feel' for the course. He would drive around every day with his putter and golf balls, making sure the greens were rolling true."

"Another neat thing about Florida is that there are golf courses everywhere. The interns at both Lake Nona and Bay Hill would often get together to talk about what was happening at each other's clubs. All the Ohio interns also got to volunteer for two weeks at the Arnold Palmer Invitational."

## EXPERIENCE OF A LIFETIME

Having impressed during both his placements it was little surprise that Winzar was nominated by TOP director Mike O'Keeffe for a placement at Hazeltine National Golf Club which included working the 2016 Ryder Cup. Needless to say the Ryder Cup was another level again and, as Winzar details in the pages proceeding and preceding this article, it was one of the most incredible experiences he has had.

"I would say that from the Ryder Cup and working on courses in the US in general, I took away



the 'whatever it takes' attitude," says Winzar. "There were times during Ryder Cup preparations that we worked split shifts to work around a members' golf event and times where we worked 19-hour days because that's what we needed to do to get the course ready."

"All in all, it was a great experience and I would do it all over in a heartbeat if given the opportunity. There are certain jobs that you would never get given unless working a major tournament. For example, one of them was straightening courtesy paths to aim them at the TV cameras! It was this level of precision that was being executed all summer long."

"From a personal point of view, I think that the reason why The Ohio Program guys have a great reputation in the industry is because we live away from all friends and family for so long. It certainly makes you grow up quickly as a person and take responsibility for your actions."

"My 18 months in the US has given me more than I could have ever imagined. I was half expecting to go over and to be treated as an apprentice again, to take a back seat ride and go along with the flow and to learn a little here and there. In the end I guess it's the same with everything you do in life; if you have a true passion for something then that will shine above everything and people will be more willing to invest time and money in you. I think I showed that over there and I was lucky to be surrounded by great people and great golf clubs that were able to help me grow as a turf manager and also as a person."

"I am now back in Australia and have taken on the role of assistant at Lakelands. I am enjoying showing others another way of doing things. I'm certainly excited for what's ahead and I know that wherever I end up I couldn't have done it without The Ohio Program and the support of my family." 🙏



**During his first placement at Plainfield, Winzar was heavily involved in spraying procedures, day-to-day maintenance and irrigation**



**As part of TOP, Winzar volunteered with other interns at the Arnold Palmer Invitational at Bay Hill**



**Winzar was involved in a range of course projects across his three placements**

**Basic digs when you're an intern, but enough room to have a small jar of Vegemite on display**





With increased rainfall, stress levels were high and after every major rain event the crew would be out in force squeegeeing fairways

## CONTINUED FROM PAGE 14

We told him that it wasn't a possibility, so we came to a compromise and just extended the intermediate out another three metres from the fairway. This became known as the 'DL3 cut'. This

late extension took our stress levels up a notch as we needed to grow in the scalped rough and time spray applications perfectly so they didn't get washed away with all the rain we had been getting. There were times where it was too wet to mow the rough with ride-ons so we ended up mowing them with 30" rotary push mowers.

## GO TIME

At other tournaments you know its 'go time' when the ropes start going out, but watching all the infrastructure going up over a period of months beforehand at Hazeltine was quite surreal and demonstrated just how big the event was.

I'm led to believe that there has never been a tournament in the world with as much infrastructure as Hazeltine National had for this year's Ryder Cup. Around two million square feet of temporary flooring was put down in preparation. In addition, there were



## VEGEMITE, MOUSTACHES AND '3-JUMPER' DAYS

Australian greenkeepers have a reputation worldwide for being hardworking and willing to go the extra mile and that's exactly what Hazeltine National Golf Club superintendent Chris Tritabaugh got in Simon Winzar. Winzar was the first Australian intern to be placed at Hazeltine and by the time his six-month stint had come to an end he had left a lasting impression.

"Simon really took ownership in what he was doing, no matter what that was," says Tritabaugh. "If we said we wanted to do a night fairway mow, it always seemed Simon was right there front and centre, ready to take charge of the group."

"I certainly put in my time and effort during the season, but there were many times when I would leave in the early evening and my assistants, interns and other staff were coming back in to complete a task. Their efforts in this regard allowed me to come out the other end of the Ryder Cup with my sanity largely intact. Any time Simon, or any of our interns for that matter, were leading a task, I knew I didn't need to worry about the quality of the results."

"Bunkers were an area Simon had been very influential in all through the season. We had brand new sand in the bunkers at the beginning of the year and it took a long while to settle down and get to be what our members really expected. We brainstormed with the staff a lot on what our best method of maintenance was and how we were going to achieve it."

"All of our interns were important in the implemental, but Simon always seemed to step to the fore. He was clearly comfortable leading our staff and people gravitated towards him. All of our interns got a specific area of responsibility and we felt Simon's best area was the bunkers."

In addition to his strong work ethic, Winzar's laid back persona and the way he slotted in seamlessly with the Hazeltine crew also ingratiated him to Tritabaugh.

"There were a few funny moments with Simon," divulges Tritabaugh. "The guys would make fun of his accent over the radio and he, in turn, would imitate the American accent which was always hilarious. He was always freezing and we'd always ask him whether it was a 'two jumper' or 'three jumper' day. He also got right into the Hazeltine moustache growing contest which was especially memorable after he and another of our employees bought hair dye at lunch and dyed theirs black. Then there was the Vegemite tasting. To be honest I didn't mind it!"

"Simon also spearheaded having all the staff sign a flag for myself. He then worked with my sister to get it framed and the whole staff presented it to me after the Ryder Cup. He also spearheaded a hat passing to get money from the volunteers to buy something for our event assistant Jackie, my wife Lindsay and my sister Emily, all of whom helped to make the volunteers feel at home during the week."

Hazeltine 2016 (pictured from left to right): Simon Winzar (centre) with Ryder Cup volunteers Lee Strutt (left) and Steve Chappell; Mike O'Keeffe, Chris Tritabaugh and Winzar; the Ryder Cup flag Winzar helped to get signed for Tritabaugh; and Toro's Ryder Cup Workman livery





merchandise tents that ran the whole length of the driving range. The temporary marquees were selling for \$500,000! Grandstands that seated 750 people were placed all over the course behind most greens. The infrastructure certainly added to the whole experience that's for sure.

The week prior to the tournament we had over 100 volunteers from all over the world join the Hazeltine crew to assist with preparations. Among them were superintendents Steve Chappell from Gleneagles, Scotland (host of the 2014 Ryder Cup) and Alejandro Reyes, superintendent at Le Golf National, France which will play host in 2018.

The one thing that I know Chris was really proud of afterwards was the way that all the staff and volunteers got on with each other. All volunteers fitted in with the fun and games that the Hazeltine staff (which numbered 48) had been playing for months which made for a great working environment.

The tournament itself was amazing. It was a different set up to normal Tour events due to the format. The maintenance crew was split up into four teams (about 30 in each) with each team designated 4-5 holes. They did everything from mowing, bunkers, rolling, stimping and blowing. For all 18 holes we had two groups of five fairway mowers and two hole changers.

Each day the crew was out on course at about 5.15am and back at the sheds by 7.30am. The afternoon assignments were delegated to the crew



by us interns and gun assistant Ryan and involved mowing rough three days in the week, blowing debris and preparing bunkers. The only hiccup we ran into, aside from a few rainfall events, was a shortage of backpack blowers early on during the week. We got hammered with strong winds which scattered all the autumn leaves across the course, but by Wednesday the winds had subsided and we were back on track.

During the whole week of the tournament we only rolled greens three times and only single cut greens at 0.100" (2.5mm) every morning. No afternoon cut was needed and I believe this was due to our vigorous brooming and dusting that we did in the months prior.

**Hazeltine's greens were vigorously broomed and dusted in the months leading up to the Ryder Cup. During the tournament itself the greens only needed a single cut and the occasional role to get the desired green speed**





by **Simplot**



**Containing *Fūs***

- An environmentally safe ammonium nitrate-based fertilizer.
- Better delivery of dual ammonium nitrate nutrients.
- Decreased volatilization of surface-applied nitrogen.
- Improved nutrient release for plant availability.



**Simplot**  
PARTNERS

[simplotpartners.com.au](http://simplotpartners.com.au)





Shedding some light on bunker preparations

As well as getting an insight into tournament preparations, the networking I got to do was also a major highlight. Meeting so many superintendents from all over the world was invaluable and coupled with working in front of 57,000 spectators each day meant it was an experience I'll never forget.

In the lead-up to the tournament Chris would often talk about how he once listened to an interview with a jockey after he had just won a major horse race. The jockey commented on how he just let the horse do its thing and that he never needed to pull the whip out because the horse knew what to do. I likened Chris' Ryder Cup experience to that of the jockey's win – not once did Chris have to pull us aside and tell us to step up; it just happened naturally. Everyone knew what they needed to do to make the tournament a success.

## OPEN BOOK

I guess the maintenance practices for the Ryder Cup were conservative and by that I mean Chris didn't want to do anything outside what was normal for the course. There was little point in changing his renovation practices or nutrition for the greens. He stuck by what he knew and he produced the goods.

There was definitely no expense spared for the Ryder Cup, but by the same token Chris didn't abuse that and put out an excessive amount of fertiliser or fungicide just because he could. He knew what needed to be done and did just that.

What impressed me most, however, was Chris's openness about the whole Ryder Cup operation. Everything was there for our whole team to see and have their input into to make it run as efficiently as possible. For instance, he openly admitted he wouldn't have a clue about what the bunkers

needed from day to day during the year because he wasn't in them. Instead, he looked to the interns (who were leading the bunker teams day in, day out) for their guidance. From there we would meet with him to discuss our maintenance intentions and he would come back to us with feedback from the members and how and where we could make any improvements.

Another example of his openness was his use of social media. A lot of people in the US know Chris as "that Twitter guy" and anyone who followed him in the year and months leading up to the Ryder Cup would have got a tremendous insight into how the course was set up. Chris posts everything that happens out on the golf course on his Twitter account (@ct\_turf), anything from a favourite hole through to how he manages the greens. He came to Hazeltine four years ago with a plan of how he wanted to manage the course and how it would set up for the tournament. He made that very public and in the end he delivered a world class course for a world class event.

## AUSSIE 'CHRIS'

I was fortunate to be the sole Aussie on the crew at Hazeltine – the club's first – and as with the other courses I was at the crew wanted to know everything about Australia. By the end of my time at Hazeltine they were using Aussie slang and trying to imitate our accent over the two-ways and I theirs. After about two months of them getting comfortable with the slang and imitating, I thought it was time to bust out the Vegemite to see if they could handle it.

Now, there are obviously some things that never made it onto Chris's Twitter feed and I'm about to enlighten you on one of them. About two weeks before the event we had a crew of 12 hand brooming greens on the 13th, which was where the talk about Vegemite first started. On the way to the 14th green Chris decided to Google the ingredients of our beautiful spread while driving. He was driving a small Toro utility vehicle at the end of the convoy when one of his staff in front stopped suddenly to collect some rubbish.

Fixated on his phone, Chris didn't see this and rear-ended the Workman in front, ripping off the custom Ryder Cup hood that Toro had generously supplied. This would have to rate as one of the funniest days I had at Hazeltine. Chris was great to brush off his little accident with a laugh and used himself as an example of why the crew shouldn't text and drive!

During my lunch break later that day I went home and got the Vegemite so he and the boys could try it. To his credit Chris actually liked it and true to form even posted his "cultural enrichment" session on Twitter! In a gesture of diplomacy and friendship I ended up leaving behind the remainder of my US stash with him when I left Hazeltine a few weeks after the Ryder. Whether he's had any since, I'm still to find out. 🍷



Tools of the bunker prep trade

Simon Winzar was put in charge of the bunker crews for the Ryder Cup





**THE ART OF  
PERFECTION**

**BARONESS**

**DELIVER CONSISTENTLY SUPERIOR  
RESULTS WITH THIS GREAT DEAL  
ON TWO EXCEPTIONAL MACHINES.**

### **LM315 GREENS MOWER**

- / Choice of reel speeds & best cutting units in the business.
- / Powerful & reliable Kubota diesel engine.

### **LM2700 FAIRWAY MOWER**

- / Tungsten tipped bedknives ensure a sharp edge.
- / Selectable 2WD or 4WD on demand as standard.



**0.9% FINANCE AND  
4 YEAR WARRANTY**

Terms and conditions: Offer is only available for ABN holders who are using the equipment predominantly for business purposes. A minimum 20% deposit, 36 monthly repayments, minimum finance amount of \$4000 and no lump sum final payment. Credit provided by Kubota Tractor Australia Pty Ltd ABN 72005300621, Australian Credit License Number 442007. Terms, conditions, fees charges and credit criteria apply. The offer ends 31st December 2016. Subject to availability.

**FOR MORE INFORMATION PLEASE CONTACT:  
Trent Saunders on 0437 814 392  
or [baroness@kubota.com.au](mailto:baroness@kubota.com.au)**

**For Earth, For Life**  
**Kubota**





# Kooralbyn reborn

When Kooralbyn Valley Golf Resort closed its doors in 2008, a unique slice of Australia's golfing landscape was seemingly lost. However, as ATM discovers, a new owner has helped to breathe new life into the country's first true golfing resort.

Above: After sitting idle since 2008, on 1 June 2016 Kooralbyn Valley Golf Resort, rebadged as Ramada Resort Kooralbyn Valley, reopened to golfers following a substantial refurbishment

**W**hen Kooralbyn Valley Golf Resort opened its doors to the world in October 1979, it provided the catalyst for what would become one of the most significant chapters in Australian golf. The first true resort style golf course in Australia, Kooralbyn was the brainchild of two Sydney businessmen, Peter Abeles and Arthur George, and its development helped spark the golf course construction boom on the Gold Coast in the 1980s.

Kooralbyn was different. Located in the Gold Coast hinterland, the Desmond Muirhead-designed course was routed through spectacular Australian bushland with dramatic changes in topography. Muirhead would later write that the site upon which Kooralbyn was built was one of the best he had ever worked with.

Reputedly the first golf course in the country to solely mandate the use of golf carts, Kooralbyn quickly became a haven for the wealthy and famous, as well as a training ground for the likes of golfing prodigies Jason Day and Adam Scott. The course rated highly in the annual golf magazine rankings lists, debuting inside the top 30, and it soon developed a reputation for being among one of the hardest layouts in the country.

Just two years after opening it played host to the 1981 Queensland Open with Garry Doolan carding what is still today one of the highest winning totals (290) in the tournament's history (you have to go all the way back to 1956 to find a higher score). Off the back markers, Kooralbyn was a brute and

it spawned the Copperhead Challenge whereby if a player could beat their handicap off the tips they scored a dozen golf balls.

Over the years the equivalent of \$300 million in today's money was spent by the resort's four different owners but as time passed the resort lost its appeal, particularly as the Gold Coast golf boom took off. The final nail in the coffin came when the Global Financial Crisis hit and when the resort's financiers MFS went into receivership Kooralbyn was forced to close its doors in 2008 owing more than \$50 million. Receivers initially kept the course maintained for the benefit of the local community, but that eventually lapsed and the course was only mown every now and then with slashers.

After a couple of failed attempts to sell the resort, it was eventually snapped up in September 2013 by Yong Group and JHC Holding founder Peter Huang. He proceeded to invest around \$2.2 million dollars into the refurbishment of the golf course as well as over \$10 million on the resort. Starting in November 2015, works began to transform the golf course back to its former glory and on 1 June 2016 it finally reopened to the golfing public.

## BACK TO LIFE

When ex-pat New Zealander Jeremy Parry arrived as Kooralbyn's new course superintendent last November, the prospect facing him was challenging to say the least. The golf course was there, but the greens were sand and weeds, the fairways and roughs were overgrown and the bunkers were forests of eight-foot tall weeds. Parry arrived at Kooralbyn after a short stint as superintendent at nearby Boonah Golf Club, as well as previous roles at Elanora Country Club (foreman) and Cammeray Golf Club (superintendent) in Sydney. Prior to that he had worked at Kingswood in Melbourne.



Charged with overseeing the restoration works, Parry's first focus was the irrigation system upgrade. Prior to his arrival, a new Grundfos pump station had been installed and the decision made to use the existing irrigation pipe network. The problem was there were no irrigation plans or drawings to refer to, so no sooner had Parry arrived than the arduous task of locating all the existing in ground pipework, valves and sprinklers began.

Underground radar was used to locate pipes but the majority of the work involved chasing pipe with an excavator. This process took some four months to complete and even now Parry says they still find the odd surprise. All greens irrigation was up and running by the time the greens were sprigged in February/March 2016, but even then, while the grow-in of the greens was taking place, three of Parry's crew were manually operating sprinklers around the clock to keep the stolons moist.

"The first task was to get the irrigation system up and running as we had some tight deadlines to work towards and obviously you can't grow in new greens without water," says Parry. "The decision to use the existing pipework and having no drawings to work off made those first few months very tough."

Machinery was also a big factor at the start of the project. One Toro MDX and a tractor to start with wasn't going to go very far so Parry had to make several phone calls in desperation to get the project underway while he waited for more machinery.

Perhaps the biggest challenge he faced, however, was building a crew. Kooralbyn is well over an hour inland from the Gold Coast and due to its relative isolation and the uncertainty surrounding the resort due to its troubled past, it was always going to be tough to attract quality staff. In saying that, Parry now has a great staff on board which numbers nine plus a couple of volunteers and in addition to maintaining the golf course they also look after two polo fields and equestrian facilities, 12 tennis courts (including one grass), a bowling green and an airstrip.

## PLAYING SURFACES

Prior to its 2008 closure the greens at Kooralbyn were Tifgreen 328 oversown with bentgrass. Due to water issues and disease pressures, the greens often struggled. Despite low overnight temperatures, Kooralbyn is located in a valley where wind flow is minimal which in turn brings hot, humid days.

Using these past issues as a guide, it was decided to grass the new greens with TifEagle. Starting in November 2015, the existing greens were stripped back to the drainage layer and 2800 tonnes of new organic blended sand from River Sands was brought in. The greens were redesigned by Marcus Lane (Atlas Golf) and re-shaped by Lindsey Richter who played a key role in the shaping of Cape Wickham on King Island.

One hectare of TifEagle sprigs were spread during February and March 2016. As luck would



**This was the condition of most of the holes when Jeremy Parry arrived as superintendent in November 2015**

have it, a storm tore through the region not long after the final greens were sprigged. The resulting 120mm in a few hours, followed up by a further 80mm a couple of days later, was enough to badly damage six greens which needed reshaping and re-sprigging.

While the greens are effectively brand new, the other playing surfaces required a little more patience to get them back to a playable state. Weed infestation, not surprisingly, was a significant issue throughout the tees, fairways (primarily Greenlees Park couchgrass with several Queensland blue couch) and roughs.

To clean them up Parry sprayed wall-to-wall with Triple Shot at 5L/ha. So far only one application has been made with great results and Parry has followed that up with Monument in selected areas of the course and DSMA in other areas where the Greenlees Park is predominant. Bringing the tees back to a championship standard is part of the ongoing turf management master plan and to date two have been resurfaced.

Elsewhere on the course other improvement works have included:

- Renovating all bunkers – shelled out, reshaped with a 1.8 tonne excavator, drainage repaired and 900 tonnes of Premium White bunker sand from Pacific Sands brought in, spread and compacted;

**As part of the refurbishment, all greens were reshaped and re-sprigged with TifEagle couchgrass**





A storm in March 2016 severely damaged six greens which needed to be reshaped and re-sprigged



- Rebuilding dam walls;
- Fitting new railings to bridges;
- Removal of trees encroaching on the line of play;
- Installing distance markers; and
- Resurfacing cart paths.

Another key part of the refurbishment works was the restoration of the 1st and 18th holes. Muirhead's original design featured a closing short par five with lots of water. However, when the green was moved closer to the resort in the years after it opened, it required a very long second shot over water which was difficult for the average player.

Listening to feedback from golfers who had played the course, combined with the decision to build a new flood lit practice green and driving range near the resort, the original design was reinstated which has proved a popular move.

"The golf course re-opened on 1 June and so far we have received great feedback from the golfing community," says Parry. "Most people are surprised with how good the conditioning is in such a short period of time. Numbers have been steadily increasing as word has got out that Kooralbyn is back open and we are averaging around 60-70 rounds a day.

"Effectively being a new course it is important for us as an 'eco resort' to do everything we can to preserve the environment in which we are working. As part of that, several flora and fauna management plans will be incorporated into the operations of the course. Natural areas of the course have matured in the years that the course was closed and that has only added to the ambience of the place.

"Among future plans are the resurfacing of more tees and re-grassing some fairways, undertaking more drainage works around the property and repairing infrastructure so that we can better access the water we have. We still have a lot of work to do, but Peter (Huang) has been very supportive in the refurbishment to date and we have a great understanding of what we both hope to achieve with the golf course."

**Editor's Note:** Jeremy Parry wishes to thank the following for their support in helping to get Kooralbyn back on the map: Peter Huang (owner), Mark Heinrich (JHC Holdings Development Manager), Damien Tucker and Paul Lierse (Turfcare Solutions), Marcus Lane (Atlas Golf Design), Lindsey Richter (shaper), Ben Marshall (Toro), Mike Gnech (Dower and Sons), Ty Cunningham (Earthworks), Turf and Irrigation, Sheldon Simmonds (Toro Irrigation), River Sands, Pacific Sands and Twin View Turf.

Parry also wishes to acknowledge his crew including assistant superintendent Mike Gilman, Graham Benyon (irrigation tech), Wayne Bird, Mark Howe, Dean Lerm, Brock Svensen, Bruce Freeman, Rodney Osborne (all groundsmen) and Bill Collins (mechanic). 🌿

Below right: Since reopening, golfers have praised the conditioning of the course

Below: Kooralbyn's natural beauty has only been enhanced during the years it was closed





# BUILT TO LAST

THE G885 GOLF ROTOR:  
**POWERFUL, PRECISE AND VERSATILE.**

## CONTOUR

"back-nozzle" and specialty nozzle sets expand options



21

wind-fighting  
efficient nozzle sets



## OPTIONAL

Decoder-In-Head  
programmability with  
no disassembly



## POWERFUL

patented stainless  
steel full/part-circle  
riser assembly



## TTS

Total-Top-Service  
patented design



Clear flange compartment for illustration purposes only

▶ G885 Golf Rotor

**THE G885 GOLF ROTOR HAS POWER TO SPARE.** Boasting the highest torque output of any golf rotor on the market, the G885's patented gear-drive will push through anything that gets in its way. The wide assortment of highly efficient wind-fighting 22.5° standard trajectory nozzles or the 15° low-angle nozzles will conquer any challenge your course presents. Hunter's exclusive QuickChange technology and QuickSet-360 arc adjustment make set up and changes easy. Power, Precision and Versatility, built to last.

GOLF IRRIGATION | Built on Innovation®  
Learn more. Visit [hunterindustries.com](http://hunterindustries.com)



National Free Call: 1800 HUNTER  
Toll Free Fax: 1800 651 680  
[www.hrproducts.com.au](http://www.hrproducts.com.au)  
[hrsales@hrproducts.com.au](mailto:hrsales@hrproducts.com.au)



Tel: 1300 856 368  
Fax: 1300 856 369  
[www.nelsonirrigation.com.au](http://www.nelsonirrigation.com.au)  
[info@nelsonirrigation.com.au](mailto:info@nelsonirrigation.com.au)

# Hunter®

Suite 7, 202 Ferntree Gully Road, Notting Hill,  
Melbourne, Victoria 3168, Australia  
Tel: + 61 3 9562 9918 Fax: + 61 3 9558 6983  
Call for a free Hunter catalogue 1800 811 370





# Brookwater's back

Between November 2015 and August 2016 Brookwater Golf and Country Club undertook significant course refurbishment works that have remedied agronomic issues with the greens as well as improving playability

Heralded as one of Greg Norman's most stunning Australian designs, Brookwater Golf & Country Club has recently undergone a major course revamp which has seen all 18 greens resurfaced and in some cases redesigned. Course superintendent Rob Weiks provides an overview of the project.

Greens were stolonised with a planting rate of 3:1 and tracked in using a Sand Pro



Over the past year Brookwater Golf and Country Club south west of Brisbane has undergone a series of significant renovations to overhaul the course. Under the auspices of original architects Greg Norman Golf Course Design (GNGCD), every hole on the dramatic layout has come under the microscope, with Brookwater's greens the central focus of the improvement works.

All 18 greens have been refreshed, resurfaced and in some cases redesigned to eradicate a natural build-up of thatch and remedy a number of subsoil concerns. In addition to assessing the agronomic capabilities of each green and their ongoing maintenance requirements, the GNGCD team also took the opportunity to assess the playability and strategy of each hole and make subtle changes where required.

At least six greens have come in for particular attention, including the 1st, 10th and Brookwater's much photographed signature hole, the 13th, with more surface area created to provide additional pin placement options and improved agronomy and surface conditions through less wear. Across all greens, GNGCD has taken the opportunity to modernise the complexes, softening some contours in places and restoring a number of greens that had started to shrink in size from their original design.

The principal reason behind rebuilding and partially redesigning Brookwater's greens was to address some significant layering issues within the top 100-150mm of the profile. Brookwater opened in 2002 and since that time has used treated effluent water to irrigate the Tifdwarf couchgrass greens. Through its prolonged usage, a build-up of layers

had occurred and as a result root growth was shallow which meant managing the greens through periods of high stress was particularly challenging.

In addition, percolation was near non-existent and maintenance staff would have to perform as many as five soaks on greens when trying to achieve a deep penetrative irrigation. Pooling and run off was a major issue as well which needed to be remedied.

These agronomic issues, coupled with the mindset to enhance the playability of Brookwater, saw the redesign of holes 1, 3, 9 and 13 and a partial redesign of hole 10. The changes are subtle but dramatic enough from a strategic standpoint to enhance playability and allow for a wider range of playing levels to enjoy Brookwater. Make no mistake, Brookwater still has the ability to bear its teeth but if played from the correct tee it is now more of a challenge than a beat up.

## GREEN LIGHT

After hosting three consecutive Queensland Opens from 2013-2015, Brookwater announced midway through last year that it would embark on the course improvement works starting in November 2015. The project was done in-house with GNGCD shapers and design supervision by senior associate Ryan Van Der Veen who was excellent to work with and learn from throughout the entire process. All works were completed by mid-August 2016 with the front nine greens already in play. The back nine greens are growing in at the present time and will be ready for play when the new-look course has its official opening in March 2017.



Holes 1 and 9 were tackled first followed by the 3rd. This was done to save money on floating costs and shaper costs with the larger machinery. Hole 2 followed and we then worked through each hole, leaving the 13th until last as we had a large amount of turfing to do and wanted to avoid doing this in the middle of winter. During the whole project the course remained opened with temporary greens in play which were oversown during the winter.

In a nutshell, the greens reconstruction process went as follows:

- Shoot levels to mirror the levels once the new greens mix had been installed;
- Strip off existing greens grass (Tifdwarf) and remove the top 100-150mm layer. A lot of this material was re-used on drive on/drive off areas and to backfill along cart paths.
- Find existing drainage and check efficiency (tree root removal, relaying of drainage and installation of additional drainage where required);
- Backfill with USGA/profile blend;
- Shoot levels/check percentages;
- Reshape and amend contours (GNGCD sign off). Shoot levels/check percentages again to double check;
- Pre-plant fertility;
- Stolonise from existing greens (planting rate of 3:1). Track in using Sand Pro tyre nubs;
- Irrigate. Initial irrigation was set up hourly for three minutes. This was backed off once root formation was efficient enough to support the plant and was watered according to environmental conditions, gradually getting deeper and more infrequent as time passed.

The top 100-150mm of sand was removed on holes 2, 4-8, 11-12 and 14-18. This layer varied in areas and we adjusted according to this layer to ensure we had a clean profile meet up with the blend. After doing more than 12 tests with the help of Kristy Pratsch from Riversands, it was determined that using three per cent per volume of greens grade profile blended with a straight USGA sand was the best overall profile mix for our ongoing needs.

As an aside, I would recommend that all superintendents who are going to go through this process use their sand supplier to assess the specifications as there were some interesting results from the 12 tests we carried out. The results have been excellent with a deep thick biomass of healthy roots that have allowed us to stretch our watering windows out.

The drainage layer comprised Geofabrics' Megaflor lay flat pipe used in a herringbone design with 175mm laterals slotting into a 300mm mainline and 100mm slot pipe perimeter main. A 100mm layer of 5-7mm aggregate gravel was then spread before the greens mix was brought in.

Greens were stolonised with Tifdwarf which was harvested from the existing greens. This was perhaps the biggest challenge agronomically as



**The old 15th green showing layering within the profile that was restricting the performance of some of the greens**

we had to harvest from greens that had to remain at playing height sometimes up to the day before. That, coupled with a winter grow-in, meant that the actual grow-in period had to be extended beyond a 'normal' grow-in. Holes 12, 14 and 15 were stolonised in the middle of winter when soil temperatures were more suited to C3 grasses.

To aid in the establishment of the Tifdwarf, the following applications were made prior to stolonising:

- Calrite @ 6.5kg/100m<sup>2</sup>
- Agromate @ 4kg/100m<sup>2</sup>
- 0-0-41 @ 4kg/100m<sup>2</sup>
- 31-1-7 @ 4kg/100m<sup>2</sup>

After planting, weekly CaNO<sub>3</sub> applications (prill, watered in) were made, occasionally twice per week. After calculating the nutrient load in our water supply and coupled with the above applications and soil and water tests, our P was high so additional applications were not sought.

Once established the greens were groomed at bench height with their first cut at 6mm working slowly down to 3.5mm over a three week period. Weekly foliar applications were made initially of High 5 + KNO<sub>3</sub> + FeSO<sub>4</sub> rotated with bimonthly CaNO<sub>3</sub> applications.

Depending on weather conditions the application rates varied, but generally speaking N stayed

**Across all greens, Brookwater has taken the opportunity to modernise the complexes and restore a number of greens that had started to shrink in size from their original design, like the 5th pictured here**







night time temperatures still in the low teens. We did use growth blankets on holes 12, 14 and 15 but this only helped minimally.

## SET FOR THE FUTURE

While the greens were the primary focus of the improvement works, the bunkers have also come in for considerable attention. In regards to bunker shaping, we have folded the top edges over to soften the bunkers and tie them in better with the surrounds and removed the hinge that was put in place previously. Some bunkers were minimised to reduce maintenance but still achieve the desired strategy. The first two fairway bunkers on the left hand side of the 9th hole were removed to alleviate slow play issues with the area returned to rough height.

Works were also undertaken to re-install the bunker liner correctly. Previously the bunker mat was just placed on the face and pinned. We have corrected this and angled 150mm of bunker mat back into the soil at a 30 degree angle to not only anchor it in place but to help avoid water or sand falling behind it and ensure the turf on top is growing into soil and not geofabric. This done correctly is faultless and we are yet to have a wash out in any of the bunkers we have redone.

Other works around the course and changes made have included:

- The removal of trees on every hole to improve agronomics, playability and aesthetics;
- Some fairways and surrounds (1-3, 5-8 and 13-17) have been shortened from the tee end reducing maintenance and improving aesthetics from the tee.
- Added extra space for drive on and drive off areas on holes 2, 3, 5, 6, 8, 11-13, 15 and 17.
- The back tee on the par three 5th has been extended into one large tee instead of two smaller tee pods.



Top right: Spreading of the 100mm layer of 5-7mm aggregate gravel

Above: Finding tree roots in the existing drainage lines was expected during the reconstruction, but the extent of some of them surprised

around the 0.25 to 0.40 of a gram actual N per square metre and the N:K ratio close to a constant of 1:3. Bi-monthly soil applications of Terreplex, Algae Green and Stamina Balance were also made along with monthly applications of WDG dolomite at 4kg/100m<sup>2</sup>. As the surfaces matured, they were groomed and dusted weekly with brushing weekly or fortnightly.

We did encounter a few issues throughout the project. We knew there would be tree roots in the existing drainage lines, but the number and extent of them took us by surprise. The 5th in particular had roots through 60 per cent of the slotted ag line and being the ethical greenkeepers we are we had to remove it rather than turn a blind eye and replace it which added around a month to the construction phase.

As mentioned, harvesting from our existing greens was a challenge as the greens had to stay in play right up to the point of harvest. Therefore we had little time to prepare the greens for harvesting and while we still got a reasonable strike across the board, it was noticeable that the stolons which came from those greens which had a little more prep time (48-72 hours) were of better quality and their strike rate was greater.

While it definitely wasn't the coldest winter, there wasn't much warmth either for sufficient growth to occur and this stretched through into October with

Below right: Tifdwarf stolons were harvested from the existing greens

Below: The drainage layer comprises Megaflow lay flat pipe used in a herringbone design with 175mm laterals slotting into a 300mm mainline and 100mm slot pipe perimeter main





- 900mm drainage pipes were installed 40m short of the greens on the 1st and 3rd holes to cater for extra water and control silt runoff that will eventually come off nearby residential properties.
- Additional drainage added on the 6th and 7th to deal with stormwater runoff.
- Stripped all the taller lomandra, dietes and some exotic species planted around tees and gone for a clean, flat look off each tee pod. The reasoning behind this was to firstly open up the flight zone view and secondly to remove 'Pacman' grasses that at times would catch errant drives and slow play down with golfers searching for a buried ball. These areas have been replanted with *Gazania rigens* to not only ensure the vegetation remains low to the ground and suppresses weeds but also has the potential for a flowering aspect year round. We also have planned a redesign of the surrounding landscape to be more minimalistic and maintainable.
- Some basic landscape work has also been completed and adding rock to open drains on holes 2, 3, 10, 13 and 15. These areas were widened and bidim mat added before rock was placed to improve aesthetics and allow clean water to pass to mitigate erosion of banks.
- Mulching and planting of the entire sewer line on the right hand side of the 10th hole and all the way down the right hand side of the 18th hole.



- Removal of wooden steps onto tees and replaced with sandstone blocks to eliminate maintenance.
- We have reconfigured the 45 degree mowing lines on fairways as some of these lines were not 45 degrees from the tee to the turning point. Surrounds are now contour cut. The work we have done on tees now allows us to mow tees with a triplex instead of walk-behinds.

Overall, the works undertaken at Brookwater over the past 12 months will set the course up for many years to come. We have remedied a lot of the issues that were holding back the performance of the playing surfaces, as well as improving the playability and strategic elements of the course that will make it a much more enjoyable course to play. As a result of the renovations we now have a situation of seeing healthy white root biomass that extends way past the hole changer which, for a superintendent, is very pleasing to see. 🙌



**Brookwater's bunkers also came in for a lot of attention with some removed, others reshaped and bunker mat reinstalled**

Have your Club Logo or message  
digitally printed on your cups.  
Contact your local Dint  
Representative to find out more.

**DINT**  
Golf Solutions  
We Make Golf Courses Look Better  
[www.dint.com.au](http://www.dint.com.au)  
Head Office(02)9700 8113

100% Australian Made





There's always one... excavators seem to have a knack of finding irrigation pipes

# The long road to Tif

In Volume 18.5, ATM looked at the management of the new ultradwarf couchgrass greens varieties such as Champion and TifEagle. As AGCSA board member Peter Lonergan writes, Coolangatta & Tweed Heads Golf Club has just embarked on a project to convert its West course greens from bentgrass to TifEagle.



It has certainly been a long and sometimes arduous road that has been travelled by myself for the past 17 years and previous superintendents at the 36-hole Coolangatta & Tweed Heads Golf Club (CTHGC). You can go all the way back to the days of Les Neuhaus in 1980 when it was first put to the course and match committee that it should consider changing the grass variety on the greens from bentgrass to couchgrass (at that stage it was going to be to Tifgreen 328).

There were many subsequent recommendations made along the same lines over the years and a plethora of reports compiled and submitted for consideration, with at least two of these reports done by the old Australian Turfgrass Research Institute.

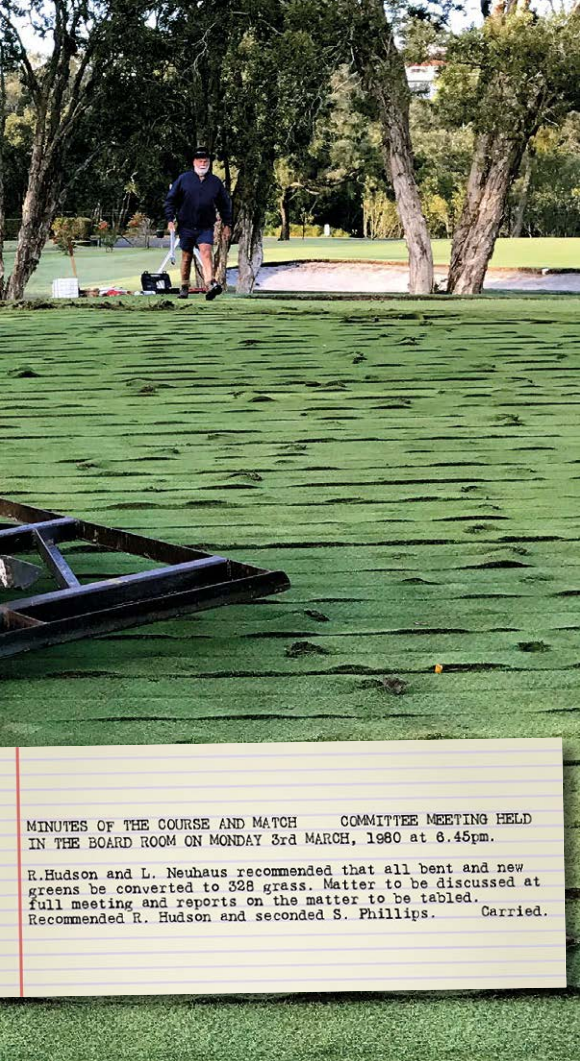
CTHGC has had bentgrass greens since the 1970s and they have regularly provided a substandard putting surface over summer resulting in temporary greens often being in play. The bentgrass is simply unable to withstand the sub-tropical summers we experience. Combined with the amount of play the courses receive (200 players per course per day), the quality of the recycled water that has been in use since the early 1980's and the disrespect shown by golfers with the lack of pitch mark repair, you have a recipe for disaster. Having said that, in the cooler months of May to September the bentgrass greens are as good a putting surface as you could find anywhere.

Converting the greens from bentgrass to couchgrass has always been a highly emotive topic at CTHGC and has resulted in much robust discussion at Board level and among the membership. In 1998 the Board of the day passed a motion to change the back nine greens on the River course to Tifgreen 328. All the greens were done at once to a design by course architect Peter Williams (former Royal Melbourne Golf Club superintendent) and the project started in October 1998 with plans in place for the front nine greens to be completed the following year.

The greens were constructed to USGA specifications and were solid turfed. I arrived at the club in June 1999 to greens on the back nine River course that had very high thatch levels but generally in good condition. Budget limitations dictated that only three greens – 1, 2 and 6 – would be re-constructed in 1999, but fortunately on my advice all the front nine greens were re-turfed with Tifgreen 328 with 1, 2 and 6 being totally reconstructed. I say 'fortunately' because it was another four years before another green was done!

In 2007 the club joined a research project conducted jointly by the AGCSA and the Queensland Department of Primary Industries trialling five new ultradwarf varieties of couchgrass with a view to their suitability as a putting green grass at CTHGC. To its credit, the club invested more than \$40,000 in the construction of the nursery to ensure that the





PHOTOS: PETER LONERGAN

Coolangatta & Tweed Heads Golf Club has just embarked on a project to convert its West course greens from bentgrass to TifEagle. The 13th green was first to undergo the knife

## BYE BYE BENT

So, for at least 36 years there had been debate on the most suitable greens grass at CTHGC. As mentioned, it is Queensland's sub-tropical summers and the resulting soil temperatures in particular that make growing bentgrass so difficult here. It is a fact that bentgrass roots start stressing and dying off in soil temperatures above 24°C. Between November and March our soil temperatures rarely fall below 23°C (even overnight) and the irrigation water that is applied is normally a minimum of 26°C. In fact, I have recorded soil temperatures above 35°C on and the water 30°C on many occasions and as such is a train wreck waiting to happen.

In April 2016 the decision was finally made to convert the remaining eight back nine West greens to TifEagle in the summer of 2016/2017 (17 green had been done 15 months earlier). The following is the procedure that was recommended to the club following its successful implementation on 17 West and a practice green;

- Greens to have herbicide applied (twice) to eradicate foreign couchgrass. Greens would remain in play during this phase. Temporary greens would be prepared in advance.
- At least 400mm of the growing profile to be removed out to the existing greens collar and further in some cases and down to the existing drainage. This would increase the putting surface area by a minimum of 120m<sup>2</sup> and the excavated material would then be spread in roughs to cover tree root areas. Any good quality sand would be used for topdressing nearby fairways to reduce haul time and cost.
- Irrigation to be renewed.
- Growing medium to be replaced and contoured back to existing levels with minor alterations to allow for pin placement and water movement off the green.



Coolangatta has had bentgrass greens since the 1970s, but a combination of climatic stresses, heavy traffic and disease susceptibility meant converting to TifEagle couchgrass was inevitable

growing medium would be the same as that used in any future greens resurfacing.

The five varieties trialled were Champion, Mini Verde, Flora Dwarf, Mini Supreme and TifEagle, with Tifgreen 328 added at our site for comparison. All of the ultradwarf varieties proved to have a much finer leaf than 328 and therefore provided a superior putting surface. TifEagle was the standout during the trials and quickly became the 'go to' grass for CTHGC.

TifEagle, it would be fair to say, didn't enjoy a smooth ride in its early life in Australia with a couple of clubs removing it, saying it was too "high maintenance". The perceived problems were its aggressive ability to thatch up requiring a very high level of de-thatching and constant dusting. It also had a reputation for being very disease prone, particularly in the first two years. Thatching up was evident in our trial work but the prevalence of disease not so much.

As a nursery green, the trial site was probably not really maintained to the extent of the on course greens and therefore was subjected to fewer inputs which turned out to be a bonus as lower inputs is just what TifEagle needs. Indeed, I attended a seminar at the GCSAA conference two years ago where a researcher admitted they 'got it wrong' with regard to the management of the ultradwarfs when they were first released, particularly with respect to fertiliser requirements.



Reconstruction on 16 West gets underway. Up to 400mm of the existing growing profile was removed





To say that what was found under the surface of the old West course greens was interesting would be an understatement – a variety of materials and poorly incorporated zeolite

- Some contouring works would be required on green surrounds to ensure drainage/water movement off the putting surface.

- Greens to be planted with stolons, surrounds to be turfed.

So on 4 October 2016 works began with the 13th green the first victim. This green was chosen due to the need to replace a 100mm irrigation mainline adjacent to the green as part of the works. The green was fully excavated on day one, irrigation installed on day two and a total of 448 tonne of sand added on day three with the top 100mm amended with seven per cent zeolite, four per cent granular humate, 2.5 per cent organic compost and 14 per cent gypsum by volume.

So three 15-hour days into the project and I had the first green ready to plant which was a surreal feeling. The TifEagle stolons arrived the following Wednesday and were immediately planted and the entire green covered with an Evergreen turf cover. I had used the covers previously as they help not only with the establishment phase but also keep the stolons in place as CTHGC is an exceptionally windy site. Green 16 was next, followed by 11, 14 and 15 over the next three weeks and by Melbourne Cup day five greens had been planted.

To say that what we found under the surface of the old greens was interesting would be an



A novel way to cap a drainage pipe

understatement! Each green was different with only one not having a gravel layer installed with various levels of drainage under it. All were tested and found to be in working order and given the poor quality of some of the material above the drains they may have never seen any water!

Generally there was only a hole cup depth of good sand then a variety of 'materials' that went from a soil/sand that had set like concrete on 11 to a 500mm deep USGA spec sand on 14 and then a marine mud/clay type material on 15. It's safe to say that the new profile will be a vast improvement. All except 16 had had zeolite added but was obviously done onsite and just dumped in certain areas with no effort to incorporate it into the profile.

It has certainly been a whirlwind first four weeks and the project is nearly two weeks ahead of schedule at this stage with the weather so far cooperating allowing for the earthmovers to continue nonstop. I look forward to finishing the remaining greens and providing an update on the grow-in period in the next edition of ATM. 🙌



Right: Planting the 13th green. All greens were stolonised with TifEagle and surrounds solid turfed. Above: Root growth after seven days on 16 West





# ULTIMATE FINISH FOR THE FINEST GREENS

The Eclipse®2 walking greens mower is an excellent machine. We are able to programme the frequency of cut, which means that it always remains constant, no matter who is operating the machine.

Things like this provide me with peace of mind and give me confidence that every hole is being maintained in a uniform and precise way.

The quality of cut that the Eclipse®2 walking greens mower provides is incomparable to anything I have seen during my 30 year career in the turf industry. I am yet to discover a machine that even comes close.

**Chris Haspell,**

**Course Manager, Castle Stuart Golf Links**

*Scottish Open 2016*



Visit [www.jacobsen.com](http://www.jacobsen.com) to find your local dealer.

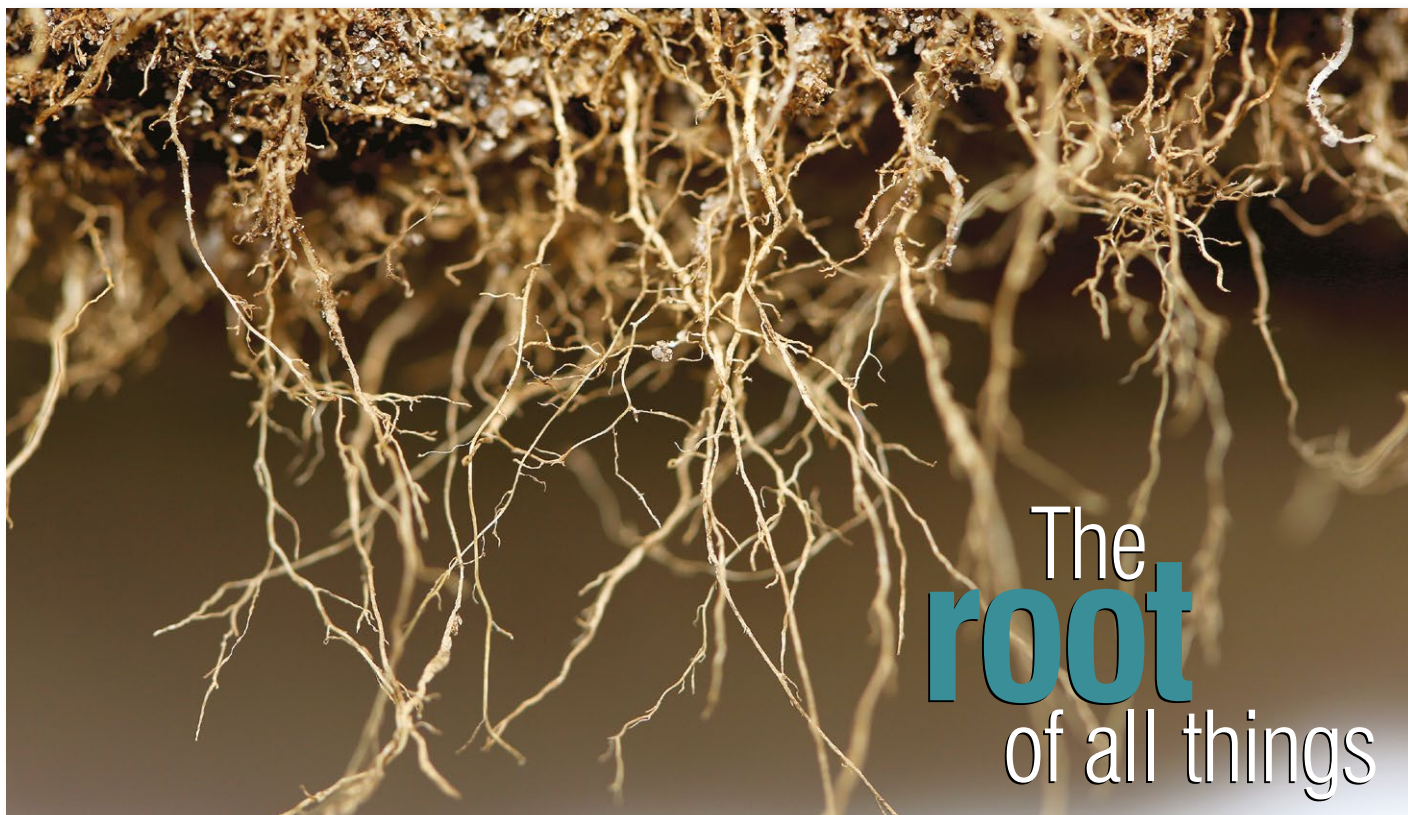
[www.jacobsen.com](http://www.jacobsen.com)



ATM/Eclipse2CSTest/11/2016

**JACOBSEN**





# The root of all things

One of the greatest challenges turf managers face is trying to maintain a deep extensive root system on finely cut turf. AGCSATech environmental agronomist Bruce Macphee takes a closer look at arguably the most important facet of managing a healthy turf surface – the root system.

**Above: Regular inspections of the turfgrass root system can aid in gaining an understanding of root growth patterns and overall root health. Often an issue showing up on the surface can be traced back to a problem below ground**

**T**he primary role of roots is in the uptake of water and nutrients and to provide anchorage for the plant. The fibrous root system of turfgrasses has the ability to take up extraordinary amounts of water and nutrients due to the large surface area of fine root hairs created by modification of individual epidermal cells. Root hairs are microscopic and cannot be seen by the naked eye with Beard (2001) stating that the surface area of these hairs is approximately five to 10 times the size of the primary root area.

Understanding how environmental, cultural and chemical factors can affect the plant's root system and the ability to uptake water and nutrients is vital in creating a healthy resilient turf surface.

Unlike the above ground portion of the turfgrass plant where the tip of the leaves contain the oldest cells and the growing point is down at the base of the stem or crown (this allows us to mow at low heights as we are generally not removing the growing portion of the plant), in the case of the roots it is the opposite.

Roots have their meristematic tissue (growing point) right at the tip of the root. This active portion of a root tip is white and a highly dynamic region of the plant where growth, water and nutrient uptake all takes place. As the root matures, the cells behind the growing point elongate, turn brown and become more specialised, forming a series of interconnecting hollow tubes for transportation of water and nutrients throughout the plant. New root initiation in bunch type grasses generally develops from the crown of the plant (adventitious roots) or in the case of creeping grasses from the nodes of stolons or rhizomes.

## ROOT LIFE CYCLE

Most turfgrasses are perennial, but many have root systems that could be considered annual in nature. Both cool- and warm-season grasses have periods of extensive root growth and decline. Cool-season grass root systems are most active in spring when soil temperatures are between 10°C and 17°C.

During late spring to early summer, when temperatures rise to between 17°C and 23°C, cool-season grasses will transfer efforts towards shoot growth and production. Soil temperatures above 23°C see a reduction in growth of both roots and shoots and a decline in the overall mass of the root system, sometimes referred to as summer dormancy. Root production resumes again in autumn to a lesser extent when temperatures cool below 23°C.

Conversely, warm-season grasses have a period of root decline in the period just prior to spring when soil temperatures are at their lowest (below 15°C). The period of highest root production for warm-season grasses is in late spring and summer when temperatures are between 23°C to 28°C. Beyond these temperatures is when warm-season turf growth comes into its own, thriving in temperatures up to 35°C, provided adequate moisture and nutrients are available.

Peak growth periods are a time essential for setting the plant up with an extensive root system for the summer season. Any cultural or chemical application works during this period that could potentially impede root development should ideally be avoided.

It is important to understand periods of root activity and decline and the potential



effects management practices may have on the development of an extensive root system throughout such times. Renovations conducted to coincide with this period can see turfgrass roots meet their maximum potential, setting up both the turf and the turf manager for a less stressful summer.

## ROOT-SHOOT RELATIONSHIP

Both roots and shoots require carbohydrates for growth. Carbohydrates are primarily produced in the leaf and supplied to the root system. Conversely, the root system is responsible for supplying the necessary water and nutrients for carbohydrate production.

During periods of stress, limited water or nutrient availability, often the supply of carbohydrates to the root system is limited in favour of shoot production. This can have a negative effect on the plant's ability to develop an extensive root system and therefore cope with temperature extremes, particularly during the hot summer periods.

Many cultural practices are undertaken with the view of improving the growth potential of the plant's root system during peak growth periods including coring, deep tine aerification, high pressure air or water injection to name just a few.

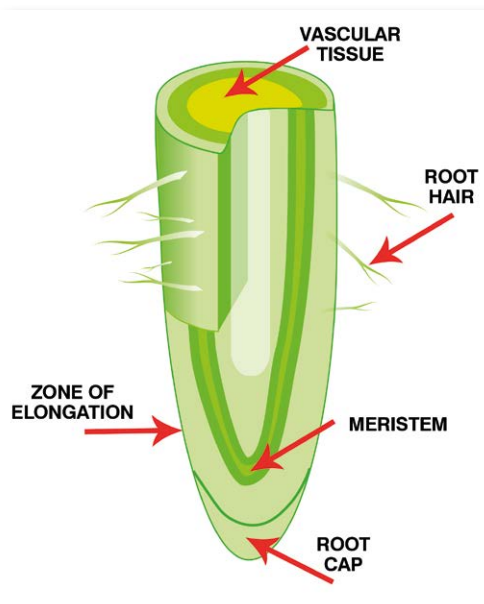
## IRRIGATION AND WATER UPTAKE

A plant's root system has the ability to extract water from the immediate area surrounding its roots. A turfgrass plant with a stunted root system will only be able to exploit the available water within its immediate surrounds. Therefore a turfgrass with a larger more extensive root system can potentially have more water available to the plant from within the soil.

Research indicates that root growth is stimulated at the onset of moisture stress, but this period is short lived. As moisture levels in the rootzone drop to wilting point, photosynthesis, carbohydrate production and growth are reduced due to the lack of available raw materials. The turfgrass plant then tends to go into survival mode by rolling or folding leaves, thus reducing the leaf surface area exposed to the sun. What little available water is then cycled through the plant and diffused through leaf stomatal pores in an attempt to cool the plant.

Regular deep watering of the soil profile will help to encourage a deeper, extensive root system. Turf managers are often restricted to frequent light irrigation applications, in an attempt to maintain optimum playing conditions, particularly on golf greens. This approach often leads to a shallow root system and turf that is less tolerant of temperature extremes.

Ideally irrigation should be applied to recharge the soil profile to field capacity and then allowed to dry to near wilting point before applying more irrigation. Supplemental hand watering may be required to maintain even moisture levels and reduce localised dry spots, particularly on undulating



greens and surrounds. With the aid of in-ground moisture sensors and moisture probes, irrigation volumes and timing can be far more accurate.

## FACTORS AFFECTING ROOT GROWTH

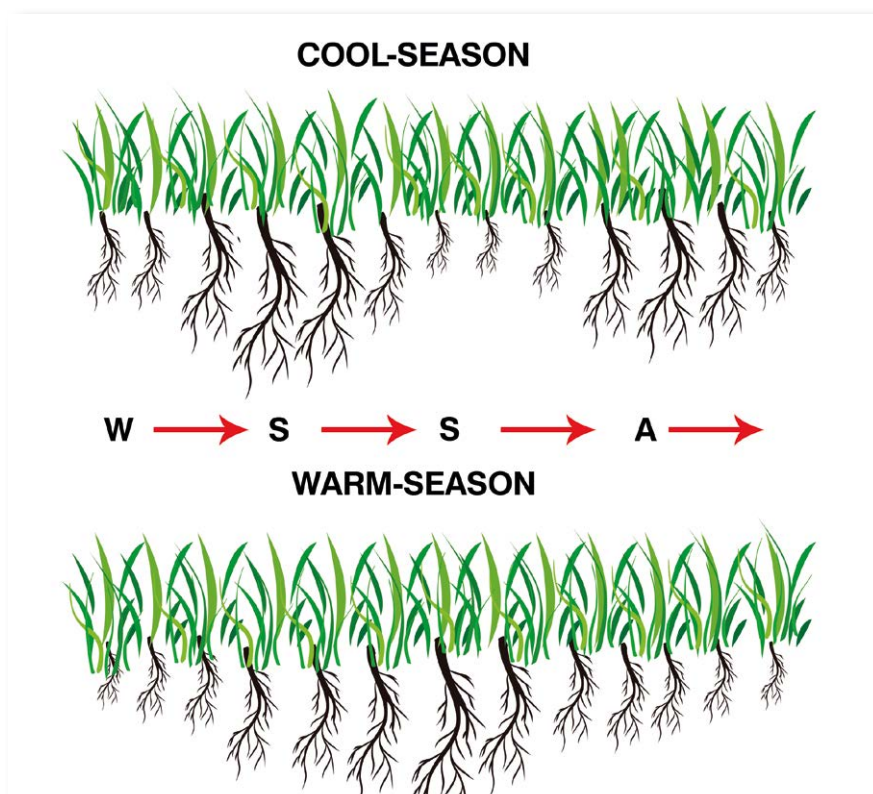
There are many factors that can affect root growth, including compaction, organic matter accumulation and black layer, mowing, herbicide applications and the use of root stimulants. Let's take a look at each of these.

### COMPACTION

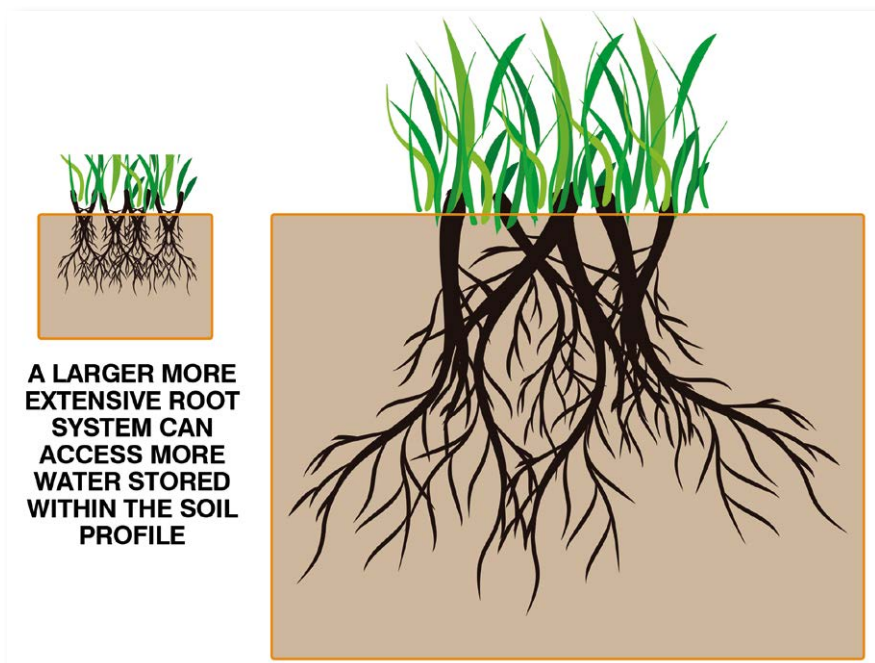
Compaction commonly increases soil density in the top 50-75mm of a soil profile. This also reduces the porosity of a soil, in some cases severely restricting the infiltration of water into the soil profile and gaseous exchange between the soil and the

**Make-up of a root.** Roots have their meristematic tissue (growing point) right at the tip of the root. This active portion of a root tip is white and a highly dynamic region of the plant  
Source: <http://leavingbio.net>

**Seasonal root growth patterns for cool- and warm-season grasses.** It is important to understand periods of root activity and decline and the potential effects management practices may have on the development of an extensive root system







vastly greater volumes of water stored deeper within the soil profile (this is particularly the case with a perched water table construction).

Encouraging a deeper root system through mechanical means such as deep tine aerification (verti-draining), coring, solid tining, high pressure air and water injection will create vertical channels of uncompacted soil which allows air and water to enter the soil profile and roots to extend well beyond those immediately adjacent in the thatch layer. This can be achieved with the use of narrow diameter tines on a regular basis without significant disruption to the playing surface.

## MOWING

Mowing practices can have a major effect on root development. As a general rule of thumb, root biomass is generally equal to that of above ground shoot biomass. Hence the difficult task set to superintendents of trying to maintain a disproportionate root system on turf cut as low as 3.0mm.

Raising the height of cut as little as 0.5mm and increasing rolling can produce similar green speeds and consistency, while dramatically reducing the overall stress placed on the plant.

Turf that is scalped or has the height of cut reduced by more than one third in a single cut will reduce root production within 24 hours and focus its remaining carbohydrate stores on the production of shoots in an attempt to replace the vital carbohydrate producing leaf tissue that has been removed.

## BLACK LAYER

Simply put, black layer is a phenomenon commonly occurring in sand-based profiles where anaerobic bacteria produce metal sulphides (often the cause of the black discolouration) and hydrogen sulphide gas (rotten egg gas) which reduces plant respiration and is toxic to plant roots. This can lead to reduced hydraulic conductivity due to the clogging of pore spaces with black slime produced by the bacteria responsible for converting sulphates to sulphides.

Black layer is often associated with anaerobic conditions caused by waterlogging in association with high levels of organic matter. Reduction of thatch, limited use of sulphate-based fertilisers and increasing aeration will help to reduce the effects of black layer on roots and plant health.

The introduction of oxygen back into the soil profile will assist in converting sulphides back to sulphates and oxides. This can often be seen within a soil profile where iron oxidate has formed around core or vertidrain holes where oxygen has been able to penetrate through the thatch layer.

## HERBICIDES

There are many documented cases where both pre- and post-emergent herbicides have been identified as being responsible for root pruning of both cool-

atmosphere. This can cause a build-up of gases within the soil that are potentially toxic to plant roots which can restrict root growth and development. Roots growing in compacted soils tend to be thicker with less branching and less efficient at the uptake of water and nutrients.

Soils, such as loams and clays, can have a greater tendency to compact, reducing the plant's ability to extend its roots through the soil profile. High traffic areas are prone to compaction, reducing overall soil aeration and infiltration of water into the profile. Quite often water will pool on the surface of these areas, further compounding compaction problems. Over time this can severely affect a plant's ability to survive. Regular decompaction in high traffic areas can assist greatly in improving growing conditions and plant health.

## THATCH

There has been much written about the role of thatch over the years, including the many and varied ways of reducing the volume of thatch contained in many sporting surfaces. The reduction in overall turfgrass quality and playability in a wide range of turf surfaces is well documented. We will concentrate here on the direct effect excessive thatch can have on the root system and in particular root production.

Thatch tends to work like a sponge during the mild spring early summer period, potentially holding large amounts of moisture and nutrients. Roots will tend to develop within the thatch layer where everything the plant needs is provided in abundance. As temperatures increase and the demand for water increases, this can leave the turfgrass plant with an underdeveloped root system and a limited volume of soil from which to exploit water and nutrients.

A deep extensive root system that has been encouraged to extend beyond the thatch layer during development, has the potential to access

**Deep tine aerification can create vertical channels allowing roots to extend well beyond the thatch layer**





and warm-season grasses. The timing of herbicide applications can influence the extent to which these herbicides may affect root development and initiation. Applications made when turf growth is at its peak, tend to see less damage to new roots. More research needs to be conducted into the exact timing for application of these products with the view to minimise the potential for damage.

Many pre-emergent herbicides utilised for *Poa annua* control in warm-season grasses are Group D herbicides and act on inhibiting cell division processes, both in the root and shoots of a plant. Roots affected by these herbicides tend to appear stunted or have a club-like end and fail to elongate. The use of oxadiazon, a Group G herbicide, interferes with photosynthesis process in the emerging shoot and has been successful in controlling weed germination without causing root pruning.

Herbicide applications made during spring green up or in the month prior tend to see the greatest levels of root damage recorded. Ideally applying chemicals when the turf is either fully dormant or highly active, will see the potential for root damage reduced.

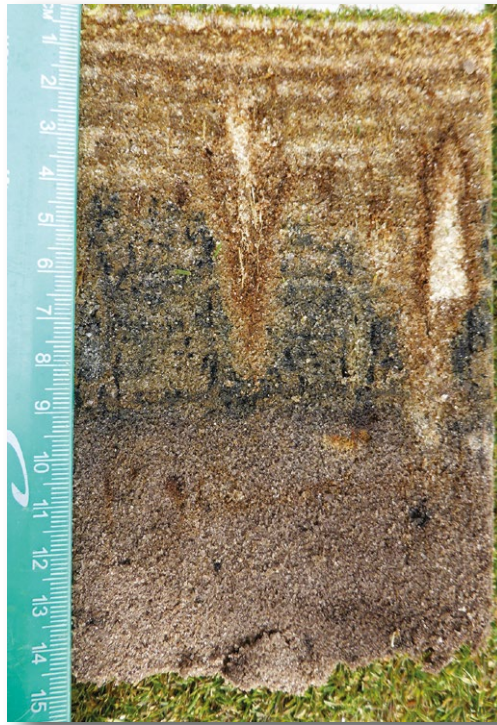
## ROOT BIO-STIMULANTS

There seems to be a myriad of products available to the turf manager that claim to improve all manner of issues such as promoting root growth, unlocking previously unavailable nutrients within the soil and reducing plant stress. Many of these products are derived from organic sources and contain a wide variety of ingredients, often mixed with very low concentrations of NPK fertilisers.

Ingredients can include seaweed extracts, amino acids, fungi, natural PGRs, micronutrients, N-fixing and beneficial bacteria, soil conditioners, humic and fulvic acids, fructose, growth promoters, chemical activators, digested plant proteins, vitamin B1, fermentation materials, plant extracts, carbon rich organics and plant based hormones such as auxins, gibberellins and cytokinins... just to name a few!

While the role of some products is known within the plant and may improve plant growth or root development under laboratory conditions, there have been mixed results in the field and evidence suggests there may be little benefit to applying some of these products, particularly to a healthy turf sward. When plants are not stressed, natural hormones are produced in sufficient amounts to sustain healthy growth. Adding more may create imbalances in natural plant processes.

If you choose to use these products it is suggested you set up a small trial on a practice green where they could be applied side by side in small plots with your current conventional fertiliser programme and a control as a comparison. It may be as simple as applying over a period of several months and assessing visually the overall plant



Iron oxide can be seen around old core holes as a brown stain and black layer has been reduced with the introduction of oxygen

and root health of all treatments. If there is no visual difference, consideration would have to be given to the overall value of continuing to use these products.

Bio-stimulants should always be used as a supplement and never substituted for sound cultural and agronomic management practices.

## CONCLUSION

There is often a major focus on the aesthetic appearance of the turfgrass surface at the expense of overall plant health. While this is generally sustainable for short periods, it can be at the expense of the long-term health of the plant. There are no magic bullets for turf health or root development, but the basics are often overlooked in the pursuit of excellence.

Air, water, light and nutrients are the four basic elements required for healthy plant growth. Keeping these in mind when approaching any agronomic problem can often go a long way to solving issues before we walk into the chemical store. Ask yourself, are my cultural and renovation practices giving my turf the best opportunity to develop to its maximum potential?

There are many and varied ways of achieving improved growing conditions, particularly in this environment of increased pressure to present a high quality turf surface year round. Less intensive renovations on an increased frequency can lead to the same beneficial outcomes, while reducing the disruption to play.

Regular inspections of the root system can aid in gaining an understanding of root growth patterns and overall health. Often an issue showing up on the surface can be traced back to a problem below ground. Don't be afraid to dig a hole in a problem area and see what is going on down below. 🌱





# Getting ready for the GHS

We've had OHS and WHS,  
now get ready for GHS.  
Frank Dempsey looks at  
the Global Harmonisation  
System for chemical  
labelling which comes  
into effect from 1 January  
2017.

**“Y**our mission, if you choose to accept, is to learn as much as you can about the Global Harmonisation System and its effects on turf management before 1 January 2017. Warning! You have to memorise the information as this magazine will self-destruct in 15 minutes!”

This is how I felt after I received a phone call from ATM editor Brett Robinson asking me to adapt my presentation that I gave at the 32nd Australian Turfgrass Conference in Melbourne on the new Global Harmonisation System for chemical labelling.

As I waded through the differences in the Australian states and government and private organisations involved in this 'national' project, I thought to myself, “This is a Mission Impossible!” So I phoned up Tom Cruise and asked him for help. He said “Get stuffed, it's too tough for me Dempsey!” so you're stuck with me. Hang on tight, here we go!

## WHAT IS THE GHS?

As of 1 January 2012 the new Work Health and Safety Act 2011 was introduced through Federal Parliament. As part of the Act there is legislation in place to unify our chemical labelling systems to

match up with the rest of the world. This is known as the Global Harmonisation System (or GHS).

The GHS is an agreed international system of classifying chemicals and chemical dangers and sits under the United Nations charter. These chemical classifications are communicated by standardised labels, safety data sheets (SDS) and dangerous goods symbols.

Why use the GHS in Australia? The GHS is expected to provide significant trade benefits to industry as well as improved health and safety outcomes by introducing internationally consistent assessment criteria, labels and SDS for hazardous chemicals.

Manufacturers, importers and suppliers of hazardous chemicals will be the most affected by the introduction of the GHS. The model work health and safety laws impose a duty on manufacturers and importers of chemicals supplied to a workplace to determine if a chemical is hazardous, and to correctly classify the chemical according to the GHS.

Turf managers will be affected to a lesser extent. Users of hazardous chemicals are not required to re-label or dispose of existing stock. From 1 January 2017 onwards, suppliers and end users of hazardous chemicals must only supply and accept hazardous chemicals which have been classified and labelled in accordance with the GHS.

While the GHS is used internationally, there are some differences for the turf industry:



- **Different editions:** Australia is transitioning to the 3rd revised edition of the GHS, though other countries may use earlier or later editions;
- **Building blocks:** When a country starts using the GHS it is not required to adopt all parts of the GHS. As part of the building block approach Australia does not require classification in some categories under its laws, primarily low level human health hazards and hazards to the environment. This may differ between countries;
- **Cut off concentrations:** A cut off concentration is the level to which a hazardous chemical needs to be diluted before it is no longer considered hazardous.

## WHAT IS A HAZARDOUS SUBSTANCE OR A DANGEROUS GOODS?

A 'Hazardous Substance' is any substance that is harmful to health and these under the old system have a 'Poisons schedule'. For example hydrochloric acid is a Schedule 6 poison. Some hazardous substances are also 'Dangerous Goods'. These require special transport and storage. Under the old system these have a dangerous goods diamond symbol. Staying with hydrochloric acid as an example, it is a Class 8 dangerous good.

## SO WHAT WILL CHANGE?

The new GHS for turf managers will affect the following:

- Chemical labels;
- Safety data sheets; and
- Dangerous goods signage on products.

## CHEMICAL LABELS

Under the GHS the label will look different. There may also be some variations to the look of labels depending on if they are manufactured in Australia or imported from overseas. However they must be GHS compliant.

Current labels contain a signal heading (e.g.: 'Caution – keep out of reach of children' etc...), the product name, the active constituent, mode of action and broad claims of use (e.g.: "for the control of armyworm in turf...").

The new GHS compliant label is slightly different. The product name is now placed at the top of the label with the active constituent placed directly underneath. This is followed by a dangerous goods pictogram (more on these later) under which is a 'signal word'.

The GHS uses the words 'Danger' and 'Warning' as signal words to indicate the relative level of security of a hazard. 'Danger' is used for the more severe or a significant hazard, while 'Warning' is used for the less severe hazards. This is then followed by

Under the GHS the label will look different. There may be some variations to the look of labels depending on if they are manufactured in Australia or imported from overseas. However, they must be GHS compliant

Above: Existing Label: A – Signal head; B – Product name; C – Active constituent; D – Mode of action; E – Claims of use

Above left: New GHS Label: 1 – Product name; 2 – Active constituent; 3 – Pictograms; 4 – Signal word; 5 – Hazard statement; 6 – Precautions statement; 7 – Response statement

## Seeded Couches from Advanced Seed

**LaPrima™**  
BERMUDAGRASS BLEND

- Fast germinating
- Better winter to spring transition

**LAPRIMA XD**  
TURF-TYPE BERMUDAGRASS

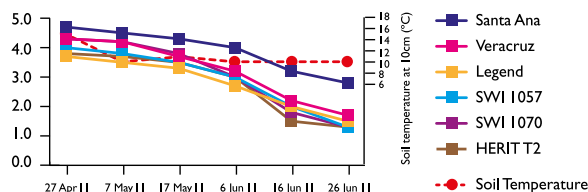
- Superior wear tolerance
- Combines La Prima and Veracruz for Xtra Density

**VERACRUZ**  
TURF-TYPE BERMUDAGRASS

- Fine leaf texture
- Excellent winter colour retention

### Antep Trial Data

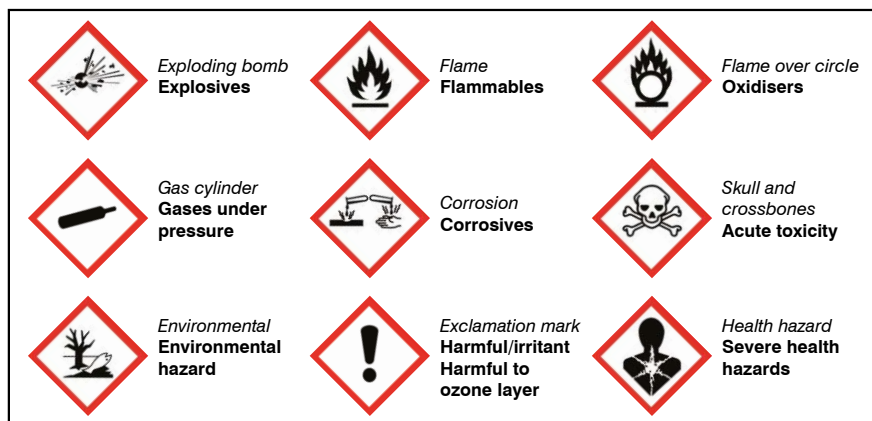
Table 5: Colour Retention/Dormancy 2011



**Advanced Seed**

For the name of your nearest distributor call 03 9462 0340  
[www.adseed.com.au](http://www.adseed.com.au)





Currently there are 20 dangerous goods symbols used on products and under the GHS these will be reduced to nine pictograms

hazard, precaution and response statements and manufacturer information. The graphics on page 53 show an example of an existing label (for Spinner insecticide) and a mock-up of how a new GHS-compliant label might look like.

## SAFETY DATA SHEETS

The new SDS deal only with safe use and storage. All products will have the same layout and the same order of the 16 section headings currently used. These are:

- Identification of the material and supplier;
- Hazards identification: Instead of displaying risk phrases (R22, R34, etc.) will now contain GHS hazard categories and hazard and precautionary statements;
- Composition/information on ingredients;
- First aid measures;
- Firefighting measures;
- Accidental release measures;
- Handling and storage;
- Exposure controls/personal protection;
- Physical and chemical properties;
- Stability and reactivity;
- Toxicological information;
- Ecological information;
- Disposal considerations;
- Transport information;
- Regulatory information; and
- Other information;

TABLE 1. GHS SUMMARY BY STATE

State	Adopted GHS?	Work Safe Contact	Comments
QLD	Yes	1300 362 128	Will be GHS compliant on 1 Jan 2017
NSW	Yes	13 10 50	Will be GHS compliant on 1 Jan 2017
ACT	Pending	(02) 6207 3000	GHS regulation is not before parliament yet. Most chemicals used are from NSW so labels should be GHS compliant.
VIC	Pending	1300 852 562	State WHS regulation needs to be updated. Once done the GHS will be in around 1 July 2017.
TAS	Yes	1300 366 322	Will be GHS compliant on 1 Jan 2017
SA	Yes	1300 365 255	Will be GHS compliant on 1 Jan 2017
WA	Pending	1300 307 877	The GHS regulation is with the Minister for Commerce Hon. Michael Mischin. No change on 1 Jan 2017.

## DANGEROUS GOODS SIGNAGE

Dangerous goods classification relates to the dangers in transporting and storing chemicals. This is indicated by a 'diamond symbol' on the chemical. Under the GHS there will be new dangerous goods signage on products. However, the current dangerous goods signage will remain for transport and storage within Australia.

Currently there are 20 dangerous goods symbols used on products and under the GHS these will be reduced to nine 'pictograms' as pictured left. These will be used on products usually in combination with our current dangerous goods symbols until the public become familiar with them. This will also depend on the size of the container and size of the label.

In Australia, the 'phase in' period for the GHS ends on the 1st January 2017. Victoria, Western Australia and the Australian Capital Territory have not yet mandated use of the GHS, but do require chemical hazards to be communicated. Commonwealth Government agencies and licensees must also comply with the model work health and safety laws. For information specific to your state or territory, please contact your state or territory work health and safety regulator (see Table 1 for the current state of play in each state and contact details for the relevant authority).

## DO I NEED TO ACT?

So what do turf managers need to do with GHS looming? Here are a few key points:

- Turf managers are not required to re-label or dispose of their existing hazardous chemicals. Simply use the chemical as per the current labels and SDS until it is finished;
- Turf managers are still able to use, handle and store hazardous chemicals labelled in accordance with previous labelling code, if the chemical was supplied before 1 January 2017;
- Do NOT accept new hazardous chemicals labelled in accordance with previous systems from 1 January 2017;
- Continue to ensure safe systems of work are in place to manage the risks associated with hazardous chemicals in the workplace;
- Review their chemical inventory and dispose of any which are out of date or no longer used.
- Talk to chemical suppliers to ensure GHS labelled stock is received from 1 January 2017.

## SUMMARY

The GHS is under the umbrella of Safe Work Australia which looks after compliance. If you are not sure of what is happening in your state, you should ring the Work Safe office in your state for clarification. Alternatively you can visit [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au) and head to the WHS Information menu. There you can view a range of information and download resources. Good luck! Mission accomplished... 🍷



# The logical choice this Summer



**FoliMAX Phosphite + 0-22-42** used in conjunction with **Stamina Rescue** curative surfactant is the **ideal combination** to minimise turf root stress over **summer**.

**FoliMAX**  
**PHOSPHITE+ 0-22-42<sub>w/v</sub>**  
PLANT HEALTH, STRESS TOLERANCE  
& ROOT DEVELOPMENT

**stamina<sup>®</sup>**  
**rescue**  
CURATIVE WITH RAPID RECOVERY



For more information contact your  
local Nuturf Territory Manager on  
**1800 631 008** or visit [www.nuturf.com.au](http://www.nuturf.com.au)





The *Poa annua* control in warm-season grasses survey conducted earlier this year has highlighted the need for a better understanding of how herbicides work and to develop broader strategies to minimise resistance

# Poa control

## in warm-season grasses survey



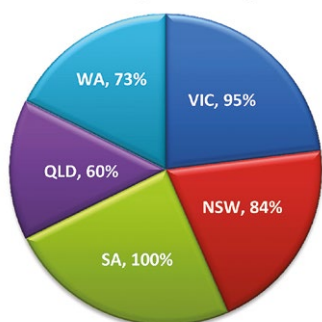
ATM columnist

John Neylan

presents findings

from the extensive *Poa annua* control in warm-season grasses survey that was conducted earlier this year.

Figure 1: *Poa annua* as a problem weed on the golf course by State



At the International Horticultural Congress held in Brisbane in 2014 there was a paper presented by Scott McElroy (Auburn University, Alabama) on the growing problem of herbicide resistant weeds in turfgrass in the US. In the US the challenge with *Poa annua* is that it has developed resistance to almost all major modes of action of herbicides which leaves few options for control.

In my travels around golf courses the discussion often turns to the control of *Poa annua* and in particular how it relates to its control in warm-season grasses. We have had numerous discussions and meetings about the control of *Poa annua* in creeping bentgrass, however, most recently it has been more about the persistence of this weed in warm-season grass fairways, tees and surrounds.

On golf courses there has been an increasing trend towards maintaining weed-free surfaces with a programme of using both pre- and post-emergent herbicides. Over the past 5-10 years the options for controlling *Poa annua* in warm-season grasses has been reduced. With an increasing reliance on selective herbicides from the same chemical group, herbicide resistance appears to have become a concern across Australian golf courses. The evidence for this has been by observation as there hasn't been any documented confirmation of resistant plants in warm-season grasses.

The question is how big is the problem? To try and answer this question a detailed survey was designed to gain a better understanding of whether there is a lack of chemical control and if so the

extent of the problem. The survey was prepared by John Neylan (Turfgrass Consulting & Research), Daryl Sellar (Turfwise Consulting) and Jyri Kaapro (Bayer CropScience). The survey was hosted by the Australian Golf Course Superintendents Association.

In this initial survey it was confined to golf courses and covered topic areas such as;

- Situation (i.e.: fairways, tees, surrounds etc.);
- Turfgrass species and cultivar;
- Whether a lack of weed control had been noted, the extent of the problem and whether it was increasing;
- Observations on the *Poa annua* type present (e.g.: annual, perennial etc.);
- Efficiency of control with different pre- and post-emergent herbicides;
- Detailed herbicide programme over the past five years including herbicide active (pre- and post-emergent), rate of application, frequency of application and time of applications.

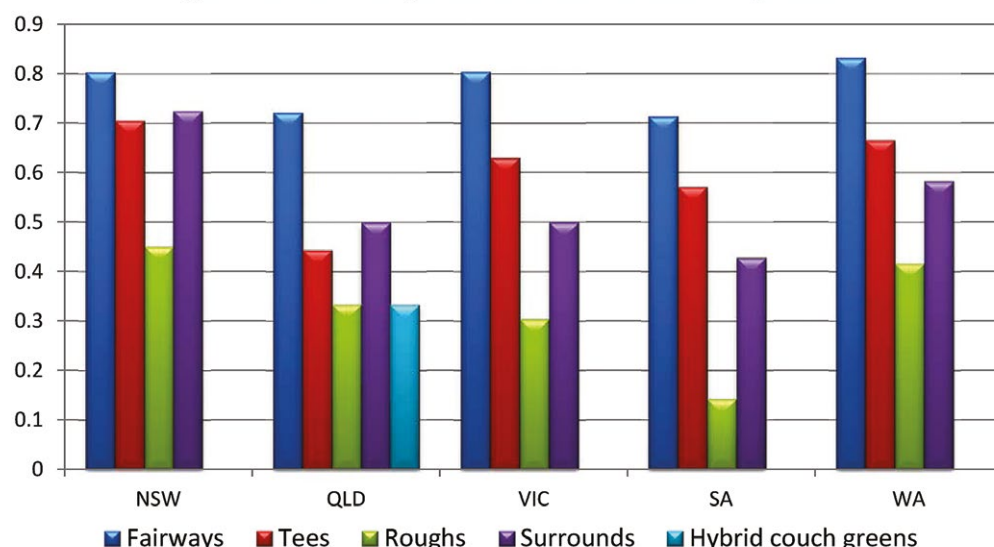
The survey was sent to 377 golf course superintendents (current AGCSA and state-only members) with 137 respondents. Not all questions were completed by all respondents and the information collected has been presented as a percentage of respondents to that particular question. This report presents a selection of the data and the complete report will be published on the AGCSA website ([www.agcsa.com.au](http://www.agcsa.com.au)) at a later date.

### IS POA A PROBLEM?

In answering this question there were 126 respondents with 83 per cent answering yes. The



Figure 2: Areas on the golf course where *Poa annua* is a problem



data was further analysed based on a state basis and this indicated that there is state or climatic bias (Figure 1). Victoria and South Australia indicated the greatest problem with *Poa annua* control and Queensland the least. This result indicates that *Poa annua* is more persistent in the cooler winter climates and the conditions for a natural transition are not as intense. Tasmania had no golf courses with warm-season grasses and therefore no herbicide treatments for *Poa annua* control.

## LOCATIONS

Over 80 per cent of all respondents identified fairways as a problem area for *Poa annua* control with tees (68 per cent) and surrounds (63 per cent) being the other key areas identified. On a state by state basis all states report that fairways present the main problem (Figure 2). Interestingly 33 per cent of Queensland respondents stated that they had problems controlling *Poa annua* in hybrid couch greens.

In the answer to the question regarding where on the golf course *Poa annua* is controlled it not unexpectedly mirrored the same response as to where *Poa annua* is considered a problem.

## OBSERVATIONS OF DIFFERENTIAL CONTROL RESPONSE

Of the 124 respondents to the question 'When managing *Poa annua*, have you seen differential responses (control) between *Poa annua* biotypes or populations?' 65 per cent indicated that they had noticed a differential response to the application of herbicides. There were many comments regarding this aspect and included;

- Larger varieties are harder to kill (Vic);
- Some types are controlled easily with one application of herbicide while others always recover in the same areas (Vic);
- Some areas have become more difficult to eradicate with conventional herbicides (Qld);

- Two different chemical groups needed for 100 per cent control (NSW);
- Multiple biotypes. Extreme herbicide resistance across all types (NSW);
- Different responses from year to year, no year has been the same (Vic);
- Same *Poa annua* comes back every year in particular areas. Some plants persist all year (NSW);
- There are some that cannot be killed when the environment favours the *Poa annua* (NSW); and
- Older perennial types harder to kill (WA).

In response to the question regarding where *Poa annua* was difficult to control, 25 per cent of respondents indicated that the *Poa annua* plants were perennial in nature (Figure 3). About 13 per cent did not know and this provides an area of further research in better understanding whether the differential response to herbicides is due to a biotype response, herbicide resistance or both.

## AREA AFFECTED BY POA ANNUA

The survey asked the question regarding the size of the area affected by *Poa annua*, how much it had increased over the past five years and by how much. Of the respondents, 41 per cent indicated that there was more than 5000 square metres affected by *Poa annua* (Figure 4). Of these, 31 per cent indicated that there had been an increase in the area infested in the past five years. When asked the question by how much the area had increased, the number of responses was very low and the data is indicative only. Based on these returns 29 per cent was less than 10 per cent increase and 16 per cent greater than 30 per cent.

These results indicate that there has been some increase in *Poa annua* and it could be related to a lack of herbicide efficacy. It also highlights the importance of better monitoring problem areas on the golf course and then developing a strategy that targets these areas.

Figure 3: Where *Poa annua* is difficult to control is it perennial or annual in nature?

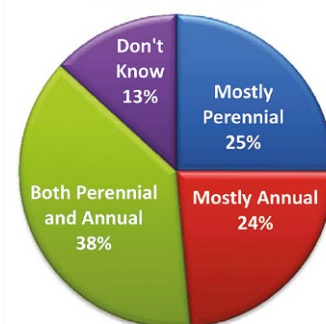


Figure 4: Total area affected by *Poa annua*

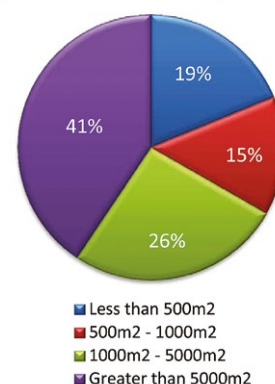




Figure 5: Pre-emergent herbicides and frequency of use 2011

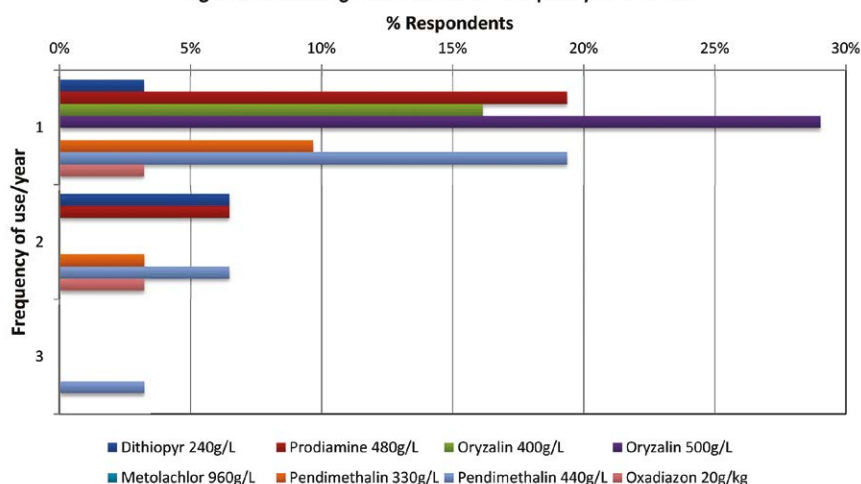
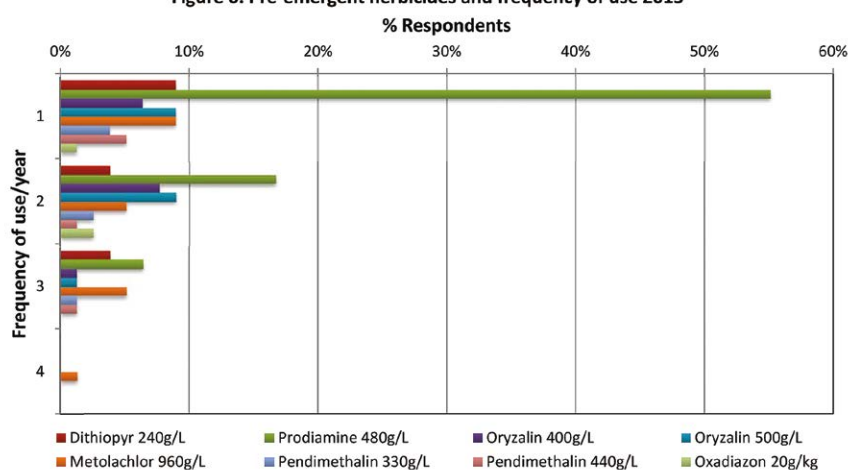


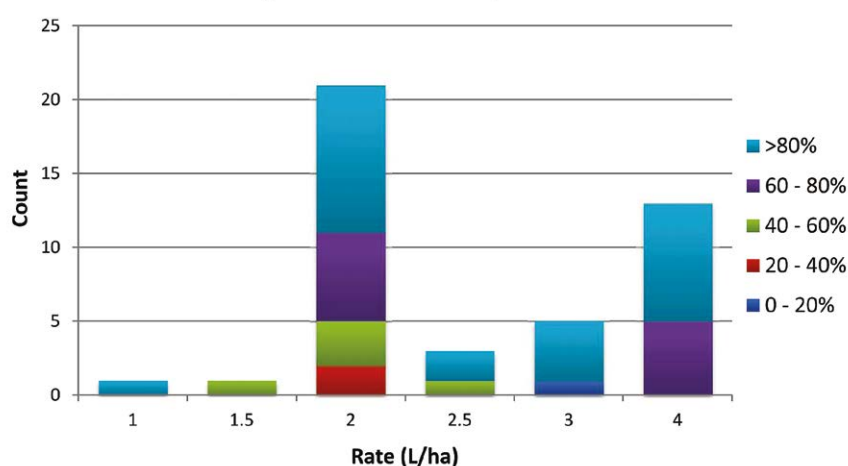
Figure 6: Pre-emergent herbicides and frequency of use 2015



## PRE-EMERGENT HERBICIDES

There has been a substantial shift in the pre-emergent herbicides used from 2011 to 2015 (Figures 5 and 6). In 2011 the use of herbicides for pre-emergent control was generally evenly spread across those herbicide actives available. In 2015, prodiamine was clearly the main pre-emergent herbicide used. This shift to one product does raise questions about the long-term efficacy and potential for resistance to develop.

Figure 7. Effectiveness of prodiamine



With the various pre-emergent herbicides there is a wide range of application rates used and this reflects the label recommendations. In examining the overall programmes there was no consistent pattern indicating whether some superintendents were using lower rates at a higher frequency. This aspect raises the question as to whether there needs to be a discussion around the rationale for a particular application rate and how it fits into an overall programme.

In terms of the effectiveness of the various pre-emergent herbicides, there was considerable variation for all herbicides, however, prodiamine, metolachlor and oryzalin were considered to be the most effective (see Table 1 on page 46). Prodiamine exhibits a high degree of effectiveness as shown in Figure 7.

The timing of application of pre-emergent herbicides for the majority of respondents (94 per cent) was based on time of year with a high proportion of pre-emergent herbicides applied in late summer (61 per cent), though they were applied throughout the year.

In 2015/16 there has been some new chemistry released and this provides greater options for golf course superintendents. While there are strong commercial aspects involved it is important that the industry as a whole looks at a more diverse programme using different chemical groups so as to minimise the chance of resistance.

## POST-EMERGENT HERBICIDES

There has been a substantial shift in the post-emergent herbicides used from 2011 to 2015 (Figures 8 and 9). In 2011, 48 per cent of respondents used propyzamide for post-emergent control with 24 per cent using trifloxysulfuron. In 2015 there was a greater number of herbicides used, however, propyzamide continued to be the main herbicide used (32 per cent) followed by trifloxysulfuron (21 per cent) and foramsulfuron (15 per cent).

In 2011 the post-emergent programme consisted of 1-2 applications while in 2015 many programmes consisted of three applications and up to four applications of herbicide. This change may be due to several reasons including the need for greater 'purity' of the couch surface, application under suboptimal temperatures and possibly reduced herbicide efficacy.

With the various post-emergent herbicides most have a single application rate on the label and this was reflected to a large degree in the survey responses. It was noted that where a herbicide has a range the higher rate is used.

In terms of the effectiveness of the various post-emergent herbicides, there was variation for all herbicides. Across all herbicides 29 per cent were performing below 60 per cent control. In reviewing the effectiveness of the sulphonyl-urea (SU) herbicides, 24 per cent were performing below 60 per cent control.



The timing of application of post-emergent herbicides for the majority of respondents (85 per cent) was based on time of year with 55 per cent indicating that it was based on the label and 34 per cent based on soil temperature. A high proportion of post-emergent herbicides are applied in September (41 per cent), October (46 per cent) and November (30 per cent) though they are applied throughout the year. The application of SU herbicides through the cooler months would be expected to reduce their efficacy.

There were a low number of respondents answering the question regarding using soil temperature as a guide to when best to apply the SU herbicides. There were 24 per cent of respondents that did not know what soil temperatures (day time max) are occurring when applying SU herbicides and 50 per cent did not know what soil temperature gave the best result with SU herbicides. These results, while limited, indicate that more education on the use of SU herbicides is required.

## TIME AND COST OF *POA ANNUA* CONTROL

In response to the question regarding the hours invested in controlling *Poa annua*, 18 per cent reported greater than 150 hours a year with 37 per cent indicating 50-100 hours a year. In regards to the change in time invested in controlling *Poa annua*, 75 per cent of respondents indicated that there was no change or slight change only with 24 per cent indicating a moderate to major change.

The cost of *Poa annua* control was surveyed and the results are detailed in Figure 10. Of the respondents, 32 per cent are spending \$10,000 or more per year on *Poa annua* control.

## OTHER RESPONSES

**Water volume:** The water volume varies for both the pre- and post-emergent herbicides. While the volume varies it is mainly around 300-500L/ha.

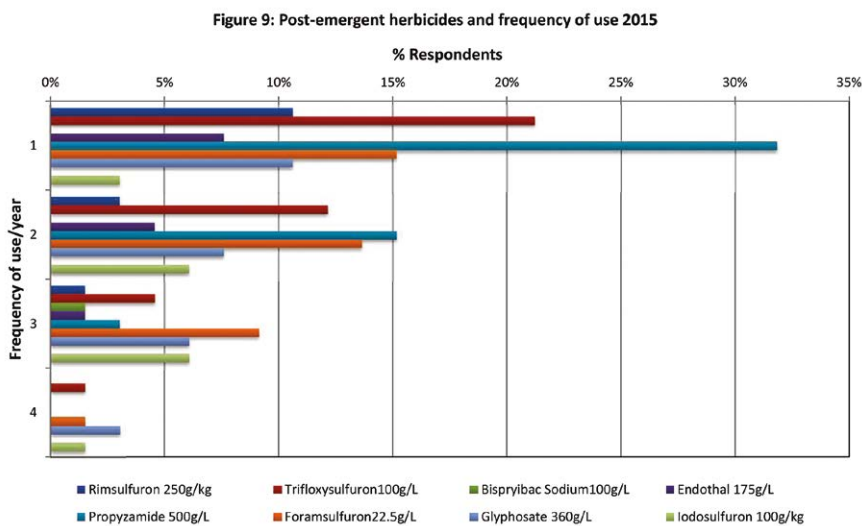
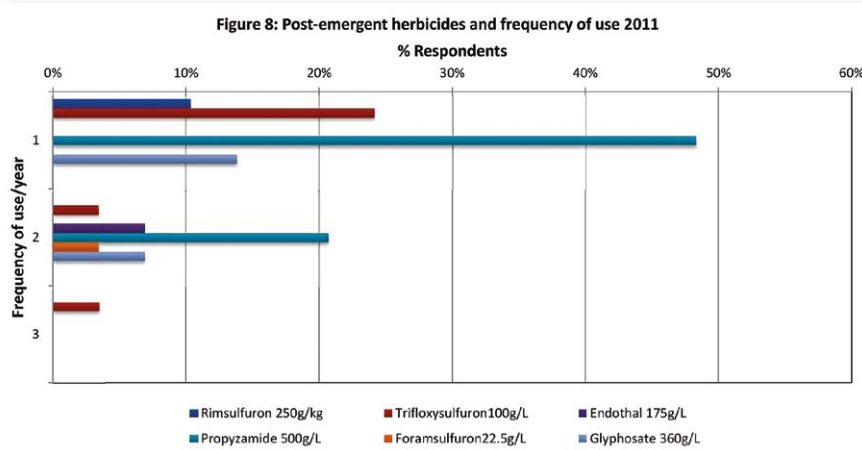
**Surfactants added to herbicide:** Seventy-one per cent of respondents use a surfactant with the herbicide. There is a variety of surfactants used including wetting agents and specialist spray adjuvants. There was a mix of comments as to the effectiveness of adding an adjuvant.

**Irrigation after herbicide application:** The question was posed as to whether follow up irrigation levels were preventing using certain products or using them as recommended. Thirty-nine per cent of respondents indicated that the ability to apply the recommended amount of water was restrictive. There were several comments as follows;

- If the application requires irrigation during winter it's more difficult to put irrigation on (NSW);
- Slightly effects decision of product type to use (WA);
- With no fairway irrigation, timing is essential. Harder to determine whether it is product or weather conditions at fault for poor results (Vic);

- Has been restrictive if there have been rain events prior to scheduled application. Wary of runoff (NSW);
- Certain products do make it extremely hard to use with irrigation demands (Vic);
- Ageing irrigation system cannot match recommended mms, heavy golfer traffic emphasises this (Vic);
- Soil type and infiltration rates don't allow specified amounts to be applied (SA).
- With pre-emergent herbicide no water to irrigate fairways at end of summer (Vic).

**Spot treatment:** Of the respondents, 34 per cent are spot treating *Poa annua*.



**Figure 10: How much are you spending on *Poa annua* control in warm-season grasses each year?**





Some 83 per cent of survey respondents said *Poa annua* was a problem weed on their course



## CONCLUSION

The control of *Poa annua* in warm-season grasses has anecdotally become more difficult and the international experience has been that there is increasing resistance to the available herbicides. From this survey it is clear that *Poa annua* control does present a problem in Australia. The results indicate that:

- The degree of the problem is affected by locality with the cooler areas tending to have a greater problem;
- Fairways were considered to be the main area where *Poa annua* was difficult to control, though tees and surrounds were other key areas;
- The respondents indicated that there was a differential response to herbicides;
- In understanding whether the problem is increasing, the responses highlighted the importance of monitoring problem areas on the golf course and then developing a strategy that targets these areas;
- The efficacy of the various pre- and post-emergent herbicides varied and this data is a baseline study for future reference. The variability in efficacy is likely to be due to several reasons including timing of application, weather conditions, post-application irrigation, *Poa annua* type and possible resistance;
- There appears to be a lack of variation in the herbicide groups being used;
- In relation to the application of herbicides, there is still a lot to be learnt regarding timing of applications for maximum effects, use of adjuvants, water volume at application and post-application irrigation.

The survey requires more analysis, however, it does highlight the need for a better understanding of how herbicides work and to develop broader herbicide strategies to minimise the opportunity for resistance to occur. This understanding has to be a whole of industry approach including turf managers, chemical suppliers and user groups. 🌱

TABLE 1: PRE-EMERGENT HERBICIDES AND EFFECTIVENESS

Metolachlor 960g/L		Dithiopyr 240g/L		Prodiamine 480g/L		Pendimethalin		Oryzalin	
Rate (L/ha)	Effectiveness (%)	Rate (L/ha)	Effectiveness (%)	Rate (L/ha)	Effectiveness (%)	Rate (L/ha)	Effectiveness (%)	Rate (L/ha)	Effectiveness (%)
1.0	60 - 80	1.0	20 - 40	1.0	>80	Active 330g/L	2.5 60 - 80	Active 400g/L	2.0 20 - 40
1.5	60 - 80	1.5	60 - 80	1.5	40 - 60	3.0	60 - 80	3.0	60 - 80
2.0	40 - 60	1.8	60 - 80 (2)	2.0	20 - 40 (2)	3.5	40 - 60	4.0	60 - 80
2.0	60 - 80	2.0	>80	2.0	40 - 60 (3)	3.5	>80	4.0	>80 (2)
2.0	>80 (4)	2.5	20 - 40	2.0	60 - 80 (6)	4.5	40 - 60	5.0	0 - 20
		2.5	60 - 80	2.0	>80 (10)	4.5	60 - 80	5.0	20 - 40
		2.5	>80	2.5	40 - 60	440g/L	2.0 40 - 60	5.0	40 - 60
		3.0	>80	2.5	>80 (2)	2.5	60 - 80 (2)	5.0	60 - 80
		3.5	40 - 60	3.0	0 - 20	3.0	0 - 20	5.0	>80 (2)
		3.5	60 - 80 (3)	3.0	40 - 60	3.0	20 - 40	500g/L	2.0 40 - 60
				3.0	60 - 80 (2)	3.5	40 - 60	3.0	20 - 40
				3.0	>80 (4)	3.5	>80	3.0	60 - 80
				4.0	60 - 80 (5)	4.0	40 - 60	4.0	40 - 60
				4.0	>80 (8)	4.5	40 - 60	4.0	60 - 80 (3)
						4.5	>80 (2)	4.0	>80
								4.5	>80
								5.0	20 - 40
								5.0	40 - 60 (2)
								5.0	>80 (3)

**Note:** Figure in brackets indicates the number of responses for that chemical at that rate and effectiveness.





***Stress less,  
with StressGard®***



**Reserve™**  
STRESSGARD



**Signature®**



**Interface™**  
STRESSGARD

StressGard® Formulation Technology (FT) products such as Signature®, Interface StressGard® and Reserve™ StressGard®, when applied regularly in a program, are proven to deliver outstanding disease control, and build stronger, healthier turf that performs better under stressful conditions. With enhanced turf colour, density and playability, you will stress less with StressGard FT.

**Talk to your local Bayer agent now about a StressGard FT program for this summer.**

ALWAYS USE ACCORDING TO PRODUCT LABEL

Bayer CropScience Pty. Ltd., Level 1, 8 Redfern Road, Hawthorn East, Vic. 3123 Technical Enquiries: 1800 804 479 [environmentalscience.bayer.com.au](http://environmentalscience.bayer.com.au) [bayeramplifyturf.com.au](http://bayeramplifyturf.com.au)  
Interface®, Signature® & Stressgard® are Registered Trademarks of Bayer. Reserve™ is a Trademark of Bayer.

© 2016



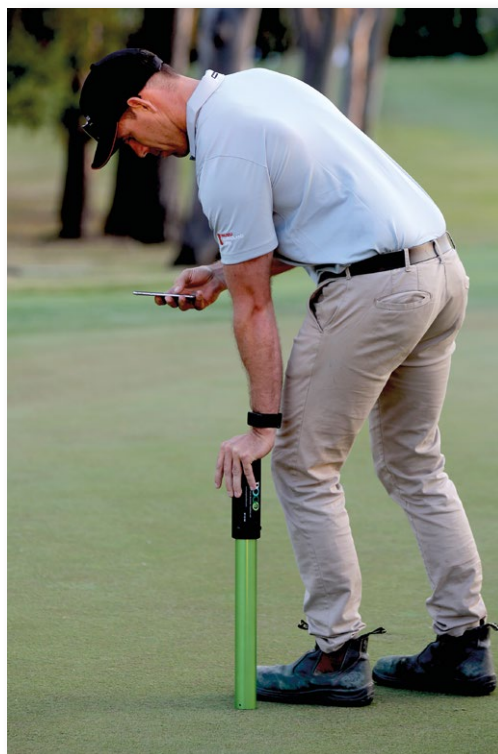
The 2016 Isuzu Queensland Open was the first of three Brisbane Golf Club will host consecutively. Pictured is second assistant Josh Thomason syringing the 18th green

Brisbane Golf Club returned to the major tournament spotlight for the first time since 1991 when it hosted the 2016 Isuzu Queensland Open in October. ATM checks out preparations at the country's only course to boast Champion ultradwarf couch greens.

Brisbane superintendent Mitch Hayes and his staff were religiously monitoring soil moisture levels on the Champion ultradwarf greens during the tournament



After a hiatus of 25 years, the Queensland Open returned to its spiritual home of Brisbane Golf Club from 20-23 October. The 2016 Isuzu Queensland Open was the first of three consecutive Opens to be hosted by the Yeerongpilly course, with much of the talk in the lead-up to the tournament focussing on the club's new greens.



As outlined in the last edition of Australian Turfgrass Management Journal (Volume 18.5 – Sept-Oct 2016), between 2013 and 2015 Brisbane took the bold step of switching from Tifgreen 328 to Champion ultradwarf couchgrass on its greens, the first club in Australia to use the variety. For course superintendent Mitch Hayes, who took over the reins at Brisbane in August 2013, the Open was his first major PGA Tour of Australasia event in charge and despite some challenging spring conditions he was pleased with the way the surfaces performed.

"We were very happy with how the course presented and the feedback we received from the PGA and the players was very good," says Hayes. "A lot of the players hadn't seen the course since we made the recent changes and the feedback we got was positive. Before the tournament a couple of the young Victorian guys Jason Higginbottom and Anthony Houston compared the course and the conditions to that of the Melbourne sandbelt which was great to hear.

"Our preparations throughout all four days went very smoothly and the crew really rose to the occasion. Having the Interstate Teams Matches here in May certainly helped us prepare for the Open event. The aim was to have the course at the level we had it for the Interstate tournament and I think we surpassed that which was very pleasing.

"In saying that, we did have a very tough early part of spring like much of the country. Temperatures didn't warm up to the levels we expected which





WORDS AND PHOTOS: BRETT ROBINSON

Hayes maintained the Champion greens at 2.75mm for the tournament and with just a single cut and roll each morning were easily stimping around the 11.5 mark requested by tournament officials. Tees and aprons are at 8mm and the fairways at 12mm. Hayes and his crew were on deck at 3.30am and out on the course by 4am each day of the tournament. The morning shift consisted of a full cut of all surfaces (with the exception of the rough – the front nine rough was mowed after Thursday's first round), raking bunkers and ensuring moisture levels in the greens were at the desired level.

Due to the varying ages of the greens as a result of the recent greens reconstruction project, moisture management was a critical component of Hayes' tournament week. The likes of the 2nd and 8th greens are just over a year old whereas others, like the par three 13th which was the first to be resurfaced, are nearing four. As a result the crew were religiously monitoring levels and syringing with wetting agent pellets.

"It is always a constant battle to keep moisture in the greens here, especially the newer ones," says Hayes. "You can water them up in the morning and get the moisture content up to 20 per cent, but by the afternoon they're back down to 10 per cent, so we were monitoring them very closely during the tournament. Over time that will change as the greens start to mature and settle down."

meant the Champion was a bit slower coming back and we didn't get the cover we would normally get. It's a trend we are starting to see more and more with the seasons starting later. Normally we would have expected things to perk up around mid-September but this year it was a few weeks later.

"As a result, about 50 days out from the tournament we were replacing turf on greens, mainly around the edges and in high wear areas. We verticut the fairways twice in the lead-up to the Open, verticut and dusted tees and approaches three times and did the greens a couple of times as well. Because of the cooler mornings we didn't groom the greens as much."



## HELPING HANDS

The Brisbane Golf Club tournament crew numbered 23 for the Open and Hayes had no shortage of expert volunteers to call upon this year. Among the nine volunteers who joined the crew for the tournament were Hayes' immediate predecessor Dr Brett Morris. Morris, who is now technical manager at Amgrow, was superintendent at Brisbane between 2011 and 2013 and was the principal architect behind the club's decision to switch across to Champion.

Also lending a hand for the week was Queensland e-par rep and former Cairns Golf Club superintendent Brendan Clark who, along with Morris, was put to good use on the Toro Flex



Former Brisbane superintendent Brett Morris, who originally made the decision to switch to club's greens from 328 to Champion, returned to assist with Open preparations



Brisbane assistant superintendent Peter McNamara takes Tru Firm measurements on the 9th which played as the toughest hole of the tournament

Brisbane spray technician Christian Wilson hand waters the 18th green at the end of the first round





Top: Richard Swann leads Toro's Ben Marshall up the 16th fairway

Above: e-par representative and former Cairns Golf Club superintendent Brendan Clark was part of the volunteers for the Open

Right: Brisbane's 17th

Below: Mitch Daly (right) and Paul Anderson (left) prepare the green on 14 for the second round



21s walk-behind greens mower. Other volunteers included Ben Marshall (Toro), who in addition to jumping on a fairway mower had assisted Hayes with some loan machinery for the tournament, as well as Peter Woods (Living Turf), Damon Tucker (Turfcare Solutions) and the Globe Growing Solutions quartet of Bruce Morse, Chris Johnson, Peter Abel and Justin Kelly.

"It was great having those extra hands on deck in the lead-up to the tournament," says Hayes. "We were really able to concentrate more on the detail work and that really showed in the level of presentation we achieved."

Playing at a par of 70 for the tournament (the 1st and 9th holes were brought back to par fours), the course was unfamiliar to most and together with the new greens proved a very demanding test for the field. The opening round saw just 24 of the 132-strong field finish under par and by the time the second round came to a close the cut was made at +5. With a strong northerly wind blowing, just nine sub-par rounds were recorded in the second round with an average score that day of 74.15.

New South Welshman Benjamin Clementson was just one of many victims during the second round. Having shot a 4-under 66 in the opening round to be in a share of second spot, Clementson recorded a disastrous 81 to miss the cut by two. Higginbottom and Houston, who, as mentioned earlier, were glowing in their assessment of the Brisbane course before the tournament, might not have taken away such fond memories as they too succumbed and missed the cut, the latter after a second round 81.

Come the end of the tournament only 12 players had managed to shoot par or better over the four rounds, with impressive amateur Brett Coletta (-7) winning by three shots from fellow Victorian Lucas Herbert. Coletta was the only player in the field to shoot all four rounds par or better (67, 69, 67 and 70) and fittingly became the first amateur since Stuart Appleby in 1991 to win the Open which was the last time the tournament was held at Brisbane.

Queenslander journeyman Matt Guyatt finished in a tie for 36th at +7 for the tournament, but it was his caddy, well-known former Australian rugby







league player and now Foxtel commentator Ben Ikin, who was left somewhat red faced after an incident on the 18th green during the opening round. Taking the flag out of the hole, Ikin managed to pull the whole cup out which caused a small delay as Hayes was called in by the PGA to reset the cup.

One of the more interested spectators on the opening day, aside from Hayes, was golf course architect Ross Watson. Set to make several more design changes around the course in the coming years, Watson spent much of the early part of Thursday's round touring the course with Hayes, looking at holes already reconstructed as well as scoping out those holes earmarked for further attention.

Aside from Hayes and second assistant Josh Thomason celebrating their birthdays immediately after the Open – Hayes turning 30 – it has been straight back into everyday course maintenance for the Brisbane crew. Course renovations, which were held back because of the tournament, were due to fire up with the greens and tees being groomed/scarified and cored, while the fairways were being solid tined, scarified and topdressed. Also scheduled is the reconstruction of two greens complexes. The 21st green, the original source green from which the Champion stolons were harvested during the greens reconstruction project, will be fully reconstructed. Also, the practice chipper will be converted into a double green chipping/putting complex. 🌱



Above left: Brisbane's horticulturist Andrew Crawford tends to the fairway bunker on the 16th

Above: Apprentice Mitch Bakon rolls the 16th green ahead of the second round

david golf

# TURF GROWS *with the right hose*

## ULTRAMAX CLEAR HOSE

For light - medium commercial duty.

UH-H75-0100C (19mm)  
UH-H10-0100C (25mm)

19mm or  
25mm HOSES  
AVAILABLE

Length: 30m

## ULTRAMAX BLUE PREMIUM HOSE

Made from super, heavy-duty, long-life, flexible TPE material.

UH-H75-0100B (19mm)  
UH-H10-0100B (25mm)



## 3/4" & 1" IMPACT SPRINKLER

Reliable, high performance, brass impact sprinklers.

UH-S1100P / UH-S1075F / UH-S1075P



## SKID BASE

Easily transportable - can be dragged behind vehicles for speedy movement.

BMS-SKID



## MAGNUM METAL HOSE NOZZLE

Precision-machined, incredibly smooth operation and outstanding distribution patterns.

- Solid metal internal - no plastic parts. Ratchet mechanism prevents over-tightening damage.
- Flow: 37 GPM at 80 PSI.

UH-NG450

david golf

Visit our website or contact your David Golf Rep for more information

1300 790 890

www.davidgolf.com.au





Assistant Trevor Elliott tries his luck off one of the greens

# Murray becomes 'the Murray'

It was a wet spring for Yarrawonga Mulwala Golf Club Resort. A bit too wet for superintendent Chris Burgess' liking.

**Above: Heavy rainfalls in the Murray Darling Basin this spring resulted in widespread flooding around the region with Yarrawonga Mulwala Golf Club's Murray course inundated three times**

**Y**arrawonga Mulwala Golf Club Resort assistant superintendent Trevor Elliott has been a keen fisherman ever since he was old enough to bait a hook and like any avid angler he has a few secret spots along the Murray River which he knows will deliver. The green surrounds on the Murray course is normally not one of them.

For a few days in September and early October, however, he and course superintendent Chris Burgess were swapping work utes for tinnies as the club's prized Murray course was inundated by the Murray River after heavy rains caused widespread flooding in the region. In scenes reminiscent of the huge floods of 1993, a total of eight greens went under at the peak of the floods, with many fairways becoming rivers of water and a number of irrigation satellites damaged.

"It was a big one," reflects Burgess "I've been here six years and it's the most significant flooding I have witnessed and came very close to 1993 levels. We were told about six weeks before to expect major flooding due to all the rains. We had two minor flood events in September and it was only a week before the major flood that we had the course reopened. But then we got the call from the authorities on the first Sunday in October telling us they were opening up more gates on the Hume Weir and to expect major inundation.

"At its peak about 181,000 megalitres of water was spilling through the weir gates in a 24-hour period (the record is 189,000ML). The 13th green was the first to go under and by the peak on the Wednesday about 80 per cent of the course was under. Some parts were under by 3-4 metres."





Yarrowonga course superintendent Chris Burgess had to swap his work ute for a tinnie to get around



At its peak, about 181,000ML of water was spilling through the Hume Weir gates in a 24 hour period



PHOTOS: BRUCE MACPHEE

Despite watching on helpless as waters inundated the course, Burgess, Elliott and the Yarrowonga crew took it all in their stride and, importantly, kept a sense of humour. Elliott and a few of the other staff brought in their tinnies and became impromptu tour guides for Yarrowonga members who wanted to see the extent of the flooding.

"We had quite the audience come through the course that week and we had three tinnies running around showing members," says Burgess. "There was nothing we could do until the water subsided so we just made the most of the situation. Some of the guys on staff hadn't seen a flood like this before and with a bit of luck they won't see one like it again."

Thankfully, predictions that the water would remain on the course for weeks afterwards didn't eventuate. Within a week most of the water had

escaped allowing staff to begin the arduous task of removing silt deposits and cleaning up. Remarkably, the course was open by the following Friday.

AGCSATech environmental agronomist Bruce Macphee visited Yarrowonga during and after the floods, providing Burgess with advice on how to best recover the surfaces post-flood. As was found with the Brisbane floods in 2011, weed management will be a key focus going forward as will breaking up the layers of silt trapped within the profile.

Burgess has already noted that those greens which were flooded tend to puddle quicker from irrigation or small rainfall events and are much more susceptible to disease outbreaks, especially pythium. The impacted greens were scarified a few weeks after reopening and Burgess has also scheduled a coring in early December. 🌱

**A total of eight greens ended up going under – this was one of the lucky ones. Some parts of the course were under by 3-4 metres**

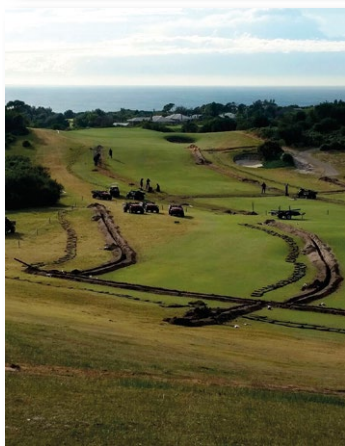
**Good foresight! One of the irrigation satellites that didn't get damaged**







# NSWGC irrigation upgrade



In ATM's ongoing series looking at golf course projects, assistant superintendents Dean Lenertz and Gareth Hammond review the extensive works to upgrade the irrigation system at New South Wales Golf Club.

Above: Between October 2014 and March 2016 New South Wales Golf Club has spent in excess of \$2 million upgrading its irrigation system. Pictured is mainline works on the 3rd

**Course:** New South Wales GC.

**Superintendent:** Gary Dempsey.

**Summary of works:** Upgrading the existing irrigation system. Installation of new pumps, mainlines and sprinklers, upgrade of satellites and control system and installation of moisture sensors.

New South Wales Golf Club (NSWGC) came to the decision to upgrade the existing irrigation system as part of its 2011-2016 Strategic Plan. The existing system was over 25-years-old and was starting to experience frequent breaks in the PVC piping and ongoing communication issues from the Hardie Micro Master satellite controllers to the central computer system.

The original system consisted of valve-in-head greens irrigation, twin row fairway irrigation and block irrigation for tees and green surrounds. Sprinklers were Toro 835S series heads for greens/fairways and Toro Super 800 series rotors for tees/green surrounds. The pump system set up included two 22 kilowatt submersible Grundfos pumps which had the ability to pump 20 litres per second each.

A number of factors influenced the decision to upgrade the system at NSWGC. These included:

- Efficiency and uniformity of water distribution;
- The ability to control individual sprinklers;
- A pump station only capable of delivering 40 litres per second;
- Proper hydraulic design of pipe network;
- Labour and material costs on repairs; and
- Modern satellite controllers for reliability and efficiency.

The club's ultimate goal was to have an efficient and dependable system that would serve the needs of the golf course for many years into the future.

## CHOICE OF SYSTEM

The decision was made to use Toro Network VP satellite controllers to utilise the 64-station irrigation programmes and link this to the Toro Lynx central computer system. Another benefit of the VP controller was the ability to use the Turf Guard wireless soil monitoring system that can track soil moisture, salinity and soil temperature. Sprinkler heads chosen for the project were Infinity Series for fairways/roughs/approaches, 835S for greens and green surrounds and T7 series rotor for tees.

The pump system selected was five submersible Grundfos pumps, with the three larger 22kW pumps able to pump 20L/s and the two smaller 11kW pumps able to pump 11L/s each running at 100 per cent capacity. The pumping station is controlled via an Inca VSD touchscreen irrigation system controller that operates from the pump house and wireless from the Toro Lynx central computer.

## INSTALLATION

The initial stage of the project started back in October 2014 and involved the upgrade to Toro Network VP satellites and the Toro Lynx control system. In November 2014 the upgrade of the pump station was undertaken increasing the flow rate from 40L/s to 70L/s with the installation of the new submersible pumps.

To give the main part of the project a head start, it was also decided to install 300 metres of pipe work which would serve as the first of two mainlines leading out from the pump station servicing the southern side of the course.

The main upgrade started in May 2015 with the installation of the second mainline leading away from the pump station and servicing the north western side of the course. Work progressed by installing the mainlines from the pump station outwards and installing valves for greens, tee and fairway irrigation as the project passed the given area.



To reduce the impact on the golfing schedule, fairway installation was generally scheduled for days with little or no golf. This allowed for the entire hole to be closed and work to be completed safely for the staff and with minimal disruption to golf.

As the project progressed mainlines were joined to form a series of loops to assist with pressure regulation throughout the system and reduce any issues that may arise due to water hammer. Mainlines were trenched using a 12 tonne excavator with pipe sizes of 200mm, 160mm and 125mm joined using electrofusion welding. It was decided to use a smaller pedestrian operated Ditchwitch to trench the fairway blocks even though a larger Ditchwitch was available in order to limit damage to the fairway surfaces.

Each fairway block consists of 10-22 sprinkler heads and was installed from the mainline using an electrofusion welded tee reduced to a 110mm block main. Gate valves were installed on every block to allow for isolation where required. Seventy-five millimetre laterals were attached to the 110mm block main using nylon tapping saddles with two inch threaded take off into a compression fitting. End caps were also electrofusion welded for protection against any water hammer experiences at the end of the lines.

Tee irrigation was installed as block irrigation controlled by solenoid valves. Each individual tee (ladies, championship etc.) is controlled by an individual solenoid and consists of between two and eight heads adjusted to only irrigate the specific tee area and tee surround.

All greens heads, along with outward facing surrounds heads, were installed on a 63mm ring main using nylon tapping saddles. To minimise disturbance to the edges of greens the decision was made to dig all greens irrigation trenches by hand. This process was quick to execute with seven staff completing each green in around 30 mins and was extremely beneficial to the areas surrounding the greens.

## CHALLENGES

As with any major project of this nature there were a number of challenges along the way. Weather, as always, plays a major part. Communication between the designer, installation contractors and course staff was another issue at times, with all three parties having differing opinions. Daily communication with members, golfers and clubhouse staff as to what holes were in and out of play sometimes proved to be more difficult than it should have been.

Locating existing services throughout the duration of the project was time consuming at times. There were definitely a few heart-in-the-mouth moments from everyone involved when the excavator ripped up large bundles of heavy duty wires, something not too uncommon with several decommissioned World War II fortifications surrounding the golf course.



Keeping the old system functional throughout the project was necessary and difficult with the planning concentrating on never having water off to any green for more than a few hours.

The unavailability of parts was also a major headache at times with incorrect sprinklers being installed purely to keep the project moving. The subsequent replacement of these heads has provided the NSWGC course staff with plenty to do in the aftermath of the project.

The project also slowed down through some of the final fairways due to encountering a large amount of clay and even rock, something that most people wouldn't associate with NSWGC.

Despite these challenges, the project concluded in March 2016 with the installation of the 13th fairway and green. It is arguably one of the biggest projects most of the current staff at NSWGC have been involved with. One of the most challenging aspects of the whole upgrade was seeing the overall standard of the golf course suffer due to the majority of the time and resources of the entire team being tied up in the project for longer than expected.

## SYSTEM SET-UP

The Toro Lynx control system, when set up correctly, is extremely accurate and efficient in the way that it allocates flow to various parts of the course while still maintaining excellent operating pressure. The Lynx system also has the ability to set up instant programmes to complement our usual irrigation cycles. Some examples include:

- **Dry areas:** A programme that is run simultaneously to our usual irrigation cycles which allows for individual heads to be easily selected to receive additional irrigation where required. This allows for overall runtimes for couch areas to be reduced with additional irrigation only being applied to areas that require it;
- **High traffic:** A programme that applies additional irrigation to areas such as path ends and walkways;



The installation of five new Grundfos submersible pumps and a new pump house formed a major part of the first stage of the project

Mainline trench from the pump house







◀ **Installation of the 63mm ring main on the 9th green. To minimise disturbance to the edges of greens, the decision was made to dig all greens irrigation trenches by hand. Pictured right is NSWGC crew member Simon Beilby**



golf course care about their workplace. This is due to a number of reasons but mainly because of pride in their work and the fact they have to deal with the repercussions of a poor installation first hand.

Contractor companies don't appear to have the same level of overall care. If no one is around to quality check them at every point there is a risk that shortcuts will be taken that remain undiscovered until well into the future. There have been several issues that we have encountered since the installation concluded earlier this year.

The staff at NSWGC thoroughly enjoyed the learning experience associated with the installation of this irrigation system. This is a project that many have never been involved in and may never be involved in again. It was highly valuable in the career progression of many of our senior staff with each and every staff member involved having taken away valuable skills in both irrigation installation and project management.

When undertaking a project of this scale it is essential to communicate extremely well. Everyone within the club needs to be aware of the reasoning and timeframe of the project. It is not good enough to simply notify people of your intentions and assume they understand. Constantly following up your messages, emails and conversations on a daily basis to ensure everyone is on the same page is essential to the success of the project. This allows work to continue uninterrupted with minimal disruption to the operation of the club. 🌱

## PROJECT COST

The NSW Golf Club irrigation upgrade project cost was split into two main stages:

- **Stage 1 (September – November 2014)**  
– **\$600,000:** Pump house construction, pump installation and installation of 300m of mainline; upgrade of satellites to Toro Network VP and upgrade of control system to Toro Lynx.
- **Stage 2 (May 2015 – March 2016) – \$1.5 million:** Trenching, pipe work, sprinkler installation and labour.

- **Bunker wet down:** A programme that can be run in dry periods or when high winds are expected to prevent sand being blown out of bunkers;

- **Fairways and surrounds wash in:** Programmes designed to follow sprayers or spreaders to wash in products evenly and efficiently.

The major advantage of the overall design of the system is having individual head control with one head assigned to one station in the satellites. This makes it possible to irrigate specific areas more or less depending on their individual environmental attributes. This is something that is extremely important at NSWGC with varying exposure to prevailing winds, different sand and soil types in addition to the undulating nature of the course.

The sensors are a great addition to help provide a daily snapshot of the moisture levels of greens, tees and fairways throughout the golf course. They provide yet another tool to further increase efficiency of watering by allowing consistent monitoring and alerts if an area is overly wet or dry. There are currently over 75 sensors installed at NSWGC. Most are located in known dry and wet areas so that thresholds can be set to better tailor irrigation practices. The intended goal is to have three sensors installed in each green, tee and fairway by mid-2017.

The ability to irrigate at 70L/s is another major advantage of the new system. This allows for the watering window to be shortened significantly which is extremely important when trying to irrigate evenly on the coast as light winds are rarely experienced for long periods of time.

## LESSONS LEARNED

The biggest lesson to come out of the project was the overall care taken by the team installing the irrigation system. Generally, course staff at any given



**The irrigation system upgrade is arguably one of the biggest projects most of the current staff at NSWGC have been involved with. Pictured below is NSWGC assistant superintendent Gareth Hammond on the 8th fairway**





# Couch mite control with a difference

Couchgrass Mite can cause damage that is hard to recover from. Fortunately, Syngenta have a few options that work together to effectively manage the multiple lifecycles of this pest and allow the turf the opportunity to recover.

A two-step programme with AGADOR or GYMNAST delivering the initial knockdown followed with HIGRAN to offer longer residual protection.

 **Agador®**  
Turf nematicide and miticide

 **Gymnast®**  
Turf miticide

 **Higran®**  
Turf miticide

**syngenta®**

For more information ask your Syngenta Agent or go to [www.greencast.com.au](http://www.greencast.com.au)

Syngenta Australia Pty Ltd, Level 1, 2-4 Lyonpark Road, Macquarie Park NSW 2113. ABN 33 002 933 717.  
®Registered trademark of Syngenta Group Company. ™Trademark of a Syngenta Group Company.  
All products written in uppercase are registered trademarks of a Syngenta Group Company. AD 16/346





PHOTOS: BRENTON MOREY

# Wagga Wagga CC, NSW

Wagga Wagga has a knack for producing some of this country's finest sportsmen and women – hall of famer jockey Scobie Breasley, AFL legend Wayne Carey and Kangaroos icon Peter Sterling to name just a few.

It also boasts some great sporting facilities including Wagga Wagga Country Club which has been home to superintendent Brenton Morey his entire turf management career.

Above: Looking back down the 9th from behind the green at Wagga Wagga Country Club a few days out from the recent club championships

**Superintendent:** Brenton Morey (31).

**Family:** Wife Lisa, children Matilda (2) and Ted (4 months).

**Period as a superintendent:** Three years, nine months.

**Association involvement:** AGCSA (similar period).

**Turf management career:** All at Wagga Wagga Country Club (apprenticeship 2002-2006, assistant superintendent 2006-2013 and superintendent 2013-present).

**Qualifications:** Certificate III Sports Turf Management (TAFE NSW Riverina Institute – North Wagga campus).

**Where in Australia is Wagga Wagga and what is the club/township famous/known for?** Wagga Wagga is the largest inland city in NSW, situated halfway between Sydney and Melbourne. With a population of around 56,000, Wagga Wagga is the major regional centre of the Riverina. Although not directly reflected through our membership, the town has a large military population with the army base at Kapooka and the air force base at Forrest Hill. Charles Sturt University also makes up a large part of the town's population. The club sits on the banks of Lake Albert on the southern side of town, boasting heavily tree-lined fairways and a tight, undulating layout with a clubhouse that has the best view in town overlooking the lake.

**Tell us a bit about your background and how you came to be a golf course superintendent.** I grew up on a farm 100 kilometres south west of Wagga

Wagga. Coming from a rural background, working hard and long hours was the norm and ingrained early, especially from my grandfather. I finished school after Year 11 and worked a week's casual work during renovations at Wagga Wagga Country Club (WWCC). Apparently they liked what they saw and I was offered an apprenticeship two months later which I started in December 2002.

Not having a clue about golf or turf, the opportunity to work outside was enough to lure me up here. It didn't take long for me to get the bug and my passion for the industry grew quickly. After completing my apprenticeship I was promoted to 2IC. Six years later my predecessor moved on and I was offered the position of superintendent.

**Who were some of your early mentors and what did your early postings teach you about the industry and turf management?** Two of the older groundsmen, Trevor and Glen, working here when I first started took me under their wing early on. They shared a lot of their knowledge and were always there to answer any questions and offer an ear to listen. Glen has been a volunteer out here since he retired 10 years ago. Now he asks me the questions!

**How did the job at Wagga Wagga come about and what do you like most about being the superintendent there?** The best part about being superintendent here is being able to walk into the clubhouse after work and see the members happy with what we're producing day in, day out. There's always a good vibe around the place. I'm also



pretty lucky to have a good secretary-manager and a supportive, understanding board to work for. I believe in being honest and giving them as much information as I can. They're all very pro-active and want to see things move forward and that helps make my job easier.

**Give us an overview of Wagga Wagga CC and some of its unique characteristics from a course perspective?**

The course sits on the foreshore of Lake Albert which creates a picturesque backdrop to the clubhouse and the 1st and 18th holes. The fairways are heavily tree-lined with enough undulation and camber in certain areas to keep things interesting. A water hazard meanders through the course and while dry most of time it still provides challenges for the holes it intersects. The course boasts 36 bunkers, mainly greenside but a few strategically placed on a handful of fairways. Green sizes vary from 450-650m<sup>2</sup>.

**Is it an easy/hard facility to manage? What's the most challenging aspect?**

I find the most challenging aspect to manage is the heavy clay-based soil and the competition for water from the large eucalypts that line our fairways. Root pruning with a trencher helps but having such large roots so deep it's always a constant battle.

**Take us through your turf management operations there. What changes have you implemented in terms of managing the course during your tenure as superintendent?**

Greens are cut 4-6 times per week and usually rolled twice per week. Tees, collars and fairways are cut twice per week. Greens are solid tined every six weeks through the growing season and verticutting and dusting is alternated fortnightly.

Since taking over as superintendent my main focus was to be proactive in *Poa annua* control using paclobutrazol (Shortstop) and Primo Maxx regularly. The first time we went out with the Shortstop a few of the members panicked and thought the greens were dying, but it just highlighted the high percentage of *Poa* we actually had.

I also adjusted watering practices when I took over, especially on the greens. There was always a theory here that you had to water bent greens every day during summer and they can't be cut less than 3.5mm! Now, we irrigate deep and infrequently, resulting in stronger root systems and firmer greens.

**What other maintenance changes are you planning on introducing?**

Since purchasing a UA-60 Aera-vator last year we have been focusing on aerating the fairways on a regular basis and incorporating gypsum and organics in the process.

**Any special environmental considerations that you have to incorporate into the management of the course?**

With Lake Albert right on our doorstep



and being such a popular recreational waterway for the city, we are always very mindful when applying chemicals and fertilisers to the course.

**What are some of the major challenges facing Wagga Wagga CC both from a turf management and club management perspective?**

Golf in general has been on the decline so we're always looking to encourage new members and keep our current members happy and playing regularly. Producing a course that the members are proud of and enjoy playing is a big part of that here. Diversifying membership categories has also helped bolster numbers in the past two years.

**Outline any major course improvement works recently completed and/or highlight any ongoing or future works that the club is undertaking.**

The club has experienced a few wet winters over the past three years and with a fairly high cart usage rate our income was taking a huge hit when carts weren't allowed on the course. The club has invested over \$50,000 in installing over 4km of gravel cart paths in the past three years. This has allowed us to keep more golfers out on course during damp conditions. This winter was an exceptional one with no amount of cart paths keeping the course playable! We plan on spending another \$25,000 this year to complete the remaining paths, leaving us with paths from tee to green on every hole. This helps our fairways by transferring most of the traffic onto the paths.

**The Wagga Wagga Country Club maintenance crew (from left) Kyle Tuckett, superintendent Brenton Morey, Dean Hoare and Ross Cooke. Absent is Charlie Metcalfe**

**The WWCC fairways are heavily tree-lined with enough undulation and camber in certain areas to keep things interesting**

CONTINUED ON PAGE 61





## AT A GLANCE – WAGGA WAGGA COUNTRY CLUB, NSW



Twelve of WWCC's greens are A4 bentgrass with the other six Pennncross

**Course specs:** 18 holes, 6054 metres, par 72. One hectare of bentgrass greens including two practice greens and two temporary holes, 12 newer greens A4, six old greens Pennncross. 0.9ha kikuyu tees. 10ha kikuyu fairways. Approximately 40ha total.

**Members/rounds:** 1300 total – 825 full golf and 500 social. Annual rounds 35,000.

**Major tournaments/events:** Ron Crouch Transport Pro-Am, Kilbrogan Trading City of Wagga tournament, JNJG Masters.

**Annual course budget:** \$455,000 incl wages plus cap ex, plus machinery replacement.

**Staff structure:** Brenton Morey (superintendent), Kyle Tuckett, Dean Hoare and Ross Cooke (greenkeepers) and Charlie Metcalfe (apprentice).

**Climate/annual rainfall:** Temperatures vary dramatically with 40+ degrees in summer down to -3 in winter and everything in between. Average rainfall is 571mm. We have just experienced our wettest five month period in over 30 years receiving 568mm (222mm of that was in September alone).

**Soil types:** Greens are sand based with the newer 12 being USGA spec perched water table constructions. Tees vary from sand based through to loamy clay! Heavy clay dominates all other areas, varying from red and orange to grey!

**Water sources:** 193 megalitre allocation from Lake Albert which the borders the course. This allocation is restricted as lake levels decrease. Once it reaches a particular level we have to cease pumping and have to use town water. Once on town water we can only water greens and tees given the supply flow rates and the cost. Last time we were on town water was at the end of the drought in

2009-10 and for a 14-month period we used 95ML at a cost of \$80,000. On today's rate this would equate to around \$130,000! It's very unsustainable for our club, but is our only option. Bore water and effluent options have been investigated numerous times but are 100 per cent off the cards.

**Irrigation system:** Rain Bird decoder, Stratus II controller, 900 Eagle valve-in-head fairways, 700 eagle valve-in-head greens and 700 block in tees. We have five Grundfos CR32-6 pumps with Franklin controllers, 2500L/min capacity. Originally installed in 1996, the pumps were replaced only in the past three years (with 18,000+ hours!) and new Franklin pump controllers installed in the past two years. Apart from the odd decoder and sprinkler replacement, the system is very reliable.

**Cutting heights/regimes:** Greens 3mm all year round 3-4 times per week and rolled twice a week. Cut at 4.5mm after renovations. Tees, collars and aprons are kept at 10mm twice weekly during the growing season. Fairways are cut at 12mm twice weekly during the growing season. Rough 50mm once per week or as required.

**Renovations:** All are carried out in house with major greens renovations conducted twice a year in April and August. We hollow core with 5/8" tines, double scarify, heavy top-dress, fertilise and add gypsum. We lightly verticut and dust fortnightly throughout the growing season (unless extreme weather or golf interrupts!) and 8mm solid tine monthly. Fairways are aerated with our UA60 Aerator in August and select tees are done during the growing season.

**Major disease pressures:** On the greens we use a monthly preventative programme that keeps them quite clean. There's always dollar spot and pythium looming but, touch wood, we've never had any catastrophic outbreaks. The odd fairy ring pops up during summer but with aeration and using quality wetting agents they are manageable. The tees and fairways suffer from red thread and fusarium quite bad during the cooler months. Usually left to its own devices, this winter was the first time we've ever put a fungicide application out on tees and fairways and after adjusting the new budget it will be an annual preventative practice now.

**Nutrition management:** Greens are soil tested annually. Granular fertilisers and gypsum twice per year at renovation time. Foliar feeding with liquid kelp, amino, humic and fulvic acids monthly. Light rates of soluble and liquid fertilisers in conjunction with Primo Maxx monthly for that 'one foot on the throttle and one foot on the brake' approach. Paclobutrazol and Primo Maxx used alternatively to keep Poa at bay. Granular slow release on tees 2-3 times per year as well as Primo Maxx and Fe-based liquids. Granular slow release and granular gypsum on fairways once per year and Primo Maxx when required.

Major greens renovations are conducted in April and August





**Water is obviously a critical issue for any golf course. How is Wagga Wagga CC faring in the water management stakes?** This year with good winter rain we've got access to a full lake which will last about two seasons with no extra inflows. We are at the mercy of the weather as far as our water storage goes. It's always frustrating to get to a point where we have to cut back or stop irrigating fairways and see all your hard work dry up and die. We've introduced a lot of large mulched areas around the course to cut back water usage and use the by-product of getting our green waste pile mulched.

**The weather and climate is always a great leveller for a course superintendent. How has Mother Nature treated the course in recent times?** My first 6-7 years here was through the height of the worst drought we've ever seen. It's definitely the worst I've ever seen the course and we were watering greens and tees only, with the fairways virtually dustbowls. On the flip side, this year has seen the wettest winter and September on record. It's always one extreme to the next out here.

**Are expectations of course presentation and conditioning any less than that placed on your metropolitan counterparts?** The majority of our membership appreciate what we've got and are always happy with how we present the course,



but there's always those few 'experts' that travel to other courses that think we should do things differently. Fortunately most people understand the vast differences in budgets, resources and climate.

**What are some pros and cons of being a regional superintendent?** Being in quite a large regional centre we can get most things delivered overnight or generally within 48 hours which isn't too bad. Access to regular trade days and small seminars in our area is probably a bit of a drawback.

**Do you have to be more resourceful as a regional-based superintendent?** I think we've got to spread ourselves thinner and cover more aspects of the job. We don't have a dedicated irrigation technician, spray technician or a mechanic, so we've got to do a bit of everything and as a superintendent you have to trust your staff to get tasks done.

**With Lake Albert right on the course's doorstep and being such a popular recreational waterway for the city, Moree is always very mindful when applying chemicals and fertilisers**

## Two products to combat the toughest conditions

From the **trees** back to the **turf**.

**REDUCE SALTS & BICARBONATES**

**CARBON SOURCE**

**SOLUBILIZE GYPSUM**

**Terreplex®**

*Carbon-rich Acidifier*

**Natural** **Renewable**

The research-backed **wetting agent** proven to be the strongest.

**TriCure<sup>AD</sup>**

*Aqua-Dynamics*

**Flexible use rates**

**Strength as a penetrant**

**Prevents LDS in the toughest climates**

**Even soil moisture distribution**



14 Sonia Street, Carrum Downs VIC 3201 • (03) 9708 2911

[www.oasisturf.com.au](http://www.oasisturf.com.au)





Since taking over as superintendent in 2013, Morey has focussed a lot of attention on *Poa annua* control using paclobutrazol and Primo Maxx regularly

**Do you think regional/country superintendents have a better work-life balance than their metro counterparts?** I think we've got it pretty good really. It's good to have a certain amount of flexibility here, especially having two little kids at home.

**How important are the relationships you have with other course supers/trade reps?** Having a good relationship with a reliable trade rep is worth more than the product you buy off them! I'm fortunate enough to have a good one for my chem/fert at the moment! With the limited number of golf courses close by, it's harder to compare notes with other supers at times. Social media helps bridge the gap and contact people in the industry you may otherwise not get to. It's always interesting to see what other guys are doing day to day.

**What are some of the more unusual requests/things you have had to do as a superintendent of a regional course (not necessarily turf management related)?** During the first day of our Pro-Am last year I found myself at Battery World buying a new battery for Craig Parry's Lexus!

**What have you got in your shed?** Three Toro 3250-Ds (two for greens and one for verticutting/brushing), Toro 3100-D for tees and surrounds, 7000-D for fairways, 7200-D and 4300-D for rough, four 2110 Workman utilities, 3200 Workman for spraying, two Tru-Turf rollers, John Deere 1200A bunker rake (8400 hours!), Rink topdresser, TG 5330 Iseki tractor, two old Fiat tractors, Daihatsu 2-tonne tipper, SR54 soil reliever, UA-60 Aera-vator, 3PL rotary hoe, Silvan fertiliser spreader, plus various other bits and pieces!



Wagga Wagga CC's tees and fairways are kikuyu



**What's your favourite piece of machinery and what's next on the wishlist?** The Toro Reelmaster 7000-D, an absolute beast of a fairway mower. No amount of grass slows it down! I've put forward a proposal to purchase a Sweep-n-Fill topdressing brush. I feel it's the next step in improving our greens quality, especially at renovation time. Our John Deere 1200-A bunker rake has 8400 hours on the clock. We've put three gearboxes through it and a starter motor. Other than that it's all original and just keeps on going!

**The one product I couldn't manage my course without is...** Fairly common answer but definitely Primo Maxx and 250EC. These help produce a nice tight surface and keeps the kikuyu under control between mows. They also help keep *Poa* tame in between paclo applications on the greens. Also special mention to Tricure AD wetting agent. This helps the greens hang on longer between irrigation cycles and reduces hand watering requirements.

**Favourite spot on your course?** My wife will be reading this so I'll have to say the 8th tee... we got married there in 2013. WWCC life member Morris Hetherington originally created the gardens around the tee and spent 40 years as a volunteer looking after the area as well as many others on the course.

**Best advice you have received about being a superintendent/greenkeeper and who gave it to you?** An old Globe rep told me when I took over as superintendent, "It's 80 per cent common sense and 20 per cent technical and if you don't know the technical, ask someone". I think that's pretty right; there's no shame in asking someone for help.

**What do you think is the most challenging aspect of a superintendent's role today? What have you worked on personally in recent years to improve your skills as a superintendent?** Managing and presenting budgets, being an HR manager and being almost politician-like to converse with board members! Forward planning and managing jobs around golfing numbers during the week is a constant battle. We didn't learn that stuff at TAFE, you just learn as you go... quite quickly at times!

**What gives you the most job satisfaction?** Driving out on a Friday afternoon and looking over the course seeing it all mowed up for the weekend.

**Most rewarding moment during your time as WWCC superintendent?** Having members telling you the course is the best they've ever seen it on a regular basis is very rewarding.

**Editor's Note:** You can connect with Brenton Morey on Facebook [www.facebook.com/brenton.morey](http://www.facebook.com/brenton.morey) and on Twitter @BrentonMorey. 🌱





# PARTNER RECOGNITION PROGRAMME

Support those organisations who support your association

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

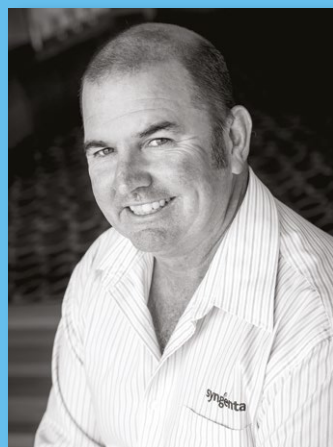




# SYNGENTA RELEASES VELISTA TURF FUNGICIDE INTO AUSTRALIA



Syngenta's new business manager  
for turf and landscape Paul  
Jackson



**A**GCSEA Gold Partner Syngenta has introduced Velista turf fungicide to the Australian market in time for the new season. Velista provides a broad spectrum SDHI (succinate dehydrogenase inhibitor) option for the control of major turfgrass diseases from anthracnose in bentgrass to spring dead spot in couchgrass.

According to recently appointed Syngenta Australia/New Zealand business manager for turf and landscape Paul Jackson, Velista represents a new mode of action for turf management in Australia and is an excellent resistance management tool.

"The active ingredient in Velista is penthiopyrad which has proven in Australia and overseas to be a versatile fungicide controlling a number of leaf, crown and root diseases in greatly varying crops," says Jackson. "Turf managers are currently heavily reliant on the QoI or strobilurin, Group 11 fungicides such as Heritage and, while this group of fungicides currently offer robust control, overuse may lead to resistance and poor levels of control."

"Velista is a Group 7 SDHI fungicide and offers an excellent rotational partner to help minimise any resistance risks and therefore extend the usable life of many existing and future chemistries."

The seven diseases listed as targets for Velista turf fungicide are dollar spot, brown patch, spring dead spot, anthracnose, curvularia leaf spot, helminthosporium disease and red thread. These diseases exist Australia wide and Velista can be used preventatively when conditions favour disease development or at higher doses for curative control.

Velista is a water dispersible granule which

allows for easy mixing and application to turf. It is available in 1kg packs from your local Syngenta distributor.

## JACKSON BACK AT SYNGENTA

In other news and as mentioned above, Paul Jackson has joined Syngenta as the new business manager for turf and landscape for the company's Australia and New Zealand division. Jackson brings a wealth of experience to the role and arrives at Syngenta after a period as general manager with Globe Growing Solutions.

Initially starting his career in turf as a greenkeeper in Sydney, Jackson completed his M. Ag (Turf Management) through the University of Sydney before going on to complete an MBA. He was sales manager for Bayer for six years in the early 2000s before moving to Barmac as business development and then Globe as national marketing manager. He joined Syngenta as a business manager for nearly three years between 2012 and 2015 before rejoining Globe. Jackson replaces Henk Smith who departed Syngenta in July to take on a new role with Living Turf.

"It is an exciting time at Syngenta with a number of innovative products being launched in the near future, such as Velista," says Jackson. "I'm looking forward to catching up with old colleagues and meeting new people over the coming months as we launch Velista into the turf industry around Australia."

**Jackson can be contacted on 0428 242 228 or via email [paul.jackson@syngenta.com](mailto:paul.jackson@syngenta.com).**



The new Underhill Tracker portable  
irrigation unit

## DAVID GOLF ON TRACK

AGCSA Bronze Partner David Golf has added Underhill's Tracker portable irrigation machine to its product range. The Tracker offers an economical solution for supplementing seasonal watering needs of 1/4 acre to 2 acre areas (1000-8000m<sup>2</sup>). It's also ideal for irrigating athletic fields, cemeteries, golf course roughs or other large areas where an underground system is impractical.

Powered by water, it pulls itself along a nylon cable, dragging up to 110 metres of 1" reinforced heavy-duty hose. Each pass irrigates about 2650m<sup>2</sup> per eight hours of operations. Features include adjustable speed control (20-70 ft/hr), standard full or part circle sprinkler (8-15 GPM), 110m nylon cable providing an irrigated length of 122m and a 20-25m pass width.

**For more information on the Underhill Tracker visit [www.davidgolf.com.au](http://www.davidgolf.com.au)**

## BACK TO THE GRASS ROOTS

AGCSA Bronze Partner Oasis Turf has recently introduced its Grass Roots liquid range of nutritional products to the Victorian turf market. According to

company owner Peter Harrington, the Grass Roots liquid range of products has been carefully selected after discussing with superintendents what they want from a liquid broad acre product.

The select range of products, available in 200-litre and 1000-litre totes, is tailored for golf courses, race tracks, football ovals and parks and gardens. Initially there are four products in the range which include;

- **Green Blast 22:** 22-0-0 and 4% Fe, 2% Mg 1% Mn 1% Organic Acid, that contains 50% slow release nitrogen (rate 20-60L/ha);
- **Nitro 8 Iron:** 12-0-0 and 8% Fe, 1.5% Fulvic Acid (rate 20-30L/ha);
- **Platinum 5 Plus:** 5-0-0 and 4% Fe, 2% Mg, 1% Mn, 1.5% Kelp, 4% Organic Acid (rate 20-30L/ha); and
- **Carbon Plus:** 4-0-2 and 9% Ca plus over 50 chelating agents (rate 20-60L/ha).

**For more information visit [www.oasisturf.com.au](http://www.oasisturf.com.au).**



## SAROW BIDS FAREWELL

One of the Australian turf industry's longest serving sales reps has called it a day after 43 years. Ross



Sarow has retired from his role as Toro's area sales manager for golf equipment in southeast and Far North Queensland, finishing up with the company on 28 October.

Sarow started his time in sales with Rover Mowers in 1973 as a sales supervisor for consumer products covering Queensland and export to the South Pacific region. Subsequently, with the appointment of Rover as the Australian Toro distributor, Sarow was employed as a sales supervisor for Toro products into Queensland and the Northern Territory for the next 15 years.

In 1998, Toro assumed direct distribution in Australia and with that he was appointed as a regional manager for commercial equipment. In 2001, Sarow assumed the role of national sales manager for golf in Australia, a position he held until 2004 when he assumed his most recent role of area sales manager.

Among many highlights during a rewarding career, Sarow was awarded the company's coveted Green Jacket for International Salesman of the Year, which he received from none other than Arnold Palmer, and in 2014 was awarded the GCSAQ Industry Recognition Award for his services and support to the association and Queensland industry.

"Ross is an icon and we are not just seeing the retirement of a fellow employee we are seeing the retirement of a mate," says Toro's senior sales manager, golf equipment Mark Johnson. "Toro as a

company prides itself on its people and its culture and Ross represents both of these as the complete professional. His reputation and standing in the golf industry is second to none.

"It was with mixed emotions that we announced Ross's retirement. It's mixed because we all want to see people enjoy a long and healthy retirement, but on the flipside losing Ross and his wealth of knowledge is something that the whole golf team will miss. We wish Ross and wife Sherryl a long and healthy retirement and congratulate Ross on a career that has spanned an incredible 43 years."

**After 43 years servicing the Queensland turf industry, Toro's Ross Sarow has retired**



## PROUDLY AUSTRALIAN, PROUDLY INDEPENDENT



"The Australian turf industry's leading provider of agronomic services."

- EXPERT AGRONOMIC ADVICE
- CONSTRUCTION SPECIFICATIONS
- SOIL, PLANT AND WATER ANALYSIS. DISEASE DIAGNOSIS
- ENVIRONMENTAL AND WATER MANAGEMENT PLANS

**CONTACT AGCSATECH TODAY ON (03) 9548 8600**



Senior agronomist - Andrew Peart  
andrew@agcsa.com.au 0422 418 038



Environmental agronomist - Bruce Macphee  
bruce@agcsa.com.au 0409 183 710





**Burleigh Golf Club superintendent Darryl Edwards teamed up with committee member Brendan Clark to be part of a GCSAQ-Golf Queensland Golf Course Management Workshop held at Clifton Golf Club in late October**



like to jump aboard our transit service. Contact **Stu Campbell** – 0418 544 337 (Sunshine Coast), **Phil Soegaard** – 0419 024 095 (Gold Coast) and **Shaun Cross** – 0419 011 390 (Northern Rivers). This event is sure to be a highlight of the year as John Deere, Toro, Jacobsen and Kubota go head to head. Breakfast will be sponsored by Toro and provided upon arrival, with lunch at the completion of the day to be sponsored by John Deere. This is a showdown not to be missed and we want to thank the companies participating to make this highly anticipated event successful, as well as host superintendent **Charlie Giffard** for providing the golf holes for these comparable demonstrations to take place.

Our annual Christmas Party will be held at Wet 'n' Wild again on the Gold Coast on 10 December with all family members invited as per previous years. Stay tuned for details to be sent out in the near future.

## GIVING BACK

At the end of October one of our most respected superintendents **Darryl Edwards** (Burleigh Golf Club) joined forces with GCSAQ committee member **Brendan Clark**, who is the business development manager for e-par, on a tour as part of a Golf Queensland initiative.

The Golf Course Management Workshop was held at Clifton Golf Club out in the Darling Downs. It was attended by 40 golf course industry employees, representing 14 golf clubs who were entertained on a range of topics such as the fundamentals of managing fine turf, cultural practices and their benefits, course conditioning and presentation and golf course compliance.

It was a great success and the GCSAQ and Golf Queensland are hoping to plan future workshops in more remote areas to assist with essential guidance and growth of our industry colleagues, who rely heavily on volunteers to manage their golf courses.

If anyone has any ideas or requests for future events or general comments to keep growing the GCSAQ, please feel free to contact us. We have a good template of events scheduled for 2017 which will be sent out on a calendar format in the near future to allow for some forward planning. Good luck for the approaching summer months.

**SHAUN CROSS**  
VICE-PRESIDENT, GCSAQ

**S**pring in the Sunshine State has been a real rollercoaster with morning and night time temperatures up and down like a yoyo. Not an ideal start to the season for most golf courses undertaking their spring renovation practices, which has also seen an extremely long dry spell through the last few months, just to add a little more pressure to everyone's workload. Thanks Mother Nature!

This time of year also sees our major golf tournaments roll through town and in late October the 2016 Isuzu Queensland Open returned to Brisbane Golf Club for the first time in 25 years. However, this time around the players were treated to Australia's first Champion ultradwarf hybrid couchgrass greens, which from all reports were a real test to some of our best golfers, providing a firm, fast and true surface to put them to the test. Congratulations to course superintendent **Mitch Hayes**, his team and the crew of industry volunteers that assisted with the successful return of this event to the club (**you can read more about the Queensland Open on pages 48-51 – Ed**).

As they say one finishes and another one starts, as just down the road on the Gold Coast, **Lincoln Coombes** was preparing the new-look RACV Royal Pines Resort Course again for the Australian PGA Championship at the time of writing this report. We wish Lincoln and his team all the best with their preparations for this prestigious event on the PGA Tour of Australasia golfing calendar.

The GCSAQ committee has been working hard to continually provide educational and networking opportunities, and after the highly successful Turf Industry Golf Day held at Lakelands, we are anticipating a good attendance again at our next major event – the GCSAQ 2016 'Mow Off', to be held at Indooroopilly Golf Club on 28 November from 8am.

We will be operating buses from the Sunshine Coast, Gold Coast and Northern Rivers if numbers and interest warrant this service. This is a great opportunity to network on transit to the site with your peers. So please RSVP ASAP if you would

## ON THE MOVE

**LIAM ASH:** Has departed as assistant superintendent Monash Country Club, NSW to concentrate on setting up his own lawn business.

**FRASER BROWN:** From superintendent Kalgoorlie Golf Course, WA to superintendent Lake Karingup Country Club, WA.

**RYAN IRWIN:** From assistant superintendent Morack Golf Club, Vic to superintendent Waterford Valley Golf Course, Vic.

**MARK PUGLISI:** From assistant superintendent Bermagui Country Club, NSW to superintendent Bega Golf Club, NSW.



It has been an eventful few months in South Australia. A very wet and cold September was topped off with a major storm event which dumped in excess of 100mm and brought strong winds that knocked down many trees. The rain pushed year-to-date averages well above the norm which will hopefully assist heading into the drier months.

Some of the courses worst affected were Blackwood Golf Club and Barossa Valley Golf Club. As reported in the AGCSA's weekly newsletter The Cut at the time, Blackwood superintendent **Steve Pellatt** had to fire up the chainsaws after two big gums came crashing down in the strong winds. The nearby Mt Lofty BOM weather station recorded 104mm in 48 hours and a strongest wind gust of 83kph. Pellatt said at the time that the club had received five months of above average rainfall and according to club records (which go back to 1970) it was the wettest September on record and one of the coldest.

Up at Barossa Valley Golf Club in Nurioopta, SAGCSA committee member **Stephen Chapman** was also busy cleaning up around his course. The course copped 130mm in 48 hours with strong winds bringing down dozens of trees including 10 big eucalypts and radiata pines, forcing the closure of the course.

Aside from Mother Nature's little touch up, the big event here recently was the SA Golf Industry Awards held at the Adelaide Convention Centre in late October. The SAGCSA handed out three awards as part of a great evening and on behalf of the committee I am proud to congratulate the following award-winning members:

## SAGCSA AWARD FOR EXCELLENCE IN TURF MANAGEMENT

**Sponsored by Globe Growing Solutions**

**Winner: Kim Tonkin (Penfield Golf Club)**

Penfield Golf Club is a nine-hole course located in Salisbury about 20km north of Adelaide. Kim has been the club's long-serving course superintendent and over the years has always searched for ways to improve the variety and appeal of the course which has limited space and few resources.

Kim has designed and built additional holes and made preparations for other new holes with virtually no budget, sourcing free materials and remaining alert to opportunities to use and re-use materials, as well as sourcing expertise and manpower for little or no cost.

He has demonstrated great dedication, innovation and ingenuity in solving problems and meeting the challenges of maintaining the existing holes, while ingeniously improving the variety of the layout and adding holes with a staff of only himself and one part-timer.



## DISTINGUISHED SERVICE AWARD

**Presented by the SAGCSA**

**Winner: Michael Bohnsack (Victor Harbor GC)**

Michael recently notched up 31 years' service at Victor Harbour which is located on the Fleurieu Peninsula. Michael started at the club as an apprentice in 1985, completing his Certificate III in 1989. After taking over as course superintendent in 1990 he completed his Diploma of Horticulture in 2009, serving a total of 26 years as superintendent.

In addition to his many years of service at the club, Michael was also on the SAGCSA Committee during the early 90s, continuing his family's tradition of being strongly involved with both his club and the turf industry. His grandfather was a former general manager for 17 years during the 1960s and 1970s while his father also served on numerous committees during the 1970s and early 1980s. The SAGCSA award comes on top of the Rotary Pride of Workmanship Award which Michael received in May this year.



## SAGCSA GRADUATE OF THE YEAR

**Sponsored by Toro**

**Winner: Keenan Hutchings (The Grange GC)**

The SAGCSA Graduate Award was judged earlier in 2016 to coincide with the AGCSA Graduate of the Year Award. The Grange's Keenan Hutchings represented his state admirably and despite not winning the national award gained invaluable experience by attending the conference and networking with fellow graduates and industry mentors from around the country.

Keenan has been employed at The Grange Golf Club for the duration of his traineeship and completed his studies at TAFE SA's Urrbrae campus. Following the completion of his training, he has continued employment at The Grange as a qualified greenkeeper where he has become an integral member of the course maintenance team. A highlight this year was preparing the West course for the 2016 Women's Australian Open.

Also recognised on the night was Murray Bridge Golf Club, home to long-serving course superintendent and former SAGCSA committee member **Mal Grundy**. The club won the PGA Pro-Am of the Year Award for its hosting of the Murray Bridge Classic.

**Top left: SAGCSA Excellence winner Kim Tonkin (left) with Globe's Luke Clohesy at the recent SA Golf Industry Awards**

**Top: Long-serving Victor Harbor superintendent Michael Bohnsack was bestowed the SAGCSA Distinguished Service Award**

**Above: SAGCSA Graduate of the Year Keenan Hutchings**

**BAZZ BRYANT  
PRESIDENT, SAGCSA**



# GCSAWA



**2016 AGCSA Claude Crockford Environmental Award winner Andy Wood has confirmed as a speaker at the 2017 GCSAWA state conference in Margaret River**

**M**ost clubs have now completed renovations as we head into summer after one of the cooler winters in Perth for many years. For the association, it's been a little quiet with most of the committee busy on their courses.

At last month's GCSAWA meeting we confirmed committee roles for the next year with many fresh ideas on how to move our association forward. One thing I would like to push for in the next 12 months is more support for our members when facing difficulty with their courses, offering professional advice through national or state associations.

Plans have started for the GCSAWA conference in Margaret River from the 6-9 August 2017. We have had a good response from the turf industry willing to support and contribute speakers which will assist the association in making this another successful conference. This is a way we offer education to our members, many who can't financially afford attending the national conference. **Andy Wood** from Kauri Cliffs, NZ has accepted an invitation to speak on a number of topics including the works which saw him win this year's AGCSA Claude Crockford Environmental Award.

We have reduced the number of golf days focusing more on main days which include the Management Challenge and Trade Day and, of course, the Toro Cup at the conference. We have found many superintendents are now time poor and can't afford to get away from their courses. We will continue with the 'walk 'n' talks' days which were successful in previous years as a way of improving education and mixing with colleagues to share ideas.

Once again the GCSAWA will be involved in the WA Golf Industry Awards to be held at Crown Casino on Friday 10 March, 2017. Nomination forms are now out. This year a selection panel will interview finalists for some of the key awards. It would be great to once again see a strong turnout from our industry.

During the winter we will work with TAFE on holding training days which will include water-wise irrigation, chemical application and possibly a course involving excel spreadsheets and documentation.

**NEIL GRAHAM  
PRESIDENT, GCSAWA**

# NSWGCSA

**T**he Rube Walkerden Golf Day, AGM and annual awards were held at Terrey Hills Golf & Country Club in mid-November. The event ran very smoothly due to the efforts of NSWGCSA committee members **Nathan Bradbury** and **Steve Harris** with 90 in attendance. Guest speaker was Gus Worland from Triple M who entertained the crowd with stories of himself and Hugh Jackman. A huge thank you to all sponsors Toro, Simplot, Dad & Dave's Turf Supplies, Elite Sands and Bayer.

Golf winners on the day were:

- **Stuart Gill:** Rube Walkerden Trophy
- **Tom Sheedy and Jason Riemer:** Simplot Cup
- **Tom Sheedy:** Peter Ingram Trophy
- **Martyn Black:** Presidents Trophy

The NSWGCSA annual awards were also handed out with **Mark O'Sullivan** (Roseville Golf Club) winning the Excellence in Turf Management Award. During his 32 years as superintendent, Mark has received a Pride of Workmanship Award from Rotary in 1994 and has also served as a committee member on both the NSW Golf Greenkeeping Association and the NSWGCSA.

The Outstanding Achievement Award this year went to the popular **Ian Elphick** (Gunnedah Golf Club). Ian, also fondly known in the industry as 'Chop', was at Gunnedah Bowling Club for 17 years before switching to the golf course. Chop has continued to produce exceptional results in course presentation with limited resources. The Outstanding Achievement Award has been generously sponsored

by Living Turf with the winner being sent to the New Zealand Turf Conference next year, along with the winner of the Excellence in Turf Management Award. Unfortunately, our Environmental Award was not handed out this year due to a lack of nominations and sponsorship.

Our very own Board member who holds the education portfolio, **Malcolm Harris**, was presented with a 30 year Service Award on the night. Mal has not only been a superintendent for 30 years, he has done it all at Northbridge Golf Club on Sydney's North Shore. Mal has been very involved with the education of all apprentices throughout the state for many years now and is extremely passionate about it, which the rest of the board certainly appreciates.

The Graduate of the Year Award interviews have been brought forward to December this year due to a new sponsorship deal with JT Turf. The winner of the award will now be taken to the GCSAA conference in February. We have four finalists from Monash, Royal Sydney, Nelson Bay and Bermagui and we wish them all the best when the final interviews are held on 3 December.

We currently have a vacancy in the board with **Shane George** from Shell Harbour standing down at the recent AGM. On behalf of the NSWGCSA board and our membership, I would like to wish Shane the best of luck going forward and thank him deeply for his time and efforts.

**STUART GILL  
PRESIDENT, NSWGCSA**



**A**lthough Wednesday 7 September was a somewhat blustery and at times wet day in Perth, almost 100 people came from all around the city and country to the sports ground pavilion on Murdoch University's campus to participate in our 2016 Cricket Wicket Seminar.

We were especially pleased to see that many delegates came from throughout the south west and eastern rural districts of Western Australia. Some travelled all the way from Albany more than 4.5 hours away on the south coast and as far east as the wheat belt shires of Goomalling, Wyalkatchem and Kellerberrin, which are each more than 2.5 hours' drive in to Perth.

Whenever possible the STA is very proud to showcase local knowledge and so it is without doubt that we were incredibly fortunate to have such a group of experienced and innovative curators step up and volunteer to be our panel for the day. Prompted by **John Forrest** from South Metro TAFE, who was acting as our MC for the event, each gentleman responded to questions from John and about the room with such candid honesty and good humour that the day worked as a tutorial and forum quite comfortably and naturally.

Throughout the day's conversations it soon became evident that the panellists shared the common goal of managing a sustained healthy, resilient turf cover on their wicket blocks and continually strove to produce the best playing surface for cricketers. Pesticide management was a favourite topic with the IPM control of weeds and *Poa annua* in particular receiving considerable discussion throughout the room.

After lunch we coaxed everyone outside where, while dodging the odd intermittent cold rain shower, they could experience an up close presentation on working with clay wickets. It was in this arena that many members felt more at ease to ask their questions. As a member of the organising committee, I felt the true success of the day was the fantastic sight of seeing many from the main group



of delegates move into separate smaller gatherings throughout the practice wicket area, receiving one-to-one tutelage from each other and among the other panellist curators.

The day was a resounding success by all who attended and the STA WA is very grateful for the participation and support from all our event organisers, volunteer panellists and, most especially, to event sponsors Mow Master, Nuturf and State Wide Turf Services.

The next major event for the STA WA will be hosting the annual WA Turf Industry Awards. This will once again be held at Hartfield Country Club on Tuesday 29 November and will be another memorable night for all the graduating turf students of 2016 and their guests. For more information on how to join us for the night, please follow the post on the coming events page of our website, [www.sportsturfwa.asn.au](http://www.sportsturfwa.asn.au).

**TONY GUY**  
PRESIDENT, STA WA



**Top left: Ross Domney presents practice wicket preparation at the STA WA Cricket Wicket Seminar**

**Above: Nathan Hayes answers questions at the STA WA Cricket Wicket Seminar**

**Luke Harrison demos a new pedestrian roller**



**MELBOURNE  
CHAIN WIRE  
FENCING**

**SECURE AND ATTRACTIVE  
FENCING SOLUTIONS**

- Boundary
- Enclosures & Partitions
- Parking

p. (03) 9437 1472 | e. [sales@melchain.com.au](mailto:sales@melchain.com.au)

[www.melchain.com.au/golf](http://www.melchain.com.au/golf)

**GOLF COURSE FENCING SPECIALISTS**

Brush Panel | Chain Link | Shade Cloth | Timber Bollard | Tubular Steel







**The National's famed Ocean Course played host to the 2016 VGCSA Open Golf Day in mid-November**

**T**he first two months of spring saw above average rainfall recorded across most of the state following on from above average winter rainfalls. While the rain has been great for keeping soil profiles topped up with moisture, soil temperatures have remained on the low side ensuring slow couchgrass growth coming out of winter. The consistent rain has seen some Murray River courses affected by flooding, especially at Yarrowonga, due to the need for large amounts of water to be released from the catchments (**see more on the Yarrowonga Mulwala Golf Resort flooding on pages 38-40 – Ed**).

The last association event of 2016 was the VGCSA Open Golf Day, sponsored by ADE Turf Equipment, held on 14 November. The National Golf Club was host venue for the day with course manager **Leigh Yanner** having the Ocean Course in great condition for the 101 who teed up. Victoria's mercurial weather certainly made the going difficult with strong winds and squally showers testing the field early, however, it was the Huntingdale Golf Club team that managed to tame the conditions and take out the main prize on a countback.

Captained by assistant superintendent **Justin Crowe** (who had a chip-in on one hole) and comprising superintendent **Michael Freeman**, club captain **Graeme Mathers** and assistant professional **Lisa Jean**, the Huntingdale team shot 65 off the stick to finish with a nett 59.75. They beat the team comprising Commonwealth Golf Club's **Chris Adames**, **Tom Bickerdike**, **Ben Williams** and Burnley Golf Club's **Chris Angwin**. Third, with a nett score of 60, was the team of **Matt Merrick**, **Darra Hudner**, **Paul DePasquale** and **Toby Lumsden**.

Nearest the pins went to DePasquale (11th) and **Brett Robinson** (3rd), while Jean snared both the longest drive prizes on the 8th and 18th holes. Special mention also to AGCSATech senior agronomist **Andrew Peart** who scored an eagle for the AGCSA team on the par four 6th, holing out from 120m.

An added bonus on the day was the opportunity for members to observe the results from the recent

line planting of Wintergreen couchgrass. Starting last spring, The National undertook a project to overplant the Ocean's Course's existing Legend couchgrass fairways. As Leigh wrote in the Spring 2016 VGCSA Newsletter, there were a number of reasons for the transition to Wintergreen including;

- The domination of finer couchgrasses taking over the Legend;
- The inability of the Legend to cope with modern day *Poa annua* control strategies; and
- The Legend struggled with extra wear associated with ever-increasing golf cart traffic.

Wintergreen was chosen because it had proven to grow well on the site (the tees on the Moonah and Ocean courses were planted with Wintergreen when constructed). The Wintergreen sprigs were sourced from Murray Downs Golf and Country Club (superintendent **Andrew Abbott**), with the back nine fairways overplanted last spring and the front nine completed this September.

We are privileged as an association to have great support from the golf clubs around Victoria to hold our meetings throughout each year and wish to thank Leigh and The National for hosting this important event.

## LOOKING AHEAD

The association is again committing funds to conduct turf research and trial work during 2017 in conjunction with **John Neylan** (Turfgrass Research and Consulting). We have two trials in the early stages of planning and will inform members what they will entail once they are ready to begin. If any members have ideas of trial work which would be beneficial to the industry, please feel free to contact the association to discuss or put forward a proposal for discussion at committee level.

This time of year also sees the Sports Turf Management departments at the various education institutions nominate their candidates for the VGCSA Apprentice of the Year Award and the 2nd Year Diploma Scholarship Award. All eligible candidates are given the opportunity to present at a panel interview made up of committee members. A good

**The VGCSA Golf Day enabled players to observe the results of the club's recent project to overplant the Ocean Course's existing Legend couchgrass fairways with Wintergreen**





early grounding in the experience of presenting is gained by the students and gives them an insight into a part of the superintendent's role that is crucial in today's environment. Let's hope that the state apprentice winner can again take out the AGCSA Graduate of the Year Award in 2017 just as Ballarat Golf Club's **William Koopmans** did this year.

It is encouraging to know that a few previous winners of the Diploma scholarship have now moved into assistant superintendent roles, indicating the progression of young turf managers within the industry. The VGCSA encourages all turf managers if they have been thinking about further studies to sign up.

The 2017 VGCSA meeting schedule has been confirmed and we encourage members to put these dates in their diaries now. The committee wishes to thank all those clubs that have put up their hand to host events next year. The dates are:

- **6 March 2017:** VGCSA Education Meeting, Peninsula Kingswood Country Golf Club (host superintendent **Glenn Stuart**)
- **8 May 2017:** VGCSA Annual General Meeting, Metropolitan Golf Club (**Dave Mason**)
- **5 June 2017:** VGCSA 21C/31C Groundstaff Meeting, Huntingdale Golf Club (**Michael Freeman**)
- **31 July - 1 August 2017:** VGCSA Superintendent /21C Country Meeting, Tocomwal Golf Club (**Ben Lucas**)



● **11 September 2017:** VGCSA Education Meeting, Medway Golf Club (**Colin Winterton**)

● **22 November 2017:** VGCSA Open Golf Day, Riversdale Golf Club (**Travis Scott**)

Finally, the VGCSA recently bid farewell to committee member **Tom Smith** after he departed his role as superintendent at Waterford Valley Golf Club in Melbourne. Tom has moved onto an exciting new role in Singapore with HG Sports Turf and I would like to thank him for his contribution and commitment to the association during his time on the committee. Tom was always keen to try new things and was a driver of the association's Facebook page, bringing our information into the modern world. Good luck with the new endeavours Tom.

**MATHEW POULTNEY**  
PRESIDENT, VGCSA

**Looking back from behind the 2nd green on the Ocean Course**

# parkland

*Australian Distributors of Spectrum Monitoring Equipment*



**WatchDog® 2000 Series Weather Stations**

- **NEW 2900ET Weather Station - efficient AND economical**
- Full featured ET weather station measures temperature, humidity, rainfall, wind, and solar radiation.
- Weather station can be customized with additional plug-in sensors eg: soil moisture, light, barometric pressure to suit your needs.
- 3 connection options- direct connect, wired modem or 900 MHz (license-free) radio.
- Standalone or integrates fully with Toro Lynx central control software.



Australian distributor for  
**Spectrum Technologies, Inc.**



## Bailey Decoders

All Network CDS course customers your future upgrade path is with Bailey.

- You will not have to change your decoders or solenoids.
- Windows platform.
- GTS (Gemini Trident) manufacturer support and extended warranty packages are available.
- Mapping.



Talk to us for your cost effective upgrade path.



# TURF AUSTRALIA



The turf industry levy has helped to fund a range of initiatives including the NxGen Forum which enables the next generation of turf growers to visit major facilities and learn new techniques to enhance their professional development

The benefits provided to turf growers from levy investments over the past 10 years are many and varied. In 2017, a process to review all horticulture levies, including the turf levy, will be initiated.

Since 2006, the turf levy has been a major contributor to the professional development of the Australian turf industry. Using levy funding, Turf Australia has been better able to meet the needs of growers through the provision of comprehensive industry development and communication services, including:

- The regular publication of a quarterly industry magazine specifically for turf growers;
- The writing of articles for regular inclusion in industry magazines, such as Australian Turfgrass Management Journal;
- A fortnightly e-newsletter;
- An up-to-date industry website;
- The 2016 State Forums;
- Previous national conferences and field days;
- The telephone sales and farm profitability workshops;
- The NxGen programme, now in its sixth year;
- State-based field days and seminars; and
- Presentations on the many benefits of turf at landscaper, local council and urban planning conferences and exhibitions.

In addition to the industry development and industry communication services activities listed above, the turf levy has also funded:

- The development of the Turf Cost of Production Calculator and training on its use;
- Research leading to the creation of an Australian Standard for using turf to control erosion; and
- Various market research projects and marketing initiatives, such as the Lawnspration Facebook page, Perfect Patch of Green and the Ground Cover Cost Calculator.

Without industry support in paying the levy, these services for and benefits to turf growers would not have happened. Turf Australia hopes that the 2017 levy review will enable the facts and figures

on the turf levy programme to be compiled and communicated to the industry.

Turf Australia continues to work hard to be your national voice within the horticulture sector. We are working with Horticulture Innovation Australia (Hort Innovation) and the Voice of Horticulture to ensure the industry can get the best from the levy.

By working with Hort Innovation, we can in effect double our turf levy income for research and development activities as the Federal Government matches our R&D levy dollar for dollar. This helps to ensure our small amount (compared to other horticulture industries) of levy collected goes further.

## REVIEW OF AGRICHERMICAL PEST MANAGEMENT NEEDS

To improve access to a wider variety of pesticides, the Australian Pesticides and Veterinary Medicines Authority (APVMA) is working with Horticulture Innovation Australia and Turf Australia to conduct a Strategic Agrichemical Review Process (SARP) for the turf industry.

The last SARP for the turf industry was carried out in 2006 and, despite turf being classified as a major crop by the APVMA, access to chemicals is being reduced and obtaining minor use permits can be difficult. The results of this revised SARP will provide the turf industry with sound pesticide options for the future that the industry can pursue for registrations with manufacturers or minor-use permits with the APVMA.

The SARP for the turf industry involves a desktop audit and industry liaison to:

- Assess the importance of the diseases, insects and weeds (plant pests) that can affect a horticultural industry;
- Evaluate the availability and effectiveness of fungicides, insecticides and herbicides (pesticides) to control the plant pests;
- Determine any gaps in the pest control strategy;
- Identify suitable new or alternative pesticides to address the gaps.

From the SARP process, the new or alternative pesticides may be pursued via registrations or permits. Possible justification for permit applications could be based on:

- A new disease, insect or weed;
- Current pesticides no longer work – resistance;
- Current pesticides limiting trade;
- IPM, environmental or operator issues; and
- Loss of pesticides due to removal from market.

For more information and/or a copy of the Draft Turf SARP, please contact Rachel Layt (02) 4588 5735 or email [admin@turfaustralia.com.au](mailto:admin@turfaustralia.com.au).

**RICHARD STEPHENS**  
BUSINESS AND INDUSTRY  
DEVELOPMENT MANAGER, TA



# WORKMAN<sup>®</sup> GTX

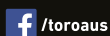
## **SIMPLY SUPERIOR**

A utility vehicle that is  
simply superior to the rest.

The Workman GTX is a grounds and turf crossover vehicle that boasts an unequalled combination of comfort, utility and control, making it simply superior to the competition. Available in petrol or electric, the Workman GTX features multiple configuration options; including front and rear attachments, a flat bed and a four-seat option. So whether you are setting cups, checking on irrigation, working around campus, or moving people or materials, the Workman GTX has the power and versatility to get the job done, better!



For more information, call 1800 356 372 or contact your Toro Golf Area Sales Manager.  
[toro.com.au](http://toro.com.au)



**TORO**



# Irrigation Water Systems featuring **HYDROVAR®**

**Create a variable speed booster station to your technical specifications.**

By utilising the well proven Lowara e-SV™ multistage pump and Hydrovar variable speed drives, you gain an efficient and robust system. You can create a booster set with up to eight vertical multistage pumps that are all controlled by Hydrovar frequency drives fixed directly on the electric motor of each pump. These systems can maintain constant pressure and optimized pumping efficiencies over wide flow ranges .

**A selection of golf courses that have installed pumping systems with HYDROVAR®:**

## Australia

- |                   |                    |                    |
|-------------------|--------------------|--------------------|
| • Ballarat        | • Goondiwindi      | • Richmond         |
| • Bannockburn     | • Hidden Valley    | • Ringwood         |
| • Barwon Heads    | • Kingston Heath   | • Riverside        |
| • Bermagui        | • Kooindah Waters  | • Rockhampton      |
| • Bowral          | • Latrobe          | • Royal Melbourne  |
| • Box Hill        | • Marysville       | • Rosebud          |
| • Brookwater      | • McLeod           | • Rossdale         |
| • Cape Schanck    | • Melton           | • Settlers Run     |
| • Charlestown     | • Metropolitan     | • Shell Cove       |
| • Clifton Springs | • Monash           | • Shell Harbour    |
| • Criagieburn     | • Montuna          | • Shoal Bay        |
| • Curlewis        | • Morebank         | • Shoalhaven Heads |
| • Dorsel          | • Moss Vale        | • The Goowa        |
| • Drovin          | • Muirfield        | • Tirhatuan Park   |
| • Druin           | • Ocean Grove      | • Trafalgar        |
| • Elcho Park      | • Ocean Shores     | • Tuggerah Lakes   |
| • Emerald Lakes   | • Pacific Dunes    | • Virginia         |
| • Eynesbury       | • Perigian Springs | • Wyong            |
| • Garfield        | • Rich River       |                    |

## New Zealand

- |                   |                 |               |
|-------------------|-----------------|---------------|
| • Akarana         | • Kauri Cliffs  | • Taupo       |
| • Auckland        | • La Pointe     | • Te Awha     |
| • Cape Kidnappers | • Mangawhai     | • Te Puke     |
| • Carrington      | • Matarangi     | • The Hills   |
| • Clarke's Beach  | • Muriwai       | • Titirangi   |
| • Formosa         | • Napier        | • Waikanae    |
| • Grange          | • New Plymouth  | • Waipa       |
| • Hamilton        | • Omaha Beach   | • Wanganui    |
| • Howick          | • Omokoroa      | • Wellington  |
| • Huapai          | • Onewai        | • Western Bay |
| • Jacks Point     | • Pauanua Lakes | • Whangarei   |
| • Kaitaia         | • Russley       |               |
| • Karori          | • Sherwook      |               |



Lowara's extensive pump range together with Hydrovar, can offer a complete line of booster systems ideally suited for the diverse requirements of the turf and landscape markets and for golf courses in Australia and New Zealand.

