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Turfgrass



VOLUME 14.2 MAR - APR 2012

MANAGEMENT JOURNAL

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COVER:

Indooroopilly Golf Club: Looking back down the par four 9th on the Gold Course, with the 9th green on the Red Course in the background, one year on after the Brisbane River flood of 2011. Both greens were under nearly 2m of water during the floods.

Photo: Brett Robinson.



COVER STORY: Brisbane courses bounce back

8

The incredible and seemingly improbable images of last year's Queensland floods have been etched into the Australian psyche and for those who endured them first-hand the impact of one of Australia's worst natural disasters will long remain. Almost one year to the day, ATM editor Brett Robinson revisits a number of golf clubs and turf facilities that were severely impacted by the Brisbane River floods to see how far they have come in 12 months, what changes have occurred as a result of the floods and what challenges still remain.

FEATURES High Thai'd

22

Towards the end of 2011, Thailand suffered its worst flooding in half a century. As was the case in Queensland earlier in the year, many Thai golf courses were severely impacted by flood waters which in parts were as deep as 8m. Australian agronomist John Neylan spent time inspecting a number of flood-damaged clubs in January at the request of The R&A's South East Asia division and here he provides an insight into the long road back ahead for these clubs.

Mackenzie returns to NSW

28

NSW Golf Club ranks as one of Alister MacKenzie's most dramatic course designs, however, in recent times it has been another MacKenzie which has been making its mark. Course superintendent Gary Dempsey looks back at the recent project which has seen the NSW greens converted from *Poa annua* to the new generation bentgrass.



Victoria's Masters class

32

While all the focus late last year was on Royal Melbourne and The Presidents Cup, across the road Victoria Golf Club had its moment in the sun when it hosted the 2011 JBWere Australian Masters. As in the previous year, superintendent Ian Todd and his crew had Victoria at her glorious best.

Here's to you John Odell

54

At the end of January one of the Australia's most respected and admired course superintendents John Odell finished up after 24 years at Royal Sydney Golf Club. ATM was there at his farewell Sydney Harbour cruise to salute a man who has played one of the more integral roles in the development of the turf management industry.

AGCSATECH UPDATE Probing the depths

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AGCSATech senior agronomist Andrew Peart looks at the effects of organic matter accumulation on soil moisture content and reviews the recent visit of John Patton of Seed Research of Oregon.

OPINION

Hazard limitation

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The Pulse asks superintendents what products and techniques they have used or implemented during recent bunker refurbishment or reconstruction projects which have helped to reduce the amount of maintenance inputs.

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RESEARCH

Winter clipping rates of turf-type perennial ryegrasses

44

With the cooler months not far off, sportsfield managers will be looking at oversowing their grounds for winter sport. Phil Ford writes that they should be aware that significant differences in clipping production rates between the Continental and Mediterranean types of perennial ryegrass do exist.

Anthraxnose management in *Poa annua* greens

48

The frequency and severity of anthracnose outbreaks on *Poa annua* putting greens have been attributed, in part, to management practices employed to improve playability. ATM looks at this particularly aggressive disease and ongoing research being undertaken by Rutgers University.

TURF PRODUCERS

Future proofing



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All the latest news from the Australian turf producer community, including the recent Next Gen Forum held in Echuca to support and motivate up and coming turf growers.

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Contributors to Australian Turfgrass Management Journal Volume 14.2 (March - April 2012)

Dyson Appleyard (VGA); Shane Biddle (University of QLD); Michael Bradbery (Manly GC); Brendan Brown (Neanger Park GC); Grant Bunting (NZGCSA); David Cheape (Mandurah CC); Brendan Clark (Cairns GC); Dan Cook (Elanora CC); Wade Cranston (Glenden Town GC); Heath Crawford (Freeway GC); Peter Daly (McLeod Country GC); Gary Dempsey (NSW GC); Robin Doodson (Sanctuary Cove G&CC); Phil Ford (University of Ballarat); Peter Frewin (AGCSA); John Geary (AGCSATech); Charlie Giffard (Indooroopilly GC); Leon Hennessy (Cromer GC); Steven Hewitt (VGCSA); Matthew Holmes (Turf Australia); Steve Jacobsen (Carnarvon GC); Peter Jans (Sandhurst Club); Andrew Kolbee (STA QLD); Peter Lonergan (Coolangatta & Tweed Heads GC); David Miles (TGAA WA); Craig Molloy (NSWGCSCA); Dr Brett Morris (Brisbane GC); John Neylan (Neyturf); Andrew Peart (AGCSATech); Eva Ricci (TPA WA); Tony Richards (Jindalee GC); Sam Sherriff (SAGCSA); Wayne Tickle (Ballina GC); Ian Todd (Victoria GC).

The lucky ones

As I have penned many times previously in this column, this industry has afforded me the magnificent opportunity to meet a diverse range of interesting characters. Every now and then, however, one stands out and so was the case back in 2006.

I first met John Odell in the lead-up to that year's Australian Open. The tournament, then John's fourth Open, was returning to the club for the first time in seven years and in between Opens John and his team had orchestrated the revitalising of one of this country's great championship layouts.

Obviously I had heard a lot about John – which is probably why I was just a tad nervous about meeting and interviewing him for the first time – but after spending the best part of a day in his company I recall pulling out of the Royal Sydney 'Turf Care' facility and thinking to myself, there was one of the most interesting, devoted and genuine men I had ever met. I remember shortly after the interview started I pretty much threw away the two pages of questions I had painstakingly researched and compiled and just let John's wonderful knowledge and enthusiasm for his profession dictate the flow of our discussion.

Looking back through my notes from that interview, I had circled one word heavily – passionate. Above all it was that trait which shone through when speaking with John – passion for his club and the staff that worked with him; passion for where he had come from and those who had helped to shape and influence his principles as a practitioner; passion for the unique challenges that only turf management can provide.

It is this passion which saw John quickly rise to the top of our industry and which, after a career spanning four decades, saw him leave still very much on top at the end of January. Since getting his first break as superintendent at Concord Golf Club in May 1979 through to the past 24 years as 'custodian of the links' at one of this country's most renowned sporting institutions, John has, to steal the words of Geoff Hatton at John's farewell bash last month, been a standard bearer for the industry. His departure, announced shortly before Christmas, certainly shocked many, but as long-time friend Martyn Black rightly pointed out, who among us would have the courage to bow out while still on top.

Reading back over the transcript of that interview I did with John in 2006, there was one question I did manage to squeeze in. I asked John what it took to be a superintendent at one of Australia's elite courses for so long, to which he responded:

"It's like anything you do in your life. You have to have a passion for it to get the most out of it. I love our industry and its interesting, colourful and generous characters who support and draw strength from each other. Of the job itself, we are always on a journey of discovery where no two days are the same and every one can be a challenge.

"The quality of surfaces is always in the spotlight because of the high standards that appear all over the world, but especially here in Australia. Some of our courses, as far as turf quality is concerned, are among the best, if not the best, in the world and we have great course superintendents who are continually raising the bar.

"I believe that being a turf manager is akin to intensive farming. You are producing a crop not just for harvest once a year, but every day. And you are being judged on this crop daily – summer, winter, rain, hail or shine. While it's a challenge, there isn't a day that goes by when I'm out on the course and don't think to myself, 'I'm pretty damn lucky to be here'."

Those quotes beautifully sum up one J.P. Odell, but I think most would agree, and certainly as those who have been fortunate to work alongside him and call him a friend would attest, that we were indeed the lucky ones. Enjoy the read...



Brett Robinson, Editor



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Industry bids farewell to a passionate practitioner



It is hard to believe that we are already two months into 2012 – time really does fly when you are having fun! This great continent we live on has again thrown up some indifferent weather; south east Queensland and northern NSW have for the second year in a row had their fair share of January rain, Western Australia has been slowly baking under the hot sun, while most of New South Wales has hardly caught a glimpse of summer! It is certainly a country of extremes!

Most by now would have heard the news regarding John Odell's departure from Royal Sydney Golf Club. John, who up until last year's Adelaide conference served as a director on the AGCSA Board for three years, bid farewell to the club after 24 years on 31 January 2012. I was lucky enough to first meet John in the mid-80s when I was assistant superintendent at The Lakes Golf Club. I have no doubt that his passion for the turf industry and professionalism he displayed has rubbed off on many people around the country, myself included.

Speaking from experience, I fully support John's decision. It is a huge moment in your life when you walk away from something you love, but in your heart you know it is the right thing to do. I hope he is not lost to the industry and I look forward to his name bobbing up somewhere when he has taken some time off to recharge the batteries. All the best John, enjoy your break and I'm sure we'll catch up soon. **(See page 54-55 for photos from John's farewell held in early February – Ed)**

There has been lots of activity in the AGCSA office since the Christmas break with planning for the 2012 Australian Turfgrass Conference well underway. Registration and accommodation information is available on the AGCSA website – www.agcsa.com.au/conference – and registrations

have already started to come in. Make sure you take advantage of Early Bird registration rates which are available until 20 April 2012.

This year will see some changes to the Toro AGCSA Golf Championships with the addition of a Nett title as well as a change in format for the state teams event. There will also be a separate trade championship which replaces the AGCSA Scramble. The other major change will be the requirement for each competitor to have an official handicap and it will be your handicap that will determine which course and competition you play. The new format is explained in full on the AGCSA website.

FLAGSHIP PUBLICATION



I have to confess writing things like this for magazines and newsletters is sometimes difficult as quite often they are written well in advance of the publication date and it is hard to know what to include. While planning for this Foreword Thinking I thought it was time that the magazine that this article is published in should be highlighted.

Australian Turfgrass Management Journal (ATM) has developed under the guidance of editor Brett Robinson, art director Jo Corne and business relationship manager Melissa Wallace into the premier turf journal in the region. If you don't believe me, come to the AGCSA office and have a look at the trophies lined up on the bookshelf as you walk



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in. The editorial and production qualities are world class which makes it great value for money for subscribers and advertisers.

I was asked recently by one of the AGCSA's corporate partners how many people receive the magazine. I was proud to advise him that almost 4400 copies are mailed each edition. ATM is audited by the Circulations Audit Board (CAB) every six months and is a great marketing tool which shows just how far-reaching the journal is and provides peace of mind for anyone wanting to advertise to the Australian turf market. To give readers some idea of the reach of ATM, I have detailed below where the magazine is circulated:

- AGCSA members/Golf Australia database: 2145
- STA /TGAA members (covers councils, sportsfields, arenas, schools): 876
- Bowling clubs: 495
- International: 288
- Turf producers: 167
- Turf technicians: 144
- Racing: 89
- Complimentary (includes government agencies, environmental and water authorities; education providers, media): 120

ATM continues to be the flagship publication of the AGCSA and members where possible should support those that advertise in the magazine.

A couple of current research projects being undertaken by AGCSATech are drawing to a close which allows us the opportunity to seek input as to where we should allocate any future resources. The biodiversity benefit and carbon footprint of golf courses project has started, with the first round of works being completed. This project will run for three years and regular updates will appear on the Australian Golf Environment Initiative website – <http://environment.agcsa.com.au> – and also in ATM. Investigation for future projects is underway and I would welcome any suggestions that you may have into areas where you believe research should be undertaken.

I trust the next few months are kind and remember, as I was recently reminded, you work to live, not live to work. 🙏

CORRECTION

In the Toro Turf Tour advertorial which ran in Volume 14.1 (January-February 2012, pages 42-44), Australian Turfgrass Management Journal incorrectly accredited the design of Paradise Palms Country Club in Cairns solely to Graham Marsh. The course, opened in 1990, was in fact designed by Ross Watson who at the time was a partner in the golf course design company known as Marsh Watson. Since their separation in 1992, it has been the norm to refer to the Marsh Watson portfolio of projects as being designed by Graham Marsh and Ross Watson. ATM apologises for the oversight and any confusion this may have caused.



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Brisbane courses back in business

In Volume 13.2, Australian Turfgrass Management Journal extensively covered the impact of the 2011 Queensland floods and the incredible work of golf course superintendents and turf managers to reinstate their facilities after being inundated. Over the next 14 pages editor Brett Robinson revisits Indooroopilly, Brisbane, Jindalee and McLeod golf clubs as well as the University of Queensland's St Lucia Campus to see how these facilities have recovered a year on from one of the country's worst natural disasters.



January 20, 2012. Charlie Giffard, superintendent at Brisbane's Indooroopilly Golf Club, quietly, almost serenely, goes about mowing the 8th green on the Blue Course as the early morning Queensland sun floods the grand 36-hole establishment, casting a vista of brilliant iridescent green as far as the eye can see.

As the Brisbane River flows sedately past, one of Giffard's crew members makes his first run up the fairway on 3 Gold, the Reelmaster's pace being matched by a singles sculler out on the river for an early morning row. A few hundred feet above, a hot air balloon glides silently by completing the idyllic setting as Indooroopilly welcomes in another summer's day.

January 21, 2011. Some 364 days previous and the scene couldn't be any more contrasting. Giffard, splattered head to toe in mud and silt, is tearing about on a postie bike as a flotilla of posi-tracks drone away in the background pushing an endless sea of brown off fairways and into the course's swollen waterways.

As a light drizzle falls, Giffard stands on the tee complex of 1 Gold and surveys the ghastly panorama in front of him, attempting to explain, still with a sense of disbelief, how one of Australia's worst natural disasters has laid waste to his club. Ask him how long he reckons it will take to get the course back open and Giffard just laughs – "I'll get back to you on that one!"

It is hard to believe that one year has already passed since the events of last January's floods made national and international headlines, but for Giffard, his assistants Duncan Alexander and Joel Leth and the rest of the Indooroopilly course maintenance team, those memories are still as vivid as yesterday.

Strolling around the course there are hardly any signs of the dramatic events of 12 months

ago – maybe the occasional bare patch of turf that hasn't covered in, a thin area of fairway which has recently been cored or topdressed, or a tree that has struggled to make a full recovery. Step inside the maintenance facility, however, and if you glance upwards you will quickly realise the scale of what transpired last January. A 2011 flood marker has been affixed near the roofline and the muddy watermark which still rings the entire facility act as very sobering reminders of a week that Indooroopilly will not forget in a hurry.

"When I go back and look at the photos it almost makes me physically ill," reflects Giffard, sitting in his newly refurbished office which now has a window affording a picturesque view of 9 Gold. "It sounds clichéd, but back then you really just took it one day at a time. That's all you could do; it was too big to get your head around. I remember coming in on the Wednesday, the day before the flood peak, and seeing the course as it was then and thinking that we'd be closed for at least three months.

"But it was just a matter of getting stuck in straight away. There was no use worrying about it. The work was there in front of us and in hindsight that was one of the things that made a big difference in how quickly we were able to get back on track. We didn't even consider waiting for insurance; we knew it was all pie in the sky stuff, so as soon as all the water receded we were down there with shovels cleaning everything off.

"We had some good systems in place pretty quickly but one of the most important was the way we managed staff fatigue and making sure that we didn't smash ourselves and burn out. I guess the telling thing is that all the guys are still here one year on – no one has left and they are still enjoying the job.

"When you look at what happened here, sometimes it is hard to believe that we are now at



PHOTOS: BRETT ROBINSON

the stage we are. I can't thank my guys enough for the amount of work they have put in to get us here and you do get a sense of pride when you sit down and reflect on how far we have managed to come."

TURF TLC

As Giffard can attest, and no doubt so can many of his fellow turf industry colleagues along the Brisbane River who were also inundated, their couchgrass surfaces have proven remarkably resilient. With a little pampering and some additional nutrition, Giffard's surfaces have come back as good as, if not better than, before. In the case of Indooroopilly, Giffard puts it down to the turf being in optimum health before the floods.

"To be honest, I wasn't that surprised at how well the turf came back," admits Giffard. "What made a big difference I think was that we had really good healthy root systems present which made the recovery a lot quicker. One green – 2 Blue – which we couldn't get to for about eight days, looked like it was dead after we cleaned it off. But within two days you could see new growth starting to come through and a week later there was a green tinge across the whole green.

"We did have a few issues with silt on some greens, especially those that we didn't wash off as well as we could have due to either a lack of water or needing to move on and tend to other areas of the course. It wasn't until September after a fairly dry winter and start to spring that a few started to look a bit poorly. We were putting a lot of effluent water on and a couple of the greens started to thin out and weren't responding.

"We did some testing and the results certainly showed that there was something in there locking things up. Since then we have cored the hell out of them, put in all the amendments and they have come back well and are consistent again."

A significant element that has aided Giffard getting the course reinstated in the days, weeks and months after the floods has been the backing of club management and board. Right from day one Giffard and his crew were under no pressure to get holes open for play straight away, even though there were a number of holes within the 36-hole complex that weren't affected.

Instead, the decision was made to keep the course closed in those initial weeks to concentrate on the massive clean-up and it wasn't until late February that the course was fully open. That support from above was again forthcoming during renovations and with some of the issues mentioned above, Giffard needed to alter the intensity and timing of some of his practices.

"On one occasion we renovated during the club championships which we obviously wouldn't do normally," explains Giffard. "That was a line the club took right from day one – anything you need to do, just do it – and to management's credit that made our job so much easier.

"In the case of the renovations, we needed to deep solid tine the greens on the Gold Course nine (which forms one half of the West Course where the championships are traditionally played). Time was of the essence and we couldn't wait three weeks for the club championships to finish, so with the backing of the club we were able to move them across to the East Course."

As with the greens, Indooroopilly's fairways too have been given more attention than they would normally. With silt and sand deposits up to 600mm in parts, Giffard has been much more aggressive with his aerating and topdressing practices. With the assistance of flood grants, the club employed contractors to core and topdress fairways (around 1000 tonnes of fresh sand was dumped on fairways during September and October), a practice Giffard hopes to now continue each year. Contractors were also brought in to spray out weeds which, like most other facilities, have been a constant nuisance since the floods.

Left: It's hard to imagine, but these two greens at Indooroopilly Golf Club – 9 Gold in the foreground and 9 Red in the background – were submerged by more than two metres of water during last year's Brisbane River floods



Just one of the many depressing scenes during the clean up at Indooroopilly last year

For Indooroopilly superintendent Charlie Giffard, the memories of January 2011 remain, but the sense of satisfaction at how well the course has come back is immense



Indooroopilly's couch fairways and greens have come back well thanks to some additional nutrition and aggressive renovation regimes



The new-look pump shed at Brisbane Golf Club. The set-up has been reconfigured so that the shed's major components – power feed, control panel and motors – can be quickly disconnected and removed if an evacuation is triggered

Infrastructure-wise, the floods have also forced some major changes at Indooroopilly, in particular to the irrigation system. The control panel, which alone cost \$85,000 to replace, has been housed above the 2011 floodline and can now be pulled out if needed, while 21 of the old satellites which were lost have been replaced by 12 newer model satellites which have a bigger capacity. The pump shed has been modified with a higher roofline and an I-beam and block and tackle system have been installed to enable the motors to be removed.

With the maintenance compound submerged up to the roofline, all offices and staff amenities (lunch room and locker room) have been refurbished using materials, such as marine ply, that can better withstand inundation and be easily hosed down and cleaned off.

COUNTING THE COSTS

All this work, however, has come at a significant cost and the financial ramifications of last January's floods will be felt by the club for some time. Giffard estimates a final damage figure around the \$1.25 million mark, not including staff costs.

Some \$300,000 was spent on reinstating the irrigation system, while a staggering \$450,000 was spent on contractors, such as the fleet of positracks which Giffard brought in immediately after the flood waters receded to remove silt. (Giffard jokes that all those costs have been slightly offset by the fact that his chemical and fertiliser spend was well under budget!)

Not surprisingly, the club, which for the past five years had posted consecutive operating surpluses, went into deficit, but in the last quarter of 2011 trading returned to normal and membership nominations, which had dropped off significantly, were looking a lot healthier.

Like many other clubs and turf facilities damaged by the floods, Indooroopilly has benefited from flood grants to assist in reinstating various parts of the course and maintenance infrastructure. The club has received more than \$270,000, with the Queensland Premier's Flood Relief Fund chipping in \$79,200 to replace the irrigation control system, while the Brisbane City Council gave \$98,700 for

course and maintenance facility repairs. Such work has enabled the club to safeguard as best as possible against future flood events.

"It has been a tough year, but there have definitely been some positives to come out of the whole experience," says Giffard. "In hindsight, we simply didn't comprehend how bad the flood would be. We didn't have any past experience to go on because the course wasn't here during the floods of 1974, but now we have that history and are a lot better prepared.

"It sounds silly to say this, but it made us realise that we are on a river and something like this can happen. We have now modified our infrastructure and put in place policies and procedures, so we are definitely in a better place with the changes we have made. Let's just hope that we never see something like last January ever again."

ALL CHANGE AT BRISBANE

Literally across the river from Indooroopilly, at Brisbane Golf Club there have also been some significant changes as a result of last year's floods. For a start, there was the arrival, or rather return, of Brett Morris as course superintendent. Morris, who was superintendent at the club between 2001 and 2004 before leaving to undertake his PhD through the University of Sydney, returned to the club in August following the departure of Ben Cavanagh.

It has been a frenetic start to his second stint as Brisbane superintendent and as well as having to deal with all the usual course maintenance issues, Morris has had to contend with major changes to the maintenance facility and irrigation system, brought about as a result of the floods, as well as implement some major procedural changes. Chuck in a five year course improvement plan which the club had him compile upon his arrival and the start of a major bunker refurbishment programme (**see The Pulse, pg 40-43 for more on this**) and there has been little if any honeymoon period for Morris.

Although Brisbane was 85 per cent submerged by last year's floods, the nature of the flooding meant that silt deposits weren't as severe as Indooroopilly. Brisbane was inundated more as a result of backflow from the two creeks which flow through the course,

meaning a gradual rise and fall of water. As a result the course was quickly cleaned up and all 18 holes were open again by Australia Day.

From an agronomic point of view, Brisbane's playing surfaces escaped relatively unscathed. Although there was some initial concern about the silt content within the greens profiles and how the greens would recover before the autumn/winter months, as soon as spring arrived they were scarified and deep tined (1/2 inch solid tines at a depth of 10 inches) and bounced straight back.

Where Brisbane was hit hardest, however, was its infrastructure and over the past year the club has invested a significant amount of money to ensure future events won't impact on the club as much. The biggest expenditure has come down at the irrigation pump shed and maintenance facility, both of which were submerged, the latter up to the roofline.

The pump station, which for obvious reasons could not be relocated, is now fully removable. Working in conjunction with Dave Hanby from Hydro Pumping and Controls, the club has reconfigured the pump shed so that the power feed can be quickly disconnected, the control panel removed and pump motors unhooked and winched out.

The control panel is housed on a skid and an anchor point which has been bolted to the rear of the shed means a hand winch can be attached and the whole control panel can slide out onto a trailer. A gantry has also been installed so the

motors can be hooked up and pulled out. Out the front of the pump shed a loading dock has been constructed and a new concrete pathway runs all the way back to the maintenance facility. Nothing has been left to chance and there is even a tool box containing essential tools (screwdrivers, wrenches) which permanently resides next to the control panel to assist with removal.

At the maintenance compound, there have also been important modifications. With no plans to relocate the shed in the immediate future (although Morris has suggested it in his five year course improvement plan), the shed has been reorganised with new office and staff amenities contained in a separate complex.

The area inside the main shed which once housed the superintendent's office, staff room and locker rooms has been gutted. The workshop is now located where the superintendent office used to be, freeing up some much needed storage space at the other end of the shed. The locker room has been completely refurbished with a whiteboard type cladding and sealable drains in the floor mean



The new Brisbane office and staff amenities are housed in demountables which can be hooked up to a tractor and towed to higher ground in an emergency. A 1km permanent pathway has been constructed which runs all the way from the maintenance compound to the clubhouse

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While Brisbane's turf surfaces escaped relatively unscathed, the club has had to invest significant money to modify course infrastructure and safeguard against future events

that the whole area can be easily hosed out if inundated. All data and electrical cables have also been strategically placed high in the roof.

Around the outskirts of the shed, pallet racks have been set up to house various pieces of maintenance equipment (such as a drop spreader) and other general materials (like paving stones and posts). Steel cages have also been brought in to house large scale irrigation components and all these can now be easily removed by a forklift which the club has specially purchased to assist with evacuations.

The club's two above ground fuel tanks, which were ripped from their stands and deposited fully intact side by side on the 12th fairway, are now secured by lengths of chain which allow them to float up and down with the flood waters.

The new superintendent/assistant superintendent office, staff room and lunch room complex consists of three demountables in a U shape with a removable roof covering the middle. Internally they have been constructed using the same whiteboard type cladding, while underneath there are jockey wheels which pull out and lock into place, enabling each demountable to be towed.

In the event of an evacuation, power and data cables, the weather station and irrigation radio control system are disconnected, the roof is removed and the demountables hooked up to a tractor for removing. The club has purchased a new John Deere 5093B tractor for the job, while a concrete pathway now stretches all the way (about 1km) to the clubhouse, the highest point on the golf course where all machinery and infrastructure is evacuated to.

Despite a mountain of infrastructure work already complete, the next stage of works will concentrate on the lean-to opposite the main shed. This will see construction of a new fully transportable

chemical storage facility, which will be double the size of the existing area, and a new washdown bay.

The club also commissioned Cardno to formulate a detailed flood modelling document which now forms the basis of their flood evacuation procedure. The document contains a number of different flood scenarios and provides a set of markers whereby if water levels go above these, the club's evacuation procedure is triggered.

In the case of an emergency, Morris now has three teams which are each charged with different parts of the evacuation. One team of four evacuates the pump station shed (control panel and motors), another team of two pull out the irrigation satellites, while the remainder of the crew stays behind and evacuates machinery.

The club has also set up a core team of members who have agreed that should an emergency arise they drop whatever they are doing and come in and assist with disassembling and moving the office and staff facilities.

In December 2011, a dummy evacuation of the pump shed was carried out and completed successfully in just 20 minutes. At the time of ATM visiting Brisbane in mid-January a full evacuation was being organised, however, just a few days later on Wednesday 25 January, Morris and his crew were doing it for real.

After more than 200mm fell in 24 hours, combined with a 2.5 metre tide, water came to within a metre of the pump shed, triggering a full and successful evacuation of the pump system, irrigation satellites and all machinery.

"We are certainly in a far better and more prepared position now," says Morris of the changes which have been implemented at Brisbane. "It has cost the club a lot of money to be proactive, but like all clubs in this situation it is not the sort of thing we can afford to have happen again."



Maintenance equipment and other course materials are now housed on pallet racks, while major irrigation components are contained within steel cages. All can be easily removed by forklift

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Most years are big years for Shane Biddle and his grounds team at The University of Queensland's St Lucia campus, but 2011 was one that won't be forgotten in a hurry.



Top and above: Shane Biddle, senior supervisor of grounds at the University of Queensland's St Lucia Campus, and his team have achieved a mountain of work over the past 12 months to reinstate the playing surfaces which are used by a plethora of sporting clubs affiliated with UQ

UQ back on track

It would have made for quite a sight. Shane Biddle, senior supervisor of grounds at The University of Queensland's St Lucia Campus, clambering around on the corrugated roof just outside his office meticulously laying out two drawers worth of flood damaged files to dry them out for an insurance claim, keeping them in place with rocks so the wind doesn't blow them away.

It was just one of those small things in the months following last year's Brisbane River floods that Biddle can now look back at and have a chuckle about. At the time though, cleaning up the 114-hectare campus and its many sporting facilities was no laughing matter and along with the likes of St Lucia Golf Course and Indooroopilly Golf Club a few kilometres upstream, the campus felt the full impact of January's untimely inundation.

As ATM reported in Vol 13.2, six of UQ's major playing fields were damaged to varying degrees with flood waters ranging from 1.5m to 4m. The pump system was disabled while other sporting facilities such as the running track, pool, netball and tennis courts were also submerged. Remarkably, 15,000 tonnes of silt and mud were removed across the entire campus in the weeks after the floods and once that was undertaken it was then a matter of figuring out how to get the grounds back in play as quick as possible for the myriad of sporting clubs and organisations that use the campus.

"The hardest thing for us was to put dates and timeframes as to when the grounds would be back open," reflects Biddle. "At the time we didn't know the extent of what was needed to get the fields back up and to sit here now and say that everything related to the grounds was completed by November 2011, it's pretty amazing to think we achieved that.

"The pressure from end users to get back on was pretty strong and at times we had a few arrows come our way. Other fields around Brisbane were open before us, but because of bacteria issues on some of the ovals and the major works that needed to be carried out, we had to keep them closed.

"Management were 100 per cent behind us and we were just upfront with everyone and communicated everything as best we could. But some days you'd come down and find people on a ground despite signs up saying that the ground was closed due to contamination!

"Once we got all the insurance sorted out – and that was a big issue at the start and something we have learned a lot about – and locked in what we had to do to get the fields back up, we could give them some time frames. It was quite a juggling act, but we managed to get all except the worst ones back by March and most of clubs were able to get back in and complete their seasons."

THE WORKS

Playing fields 4 (soccer, touch and hockey) and 6 (rugby union, touch and touch rugby league) were the worst affected and, with silt deposits ranging from 3-5 inches across both, required full reconstruction. Although wanting to use a topmaker, cost and a lack of availability meant both fields were instead power raked to break everything up and then laser bucketed off down to turf level. What turf was left that didn't come up was removed with a turf cutter and dragged off.

In the case of playing field 4, 80 tonnes of sand and 40 tonnes of organics were then incorporated into the profile due to some bad soil being brought up, before being rotary hoed. Playing field 6 required just a rotary hoe to fluff the soil up before being lasered off to put some fall across it.

Wintergreen couchgrass was laid on 6 and four couch species (Wintergreen, OzTuff, Grand Prix and Tifsport – 1500m² each), being trialled as part of the DEEDI community sportsfield wear tolerance trials (HAL Project TU08018), were laid on 4 with a Wintergreen apron. Both were finished in May and reopened for play in August.

Of the fields that didn't need reconstructing, after the silt was scarified off (some were two directional passes, some four) some were held back from opening immediately due to elevated bacteria levels. Playing fields 2 (cricket and soccer) and 5b (the secondary rugby union field) had the highest readings which necessitated some radical application of lime. More than 16 tonnes in total were applied across the fields with 2 opening up after Easter and 5b in early April.

"It looked like it had snowed on 2," recalls Biddle. "We had a 10 tonne drop on that field alone, but we needed to in order to comply with regulations. We were a little concerned with how much we were putting out and what it would do to pH levels. Tests we had mid-year showed that the

level had gone up a full point from 6.2-7.2 and we are in the process of getting them tested again.”

The last bit of turfing work was completed in November following the reconstruction of the running track around the main rugby ground (5a). That ground had been scarified, aerated and topdressed in September and with the track installation requiring the field be completely shut for six weeks, it has come back better than ever.

“The methods and techniques we used to get all the fields back up have been successful, but the big positive has been the rest that the fields have had,” says Biddle. “The grounds here are overused and wear is a massive problem, but with the moisture content and nutritional value in the ground that has come in with the flood waters, combined with the renovations and the rest they have had, we are probably 8-10 weeks ahead of where we would have been in previous years in relation to wear. That’s most evident on playing field 7. It has been covered since mid- to late October, when in previous years it wouldn’t be fully covered until Christmas.”

As with any practitioners impacted by the floods, Biddle and his team are now a lot better prepared should, heaven forbid, a similar disaster occur. Knowing the extent of the university’s insurance cover was one of the major learning curves and Biddle now knows he can engage three times as many contractors to help in the clean-up. Biddle now has a stockpile of 1000 sand bags, 10 kilometres of



black plastic and 500 rolls of gaffer tape to help protect substations and transformers, while the Southern Cross irrigation pumps and control panel have been reconfigured to be fully removable. Biddle also has an extensive diary of notes and records on how they went about the clean-up, but is hoping that will gather some dust for a few years at least.

“Hopefully that won’t get opened again until after I’m long gone,” laughs Biddle. “It was a massive year and by December we were totally flogged and just going through the motions. I think we all had our moments, but the effort that everyone put in was amazing. From my point of view it was great to know that you have 22 people that if something of this magnitude happens again you can rely on to do the job. Every year is a big year at UQ, but I don’t think we will top 2011 for a long time.” 🙌

Playing field 4 had to be completely reconstructed and is now the site of DEEDI’s community sports field wear tolerance trials. Below is what the field looked like a few weeks after the 2011 floods



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Jindalee course superintendent Tony Richards says the club has received great assistance from flood grants and turf companies to help reinstate the course, including a 'too good to refuse' lease deal with John Deere

Brisbane's battlers

PHOTOS AND WORDS: BRETT ROBINSON

For Jindalee and McLeod Country golf clubs, two of Brisbane's smaller golfing establishments which were among the worst affected by the 2011 Brisbane River floods, having fewer resources has meant a longer road back than some of the bigger clubs. Despite plenty of ups and downs over the past year, as ATM discovers they have battled back remarkably well.

You can get why Tony Richards, superintendent at Jindalee Golf Club in Brisbane, finds it difficult not to feel slightly guilty. While the nine-hole public course has bounced back pretty well despite being completely inundated by last year's floods, just across the road from the course there are houses still being gutted, repaired or in some cases vacant.

The human toll of last year's floods is still very real for many within the immediate surrounds of the club and Richards, a humanist at heart, admits he couldn't begin to imagine what it would be like for those who suffered personally from one of the worst natural disasters in Australia's history. Indeed, were it not for the fact that Richards had a home to go to well away from the course, somewhere where he could go at the end of each day and get some distance from the chaos that was Jindalee in the aftermath of the floods, he reckons he would be in a very different place than he is now.

Jindalee and its surrounds were among one of the worst hit areas of Brisbane. The entire course was submerged, with the clubhouse, located at the highest point of the course, having one metre of water through it. The maintenance facility, which is housed just 200m away from the clubhouse but at the lowest point of the course and next to a creek, was the first to be inundated, disabling or destroying pretty much everything.

Standing in the shed one year on and imagining water metres and metres above is quite mind

boggling and the memories of the days, weeks and months after the floods still linger for Richards.

"It was so intense the magnitude of what happened and the dilemma was simply where to begin," recalls Richards. "Looking back then you couldn't see a light at the end of the tunnel. You were scrambling. It was hectic and your attention was constantly being pulled in different directions."

"Some mornings you woke up depressed, thinking do I really have to go back there? You were always worrying about something – now that I've cleaned off those surfaces how am I going to get water on them – and then there was the pressure to get the course open for golfers who were itching to get back out."

"Last year caught everyone out and it highlighted the fact that as a club there were no real plans or course of action to take. For instance, the night they started pulling stuff out of the clubhouse, no one even rang me to say that there was a problem and that I should probably come in. Hopefully if something like this happens again we'd be a bit better prepared."

BOUNCING BACK

Looking at the course one year on and the club has benefited significantly from government grants to help reinstate the course, while a number of turf industry companies have also been generous in their support in getting Richards' operations back up and running.

The most prominent difference when you visit the shed is the new fleet of John Deere machinery. Although overhauling a number of existing flood damaged machines to get by early on, the club was able to secure a significantly discounted five year lease deal from John Deere's Queensland distributor Chesterfield Australia. That has seen \$160,000 worth of new machinery arrive at Jindalee, among them a new Gator, tractor, bunker rake, rough mower, 2653B PrecisionCut surrounds mower and a 2500B PrecisionCut triplex greens mower.

"Ryan Mulcaster and John Deere have been great and came to the party with a deal we couldn't refuse," says Richards. "With the quality of cut on the new mowers, the presentation of the course has lifted significantly and the members have certainly noticed and we are getting some really good comments."

The new fleet, however, is housed in the same maintenance compound which, despite being refitted, is unlikely to be relocated. While ideally Richards would like to see the whole facility moved, for such a small club it purely comes down to finances. The current thinking of the club, which is still waiting on more grants to come through, is to turn an existing golf cart shed next to the clubhouse into a storage shed for the club's big ticket maintenance items and building a replacement cart shed. The existing maintenance facility would then remain as a workshop.

On the ground and Richards says that the Jindalee surfaces are almost fully back. The 328 greens have proved to be extremely resilient (the 8th green for instance was under water for five days) and have bounced back with scarifying and constant grooming to open up the surface.

"I've always been amazed at turf in general," says Richards. "It's so hard to cultivate and get that really fine, healthy playing surface, but in essence if you just left it there and didn't do anything to it, it'll go brown and die off but with a little rain it'll come right back. Not too many plants can do that and to think of the amount of water and silt we had here, turf is pretty indestructible."

"There are a few areas around the course, mainly on fairways, which are still struggling but they are generally areas where we've had existing issues like high salinity. The land here is very inconsistent and we have pockets where even weeds find it hard to grow."

"Overall we are probably about 80-90 per cent back. I'd like to say it has been down to my greenkeeping ability but it comes down to a few factors. There was a fair bit of nutrient in the water and with minimal inputs the surfaces have bounced back pretty well."

"Because we operate on a very small budget and don't have a big irrigation system, we don't do a lot of fertilising. But after the floods we had a lot of companies coming to us and we have been able



PHOTO: DIGITAL REALISM

This was how Jindalee Golf Club looked at the peak of last year's floods. The clubhouse is the white building centre left

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◀ **Jindalee's 328 greens have proved to extremely resilient and bounced back with scarifying and constant grooming to open up the surface**



Richards has set up a trial plot of seashore paspalum from seed donated by PGG Wrightson Turf

All of McLeod's playing surfaces, except four of the highest greens went under, with flood waters leaving behind massive silt deposits. Despite this the course was back open within five weeks

to build up a stockpile of fertilisers and chemicals which has been great. That has enabled us to give those areas that were struggling a bit of a helping hand and we have worked back in priority from greens, tees, approaches and landing areas."

As well as product, Richards also received a few kilograms of Sea Spray seashore paspalum seed from PGG Wrightson Turf and has since established a 230m² plot on the left hand side of the 2nd fairway. The plot has only been down for a couple of months but is already showing promising signs.

"Seashore paspalum could be a good grass for us here because the water source we have can be variable and quite brackish at times," says Richards. "The seashore paspalum has a nice vibrant colour, is a lot more drought tolerant and could suit the poor soils we have. But it's all about the cost of inputs and susceptibility to diseases, pests and weeds, so we will need to evaluate it over a season before making a decision."

CLOSER TIES

While the floods have brought about a number of positives for Jindalee, including what to expect in the aftermath of such major inundation, the most notable for Richards is the network that has been forged between local superintendents, turf managers and clubs. As Richards comments, the floods knocked everyone around physically and emotionally, but it was comforting to know that he wasn't the only one battling.



One of those colleagues Richards has since got to know better and share a medicinal beer to two with is McLeod Country Golf Club superintendent Peter Daly. Like Richards, Daly has experienced a rollercoaster of emotions throughout the past year and has had to juggle managing the health of his playing surfaces with the expectations of members and management.

While mercifully not losing machinery, the 2011 floods smashed McLeod in other ways. All surfaces with the exception of four greens went under, with the 15th and 17th greens remaining submerged for up to six days. The floods also laid waste to the club's irrigation system with both the old and new pump systems going under and ruining all the prep work for the second stage of an irrigation system upgrade which had just got underway. Despite all that, Daly, his assistant Phil Boag and the crew had all 18 holes open within five weeks.

"When the waters started to recede and a few greens popped out, there was only a little bit of debris on them and I remember thinking that it wasn't going to be too bad – just give them a mow and happy days," recalls Daly. "But as the water went down and revealed all the silt and mud, that's when the heart sank."

"I remember talking to a couple of old timers who said it'll take a good two years for the course to recover. I thought one year at the most, but now a year on they're right, it'll take us at least another year. We are back in terms of getting the irrigation system repaired, modified and online, while the greens have come back really well. But we still have issues on some fairways where there is still a fair amount of silt and weeds."

Daly has extensively documented the events of 2011 and the long road to recovery at McLeod, but true to his inimitable personality he can sum up the club's new flood evacuation procedure in three words – 'save the pumps!' Losing both sets was the most demoralising aspect in the aftermath of the floods, especially when after spending the best part of a week scrapping mud and silt off the greens it dawned on them that they might lose them because they had no water.

With the assistance of grants from the Queensland Government and Golf Australia, the club has reconfigured both pump stations so that they are now fully removable. The new Lowara Hydrovar system can be quickly unbolted, motors removed and control panel put on the back of a ute, all in under an hour.

Money has also been spent reinstating a number of bunkers which were severely compromised. David Burrup has overseen the complete redesign and construction of the new bunkers and Daly says they have made a huge difference.

As for the turf surfaces, Daly says that despite initial fears for four greens, the 328 has proved it

CONTINUED ON PAGE 20

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I have already received many compliments from members, most of whom (previously) felt the high fence would be a visual intrusion on our lovely course. That the net is almost completely transparent is quite amazing".

Allan Shorland
Secretary Manager
The Metropolitan Golf Club





McLeod's new Lowara Hydrovar pump set up is now fully removable

Above right and inset: The 15th green at McLeod now and (inset) looking the worse for wear one week after the floods



CONTINUED FROM PAGE 18

can withstand almost anything and with regular verticutting and lifting cutting heights to 6mm they have entered the new year in good health. The only lingering issue is the presence of creeping oxalis in the greens which the flood waters have brought in.

Like Jindalee, the McLeod fairways are still an area requiring ongoing attention and constant vertidrainage has helped to reduce the silt content within the profile. Where there was significant loss of turf, Daly would core the good parts of the fairways and then push the cores across to the bad areas and rub them in along with plenty of gypsum, Nutrismart, organics and sand. Although a time-consuming process those fairways have improved markedly.

"The fairways were knocked around a lot more," reflects Daly. "I can't explain whether it was because there are more dips and hollows or because we didn't scrape the fairways off. There is no rhyme or reason to it, but by the end of the growing season they should be back to a full cover of Wintergreen."

"We have spent a lot of time feeding, slicing and aerating the fairways as much as possible to get the mud and silt to incorporate. One interesting thing with the fertiliser we have been putting out, normally where we would get three weeks out of an

application we are now getting 7-8 weeks. I wouldn't mind betting it has something to do with an increase in the CEC holding on to the fertiliser a little longer.

"Once the fairways are fully back then we can start spraying as we have quite a lot of weeds in them. Because we were under so much pressure to get the course back open, we made the decision early on that anything green was good. Now we have the situation where the golfers are tramping weeds up into the surrounds and onto greens, so we will be looking at targeting weed control in the coming year."

As Daly reflects it has "been a long, bloody hard year", but the work his crew has achieved has been extremely satisfying. Although openly admitting that he has had the occasional meltdown over the past year, he has drawn strength and support from a tight knit, hard working crew, whose sense of humour has on more than one occasion got him through (that and the occasional cigar of course).

"It's amazing going back through the notes that I made last year and sometimes you do get some bad memories coming back," says Daly. "But then you go out on the course and drive around a bit and you think to yourself, 'we've done a bloody good job'. As greenkeepers we have to adapt to so many different conditions and after last year I think we have shown that we can pretty much get through anything."

"The most frustrating thing has been that all our regular programmes have been turned on their head," says Daly. "We've obviously had to concentrate on more immediate tasks like applying gypsum, vertidrainage and verticutting which means routine maintenance tasks like spraying or whippersnipping around trees hasn't been done. They are only little things, but they are the ones that the golfers notice and end up complaining about."

"It has been a real balancing act and I have copped a lot of heat, especially over cutting heights, but I think I have made the right choices. If we had cut corners and not concentrated on the real issues with the greens and fairways then we would be in a lot worse position than now." 🙏

Achieving full cover on McLeod's Wintergreen fairways in the wake of last year's inundation is an ongoing battle





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After cleaning up the course in the wake of Thailand's devastating floods in late 2011, the only way staff at Chuan Cheun Golf Course near Bangkok could transport mowing equipment around the course was on a makeshift raft

High Thai-d

In late 2011, Thailand experienced its worst flooding in more than half a century, with 80 per cent of the nation's provinces declared flood disaster areas. As was the case with the floods in Queensland earlier in the year, many Thai golf clubs were severely impacted with some remaining under water for two months. At the request of The R&A, agronomist John Neylan visited a number of these courses in and around the nation's capital Bangkok to inspect the damage and offer some advice in getting these clubs back on their feet.



As I put pen to paper, Australia and in particular Queensland is again experiencing the impact of monsoonal rains and subsequent flooding. It is almost a repeat of 2011 when the flooding was widespread and devastating to many communities throughout south east and central Queensland and regional Victoria.

From a golf perspective we are yet again seeing the flooding of courses and feel for those clubs that face the prospect of cleaning up afterwards and getting their facilities back into play. As we observed last year, the effects of floods are many including silt deposits, loss of turf, erosion and the associated longer term turf management challenges.

To observe the damage and loss of amenity is very disheartening to someone that has many years' experience working in the sportsturf industry. The magnitude of the challenges, particularly for the lesser resourced golf clubs, is at times quite overwhelming.

GOING UNDER

Australian golf courses are not on their own in experiencing the effects of flooding and I recently returned from Thailand where I inspected many golf courses near Bangkok that were flooded during October to December 2011.

Following our experiences with the Queensland floods, The R&A's director for the South East Asia region, Dominic Wall, asked if I would be interested in working with the Thai Golf Association as they dealt with flooded golf courses. The work

involved inspecting these courses and to bring some agronomic experience to the clubs as they began the long recovery process.

Anyone that has been to Bangkok would have seen the broad Chao Phraya River which is the major water course that flows through the city and into which many rivers in the north flow. The other notable aspect of Bangkok is that it is very flat, a flood plain no less.

Bangkok is a place that experiences some flooding every year during the wet season and all of the golf courses have some form of a levee surrounding them. However, the floods that occurred in late 2011 were the worst in 50 years and far more extensive than ever experienced before. Water levels averaged between 2-4 metres and up to 8m in parts and few of the levee systems were able to cope with the sheer volume of water. In most cases water just spilled over the top or levees broke under the pressure of the depth of water.

Because of the extensive nature of the floods, the diversions put in place to protect the centre of Bangkok and the flat topography, the flood waters were slow to move and most golf courses were under water for up to two months. Once the waters in the surrounding districts began to dissipate, the golf courses then had to pump the water out which took another 3-4 weeks.

On arriving in Bangkok in mid-January, I had little feeling for what to expect. On day one we visited the first of 12 golf courses and from an agronomic perspective I was overwhelmed by the



PHOTOS: JOHN NEVLAN AND MATEE SUNTISAWASDI

labourer will earn about 200-300 baht per day (\$7-10/day) and a cold Coke costs 17 baht.

TURF PUT TO THE ULTIMATE TEST

Every golf course provided a different story and a different set of circumstances that determined the extent of the damage. As an agronomist the interesting aspect was the effects on the different grass species.

While we can read the results of rigorous research, it is not until you see the grasses under adverse conditions in the field that you can truly understand the strengths and weaknesses of different turfgrass species, but also understand the complexities of floods and the multitude of factors that affect the turf. Damage to turfgrasses affected by floods is due to several factors including silt deposits, turf species, drainage, depth of the flood waters and the length of time that the turf is inundated.

In examining the tolerance of turfgrasses to prolonged flooding, irrespective of the other factors associated with floods, zoysiagrass (*Zoysia sp.*) was the worst affected and the bermudagrass hybrids (*Cynodon dactylon* x *Cynodon transvaalensis*) the least affected. Seashore paspalum (*Paspalum vaginatum*) is another prominent species used in Thailand and depending on the depth of the flood waters was also severely damaged.

Dr. Micah Woods, who spoke at the 2011 Australian Turfgrass Conference in Adelaide and who resides in Bangkok, wrote on his blog (www.blog.asianturfgrass.com) that he had expected that all these grasses would survive. His experience was that zoysia, bermuda and seashore paspalum were able to tolerate weeks and even months of submersion. Micah referred to the work of Fry (1991)

magnitude of turf loss. The golf course was originally zoysia on greens, tees and fairways and very little turf had survived.

There was a lot of work to be done and unfortunately there was very little turf available to replant the course because the turf farms had also been flooded. In contrast to the courses that were flooded in Queensland in 2011, there was nowhere near as much silt, however, the flood waters had remained for many weeks.

Many of the flooded golf courses in Thailand were isolated by the flood waters and the only means of access was by boat. Not only were the turf areas severely damaged but there was also extensive damage in many of the clubhouses. These are typically two-storey with the second storey the high point of the golf course which provided a refuge for course maintenance equipment. Unfortunately, the bottom storeys of most clubhouses tend to accommodate electrical and refrigeration units and other services which were severely damaged.

Looking at the piles of damaged equipment covered with silt, it did make me wonder how they would ever recover. In fact there are several golf courses that are likely to be left abandoned because of the flood damage. The repair bill for one golf course was estimated to be about 10 million baht (30 baht to \$AUD 1) with another 20 million baht to be spent on reinforcing the levee system. This is a total cost of about \$AUD 1 million. While this is not a huge cost in Australian terms it needs to be put in the perspective of the local economy where a Thai



Floods impacted more than 80 per cent of Thailand with some areas, including golf clubs such as Pinehurst (pictured top), under water for two months



Many golf courses in and around Bangkok have levee systems in place, however, the nature of the 2011 floods were such that many of these simply couldn't handle the sheer volume of water

which noted that recovery would be expected once the flood waters receded.

However, what these observations and thoughts raise is that the research only gives us a starting point and it is the peculiarities of golf courses and the variables that a flood present which can result in unexpected outcomes.

Zoysiagrass is a native grass common to SE Asia and is extensively cultivated on greens, tees and fairways and can be quite invasive in other turfgrass species. It is a strong, resilient grass that has excellent drought tolerance, is hard wearing and can be a challenge to mow. The research of Fry (1991) indicated that zoysia had intermediate tolerance to submersion and would survive 55 days of submersion with minimal damage. Unfortunately in the field, zoysia has proven to have little resistance to flooding and most of the zoysia observed was dead with no signs of recovery.

The possible key aspect affecting the grass compared to the research data is the depth of the flooding. In the work of Fry (1991), the turf species were subjected to about 130mm submersion depth compared to at least 1000mm on the flooded golf courses. In the aftermath of the floods, those golf courses that were predominantly zoysia were either overplanting with bermudagrass and seashore paspalum or promoting the native varieties that were regenerating.



Seashore paspalum has recently become a popular grass on golf courses in Thailand because of its striking appearance and the ability to stripe it up like cool-season grass fairways. The references on the tolerance of this species to inundation are a little contradictory and confusing. Seashore paspalum prefers moist to saturated sites and can withstand brief inundations (including by seawater), however, prolonged flooding is detrimental (http://plants.usda.gov/factsheet/pdf/fs_pava.pdf).

Other references quoted by Duncan and Carrow (1999) suggest that seashore paspalum is most tolerant of waterlogged conditions on poorly drained sites. There has been a misconception that while seashore paspalum can withstand short periods of inundation, it cannot tolerate long-term flooding.

On the flooded golf courses, seashore paspalum was severely damaged depending on the depth of the water. On one particular tee that was under water for eight weeks but where the water depth was about 300mm, the damage was minimal and complete turf recovery was expected. With very little or sporadic recovery, most seashore paspalum golf courses were undertaking extensive replanting. Interestingly, native seashore paspalum was widely evident and growing strongly on many golf courses that were previously zoysia.

Interestingly, one of the oldest introduced grasses used on Thai golf courses – bermudagrass (Tifdwarf on greens and Tifton 419 fairways) – was the least affected by the flood and recovery was quite remarkable. Fry (1991), ranked native bermudagrass as one of the most submersion-tolerant species and this is consistent with Beard's (1973) observations. The field assessments are consistent with these observations and given the damage to the other turfgrass species it is substantially superior in this aspect. Where there was severe turf damage and no recovery, the roots, rhizomes and stolons were rotten and there was living tissue.

The other intriguing aspect of the floods was the effects of the depth of the water and the time period courses remained flooded for. The depth of water was particularly fascinating. Where the water was less than 0.5m, irrespective of the time the turf was under water, the turf in many cases (other than zoysia) was relatively unaffected. As the depth of the water increased, the greater the turf damage, irrespective of turf type. One golf course was under water for about four weeks but there was very little damage on the bermudagrass anywhere.

The effects of flooding are multifaceted with the age of turf, the age of the soil profile, surface topography and irrigation all factors that affected turf damage and recovery. It was interesting to note that on a bermudagrass green that had only been open for a week before the flood, that there was almost no damage compared to older and more established greens. On other greens where turf had been used to repair areas prior to the floods, the turf sod was the only surviving grass.

On close examination there were two possible explanations for this. First, the new green had no organic matter accumulation and once the water had receded the rootzone could dry out very quickly and become well aerated. The other likely aspect is the more vigorous root system that develops under new turf and possibly the stronger network of rhizomes and stolons associated with the turf sod. The age and drainage rate of the profile also had an influence. Where the profile had a low organic matter content and the drainage rate was adequate, the damage appeared to have been less.

Another aspect of turf survival that was interesting was where the turf was cut at a greater height on surrounds, it was less affected compared to greens height turf. Again this would appear to relate to the greater biomass and root mass in turn providing superior reserves for the turf to survive such inundation.

It was noticeable on most golf courses that the lower sections of greens and fairways were the worst areas affected. Most of these lower areas were typically points for surface drainage and were therefore subjected to longer periods of saturated soils. It is also likely that there was some scorching due to increasing water temperatures as the water became very shallow.

The final factor that killed grass on greens, tees and fairways was moisture stress. While there were areas of turf that survived, the root systems were

compromised with very few live, healthy roots. With many golf courses being sand capped they dried out very quickly once the water was pumped out. Because the irrigation systems were damaged, drought stress was a common problem across all the affected golf courses.

As with all floods, weeds are becoming and will continue to be a very large problem on the flooded golf courses. In particular nutsedge (*Cyperus* sp.) was the predominant plant type on some of the golf courses, particularly where the fairways consisted of native soils (rather than sand capped).

BACK ON THEIR FEET

As well as the course inspections, during my time in Thailand I attended a seminar organised by the Thai Golf Course Superintendents Association and made a presentation on my observations and provided some recommendations on the longer term management requirements. With 90 people in attendance there was a lot of discussion about the flooding, how other golf courses had coped and what to do in the future.

A local flood engineer provided useful advice on the construction of a stable levee system, while three superintendents described how they had coped and dealt with the rejuvenation process. The greatest challenge for them was the fact the golf course was isolated and access was either by boat or by living in the upper storey of the clubhouse. The story was



Agronomist John Neylan points to the high water level during a visit to one of 12 flood-damaged Thai golf clubs in mid-January

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◀ **Above: As with all flood-affected courses, weeds such as nutsedge are becoming and will continue to be a very large problem**

Above right: One interesting aspect of turf survival was where the turf was cut at a greater height on surrounds it was less affected compared to the greens height turf

With courses closed for play during the recovery period, clubs have utilised their caddies (up to 200 at some clubs and all female) to assist in the hand planting and watering in of new grass



consistent that as the water was pumped out and the turf emerged, the clean-up started immediately.

The superintendent at Chuan Cheun Golf Course only had five staff at his disposal (the remainder had to evacuate the district) but still managed the gradual clean-up and then started mowing by transporting a mower around the course on a raft.

Golf in Thailand employs a large number of people with 50-80 involved in course management, up to 200 caddies (all female) as well as clubhouse staff. The floods have certainly created many economic challenges for those clubs affected and the local community. Most clubs had retained most of their staff for the clean-up work or club members had employed surplus staff in the clean-up of their own businesses.

The caddies in particular have been used extensively in hand planting and watering the new grass. At one golf course about 80 caddies volunteered to stay at the isolated golf course and acted as a 'quick response team' for plugging any breaches in the levee system. This particular golf course escaped with minimal damage though towards the end of the floods there was little fresh water or food available.

Golf courses in Thailand are privately owned and all the owners are keen to get their courses back into action and to re-establish a cash flow. Some courses were open for play, however, they still required a lot of turf repair work to make them truly playable (and enjoyable).

I was surprised at the number of golfers that were actually out playing on one particular golf course that was far from ready for play. However, this just indicates the importance and interest in golf in the region. I have been fortunate to visit many golf courses around the world and no matter where you are golfers are a fanatical lot and want to be out on the course. The one unfortunate aspect of this premature return to golf is that it slows down the rejuvenation process.

Golf and the golfer are the number one priority in Thailand and all care has to be undertaken to minimise the disruption to the golfer in repairing the golf course. This is particularly challenging where grass replanting has to take place and the soils need to be kept wet during the establishment process.

On the completion of my journey and sharing of ideas I am left with two strong impressions. The first is the undoubted passion that people have for golf, the resilience of golf clubs and what hard work and a large labour force can achieve. The more contemplative aspect is the devastating affect that the floods have had on the local people. In driving around to the golf courses the high tide mark on the buildings was a constant reminder of the depth of water through these communities. Could you live in 1-2 metres of water for two months?

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After experiencing increasing problems with their old *Poa annua* greens in recent seasons, NSW Golf Club bit the bullet and starting last autumn undertook a complete resurfacing programme which has seen all greens converted to MacKenzie creeping bentgrass

NSW Golf Club in Sydney ranks as one of Alister MacKenzie's most dramatic course designs, however, in recent times it has been another MacKenzie which has been making its mark at La Perouse. Course superintendent Gary Dempsey looks back over the past 10 months which has seen the club bid farewell to its famed *Poa annua* greens and convert to this new generation bentgrass.

Mackenzie

returns to NSWGC

For a couple of years New South Wales Golf Club (NSWGC) had been considering replacing the old *Poa annua* greens and with the sudden decline in their condition in 2010 following the 2009 Australian Open we all began to consider it much harder.

At the end of 2010 the board decided that they would 'bite the bullet' and replace all of the surfaces in the spring of 2011. We considered a number of strategies, including doing six or nine greens at a time, but in the end we considered the quicker we could get the project done the less pain for all concerned.

Since the old *Poa* greens began to struggle and I knew we would be moving towards bentgrass, I began doing extensive research locally and overseas on what variety of bent may be suitable for the unique conditions at La Perouse.

I had many discussions with Andrew Peart from the AGCSA regarding the association's current bentgrass varieties trial and I also considered all of the information in the latest USGA NTEP ratings. I also contacted a plant breeder in the US to get a run down on some of the grasses straight from the horse's mouth so to speak.

From this research I selected two grasses which seemed to have the attributes that might be appropriate here at La Perouse. These grasses – MacKenzie and 007 – were grouped as 'versatile' bents and unlike the alphabet bents (Penn A1, A4, G2 etc) could be maintained above 3mm. They also have an upright growth habit which helps with ball roll resistance during windy conditions.

For about a year we trialled the two new bentgrasses in our northern putting green to help us with the selection of bent species for the new surfaces. In the end we decided to go with the MacKenzie, but there is very little between many of the new bents. We mainly went for MacKenzie because of its root density, its upright growth habit and good winter growth which helped in ball mark recovery. With that, we seeded our existing nursery with MacKenzie in readiness for the programme.

We decided to resurface two of the par three greens in the autumn of 2011 – 6 and 17 – which would allow us to keep more holes in play once the main programme started in August. These greens were done one at a time so we could use our spare hole to keep 18 holes in play. They were both turfed from the nursery and were back in play in five weeks.

During this process the board requested that we extend the existing nursery, located between holes 3 and 8, and construct another nursery adjacent to the existing one so we could use the sod on the more exposed greens that are subject to severe wind conditions.

To cut a long story short, we managed to get the 3,500m² nurseries (roughly 1750m² each) built, including temporary automatic irrigation and seeded with MacKenzie bentgrass, by May. This grass had to be ready to be lifted and laid on the new surfaces in August (14 weeks) if we were to keep the programme on track. The grass was being cut at 5mm at the 14 week mark when it was cut off using our modified turf cutter at one centimetre thick and laid on the new sites.

The grass's ability to reach that stage of maturity during a very cold and wet winter helped ease our minds a bit regarding our grass variety selection. We were pretty impressed with its performance. The decision to grow the sod for the coastal greens proved a good one as these greens were in play in about five weeks.

RIPPING UP AND LAYING DOWN

After much planning, the programme to replace our green surfaces started in earnest in August 2011. Our plan was to replace the top 50mm-100mm on 15 greens, reconstruct one complete green site (the 3rd) and reconstruct one complete hole (4th), all in 13 weeks. Just prior to starting, the green surrounds were sprayed with a second application of Barricade at two litres per hectare for pre-emergent control and Roundup at 1l/ha to clean up the Poa.

The chipping/putting green adjacent to the clubhouse was the first cab off the rank and the order of works went something like this:

- The surface of the old green was cut using a turf cutter at 50mm depth and lifted by hand;
- Once lifted, the green was then turf cut again at 50mm depth and that layer was stripped off using a 3 tonne excavator;
- Perimeter of the greens then excavated to about 200mm to remove any encroaching couchgrass;



- Remaining green sand turned over by the excavator down to the base;
- Sand re-levelled to represent the final contours;
- Up to 100mm of new sand was then added to the green, amendment added and this new sand blended with the existing sand by rotary hoeing the green in four directions;
- The green was then compacted, final shaped and grades checked;
- The board would then sign off the site and the surface would be either hydroseeded or turfed using solid turf from the nursery depending on which green it was.

Prior to starting at each site we also did a survey of each green and identified prominent features of each green so they could be reinstated. There were some very minor modifications to some of the greens which were mainly to improve pin positions.

Once the chipping green was complete and we had worked out our plan of attack, the programme got into full swing:

- **Week 2:** Green 12 was resurfaced using the same technique and green 15 had the entire profile removed and replaced. Both greens were seeded;
- **Week 3:** Greens 1, 9 and 18 were all done using the same technique as the chipper. Green seeded;
- **Week 4:** Greens 10, 11 and 16 – same technique;
- **Week 5:** Greens 2, 7 and 8 – same technique;
- **Week 6:** Greens 5 and 13 were done using the

In order to undertake the greens resurfacing project, the NSW nursery green was extended and another nursery constructed alongside. The combined 3500m² site was constructed and seeded with MacKenzie bentgrass by the end of May 2011 and ready for harvesting by August



The 5th green (pictured) along with the 13th green (see main photo opposite) were solid turfed due to their exposed coastal locations

Those greens that weren't solid turfed were hydroseeded. On average, the seeded greens came back into play at about 14 weeks and the turfed greens in about five weeks



same technique but as these are two of the most exposed green sites on the course they were solid turfed using turf from the new nursery site;

- **Week 7:** Green 14 had the entire profile removed and the green was modified and turfed from the new nursery.
- **Week 8:** Work started on the reconstruction of the entire greensite on the 3rd and the reconstruction of the 4th hole green, tee and fairway using cut and fill and overburden from the 3rd green site. These works took around six weeks and the greens were turfed from the turf nursery and the fairways, tee and greens surrounds were all turfed with washed Windsorgreen turf. The work on these two holes was designed by Greg Norman Golf Course Design. Their Australian representative Ryan Van der Veen worked closely with Darby Muller from GolfShapes throughout the project.

JUGGLING ACT

Grow-in times of the new surfaces were mixed as most greens had different amounts of work carried out. We used a seeding rate of 600 grams per 100m² and added Terrazole fungicide at label rates to the hydromulching mixture. The seed on average germinated in nine days and after about a week were fertilised with an 18:9:6:4.1 fertiliser to encourage early growth.

Having so many greens at different levels of management and cutting heights was a real juggling act. Greens had their first cut at 8mm at around four weeks after seeding and heights were reduced fairly quickly and were at 3.5mm when they were brought into play. As part of the grow-in we dusted all of the greens weekly and brushed regularly to encourage density.

The MacKenzie bentgrass had shown in the nursery situation that it developed a long and dense root system and this was shown to be the case in the new greens. As the greens were readied for play, the seeded greens' roots were regularly measured at between 200-300mm. On average, the seeded greens came back into play at about 14 weeks and the turfed greens in about five weeks.

Nutrition application during the grow-in was all about trying to fit in with what was a very unseasonal start to the summer in Sydney. Cool weather meant

we had to push them along a bit in an effort to keep to the return to play projections, so they were fertilised about every 3-4 weeks with a 15:0:21 fertiliser. This contained slow release nitrogen as we found that the sand in the greens was leaching nutrient rather quickly.

LEARNING CURVE

There were some testing times during the project. The weather, as always, could be friend or foe and of course answering the perennial question 'when will you be finished' or 'when will the greens be in play' at least six times a day.

Of course the hours put in by the staff were massive to say the least. Assistants Dean Lenertz and Greg Burgess did a fantastic job throughout the project organising staff and juggling the grow-in with so many greens at different levels of progression. I actually worked 62 days straight during the project, such was the intensity of the workload.

All of the greens were in play on 17 December and although most were still in the grow-in stage most were in reasonable shape and being cut at 3.5mm. Since then we have started to learn a bit more about the grass and how, like most, it can be a bit temperamental, especially with wear from heavy traffic.

There is no doubt that the turfed greens have settled into play much quicker and are a lot stronger than those that were seeded and have been able to handle the heavy traffic much better. We have also had our usual problems with diseases and insect pests.

We have found that the grass requires quite a bit of nutrition until it becomes well established and we have been brushing when mowing and dusting at a minimum every two weeks. The root system on most of the greens seeded and turfed average around 200mm which we are pretty happy with for such young grass and we are just about to start verti-mowing some of the turfed greens to remove some of that top layer that has been introduced.

As the saying goes, you learn something new every day and I can certainly vouch for that. This was a big project and a very good learning curve for all of those involved. Of course, now another challenge begins – the unenviable task of trying to keep *Poa* out of the new surfaces. 🌱



MacKenzie was chosen for its root density, upright growth habit and good winter growth

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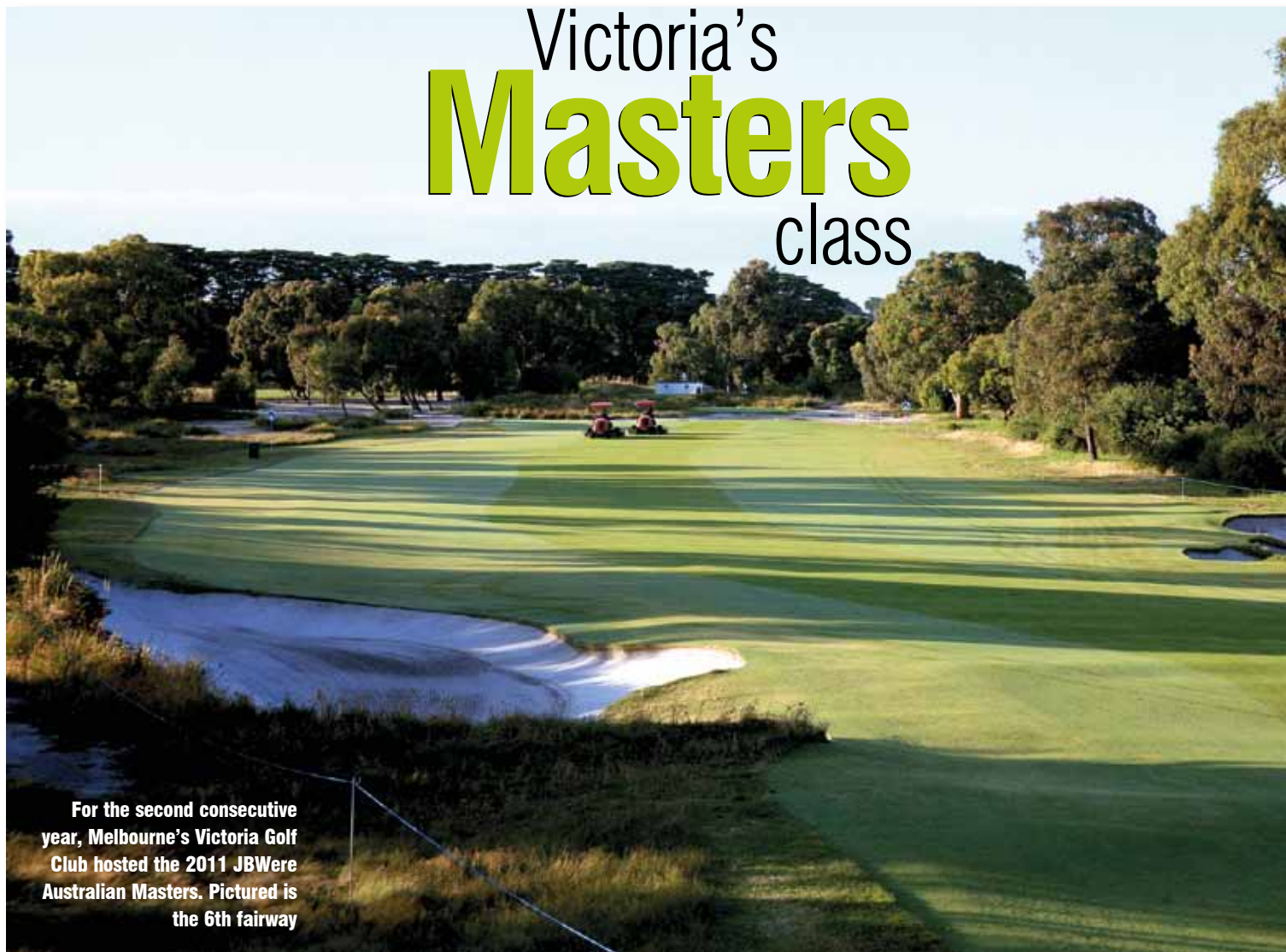


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Victoria's Masters class



For the second consecutive year, Melbourne's Victoria Golf Club hosted the 2011 JBWere Australian Masters. Pictured is the 6th fairway



The beautiful natural bunkering of Victoria's par 3 14th

Victoria Golf Club was again at her glorious best when it hosted the 2011 JBWere Australian Masters last December.

While all the focus was on Royal Melbourne and The Presidents Cup last November, literally across the road Victoria Golf Club had its moment in the sun a few weeks later when the 2011 JBWere Australian Masters returned for the second consecutive year in mid-December.

With Tiger Woods absent after appearing at the previous two Australian Masters, star billing was taken by Englishman and current world number one Luke Donald, who only the week before had won

the European Tour Order of Merit to become the first player to top both the US Tour and European money lists in the same year. Donald was joined by Ian Poulter who would go on to upstage his more fancied countryman to add the famed Golden Jacket to an already loud wardrobe.

In what was their first Masters appearance, both Donald and Poulter were extremely complimentary of the Victoria layout, with particular praise levelled at the strategic nature of sandbelt course and the quality of the greens presented by course superintendent Ian Todd, assistant Tay Wilson and course staff. Todd's usual crew of 17 expanded to 25 for the Masters and after double cutting at the start of tournament week to get some speed in them, the greens were just single cut ahead of each round and stimped an effortless 11.5.

While the turf was looking in tremendous condition and a testament to the work of Todd and his crew, the real standout was Victoria's impressive carries and out of play areas which over the past couple of years have been completely rejuvenated. Since hosting the 2010 Masters, Todd has continued to press ahead with an impressive vegetation management programme as well as the introduction of sandy waste areas throughout the



PHOTOS: BRETT ROBINSON

course, with spectacular results. (See ATM Vol 12.5 - Nov-Dec 2010 for more on this work)

The carries on 2, 9 and 18 have been stripped of undesirable species and populated with a host of native vegetation, while down the right hand side of the 17th fairway a new sandy waste area has recently been created, stretching from after the dam down towards the green approach. The right hand side of the 6th tee and fairway has also undergone significant work with transplanting of indigenous vegetation through the area which now links the carry on 6 to those on 7 and 8, as well as extending through to the 12th carry and fairway.

Other work undertaken in the lead up to the 2011 Masters has included the reshaping of the two right-hand side greenside bunkers on the 10th, while at the left rear of the green on the short par 4 15th, a small area of vegetation has been cleared and turf installed. (Nearmap.com has some great before and after aerial images of the above changes that have taken place at Victoria).

While the Masters is now a distant memory, the start of 2012 has seen no rest for the Victoria crew with the much awaited redevelopment of the club's practice fairway. ATM congratulates Ian and his team on another Masters class. 🌱



Above: The 6th green, one of Victoria's most treacherous, gets an early morning watering ahead of the opening round



Left: Rosanna GC volunteer Tim Bunn puts the LF570 through its paces



Scott Prince trims collars on 6

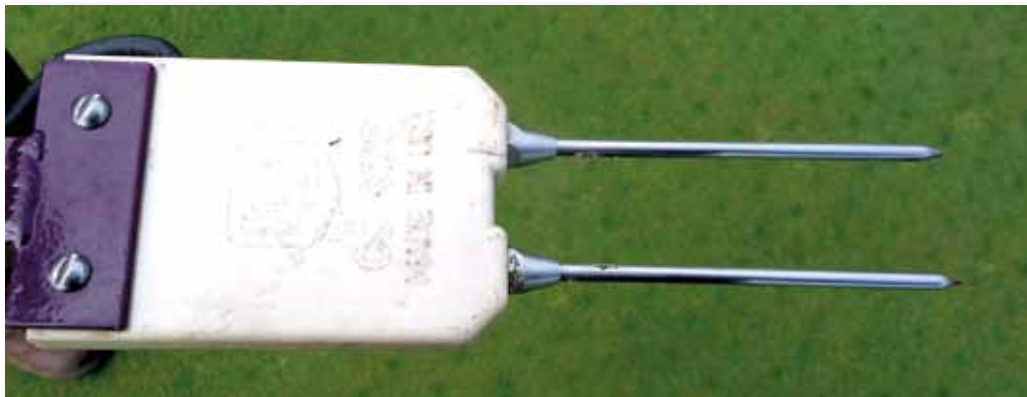


Metropolitan GC volunteer Ben Payne cuts the 8th green in preparation for the opening round. Greens stimped 11.5 for the tournament



Victoria's tee carries and out of play areas have been rejuvenated with spectacular results in recent years

The AGCSA's benchmarking study is collecting information regarding the moisture content of greens using 120mm probes on the Fieldscout TDR



Probing the depths

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As has been mentioned in recent editions of Australian Turfgrass Management, the AGCSA has embarked on a one-year Horticulture Australia Limited-funded golf course benchmarking project with the aim of developing course quality objectives (HAL Project TU11003). A range of golf clubs from high-end private to public courses are being assessed on a monthly basis for a range of factors. (See AGCSATech Update – ATM Vol 14.1 – for more on this project and preliminary results.)

One of the criteria being monitored as part of this study is soil moisture, or volumetric water content. Moisture content levels are measured at 20 locations on each green on every course (three greens per course) using 120mm probes which calculate an average moisture content within the length of the probe. Typically, these contents have ranged from values around 10 per cent up to as high as 50 per cent.

Soil moisture is typically a function of soil type, presence of organic matter, either consciously added (e.g.: peat moss/coco-fibre) or naturally occurring (thatch accumulation) and obviously the amount of recent irrigation or rainfall.

The instrument being used to measure the amount of soil moisture content present is the

Fieldscout TDR300 moisture probe. TDR is an acronym for 'time domain reflectometry' which relies on an electrical charge being sent down the length of the probes and for a time being recorded for the charge to return. The time taken indicates the amount of water present in the soil profile, which is calculated to give a volumetric water content reading.

The AGCSA's benchmarking study is collecting information regarding the moisture content of greens using the 120mm probes. This depth generally represents the level within the profile where the majority of roots are present, as well as combining the soil type and organic matter present. The Fieldscout TDR300 also comes with an option of being able to utilise differing length probes which are 38mm, 76mm and 200mm.

During the latest benchmarking assessment (January 2012), certain greens at a number of clubs were tested at nine locations using the full suite of probes (38mm, 76mm, 120mm and 200mm) to ascertain the impact of soil type and thatch accumulation on the retention of moisture within the soil profile.

Riversdale Golf Club (superintendent Dave Mason), one of the nine Melbourne-based clubs which are part of this project, has just completed the construction of a new putting green where a Rocla fine construction sand was used at a depth of 500mm to form the soil profile. There was no gravel layer with the sand simply laid over a socked drainage pipe over the contoured base. The putting green was sodded with Mackenzie bentgrass that had been grown on site.



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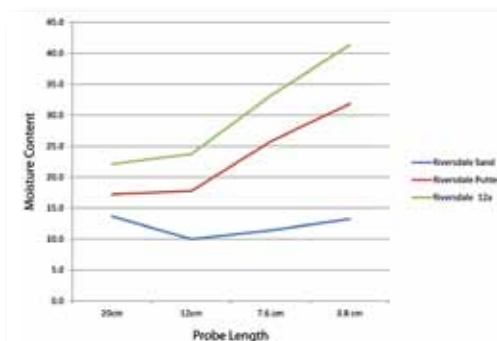


Figure 1: Soil moisture retention readings taken at three different green locations at Riversdale Golf Club

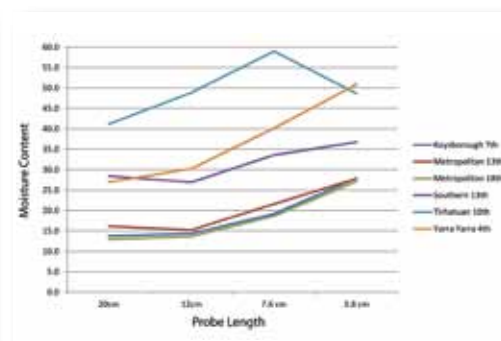


Figure 2: Soil moisture retention readings taken at six different greens that are being assessed as part of the AGCSA's benchmarking study



Profile samples of Riversdale Putter (left) and Riversdale 12a (right)

Figure 1 (below) illustrates the effect of the bentgrass sod (Riversdale Putter) on the moisture retention of the profile, particularly within the top 76mm and 38mm of the profile when compared with an area of the green where there was no grass present (Riversdale Sand).

The third line on the graph represents green 12a at Riversdale which was constructed about seven years ago from a similar Rocla fine construction sand, in a typical USGA fashion with 100mm of gravel beneath a 300mm sand profile.

It is interesting to note the shape of the graph is very similar to the newly constructed Putter, but it has an average of five per cent more volumetric water. The two photographs above illustrate the differences of thatch accumulation within the two profiles (Putter left and 12a right) that may be the reason for the additional moisture retention.

As well as those three situations, another six greens were analysed with three greens showing remarkable similarities (see Figure 2). Each had volumetric water contents of around 15 per cent in the top 200mm and 120mm of the profile, around 20 per cent in the top 76mm and 27 per cent within the upper 38mm.

Two of these greens were constructed with a traditional USGA type construction (Metropolitan Golf Club 18 and Keysborough Golf Club 7) and then sodded, while Metropolitan 13 is on a much deeper profile of locally mined sand and was seeded. While the locally mined sand no doubt has a much higher moisture retention than the USGA type sand at 30cm tension under laboratory conditions, the suction effect of the additional depth of the profile, which is around 2-3 metres, is no doubt being reflected in the similar reading for moisture retention within the top 120mm and 200mm of the profile.

It is interesting to note that the average thatch accumulation in the 7th at Keysborough and

the 18th at Metropolitan are both around 30mm, while the 13th at Metropolitan is only 12mm. This difference is a combination of the age of the greens as well as the imported thatch that came with the sodded bentgrass.

The three other greens investigated had higher levels of moisture retention in the 120mm and 200mm which at Southern Golf Club and Yarra Yarra Golf Club were reflected by the much finer sand type, while the result obtained from Tirhatuan Lakes Golf Course was more reflected by the deep layer of organic matter present above the old Keysborough type yellow construction sand (see photo bottom right).

The intention at Yarra Yarra was to use a finer sand that would hold more moisture to assist the *Poa annua* greens and it is seen from the graph that this has been achieved. It is also interesting to note that the 13th green at Southern Golf Club (pictured right top) is also predominantly *Poa annua*, which has no doubt also been assisted by the elevated levels of moisture retention.

While moisture retention is crucial in periods of dry weather, it can be detrimental in being able to dry out the surface to produce firm, desirable green speeds in periods of inclement weather. It would appear from these results, although it must be remembered that they are a one-off observation, that moisture retention within the top 76mm of the profile can be far greater than that of the intended soil profile. Therefore to help retain similar moisture contents throughout the entire profile much more intensive management of the organic layer is required.

PLANTING THE SEED

With the AGCSA's Horticulture Australia Limited-funded research project 'Evaluation of new bentgrass (*Agrostis* spp.) cultivars compared to



Southern 13 (top) and Tirhatuan Lakes 10 (bottom)



◀ **The better performing bentgrass varieties in terms of their turfgrass density have exhibited the better density following wear treatments**

Australian vegetative selections' (TU08002) drawing to a conclusion this autumn, it was pleasing that John Patton, vice president and international sales manager for Seed Research of Oregon, was able to visit the trial site at Keysborough Golf Club recently.

John was in Australia in early February conducting a series of seminars in Melbourne, Canberra and Sydney with Advanced Seed on all seed varieties including bentgrass, fine fescue, perennial ryegrass and seeded couchgrass.

At the Keysborough Golf Club seminar, John spoke about the process of selecting bentgrass cultivars for commercialisation and how the vast majority of new cultivars came from germplasm collected in the field. Germplasm is simply a small section of part of the golf green that exhibits outstanding attributes compared to the remainder of the green.

The process is very similar to the one that the AGCSA embarked on to select the variety AGCSA1 that has been included in the latest bentgrass evaluation. As John stated though, unless the resultant plant produced enough, or any, seed it would not be selected.

Seed viability of potential new varieties is paramount for seed companies. As well as being able to produce the required quantity of seed, the purity of the seed is also very important, especially for the international market. When the seed is harvested, the seedhead is cut and must dry before the seed can be removed. This may take up to 10 days and therefore the potential seed is very susceptible to rainfall and contamination from resultant soil splash. While there are now processes that can remove the soil from the seed, it does dramatically affect the price of that seed.

General trends in bentgrass breeding have been to identify material that has greater resistance to turfgrass disease such as dollar spot, anthracnose and brown patch while also maintaining higher density. Higher density swards for putting greens are preferred in the hope that they will physically be able to inhibit *Poa annua* seed germination. He also stated that the higher density varieties are better

able to withstand wear compared to the more open bentgrass varieties.

Table 1 (below) shows the results for the last wear assessment conducted at the Keysborough trial site where a total of 160 passes were made over the trial area over a four day period from January 12-18, 2012. It reveals that the better performing varieties in terms of their turfgrass density exhibited the better turfgrass density following the wear. The exception to this was Authority which did not handle the wear nearly as well as the seeded variety SRP1RH93, nor the vegetative variety AGCSA1. However, in saying that, there was no significant difference in turfgrass density between any of the varieties either before or after the wear assessment.

While the SRP1RH93 bentgrass variety had performed very well at all trial locations in Australia, John was unsure whether the variety was to be continued for release as a commercial variety in the United States. It is believed that Seed Research of Oregon has identified better bentgrass cultivars that will undergo further evaluation.

Lastly, John made comment on the trend of blending different bentgrasses suggesting that bentgrasses exhibiting similar physical characteristics, such as turfgrass colour and density, should be blended together to form a more homogenous blend rather than blending vastly different looking cultivars. This had been the aim when blending the three varieties SR1119, SR1120 and 007 together to form Dominant Extreme.

ACKNOWLEDGEMENTS

The AGCSA wishes to thank all clubs and course superintendents involved in the AGCSA's benchmarking project (TU11003) and bentgrass variety trials (TU08002). For more information about either of these projects, contact Andrew Peart or John Geary at the AGCSA on (03) 9548 8600. 🙏



John Patton from Seed Research of Oregon (right), who visited Australia in February, inspects the AGCSA's bentgrass trial plots at Keysborough Golf Club with Andrew Peart

TABLE 1. KEYSBOROUGH GC WEAR TOLERANCE

Variety	No wear	160 passes
Shark	7.5	7.0
SRP1RH93	7.5	6.8
Authority	7.3	6.0
AGCSA 1	7.3	6.5
Penn G2	7.2	6.3
SRP1GMC	7.2	6.2
007	7.0	6.3
CY 2	7.0	6.0
Declaration	7.0	6.2
Mackenzie	7.0	6.3
Cobra 2	6.8	6.2
SR1150	6.8	6.5
T-1	6.8	5.8
Tyee	6.8	6.0
Penn A1	6.7	6.3
Dominant Xtreme	6.3	6.0
LSD (P<0.05)	ns	ns

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* Winter grass (*Poa annua*), Crab grass (*Digitaria sanguinalis*), Summer grass (*Digitaria ciliaris*), Crowsfoot grass (*Eleusine indica*).

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Key criteria which can influence putting green quality include turfgrass composition, rootzone characteristics, organic matter, black layer, root health, soil nutrients, microclimate and maintenance practices

Perfect putters

In the second part of his look at the key agronomic factors influencing the delivery of quality putting greens, John Geary looks at the roles root health, soil nutrients, microclimate and maintenance practices play.

The impact of shade on golf greens and poor air circulation caused by neighbouring trees can be particularly damaging on turf



So, what constitutes a perfect putting green? No doubt, this question has been routinely debated by golfers since the game was first played on the coastal links of Scotland.

Some have argued that a perfect green needs to provide interest and amusement for all, while also proving to be a satisfactory test of skill (Macan, 1924). Generally speaking though, most golfers agree that a putting surface needs to be consistent, smooth, firm and display true ball roll characteristics.

In the previous edition of Tech Talk (**ATM, Volume 14.1, pg 38-39**) discussion centred on the variables which can influence the above characteristics, which in turn can affect the consistency and day-to-day performance of putting green surfaces.

From an agronomic perspective, key criteria which can influence putting green quality include turfgrass composition, rootzone characteristics, organic matter, presence or absence of black layer, root health, soil nutrients, microclimate and maintenance practices. In this edition we will discuss the impact of root health, soil nutrients, microclimate and maintenance practices have on greens quality.

ROOT HEALTH

The primary role of the turfgrass root system is the uptake of water and nutrients. Therefore, root depth as well as subsequent root mass is arguably the most important aspect of turfgrass plant health. Turf practitioners need to be aware that the root system of most perennial turf varieties are largely annual in nature and that the root system which is in place by late spring is what will carry the plant through the summer months. Cultural practices should be implemented with the aim of maximising root growth until November, while avoiding practices which set back root growth thereafter.

So, what can be done to promote increased root depth? There are a range of environmental and cultural factors which have an impact on the overall health and depth of turfgrass root growth. Among the environmental factors are plant species, profile moisture, plant hormones, temperature, soil types and soil pH, compaction, lack of oxygen, toxicities, pests and diseases and microbial environment. Cultural factors include mowing height, thatch accumulation and fertiliser practices.

In isolation, these factors may have little influence, however, when combined they can have a dramatic impact, both positive and negative. For more on these factors see Tech Talk (ATM Vol 11.6 - Nov-Dec 2011) 'Maximising root health'.

A good, healthy root system allows the turf to be manipulated so that consistently firm and true surfaces can be achieved. A deep root system (in conjunction with a minimum of thatch/rootmat and well drained sands) allows the surface to dry out without placing the turf under stress. It also allows deep watering to occur which maintains a deep root system. In addition, a deep root system assists in disease control and if there is any turf damage due to disease, wear or drought, it recovers quicker.

SOIL NUTRIENTS

Plants (turfgrass plants included) are primarily composed of carbon (C), hydrogen (H) and oxygen (O) which is obtained from atmospheric carbon dioxide and water from the soil (Ford, 2010). Plants also require 13 essential mineral elements which are split into two groups known as macronutrients – Nitrogen (N), Phosphorus (P), Potassium (K), Sulphur (S), Calcium (Ca) and Magnesium (Mg) – and micronutrients (also called trace elements) – Manganese (Mn), Iron (Fe), Zinc (Zn), Copper (Cu),

Molybdenum (Mo), Chlorine (Cl), Boron (B) and Sodium (Na).

Table 1 lists these nutrients along with the approximate percentage each is found within plant tissue. While the quantity of each nutrient varies, all are considered essential for healthy turfgrass growth with each performing a particular role that cannot be substituted by another.

It is important to regularly monitor the level of soil fertility as it can affect most, if not all, aspects of the playing surface such as vigour, thatch accumulation, wear tolerance, disease tolerance as well as the ability of turf to cope with weeds and pests.

To determine plant nutritional requirements of greens it is recommended to carry out regular soil nutrient and/or plant tissue testing. Consistency is the key and it is important samples are representative of the entire area. On nutrient-poor sand-based greens, tissue testing has the advantage of determining nutrient levels within the plant.

MICROCLIMATE

When undertaking an assessment of any sportsturf surface, one component which is often underestimated is the impact of the immediate surrounds. The impact of shade on golf greens caused by neighbouring trees can be particularly damaging on turf subjected to the stresses of low cutting heights and moderate/high wear and tear.

Turfgrass plants need light to photosynthesise and produce carbohydrates for growth and regeneration. When light levels are inadequate for extended periods, carbohydrate reserves are depleted, while the plant produces less tillers and is generally more succulent. This leads to reduced tolerance to heat, cold, drought and water stress as well as increased disease and insect susceptibility.

Another consequence of too many trees is poor air circulation. This results in increased ambient temperature and humidity and where soil temperature and moisture levels also tend to remain higher. In climates which experience high rainfall, the main problem associated with poor air circulation is increased leaf moisture (dew) that often persists for many hours unless it is physically removed.

One of the great hidden hazards of trees on the golf course is the effects of their roots on nearby turf. Where there is irrigation, the tree roots tend to congregate in the surface soils and the active rootzone of the turfgrasses providing greater competition for soil moisture. The consequence is that the turf areas affected by tree roots suffer during periods of high temperatures and low soil moisture.

Where shade is impacting on turf quality it is vital to remove and/or prune neighbouring vegetation as much as possible to improve air circulation and light intensity. For greens experiencing heavy shade it may also help to raise mowing heights. This increases the total leaf area which in turn provides a greater capability for the turfgrass plant to absorb light and synthesise carbohydrates.

MAINTENANCE PRACTICES

It goes without saying that maintenance practices carried out on a day-by-day basis such as mowing and irrigation and fertiliser application have a huge bearing on overall greens quality. Understandably clubs concentrate efforts in such practices, however, it has been interesting to note in recent years the trend of reducing and/or not carrying out greens renovation programmes based on the assumption such programmes will impact on their bottom line.

Organic matter build-up is seen as one of the primary causes for a decline in turf quality. The problem with organic matter, although it occurs on all greens, is that it causes a higher percentage of moisture to be held within the top portion of the profile. Consequently, this layer prevents excess water from penetrating deep into the profile, leading to slower paced greens as well as increased divoting, particularly during wet periods.

Greens with excessive organic matter exhibit the following problems:

- Stay wetter for longer periods after rain/irrigation;
- Putting surfaces are generally softer;
- Dry out quickly during hot weather. What usually occurs with an excess of rootmat is that the greens are watered frequently with small quantities of water so as to avoid wet and puggy surfaces. Consequently, there is insufficient available moisture to sustain the turf through a day of hot weather;
- Excessive rootmat restricts root development;
- Organic matter is the perfect breeding ground for turf diseases. Given that the turf is constantly under stress the turf is more likely to develop severe disease outbreaks; and
- Fungicides bind strongly on to organic matter and disease control is more difficult to achieve.

It is imperative golf clubs have a detailed, costed maintenance schedule which includes regular renovations of greens surfaces such as hollow tining, vertidrainage and dusting of greens to limit the excessive build-up of organic matter. 🌱



A good, healthy root system allows the turf to be manipulated so that consistently firm and true putting surfaces can be achieved

TABLE 1. TISSUE CONCENTRATIONS AND PLANT REQUIREMENTS

	Average tissue concentration		Theoretical nutrient ratio	Amount required actual/100m ² yr
	%	ppm		
Nitrogen	4	40,000	10	3kg N/100m ² /yr
Phosphorus	0.4	4,000	1	0.3kg P/100m ² /yr
Potassium	3.2	32,000	8	2.4kg K/100m ² /yr
Sulphur	0.4	4,000	1	0.3kg S/100m ² /yr
Calcium	1	10,000	2.5	0.75kg Ca/100m ² /yr
Magnesium	0.5	5,000	1.25	0.375kg Mg/100m ² /yr
Iron		160	0.04	12g Fe/100m ² /yr
Manganese		100	0.025	7.5g Mn/100m ² /yr
Zinc		80	0.02	6g Zn/100m ² /yr
Copper		16	0.004	1.2kg Cu/100m ² /yr
Boron		16	0.004	1.2g B/100m ² /yr
Sodium	-	-	-	-
Molybdenum	-	-	-	-
Chlorine	-	-	-	-



Hazard limitation

Bunkers are one of the more contentious maintenance areas of any golf course. The Pulse asks superintendents what products and techniques they have used during recent bunker refurbishment or reconstruction projects which have helped to reduce the amount of maintenance inputs.

“We recently carried out a complete reconstruction of the Palms course and as part of that constructed all new bunkers. Being on the Gold Coast we are subject to frequent storms which often results in sand slip and flooding of bunkers, requiring several man hours to repair. With this in mind we utilised BunkerMat on all bunker faces in conjunction with a blended sand/loam bunker sand. This has been very successful in almost eliminating sand slip, allowing them to be back in play immediately after storms. In contrast, the bunkers on our Pines course have no form of liner and after the 350mm of rain we copped in one week in January they took 2-3 days to repair, while the Palms bunkers took less than a day.

We have trialled other forms of bunker liner including a crushed aggregate material which when sprayed with a polymer forms a hard, permeable base. This was successful for about 12 months before failing and completely disintegrating. One product that I believe is going to work magnificently when it comes to Australia is ‘The Blinder’. I have seen this material first hand in the UK and it is now being widely used on many top courses. It is a pelletised recycled rubber which is premixed with a polymer then screeded onto the bunker base. It has infiltration rates of up to 2400m per hour, can be treated to minimise sand slip and eliminates sand contamination. I hope to trial this product in the very near future.” **Robin Doodson, Sanctuary Cove Golf & Country Club, QLD**

“Here at Cairns Golf Club our greens committee has submitted a proposal that we undertake a full bunker audit looking at various aspects including location, playability and maintenance issues. One area that the board and I are 100 per cent in agreement on is the style of bunker we will opt for. Here in the

tropics we obviously get a large amount of rain and as a result bunker washouts are common, requiring a large amount of time to reinstate them. We will be looking at changing all bunkers to a grass face style which will hopefully reduce the amount of time spent pushing up bunker faces after heavy downpours. There is no silver bullet, though, when it comes to bunker maintenance and all we can do is hope that Mother Nature isn’t too severe.” **Brendan Clark, Cairns Golf Club, QLD**

“I’m not sure if the techniques used at Victoria reduce the amount of maintenance, but I suppose a little externally as we tend to let the rear surrounds blend into the roughs beyond with either fescues and/or indigenous grasses. Newly constructed bunkers get shaped up and compacted with the natural sand, followed by ‘chunking’ of vegetation using a bobcat around the rear walls. There is some time spent following with a little levelling and filling of gaps in between the chunks. This process provides an almost instant result of the new bunker looking no different than existing ones. Ongoing maintenance of these areas is minimal as when they mature they tend to look after themselves and due to their natural appearance there is little need for trimming.” **Ian Todd, Victoria Golf Club, VIC**

“I have built a couple of new bunkers at Glenden over the last couple of years. I used local river bank soil for the moulding/shaping of the bunker faces and surroundings. I planted Queensland blue couch, our predominant grass, on the faces and surrounds of the bunker to reduce washouts. I used 100mm slotted ag-pipe encased in 20mm of gravel in a trench on the bunker floor. Exiting the bunker I connected the ag-pipe to a 90mm stormwater pipe, trenched into the subsurface, to extract water from the area. I put sand into the bunker and levelled out about one week before opening for play.” **Wade Cranston, Glenden Golf Club, QLD**

“Following the floods in 2011, the club decided to embark on a bunker refurbishment programme which basically saw us start from scratch. Old



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sand and drainage were completely removed. Ross Watson then oversaw the reshaping and in some instances relocation. New drainage was installed before the bunker was completely lined with BunkerMat and new sand added.

The works have significantly reduced the amount of labour required to keep them in good condition, especially following the heavy rain we experienced in late January. At its heaviest, we received five inches in a day and there were no washouts or pooling, making rectification work very easy. We have also planted Plateau couchgrass around the edges. This has reduced edging requirements by up to 60 per cent.” **Brett Morris, Brisbane Golf Club, QLD**

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“When we construct bunkers we always enclose all drainage material in the drain with shade cloth and tuck it into the side of the drain to keep the material at the bunker floor level. This works extremely well with long-term drainage of bunkers even when we get high rainfall. We have turfed the faces down to the base level to reduce the work required to restore bunker faces. Members amazingly were very happy with the result and it is certainly much easier for us to maintain. Primo is an absolute must around the bunkers. When we recently shaped the fairway bunkers, the whole concept around the shape was

“Carnarvon has implemented a programme of converting sand to grass bunker faces in recent years with just two remaining to complete. At the same time as changing the faces we have re-shaped the bases to be a lot flatter to reduce surface water movement and hence sand movement within the bunkers. The result has been a reduction in the time to rake the bunkers, repair after big storm events and sand contamination is very low.

Due to the high number of rounds (80,000+) we still suffered damage to bunker edges from golfers in the areas where balls tend to collect or in bunkers short of the greens. We also experienced a lot of sand build-up on the faces in these areas due to golfer numbers. These problems needed to be rectified every few years as the faces started to become vertical from undercutting and sand build-up. This process became a lot easier after the purchase of a second-hand mini-excavator to the point where we can remove up to 20 tonnes of built-up sand

and reurf the damaged faces in just a handful of hours with only 3-4 staff.

The problem of undercutting the faces still existed though and we have now trialled a method of installing half length sleepers at an angle of about 45° into areas that were undercut in high use areas. This method is fairly cheap and quick, especially with the mini-excavator. The first sleeper section we completed is now more than a year old and is still in virtually the same condition as when the sleepers were installed, where normally we had to refurbish these faces every three years. The sleepers allow us to wash a lot of the excess sand back into the bunker without eroding the edge of the bunker, reducing the rate of sand build-up above the sleepers.

Despite a lot of negative feedback at first the trial has been deemed a success and we have continued the programme with several already completed and more sleeper installation planned for the end of this summer.” **Steve Jacobsen, Carnarvon Golf Club, NSW**



# superintendents and golf clubs course maintenance standards



to ensure ease of cutting and maintenance with a simple circular shape which doesn't tend to date or go out of vogue." **Wayne Tickle, Ballina Golf Club, NSW**

"Freeway has 24 bunkers across the golf course, some of which have a sand surface area of over 350m<sup>2</sup>. With only a team of five, we have been looking for ways to reduce time spent in bunkers and still provide reasonable conditions for golfers to play out of. The two main concerns we identified were the grass species around the bunkers and the impact rain and irrigation had on bunker condition.

Keeping the grass species to only couch and using pre- and post-emergent herbicides in addition to a growth regulator has reduced our maintenance schedule by half. We now only edge and flymo 3-4 times per year, rather than the previous 6-8 times with the old 'mixed species'. These works can take 2-3 weeks to complete (around other duties).

A major issue was with the original choice in sand type for our bunkers when they were refurbished nine years ago. The sand was not properly tested and although it performed well for the first couple of years, its high silt content inevitably has caused significant drainage issues. The new type of sand we selected needed to meet a couple of important criteria regarding particle size

and drainage rate to ensure that the bunkers did not end up with the same problem.

We wanted sand that was low in silt content to prevent poor infiltration rate. However, we also wanted the sand to consist of a variety of particle sizes so it would still have the right locking properties when used on the faces. The issue here was if we went the other way and had no silt and coarse to very coarse sand as a higher percentage, the bunker would drain but be too soft to play out of.

The drainage rate of the previous sand was performing at a reduced rate of 0-5mm an hour. This meant that even irrigation over the summer months could cause pooling or firming of the bunker base. The new sand chosen has a drainage rate of 150-200mm an hour. This means that after most rain events and all irrigation cycles the sand's playability remains very consistent. Large rain events greater than 30mm still cause bunker faces to erode, but nowhere near the extent of the old sand.

To date we have completed 13 bunkers and look to complete the rest in 2012. Player satisfaction, playability and presentation of the new bunkers is high, yet the time and money spent on maintaining them is greatly reduced." **Heath Crawford, Freeway Golf Course, VIC**

"Recently at Mandurah Country Club we have been looking at ways to re-shape, re-size and generally update our bunkers. While examining ways to use our time on the course to the fullest, we realised just how much needless time we spent raking bunkers. I'm sure this would be the feeling of many course managers. Further inspection made us realise that we could remove one or two bunkers that were only used by kangaroos and downsize many of the others which would eventually give us time for more pressing course maintenance matters.

We feel that some of our greenside bunkers are a little on the large side with steep sand faces leading up to fairway or greenside level. Long, unsightly tongues are used as entry points which are maintained with Flymos taking up further time. The aim is to reconstruct the bunkers so that the noses or tongues flow into the bunker on a gradual slope at certain areas taking away the sand face

"All the sites we manage have had the bunkers constructed in a myriad of ways. A more standard spec would be very helpful throughout the industry and negate a lot of the short cuts taken in order to cut costs.

Most of the work we have done is drainage oriented along with the re-matting of faces. We have found BunkerMat to be an excellent product that holds the sand in place, reduces plugged balls and eliminates wash-aways.

In regards to drainage, we have installed 'Lay Flat' above existing dilapidated drainage systems and solid pits where necessary. These options have

only been used as short-term solutions before money is available for proper reconstruction.

Another product which has been extremely beneficial in reducing maintenance and firming faces is the addition of 'Soil Bond'. This product is a little time consuming to apply as it requires infusion into several layers while maintaining moisture levels, but well worth the effort. Other works we have undertaken is the raising of grass bunker faces to reduce maintenance and improve aesthetics and the enhancement of bunker lips again to improve aesthetics and create depth of perception." **Peter Jans, Sandhurst Club, VIC**

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but still keeping the general depth. This in itself will reduce the area we need to rake while making them more accessible to our senior members. We would also like to use our ride-on machines to cut around the whole perimeter, so the re-shaping will mean taking out any sharp awkward points and making the surrounding area flow more gently.” **David Cheape, Mandurah Country Club, WA**

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“We have 64 bunkers at Elanora and over the next three to four years we are aiming to undertake a bunker restoration project. I am using a new liner called Matrix which I have brought in from the USA.

The Matrix system is a new concept in bunker drainage design, utilising a layer of specially designed porous asphalt as the bunker liner. This highly porous asphalt serves as a rigid and completely free-draining barrier separating the bunker sand from potential contamination.

With a drainage rate of hundreds of inches per hour, the Matrix liner is extremely effective in eliminating washouts, thus resulting in significantly reduced maintenance costs, more consistent sand playability and rapid return to play after heavy rain. Installation is fast and simple and a regular bunker can be completed in less than an hour. Superintendents are also encouraged to perform all or part of the installation themselves, thus saving money and providing project flexibility.” **Dan Cook, Elanora Country Club, NSW**

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“We are transforming all of our bunkers to grass faces to stop erosion of the clay and rock faces contaminating the new bunker sand. In the past, the silt and clay particles coming off the faces has resulted in poor drainage, compacted bunkers and unhappy golfers. We are also replacing the sand and increasing the surface area of the drainage under the bunker sand. The 5/7 bluestone around the drainage pipes is then covered with shade cloth to prevent the sand and bluestone being mixed together. We currently have about a third of our bunkers completed and have found that it is much easier to Flymo bunker faces than trying to maintain clay and rock faces.” **Brendan Brown, Neangar Park Golf Club, VIC**



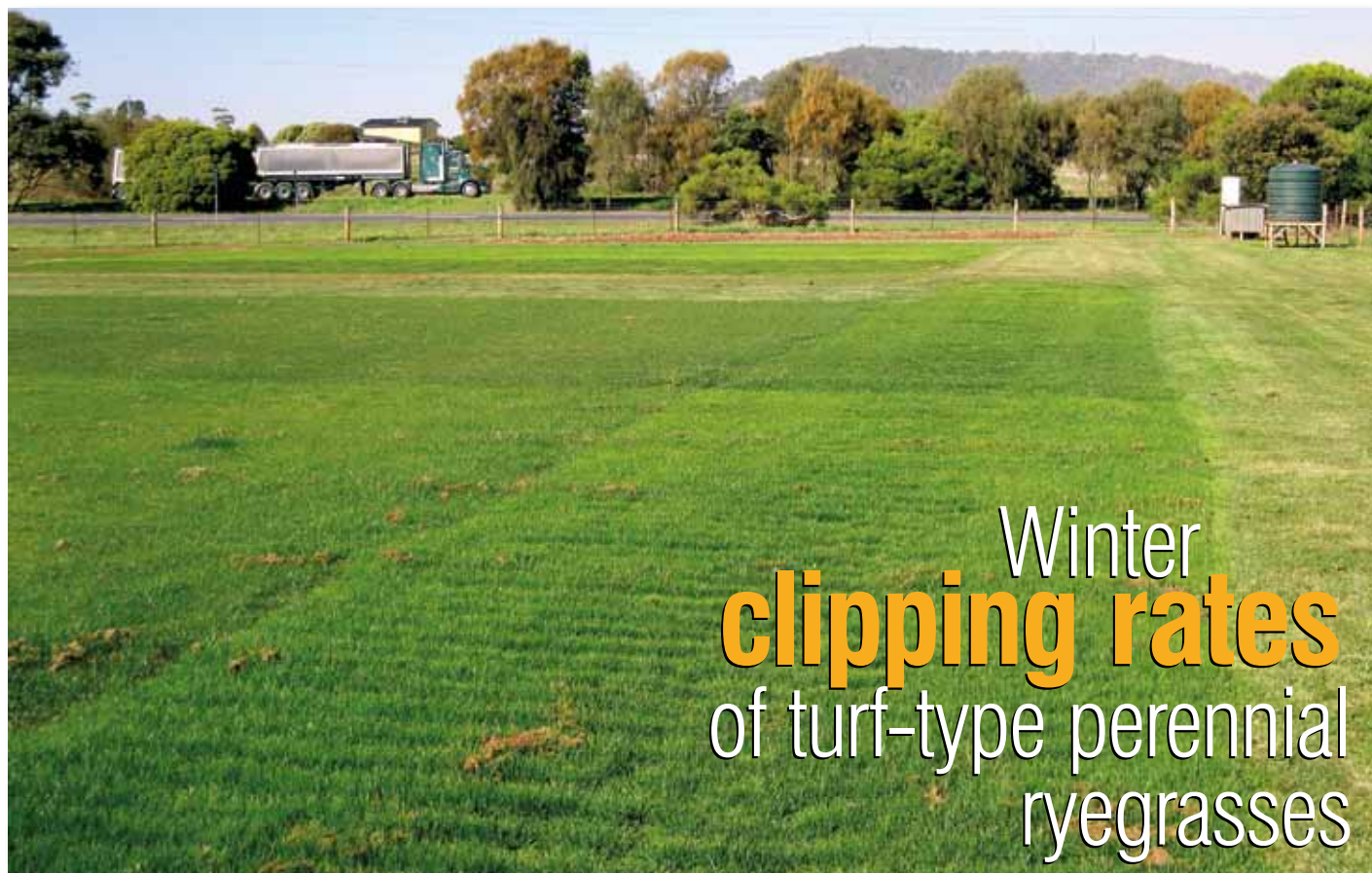
“We have been using BunkerMat since the rebuild on the 11th hole four years ago. I have modified the placement and now lay the BunkerMat 360 degrees to pick up water flowing in from all sides, not just the faces. This helps reduce damage when we get surface flows into the low sides from flooding which we are prone to. We install a trench at the base of all faces then one again through the middle. The BunkerMat is fed into the trench around the face to draw water from the mat. Bidim A14 is used in the bases to stop any contamination from the heavier soils below getting into the sand.

We have found this system is still working well for us after four years on the older bunkers. We do a lot of hand work, testing depths and re-distributing to maintain the right sand coverage for the various matting. We expect as the bunker sands break down over time with contamination from debris, particularly after flooding, that we will need to replace the sand above the trench and possibly remove the top layer through the bunker if required. We did try Sportscrete on two bunkers before the course rebuild. They drained very well but were not used during the re-build.” **Michael Bradbery, Manly Golf Club, NSW**



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PHOTOS COURTESY OF ANDREW BROOKER (PGG WRIGHTSON TURF)

With the cooler months not far off, sportsfield managers will be looking at oversowing their surfaces for the onslaught of winter sport. As Phil Ford writes, turf managers should be aware that significant differences in clipping yields between the Continental and Mediterranean types of perennial ryegrass do exist.

**Above: The Ballarat trial site where clipping yields of Mediterranean turf-type perennial ryegrasses was compared against Continental turf-type varieties**

Many turf managers assume that turf-type perennial ryegrasses are all much the same and that variety selection isn't as important as when selecting a variety of bentgrass or couchgrass. But the species *Lolium perenne* covers a wide range of genetic variation and includes diploid or tetraploid types or hybrids with annual ryegrass, transitional or persistent types, high or low endophyte types and Continental or Mediterranean types. So there are real differences between ryegrass varieties that affect their performance and their suitability for a particular use.

Perennial ryegrass originated in Europe and adapted and diversified itself over a wide land mass from northern continental Europe through to the Mediterranean region, including northern Africa. Northern continental Europe has extremely cold winters, often with snow cover. The growing

season in this climate is in the summer. So the perennial ryegrasses from this zone (which we'll call 'Continental' types) grow with peak activity from late spring through summer and autumn. They close down their activity in winter, giving them a greater ability to survive snow and ice, hence the term 'winter hardy'.

The Mediterranean climate, on the other hand, has hot dry summers and the main rainfall is over the winter. So the perennial ryegrasses from this zone (the 'Mediterranean' types) grow with peak activity through the autumn-winter-spring period before closing down somewhat over summer, giving them a greater drought resistance. If well irrigated, however, they maintain good activity through summer as well.

These traits are genetic and hard-wired into their lifecycle and when you move them to a new location, such as southern Australia, they still follow

**TABLE 1: WINTER FRESH CLIPPING WEIGHTS (G/100M<sup>2</sup>/DAY)**

| Cultivar/Blend      | Type          | 6 May              | 31 May             | 28 June           | 14 Aug            | 2 Sept           |
|---------------------|---------------|--------------------|--------------------|-------------------|-------------------|------------------|
| Fiesta 4            | Continental   | 90 <sup>a</sup>    | 34 <sup>a</sup>    | 21 <sup>a</sup>   | 23 <sup>a</sup>   | 261 <sup>c</sup> |
| T3                  | Transitional  | 241 <sup>b,c</sup> | 98 <sup>b</sup>    | 32 <sup>a,b</sup> | 38 <sup>a,b</sup> | 208 <sup>a</sup> |
| Trio Pro            | Continental   | 287 <sup>c</sup>   | 112 <sup>b,c</sup> | 32 <sup>a,b</sup> | 31 <sup>a</sup>   | 370 <sup>e</sup> |
| Arena 2             | Continental   | 202 <sup>b</sup>   | 106 <sup>b,c</sup> | 47 <sup>b</sup>   | 39 <sup>a,b</sup> | 243 <sup>b</sup> |
| Arena 1             | Mediterranean | 225 <sup>b</sup>   | 153 <sup>d</sup>   | 73 <sup>c</sup>   | 57 <sup>b,c</sup> | 400 <sup>f</sup> |
| Colosseum           | Mediterranean | 377 <sup>d</sup>   | 133 <sup>c,d</sup> | 67 <sup>c</sup>   | 41 <sup>a,b</sup> | 292 <sup>d</sup> |
| Sports Oval         | Mediterranean | 298 <sup>c</sup>   | 147 <sup>d</sup>   | 74 <sup>c</sup>   | 61 <sup>c</sup>   | 394 <sup>f</sup> |
| <b>LSD (P=0.05)</b> |               | <b>59</b>          | <b>34</b>          | <b>20</b>         | <b>19</b>         | <b>14</b>        |

**Note:** A very rough 'rule of thumb' is that 1mm of mowing yields around 500g/m<sup>2</sup> of fresh clipping weight. If this is true, the growth rates of most ryegrasses was around 0.5mm per day (3.5mm per week) in early May and a little bit higher in early September. In mid-winter, however, the growth of Fiesta 4 was more like 0.3mm per week compared to the Mediterranean types which were around 1mm per week. Figures within each column that have the same letters are not significantly different.

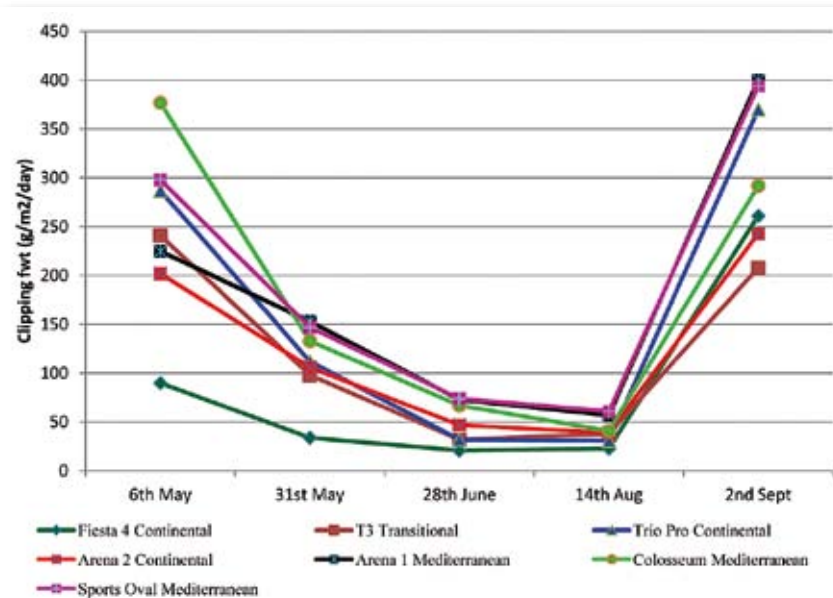


their original growth pattern. So the winter hardy Continental types will have very slow growth over the winter and look to grow more strongly in the summer. This extra activity in the summer makes their drought resistance poor unless generous irrigation is applied. The Mediterranean types on the other hand have better winter activity but are also a little more drought resistant than the Continental types.

This fact has been known and exploited in the grazing industries for many decades. The pasture-type perennial ryegrasses used in southern Australia and New Zealand are locally developed cultivars based on imported Mediterranean genetic material, which provides better feed yield over the cooler months and better drought resistance over the summer (Silsbury, 1960).

When the breeding of 'turf-type' perennial ryegrasses took off in the US in the 1960s, the parent material incorporated the genetics of winter-hardy plants from old stands on the east coast of the US and north-west Continental Europe (Funk & Clarke, 1989). The basis of varieties such as 'Manhattan' and 'Pennant' was largely of the Continental genetic type and most of the modern turf-type cultivars bred in the US or Europe continue to use Continental genetics.

Naturally the US breeders would produce varieties that tolerate their conditions, very cold winters, perhaps with snow cover. Due to their




**Figure 1: Mean fresh clipping weights (g/m²/day) of perennial ryegrass cultivars**

exceptional density and dark colour (and also clever marketing) these Continental types have been widely adopted in the turf industries of Australia and New Zealand, despite evidence from the pastoral industries that Mediterranean varieties would be better suited to our climate and needs (Stewart & Aberdeen, 1997). One obvious advantage of the Mediterranean types for football fields is the higher winter growth rate. The question is how much higher is that growth rate?



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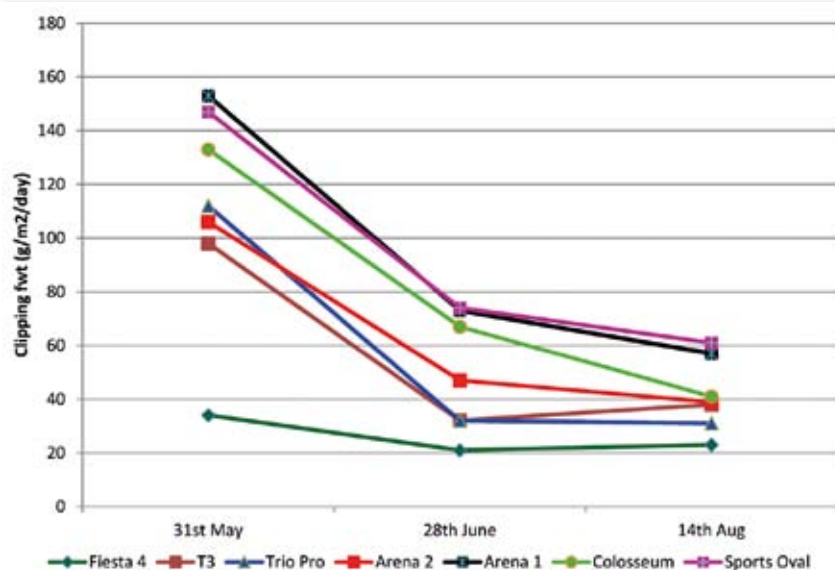


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**Figure 2: Mean fresh clipping weights (g/m²/day) of perennial ryegrass cultivars over winter**

## METHOD AND RESULTS

The aim of this trial was simply to quantify the clipping yield over winter of Mediterranean turf-type perennial ryegrasses (Colosseum, Arena 1, and the Sports Oval blend which contains a mix of three varieties – Colosseum, Tambour and Arena 1) for comparison with Continental turf-type varieties (Fiesta 4 and Arena 2, and the TrioPro blend which contains a mix of Fiesta 4, Arena 2 and Centurion). A transitional ryegrass (T3) was also included as part of the trial.

Field plots of each variety or blend were established at the PGG Wrightson experimental field station at Leigh Creek, near Ballarat, Victoria in April 2010. The soil is a ferrosol (red soil) with excellent drainage and nutrient levels and a combination of slow release and soluble fertiliser applications maintained excellent quality, density and purity throughout the trial. Regular mowing was carried out at 20mm using a rotary ride-on.

Starting in May 2011, when the plots were over 12 months old, fresh clipping weights of three replicate 8m² plots were measured periodically using a pedestrian rotary mower and catcher. The results were converted to grams of clipping fresh weight per 100m² per day since their last mowing. Analysis of Variance was used to determine the statistical least significant difference (LSD) values, which are shown for each date of assessment in Table 1 (previous page).

In this table, only the clipping weight values that have a different superscript letter are considered statistically significantly different. So on 6 May, for example, the clipping weight for Fiesta 4 is significantly less than T3, but there is no significant difference between T3 and TrioPro. Ballarat is a cold environment, as most people know, and the mean maximum air temperature for June was 11.6°C.

The clipping weight results are shown in Table 1 and Figures 1 and 2. Figure 2 shows the results just

for mid-winter, to better demonstrate the differences between the plots during the coldest part of the season.

## DISCUSSION

All of the ryegrass cultivars or blends had a sudden, dramatic decrease in growth rate with the onset of winter and a sudden recovery in growth with the onset of spring. As well as a physiological response to temperature, the growth responses may be partly attributable to the rate of nitrogen release from the slow release component of the fertiliser programme. Soluble N sources were used through the winter, but perhaps the rates could have been higher.

Figure 2 shows more clearly the differences during the winter period. Fiesta 4 grows extremely slowly during the mid-winter. The Mediterranean cultivars Colosseum, Arena 1 and the Sports Oval mix (containing Mediterranean varieties) all produced more than four times the clipping weights through May and more than three times the clipping weights through June, compared to Fiesta 4.

The Mediterranean cultivars also produced significantly higher clipping weights than the other Continental types (Arena 2 and the TrioPro blend) and even the transitional cultivar (T3) during May and June. By mid-August the Mediterranean cultivars Arena 1 and the Sports Oval blend still had significantly higher clipping weights than Fiesta 4 or the TrioPro blend.

The graphs show other interesting trends. Colosseum had the highest clipping production at the start of winter, but only a moderate production by the onset of spring. The two blends (Sports Oval and TrioPro) and Arena 1 had the highest recovery of clipping weights at the onset of spring.

## CONCLUSION

The Mediterranean cultivars had significantly higher winter clipping production compared to the Continental cultivars.

Winter performance of a turf variety on a football field depends on its initial wear tolerance and, after wear, on its recovery rate. Leaf growth is an essential element of this recovery so the higher clipping production of the Mediterranean types during the mid- to late winter can offer a major benefit.

In a more passive situation, such as a lawn or parkland, low winter production of clippings might be an advantage. The cultivar Fiesta 4 or the blend TrioPro offers this, as well as an attractive dark green colour and high density.

Perhaps more work is required covering a wider range of cultivars, but the Australian and New Zealand turf industries should be aware that differences in clipping production rates between perennial ryegrass cultivars do exist, particularly between Continental and Mediterranean types. These differences can have significant effects on turf performance and should be factored in when turf managers select cultivars. 🌱



## LIGHTER LOOK

The Mediterranean cultivars Colosseum, Arena 1 and in the Sports Oval blend are a lighter, brighter green and nowhere near as dark as the Continental cultivars. While dark green foliage is very attractive, the following photograph shows up a potential advantage of the lighter colour.

In the photo (of an area adjacent to the plots being used for the above trial) the ryegrasses established in drill lines and *Poa annua* has invaded the gaps in between. The contrast between *Poa* and the dark variety (Fiesta 4, on the right) is unattractive, but in the Colosseum (on the left) the *Poa* is not so noticeable.





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PHOTOS BY BEN EVANS AND BRETT ROBINSON

# Anthracnose management in *Poa annua* greens

The frequency and severity of anthracnose outbreaks on *Poa annua* putting greens have been attributed, in part, to management practices employed to improve playability. ATM looks at this particularly aggressive disease and ongoing research being undertaken by Rutgers University in the US.

Above: Anthracnose basal rot is one of the most feared diseases of *Poa annua* in summer. The disease can spread quickly and can be extremely difficult to control once turf is infected

Anthracnose, caused by *Colletotrichum cereale*, is a destructive disease of cool-season turfgrass, in particular *Poa annua* putting green turf. Anthracnose can occur both as a foliar blight and a rot of the crown, stem base and roots (basal rot). Anthracnose foliar blight typically occurs during mid-summer and attacks the leaves and stems of most cool-season turfgrass species. Anthracnose basal rot can occur during spring, summer and autumn and develops in the crowns, stem bases and roots of annual bluegrass and creeping bentgrass, usually on golf course putting greens.

Anthracnose foliar blight appears as irregular yellow or bronze patches of diseased turf. Symptoms on individual plants first appear as yellow or red lesions on the oldest (outermost) leaves, then progress to a blighting of younger leaves and shoots. Occasionally, fungal fruiting structures called acervuli can be observed with a good quality hand lens on diseased leaves and stems. Acervuli resemble small, black pin cushions and are the site of spore production.

Anthracnose basal rot symptoms vary depending on the grass species affected. On annual bluegrass, symptoms appear as a bright yellowing of the turf in irregular patches. Affected bentgrass turf typically appears as irregular red or bronze patches and rarely appears yellow. On individual plants affected with anthracnose basal rot, a dark brown or black colour is present at the base of the plant. As the disease worsens, the darkening (rotting) progresses up the stem and acervuli can be observed with a hand lens on stem and leaf tissue.

The causal fungus, *Colletotrichum cereale*, survives the winter as dormant resting structures

called sclerotia and as dormant mycelium in infected plant debris. During early spring outbreaks of anthracnose basal rot, the fungus, which may have overwintered in the plant, initiates infection at the base of the plant.

Outbreaks of anthracnose foliar blight and/or basal rot can result when spores produced in acervuli are dispersed by splashing water or tracked by mowing equipment from one area to another. These spores then germinate and cause new infections on other plants. Anthracnose is likely to occur when plants are growing slowly (during periods of hot and cold temperatures), during overcast periods, and in high humidity conditions.

## LATEST RESEARCH

Between 2005 and 2010 researchers from Rutgers University (James Murphy and Bruce Clarke), University of California (Frank Wong), NC State University (Lane Tredway), University of Guelph (Tom Hsiang) and Cornell University (Frank Rossi) studied the biology, ecology and management of anthracnose in *Poa annua* turf.

Among this extensive body of research they evaluated registered and experimental fungicides, fungicide programmes and annual bluegrass management practices including nitrogen fertility, chemical growth regulation, mowing, rolling, topdressing, verticutting and irrigation, as well as the potential for some practices to interact. The results of these were published in Volume 10.6 of Australia Turfgrass Management Journal (**'Best management practices for combating anthracnose' – p44-50**)

Researchers at Rutgers University (Murphy, Clarke, Charles Schmid, James Hempfling and Ruying Wang) are continuing this research over the next couple of years and are evaluating the impact of the following cultural practices on the incidence of anthracnose in *Poa annua* putting green turf.

- Nitrogen source;
- Rate of nitrogen fertilisation during summer;
- Sand topdressing programming; and
- Mid-season cultivation on anthracnose severity.

A trial to determine the effect of soluble-N sources on anthracnose severity was initiated in the summer of 2010. Five soluble-N sources (ammonium nitrate, ammonium sulphate, calcium nitrate, potassium nitrate, urea) were applied at 0.1lb per 1000ft<sup>2</sup> (48.8g/100m<sup>2</sup>) every week or biweekly for 12 and 16 weeks in 2010 and 2011 respectively.

Nitrogen applied every week reduced disease severity 9-26 per cent on seven out of the nine rating dates in 2010 and 2011 compared to biweekly applications. Interaction data from 2011 indicated that weekly applications of potassium nitrate reduced disease severity compared to all other N sources, whereas, weekly applications of ammonium sulphate increased disease severity. Two additional trials were initiated in 2011 to identify the mechanisms involved with N-source effects. These trials were designed to determine whether



potassium nutrition or soil pH have effects on anthracnose severity.

Another trial was initiated in 2009 to determine the optimum rate of summer soluble-N fertilisation to suppress anthracnose severity and whether excessive rates may enhance disease. N fertilisation rates of 0.4lb per 1000ft<sup>2</sup> (0.2kg/100m<sup>2</sup>) every seven days consistently produced the lowest anthracnose severity during the first half of the season.

However, from mid-July to late-August (Northern Hemisphere summer) these rates enhanced anthracnose severity compared to 0.2lb per 1000ft<sup>2</sup> (0.1kg/100m<sup>2</sup>) every seven days which provided the greatest reduction in disease severity. Over the three year study, a cumulative soluble-N rate of 3.4lb to 3.9lb N per 1000ft<sup>2</sup> (1.7kg to 1.9kg per 100m<sup>2</sup>) during the summer (12 weeks) provided the greatest overall reduction in disease severity.

A three-factor trial was also initiated in 2010 to determine whether autumn topdressing (medium sand) interacts with the effects of either spring or summer topdressing on anthracnose severity. The first year of data indicated that autumn topdressing at 4ft<sup>3</sup> per 1000ft<sup>2</sup> (0.12m<sup>3</sup>/100m<sup>2</sup>) lessened disease severity on five of 12 rating dates, whereas topdressing at 8ft<sup>3</sup> per 1000ft<sup>2</sup> (0.24m<sup>3</sup>/100m<sup>2</sup>) provided a greater reduction in disease (10 of 12 dates).

Spring topdressing at 4ft<sup>3</sup> per 1000ft<sup>2</sup> (0.12m<sup>3</sup>/100m<sup>2</sup>) had a stronger and more consistent effect than autumn topdressing, reducing disease severity on nine of 12 rating dates. Spring topdressing at 8ft<sup>3</sup> per 1000ft<sup>2</sup> (0.24m<sup>3</sup>/100m<sup>2</sup>) provided the greatest suppression of disease (all dates). Biweekly topdressing at either ¼ or ½ft<sup>3</sup> per 1000ft<sup>2</sup> (0.008m<sup>3</sup> or 0.016m<sup>3</sup> per 100m<sup>2</sup>) during the summer did not affect anthracnose severity during 2011.

Mechanical injury from cultivation practices during the summer did not influence anthracnose severity. One trial examined the effect of scarification depth (0, 0.05 or 0.3 inches) on anthracnose severity and indicated that scarification, regardless of depth, had no effect on the disease. A second trial investigated whether the apparent increase in anthracnose severity observed after verticutting in a previous trial was an artifact of defoliation or was due to an actual increase in disease.

Trials evaluating a fifth objective, the effect of important factors on anthracnose fungicide efficacy, will be initiated in spring of 2012. Potential



factors to be investigated in these trials include N fertility, topdressing and mowing height. These factors will be combined with fungicide factors such as application timing (calendar vs threshold applications) and application sequence (rotation vs limited rotation) to determine the impact of best management practices on fungicide requirements for the control of anthracnose on *Poa annua*.

## ACKNOWLEDGMENTS

*This article has been compiled using material taken from the USGA's 2011 Turf and Environmental Research Summary, Penn State University's Center for Turfgrass Science and Ben Evans (Bardwell Valley GC, NSW).* 🌱

## CULTURAL AND CHEMICAL CONTROL OF ANTHRACNOSE

**P**roper fertilisation and maintaining good soil physical conditions are the most effective cultural approaches to managing anthracnose. If your turf is under-fertilised, increase the rate and/or frequency of nitrogen fertiliser applications. This will improve resistance to the disease and aid in turf recovery. Add potassium and phosphorus if your soil test report indicates a need. Improved drainage and a regular aeration programme will reduce excess soil moisture, alleviate compaction and improve root growth, creating conditions that are less favourable for anthracnose.

Preventative (before the disease occurs) applications of fungicides are generally more effective in controlling anthracnose foliar blight and basal rot than curative (after the disease appears) applications. Application timing will vary from one region to another and possibly from year to year at the same location. The best way to time your applications is to keep records for several seasons of the environmental conditions under which the disease occurred on your course, then apply fungicides when conditions are conducive for disease development.

**Source: Penn State University  
Centre for Turfgrass Science**

**Proper fertilisation and maintaining good soil physical conditions are the most effective cultural approaches to managing anthracnose**



**Left: Outbreaks of anthracnose foliar blight and/or basal rot can result when spores produced in acervuli (the black, pin cushion-like fruiting structures) are dispersed by water or tracked by mowing equipment from one area to another**



# Grafton District Golf Club NSW

Home to one of the country's largest floral festivals, Grafton in northern NSW also boasts one of regional Australia's most beautiful golf courses.

Superintendent for the past 21 years John Nelson gives ATM an insight into this little slice of regional paradise.

**Superintendent:** John Nelson.

**Nickname:** Nelly.

**Age:** 47.

**Years as a superintendent:** 21 years.

**Years as an AGCSA member:** 21 years.

**Association involvement:** GCSAQ.

**Turf management career:** I started as an apprentice greenkeeper at Grafton Golf Club in 1981. I was promoted to 2IC in 1984 until leaving in 1988. I then worked at the Grafton District Ex-Servicemen's Club as 2IC on two bowling greens and nine-hole golf course for six months before being lured back to Grafton District Golf Club as superintendent in 1989. Worked for six months before taking six months leave without pay to travel overseas. Twenty one years later I'm still here!

**Turf management qualifications:** Cert III through Charlestown TAFE. Half completed Cert IV through NMIT. Accredited course superintendent with the AGCSA for 15 years.

**Where in Australia is Grafton and what is the town famous for?** Grafton is in northern NSW, 620 kilometres from Sydney and 350km from Brisbane. It is famous for the Jacaranda Festival (November), Australia's longest running floral festival, and the July Racing Carnival, the biggest country race meeting in Australia.

**Tell us a bit about your background in turf management and how you got into the game?** I was in Year 9 at school when I set my sights on a career in greenkeeping. The outdoor lifestyle, horticulture and operating machinery really appealed to me. Work experience at the local bowling club further confirmed the career choice. On leaving school at the end of Year 10 I gained casual work at another local bowling club, reconstructing its green before being fortunate enough to get an apprenticeship at the Grafton Golf Club at 16.

**Give us an overview of Grafton District Golf Club and some of its unique characteristics?** The club celebrated its centenary back in 2001 with golf being played on the current site since March 1954. The course has a real bushland setting offering great views from various elevated areas around the course. The course has always boasted an outstanding layout and offers a great test to golfers of all abilities. Kangaroos are synonymous with the club and require some unique management.

**You have been at Grafton District Golf Club almost your entire turf management career – how has the club and the industry as a whole changed over that time?** The club has gradually





**Far left: Grafton District Golf Club in northern NSW is situated in a picturesque, undulating bushland setting which affords great views from various elevated areas around the course. Pictured is the par five 9th from the clubhouse**

**Left: The Grafton maintenance crew from left Bill Philp, Jake Green, Lee Burchell, Josh Tracey, Dean Niland and superintendent John Nelson**

improved its amenities over the years and the course presentation has improved enormously. This has been helped with great improvements in machinery. The biggest change would have to be the increase in compliance and the associated managerial requirements. When I started, my boss never even had a desk! Now look at us, we could actually use a part-time secretary!

**What are some of the unique features about Grafton District Golf Club from a turf management perspective? Is it an easy/hard facility to manage?**

It is a difficult site to grow grass with poor native soils and low average rainfall. With infiltration rates as low as 1mm/hr, water penetration is difficult with a lot of run-off and we get flooding on low areas of the course. No tees or greens go under water, however, and the course does dry off quickly allowing play to resume.

**Take us through your turf management operations there and how you have fine-tuned them during your time as superintendent?** I'm all about being as productive as possible, while trying to provide the best possible presentation. Flex deck mowers have improved efficiency on surrounds and tee banks. We have recently purchased a Buffalo turbine blower and with a lot of trees on the course this item has really improved our efficiency and presentation. Product wise, how good is Primo? We use it almost everywhere.

**Any special environmental considerations that you have to incorporate into the management of the course?** The environment is considered in almost every decision you make. For us our work in improving the soil biology, mostly in our greens, has greatly reduced our use of pesticides and other inputs. We wash down (or blow) all machinery 'in field' with dam water.

**What are some of the major challenges facing Grafton District Golf Club both from a turf management and general club management perspective?** Our major challenge is always financial. Our club has been through a lot of years showing losses and this has a direct impact on our turf management, particularly machinery and course upgrades. The club has run the past two years without a manager and we have shown a profit. The club is meeting these challenges with members volunteering to help in all areas from managerial to mowing roughs, maintaining gardens and doing the garbage runs and the future looks much brighter. Financial restraints are probably the biggest difference between most country clubs and bigger city clubs, due purely to less members and less throughput in the clubhouse and on the course.

**Outline any major course improvement works completed in the past couple of years and highlight any ongoing or future works that the club is undertaking.** Twenty years ago the club initiated a greens replacement programme, constructing all greens to sand/perched water table profiles with Tifgreen surfaces, including some layout changes to enhance safety and playability.

**Grafton currently has 12 Tifgreen (328) greens and eight Queensland blue couch greens which are due to be reconstructed. Pictured is the 2nd**



**Grafton has always boasted an outstanding layout and offers a great test to golfers of all abilities. Pictured is the par three 6th**



This was done in consultation with Peter McMaugh and the Greensite Company. All works were done in-house with the use of local contractors.

This has been on hold for the past 10 years due to financial and rezoning restraints, with eight holes requiring completion. We are about to start construction of two new holes replacing two holes that are being subdivided for safety concerns. The money from the subdivision will be used to

reconstruct the remaining old greens on the back nine. What this will mean for the club is 18 identical surfaces with a safe and dynamic layout.

**How is Grafton District GC faring in the water management stakes?** The condition of the course is directly related to the amount of rainfall, with above average rain equating to a good green picturesque course, while through the years of drought we really struggled to produce an aesthetic course, at times being limited to watering tees and greens only. We have received above average rainfall the last four summers, which has been great. We fortunately received a water grant in 2007 that enabled us to install some infrastructure to help with water harvesting and reduce our use of potable water.

**The one product I couldn't manage my course without is...** probably Primo Maxx as it helps so much with getting good pace on your greens without having to put them under as much stress as you otherwise would.

**What are some pros and cons of being a regional superintendent?** Pros – the country lifestyle. Cons – the tyranny of distance which makes it difficult to attend field days and other state association days. I am actually a member of the GCSAQ as it's closer and the climate and grass varieties are similar.

**Are expectations of course presentation and conditioning any less than that placed on your metropolitan counterparts?** I don't think so. All golfers have high expectations. In saying that, most understand it is about the size of your budget. For me its life's motto – do the best you can with what you have to work with."

**Do you have to be more resourceful as a regional-based superintendent?** You certainly need to be very resourceful and have a very resourceful turf technician. We purchase second hand equipment

## AT A GLANCE - GRAFTON DISTRICT GOLF CLUB

**Course specs:** 18 holes, 5877 metres, par 71, about 35 hectares of mown turf on a quite undulating 65 hectare property. We have 12 Tifgreen (328) greens and eight Queensland blue couch greens (feel a bit like the Last of the Mohicans) yet to be reconstructed. These greens are oversown each April with *Poa annua*, which makes for an excellent putting surface. The tees are either Queensland blue couch or Greenlees Park couch. The fairways are Queensland blue couch with the roughs being Queensland blue couch with carpetgrass, lovegrass and Parramatta grass.

**Cutting heights:** Greens 4mm, tee tops and first cut surrounds 12mm, surrounds and tee banks 50mm, fairways 17mm and roughs 75mm.

**Members:** 941.

**Annual rounds:** 26,000.

**Major tournaments/events:** Jacaranda Open held in November, Heron Cup in July, Ladies May tournament and Veterans tournaments in May and October.

**Annual course management budget:** \$290,000 including wages, superannuation etc.

**Course staff structure:** John Nelson (superintendent), Dean Niland

(assistant superintendent), Lee Burchell (groundsman), Josh Tracey (greenkeeper), Jake Green (apprentice) and Bill Philp (mechanic – 14 hours per week).

**Climate:** Hot humid summers, warm humid autumns, beautiful winter days after cold starts with warm to hot dry springs.

**Soil types:** Clay shale.

**Water sources:** Five on course storage dams, with a water allocation of 22 megalitres. Annual rainfall of 1100mm.

**Irrigation system:** Automatic hydraulic block system to tees and greens with centre line QC valves for fairways. The system, installed in 1975, is a ticking time bomb requiring ongoing repairs.

**Renovations:** Major greens reno carried out in early December when we really rip into them. Minor renovation in early April when we also oversow our old Queensland blue couch greens. Some grooming in early spring.

**Major disease pressures:** We have a pretty good handle on managing major pests and diseases by looking at the history and planning preventative programmes and balancing this with an holistic approach to soil biology.



and have a very old fleet of machinery so that resourcefulness is tested daily.

**If you could change one thing about your job as a regional superintendent what would it be and why?** Bigger budget for machinery.

**How important are the relationships you have with other nearby country course supers/trade reps?** Very important. I'm best mates with Andrew Smith at Yamba Golf Club and we chat and help each other out regularly. I also have a good relationship with Max Whatman (Nuturf) who is very helpful and informative.

**Given your distance from the major metro areas, how do you make sure you keep abreast of the latest turf management techniques and methods?** Obviously Australian Turfgrass Management Journal and phone calls to other supers. Attendance at conferences if possible.

**What are some of the more unusual requests/things you have had to do as a superintendent of a regional course?** I've had to herd wild cattle back into the neighbouring abattoir and have put up electric fences around newly grassed greens to keep the kangaroos out (my dog Hugo is also pretty effective at scattering kangaroos on the course.)

**What have you got in your shed?**

- 2 John Deere 2500A greens mowers;
- Toro Reelmaster Sidewinder (tees, first cut surrounds);
- John Deere 1145 with 72" Lastec flex deck (surrounds, tee banks);
- John Deere 3365 (fairways);
- John Deere 1445 and 2 John Deere 935 (roughs);
- Toro Sand Pro 5000;
- 2 Club Car golf carts and three utes;
- John Deere 3520 tractor and loader;
- Iseki TU320 tractor with 400-litre Hardi boom;
- Toro topdresser, Turfmach CD36 scarifier, Turftec power broom, Buffalo turbine blower.

**Which piece of machinery gets trashed the most and if you had a wish list what would be the next major ticket item that you would like to purchase and why?** All our machinery is well maintained and operated which has kept them going for so long. It would be nice to be able to replace the two old dinosaur rough mowers. We have two John Deere 935s which are 20 and 23 years old respectively that are still in full use (mostly by volunteers). We have recently replaced a Toro 3000D greens mower with over 7000hrs.

**Do you think regional/country superintendents have a better work-life balance than their metro counterparts?** I don't really know. I think it's up



to the individual super and the club. I am very conscious of keeping a good balance. If you are on the big bucks they'll want their pound of bacon.

**Favourite spot on your course?** Seventeenth tee. An elevated par 3 tee in a bush setting looking down on an impressive green.

**Most pleasing/rewarding moment during your time as Grafton District Golf Club superintendent?** It's always very rewarding when opening new holes or greens and it's great to hear compliments about the course and its presentation from impressed visitors.

**Name three golf courses that you would like most to visit and why?** I have been very fortunate to have played most of the top courses in Australia and the Old Course at St Andrews. Obviously Augusta would be at the top and any of the links courses in Britain; I love them. 🇬🇧



**Grafton has five on course storage dams (pictured is the 18th green with dam behind) with annual rainfall of 1100mm**

**Looking down the par three 17th from the tee**

## OFF THE COURSE - JOHN NELSON

**Family:** Wife Meghan, daughter Claudia (17) and son Jack (14).

**Any claims to fame outside of turf management?** Life member of Westlawn Tigers Football Club. I coach my son's junior team as well as our youth league side.

**Any interesting hobbies/past-times away from turf?** Obviously football (soccer), surfing, fishing and camping.

**Favourite sporting team?** Brisbane Roar

and Sydney City Roosters.

**What book are you reading now?** Bill Bryson – Down Under.

**Golf handicap?** 14.

**Favourite golfer?** Greg Norman.

**The best thing about Grafton (aside from the golf club) is...** that it offers a fairly laidback lifestyle and is a great place to bring up a family.

**What do you do to get away from it all?** Surfing, camping and fishing.



The career of one of the most celebrated superintendents in Australia came to an end in January with the departure of John Odell from Royal Sydney Golf Club. In early February industry friends and colleagues paid a fitting farewell to one of the legends of the profession.



## Here's to you John Odell

The announcement by NSWGCSA president Craig Molloy came as Odell was toasted and roasted for a turf management career that has spanned nearly four decades. The likes of long-term friends and industry colleagues Gary Dempsey (NSW Golf Club), Bruce Kemp (ex-Maxwell & Kemp), Geoff Hatton (Sustainable Turf Renovations), Graham Logan (ANZ Stadium), Richard Kirkby (Pennant Hills Golf Club), Scott Armstrong (Globe) and Pat Pauli (Horton Park Golf Club) all paid tribute to Odell, while in true Martyn Black style, the Castle Hill Country superintendent penned an ode (see opposite) in honour of a man whom he first met as an apprentice at Pennant Hills.

While there were plenty of wonderful (and unprintable) tales regaled from his years in the industry, there was a serious side to the farewell. Odell was lauded as a man of integrity, passion and commitment, one who consistently set the standard for an industry and who had unstintingly upheld that standard throughout his entire career.

"It is the end of an era," Bruce Kemp, formerly of Maxwell and Kemp, stated. "Guys like John are few and far between and hopefully the old fashioned values that John spent a lifetime bestowing upon the guys coming through the industry have rubbed off."

Pat Pauli, who spent time alongside Odell as a Board member of the AGCSA, added: "John has always gone into bat for the underdog. Even

**Right: Odell with farewell cruise organisers Mark O'Sullivan (left) and Martyn Black (right)**

**Below: Gary Dempsey (left) and Richard Kirkby (right) share in the laughs at the farewell bash**



Recently departed Royal Sydney Golf Club course superintendent John Odell has been nominated for life membership of the New South Wales Golf Course Superintendents Association. The announcement came as around 110 of Odell's friends and turf industry colleagues from across the country enjoyed an afternoon on Sydney Harbour in early February to farewell a man who has played one of the more integral roles in the development of the Australian turfgrass industry.







**Around 110 friends and turf industry colleagues from across the country paid tribute to John Odell in early February, shortly after he finished up as course superintendent at Royal Sydney Golf Club**

though he is one of the guys in the top echelon of our industry, he has always fought hard for those below him. John is a consummate professional and I congratulate him on what he has done for the industry and the way he has helped to raise the profile of course superintendents everywhere. We all owe him a great deal."

One of Australia's most accomplished, admired and respected golf course superintendents, Odell shocked the industry shortly before Christmas by announcing he would be leaving Royal Sydney at the end of January 2012, bringing to an end a 24-year career as 'custodian of the links'.

Odell was appointed Royal Sydney Golf Club course superintendent at the start of February 1988 following the sudden death of Kim Melville, a Scottish agronomist who had been at the club since the late 1970s. Odell, who had served his apprenticeship under the legendary Pennant Hills superintendent Vince Church, arrived at Royal Sydney after stints as superintendent at both Concord (1979-1986) and Manly (1986-1988) golf clubs.

Over the next two and a half decades Odell would oversee maintenance of the club's 57 hectares of turf and landscape areas which include two golf courses (the 18-hole championship course and the nine-hole Centenary course), bowling greens, 18 tennis courts (of which 11 are turf) and a croquet lawn. During that time he hosted five Australian Opens (2008, 2006,

1999, 1994 and 1988), a Federation Cup tennis tie in 2001 and most recently the 2011 Davis Cup tie between Australia and Switzerland.

As well as major international sporting events, Odell also played an integral role in significant changes to the Rose Bay club's famed playing surfaces. Perhaps the biggest of these was the 2002-03 remodelling of Royal Sydney's championship course under the auspices of course architect Ross Watson. More recently, Odell was involved with the development of a new multi-million dollar leisure centre at the club and the construction of a new Tiddwarf bowling green.

At the time of this edition going to print Royal Sydney had yet to make an announcement as to Odell's replacement, with Cameron Stuart running the day-to-day operations until a decision is made. As for Odell, the next phase in his life now begins and he and wife Christine will be setting up base in Young, NSW where he will be working with his brother-in-law who runs an abattoir and a cherry orchard. 🌿



**It was an at times emotional farewell for Odell who was lauded by his peers as a man of integrity, passion and commitment**

## ODE TO J.O.D

*He burst on the scene at 17 at the beautiful Pennant Hills.  
Night watering on 'posties' in bare feet or thongs,  
We had our share of thrills and spills.*

*Solid as a rock from day one, he'd never leave ya in the lurch  
A trait he admired in the 'Great man' Winston Richard Church.*

*He loved his rugby union as much as he loved his lunch,  
Famous for his lack of footwork, but the best with the 6-inch punch*

*One night we thought we'd get the vandals!  
With beer and pick handles at the ready.  
We'll cave their heads in he hissed  
But in the end we fell asleep behind the 12th green – pissed!*

*At the tender age of 21, off to Concord he went  
And as it was with all his clubs, they thought he was heaven sent.  
A young man with integrity, commitment, passion and pride,  
His persona was such that the whole bloody club would be carried  
along in his stride!*

*From Manly and then on to 'The Royal' his reputation grew  
As a bloke who would fight for the underdog;  
And the fights that he lost were few!*

*Now J.O.D has pulled the pin on a bloody amazing career.  
He gave so much in near 40 years and that is why we are here.  
Some in shock, some in awe, some of us think it's a shame,  
But who among us would have the courage to quit at the top of their game?*

*So congratulations John Odell, you can hold your head high.  
The men that you've helped or trained through the years now lift you towards the sky!  
Now stand and receive the accolades, soak up the cheers of the crowd,  
And know this 'J' – Vince, your dad and brother Pete,  
Mate, they would be so proud!*

**Martyn (Fargo) Black, February 2012**



## SYDNEY SHOWGROUNDS CHALLENGE APPEALS TO O'KEEFFE



**The Sydney Showgrounds is undergoing a turf transformation in time for Greater Western Sydney's first home game in its debut AFL season this May**

The Royal Agricultural Society of NSW (RAS) has appointed Terry O'Keeffe to the newly-created role of head turf curator for the new Sydney Showground Stadium. The stadium will be the new home ground of AFL expansion side Greater Western Sydney which will play its maiden home game in May 2012.

O'Keeffe, who started in the new role shortly before Christmas 2011, formerly worked under Tom Parker at the Sydney Cricket Ground (SCG) and brings with him more than 25 years of industry knowledge. "To be part of an organisation with such a rich and proud history as the RAS, and being involved in the growth and development of AFL in Greater Western Sydney, will be exciting and no doubt rewarding," says O'Keeffe.

"If a person was asked to look after the Domain

for concerts, Rosehill Racecourse, the SCG, an equestrian facility, a rodeo ring and throw in thousands of movements from two and four legs, they would say it can't be done. Bring these things together and that's what makes this role unique in this country, a role which I am thrilled to be a part of."

O'Keeffe will be tasked with keeping a watchful eye on the Stadium turf during the Big Day Out and Soundwave music festivals, the RAS Show which begins on 5 April and then transforming the surface into an elite sports field in a matter of weeks. "I do love a challenge," says O'Keeffe. "It won't be an easy process, but I am confident the RAS can lead the way in showing the rest of the events and venue industry what can be achieved and I am looking forward to the feedback from around the country,"



## ROBERT (BOB) JOHN WARE (1951-2011)

The NSW bowling greenkeeper community bid farewell to one of its favourite sons late last year following the death of Bob Ware. 'The Bear', as he was affectionately known by members of the NSW greenkeeping community and Yamba Bowling Club where he was head greenkeeper for 30 years,

passed away peacefully on Monday 5 December, 2011 after a long battle with leukaemia.

Ware, whose greenkeeping career spanned four decades, was one of the true characters of the greenkeeping community according to close friend and neighbour Andrew Smith who is course superintendent at Yamba Golf Club. "Bob was one of those guys who would do anything for anyone and if ever there was a barbeque he would be the one doing the cooking," says Smith. "He was always helping out and was a true character and a great man who carried a huge amount of respect among the greenkeeping community. He will be sadly missed."

Ware's career in turf management started at Monash Country Club in Sydney before heading to Lennox Head where he ended up finishing his greenkeeping studies at Lismore TAFE. Working at Ballina Golf Club, he would spend his spare time helping bowling clubs in the area, including Evans Head, Casino RSM, South Lismore and Ballina as a casual greenkeeper, filling in for staff on holidays. In 1975 he became head greenkeeper at Yamba Bowling Club and spent five years there before heading to Maclean Bowling Club. He stayed there seven years before returning to Yamba in 1987 where he remained until falling ill.

In 2005 the NSW Bowling Greenkeepers Association bestowed upon Ware the Scotts Australia Greenkeeper of the Year Award for his efforts over many years. Not only were his greens at Yamba the envy of all clubs in northern NSW, Ware was also a prolific player, winning numerous district titles between 1989 and 2003 as well as nine singles titles at Yamba. He was also heavily involved with the Clarence River Greenkeepers Advisory Council and Northern Rivers Greenkeepers Association.

Ware, who was 60, is survived by wife Liz and children Melissa and Ben.

## LETTER TO THE EDITOR

Dear Editor,

I have read the articles on course superintendent Richard Forsyth and the others on Royal Melbourne Golf Club (ATM Volume 13.6) as part of your Presidents Cup preview. Congratulations on a wonderful publication. May I make one point without trying to sound like the smartie that always picks up some minor issue, or in any way detract from the quality of your journal.

On page 14 (**Vol 13.6 – Royal's renaissance**) you state that Forsyth is "just the fifth course superintendent in the club's illustrious history". Strictly speaking this is not correct. Richard is only the fifth in the last 106 years. J.W. Horsfall preceded Mick Morcom, both of whom had the title of head greenkeeper. Prior to Horsfall, from the club's minutes it is my impression that William Kilgour had a significant role in the preparation of the first Sandringham course, including the ordering of items for construction.

Between his sudden resignation a month before the opening (my thought is perhaps because of illness) and the appointment of Horsfall, Abbott (initials unknown) was moved from Caulfield (then the location of Royal Melbourne), where he was 'caretaker' but obviously also with some responsibilities for the course, to Sandringham. Banks, almost certainly 'Dick', assumed the role for a short time, but departed soon after Horsfall's appointment.

My guess is that at Caulfield none really could have been called a head greenkeeper – the professional and the caretaker would have carried out the duties. J.W. Horsfall and probably William Kilgour would have had a right to claim that status, even though Kilgour is referred to as 'caretaker', just as Abbott had been at Caulfield. Having said this, your point that there have been very few head greenkeepers, course managers (Crockford) and course superintendents is very valid. Mine is nit-picking and to a certain extent semantics.

John S. Green

Member, Royal Melbourne Golf Club

**Editor's Note:** John Green, a member at Royal Melbourne for 60 years, has recently produced a stunning book on the courses at Royal Melbourne (see page 60).



# NIEL FRANCIS ADAMS (1938-2012)

The Western Australian golf course superintendent and turf community lost one of its most influential and pioneering practitioners early in the New Year with the passing of Niel Francis Adams. Adams, a life member of the Golf Course Superintendents Association of Western Australia (GCSAWA) and a past recipient of the AGCSA Distinguished Service Award, passed away at his home in Duncraig, Perth on Thursday 5 January after a long battle with cancer. Adams was 73.

One of the true gentlemen of the Australian turf industry who influenced many of WA's up and coming greenkeepers, Adams was most known for his time at Perth's Lake Karrinyup Country Club where he served for 20 years, including 10 years as course superintendent between 1984-1994.

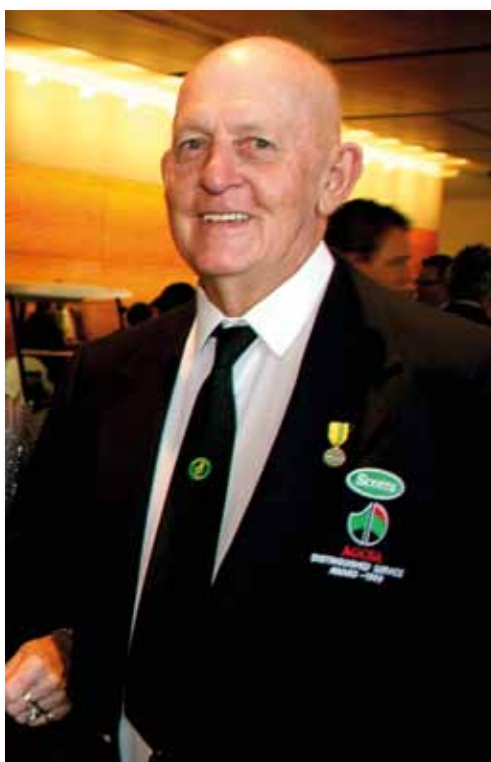
Growing up on a wheat and sheep farm, Adams moved to Perth in 1970. With a penchant for working outdoors, he took up a part-time job as an assistant greenkeeper at Scarborough Sports Club in 1972/3 where he tended to the club's bowling greens. After gaining his greenkeeping qualifications through Claremont Technical College, on 1 April 1974 Adams started as an assistant to Lake Karrinyup Country Club head greenkeeper Pat Meagher.

After a decade's tutelage under Meagher, Adams was promoted to course superintendent in 1984 where he quickly found himself in charge of the construction of the club's nine-hole Short Course. Adams would stay on as course superintendent at Lake Karrinyup until taking early retirement in 1994.

Adams was a driving force behind promoting the professional development of greenkeepers and played a major role in developing the GCSAWA. Having attended state meetings as early as the mid-1970s and inspired by colleagues he had met at the Second National Turf Conference held in Adelaide in 1982, Adams put his hand up to take over as GCSAWA president in 1983, even though still an assistant at the time. The association's finances weren't in the best of health and together with secretary Tim Chape they dipped into their own pockets to keep the association in the black.

With only a small superintendent community in WA, Adams' forward thinking saw association membership extended to assistant superintendents and trade and, from just 20 members in 1984, by 1986 the GCSAWA was flourishing with more than 100 members on the books.

Among Adams's many initiatives as president were starting formal superintendent education days in WA and also upgrading the Certificate presentation and award night for WA graduate greenkeepers to encourage them to take pride in their education. Adams was also responsible for getting the national turf conference to head across to WA for the first time in June 1988 which included guest speakers such as Dr James Beard. As president of the GCSAWA, which was organising



the conference at the time, Adams also assumed the mantle of president of the then Australian Golf Course Superintendents Association from 1986-1988.

Following his retirement in 1994, Adams was bestowed life membership of the GCSAWA and five years later at the 4th National Turfgrass Seminar held in Perth, Adams was fittingly awarded with the AGCSA's highest honour – The AGCSA Distinguished Service Award – for his 25 years' service to the industry. In doing so, he became only the third recipient of the award behind Victorian Bill Powell (1997) and New South Welshman Vince Church (1998). In 2000 Adams was also awarded the Australian Sports Medal for services to golf.

Adams is survived by his wife Eleanor, three children and five grandchildren.



**Above: Following his retirement in 1994, Adams was bestowed life membership of the GCSAWA. Adams (right) is pictured accepting the honour from Trevor Strachan**

**Left: 1999 AGCSA Distinguished Service Award winner and GCSAWA life member Niel Adams passed away after a long battle with cancer at the start of 2012**

**Adams (back right) pictured in 2011 with fellow GCSAWA past presidents (from left) Darren Wilson, Tim Chape, Craig New, Mark Claes and Jeff Lane**



## JOHN DEERE'S NEW SUBCOMPACT UTILITY TRACTOR SERIES THE 1



**John Deere's new 1023E and 1026R subcompact utility tractors can accept dozens of attachments and implements**

**J**ohn Deere has released its new 1 Series subcompact utility tractors onto the Australian market. The 1023E and 1026R models provide operators with a versatile workhorse that offer a wide array of features usually seen on larger tractors.

The new 1023E (17.3kW) and 1026R (18.5kW) can accept a number of different attachments and implements, such as front loaders, mower decks, rotary tillers and even a backhoe. Using exclusive

AutoConnect technology, operators simply drive over the top of the mowing deck to attach it to the tractor. In addition, iMatch AutoHitch compatible 3-point hitch implements can be attached or removed from the tractor's 3-point hitch in minutes without the operator needing to leave the seat.

Both tractors have a wide-stance for increased stability and a standard folding ROPS system for roll-over protection. The 1026R also features a deluxe lighting system to enable work in low-light conditions, cruise control for mowing in open fields, tilt steering, a tool box, a 12-volt outlet and a position control 3-point hitch which allows the operator to return the hitch to the same height with ease.

When mowing, operators can easily adjust mowing height from the seat of the tractor with the deck height adjustment knob and process high volumes of grass with the durable 7-Iron deck, made from 7-gauge steel.

**John Deere 1 Series subcompact tractors are available at your local John Deere dealer. For more information on the 1 Series visit [www.deere.com](http://www.deere.com) or call 1800 800 981 (Australia) and 0800 303 100 (New Zealand) to contact your local John Deere dealer.**



**The Graden GSR 1200 greens roller will be rebadged as the Toro GreensPro 1200 following Toro's recent acquisition of Graden's greens roller product line**

### TORO ROLLS WITH GRADEN ACQUISITION

The Toro Company recently announced it has acquired the Graden greens roller product line, which includes the GSR 1200 greens roller. Toro's acquisition does not extend to Graden's other turf maintenance product lines which include zero-turn mowers, verticutters and sand injectors.

The acquisition provides entry into a new product category for Toro and broadens its offering to golf customers worldwide. "This acquisition fills an important product gap in our core golf business and helps further strengthen our offering in the greens care category," says national sales manager, golf Peter Schumacher. "Rolling greens has become an important factor in the preparation of quality putting surfaces for golf courses and improves the health and playability of the greens."

The business transition of the Graden product line will occur over several months with completion expected in early 2012. The GSR 1200 will be rebadged as the Toro GreensPro 1200 greens roller and sold exclusively through Toro's distribution channel worldwide.

In addition, greens roller products will be integrated into the Toro commercial business and eventually manufactured at Toro's Spellbrook plant in the United Kingdom. During the transition to Toro's manufacturing facilities Graden has agreed to produce Toro-branded product to expedite availability and satisfy customer demand.

### DEDICATED SDS CONTROL

Bayer has announced that its turf fungicide Dedicate, which was launched in Australia at the 2009 Australian Turfgrass Conference in Hobart, is now registered for the control of spring dead spot, one of the most damaging diseases of couchgrass in Australia. Spring dead spot is caused by the fungus *Ophiosphaerella namari* with symptoms of the disease appearing in late winter and early spring as temperatures start to rise and couchgrass starts to grow after winter.

Trials undertaken by Bayer have shown that two applications of Dedicate at 2 litres per hectare give as good spring dead spot control as the current standard. These applications should be made a month apart in the January to March period and after spraying the chemicals needed to be watered into the rootzone where the fungus is causing infection of the turfgrass roots.

In other company news, 14 Bayer customers will be donning racing overalls in March after winning the V8 SuperSchool Competition. Among the lucky winners were Keperra Country Golf Club course superintendent Keith Johnson, Rodney James (Twin View Turf), Adrian Pitsikas (Greenacres Turf Farm, WA) and Dean Fleming (Joondalup Country Club, WA) who will head to the V8 SuperSchool on the Gold Coast for a full day of racing challenges on 12 March.

**Dedicate®**



## NEW MELB PREMISES FOR GLOBE

Globe Australia's Melbourne Service Centre has shifted from Railway Parade, Oakleigh to new premises in Tullamarine. The new warehouse and offices are located at 19 Silicon Place, Tullamarine, VIC 3043 just a couple of minutes from the Western Ring Road. **The new service centre phone number is (03) 9335 1330 and fax (03) 9335 1310.**

## COUNTRY CLUB UNVEILS NEW WEBSITE

Country Club International unveiled its new-look website in late January. The remodelled website (pictured right) contains information on the company's wide range of products which include

golf range equipment, golf course equipment and furniture, high safety netting and impact netting, water treatment systems, fuel and chemical storage systems and chemical sprayers.

Customers can now quickly access information on the range of Country Club suppliers (including the likes of Par Aide, Enviromist, ESD Waste2Water Convault and Range Servant) under the 'Our Suppliers' tab, while you can also download the latest Country Club Clippings newsletter which provides a wrap-up of projects being undertaken around the country.

**For further product information visit the new Country Club International website [www.countryclub.com.au](http://www.countryclub.com.au) or freecall 1300 138 804.**



## GLOBE, BARMAC ACQUIRED BY CK LIFE SCIENCES



After adding Nuturf to its portfolio in 2005, Hong Kong-based CK Life Sciences has again moved on the Australian turf market by announcing early in the New Year that it had entered into an agreement to acquire the businesses of the Peaty Trading Group, which comprises the likes of Barmac P/L, Globe Australia P/L and Globe Equipment Solutions P/L.

In a press release issued on 5 January, CK Life Sciences president and chief executive officer H.L. Kam says the A\$31.34 million

acquisition will strengthen the organisation's market coverage in its agriculture-related business in Australia, as well as bring to CK Life Sciences an extensive customer base and distribution network.

"With the inclusion of Peaty to our portfolio, CK Life Sciences will become one of the largest suppliers of agricultural products and services in Australia, particularly in turf management, home garden products and pest management," says Kam. "We are delighted to add Peaty to our Australian

portfolio of agricultural-related investments. CK Life Sciences will continue to seek new investment opportunities to further expand our businesses in the vineyard, turf and pesticide industries, as well as in other fields in the future."

CK Life Sciences, which is engaged in the business of research and development, commercialisation, marketing and sale of health and agriculture related products, expects to complete the acquisition in the first quarter of 2012.

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## The Royal Melbourne Golf Club – History of the Courses

By John S. Green

Full Swing Golf Publishing, 2011

**R**oyal Melbourne Golf Club holds a special place in the Australian and world golf psyche with both the West and East courses among the finest examples of golf course architecture. Much has been written about the club and its famed courses over the years, but perhaps none quite as significant as the wonderful book released late in 2011 by long-time club member John S. Green.

**'The Royal Melbourne Golf Club – History of the Courses'** is a superb 224-page hard cover book which details the history of the club's famed West and East courses. Green's book concentrates on the period 1901 to 2001, from when the Royal Melbourne Golf Club first moved to its location in Sandringham in Melbourne's south east through to the time before recent alterations were made to some holes on both courses. The period prior to this (back to the club's origins in 1891) is also covered, as is the most recent decade and its changes, but in less detail.

There is perhaps nobody more qualified than Green to compile such a book. A retired medical practitioner who has been a member of Royal Melbourne for 60 years, Green was club champion on three occasions and over the years has served on several club committees, including the Green Committee and History and Archives Committee.

Green first began working on this project in the early 1990s, receiving help from a variety of sources including past captains and Royal Melbourne Council members, members of the club's History and Archives Committee, Joseph Johnson (who wrote the club's Centenary History in 1991) and

historian and club member Alan Shaw. During this time Green painstakingly uncovered many little-known facts which add great interest to the book.

Following the foreword penned by five-time Open champion Peter Thomson, Green begins the book by looking at Royal Melbourne's early home at Caulfield. After detailing the club's move to Sandringham, the bulk of the book then concentrates on the West and East courses where he outlines the evolution of each hole. Readers will be intrigued by the various maps and original drawings by Dr Alister MacKenzie and Alex Russell that have been included, as well as numerous black and white aerial photographs and more recent colour photographs which underline the changing nature of the courses.

Perhaps the most interesting segment of the book for readers of this journal is the chapter simply titled 'MacKenzie, Russell, Morcom and Crockford'. In this section Green not only pays tribute to the design brilliance of Dr Alister MacKenzie and Alex Russell, but also Royal Melbourne's iconic greenkeepers Mick Morcom and Claude Crockford who played a leading role in helping the courses achieve worldwide acclaim.

**Just 500 copies of Green's book have been printed and each has been individually numbered and signed by the author. The AGCSA has six copies of this rare book available for the exclusive purchase by AGCSA members through the AGCSA Bookshop for just \$215. Contact Lyndel Conway on (03) 9548 8600 or email [info@agcsa.com.au](mailto:info@agcsa.com.au) to get your copy. Once they are sold no more copies will be available.** 📖

## CURRENTLY AVAILABLE THROUGH THE AGCSA BOOKSHOP....



**Best Management Practices for Saline and Sodic Turfgrass Soils**  
By R.N. Carrow and R.R. Duncan  
- CRC Press, 2011

Using the 'best management practices (BMPs) concept, the latest offering from Bob Carrow and Ronny Duncan examines the complex issues around salinity management, presenting comprehensive scientific principles and detailing practical management and assessment recommendations for turfgrass and landscape sites. The overriding message of the book is that there is no 'silver bullet' amendment, treatment, or grass for salinity management and that only a holistic BMPs approach will be successful and sustainable.

**AGCSA members:** \$121

**Non-members:** \$145



**Turfgrass Management (9th Ed)**  
By A.J. Turgeon - Prentice Hall, 2012

Over the past 25 years Alfred Turgeon's Turfgrass Management has become regarded within the industry for its thorough coverage of turfgrass science and technology and has been a principal text for many of those making their first foray into the world of turfgrass management. 2012 sees the release of the ninth edition which contains numerous updates including expanded coverage of the history of turf, anatomy and morphology, climatic adaptation as well as soil physics.

**AGCSA members:** \$247

**Non-members:** \$284



**Color Atlas of Turfgrass Weeds (2nd Ed)**

By McCarty, Everest, Hall, Murphy and Yelverton - Wiley (2008)

The second edition of this popular weed identification and management manual stretches to more than 420 pages (150 pages more than the first edition) and includes 50 new weed profiles plus 400 additional, high-quality, full-colour photographs of weeds in habitat, seedhead or flower, and in some cases what the weed looks like when dormant. Includes a CD-ROM which features an image bank of more than 1000 photographs, control strategies and control recommendations.

**AGCSA members:** \$170

**Non-members:** \$205





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**Turf Australia recently hosted NX Gen 12, a forum designed to encourage, support and motivate young members of the turf producer community**



# Turf growers look to the NX GEN

Turf Australia recently conducted a successful 'next generation' forum for young up and coming turf growers in Echuca.

Many Australian turf growers are facing issues with how to keep young people interested in staying in the turf production game, or even attracting them in the first place. With this in mind Turf Australia last year initiated a new programme called NX GEN to engage young growers and future leaders of the turf production industry.

The introductory forum, held last August at the Turf Australia annual conference, attracted young growers to an informal meeting where topics such as succession planning, communication and mentoring were presented and discussed, along with networking opportunities. This event was considered a success and led to the NX GEN 12 seminar, held in early February at Coolabah Turf in Echuca, Victoria and hosted by Brad and Suzie Shearer.

"Young people are the key to our industry's future," says Brad. "We are all getting older and without young people to hand the torch to the industry is threatened. Technology is changing at a rapid rate and young people with the knowledge and ability to embrace this are sure to bring profitable change to the industry, but they need to be encouraged and helped to grow professionally along the way."

Brad and Suzie Shearer were Future Leaders grant recipients in 2009, gaining the opportunity to represent Australian growers at a Turf Producers International (TPI) conference in the USA.

"The Future Leaders programme enabled us to network with growers from around the globe," says Suzie. "We noticed most were more than happy to

share their knowledge and this encouraged us to invigorate other young turf producers in our local industry on our return."

Today, Brad and Suzie are big advocates for encouraging young people to enter and remain in the industry, a view shared by Turf Producers Australia (TPA), on which Brad also serves as a director. TPA chairman Adrian Pitsikas supports the new initiative.

"TPA is aware many businesses struggle at times to keep the appeal of working in the turf industry attractive to young growers," says Pitsikas. "Quite often newcomers to the industry have little exposure or experience in decision making in the business, but are eager to learn. The knowledge gained and contacts made at a NX GEN event can't be seen in a text book or at a turf management training course.

"Young industry members need to feel they have friends in the industry who can offer advice, or even mentor, using their experience gained from many years in the industry. Life's too short to make all the mistakes yourself. The NX GEN forums give young growers the opportunity to learn from other people's mistakes by hearing about them first hand."

The NX GEN forum in Echuca had presentations from various experts, including:

- **Succession planning and communication (Suzie Shearer, Coolabah Turf):** How to transition business management from experiences of others who have done it well; essential and effective communications tips to enhance outcomes with staff, family and customers;
- **Marketing fact and fiction (Gavin Rogers, Sir Walter Group):** Managing your marketing and branding, and successful modern-day techniques to reach your target market; advertising trends and the importance of websites and social media.
- **Turning paddock into profit (Gavan Hegan, Nuturf):** Agronomic tips to make turf production more profitable;
- **Social media – making it work (Lloyd Grosse, Internet Vision Technologies):** Demonstrating the power of social media such as Facebook and Twitter and how they can work for turf businesses;
- **Polish up on your presentation (Simon Adermann, Nuturf):** How projecting a professional image can provide value to customers; planning and prioritising time and the importance of setting goals;
- **Farming for profit (Gavin Mann):** Understanding costs of production.

The forum was attended by young growers from all over the country and even gained interest from growers in the USA, where TPA general manager Matthew Holmes was attending the TPI Mid-Winter conference.

"TPA and TPI enjoy a healthy relationship and





building a future for the industry is an area of importance to both organisations,” says Holmes. “TPI have recently started a NX GEN programme of their own and are looking to Australia for ideas to implement themselves. There is also talk of an exchange programme between overseas and Australian growers to provide an even greater opportunity to young people in our industry.

“The recent TPA NX GEN event is not a ‘once off’. It will continue to grow and be as much benefit to mature business owners as it will be to those starting off in the industry. Many thanks must go to the speakers who gave their time to present, and Brad and Suzie Shearer for hosting and organising the event.”

**For more details or to contact TPA please call Matthew Holmes on 0427 088 200 or [mdm@turfaustralia.com.au](mailto:mdm@turfaustralia.com.au).**



**A range of topics were discussed at the two day forum from succession planning through to marketing and the use of social media**

## GROWING THE INDUSTRY OUT WEST

The Turf Growers Association WA (TGAWA) was established in 1992. Current TGAWA memberships include 21 turf production members, four allied members and two honorary members. The TGAWA executive members are:

- **Chairperson:** Adrian Pitsikas (Greenacres Turf Farm)
- **Vice-chairperson:** Dave Parker (Lawn Doctor)
- **Treasurer:** Peter Paino (Westland and Perth Turf)
- **Secretary:** Tony Demasi (Permanent Brook Turf)
- **UWA Turf Industries Research Steering Committee members:** Brian Vidovich (Betta Turf) and Steve Lindsay (Turf Developments WA).

The TGAWA proactively supports turf research and development. In particular, TGAWA is heavily involved with the University of Western Australia (UWA) Turf Research programme both financially and with in-kind support.



TGAWA is also involved with the bi-annual Turf Seminar and Trade Exhibition, attended by turf producers and maintenance managers not only from WA but also the eastern states. This popular event showcases R&D of particular importance to WA and also new findings from other national R&D programmes.

Recently, TGAWA developed and signed a Memorandum of Understanding with the Water Corporation. Excellent relations are also maintained with the Department of Water, the Department of Agriculture and Food WA and several other government departments.

In 2010, the TGAWA joined with Irrigation Australia WA, the Nursery and Garden Industry Association WA, the Landscape Industry Association WA, Compost WA and Turf Australia to form a united garden industries alliance in response to the threat of total sprinkler bans. As a result of this alliance, the ‘green industry’ was successful in preventing a total summer sprinkler ban for 2010/11 and 2011/12, to the benefit of turf consumers, users and producers.

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# NZGCSA



PHOTO: JORDAN SELLAR

**Daryl Sellar sporting the new addition to his wardrobe after last year's Rugby World Cup**

It is great to again be able to submit a NZGCSA column to this journal and I look forward to communicating the events and news from this side of The Ditch throughout 2012!

It is with much regret that I find it necessary to comment, again, on the devastating earthquakes that continue to ravage the good people of Christchurch and Canterbury. We all hope that these shakes will soon abate and life will return to some normality. Our thoughts are certainly with you all.

In March, when the new NZGCSA membership year starts, we are hopeful of launching a new 'members only' link on the NZGCSA website. Other initiatives the NZGCSA Board is keen to launch as well include the:

- NZGCSA Accreditation Programme, with the support of our friends at the AGCSA; and
- NZGCSA study tours accompanied by an internationally acclaimed speaker.

As I have indicated elsewhere, the NZGCSA Awards programme is a major part of what the NZGCSA administers and we are excited to confirm that our trade partners have extended their support again in 2012-13. We acknowledge the great support of award sponsors John Deere (**NZGCSA Excellence Award**), Powerturf-Jacobsen (**NZGCSA Graduate of the Year Award**), Prebbles (**NZGCSA Distinguished Service Award**) and PGG Wrightson Turf (**NZGCSA Environment Award**) in helping the NZGCSA recognise our industry's outstanding achievers.

Upcoming events include the North Island Fine Turf Seminar in Palmerston North (18-19 June) and the South Island Fine Turf Seminar at Lincoln (9-10 July). The NZGCSA has also scheduled a regional delegate meeting in Auckland on 1-2 May.

There has been a huge amount of rumour and speculation that the NZGCSA is looking at breaking away from the NZ Turf Conference and Trade Show. I want to take this opportunity to quash those rumours! The NZGCSA wishes to remain a part of the event for many years to come, but strongly believes the timeline between each conference should be extended to every three years. The reason for this is to allow the NZGCSA to run a golf industry conference within those three years.

At the regional delegates meeting we will also be reviewing the future of the regional Fine Turf Seminars and how these might best fit into the available timeframe. The NZGCSA believes from 2013 one Fine Turf Seminar, run by a selected region, would be sufficient.

Finally, the photo above may cause a few of you to go into shock. Yes it is one **Daryl Sellar** resplendent in an All Blacks jumper and I must say that black is definitely his colour. Needless to say poor Daryl lost a particular bet around October last year and has been copping it ever since!

**GRANT BUNTING**  
PRESIDENT, NZGCSA

## GCSAWA

What an amazing couple of months we have endured here in the West. Some weeks have been in the 40's, others in the mid-20s and then we have had a few storms.

Around Australia Day Jon Carter (Wanneroo Golf Club) watched an amazing lightning show hit his golf course which caused major damage to his decoders and controller system. Around the middle of January the beautiful Secret Harbour received 110mm of rain yet across at Pinjarra Golf Club Neil Graham recorded just 8mm. Perth itself has had a couple of good falls of rain but a lot of supers are bordering on exceeding their water quotas.

The Western Australia Golf Industry Awards dinner is fast approaching. The logistics of a night like this are incredible and without sponsors like Mike Foskett from McIntosh and Jacobsen, Andre van Schalkwyk from Greenline John Deere and Geoff Stephens and Rob Gough from Toro, the night would run at a loss every year. A big thank you to these guys on behalf of the GCSAWA.

**CHRIS CHAPMAN**  
PRESIDENT, STA NSW

**DES RUSSELL**  
PRESIDENT, GCSAWA

## STA NSW



It has been a tough start to 2012 with a very wet summer and very few warm days. Here's hoping the remainder of the year is a bit kinder.

At STA NSW our focus is on providing quality events for our members and we have a full calendar planned for this year including the return of our Sydney Seminar in April and our Cricket Wicket Seminar in September. We are excited to have ACT join forces under the STA banner and look forward to working with them to further strengthen the two associations through joint membership and sponsorships.

Our first event for the year is our Annual Golf Day which will tee off at the challenging Lynwood Country Club at Pitt Town on 6 March. We are also in the process of selecting the NSW Sports Turf Graduate of the Year and will keep you up to date as to the winner. This person

will then have the opportunity to contend for the Toro National Sports Turf Graduate of the Year. After seeing the enthusiasm of the candidates last year, our first year for the award, it is great to know that our industry is in good hands for the future.

I would like to thank our sponsors for 2012 and in particular our Gold sponsors – Sustainable Turf Renovations, Globe Australia and Bayer. All sponsors of STA NSW and ACT are valued members of our association and they allow us to continue to achieve our goals of educating, promoting and networking for the sports turf industry.

I look forward to seeing many of our members at our events during the year and wish all members luck and good fortune for the year ahead.



Queensland...wet one year, wetter the next! It does seem like Groundhog Day that I write this and without looking at it I could probably just cut and paste last year's late summer report and it would be the same – rain, rain and more rain.

There has been some flooding, though nothing like that of Brisbane last year, including yours truly whose house was flooded (and I live half way up a hill!) I was probably lucky that there wasn't a mudslide and that there was only water damage.

Some of the rainfall totals recently have been amazing, especially a little further inland. Two former AGCSA presidents **Jeff Gambin** and life member **Doug Robinson** recorded 800mm and 500mm respectively in the last week of January. My total of 588mm for January was the second wettest on record behind 1952.

New Royal Pines superintendent **Lincoln Coombes** had an extremely wet baptism with the rain arriving on cue for the Ladies Masters in the first week of February. Linc and his staff did a great job under the circumstances and the course condition was a credit to them. And sticking with recently arrived supers, **Brett Morris** at Brisbane Golf Club will probably take a lot more care shifting his pumps to higher ground next time after breaking a finger in the process!

The GCSAQ is still in the process of finalising some dates for later in the year, but is pleased to advise our first Education Day of the year will be held at Northlakes Golf Club on 13 March.

**Steve Wait** from SafeTee Pro, who is the director of safety with e-par, will be covering the new Commonwealth Work Health & Safety Act and its implications for the turf industry. Two representatives from the Cancer Council will talk to us on the important issues of skin and prostate cancer. Lunch will follow the meeting with a round of golf on **Ben Marshall's** layout. It is many years since we have been to Northlakes so it will be interesting to re-visit and see how it has matured.

I am sure editor Brett Robinson will cover **John Odell's** departure from Royal Sydney elsewhere in this edition, but in a reply to me John penned the following words; "I don't know anyone who has been involved in an industry like ours, with people of passion, endeavour and good will, people who look out for each other and help out when times are low, people who share secret formulas or innovative methods and at all times stay grounded". Such profound words and so true!

**PETER LONERGAN**  
PRESIDENT, GCSAQ



Northlakes will host the first GCSAQ education day for 2012 in mid-March

A test plot with Santa Ana couch planted in a fairway of **GRAND PRIX** couch.

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**Murray Bridge superintendent Mal Grundy (pictured with his dog Oscar) has just clocked up 30 years' service at the SA club**

The South Australian summer has once again been challenging with little rainfall and some very hot conditions, but by all reports most clubs are managing well and presenting great playing surfaces. I know many clubs more than ever are now better prepared for the hot, dry SA conditions with many projects being undertaken over the last few years to improve their water efficiency. Stormwater collection, conversion to warm-season grasses, irrigation upgrades, increased use of wetting agents and sourcing alternative water sources are just a few examples.

I don't believe there is a club in the state within the last five years that hasn't been forced to improve their irrigation management. While some clubs were very proactive, others really had no alternative to act on something that was having such a huge impact on their club. Either way, SA turf managers should be proud of the inroads they have made on irrigation efficiency. Maybe it is just me, but there does seem to be less worry among superintendents and the thought of getting their irrigation resource through a full, dry summer.

The SAGCSA calendar of events for 2012 has now been set out with some new ideas and different venues. Our first visit is to Adelaide Oval at the end

of February followed by our south east trip in May. Our July AGM will be held at Tea Tree Gully Golf Club (host superintendent Ivan Swinstead) and in October we will head to The Grange (superintendent Richard James). Our November education day is still in the planning but we hope to have a number of guest speakers covering a variety of topics. We are always looking for education topics and guest speakers for our days so if there is an area that you want us to target just let us know.

Finally, I hear that **Mal Grundy** from Murray Bridge Golf Club has just clocked over 30 years service at the club. Mal deserves great recognition for his contribution to the club, but also the club probably deserves an award for putting up with Mal for such a long stretch. In all seriousness, it is a rare accomplishment in modern times to notch 30 years' service at the one club. Murray Bridge is a fantastic country course with an excellent reputation for its greens and course conditions. Mal has always kept high standards, is a highly respected superintendent and a big congratulations goes to him from all of us here in SA.

**SAM SHERRIFF**  
PRESIDENT, SAGCSA

## TGAA WA

Prior to Christmas the weather in Perth was quite mild with even a couple of decent falls of rain. However, since then the temperature has increased and been above 30 degrees just about every day, with humidity high and blustery dry easterly winds blowing in from the desert each night, creating havoc with irrigation precipitation rates and uniformity.

Such weather conditions are largely expected at this time of the year and all WA turf and horticultural staff have to work tirelessly in the constant annual battle against a relentless summer sun.

Our TGAA (WA) Xmas social event was held at Ascot Racecourse on 14 December. A mixture of about 30 attendees, ranging from council, golf, schools, trade, contractors, turf farms, bowls, tennis and cricket curators and once again it was good to see our colleagues from Kings Park.

Looking about the room that afternoon I reflected upon this gathering of knowledgeable, skilled, experienced men and women who have dedicated their working career, and for some, their whole life to turf and horticulture.

This brings me nicely onto the subject of 'networking'. For many, networking is a lot like going swimming in ice-cold water. They would prefer to dip their toes in and wade around a bit before going further. However, to really learn more

from others, meeting, talking and listening, you are going to have to jump in and swim around.

All the friends I have made, and will continue to make, begin by just saying 'hello'. All the knowledge in that room that day would have been a great learning curve for any new person within the industry, or even someone like me who has been involved in horticulture for over 35 years.

The questions are always raised about attendances at such events and how can we get more people involved. If all the members turned up, think of all the positives that would come from this – friendship, support, advice, invited opportunities, referrals, information, ideas and introductions. Anyway, enough of my sermon for the day.

Good luck to all those turf managers who have the enviable task of keeping alive their beloved grass on our wonderful WA sands – beach sand, gutless, anti-wetting etc. They all do a great job and certainly earn their money this time of year. Our first event for 2012 is the annual Presidents Breakfast BBQ on 15 February among the pines at Kings Park. See you there.

**DAVID MILES**  
COMMITTEE, TGAA WA



**O**n reflection, the weather gods have been (so far) kind this past summer. Most of the state has received above average rainfall, but with a mean temperature average of 27 degrees our warm-season grasses have been slow moving. It has definitely been a superintendent's summer for maintaining cool-season grasses.

As most turf managers are aware, Royal Sydney Golf Club superintendent **John Odell** left the club at the end of January, resigning after 24 years at the helm. John has been a driving force in moulding not only our association but the nation's turf industry. John has been a superintendent for over 30 years and as well as his time at Royal Sydney was also superintendent at two other high profile courses – Concord and Manly.

On 8 February, 110 turf colleagues joined John on a farewell cruise around Sydney Harbour (see photos opposite and page 54-55 for more). During the cruise the NSWGCSA announced the proposal to award John life membership of the NSWGCSA association which will be officially voted on at this year's AGM in November at Elanora Country Club (host superintendent **Dan Cook**).

With the demise of the University of Sydney Masters degree, the NSWGCSA Board is pleased to advise that it will be providing four scholarships

in 2012 for post-graduate studies at TAFE. There will be two scholarships awarded to study the Diploma in Turf Management at Ryde TAFE as well as two scholarships to study Certificate IV in Turf Management in a regional area.

These scholarships will now be known as **The Peter McMaugh Scholarship** and the NSWGCSA is proud to be able to assist in the education of young turf managers and their desire to further their careers through post-graduate study.

On a sad note, our association lost a life member, **Steve Fryer** (formerly with Nuturf and Woollooware Golf Club) who was aged 61 and had been suffering from Alzheimer's for many years. Steve suffered complications from a fall towards the end of December and lost his battle on New Year's Day. Steve is survived by his wife Jill and three daughters. Donations can be made to the Hazel Hawke Alzheimer's Research and Care Fund.

The next NSWGCSA event will be the Hunter Valley Ambrose Golf Day which will return to The Vintage Golf Club (host superintendent **Steve Harris**) on 7 May.



**Friends and colleagues from all corners of the turf management industry were there to farewell John Odell in February**

**CRAIG MOLLOY**  
PRESIDENT, NSWGCSA



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Victoria's weather has been at its unpredictable best and after a wet start to the summer season the hot weather finally arrived followed by Christmas Day hail storms. To those who sprigged their greens prior to the hail storm, hopefully damage was minimal and you now have a good strike.

It has been great to hear that the number of Tifdwarf greens that went in over the last few months are doing very well. It's great to see a return to summer, especially after the past couple of years. While we are still all learning how best to maintain Tifdwarf here in Melbourne, the network of information sharing among members is growing. This is a huge asset in our industry and will help keep natural grass greens in our clubs for many years to come.

## VGCSA

It seems like we are back to a more usual Victorian weather pattern again this summer. Warm days and minimal rainfall throughout January has been normal for most of the state. Isolated thunderstorms (and even hailstorms) have again been a blessing or a curse to those that were lucky/unlucky enough to be in their path.

The VGCSA has finalised all meeting dates and locations for 2012 and at the time of this report going to print we would have just conducted our February education meeting at Cranbourne Golf Club. Nuturf were the sponsors for the day



Phil Ford

and **David Warwick** from Avondale Golf Club (Sydney) was our guest speaker. David presented on *Poa annua* Control, couch encroachment and water use reduction.

A well thought out events schedule for the year will provide our members with enjoyable but educational content which the committee has put a lot of time and effort into preparing.

The VGCSA is fortunate again to hold its AGM at Royal Melbourne Golf Club at the beginning of May. A joint assistants and superintendents meeting is scheduled for late May up on the Murray River at Echuca. Rich River Golf Club is the host venue (superintendent **Andrew Johnson**) and as per past meetings held on the 'River' the hospitality is always magnificent. These meetings should see a good start to the year for our association.

Thank you to those companies who once again chose to support the VGCSA with sponsorship. With their help we are able to support our members in many ways and supply them with networking opportunities at meetings, produce a newsletter which in itself is a great networking and education tool and to produce a calendar for our members to display. For this we are very grateful.

Finally, I am pleased to announce that **Phil Ford** is to assist the VGCSA with research, education and trials that are specific to Victorian conditions. Phil has for some time been a regular contributor of our newsletter providing detailed articles on turf related matters. Phil is well known throughout the turf industry and will be a great asset to the association.

**DYSON APPELYARD**  
PRESIDENT, VGA

## STA QLD

The recent rains have definitely brought back memories of early 2011 and although there have not been the floods of last year many places have been negatively affected by the constant rain of late January. Disease is rampant and grass growth has gone unchecked for 10 days in some places causing real havoc with the lead-up to the winter sporting months. Hopefully regular weather patterns will return and fields can be readied for the football season starting in early February.

STA QLD is in the final planning stages of the last event for its 2011-12 financial year. The event will be a trade and education day held on 28 March at Villa Nova College Sports grounds and is

shaping up as a great day. Not long after that we have our Annual General Meeting on 16 April. With the resignation of **Dan Norton** from the committee there will be an extra position to fill and hopefully new people will want to be more involved.

In May we will see the STA and Turf Australia join forces in a joint venture where turf producers get to spend quality time talking to end users about what their needs really are. It's also that time of year where thanks need to be said to all our sponsors and members for their support and dedication to STA QLD.

**ANDREW KOLBEE**  
SECRETARY, STA QLD

**STEVEN HEWITT**  
PRESIDENT, VGCSA



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*Rob Christie Course Superintendent Marysville Community Golf & Bowls Club*

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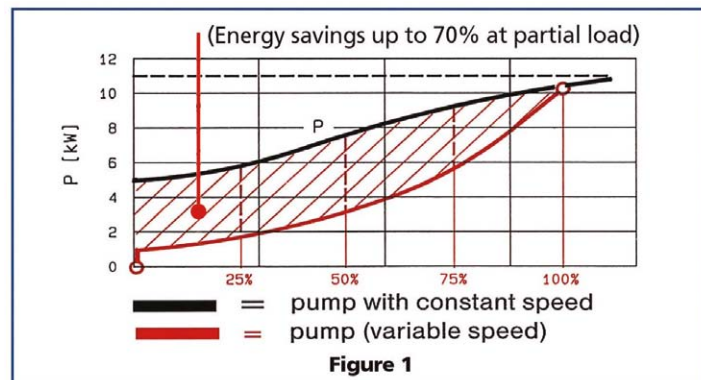
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