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MANAGEMENT JOURNAL

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PNG pilgrimage

Turfies tackle Kokoda

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COVER: Royal Adelaide Golf Club

The short par 4 3rd at Royal Adelaide Golf Club. Royal Adelaide, together with neighbour The Grange Golf Club, will host the 2008 World Amateur Team Championships in October.

Photo:
Brett Robinson



Eyeing up the Eisenhower - 2008 World Amateur Team Championships

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Over 350 of the world's best amateur golfers will descend on Adelaide in October for the 2008 World Amateur Team Championships to be co-hosted by Royal Adelaide and The Grange golf clubs. ATM visits the two courses and catches up with superintendents Jeff Kaines and Richard James to see how preparations are coming along for the world's biggest amateur golfing carnival.

Kokoda – In the footsteps of heroes 16

In July six members of the Australian turf community realised a long-held dream to walk the Kokoda Track in Papua New Guinea. Lead by NSW superintendents Martyn Black, Steve Jacobsen and Craig Wright the group completed the 104km journey in seven days across some of the most rugged terrain imaginable.



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ATM reviews the 24th Australian Turfgrass Conference and Trade Exhibition which touched down in Melbourne in July.

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Four more names were added to the AGCSA honour boards following the 2008 AGCSA Awards presented in Melbourne. ATM profiles this year's recipients Barry Cox, Kenton Boyd, Mark Jennings and Chris Thompson.

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With the recent phase-out of methyl bromide and imminent phase-out of Nemacur, Dr Graham Stirling discusses how turf managers face a future where nematodes will become an increasingly important component of the turfgrass pest and disease complex.

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Green
Gecko Range



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Indooroopilly bio diesel trials

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Superintendent Charlie Giffard outlines the trials he has undertaken over the past six months assessing the use of bio diesel as an alternative fuel source for golf course maintenance machinery.



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Contributors to Australian Turfgrass Management Volume 10.5 (September - October 2008)

Simon Adermann (Nuturf); Andrew Arrah (Point Walter GC); Leo Barber (Paraparaumu Beach GC); Tim Bilston (Heidelberg GC); Martyn Black (Castle Hill CC); Andy Blacker (SAGCSA); Peter Boyd (NZGCSA); Kurt Dahl (Permeate Partners); Pip Dudley (AGCSA); Alain Dupuis (Maxwell & Kemp); Michael Freeman (VGCSA); Charlie Giffard (Indooroopilly GC); Tony Hopcraft (VTETA); Steven Jacobsen (Carnarvon GC); Richard James (The Grange GC); Jeff Kaines (Royal Adelaide GC); Richard Kirkby (Pennant Hills GC); Stephen Lewis (TGCSA); Peter Lonergan (GCSAQ); John Neylan (AGCSATech); Andrew Peart (AGCSATech); John Phelan (VTETA); Mat Poultney (Green Acres GC); Greg Puckeridge (Four Seasons GC); Peter Ruscoe (TGAA WA); Phil Soegaard (Lakelands GC); Simone Staples (AGCSA); Dr Graham Stirling (Biological Crop Protection); Darren Wilson (Wembley GC); David Worrall (Nuturf); Craig Wright (NSWGCSA).

Turning the tables

As a rule of thumb I always leave this, the editor's note, until last before putting each edition to bed. It's something I've always done, mainly because I find it's the hardest 700 words of the whole journal to cobble together. Whether it has been the late nights watching the Olympics (the gymnastics is currently on in the background), or just trying to keep up with my two-year-old hurricane Kristian (he's toilet training at the moment and has just discovered that his Tonka truck has another use aside from storing his wooden blocks!), I have for some reason struggled with this edition's piece. So here I am just a few clicks short of midnight the day before sign off hoping that something profound will emanate from the grey matter.

Then it finally occurs to me, just as a muscle-bound German gymnast performs some stupendous vault in her individual apparatus final. In the days and weeks following the 24th Australian Turfgrass Conference I spoke to numerous delegates and quizzed them as to what they got out of this year's event. The responses varied depending on the individual and their work situation and as part of this edition's review of the week in Melbourne, The Pulse asks five delegates what they took away from the week.

But what if I turned the question on myself? What did I get out of the conference – aside from a library's worth of photos and a stuffed back? Well, having now been involved in five of the past six conferences (I missed Brisbane on account of the hurricane being born) I can truly say that my answer mirrors that of many delegates. Just as the conference provides superintendents and turf managers a perfect forum to share ideas, compare techniques and catch up with colleagues over a few quiet ones, a gathering of this sort also affords similar opportunities for someone in my position. Whether it's hearing about a course redevelopment or a major project in the pipeline, a new appointment or trials bring carried out, the annual conference has always been a fruitful source of ideas for the publication you currently hold in your hands.

This edition is no different. Turn to the environmental management section and you will read Charlie Giffard's article outlining the bio diesel trials he is currently undertaking at Indooroopilly Golf Club, something that came out of a conversation I had with a Queensland superintendent during the conference. Then there's the article on Kokoda. After listening to Steven Jacobsen and Alain Dupuis recount their amazing journey, there was little doubt that an article had to follow.

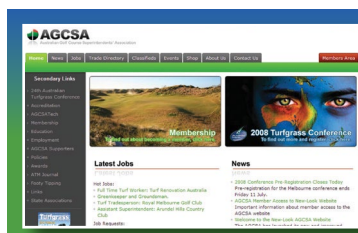
The other thing that is clear from the conference is that superintendents love to hear from one of their own. This is where Australian Turfgrass Management Journal can play an important role as well, being another medium through which superintendents can impart their knowledge, share their experiences and provide advice or comment.

If you have ever read an article by a superintendent with thought, 'I could do that!', then why not? It's not as daunting as it may appear and it doesn't matter if the grammar is a bit off as is often the concern – that's my job, and why I'm paid the big bucks! As those who have contributed in the past will attest, writing something has not only enabled them to formalise their thoughts and document something significant (say for instance a course reconstruction project) but it has often led to plenty of feedback and comment from within the industry. (As an aside, those who are part of the AGCSA Accreditation Programme have the bonus of being able to claim accreditation points for any published article). So if you fancy putting finger to keyboard, let me know.

Back to this edition and our cover story focuses on the upcoming 2008 World Amateur Team Championships. The Eisenhower and Espirito Santo trophies will be fought out at Royal Adelaide and The Grange, and shortly after the conference I had the opportunity to catch up with superintendents Jeff Kaines and Richard James. Both courses were looking in great shape and I wish both gentlemen and their crews all the best for October. Enjoy the journal.



Brett Robinson
Brett Robinson
Editor



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JOHN NEYLAN AND SCOTT PETERSEN, AGCSA JOINT GENERAL MANAGERS

A commitment to ongoing education

Another Australian Turfgrass Conference has come and gone and the planning starts over again for next year's event in Hobart (13-17 July, 2009). Planning is everything and we hope that we can build on the lessons learnt from this year's event to help do an even better job when we head to the Apple Isle.

Over the past two years we have had several superintendent panel sessions that have evoked a lot of discussion and revealed that while the technical sessions are still very important, hearing from our peers is also equally as important. In a way it describes what conferences are often about – getting together with your fellow superintendents and sharing experiences.

Proof of this was the late finish to the very final session of the conference, conducted by Daryl Sellar and Gary Dempsey on time and staff management, because of the questions and the ensuring discussions that followed. We are planning to have more such sessions next year and we look forward to feedback that we get from attendees on the topics that they would like covered.

To facilitate this process, the AGCSA has posted an online survey on its website which enables you to have your say on topics, venues and other facets that make up conference week. You can also post a comment in the forum section of the members area of the website, or call the AGCSA on (03) 9548 8600 or fax (03) 9548 8622.

The topics covered at this year's conference were many and varied, a bit like Major Grant



Gleeson's liquorice all-sorts and there was definitely something for everyone. Grant's talk on leadership was the one that left the biggest impression on me and it is particularly relevant to the turf industry. That is, we have to manage and deal with a wide range of personalities, not only within the ground staff but also within the boards and committees that are such a key part of the club structure.

It makes you realise that you have to take people as they are, develop their strengths and put them in a position where they can best use their strengths. Next time you are faced with a 'hopeless' staff member or a know-it-all board member, just maybe they have something to offer; you just need to open your mind and exploit that strength.

As we embark on planning for next year's conference we will be looking to AGCSA members to be part of future panel sessions. Don't be shy and take the opportunity if it is offered to be up the front of the class. It provides a great opportunity for self-development and to use some of the skills you will learn at the AGCSA accredited presentation and communications workshops which will be conducted around the country in September.

While it is nerve-racking getting up in front of your peers, prepare well and you will be

better for the experience. I can assure you that your peers will admire you for your courage and listen intently to your experiences.

Education continues to be a high priority for the AGCSA and in recent times we have launched the revised AGCSA Accreditation Programme (AAP) thanks to the efforts of events and education manager Simone Staples. With the increasing complexities and responsibilities of golf course and turf management the AGCSA Board have made some changes to the AAP to reflect the improved professionalism of our members and to highlight the increasing need for further education.

Ongoing education, whatever form it takes, is a crucial part of any professional person's development and the revamped programme now rewards superintendents, assistant superintendents and sports turf managers, who are members of AGCSA, for their commitment to furthering their knowledge base.

Those who are part of the programme can earn continuing education points (CEP) from a variety of education and training programmes, study tours, technical trade days and non-turf related programmes. For a full run down on how the revised accreditation scheme works, how to earn CEPs and how to get an event registered as part of the accreditation programme, visit the AGCSA Accreditation Programme section on the new-look AGCSA website.

Every day is a learning experience but if you are really desperate, look for a very large, quiet Finnish gentleman called Marku to lend a helping hand! Enjoy the journal. 🙏



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Eyeing up the 2008 World

For just the second time in the event's 50-year history, the World Amateur Team Championships returns to Australia this October with Royal Adelaide and The Grange set to co-host both the Eisenhower and Espirito Santo trophies. Royal Adelaide (pictured is the par 4 3rd) will entertain the men's tournament from 16-19 October

Since its inception the Eisenhower Trophy has stood as one of the prime pieces of silverware in the game of golf. First contested in 1958 at the home of golf, St Andrews, it represents the pinnacle of the amateur game and has launched the careers of many leading professionals.

Together with the women's Espirito Santo Trophy, which came into being six years later in 1964, the World Amateur Team Championships have been a breeding ground for the game's elite. You only have to look back at the list of past players which includes current stars Tiger Woods and Annika Sorenstam as well as local products Aaron Baddeley and Karrie Webb.

Australia has tasted its share of success in

both events over the years and can lay claim to being the first country to have its name engraved on the Eisenhower Trophy. Since then the men have triumphed two further times – in 1966 and 1996 – while the women brought home the goods in 1978 and again most recently in 2002.

The world amateur originated after The Royal and Ancient and United States Golf Association acted on numerous invitations for international amateur matches, creating the World Amateur Golf Council which is now the International Golf Federation (IGF). With a stamp of approval from US president Eisenhower (hence the name of the trophy), the organisation conducted its first championship

with teams from 29 countries in October 1958.

Half a century later, the biennial championships have grown considerably and in 2008 a record 126 teams – 72 men's and 54 women's – are set to descend on Adelaide from 4-19 October to contest the game's biggest amateur golfing carnival.

This is just the second time that Australia has hosted the event (Royal Melbourne and Victoria hosted it in 1968) and is fitting given that it will be 50 years almost to the day that the team of Doug Bachli, Bruce Devlin, Peter Toogood and Robert Stevens held the Eisenhower aloft for the very first time.

Providing the stage for this year's theatre will be two of Adelaide's most established

Eisenhower Amateur Team Championships

BY BRETT ROBINSON



the fairways have been paramount concerns over the winter months, while during the tournament itself consistency will be a major focus with both superintendents having to manage differing surfaces. For James, it will be a matter of ensuring the 40-year-old Penncross greens on the East Course run as smooth and consistent as the young A1 greens of the West course. Likewise for Kaines, he will be managing 13 newer greens along with five older greens.

Both courses came out of a pretty tough summer, one which saw Adelaide set a new national record for the most consecutive days (15) over 35 degrees (eight of those days were over 39 degrees and three saw the mercury soar above 40). Despite that both courses went into winter in excellent shape and as both Kaines and James will attest they could hold the tournament tomorrow if they had to.

BUSINESS AS USUAL

Tournaments are second nature for Royal Adelaide and over the years the course has hosted its share of Australian Opens and various PGA-sanctioned events, including the Jacobs Creek Open. Those tournaments have enabled Kaines and his crew to fine-tune their skills and come the Eisenhower normal service will resume.

"We're looking forward to it," comments Kaines, who has been at the club for the past 18 years. "It's certainly the biggest amateur event the club has hosted. It will be business as normal for us, but in saying that the level of visual presentation will be paramount.

"I'm extremely happy with the way the course is at this time of year. The course has been put to bed this winter in a very good condition. We've only had a couple of frosts and if we can get through to the end of winter without any more we will be looking good. The timing of the tournament is very good and shouldn't throw up too many challenges being early in the season. The fairways have got full cover and I expect they will be starting to move a little come the tournament."

When the world's best amateurs begin their practice rounds on 12 October they will be treading a course that has undergone some significant improvements within the past three years. Starting in 2005 the club embarked on

The world's biggest amateur golfing carnival hits Adelaide in October with the Eisenhower and Espirito Santo trophies set to be contested at Royal Adelaide and The Grange. With over 126 international teams and nearly three weeks of practice rounds and competition play scheduled it is set to be a hectic time for the crews entrusted with the maintenance and preparation of each course. In this edition's cover story ATM editor Brett Robinson meets course superintendents Jeff Kaines and Richard James to see how they are preparing for the onslaught.

golf clubs – Royal Adelaide (course superintendent Jeff Kaines) and The Grange (course superintendent Richard James). It will be the second tournament the two clubs have co-hosted inside six months as both were venues for the 2008 Australian Amateur Championships held in April.

Despite their obvious differences – The Grange is a 36-hole complex, Royal 18 holes – both have been down a similar path in the years leading up to the tournament with major redevelopment projects either completed or ongoing.

Royal Adelaide is about three quarters of the way through a full greens reconstruction programme and only recently finished a major

spraying programme which has brought the fairways back to a full cover of native couch. As for The Grange, the West Course was completely redeveloped, all with new A1 greens, and plans are in the pipeline to do similar work on the East Course. Both clubs have also invested considerable time and money into aquifer storage and recharge schemes and as this edition of ATM was going to press The Grange was set to inject 5 megalitres as a test run.

Hosting the tournament also throws up a number of similar management issues for Kaines and James. With the tournament relatively early in the season, traffic management, preservation of teeing grounds and nurturing



Royal Adelaide superintendent Jeff Kaines will be able to call upon a highly experienced crew for the upcoming Eisenhower Trophy

◀ a major greens reconstruction programme, completely overhauling the profiles in order to bring some consistency across the course. So far 13 greens have been reconstructed with full sand profiles, with sand imported from Tailern Bend, and re-sown with a bentgrass blend of Pennecross, Seaside, G2 and Highland.

Starting in 2005, four greens – 2, 4, 7 and 11 – were completed and in 2006 greens 5, 9, 13 and 14 followed. Last year 3, 6, 8, 10, 12 and the practice putter were overhauled, but with the Eisenhower imminent the programme was put on hold this year (the IGF places a 12-month ban on any major construction work leading up to an event).

Playing an instrumental part in the greens reconstruction programme have been Kaines' assistant Mark Everingham and 3IC Ian Lawson who also had a fair input into some of the subtle design changes as well.

One of the more significant changes in the recent schedule of works has been to the 7th,

Royal's iconic front nine par 3 which features a necklace of bunkers around the front of the green.

Originally situated on elevated ground to the right of the 6th green, the 7th tees have been shifted to the left of the green and lowered by about four metres. This has not only straightened the hole up but has brought a more strategic element to playing the hole. The new design also means traffic and wear will be easier to manage. As part of the changes a significant cluster of 300 casuarinas were also removed and the carry has been revegetated with upwards of 3500 native plants.

The greens reconstruction programme will start again next winter with 1, 15, 16, 17 and 18 left to do. Those older greens have had their *Poa* content reduced significantly in the past 12 months (from 60-70 per cent down to 25 per cent), although Kaines has been mindful not to go too hard on them given the upcoming Eisenhower. Despite having to manage both

old and new greens, Kaines envisages no issues ahead of the Eisenhower.

"Consistency won't be a problem," explains Kaines. "In the lead up to the tournament we will manage the newer greens a little differently as you would expect, especially in regards to grooming and dusting. We might have to adjust the rollings a little with the older greens. I think the IGF will be expecting green speeds between 10-10.5 feet which is pretty consistent with what we run all year round. The only real difficult thing will be the speed of the greens and making sure everyone is happy with them."

While the greens reconstruction has been a prime focus in recent years, another major programme has involved *Poa* eradication in the fairways. Up until about three years ago Royal had a multigrass policy but an intensive pre- and post-emergent herbicide programme (pendimethalin and propyzamide) now has the fairways back to a resplendent cover of native couch. As well as spraying Kaines ripped into the fairways with the scarifier and the end result speaks for itself.

"We knew there was a fair colony there but we were surprised at how just how much native couch was in there when we took them down," says Kaines. "In some cases we went right down to the dirt and left just a little bit of stalk."

"The process was a bit disruptive to the membership but they are really starting to see the benefits now. We had some very big thatch problems on a number of fairways too so that has also been remedied. We are now at the point where the maintenance of fairways doesn't need to be as aggressive each year as we have done all the hard work." ▶



Starting in 2005, Royal Adelaide embarked on a major greens reconstruction programme, completely overhauling the profiles in order to bring some consistency across the course. To date 13 greens, including the 6th pictured here, have been completed



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Hosting both the men's and women's fields will mean a hectic three weeks for The Grange superintendent Richard James and his team

With the Eisenhower Trophy so early in the season, Kaines has been particularly attentive with the health of his fairways and has done a lot of work with them over the winter months. Regular monthly fertiliser applications at 5k/ha have been supplemented with applications of iron sulphate at 20k/ha. Kaines undertook a similar programme last year and with the couch responding well the regime has been

instituted again this winter. Kaines has also applied kelps to the tees and surrounds and together with the approaches has spiked them with needle tines every few weeks to get some air into the root system.

Preparations for October were about to get underway when ATM visited in late July and in the lead-up dusting and grooming will be stepped up with some vertical grooming

planned for September. Kaines says he will continue to spike up to the event and will possibly put the Hydroject across the greens a few weeks out. A preventative fungicide may also be applied just in case anything flares up last minute.

"Given the time of year there probably won't be a huge amount to do given the lack of growth," says Kaines. "We are pretty happy with all our cutting heights – fairways will be 11mm, tees 6.5mm and greens 3-3.5mm.

"The only slight issue we have at the moment is the rough which the IGF wants reduced by a few inches in some areas. On one hole in particular – the short par four 3rd – the rough is extremely penal around the green and they want to cut it back to be consistent with the rest of the course. We are not keen on that because not only does it change the nature of the hole but we would struggle to get the rough back up.

"Apart from that the only other issue is the traffic, but I don't see any great problems. Recovery of the course will be slightly slower given the time of year but that will be something

UNDER THE SPOTLIGHT - JEFF KAINES AND RICHARD JAMES

Jeff Kaines – Royal Adelaide

Age: 45

Family: Wife Carol, children Victoria (15) Chelsea (13) and Matthew (11)

Turf management background: Royal Adelaide has been the only club Kaines has known starting there in 1990 as a groundsman after chucking in his job as a country and interstate truck driver. Initially there on a six-week casual basis he was put on full-time three months later. After rising through the ranks, Kaines took the top job in January 1999 following the departure of Mark Prosser who returned to Victoria to take over at Commonwealth Golf Club.

Over the years Kaines has helped prepare Royal for numerous major tournaments, including the 1998 Australian Open, and since taking over as superintendent has hosted two Jacob's Creek Opens and the 2007 World Police and Fire Games.

Upcoming projects: While the greens reconstruction programme will continue next year, the other major project underway at Royal Adelaide is to do with water. Like a number of clubs in Adelaide (including The Grange), Royal Adelaide has embarked on an aquifer storage and recharge scheme with the club receiving funding the Federal Government and the local catchment board.

Over the past year a series of wetlands have been constructed adjacent to the

maintenance facility and holes 14, 15 and 16 and vegetation planting is nearly complete. With the plants yet to mature, injecting is still a few years away yet but Kaines is looking forward to it coming on line and remedying some of the salt issues which have started to become more prominent.

World Amateur schedule: **10 Oct:** Course closed; **11-15 Oct:** Eisenhower Trophy practice rounds; **16-19 Oct:** Eisenhower Trophy.

Richard James – The Grange

Age: 34

Family: Wife Jo, daughters Georgia (5) and Emilie (2)

Turf management background: A family holiday to Port Macquarie as a teenager sparked James down the turf management path. Spotting the guys working on the golf course he thought it would be a good job. Work experience stints at Commonwealth Golf Club and Rich River Golf Club ended up in a four year apprenticeship at Hilltop Golf Club in Tatura. In his final year he was appointed superintendent.

After two years in that position, the ambitious James moved to Adelaide where he dropped back to groundsman at Kooyonga Golf Club. Eighteen months later the leading hand's role came up and in 2002 he was appointed assistant by superintendent

Steven Newell. Three weeks prior to the 2007 Jacob's Creek Open, his seventh major tournament while at Kooyonga, James began his tenure as superintendent at The Grange.

Upcoming projects: While the East Course redevelopment is on the cards following the recent work to the West Course, one of the more exciting projects on the horizon is the construction of a new maintenance facility. With 120ha of grounds to manage James currently has staff operating out of two sheds – the main shed is surrounded by holes 9, 10 and 11 of the West Course, which houses all the major machinery, technician's area, chemical storage and washdown, while the offices and staff facilities are in a separate facility adjacent to the 4th East fairway.

The plan is to build a new facility where the existing main shed is and James is hopeful that construction will start mid-2009. Drawings have been done and have DA approval and James is currently having Terry Muir (Environmental Business Solutions) looking over the plans in regards to compliance issues as well as options for washdown bays.

World Amateur schedule: **2 Oct:** Course closed; **4-7 Oct:** Espirito Santo Trophy (women) practice rounds; **8-11 Oct:** Espirito Santo Trophy; **12-15 Oct:** Eisenhower Trophy practice rounds; **16-19 Oct:** Eisenhower Trophy.

we can manage. The only thing I'm not quite sure of at the moment is given that there are 72 teams, plus caddies, plus team officials, where on earth they are going to park all the cars?"

GEARING UP AT THE GRANGE

While it will be business as usual for Kaines and the Royal Adelaide crew, across the road at The Grange it's a slightly different story. The 36-hole complex will host both the Espirito Santo and Eisenhower events (the women play the East and West Courses from 8-11 October and the men the West from 16-19) which means a busy schedule for James and his crew.

Hosting both tournaments is a big feather in the cap for the club and also for James who is just 18 months into his tenure as superintendent. While James has experienced major tournament preparation in his previous role as assistant superintendent at nearby Kooyonga Golf Club, for the majority of his 24-strong crew it will be a new challenge.

"It's the number one amateur event in golf and only the second time it has been in Australia so it is a pretty big deal for us," explains James. "In terms of preparing for a major event some of the guys on staff have never seen anything at this level before so it will be a good challenge for them and will require plenty of dedication and diligence.

"It's a pretty hectic schedule for us, especially in the first week trying to spread the staff between the two courses and prepare them at a very high standard. But we went into winter with good coverage on all surfaces, so it will be more an issue of traffic control and managing wear both during the tournament and in the lead up."

Like its neighbour, The Grange has undergone some major changes in recent times with the West Course completely redeveloped under the auspices of Mike Clayton between 2005 and 2006. Doing the redevelopment in one hit, all greens were remodelled and replaced with Penn A1, wasteland bunkers was introduced on a number of holes (most notably 3 and 7) while a huge number of trees were removed to open the course up and fairways widened.

What the redevelopment has done is left James with two very distinct courses to maintain and therein lies the challenge for the upcoming World Amateur Championships. On the West he has two-year-old A1 greens, while the East boasts 40-year-old original Penncross greens with a couple of 1019s in the mix too.

"Obviously the East Course greens are very different in nature to the West Course," says James. "It will certainly be a challenge to have them all the same speed, especially for the women's event, and it will be a bit of a juggling act and a learning curve in the lead up to see how we best achieve those conditions.

"Some of the East greens have developed significant thatch and grain so there will be more work involved getting them to the speed required, although cutting regimes will be pretty similar. We won't have to do a lot of rolling on the West greens, it will be more the mowing which will achieve the speed."

MANAGEMENT CHANGES

Having arrived at the club with the majority of the West reconstruction completed, James has been able to concentrate on asserting his own management philosophy, as well as getting a handle on the intricacies of the A1.

As with any new appointment, a change in style invariably follows and James was quick to make a few cultural changes, including the appointment of new assistant superintendent Shaun Bilston. As well as a few other personnel changes, James also had the luxury of being able to purchase some new machinery and has since updated the fleet in line with new maintenance practices.

Managing the A1 greens has been a new experience and like many of his colleagues James has found that as they mature they are becoming easier to manage.

"As any super with these varieties will tell you dusting is the key," says James. "We put A1 on the chipping green and we weren't dusting it for a while and it developed thatch very quickly. We are dusting every three to four weeks during the growing season and then four to six over winter, but very light depending on what sort of result we want to get.

"The front nine greens are a little bit more established than the back nine. We started dusting them earlier and did some vertical mowing on them in the early stages. That took them back a bit but in the long run they are a lot firmer and aren't as 'puffy' like some of the back nine greens are.

"Through the growing season we are mowing six times a week and together with frequent light dustings it provides a very good, firm surface. The A1 handles the mowing well, although when we first started we didn't have the flex head mowers which were too aggressive given some of the undulations. We now have the flex heads and it's a much better scenario. We got down to 3.2mm earlier this year and the surface really improved and rolled very well."

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One of the challenges James will face is managing the 40-year-old East Course greens in tandem with the brand new A1 greens of the West Course. Pictured is the 17th East

“The A1 was fantastic over summer, especially when we had that record heat spell. We had no dry patch at all. Necrotic ring spot was a big problem in the West greens before the redevelopment and we had a bit of that come back in the new greens, in particular the last three greens that were done, which raised a few issues about fumigation.

“The only negative thing I have noticed is the A1 has slowed right down over winter and has exhibited very little vigour.”

As far as preparations for the tournaments, James doesn't expect too much out of the ordinary. Despite their intrinsic differences James will set up both courses in a similar condition although predicts the East Course will play harder given the narrower fairways and more mature rough.

Like his colleague at Royal Adelaide, James has been vigilant with the fairways over the winter, keeping the colour up with iron and potassium applications and raising mowing heights to 12mm.

“We were in a pretty good spot heading into winter,” says James. “We lost two bores on the West Course heading into last summer

so we were restricted with our water which affected our rough development a little. But with that in mind we went into winter with good coverage on most surfaces.

“We have made significant gains in the past year in regards to turf health. Nematodes was the big catch cry around this place in the past and we have been concentrating on improving the health of the surfaces through the use of kelp, humic acid and natural products.

“The first time we verti-drained the East Course greens we did a lot of damage and pulled up a lot of turf, but when we did them again recently there was very little disturbance of the surface which suggests we have a much healthier root system.

“For the Eisenhower and Espirito we are looking at an eight week preparation in terms of presentation, but at same time we have to make sure we don't wear things out. We established our contours over last summer and we're just trying to hang on to them now through winter.

“Just through our regular maintenance practices we are achieving the green speeds the IGF want which means we are not going

to have to push them too much. There's a bit of grain that has developed in the older East greens so we will have to do a bit more brushing and things like that to get that out, but by the same token they're not looking for real quick green speeds, more consistency across both courses.

“Managing traffic and recovery in high wear areas will be our biggest battle. When they redeveloped the West Course they opened up a lot of areas so there are now expanses of Santa ana turf between greens and tees where we do get a lot of traffic. While the base is there, the surface does get very thin, so it will be all about controlling the traffic on them.

“Another issue we are addressing is with the tees. As we are holding both the men's and women's, particularly on the West Course which will host both, some of the men's tees will be used for the women's tournament. This has restricted where we put the members and they have been playing a lot of women's tees and forward tees. They have been pretty good about it so far, but we've got some chicken wire in the shed ready to put up if they start getting a bit restless.” 🌱



The Grange has undergone some major changes in recent times with the West Course completely redeveloped including 18 new A1 greens. Pictured here is the 4th West



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Steve Jacobsen, Martyn Black and Craig Wright pay their respects at the Isurava Memorial. The three NSW superintendents joined with David Worrall, Alain Dupuis and Simon Adermann to walk the track in early July



Kokoda

In the footsteps of heroes

BY MARTYN BLACK

About two years ago Avondale Golf Club superintendent David Warwick rang me to see if I would be interested in joining a group of fellow supers and industry colleagues to walk the Kokoda Track. The plan was to do it in April with the ultimate goal to be at the Isurava Memorial on Anzac Day. After much deliberation (one or two seconds) I said, "I'm in!"

The plan really started to take shape and gain momentum to the point where we were going to carry all of our own gear, which is not done very often by civilians. In hindsight, the fact that I thought I was going to be the oldest member of the group inspired me to start losing weight and getting fit at the start of 2007 and in the end it paid off as it did make the experience much more enjoyable.

As the months of 2007 passed, many of the originals felt they had to postpone this once in a lifetime journey and the April 2008 target looked lost. I was still keen as mustard to go so got the word out on the grapevine to gauge interest; and there was plenty!

In August 2007 Alain Dupuis, who was then working for Nuturf, said he would love to join

In July, six members of the Australian turf community achieved a long held dream to walk the historic Kokoda Track in Papua New Guinea. NSW superintendents Martyn Black, Craig Wright and Steve Jacobsen joined with trade members David Worrall, Alain Dupuis and Simon Adermann for the 104km, seven-day trek and here they recount their journey across some of the most inhospitable terrain imaginable.

the group. I had no hesitation because I knew of 'Frog's' vast trekking experience having done Everest base camp and Mt Kilimanjaro.

What I didn't realise was he had a close friendship with a South Australian chap named Duncan Chessel. Duncan is a bit of a legend in Australian trekking and has done the 'seven summits on seven continents', including Everest, by himself. Alain suggested we go with Duncan's company DCXP which does regular tours of Kokoda.

The first thing Duncan did was talk us out of going in April. As a veteran of 12 Kokoda trips, one in April where it rained heavily all

day, every day, he said the novelty would soon wear off. We took his advice! June-August was prime time and with the annual turf conference looming we decided that early July was best.

Our recruitment drive hit some speed humps with good friends Odell, Sellar, Parker and Fogarty pulling the pin for various reasons, so in the end we amalgamated with six people not associated with the turf industry, that made for some interesting moments (more about that later).

So from the turf industry we had Steve Jacobsen (superintendent Carnarvon GC), Craig Wright (superintendent Cabramatta GC

and recently elected NSWGCSA president), Dave Worrad (Nuturf NSW), Simon Adermann (Nuturf QLD), Alain Dupuis (Maxwell & Kemp) and myself.

The other half of the group comprised a father and daughter combination from rural SA, Alain's best mate Mick O'Donovan, a 60-year-old doctor from Westmead Childrens Hospital (Simon), a 57-year-old corporate banker (Jeff), and a big wheel in the mining industry (George).

Our head guide was retired Army Major Zach Zaharius. He was only 5'6" in the old money, 51 years of age, had climbed Everest and was doing his fourth Kokoda trek as a guide. His assistant was Dan from South Australia, a teacher who had completed three Hawaiian Iron Man races; to say they were both fit bastards would be an understatement.

So out of our touring party we had two blokes who had gone to the summit of Everest and a further three who had reached base camp. My claim to fame was Mt Kosciusko – no cred there!

FIRST IMPRESSIONS

We had been told at a briefing at Concord Gold Club in early 2008 that Papua New Guinea (PNG) was a Third World country and on the 25-minute drive from Port Moresby to the wharf to catch our boat to Loloata Island, it looked the part with 70 per cent unemployment. There weren't a lot of smiling faces and it was hot, dry and dusty.

Our package included three nights on the island with the first night getting to know our new friends, a formal debriefing and a history lesson on the military significance of the Kokoda campaign. Zach, who not only was a professional soldier for 30 years, is also a military historian and his knowledge, passion and indeed reverence for what these young men endured was inspirational.

As fate would have it, Zach explained to ►

STEVE JACOBSEN

Carnarvon Golf Club

I had first become aware of the Kokoda story around the age of eight, while living in Port Moresby when dad was stationed there overseeing the design and installation of the new telephone exchange. I had also heard the story of my great uncle who had survived the Tol Plantation Massacre despite being bayoneted 11 times after the Japanese had invaded, and had always had it in my mind to return one day.

When I heard that a group was being organised by Alain and Martyn, I made enquiries at home and thankfully my lovely wife said if I really wanted to do it then I should go. This attitude mellowed, however, when she found out I was returning from the trip late on the night of her birthday (no doubt I will pay for this at a later stage).

For myself there was no real surprise factor in the topography or heat that confronted us upon arrival as I had seen it before. The surprise was in the fine detail which no photos or stories can fully describe. You are either walking up or down, quite steeply usually, and you had to concentrate on every footstep as you zigzagged among the maze of tree roots or on the slippery mud.

These conditions underfoot led to a constant source of amusement in relation to Dave Worrad's pre-departure calculation of about 200,000 steps for the 104km journey which we soon realised was going to be more in the 500,000 range. We also found ourselves constantly trying to really grasp what all those young men experienced in conditions and circumstances much tougher than our own, although it is fair to say we have a much better appreciation.

However, in true Aussie style, no matter



Steve Jacobsen with the last original fuzzy wuzzy angel, 102-year-old Ovuru Ndiki

how hard the going was we managed to laugh the whole time. None more so than when Blacky punted George fair in the date after slipping and pivoting on his poles during a steep descent. The spectacle, accompanied by George's surprised look, prompted all following behind to break into hysterics that could be heard on both sides of the gully.

For yours truly, who was immediately behind a couple of metres up the slope, it was a near fatal lapse of concentration as I also slipped and slid down the hill taking the legs out from under a recovering Blacky to end up in a pile of laughing bodies.

All in all it was a great experience to spend time with some of my peers while experiencing and learning about an important part of our history and the sacrifice that accompanied it.



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his very attentive audience (while we drank just a couple of cold Pacific Lagers - my last for seven days, talk about a challenge!), PNG was indeed a Third World country and no matter how much you planned we should expect something to go wrong.

We went to bed very excited, knowing that the following morning two years of anticipation would end and we would be off into the rugged Owen Stanleys.

There are two ways to walk the track – Owens Corner to Kokoda (south to north), or fly into Kokoda and walk south to Owens Corner (apparently it depends on the time of the week and the relationship to other trekking parties). We were to go north-south.

We arrived at a tiny little airport surrounded by razor wire and dusty unemployed locals chewing betel nut. Our three light planes were there ready to take about 20 of us including some group porters but alas there was only one pilot. Bugger!

Most of us just shrugged our shoulders and like Ned Kelly said “such is life”, but George, who sits on the board of several big mining companies, was not happy. The expression “cop it sweet” apparently is not well known to control freaks and as Dave Worrad pointed out it was cheap entertainment watching George deal with the situation (or not deal with it).

In the end we were delayed three hours which meant we would have to walk at least two hours in the dark to reach the Isurava Memorial to be ready for a dawn service the following morning.

STEEP LEARNING CURVE

At 1.30pm we took our first steps along the

Simon Adermann (left) tackles the unique terrain of the Kokoda track



grass airstrip at Kokoda (this turned out to be the only flat part of the trip). We walked up to the village of Kokoda where we were introduced to our personal porters. My ‘fuzzy wuzzy angel’ was a 20-year-old in bare feet named James. I soon learnt that despite being half my size with a hand shake like the proverbial dead fish, James was a very strong athletic young man.

This was James’ second job on the track, but he had been trained by the legend of the porter fraternity, a bloke called Kelly who has done the track 311 times – yes that equals 30,000km over the most rugged mountain range on earth. He can no longer do the track because, surprise, surprise, his knees are cactus! In our group the most capped porters

were two guys who had both done 28 trips. It is indeed a badge of honour for them to be the most experienced in the group.

A big part of their training must involve the importance of not letting your clients fall off the track and down the cliffs, because James was like my shadow for the first day. We soon found out that they spent the first few hours of each trek assessing the ability, or otherwise, of their client because if you don’t make it they get no 100 kina bonus (\$50).

We soon learnt that the exposed tree roots were very slippery but not as slippery as the flat shale rocks. We also learnt that going downhill was harder than going uphill, especially for us middle aged blokes with dodgy knees.

To cut a long story short, a few of the party (no turfies I’m proud to say) were struggling on our first serious hill. George in particular doubted his ability to go the next 100km but somehow Zach managed to support and encourage him and the other two through the next seven hours of what would turn out to be the hardest day of the trek. There was a standing ovation from the lead section of the group when the battlers finally arrived at Isurava a full two hours behind us at 11.30pm!

QUIET REFLECTION

As dawn broke and people started popping out of their tents we soon understood why Zach wanted to push us through the dark. It was well worth the effort as the memorial sits on top of a majestic valley where Private Bruce Kingsbury won his VC and single-handedly changed the course of the Japanese advance. To stand at the spot where this 21-year-old laid down his life for his mates was very, very moving and several tears were shed.

Zach conducted a dawn service during

CRAIG WRIGHT

Cabramatta Golf Club

You hear all the stories about how tough the Kokoda Track is and it did not disappoint. I really wanted to do the track for the historical significance and for the physical and mental challenge it throws at you. Anyone can do a bushwalk for a day or so, but can they walk for 7-8 days on unknown terrain with weather that can turn at any time and no way out unless you walk it or are taken out injured by helicopter.

The first thing that struck me travelling to PNG was the living standards. I was expecting something similar to Bali but Port Moresby doesn’t even come close. The Third World conditions really were an eye-opener and showed just how good we have it in Australia.

The biggest part of doing the Kokoda Track for me, apart from the lovely scenery,

was the fact that you had to watch every step you took. With your day basically spent going up or down a hill or mountain inclines of around 50-70 degrees and having to contend with uneven ground, exposed tree roots, slippery surfaces, stream and river crossings via logs, plus Blacky, there was no room for losing your concentration. You had to be in the zone constantly.

There is so much history which can still be seen along the track with live ammunition, trenches, pits, gun positions, memorials at Isurava and Bomana War Cemetery all very grim reminders of what the Diggers went through.

I thoroughly enjoyed the trip, although I felt we did it very easy due to the great weather we had. I would strongly recommend anyone to give it a go; I might even join you in around 15 years’ time with my young bloke. Their name liveth for evermore.



Bomana War Cemetery provides an unforgettable reminder of the great sacrifice Australian Diggers made during the Kokoda campaign

which Lauren, a 20-year-old trainee teacher from SA, read out the names of the young Australians who died in this particular area. I read a poem written by a surviving veteran and we then observed a minute's silence.

It was immediately after the minute's silence that I realised what a beautiful, peaceful place this tropical rainforest was and I could only try to imagine the absolute carnage and mayhem that occurred here.

As each day unfolded I found myself walking with different people (almost always in single file so narrow is the track) and we would talk on many subjects. Simon, the doctor, was always good value as he has lived all over the world. I christened him the 'all night chemist'. He thought I gave him the name because he had an amazing array of drugs and potions which he would happily dispense to anyone

in need, but it was really because he never shut up!

I also made sure that every now and then I would find a space just to walk alone with no other human in view or earshot. It truly gave me a chance to think how good we have got it. There were several other times when I cried, either during Zach's history lessons or observing a minute's silence at a place where so many young Australian lives were lost.

But on more than a few occasions, I also cried from laughter, in particular the morning of the fourth day. The night before we were sitting around the campfire telling jokes and stories and after letting it slip that I had hurt my dicky knee that day, Zach told me to use his spare pole as it would help me take the weight off it.

Frog gave me a quick lesson on the use of two poles (quite an art) as I had done all

my training using one. About 10 minutes out of camp we encountered a particularly steep, slippery section of track. Janet (Zach's wife), the 'all night chemist' and George had slowed and I came up behind George.

On a particularly tight hairpin bend I made the fatal mistake of putting both poles on the ground at the same time. This created what Dave Worrad termed as the perfect fulcrum movement which delivered a swift powerful kick to George's arse.

As George was falling he looked around and gave me a look which screamed, "You prick, you did that on purpose!" I fell on my arse in hysterics, Steve Jacobson fell on his arse behind me and everyone else still standing also broke into a chorus of raucous laughs. Eventually George realised he was outnumbered and cracked up too. ►

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Around the campfire that night George's mate Jeff (the banker) said that he always thought that George would benefit from a good kick up the arse and thanked me for doing it.

I suppose I should mention the other cause of great mirth during the trek - flatulence. Everyone was encouraged to bring lots of dried fruit and nuts as a nutritional additive while you walk. In the interests of OH&S I started to warn my James if he was behind me by yelling out "INCOMING". All the porters soon learned that this was code for impending danger and they would stay well clear of the affected area. There is great camaraderie when a group of people are all contributing and after a day or two everyone was putting in their two bobs worth, even Zach.

The porters were big fans of Bob Marley and I made the mistake of doing a bit of air guitar with my trekking pole to any Marley tune. This became a ritual every morning and night and the head porter Mayer would say to me, "Blekky, Blekky, one more, one more". I dutifully obliged which always brought on a great display of betel nut-stained teeth.

So we certainly had some fun among the very sobering times when you would reflect on what had happened all those years ago. It was interesting to see how our group became closer by the end of the trek with so many different people and personalities bonding together. I felt it gave me an insight into why soldiers have such a strong bond with their unit.

One of the things I will take out of the experience is to appreciate the charmed existence I enjoy in this great country of ours, and hopefully I have in some way said thanks and paid my respects to all those young Australians that helped make it possible. Lest we forget. 🙏

David Worrad (left) and Martyn Black take some time out to examine the local cultivars



ALAIN DUPUIS

Maxwell & Kemp

In July I accomplished a dream – to walk the 104km Kokoda Track. The topography of the terrain must have been designed by the devil. For seven days the rugged slopes tested even the hardest of trekkers and the narrowness and density of the vegetation on the track required constant concentration every step of the way.

The track was very challenging and every day had its share of surprises. We walked an average of eight hours every day with a wake up call at 5am to be walking by 7am. The jungle was extremely dense and river crossings were frequent.

There were many moving moments

during the trek. We had our own dawn ceremony at the Isurava Memorial. Brigade Hill was the scene of the last bayonet charge from 150 Diggers against Japanese machine guns with only 10 survivors. The final visit to Bomana War Cemetery was a moment that I will never forget.

We all completed the track without injury and the weather blessed us. However, it was still hard to fathom what the Diggers went through during their time; it borders on insanity!

It was an extraordinary trip and friendships were sealed for life. I hope that more superintendents and their staff are inspired to experience what is an unforgettable journey.

DAVID WORRAD

Nuturf

We trained for six months prior to walking the Kokoda Track and it really paid off as I actually had an enjoyable time, rather than being hammered as I was expecting. We did it pretty easy – it only rained for two hours and we had four course dinners most nights, so you couldn't get a feel for what the soldiers really endured, but our tour guide gave us an exceptional history lesson.

Bomana War Cemetery was an experience. The atmosphere was thick with emotion and very somber. My uncle was buried there so it was good to find his grave and take photos home for my mother.

Aside from missing my family, I could easily have stayed there for another

month. The isolation and simplicity was something I really enjoyed. Because we were out there for eight days with nothing but walking to think about, there was a lot of time for quiet reflection. It was a good chance to reprioritise, plan and appreciate how good I have it.

You learn a lot about people when you are in such an environment – Craig Wright's balance and calm nature; Steve Jacobson's amazing general knowledge; Martyn Black's incredible humour. Before going I told friends a guy called Martyn Black was one of the reasons I was going. I knew he would entertain but also be rock solid. He out-did himself, from first bout of flatulence at daybreak till we fell asleep with laughter at night.

SIMON ADERMANN

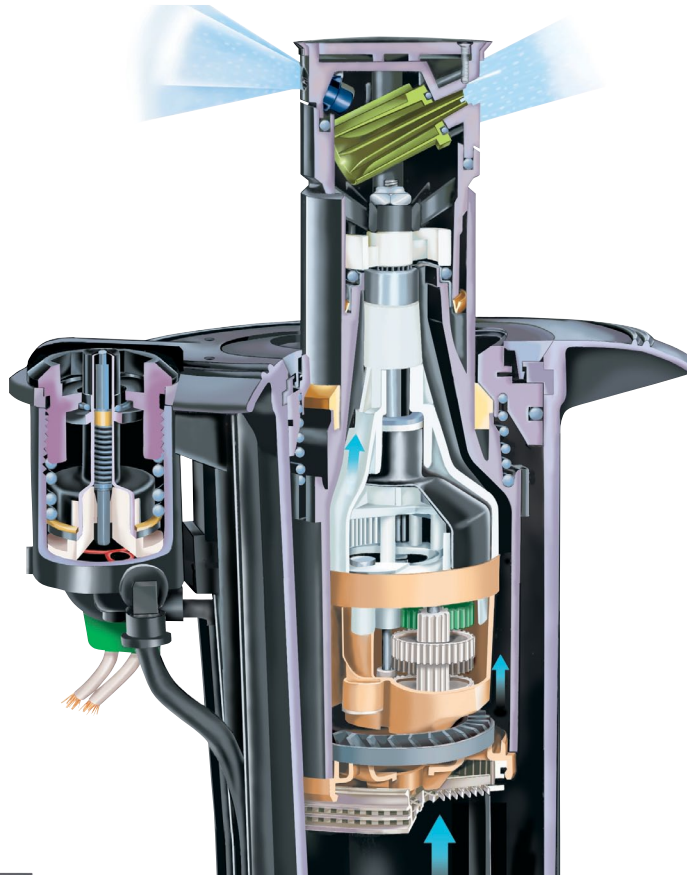
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Completing the Kokoda Track was the best feeling and sense of achievement I have ever had in my life. From the dawn service at Isurava to the Bomana War Cemetery the trek was full of emotion and really something I will never forget.

It didn't take long to work out that we were going to be constantly going up and down hills and mountains. It certainly was an experience crossing some of these creeks and rivers on skinny logs.

On the Monday we proceeded off the original track to Kagi village where after lunch we arranged to meet the last fuzzy wuzzy angel who was 102-years-old. This was truly a unique experience.

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Melbourne 2008 Motivation, management and loving your liquorice all-sorts

BY BRETT ROBINSON



ATM looks back at a highly entertaining and educational 24th Australian Turfgrass Conference in Melbourne which ended in spectacular style for one well-respected member of the profession.

After basking in the warmth of Cairns last year, the Australian Turfgrass Conference returned to the wintry south with Melbourne hosting the event between 21-25 July. Over 760 delegates, including more than 70 from overseas, registered across the five education streams for the week, with a total of 1500 attending the two-day trade exhibition which presented some of the newest and most innovative turf management products available on the market.

One of the highlights from an AGCSA perspective was the excellent attendance of the education sessions and going on feedback from the post-conference survey it appears that the mix of local and international speakers was spot on. From Major Grant Gleeson's opening keynote address through to the highly popular communication and staff management sessions that concluded the formal education sessions on Thursday, the range of topics catered ideally to all levels of the turf management profession.

"When putting the programme together for this year's conference we looked to the completed surveys from last year to gauge

what issues and information delegates wanted covered," says AGCSA events manager Simone Staples.

"I believe this is the main reason for the overwhelmingly positive feedback we have received. The AGCSA is committed to delivering quality education that is relevant and interesting and we look forward to taking suggestions from this year's post-conference survey and including them in coming years.

"Melbourne again proved that it is a popular venue with delegates and we are scheduled to return in 2012. By that time the new convention centre will be complete which means delegates will no longer have to cross the river between conference and trade show times."

Retired Australian Defence Force Major Grant Gleeson kicked the conference off in style with his unique take on people management



Tim Moraghan topped the overseas contingent of speakers, recounting stories from 20 years spent working as the USGA's director of championship agronomy

Major Grant Gleeson kicked off the 24th Australian Turfgrass conference with a fascinating insight into his time as a UN military observer in the Middle East. The themes of teamwork and motivation provided a great start to the week in Melbourne

and motivation. Gleeson recalled his time spent as a United Nations military observer in the Middle East and how through careful management he brought his band of 'liquorice all sorts' together to form a cohesive and effective unit in some pretty intense situations.

Topping the international contingent was highly respected former USGA director of championship agronomy Tim Moraghan. His dry wit, insightful comment and humorous anecdotes from 20 years spent preparing some of America's finest golf courses for tournament play ensured his presentations were well attended.

In his opening keynote address Moraghan described his first walk of the Old Course at St Andrews as "an erotic experience" and later recounted the time when he almost unwittingly killed US President George Bush Snr with a golf cart while out inspecting Sea Island Golf Club one morning before tournament play.

What many would have taken out of Moraghan's talks was his affirmation that the



role of a superintendent is without question the most important in any golf club operation. Moraghan had nothing but praise for the superintendents he had dealt with during his time and impressed that regardless of whether they had 100 staff or were a one man band, the job they did was second to none.

Other international speakers included the popular Dr Iain James (Cranfield University) who looked at soil management and health, Atlanta Athletic Club grounds and operations manager Ken Mangum, Dr Danesha Seth-Carley (North Carolina State University),

Scott Harris calmly rolls in a 25-foot birdie on the 18th at Royal Melbourne, a putt which would ultimately secure him a second consecutive AGCSA Golf Championship title

nematologist Ed McGawley (Louisiana State University) and Dr Van Kline (Toro) who looked at some of the exciting future developments in turf maintenance machinery.

While the internationals received top billing, presentations delivered by home grown turfies were also highlights for many who attended. The ever-popular and thought provoking Terry Muir talked of the potential role golf courses can play in carbon trading schemes, while Peter Murray, general manager of business development for the PGA of Australia, won a number of admirers with his comments about improving his members' perception of the role that superintendents and maintenance staff play.

Last year's AGCSA Excellence in Golf Course Management Award winner Darren Wilson looked at some of the strategies he has in place at Wembley Golf Complex, which caters for 170,000 rounds of golf per annum, while well-respected NSW Golf Club superintendent Gary Dempsey provided tips on how to formulate and implement strategic management plans for major projects.

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Jeff and Karen Gambin enjoy the moment during the Syngenta President's Dinner as new AGCSA president Allan Devlin conducts the impromptu auction

One of the most talked about sessions was delivered by former AGCSA president Doug Robinson. Titled the perils of constructing a golf course on an island, Robinson examined his current project building a golf course on Dent Island in the Whitsundays. The unique circumstances surrounding the course's gradual creation enthralled many and with construction still ongoing a number of delegates have requested he return in 2009 to present the final instalment.

Across the Yarra at the Melbourne Exhibition Centre numbers in the trade show were slightly down from the last time the conference was in Melbourne. Despite that over 1500 people attended the two-day exhibition with many of the smaller companies reporting excellent business.

The social functions attracted their usual strong numbers. Delegates gambled (responsibly) the night away on craps, poker, roulette and blackjack at the Bayer Welcome Reception, while Damian Carney from Apollo Bay Golf Club triumphed in the Scotts Darts Tournament. The Syngenta President's Dinner was also a highlight this year, especially the Bogan Production Fawltly Towers sketch.

The post-conference turf tour took in a range of different turf facilities this year. First stop was Telstra Dome where arena manager Gavin Darby displayed the new artificial light rigs which have been employed since the start of the 2008 AFL season. From the Dome delegates were then taken out to Flemington where retired track manager Terry Watson talked the group through the recent upgrade of the Course Proper to a new kikuyu-based track. Following lunch at Toro's Braeside headquarters, the tour concluded with a walk around one of Melbourne's iconic

sandbelt courses Kingston Heath Golf Club (superintendent Martin Greenwood).

HARRIS GOES BACK-TO-BACK

A wet and wild Royal Melbourne Golf Club greeted the field for the 2008 Toro AGCSA Golf Championships which was held on the club's magnificent West Course. Fifteen millimetres of rain the night before had softened the course a little while squally showers throughout the morning produced some tough conditions.

Despite the wet conditions, superintendent Jim Porter and his staff had Royal Melbourne's famed putting surfaces rolling as true as ever and for defending champion Scott Harris from Gold Creek Country Club they provided a perfect platform to take out a second Toro Red Jacket. The three-handicapper fired a three-over par 75 to beat home Royal Queensland Golf Club superintendent Danny Brown by one shot.

Harris sunk a clutch 25-foot birdie putt on 18, his second on the back nine, which effectively sealed the title. Runner-up Brown was hot and cold, holing his second shot on the par four 10th for eagle and picking up birdies on the 5th and 13th. However, a couple of double bogeys on 11 and 15 scuppered any chance he had of denying Harris the repeat.

Charlie Giffard from Indooroopilly Golf Club picked up the stableford trophy with 35 points, one ahead of The Grange Golf Club superintendent Richard James who finished second on a countback from Mark O'Sullivan (Roseville Golf Club). Giffard and Brown also anchored the Queensland team to its first ever victory in the state teams championships, finishing six points ahead of defending champions NSW.

Tasmania Golf Club superintendent Danny

Gilligan collected the nearest the pin prize on the 5th, while Nathan Ball (Springwood Country Club) smashed the longest drive on the 1st. Aside from Brown's three twos, other players to notch twos included Gilligan, Chris Neal, Greg Puckeridge and Trevor Ridge (13th) and Brent Hull and Peter Smith (7th).

Across at Huntingdale Golf Club a full field lined up for the 2008 AGCSA Corporate Cup with Reece Wheeler prevailing by two shots. The Magenta Shores irrigation technician, who plays off a handicap of 16, posted 39 points which included two wipes and a birdie four on the 555m 14th.

Globe Australia's Kevin Booth, who posted a one-under front nine, was looking good early but a few misses on the back nine saw him finish with 37 points. In contrast, third placed Moonah Links superintendent Kyle Wilson had a mediocre front nine but came home with 21 points to finish third. Nearest the pins went to Stuart Miller (3rd), Tim Moraghan (5th), Jeremy Mamet (12th), and Michael Cowden (15th), while Alan Duff from QDPI&F had a horror day managing just two points.

SURPRISE FAREWELL

The 2008 Syngenta President's Dinner, held on the final night of the conference, will be long remembered for the surprise send off of outgoing AGCSA president Jeff Gambin (superintendent Gold Coast Burleigh Golf Club). After serving nine years on the AGCSA Board, including the past four as president, Gambin stood down from the Board at the AGM held earlier in the week.

As many will know, earlier this year Gambin's son Ryan qualified for the 100m butterfly at the Beijing Olympics. While Ryan was Beijing bound his parents Jeff and Karen were unable to make the journey to China. That, however, all changed on the final night of the conference where they were presented with flights, Games tickets and accommodation so they could see their son perform. The announcement clearly took both Jeff and Karen by surprise and drew a standing ovation from the 220-strong audience.

"It came as a complete shock," recalls Gambin. "We had no idea what was coming, although I thought something was up when they had Ryan on the phone hook up, but neither Karen nor I could have imagined what was going to come next. It was incredible and we will never be able to thank everyone enough for turning what was already a great night into one of the best nights of our lives." 🌿



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Above: Dr Ed McGawley gets serious about nematodes

Below: Royal Hobart's Steven Lewis hits the tables at the Bayer Welcome Reception

Right: Peter McMaugh demonstrates the virtues of Tru-Match

Below: Getting tribal at the Toro Golf Champions function



Scott Harris nabs the silverware again





A Grundfos rep earns his keep during the trade show



Avondale GM Symon Scott talks communication



The Scotts Darts Tournament hit a bullseye with delegates



Basil Fawltz gets animated during the Syngenta President's Dinner

Left: How does this work?

Melbourne Memories

While the weather didn't quite come to the party, the education sessions and social gatherings of the 24th Australian Turfgrass Conference warmed the minds and souls of delegates who journeyed to Melbourne in July. Around 700 delegates heard from a variety of local and overseas speakers across five different education streams, while the trade show attracted over 100 of the turf industry's major companies. ATM was there to snap some of the action during the week.



2008 AGCSA Distinguished Service Award winner Barry Cox with Scotts Australia's David Westall

Cox tops honours list at 2008 AGCSA Awards

The AGCSA Distinguished Service Award, presented in partnership with Scotts Australia, is awarded to an individual who has left an "indelible" mark on our industry. In the case of Barry Cox this became apparent to all on the GCSAQ committee for the incredible workload he undertook during his 10 years on the committee. When Barry stood aside in 2007 we quickly realised there was going to be a huge pair of shoes to fill.

Barry served as course superintendent at Ocean Shores Country Club in northern New South Wales for a period of 20 years up until his retirement last year. In that time Barry maintained the course in excellent condition day in day out all year round and generally did so on a shoestring budget.

Ocean Shores has a majority of retirees and the respect they had for Barry is quite amazing. They all knew the incredible workload he took on in managing the course, the money he saved them over the years and the superb product he produced. Most times you would ring Barry and he would be out of breath from laying some free concrete on his washdown bay which he had organised as part of a 'contra' deal or have grease all over

As has become tradition, the annual AGCSA Awards were handed out during the 24th Australian Turfgrass Conference. Topping the list in 2008 was Barry Cox who was bestowed the AGCSA's highest honour – the Distinguished Service Award. To kick off this edition's review of the 2008 winners, recently appointed GCSAQ president Peter Lonergan reflects on Cox's contribution to the industry.

Scotts

him as he doubled as mechanic as part of his commitment to the club.

I personally had the pleasure of meeting his voluntary 'dad's army' crew of retired members, who to a man all complimented not only Barry's work ethic, but also his results on the golf course. Each and every one of them proudly referred to Barry as "our course superintendent", which is a far cry from the normal "greenkeeper" tag in many clubs. This was not only an indication of his standing within the club but also the respect he has gained from the members for our profession.

The shoestring budget that Barry endured

over the years certainly did little to curtail his quest to continually improve his golf course. He was always prepared to try something new to either improve playing surfaces or further save money.

There is probably no better example of this than when Barry installed the new ultradwarf couchgrass TifEagle on a practice green for evaluation and subsequently commenced a programme of introducing the new grass to the course proper, with six greens completed at the time of his retirement.

I don't think even Barry could tell you the number of hours he spent not only nurturing

the TifEagle but also passionately researching the grass with any visiting turf research academic or fellow superintendent who had some knowledge of the grass.

Over recent years couchgrass dieback has become a concern for many clubs in south eastern Queensland and northern New South Wales especially on 328 or Tifdwurf putting greens. Barry was a driving force within the GCSAQ committee and the industry to promote research and discussion on this seemingly incurable devastating disease.

Perhaps Barry's greatest legacy has been the one he has left with the GCSAQ committee and association. It never ceases to amaze me the commitment of some superintendents to their profession, and in Barry's case, seeing he was located in a rural region that commitment was even more impressive. Barry would make the 250km round trip to attend GCSAQ functions along one of the most notorious stretches of road in Australia. Twelve committee meetings a year and a minimum of eight field days and you quickly have 5000km per year or 50,000km during his time on the committee.

Barry served the GCSAQ committee for 10 years, the last several as vice-president but more importantly as our meeting co-ordinator. His organisational skills saw a rise in our meeting attendances and a great improvement in the camaraderie of our group. Barry organised most of these days in his own time and at his own expense.

A great example of this is the annual GCSAQ bus trip which Barry organised since its inception. The popular tour takes the GCSAQ to a different country area each year over three days, not only in a social situation but also promoting our profession and industry to smaller clubs and their members.

Over the past few years Barry was also instrumental in organising a field/golf day for the 20 or so clubs in the Northern Rivers area of NSW. Most of these clubs are too far away from Brisbane or Sydney to actively participate in state associations and are truly in the middle of nowhere. This day now attracts 70 players from across the region.

In August 2006 Barry was awarded life membership of the GCSAQ and in February 2007 was awarded the Distinguished Service Award at the Queensland Golf Industry Awards. His response to the honours – "I would like to thank the industry for the chance to meet and greet such great people" – was so typical of Barry's humble outlook on his great contribution to the golf course management profession. To see that has now been honoured the national association only reinforces the indelible mark that Barry has left on our great industry.

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**2008 AGCSA Claude Crockford
Environmental Award winner
Kenton Boyd with Syngenta
manager Sam Hole**

Green light for Magenta

Before a sod was even turned at Magenta Shores Golf and Country Club in NSW, environmental stewardship has been a principal guiding element. In his role as golf course manager, Kenton Boyd, winner of the Syngenta-sponsored 2008 AGCSA Claude Crockford Environmental Award, has embodied that ethos from construction through to its day-to-day maintenance.

Located approximately 110km north of Sydney between The Entrance and Norah Head, Magenta Shores is surrounded by Wyrabolong National Park on the northern boundaries which incorporate pockets of littoral rainforest and banksia woodland.

On the eastern perimeter the site is bordered by Tuggerah Beach and a coastal protection zone which has 2.1km of beachfront regenerated, including the removal of bitou bush and replanting of endemic species. The southern end was an existing tip which was capped and sand lined while the western boundary is bordered by Tuggerah Lake.

The site is environmentally sensitive given its close proximity to all these adjoining natural areas as well as being located above a groundwater aquifer which flows toward Tuggerah Lake. The littoral rainforest and banksia woodland areas are an important corridor for the Magenta lillypilly.

Environmental concerns have been at the forefront of management decisions at Magenta Shores Golf and Country Club in NSW and helping to drive this strong green focus is 2008 AGCSA Claude Crockford Environmental Award winner Kenton Boyd.

syngenta

Boyd, together with Mirvac and Magenta Shores Golf & Country Club, has been strongly committed to the protection of the environment and recycling of resources which can be clearly demonstrated through the course's development and ongoing systems of management. One of Boyd's key recommendations has been the implementation of the e-par environmental management system which was completed in 2006 along with the development of a club policy, employee manual and induction.

NATIVE FLORA

Regeneration of the landscape zones which border the site as well as the golf course edges landscape which buffers the housing and golf course precincts has been a strong focus over the past three years which Boyd has been directly involved in. Boyd has managed bush regeneration works along the golf course

buffers and implemented further landscape planting on the course.

Regeneration works involve the ongoing removal of bitou bush, lantana, acacia saligna and minor weed species from the littoral rainforest, banksia woodland and course edges. Areas are replanted with endemic species through direct seeding and tubestock planting, some of which has been propagated on site. To date large pockets of bitou bush have been removed from the littoral rainforest buffer and replanted with endemic plant species. Ongoing maintenance is being carried out on a monthly basis.

An ongoing programme of weed removal has been carried out in the golf course edges landscape. A team of three staff under Boyd's direction has been responsible for the mulching, planting and establishment of 75,000 native grasses, tubestock and additional direct seeding of endemic plants since August 2006.

The coastal protection zone and frontal dunes which adjoin Tuggerah Beach have had bitou bush removed, reshaped and revegetated with spinifex and carpobrotus. Direct seeding and planting of coastal banksia, tea tree and coastal wattle tubestock has also been carried out since 2005.

NATIVE FAUNA

To date the main protection measures put in place have been to maintain some dead banksia trunks for native animals and birds to utilise. As part of the decision-making process the effects on native fauna are taken into account to protect the native brown snake, red-bellied black snake, bandicoot and an array of birdlife.

Contact has been made with the local Landcare group to monitor and document bird species which are starting to revisit the site. The native corridors along the northern boundaries are important for the protection of the native fauna.

A number of measures have been implemented during the development and ongoing maintenance of Magenta Shores to protect the native flora and fauna including:

- GPS marking of littoral rainforest and banksia woodland areas to limit earthworks and protect remnant vegetation;
- Installation of silt fencing along littoral rainforest and banksia woodland corridors to protect areas and provide a clear border;
- Native grass planting of lomandra and dianella sp along buffer areas between the golf course on holes 8, 13 and 14 to prevent encroachment of non-desirable grasses into native vegetation areas;



- Setout and installation of irrigation heads to ensure water was thrown away from sensitive vegetation areas, as well as ongoing audits; and
- Implementation of a groundwater monitoring programme to monitor effects on the aquifer.

ENVIRONMENTAL INITIATIVES

Boyd has also been instrumental in recommending a number of environmental initiatives which were adopted in the design and construction of the course maintenance facility as well as the procurement of equipment which include:

- The installation of rainwater tanks which capture and store 125,000l of stormwater from the maintenance facility roof. The water is reused for toilet flushing, washdown and chemical filling;
- Procurement and installation of a Waterstax WSR1000D bioremediation washdown and treatment system which recycles washdown water for re-use. The four-stage system was the first to be installed in Australia, including a custom-built washdown area;
- Installation of a mono-pump and closed sump system on the chemical mixing

bay to contain spills and allow pump out of materials without having to install containment tanks;

- Procurement of John Deere E-Gator electric utility vehicles for transport around the golf course to minimise noise and air issues; and
- Procurement of Greenmach tree chipper to recycle tree waste onsite and use for mulch.

Boyd has also played an important role in the management and use of tertiary treated effluent from Wyong Shire Council. Among the requirements and programmes implemented include regular soil and water testing, training and implementation of OH&S measures for staff handling recycled water and the implementation of a groundwater monitoring programme to monitor the effects of cultural practices.

Boyd has also taken particular care to ensure all staff understand their environmental responsibilities and the procedures developed through joint consultation. Part of that has included e-par founder Terry Muir conducting a number of information sessions onsite to ensure all staff appreciate the EMS and the potential benefits to the industry and local environment.

Boyd has also organised a number of training initiatives to develop staff awareness and skills for the protection of the environment which include:

- Spill response training through Bullbeck Environmental Solutions;
- Chemcert accreditation for 12 staff in 2007; and
- Sitepro Training for programming of irrigation system. 🌱



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2008 AGCSA Excellence in
Golf Course Management
Award recipient Mark
Jennings with AGCSA
president Allan Devlin



Jennings ticks all the boxes

For a skilled superintendent it is a relatively easy task to maintain and manage a well established and carefully planned golf course. The position is dramatically reversed when a skilled superintendent takes on a course such as Box Hill Golf Club which had been developed by basically amateur attempts in an ad hoc fashion for over 50 years – that is a significant challenge.

When starting at the club in early 1996, Mark Jennings faced that challenge head on and in the period since has progressively built and managed the course to become one of the best in the region.

The ultimate reward for all that hard work came at the recent Australian Turfgrass Conference in Melbourne where he was named the recipient of the 2008 AGCSA Excellence in Golf Course Management Award, presented in partnership with John Deere. Jennings becomes the second Victorian in six years to win the award, following in the footsteps of Gary Bass from nearby Croydon Golf Club who collected the honour in 2002.

Observing the list of achievements he has notched up during his time at Box Hill, it is no wonder Jennings walked away with the award. Looking at his CV he can rattle off an

During his tenure as superintendent at Box Hill Golf Club, Mark Jennings has helped transform the course into one of the best in Melbourne's eastern suburbs. All the hard work paid off big time after he was bestowed the 2008 AGCSA Excellence in Golf Course Management Award.



extensive list of course improvements which have ultimately seen the club's membership flourish and status rise within the competitive Melbourne golf scene.

Over the years Jennings has been active in reconstructing or modifying greens, tees and bunkers, all of which he designed or was closely involved in the design phase, while between 2004 and 2005 all fairways were converted to warm-season.

All of the projects required supervision of large numbers of contractors, scheduling of supplies and tasks, the implementation and selection of grasses, maintaining all OH&S measures for employees and the general public, while most importantly maintaining the course for member use.

Along with these larger projects, Jennings also initiated various maintenance programmes

to assist in lifting and maintaining the course to the highest level. These consisted of a fully analysed pesticide and fertiliser regime that is cost effective, environmentally sound and best suits the club and its members.

Two of the biggest projects Jennings has undertaken included the conversion of fairways from a mix of cool-season grasses to Legend couch, as well as the complete re-design and construction of the back nine after the club purchased an area of swampy marshland with a meandering creek bed through it.

Part of the reconstruction required the diversion of the entire length of the creek, to Melbourne Water Authority standards, placement of fill on the entire surface, placement of topsoil, irrigation, planting of fairway turf and construction of tees, greens and bunkers.

Jennings had just 14 months from start of work to commencement of play and a budget of \$545,000. Both the financial and timing criteria were met and the resultant work was of a high standard in all respects and considerably enhanced the Box Hill layout.

In 2004 Jennings was closely involved in the early stages of planning a complete fairway turf replacement programme which would see a switch to a pure Legend couch playing surface. In conjunction with club management a plan was developed to convert all fairways in a two-year time frame.

In the first year, nine holes were closed and completely replanted. Play was maintained without serious disruption or inconvenience to the 1300 members on a single nine which in itself required a high level of turf management and an equally high level of general course management. All of this without complaint from the membership which as any superintendent will attest is no simple accomplishment. In 2005, the second nine was completely replanted using the same management techniques.

The planting of these surfaces has been carried out in conjunction with a vigorous kikuyu eradication programme which has been managed successfully so as to avoid any damage to playing surfaces or areas not

intended for control. This will be ongoing for the next three years. Other significant achievements Jennings has made include:

- A completely reconstructed course drainage system for fairways, greens bunkers which comprises both subterranean and surface drains. The new system has rendered the course from a situation whereby it was often closed during winter and required a limitation on buggies and mandatory tee up, to an all-weather course which has not been closed due to excess surface water for one day since 1996.
- Initiation of a tree nursery and subsequent planting out of over 2500 trees across the course while carefully removing diseased and poorly placed trees.
- Demolition and removal of the old and design and construction of a new maintenance facility
- Complete reconstruction of the course irrigation system from a failing system using three different watering methods, to a uniform modern computer-based automatic pumping and irrigation system across the entire course. This project was carried out progressively over four years and needed careful planning and organisation of funds and resources as well

as management of ongoing maintenance and member playing privileges.

"To manage a well-established and funded course with a high level of assistance and maintain a status quo without too much change is within the ability of all course superintendents," says Box Hill general manager Peter Briggs.

"To manage a course which has been largely re-developed over 10 years while maintaining a facility that has seen a high level of membership and business growth which has demanded a high level of course presentation on a daily basis, while at the same time successfully carrying out a continuous development programme, takes the concept of course management to another level.

"All of what Mark has done has been completed to a very high level of competency while continuing to maintain a course on which over 80,000 rounds of golf are played each year with a staff establishment that has for most of the time comprised just eight.

"Mark has brought a number of key skills to the club, but most importantly it's his personal disposition that encourages staff, directors, members and especially management to relate to and with him in an open and trusting manner." 🙌

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Thompson tops '08 graduates

NSW's fine run in the AGCSA Graduate of the Year Award continues with

Chris Thompson collecting the award in Melbourne.

TORO

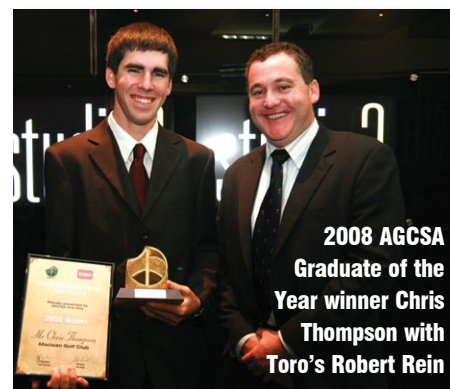
Maclean Golf Club's Chris Thompson became the third NSW recipient of the AGCSA Graduate of the Year Award, presented in partnership with Toro, in four years at the recent Melbourne conference. The popular winner won the crowd over with the first line of his acceptance speech commenting it would be like a mini skirt – long enough to cover the essentials but short enough to keep the gathering interested.

Having earlier in the year collected the NSWGCSA Graduate of the Year title, Thompson came out on top from a strong field of finalists which included Rhys Whitting (Safety Beach Country Club, VIC), Chris Robinson (St Lucia Golf Links, QLD), Scott Murray (Willunga Golf Club, SA) and Luke Hoglin (Wanneroo Golf Club, WA). As well as paying tribute to his fellow finalists, Thompson also made special mention of his colleagues at Maclean Golf Club, in particular their efforts in covering for him while he enjoyed the week-long conference.

Maclean Golf Club is situated inland from Yamba in northern NSW and Thompson has proved to be a valuable asset for the club. During his time there he has learnt to complete all tasks a qualified greenkeeper would be expected to do, as well as other jobs outside the normal scope. He has taken charge of the course and its employees when the superintendent has had time off, fulfilling duties such as assigning tasks to other employees, setting up the course for play and planning fertilisation programmes, disease, pest and weed treatments.

While his passion and enthusiasm for golf course maintenance highly impressed the judging panel, it was his well-rounded nature and maturity which shone through as well. Outside of work Thompson has involved himself in a wide variety of community organisations and activities.

He has been a member of the Maclean Soccer Club for the past 14 years and as well as playing and refereeing has assisted



**2008 AGCSA
Graduate of the
Year winner Chris
Thompson with
Toro's Robert Rein**

in preparing the club's grounds. He was also a member of the Lower Clarence Amateur Swimming Club assisting in the construction of amenities in the club's grounds.

Thompson is also a member of the Gulmarrad Volunteer Bush Fire Brigade and is involved in meetings, pre and post fire maintenance, as well as working as part of a team on the fire line. Through his membership with the Rural Fire Service he has been able to achieve many qualifications including advanced firefighter, chainsaw operator, senior first aid officer, and 4WD tanker driver.

Thompson will now pack his bags for the US courtesy of Toro where he will attend the University of Massachusetts Winter School for Turf Managers and also get the chance to visit Toro's major manufacturing facilities. 🌱

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Climate change and the Australian golf course -

An agronomist's perspective

BY JOHN NEYLAN

Given the wet and cold day experienced during the recent AGCSA Golf Championships at Royal Melbourne Golf Club, one could be forgiven for thinking that Melbourne was experiencing a "wet" or normal winter. However, despite some useful winter rainfall in southern Australia, the water supplies of the capital cities still remain low and water restrictions are still in force.

The Bureau of Meteorology (BOM) monthly climate reports show that June 2008 was dry across much of southern Australia, particularly in the eastern wheat belt and the south coast of Western Australia, while in contrast many central and northern areas of the continent recorded above average rainfall.

It was a warm month for maximum temperatures across most of the continent and consequently it was the seventh warmest June on record for Australian mean temperature. In July 2008 the temperatures and rainfall were relatively close to normal through large parts of Australia. Averaged over the continent, day time maximum temperatures were somewhat above-normal, while rainfall and minimum temperatures were very close to normal.

From an agronomist's perspective, it appears that in the southern states the winter rainfall continues to be on or just below the long-term average, while in the north of Australia the weather has become more volatile with rainfall associated with high intensity storms.

As another dry summer looms with more severe water restrictions in several localities, the effects of climate change have become reinforced in the human psyche. Whether we want to believe in climate change and whether it is man-made or natural, it is having a profound influence on our lifestyle and impacting on our sports facilities and golf courses.

Australia and the globe are experiencing rapid climate change. Since the middle of the

Climate change is starting to have a significant impact on golf courses and turf management practices and the challenges will only increase into the future. In this latest instalment of AGCSATech Update John Neylan reflects on these changes and how the industry must take a proactive and innovative stance to ensure future sustainability.



20th century, Australian temperatures have, on average, risen by about 1°C with an increase in the frequency of heat waves and a decrease in the numbers of frosts and cold days. Rainfall patterns have also changed - the northwest has seen an increase in rainfall over the last 50 years, while much of eastern Australia and the far southwest have experienced a decline (BOM, 2008).

In 2007 the Intergovernmental Panel on Climate Change (IPCC) released its fourth assessment report, concluding that:

- Warming of the climate system is unequivocal;
- Humans are very likely to be causing most

of the warming that has been experienced since 1950; and

- It is very likely that changes in the global climate system will continue well into the future, and that they will be larger than those seen in the recent past.

These changes have the potential to have a major impact on human and natural systems throughout the world, including Australia.

Climate change has affected our weather patterns, annual rainfall has dropped or is more spasmodic and localised, storms appear to be more intense and maximum temperatures have increased. The BOM has produced a series of maps that plot the changes in temperature, rainfall and evaporation over the past 37 years.

These charts show that for most of the country there has been an increase in the mean temperature of up to 0.6°C/10 years, a reduction in annual total rainfall for the eastern seaboard of up to 50mm/10 years and an increase in the evaporation of about 2-10mm/year in southeast Queensland, southern NSW, central Victoria, the southwest corner of WA and most of South Australia.

WATER AVAILABILITY

The combination of increasing temperatures and reduced rainfall is likely to result in increased irrigation demand, but do we have the water to meet the demands while providing the expected quality of playing surfaces? Water availability and water quality have become serious issues for the sports turf industry and in particular golf courses.

The recent study by the Australian Golf Industry Council (2007) into water usage found that there are approximately 1000 18-hole equivalent golf courses in Australia that have some dependency on water for the irrigation of grass playing surfaces.

The combination of increasing temperatures and reduced rainfall is likely to result in increased irrigation demand, but do we have the water to meet the demands while providing the expected quality of playing surfaces?

The study found that an average of 124 megalitres per 18-hole equivalent course per year, with bore water and recycled water accounting for almost 60 per cent of the water used. The question is whether this water will continue to be available and whether golf courses can reduce the volume of water used.

With recycled water being diverted to other uses or too far away from the facility and the potential for the extraction of bore water to be reduced, where will the water be sourced? Has the facility secured a long-term water supply? What will be the source of your water supply into the future?

At the 2007 Australian Turfgrass Conference in Cairns, Professor Mike Young stated the following as to the implications for the turf industry in its quest to access water.

"Apart from needing to deal with a host of restrictions, the main implication for the turfgrass industry is that it must be seen to be part of the solution and not part of the problem. This means that it will need to embrace change and, in particular, be seen to be supporting implementation of the National Water Initiative.

Amongst other things, the National Water Initiative requires that water be priced at its full cost. In many cases, this is much more than the industry currently pays. The National Water Initiative also requires that urban and rural water trade become possible. For large water users, like the turfgrass industry, water trading means that the industry should expect and plan for a time when it will need to hold both a tradeable water entitlement and a use approval.

In this brave new market-driven world, water will have to be managed in the same way that farmers manage water. Water entitlements will become valuable and clubs will have to decide how much water entitlement to hold and how much water entitlement to buy. If their region becomes drier, they will need to decide how much more entitlement to buy. It will also mean that the industry may be able to sell any savings it makes.

In parallel with these initiatives, the industry must also expect the emergence of groundwater markets and markets for access to storm water run-off. Soon, access to both of these resources may no longer be free."

The implication of what Professor Young has had to say could be far reaching and it is essential that every golf club has a secure water right. Keeping in mind Professor Young's

comments it is important to note that the main alternative sources of water available to Australian golf courses include:

Storm water: Storm water harvesting is now being undertaken by tapping into large stormwater drains and pumping into a large holding dam. Storm water harvesting requires accessibility to a large storm water main, constructing a reasonable sized holding basin on the storm water drain and a very high volume pumping system to capture as much of the flow as possible.

Storm water occurs in short and intense events and the key is the ability to transfer as much of that water as possible. There are two examples of this system in Victoria, at Royal Melbourne Golf Club and Sandringham Public Golf Course.

Sewer mining: As with storm water capture, access to a large enough sewer is the key. The system at Pennant Hills Golf Club will be keenly monitored as the first operational system for a golf course in Australia (see the Kurt Dahl and Richard Kirkby article on page 50 of this edition of ATM for more on the Pennant Hills scheme).

Sewer mining uses reverse osmosis technology similar to desalination plants and has a relatively high construction and operating cost and a high electricity requirement.

Desalination: There are now several desalination systems in place or in the process of construction (The Sands, Torquay in Victoria is just one example – see ATM Vol 9.5 Sept Oct for a full run down of the system).

Desalination is a well proven high-tech system that provides a means of using previously unusable high salinity ground water and effluent. Desalination plants have a relatively high construction and operating cost and a high electricity requirement. There is also the disposal of the concentrated brine that is produced which has to be disposed of in a sustainable manner.

Treated effluent: Treated effluent has been used for many years on Australian golf courses. In a survey conducted by the AGCSA in 2006 of golf courses using treated effluent there

were about 6000M/annum used. The limitation to using treated effluent is the proximity of the supply and as yet a lack of a distribution infrastructure. Increasing salinity, sodium and bicarbonates are often the reported challenges in managing this water resource.

All of these alternatives need to be considered in terms of the National Water Initiative, particularly as it relates to sustainability and cost.

WATER MANAGEMENT PLANS

As the pressures on water supplies increase, golf courses are increasingly being required to demonstrate industry best practice, increased water use efficiency and improved environmental management. In relation to water this can only be achieved by having a good working knowledge of all aspects of where the water comes from, how it is applied and how much and what are the off-site effects.

The process of forming a water management plan will provide the necessary information for demonstrating best practice and identifying where improvements can be made. In the AGIC water survey (2007), 40 per cent of Australian golf courses had a water management plan, however, what about the other 60percent?

There are increasing demands being placed on water users to be able to detail their water use and to be able to prove that it is used in a sustainable manner utilising industry best practice. Where golf courses are tapping into storm water systems and sewers, they need to know what their water requirements will be and how the water will be distributed and effectively managed. A water management plan identifies the works and practices that will improve irrigation and water use efficiency for the golf course. A water management plan will:

- Secure future water availability through sustainable practices;
- Demonstrate environmental responsibility; and
- Assess current water management practices. ►



There is no doubt that golf clubs in Australia will be faced with making significant decisions in the next 5-10 years in terms of how they are going to present the course while dealing with the challenges of a changing climate

Water management planning is about understanding:

- The source and quality of the available water;
- How much water is available;
- How much water is currently used;
- How much water is actually required;
- How the water is distributed and applied; and
- Sustainability of the water supply.

It is particularly important to undertake a water management plan because it provides a concise and methodical assessment on all the activities related to golf course water use. Even facilities that believe they are responsible water users will be surprised at the number of small factors that can be revealed that when added together can result in significant improvements in water use efficiency.

WATER QUALITY

Many Australian golf courses face the challenge of increasing water salinity and deteriorating water quality. As the salinity, sodium and bicarbonate concentrations increase the intensity of management also needs to increase and there will be increased management requirements including;

- Introducing more salt tolerant grasses;
- Gypsum applications;
- Soil cultivation to improve permeability;
- Subsoil drainage; and
- Water treatment.

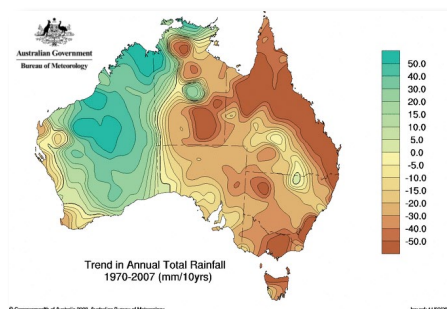
INCREASING TEMPERATURES

The climatic data indicates that it is getting hotter and drier in many areas of the country and this is resulting in higher evaporation rates, increased water demands and direct heat stress on the plant. The combination of these factors as well as increasing salinity will undoubtedly adversely affect turfgrass health. Increased heat stress, particularly on bentgrass, will also result in an increase in the occurrence of plant diseases. In the future will it be possible to sustain high quality bentgrass putting surfaces?

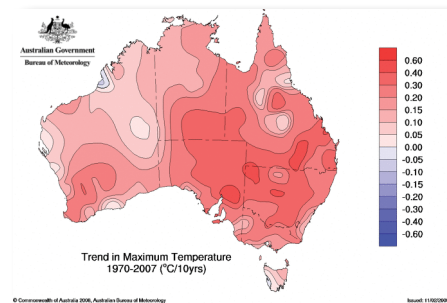
COPING WITH CLIMATE CHANGE ON THE GOLF COURSE

There is no doubt that golf courses in Australia will be faced with making significant decisions in the next 5-10 years in terms of how they are going to present the golf course while dealing with the challenges of a changing climate. There are several considerations:

Introducing new grasses: It may be necessary to utilise warm-season grasses on putting greens in southern climates. The new ultra-fine hybrid couchgrasses offer the best opportunity for providing a near-bentgrass surface. In



Climate change has affected our weather patterns. Annual rainfall has dropped or is more spasmodic and localised, storms appear to be more intense and maximum temperatures have increased



the far north of Australia will the cloud cover increase with low light conditions requiring more low light tolerant grasses? The question is where will the new grasses come from and who will research their capabilities.

What standard of playing surfaces will golfers face in the future? With the enforced change to different grass types, golfers in the southern states may have to play on dormant or overseeded hybrid couchgrass in the winter months. Will fairways be well grassed but dry and hard with little green colour during the summer? There will undoubtedly be a loss in visual aesthetics.

Changed maintenance techniques: Maintenance practices will play a large role in how we present golf courses into the future while minimising the impacts of reduced water and increasing salinity. In fact it may cost more to achieve a lesser standard (by today's standards) but more sustainable playing surfaces.

GOLF COURSES AS A POSITIVE INFLUENCE IN A CHANGING CLIMATE

If you look at golf courses in the urban environment on Google Earth, you quickly appreciate that they provide extensive 'green refuges' in the concrete and asphalt jungle. Urban and suburban green spaces provide a range of ecosystem services, such as sport and recreation, mental health and well-being, biodiversity and conservation, carbon sequestration, reduced atmospheric particulate pollution, improved urban hydrology and water

quality and thermal amelioration (Bolund and Hunhammar, 1999). If you look at most golf courses in the urban environment they are not only a recreation area but also a valuable source of indigenous vegetation and offer refuges for a variety of fauna.

Golf courses and turf facilities provide an environmentally beneficial way of sequestering substantial amounts of greenhouse gases and the sector has a role to play in carbon management and trading schemes (Muir, 2008). Carbon sequestration is the process of incorporating atmospheric carbon into plants, soils, and water. Qian & Follett (2002) analysed 15 golf facilities and reported the total carbon sequestration continued for up to 45 years in putting greens at an average rate approaching 0.9 ton ha/year and for about 31 years in fairways at an average rate approaching 1.1 ton ha/year.

Is there an opportunity to exploit these environmental values in promoting and preserving golf courses as part of the urban environment? There is no doubt that if we are prepared to be innovative and to provide greater community access to golf courses, there is an opportunity to promote the environmental, social and community value of golf courses.

WHAT IS THE AGCSA DOING ABOUT IT?

The AGCSA has been active in research and innovative programmes for many years. To meet the challenges of climate change the AGCSA has a number of related initiatives in place including;

- Environmental Initiative;
- Australian Golf and Environment Foundation;
- Water Initiative; and
- Research projects investigating reuse of treated effluent, new warm-season grasses and improved salinity tolerance in bentgrass. In addition, we are hoping to initiate a research programme on the biodiversity benefit and carbon footprint of golf courses.

The challenges of climate change are there for us to tackle and it will take innovative and proactive management and on-going research to ensure that we can sustain golf courses into the future.

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Syringing is the most effective way of reducing not only soil temperatures but also canopy temperatures

Summer turfgrass stress management

BY ANDREW PEART

The most recognised environmental stress placed on cool-season turf during summer is temperature (heat). Bentgrass decline is often related to a combination of stresses that include drought, humidity, salinity, poor drainage, shade and low mowing heights. Heat stress is particularly damaging when turfgrass plants lose the ability to cool themselves. The principal means by which plants cool themselves or dissipate energy are reradiation, convection and transpiration.

Plant temperature is primarily dependent on the relative rates of radiation absorption and energy loss by reradiation when transpirational cooling is impaired and convective cooling is minimal (Beard 1973). Canopy temperatures can be much higher than the surrounding air temperature during periods of high light intensity due to a lack of transpirational and convective cooling. Reradiation is the main source of energy dissipation in the absence of convection and transpiration. Plants typically reradiate 50 per cent or more of the radiant energy they absorb (Gates, 1965).

Convective cooling occurs when air is warmed close to the leaf surface. This air becomes less dense and is replaced by cooler air. This establishes a circulatory movement of air around the leaf surface resulting in heat loss. Convective cooling is related to the size, shape and orientation of the plant surface and the flow rate of air. The efficiency of energy transfer by convection is much greater in fine textured turf such as fine fescue rather than tall fescue.

TRANSPIRATION

Transpiration involves the reduction of heat through evaporative cooling due to vapour loss from the leaf surface. This is a very efficient means of cooling and is optimised

With the prospect of another hot dry summer on the horizon, managing cool-season surfaces will again be foremost in the minds of superintendents. This edition's instalment of Tech Talk examines summer turfgrass stresses and some of the techniques that will hopefully reduce superintendent stress levels at the same time.

by low humidity, wind and adequate soil moisture. This process can be responsible for the turfgrass plant being up to 10°C lower than the adjacent air temperature. However, if transpiration is impaired by plant water deficit the plant temperature can rapidly rise above the adjacent air temperature.

ROOT GROWTH

Drought, humidity and a depleted root system all cause a reduction in the ability of the plant to transpire. Maximising root development is essential therefore in maintaining adequate transpirational cooling. Factors affecting optimal root growth include:

- Soil pH in the range of 6.0 – 7.3;
- Minimise compaction;
- Prevent waterlogging;
- Control root feeders;
- Maintain adequate K levels;

- Avoid excessive N applications;
- Maintain the highest possible mowing height; and
- Avoid excessive thatch development.

Root growth can be sustained at relatively high air temperatures providing that the soil temperature remains favourable, in the range of 10°-18°C. Soil temperatures in the top 15cm have the greatest effect on bentgrass roots.

The decline in turf quality with high soil temperatures is related to an imbalance between photosynthesis and respiration. The high soil temperatures result in respiration rates that use carbohydrates at a faster rate than shoot photosynthesis will produce and replace them.

Roots growing at optimum temperature are white, thick and multibranched whereas those growing in higher than optimum temperatures are brown, spindly and mature quicker.

Root deterioration causes several plant responses. There is reduced nutrient and water uptake and less cytokinin production. Roots are the primary site of cytokinin synthesis and supply the shoots with this plant growth regulator that promotes cell division and elongation.

When carbohydrates become limited due to an imbalance between photosynthesis and respiration, root cells have a lower priority than shoot tissue and root growth stops and root dieback eventually occurs. Root cells lose their structure as cells rupture resulting in a gel like mass that retains water, reduces infiltration and soil oxygen.

This resultant layer can cause rapid turf deterioration during hot weather due primarily to the reduction in gaseous exchange. Every root cell, particularly the root tip, requires continuous oxygen from the surrounding soil. As soil temperatures increase so does

respiration and the oxygen demand. If macropores within the profile are plugged with dead and decaying roots the lower available oxygen can quickly lead to further root death.

This is often seen even on well constructed high sand content greens where organic matter can be as high as 7-12 per cent in the top 50mm after a period of two years. Live roots have a vertical structure allowing for water and gaseous exchange, however, dying roots produce mushy gel like conditions that have a significant affect on oxygen availability.

HUMIDITY AND SHADE

High humidity leads to poor air drainage reducing the rate of transpiration and maintaining high tissue temperatures.

Bentgrass is often subjected to shaded growing conditions due to surrounding trees and buildings. These can cause reduced wind movement, increasing relative humidity as well as altering the light regime. Shade not only affects the amount of light available for photosynthesis but also the quality.

Blue, green and red wavelengths provide energy for photosynthesis while far red light helps manage the plant responses to the environment. In shade, a greater proportion of the light is in the blue and far red wavelengths with a deficiency in red light.

This causes plants to produce thin, delicate leaves with rapid, vertical shoot growth, and commonly have poorer root systems. As a result, shaded turfgrasses may have reduced heat, drought and wear tolerance.

WATER QUALITY AND SOIL COMPACTION

Salinity is often due to poor irrigation water quality. It can lead to direct root injury and reduced water uptake due to osmotic balance. The high sodium content can also lead to deflocculation of colloidal sized particles as well as organic matter particles. This can lead to black layer and poor gaseous exchange.

Soil compaction can predispose turfgrass to high temperature stress. Compaction results in reduced water uptake, a weakened plant, thinner turf to insulate the crown and reduced carbohydrate levels to aid hardiness.

SUMMER STRESS MANAGEMENT

High soil temperatures are one of the most critical factors in the decline of bentgrass quality during summer. If soil temperatures can be kept below 30°C it will improve overall turf quality greatly. Subsoil aeration, syringing and the use of fans are methods of reducing soil temperatures.

Syringing is the most cost effective way of reducing not only soil temperatures but also canopy temperatures. However, syringing in humid conditions does not result in beneficial cooling unless soil moisture is limiting or the turfgrass root system is not viable. It may however increase the likelihood of disease.

Summer cultivation techniques can also provide valuable assistance in the management of summer bentgrass decline. It reduces surface compaction, improves water infiltration and percolation rates and maintains soil gaseous exchange, critical for roots subjected to high soil temperatures.

Cultivation techniques include the use of a hydroject throughout the summer or solid tyne cultivation up until mid-summer, carried out on a three-weekly interval. Summer cultivation is not a substitute for spring and autumn renovations of hollow coring and topdressing but it helps maintain infiltration rates and gaseous exchange through the thatch.

Topdressing can also be effective when used in conjunction with the cultivation programme in reducing the percent of surface organic matter content. However, abrasions to the bentgrass may reduce quality in mid to late summer during hotter temperatures.

Greens should ideally be spoon fed over the summer months with a soluble fertiliser at a rate of 0.05-0.06kg N/100m² every 10-14

days supplemented with a slow release form at 0.11-0.15kg N/100 m² every month. Potassium should be applied in similar amounts if leaching of potassium is occurring. Adequate manganese and magnesium should be applied on high sand content greens as well as iron.

Cytokinin applications may be beneficial when the root system is absent or not viable. The most appropriate application times are mid-summer when the roots begin to deteriorate and early autumn as regrowth commences. Seaweed extracts appear to provide more consistent responses than synthetic cytokinins, possibly due to the presence of other hormones and nutrients.

Raising the mowing height of bentgrass during the summer can have beneficial effects on the quality of the turf. Studies have shown that by raising the mowing height by 0.8mm, from 3.2mm to 4.0mm during the summer, can have positive results on the plant's physiology and quality.

At 4.0mm plants maintained a photosynthesis rate greater than the respiration that resulted in production and retention of carbohydrates allowing for maintenance of root and shoot growth. This can be a very effective tool particularly in the shade at increasing the photosynthetic area by 25 per cent without significantly affecting green speed.

CONCLUSION

Heat tolerance is improved by:

- Utilising better heat tolerant bentgrass varieties (e.g.: L93, A1, A4 and G2);
- Maximising cooling functions;
- Maintaining a viable root system;
- Good soil structure; and
- Correct management regime.

Summer bentgrass decline most likely cannot be avoided due to unfavourable environmental conditions in which the grass is grown. However, with a specific programme in place to target the problems its severity can be greatly reduced. 🌱

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The Pulse

Over 700 delegates descended on Melbourne for the recent 24th Australian Turfgrass Conference and Trade Exhibition for a week of education, networking and personal development. The conference brought together a variety of turf managers from Australia and overseas and in this edition of The Pulse we quiz five superintendents to see what they got out of the conference.

LEO BARBER Paraparaumu Beach GC, NZ



I have attended numerous conferences now and without doubt the one thing that sticks out, apart from the consistent quality of the presenters, is the delegates themselves. I think that one of the major benefits of any conference is that it provides a forum for like-minded individuals to get together to learn and interact both formally and informally. In any situation during this year's conference you had access to a wealth of information whether it be listening to a formal presentation, visiting the trade show or simply sharing a 'cup of tea' with a colleague at one of the social events.

I think the networking aspect and the relationship building that occurs during conferences, whilst often hard to verbalise in a board report, does benefit both your personal development and ultimately that of your organisation. Often as turf managers we can become insulated in our own environment but attending conferences such as this one and mixing with other industry figures provokes thought and discussion and a chance to look and hear how others are managing their facilities or adapting to change. In many ways it also presents an opportunity to step away from your own facility, taking a look at it with a renewed freshness upon your return.

Making the trip from NZ, I was fortunate that I had an additional opportunity either side of the conference to undertake a tour of some of Australia's premier golfing venues, meeting one on one with some of their extremely learned superintendents. This was a chance to further develop discussions held during the conference, exchange ideas and get a closer inspection of some of the operational practices and management regimes in place. This was an extremely valuable experience and I appreciated the hospitality, courtesies and openness of all supers that hosted me. 🙏

TIM BILSTON Heidelberg GC, VIC



After attending this year's 24th Australian Turfgrass Conference in Melbourne, I have been asked what main benefits the week brought. Strangely enough my answer has been slightly different depending on the person asking the question.

I spoke to my general manager about getting back to basics and looking after my soil profile to produce good quality turf. This re-affirmed the basics in drought conditions, with soil tests and knowing my water quality.

When asked by my staff how the week was I spoke to them about Tim Moraghan (former USGA director of championship agronomy) in relation to his professionalism, speaking ability, planning and overall knowledge of the industry. With such varied topics discussed and presented by influential people, I personally gained more out of the week upon reflection than on face value then and there.

When asked this question by the Australian Turfgrass Management and the AGCSA, my answer is again different. Over the week I repeatedly found myself comparing my own situations and issues faced with the speakers holding the floor. I have found this to be an evaluation of how I have handled myself in similar situations. I have come away from the conference with the intent to look at the way I manage my own property. Time management, staff management and planning were topics spoken about at length across the week and will become focal points to review regularly.

The week has given me the belief that continual self-evaluation is healthy. Turf industry meetings and conferences will continue to be an important part of this evaluation for me. 🙏

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GREG PUCKERIDGE Four Seasons GC, Mauritius



Four superintendents and two agricultural company representatives working in Mauritius attended this year's Australian Turfgrass Conference, four of them having

not attended the event previously. After recently contacting them and asking them about their experiences their comments consisted of "very professional, worthwhile, informative and a valuable learning experience." The Mauritian delegates also stated that a special mention must go to the AGCSA staff members and the Board for their tireless efforts to ensure that the conference was a success and to make them feel very welcome with all concluding that they would definitely attend again.

Personally, now working overseas, the conference has always been and always will be a great way to meet new people and catch up with old friends. It is a great way of sharing information and to keep up to date with the latest practice methods. The conference is a great resource to have as it gives us all a chance to build up a support base in the industry which is a very valuable asset.

The calibre of the lecturers both Australian and international were outstanding and the variety of topics and issues covered by all were very interesting. I enjoyed Gary Dempsey's talk on constructing a long-term plan for golf courses as this is relevant for my situation since I am working at a new course and direction is now the key for our further development. The turf tour was also exceptional as it covered three different facilities all growing turf under very different conditions but all aiming for the same result – perfection.

Finally, I feel this year's conference was a great way to bring Mauritian and Australian turf managers and suppliers closer together, which undoubtedly will help with the advancement of this very fast growing industry here. 🌱

PHIL SOEGAARD Lakelands GC, QLD



The conference week started for me at the magnificent Royal Melbourne Golf Club and although I got to experience far more of the course than I would have perhaps liked to,

I was nonetheless grateful to Jim Porter and Toro for a great day on such a fantastic layout. The rugged grassy landscape, particularly on the carries greatly impressed me and provided some inspiration for potentially incorporating similar features in some areas at my course.

The following seminars provided a wealth of experience and knowledge. Of relevance to my operation at Lakelands were the presentations stressing the importance of optimum turf health. The basics of thatch management, aeration and adequate nutrition are still key and as such I plan to take on board more regular aeration and dusting this season. Also highly relevant was the topic addressing difficulties in attracting and retaining valuable staff. A range of approaches were discussed including more flexible working hours, alternative employee demographics and ways of creating more enjoyable working conditions.

The highlight for me was the turf tour. The regular use of potassium silica and Primo for turf wear and density at the Telstra Dome was interesting and was reassuring I was on the right track at home. Kingston Heath was in exceptional condition with some of the tightest, densest couch fairways I've seen despite the drought which is a credit to Martin Greenwood and his team. His work with carbon and disease suppression I found interesting and has prompted me to do some trial work.

In my opinion, one of the most valuable opportunities the conference provides is to chew the fat with other managers and in this way we can each take back to our own facility a range of different approaches to the many challenges we face. 🌱

ANDREW ARRAH Point Walter GC, WA



What a brilliant conference it was. From the start, with the very warm reception from the AGCSA staff, through to the numbers attending and supporting the conference, I

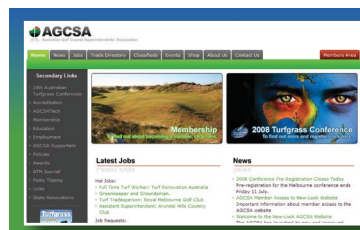
chose well to go. During the week I met people from all over the place with all different turf management situations and caught up with people who I have not seen for some time.

The week started with a round of golf at the famous and fabulous Royal Melbourne. The greens were rolling exceptionally well considering how wet it was, although I'm sure Jim and his crew and the club would be welcoming the rain. Thanks to all for allowing a round at RMGC, even if I did sign for a 140!

I found all talks and speakers during the education sessions of great interest. After hearing Major Grant Gleeson's motivational talk I can't look at people and a bag of liquorice all-sorts the same way again, and as much as I enjoyed Ed McGawley and his enthusiasm and passion towards nematodes, I'm afraid to say I can't share it. Thankfully his focus is control. The tradeshow was like being a kid in a candy shop with so many exciting products and resources available to benefit the industry.

For me the highlight of the week were the series of talks given by former USGA agronomist Tim Moraghan. His insightfulness and supportive comments provided affirmation that what turf managers do and how we do it in Australia is world class and truly professional. All that differs is the scale of application and different, complex environments.

The week concluded with an extensive day tour, and many thanks to all those showing us their patch of turf. Finally, many thanks to outgoing AGCSA president Jeff Gambin for all the hard work over the years. Congratulations also to Allan Devlin on taking up the president post and to all the AGCSA Award winners. 🌱



HAVE YOU SEEN THE 'NEW LOOK' AGCSA WEBSITE?

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With the demise of many widely used nematicides and fumigants in recent times, nematodes are likely to cause an increasing amount of damage to turfgrass in Australia.

Managing nematode pests on turfgrass

Every playing field, golf green or backyard lawn in Australia is infested with plant-parasitic nematodes. However, this is nothing to be alarmed about. Turfgrass produces a large mass of roots below ground and some nematodes will always utilise them as a food source. In most cases, these root-feeding nematodes will cause no obvious damage and the plant will continue to grow without showing above-ground symptoms.

Nematodes become a problem when environmental or management changes affect the capacity of grass to cope with nematodes. Thus a missed irrigation, an inadequate nutrition programme or stress from a heatwave may debilitate the plant to the point where it cannot produce roots rapidly enough to replace those damaged by nematodes. Nematode problems are therefore commonly associated with one or more stress factors and are compounded by the fact that sand is the basic growing medium for turf.

Sandy soils are always relatively infertile, they have poor water and nutrient-holding capacities and their physical structure is ideally suited to plant-parasitic nematodes. Thus the potential for nematode damage to turfgrass is ever present.

With the recent phase-out of methyl bromide and the up-coming phase-out of Nemacur, turf managers face a future where few nematicides are likely to be available. In this article, eminent nematologist Dr Graham Stirling discusses the nematodes pests of turfgrass in Australia and outlines options for managing them in the future.

DR GRAHAM STIRLING

IMPORTANT NEMATODE PESTS OF TURFGRASS IN AUSTRALIA

Any turf manager who sends soil samples to a laboratory for nematode analysis will find that a bewildering array of nematodes will be present. There are likely to be at least six plant-parasitic nematodes in every sample, all with fear-provoking common names like sting, needle, dagger or sheath, and very long scientific names. How does the manager decide whether any of them are important pests.

Table 1 (page 46) lists the plant-parasitic nematodes commonly found on turfgrass in Australia and categorises them according to their capacity to cause damage to roots. Those listed at the top of the table are potentially

the most damaging on turf. Sting nematode, for example, is a devastating pest. It feeds primarily on root tips and reasonably low population densities will almost destroy the root system, leaving only a shallow layer of roots no more than 1cm deep.

Several other nematode species are at the other end of the spectrum: they cause little damage, even when present at high population densities (>2000 nematodes/200mL soil).

DIAGNOSING NEMATODE PROBLEMS

Accurate diagnosis is the first step in determining whether nematodes are causing a particular problem. There is little point in spending significant money on nematode

control if the problem is caused by a fungal pathogen, a nutrient deficiency or some other stress factor.

Root diseases are not easy to diagnose as they often have multiple causes. A range of chemical and biological analyses may be required and professionals with a good knowledge of both fungal and nematode pathogens of roots may have to be consulted.

With regard to diagnosing a nematode problem, it is particularly important to collect samples that are representative of the affected area, whether it is a golf-green, a fairway or a playing field. Such samples should consist of at least 20 soil cores 1-2cm in diameter and 10cm deep.

Once the results of a nematode assay are available, they must be interpreted. Information on the number of nematodes required to cause damage (i.e. the damage threshold) is available in various publications and on the world-wide web, but threshold levels must be interpreted with caution.

A certain number of nematodes may cause damage on one grass species or in a certain environment but have no effect on another grass or in a different environment. Thresholds are also affected by mowing height and other stress factors. Thus low numbers

of nematodes may cause problems on a golf green whereas the grass on a fairway may be able to cope with many more nematodes.

Since it is difficult to analyse a situation adequately when results from only one sample are available, turfgrass managers also need to consider whether they need access to more meaningful information.

This can be obtained by monitoring nematode populations regularly, understanding how numbers change during the year and noting whether high populations of particular nematodes are consistently associated with poor growth, a specific root symptom or a particular above-ground symptom.

It is only by making such observations that a manager can be confident that nematodes are actually associated with a problem and that nematode population densities are high enough to warrant attention.

NEMATODE-FREE PLANTING MATERIAL

The best way of avoiding a chronic nematode problem is to ensure that when new turf is laid, the planting material is free of highly pathogenic nematodes. In Australia, this applies particularly to sting nematode, which is our most destructive nematode pest.

Sting nematode is currently limited in its distribution (mainly to areas around Perth and to some regions of NSW), but is gradually being spread around the country in infested planting material.

If the Australian turf industry continues to allow this to happen, it will eventually have to face a chronic nematode problem that it may find impossible to manage. Sting nematode is currently the most important pest of turfgrass in Florida, USA and once a site is infested, expensive nematode management programmes must be implemented.

In the absence of an industry-operated clean planting material scheme, anyone purchasing turf is advised to have it checked for the presence of sting, needle and dagger nematodes, and possibly for some of the moderately pathogenic species.

PRE-PLANT FUMIGATION

Soils used for horticulture are often fumigated before a crop is planted, as this is one of the most cost-effective ways of reducing populations of nematodes, soil-borne pathogens, insects and weeds. Soil fumigation does not totally eliminate nematodes and other soil-borne pathogens, but allows crops to be established without suffering root disease problems. ►



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Recently, however, the area treated with fumigants has begun to decline because some products have been de-registered because of health and environmental considerations. Australia's most widely used fumigants (ethylene dibromide and methyl bromide), for example, have been phased from use in the last 10 years.

In the turf industry, pre-plant soil fumigation is usually not an option because fumigants are dangerous to use in built-up areas. However, chemicals such as 1,3-dichloropropene and metham sodium may have a place in nurseries specialising in nematode-free planting material, provided those nurseries are located well away from residential areas.

APPROPRIATE TURF MANAGEMENT

As mentioned, nematode-induced poor growth of turf is often associated with an environmental or management factor that reduces the tolerance of the grass to nematode damage.

Common factors exacerbating nematode damage include stress caused by low mowing heights, excessive nitrogen fertilisation (which encourages foliar growth to the detriment of root growth), inadequate nutrient inputs, moisture stress, heat stress, and soil compaction. In situations where stress factors are apparent, turf managers should attempt to minimise these stresses before considering other options.

SOIL AMENDMENTS

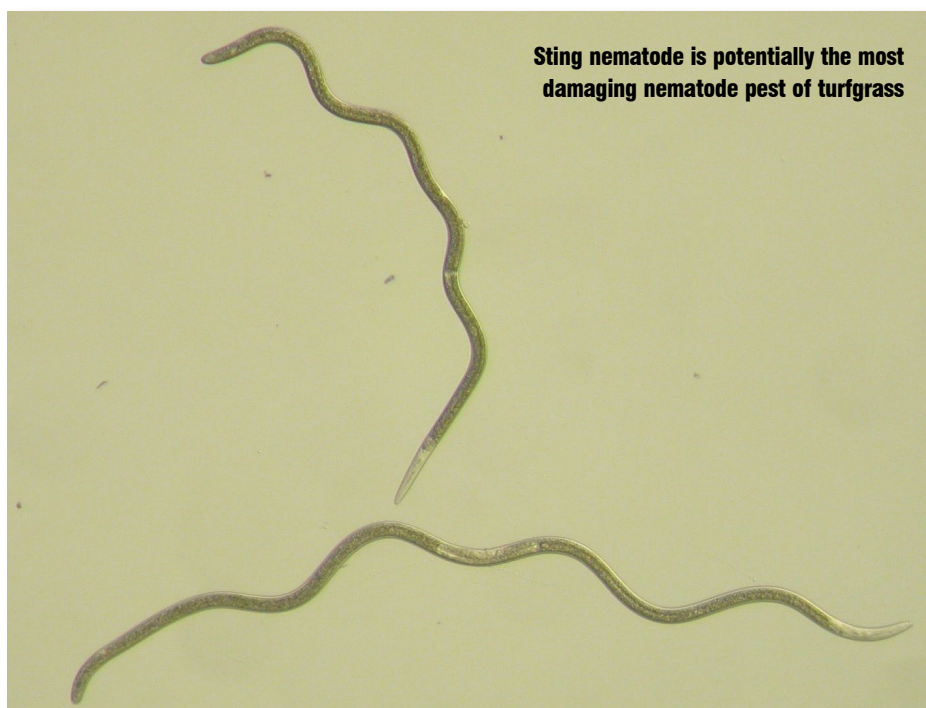
Any material that promotes root growth will enhance tolerance to nematodes. Organic materials are particularly useful, not only because they contain nutrients and enhance nutrient cycling, but also because they improve the biological buffering capacity of soil.

Any organic material added to soil is first decomposed by bacteria and fungi and these microorganisms are then consumed by bacterial and fungal-feeding nematodes. These beneficial nematodes, together with plant-feeding nematodes, are then destroyed by various parasites or eaten by predators.

Since organic manuring programmes that maintain high populations of bacteria and fungi should ultimately produce an active and diverse soil food web capable of keeping populations of plant-feeding nematodes in check, this is one area where more research is needed.

CHEMICALS

For the last 40 years, nematode management in turfgrass has largely been based on organophosphate and carbamate nematicides that are water-soluble and therefore capable



of moving downwards in the soil profile after application to the soil surface. Fenamiphos (sold by Bayer as Nemacur) is the most widely used of these nematicides in Australia.

Since these chemicals are extremely toxic and are now known to have negative human health and environmental impacts, they are likely to be removed from the Australian market in the next few years (Bayer recently announced it has stopped production of Nemacur, with enough product left in the market to last about a year). Despite many years of research by agrochemical companies, there are no potential replacements on the horizon.

As mentioned, most soil fumigants are applied to soil prior at planting. However, there are exceptions, with two fumigants

(Curfew (1,3-dichloropropene) and Turfcare 376 (metham sodium)) currently registered for use on established turf in some areas of the USA.

When these products are applied to turf at appropriate application rates and with special machinery, they will reduce nematode populations without causing phytotoxicity. However, their usefulness in the turf industry is likely to be limited, as they must be applied by certified applicators, relatively large buffer zones are required around treated areas and re-entry is restricted for up to 48 hours.

BIOLOGICAL CONTROL

The most promising biological product being developed for the turf market is a bacterial

TABLE 1. PLANT-PARASITIC NEMATODES FOUND ON TURFGRASS IN AUSTRALIA, RANKED ACCORDING TO THEIR CAPACITY TO CAUSE DAMAGE TO THE ROOT SYSTEM

Damage Potential	Nematode	Threshold (per 200ml of soil)
High	Sting (<i>Belonolaimus</i>)	20
Medium-high	Needle (<i>Paralongidorus</i>),	20
	Dagger (<i>Xiphinema</i>)	40
Medium	Stubby (<i>Paratrichodorus</i>)	80
	Lesion (<i>Pratylenchus</i>)	200
	Cyst (<i>Heterodera</i>)	150
	Root-knot (<i>Meloidogyne</i>)	800
	Stunt (<i>Tylenchorhynchus</i>)	400
	Ring (<i>Macroposthonia</i> , <i>Hemicriconemoides</i> , <i>Ogma</i>)	300
	Sheath (<i>Hemicyclophora</i>)	160
Low	Spiral (<i>Helicotylenchus</i> , <i>Rotylenchus</i> , <i>Scutellonema</i>)	800
	Pin (<i>Paratylenchus</i>)	200
	Reniform (<i>Rotylenchulus</i>)	600
NB: Threshold levels given here are those used by Biological Crop Protection. These threshold levels are given as examples only and will vary from source to source.		

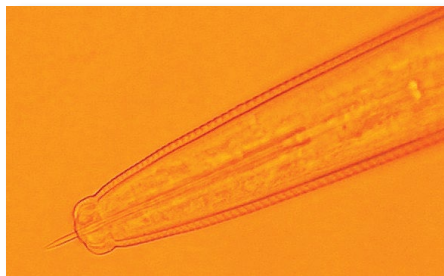
parasite (*Pasteuria*) of sting nematode (*Belonolaimus longicaudatus*). Spores of the bacterium attach to the cuticle of the nematode and after infection occurs, the parasite grows within nematode's body and eventually kills it. The spore attachment process is very host specific, which means that the parasite will not adversely affect other nematodes, including beneficial, free-living species.

Mass production techniques for the bacterium have recently been developed and field tests are now underway in Florida. At this stage, it is not known whether this biological control agent will ever be available in Australia. That is dependent on the results of efficacy studies in Australia and overseas and host-specificity tests with Australian populations of sting nematodes. Biosecurity clearance to import the bacterium would also be required from Federal quarantine authorities.

OTHER PRODUCTS

The demise of many widely used nematicides in the last 20 years has generated interest in the development of less toxic products for nematode control.

A plethora of claims about the efficacy of a wide range of 'biological', 'organic' or 'non-toxic' products have been made in



The head of a sting nematode, showing its feeding spear



recent years, but unfortunately many of these claims are based on preliminary laboratory or glasshouses studies, or are not backed by objective scientific data.

In some cases, there is evidence to suggest that a product may be useful, but until efficacy is proven on turfgrass, the data are

published in peer-reviewed scientific journals and results are substantiated by independent experts, claims of efficacy must be treated with a degree of scepticism.

Products in this category include entomogenous nematodes, extracts from plants (e.g. sesame, wintergreen and citrus oils, neem, brassica meal and mustard bran), derivatives from microorganisms (e.g. DiTera), products containing molasses and other organic materials, fungal products such as those based on *Trichoderma*, *Paecilomyces* and various nematode-trapping fungi, and chemicals such as furfural and Agri-Terra.

Despite the paucity of data on many of the above products, turf managers are encouraged to test them in an objective manner. Results from small plot experiments will soon indicate whether particular products are worth persevering with.

Any product that improves plant health or reduces nematode numbers relative to an untreated control is worthwhile testing on a larger scale, provided it meets the requirements of registration authorities.

FURTHER RESEARCH

It is clear from the preceding discussion that with the demise of many widely used nematicides



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and fumigants, nematodes are likely to cause an increasing amount of damage to turfgrass in Australia.

Given that sting nematode continues to be spread throughout the industry, the area infested with this highly pathogenic nematode will increase and chronic nematode problems may become the norm in some areas of Australia.

Local research is clearly needed, but the turfgrass industry stands alone among Australia's primary industries in not funding research on nematodes. The Australian grains, sugar and horticultural industries have invested millions of dollars over the last 20 years in nematode research and our farmers now have world-best-practice management options available to them.

In stark contrast, the turf industry imports its knowledge from overseas. This situation needs to change quickly; otherwise nematodes will become an increasingly important component of the pest and disease complex of turfgrass.

EDITOR'S NOTE

During the 24th Australian Turfgrass Conference in Melbourne, Dr Ed McGawley, professor of nematology from Louisiana State University, presented a paper on the management options

for parasitic nematodes. Included in the paper were results from trial work conducted on Agri-Terra. His paper is included in the 24th Australian Turfgrass Conference Proceedings available from the AGCSA.

ACKNOWLEDGEMENTS

Graham Stirling, nematologist with Biological

Crop Protection, has nearly 40 year's experience working with nematodes on a wide range of crops in Australia. He can be contacted on 0412 083 489 or a by email at graham.stirling@biolcrop.com.au.

For further reading on nematode pests on turfgrass visit www.biolcrop.com.au and click on the 'Useful Articles' menu. 🙌



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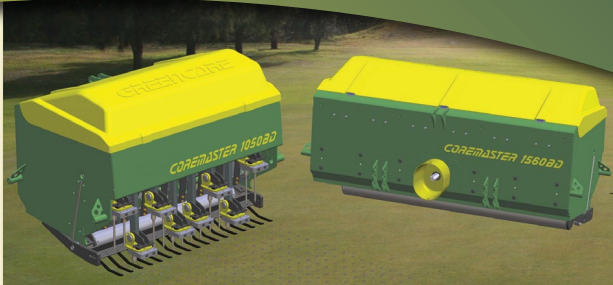
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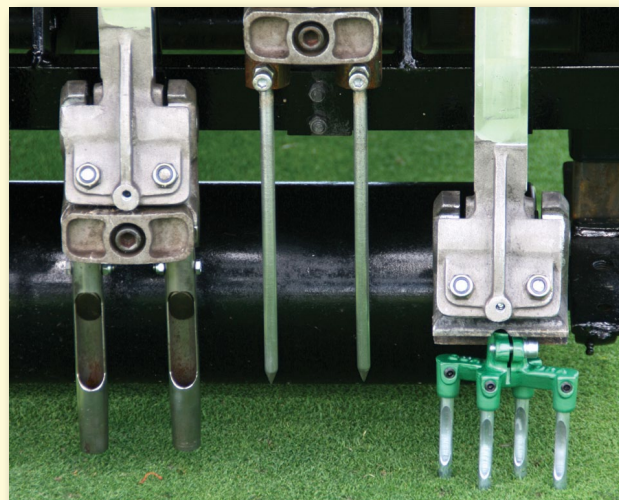


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BY KURT DAHL AND RICHARD KIRKBY

An aerial view of the Pennant Hills Golf Club water reclamation plant nestled adjacent to the 10th fairway. The plant taps into a sewer running through the course to provide Class A+ water for irrigation which has ended the club's reliance on potable water

Sewer mining as an alternative water source – the **Pennant Hills** experience

Founded in 1923, Pennant Hills Golf Club (PHGC) is one of Sydney's premier private golf clubs, holding both Championship and Group One status. Located on 37 hectares in the suburb of Beecroft it has, since its inception, relied on potable water for irrigation.

Despite its enviable reputation as a premier club and course, the business was under serious threat due to a potential loss or severe restriction of its irrigation water supply. As a result, over the past 10 years PHGC began investigating a variety of options to reduce or eliminate its reliance on potable water for irrigation of tees, greens and fairways.

The investigation intensified between 2003 and 2005 as Sydney dam levels reached record lows and water restrictions increased. PHGC did not escape the water restrictions with consumption capped at 20M/month. In dry summer months 20M was insufficient to keep the condition of the course in line with its reputation and the expectations of members. Aware that the sustainability of the course water supply was an issue, PHGC had investigated various alternate water supplies, including:

Continued full or partial use of potable water: This option was largely discounted as future access and quantity could not be guaranteed.

In May, Pennant Hills Golf Club flicked the switch on its multi-million dollar water reclamation plant which will effectively end reliance on potable water for irrigation. Permeate Partners managing director Kurt Dahl provides an overview of the groundbreaking sewer mining project, while Richard Kirkby looks at the day-to-day operations of the plant from a superintendent's perspective.



Off creek storage: This option, which would see water sourced from Devlin's Creek which runs through the centre of the course, was largely discounted as the regulatory hurdles in building a dam and extracting water from an intermittent creek were seen as substantial and lengthy. Understandably the modelling for this option was reliant on historical rainfall patterns which are increasingly uncertain.

Groundwater from existing bores: This option was largely discounted as the groundwater would require substantial treatment to remove iron and salt prior to use. Furthermore, the yield of the bores was estimated at only 20 per cent of peak demand delegating groundwater to a supplementary option only.

Sewer mining: Ultimately this option, which

would utilise water from a 300mm sewer which runs adjacent to Devlin's Creek, was selected as it could provide a reliable supply and the technology to produce high quality recycled water was proven in similar applications. The main disadvantage of this option was the lack of precedent in Sydney.

WHAT IS SEWER MINING?

By definition, sewer mining is the mining of the sewer system to extract water. Water is extracted on an as-required basis and treated to a quality determined by the end use. To simplify the treatment process the sewer ideally contains sewage of a domestic origin and the flow in the sewer is significantly greater than the demand for recycled water. Waste

activated sludge, a by-product from biological treatment, is returned to the sewer.

At the core of the treatment process at PHGC is a membrane bioreactor (MBR). In an MBR the settling stage, required in conventional wastewater treatment, is replaced by a membrane. Water is drawn through the surface of the membrane while solids and pathogens are rejected due to the small pore size (typically $\sim 0.04\mu\text{m}$) on the membrane surface.

The “bugs”, otherwise known as Mixed Liquor Suspended Solids (MLSS), once rejected from the membrane surface are returned to the start of the biological reactor. The water that passes through the membrane, otherwise known as permeate, can be reused directly or sent for further treatment (i.e.: disinfection or salt reduction).

Using an MBR configuration enables PHGC to minimise the footprint of the biological process (~ 30 per cent of the size of a conventional bioreactor) and achieve a high level of pathogen removal (>99.9 per cent) in the first disinfection stage (i.e.: membrane filtration). Importantly, membrane filtration provides a water quality which is perfectly suited to further disinfection by UV and chlorination.

First developed in 1980, MBRs have been continuously optimised, particularly in terms of membrane cost and power consumption. MBRs are now cost competitive with conventional wastewater treatment with the added advantage of improved treated water quality. MBRs now process >3 billion litres of water every day and the installed capacity is growing exponentially. The largest operating MBR in the world, with a capacity of 75 million litres/day, is located at Cleveland Bay in Townsville.

REGULATORY CONTEXT

The PHGC project was developed in parallel with the applicable regulatory framework. In many instances the paperwork or protocols simply did not exist at the time they were required. As a consequence the number of authorities that were consulted during the early stages of the project was wide ranging and exhaustive. These included:

- Sydney Water;
- NSW Department of Water and Energy (DWE);
- NSW Department of the Environment and Climate Change (DECC);
- NSW Department of Health; and
- Hornsby Council.

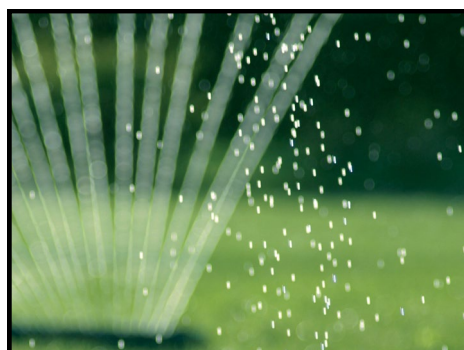
Two of the agreements critical to the success of the project that were negotiated and developed with Sydney Water included:

- Sewer access agreement – provides long-term access to the sewer and protection of the upstream catchment; and
- Trade waste agreement – enables disposal of waste activated sludge and is based on net impact on sewer contents.

The guidelines that ultimately applied to the project – Interim NSW Guidelines for Management of Private Recycled Water Schemes – were released in October 2007 during construction. Through regular communication with authorities in the design phase, PHGC ensured that it would be compliant once the official documents were released.

Understandably the main focus of the guidelines is on the level of pathogens in the treated water. A project-specific risk assessment determined the acceptable water quality and application method. Testing during the commissioning phase was used to confirm/validate that the process could reliably produce the required water quality.

The main regulatory challenge was obtaining development, installation and operational approvals from the local council ►



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The interior of the treatment plant room. Behind the concrete wall is the biological reactor which contains both anoxic and aerobic zones and the membranes which filter the water



◀ (Hornsby Shire). The delays and issues were believed to be largely as a result of the fact that this was the first application to be processed by the council for a large wastewater treatment system.

RISK MANAGEMENT

The key risks for the project were identified and methods for mitigation were determined as follows:

Technical: The flowsheet at PHGC was based on using proven, industry leading technology. Conservative design principles were used and critical equipment was installed duty/standby.

Regulatory: Regular proactive communication and workshops with regulators throughout the project helped to identify, minimise or eliminate issues/surprises.

Communication: Regular communication with all project stakeholders was critical in achieving ownership of the project as it developed. PHGC newsletters were used to provide updates and information on the technology to members. The local community attended public forums where the project was presented and questions answered.

Construction: PHGC shortlisted potential tenderers from 17 down to six companies which met key criteria. Comprehensive tender documentation was then used to ensure all project deliverables were achieved with minimal scope for variations.

Economic: Through the use of established technology and a tight tendering process PHGC minimised and clearly defined the capital and operating costs.

Operational: PHGC uses its course maintenance staff to oversee the daily operation of the new plant (see superintendent Richard Kirkby's accompanying piece on page 54). Through initial and ongoing training the

operators are equipped with all the necessary skills to conduct basic troubleshooting and assess performance. PHGC has also entered into a contract with Permeate Partners to assist with long-term optimisation, reporting and advanced troubleshooting.

PROJECT DETAILS

Key design features of the new sewer mining plant at PHGC included:

- Maximum daily production: 0.65M;
- Minimum daily production: 0 to 0.02M;
- Expected annual production: 110M;
- Maximum daily consumption: 1M (storage used to buffer demand);

used to buffer demand);

- Average dry weather flow in sewer: 0.7M per day (storage used to buffer diurnal flows);
- Nutrients: Biological nitrogen removal and chemical phosphorus removal; and
- Disinfection: Multiple barriers (membrane + UV + Cl)

At PHGC, about 98 per cent of the water extracted from the sewer is converted to recycled water. The remaining 2 per cent is returned to the sewer as waste activated sludge. The flowsheet for the new plant is shown in Figure 1, while Table 1 below summarises the plant performance to date.

HOW BIG?

PHGC was fortunate in that a section of otherwise largely unused land was available less than 100m from the sewer for the construction of the plant. The slope of the land was used to partially bury/hide some of the main structures, including the biological reactor and recycled water storage tanks. As a result the plant blends in with the course surrounds, plant operation noises are minimal and all potential sources of odour are sealed.

Key components of the site included the biological reactor (80m²), equipment building (100m²) and recycled water storage tanks (800m²). PHGC was grateful to receive about \$1 million from the State Government and about \$50,000 from the Federal Government towards the cost of the project. The main cost

Two large tanks enable onsite storage of the treated water. The smaller tank is the flow balance tank where the raw sewage initially is stored before being screened and then sent into the bioreactor

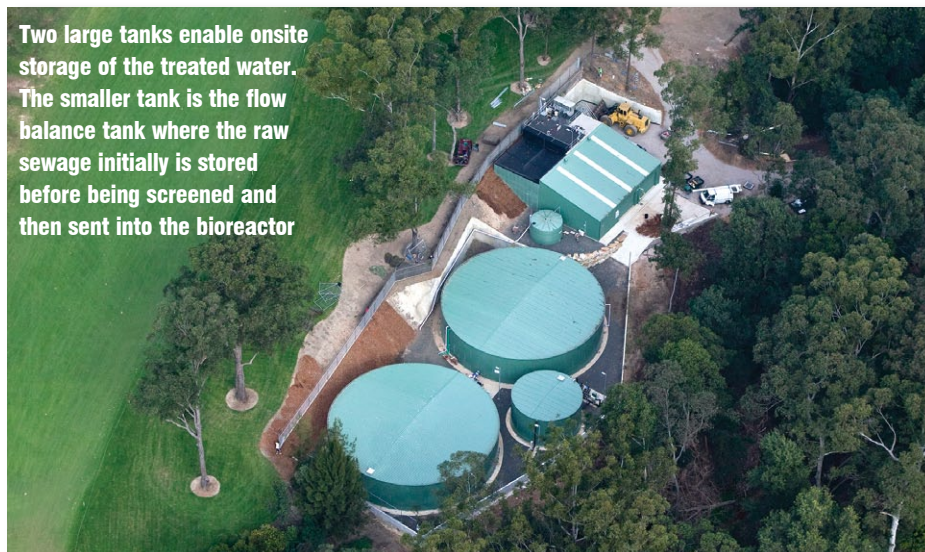


TABLE 1. PENNANT HILLS WRP WATER QUALITY RESULTS

Parameter	Raw sewage	Treated water
BOD5 (mg/L)	220	<2 (i.e. non-detectable)
Suspended Solids (mg/l)	300	<2 (i.e. non-detectable)
Total Nitrogen (mg/l)	70	<10
Total Phosphorus (mg/l)	16	<2
E-coli (cfu/100ml)	>1,000,000	<1 (i.e. non-detectable)
Turbidity (NTU)	N/A	<0.1

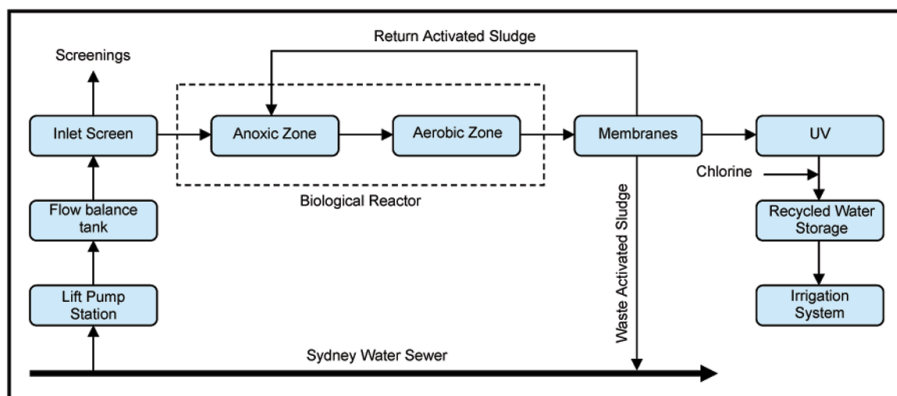


Figure 1. Flow sheet highlighting the various stages of the Pennant Hills Golf Club water reclamation plant

components of the project included:

- Investigation, tender documentation and approvals: \$350,000;
- Treatment plant: \$2.45million;
- Storage tanks: \$600,000; and
- General course work (i.e.: landscaping, paths, fencing, etc): \$150,000.

CHALLENGES FOR THE INDUSTRY

With water being a major focal point for the turf industry at present, there are a number of areas to address if a golf club or turf facility is going to consider sewer mining as an option. These include:

Technical: Proven technology exists to produce virtually any water quality from any water source. However, as the potential market for small scale water and wastewater treatment has grown so has the apparent list of technology providers. Without sufficient rigour in the investigation and procurement phase a number of projects will be/are proceeding with largely untested technology. Any failed projects ultimately detract from the success of the industry.

Regulatory: As detailed above the regulatory environment for these types of projects remains fluid. All levels of government (federal, state



After entering the system, the raw sewage (left) is passed through the bioreactor where the water is processed by 'bugs', otherwise known as 'mixed liquor' (middle). The water that then passes through the membrane is called permeate (right) which can be reused directly or sent for further treatment

and local) are involved at some point as well as various state-based environmental and health agencies. A conservative and consultative approach is recommended until the protocols, guidelines and legislation start to solidify.

Investigation: The success of a project is ultimately determined by the integration of the new system and the fulfilment of stakeholder expectations. During the investigation phase it is critical that all aspects are thoroughly analysed to ensure the project fundamentals are sound, practical and cost effective.

Procurement: There are a variety of options ►

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available to clients to procure a new system ranging from design and construct to build, own, operate. Identification and review of the potential options and suppliers during the investigation phase will assist in the selection of the preferred procurement model.

Operational: For economic reasons existing site personnel are often utilised to operate decentralised water and wastewater treatment. Whilst technology selection and system design can ensure that day-to-day input is minimal, long-term performance and sound asset management often requires additional external professional input.

SUMMARY

PHGC has secured a sustainable and drought-proof supply of irrigation water through pioneering the use of sewer mining in the Sydney region. The efforts of PHGC have simplified the entire process from investigation, through to approvals and commissioning. Despite a somewhat confusing regulatory environment, the team at PHGC was able to overcome numerous challenges and deliver a high quality project in a timely manner.

Numerous issues still exist in establishing a sewer mining project, however, these can all largely be addressed with sound and



The efforts of PHGC have simplified the entire process from investigation through to approvals and commissioning

methodical approach during the investigation phase of a project.

ACKNOWLEDGEMENTS

Kurt Dahl is managing director of Permeate

Partners and has over 12 years' experience in the Australian water industry. Recently Kurt was the managing director of Zenon Australia, a world-leading membrane company, which is now part of GE Water. 🙌

A SUPERINTENDENT PERSPECTIVE ON SEWER MINING

The Pennant Hills Water Reclamation Plant opened on 30 May 2008 and to date we are only producing enough water to wash in pesticides, fertilisers and blowing leaves off greens. It has been a very steep learning curve for myself, my assistant Paul Gumbleton and 3IC Rory Taylor in operating the plant, which is capable of producing 650KL of A+ water per day with 2.5ML in storage. Water costs including electricity and chemicals will be about 30-40 cents per kilolitre.

The process endured by the club was wide ranging and very exhaustive as the plant was the first of its kind in Sydney. I think it will be easier for other clubs to proceed with sewer mining as all the pro formas with all the regulatory authorities have now been created which should make it easier to get over the problems we encountered with DA approval. For example, council thought that all our playing areas were watered by underground drip irrigation!

Daily site visits during the construction phase is very important to see how the plant all fits together, formal training during commissioning and refresher training during system optimisation are also very important.

As mentioned previously, Paul, Rory and myself have all had extensive training in

day-to-day operations of the plant. We are currently spending 40-50 minutes a day conducting system checks. This involves visual inspection of all plant areas and recording of key system parameters on a daily log sheet. I am told that we should be able to reduce this once the bugs have been identified and resolved and should only spend 20-30 minutes daily.

Water sampling is required on a monthly basis for six months during the commissioning and optimisation stages and then weekly during peak irrigation times. Specialist contractors will be used to provide support and mechanical servicing of pumps, blowers and compressors.

Irrigation water suitability tests have been carried out and the results showed that three times more of the detrimental sodium salt will be applied compared to the beneficial soil building calcium salt.

Based on these findings we will be implementing a long-term gypsum programme which will include monthly applications on greens, three-monthly applications on tees and surrounds and six-monthly applications on fairways.

In summary, I would recommend to superintendents whose clubs are looking



Richard Kirkby

at sewer mining to get involved in the investigation and the DA process, visit other plants under operation and then again prior to commissioning of their plant. Ensure that the construction punch list is completed prior to handover of plant operation, and most importantly training and more training as it is very daunting when the contractor has finished and the responsibility is all yours.

**RICHARD KIRKBY
SUPERINTENDENT,
PENNANT HILLS GC**

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Indooroopilly Golf Club superintendent Charlie Giffard with the four machines he is using in the bio diesel assessment trial



Assessing the use of **bio diesel** in turf maintenance machinery

BY CHARLIE GIFFARD

At the recent GCSAQ annual general meeting, Indooroopilly Golf Club superintendent Charlie Giffard presented preliminary findings from his own trials assessing the use of bio-diesel in golf course maintenance machinery. The trial is one of a number of proactive environmental measures at the club and here he provides an overview of the project and results to date.



About six months ago we resolved to explore an alternative fuel source for use in golf course maintenance operations at Indooroopilly Golf Club. Given the rising costs of fuel, particularly diesel, it was an opportune time to assess other options. We were looking for something that could provide a viable option to our current fuel, as well as something that could effectively reduce our carbon footprint at the same time.

Bio diesel seemed to be a logical choice and after a bit of research and exploring various suppliers in the south east Queensland area we decided to go with an operation called Eco Tech, which is based in Narangba just north of Brisbane. Eco Tech has been in operation since 2006 and its technology and equipment has come out of Germany.

The company produces the bio diesel mainly from tallow which is derived from the abattoir industry. Tallow is a by-product of beef and by using it in the production of bio diesel we can also assist in the total recycling of a waste product. During colder months, used vegetable oils are incorporated with the tallow to overcome the potential problem of fat coagulation in low temperature situations (i.e.: prolonged periods <10°C).

Bio diesel can be used in diesel engines with few or no modifications, either as a diesel fuel substitute or added to petroleum-

based fuel to reduce its polluting effect. In 2003, the Federal Government's Department of Environment and Heritage introduced a fuel standard for bio diesel under the Fuel Quality Standard Act 2000 and all bio diesel supplied to the marketplace is required to meet this standard as a minimum.

Some of the benefits of bio diesel are:

- It is more environmentally friendly than petroleum-derived diesel;
- Bio diesel is a renewable resource which emits 92 per cent fewer greenhouse gases than petroleum-derived diesel;
- Bio diesel does not ignite easily, does not produce explosive vapours and has a low degree of toxicity to humans and animals if ingested;
- It is biodegradable, so if spilled it will not cause lasting damage to the environment; and
- It is low in sulphur.

To facilitate the trial we purchased a 1000-litre shuttle from Eco Tech with the first batch of bio diesel. At present we have to go to their plant to top up supplies, but this may change in the future if demand rises. We store the shuttle adjacent to the fuel bowsters on a trailer and manually pump it out as required. Use is still relatively small, around 50-100l/week, but this will probably increase to 150-200l in the growing season.

MACHINERY TRIALS

To assess the benefits or otherwise of bio diesel we selected four machines that are part of the maintenance fleet here at Indooroopilly. Those used are a new Toro 6700, John Deere 2500, Iseki SF333 out-front and a six-wheel Gator which represent a good cross section of the brands and age of machines in the fleet. Only the Toro 6700 required any modification with Toro providing a conversion kit free of charge to assist with the trial (all new Toro diesels manufactured after 2006 are able to run on bio diesel straight from the factory).

While not carrying out an exhaustive analysis to date, we have made some interesting observations. To begin with, all machines have demonstrated at least a 15-20 per cent improvement in fuel efficiency, while the cost is around 40-50 cents per litre cheaper and is less likely to fluctuate as bio diesel is

not directly impacted by the vagaries of the international oil market.

The resultant smell from the fumes hasn't been offensive (there is certainly no old fish and chip odour!) and there is a lot less visible particulate pollution evident (i.e.: no palls of black diesel soot at start up and take off).

As with any new system there will be hiccups and the bio diesel was no exception with two particular problems identified in our trials to date. The first is that when the machine is stored out in the weather or if it has been particularly cold, we have noticed a coagulation of fat in the filler neck and fuel pump. This has stopped fuel from getting to the engine.

We have since discovered this was from an earlier 'summer' batch and didn't have the necessary vegetable oils to maintain viscosity during the first part of winter. We have not experienced any repeat of this now that we are aware and take the necessary measures to ensure equipment is kept under cover.

The other issue we noticed was the scouring of gunk from the fuel lines and engine. This accumulates in the filters and requires cleaning from time to time (bio diesel actually cleans out the internals of the engine and lines, effectively de-scouring the system. This in turn can lead to better efficiencies and longer engine life).



Indooroopilly obtains its bio diesel from a company called Eco Tech which is based in Narangba just north of Brisbane

POSITIVE SIGNS

In our experience to date, I can only vouch for the savings and benefits of using this type of bio diesel. It is early days and longer term benefits or otherwise are yet to be realised. However, I do see it as a viable alternative to regular diesel and more importantly you feel you are contributing to the reduction of carbon emissions from golf course operations, which can only be a positive step for the environment.

Conservatively we have estimated a 10 per

cent saving on fuel costs with a further saving regarding efficiencies in running and longer term maintenance costs. This could be as high as 15 per cent although a quantitative analysis has yet to be done and as the trial develops this is something we will look at doing.

We will be looking to continue the trials for another six months at least before making any decisions about continued or wider use of the product. All things going well, it is our intention to swap to diesel greens mowers instead of our current fleet of petrol mowers.

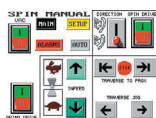
We have also publicised the trials to members and the wider public through our website (www.indooroopillygolf.com.au) where we also highlight other 'green' initiatives employed at Indooroopilly Golf Club.

Other recent environmental actions at the club include the planting of 2000 trees and 1000 plants in 2007, with 676 of those trees absorbing the carbon emissions of our course maintenance fleet. We also collect 156,000l/year of rainwater from the cart shed roof to wash carts and since Level 2 water restrictions we have reduced water consumption by 44000l/day.

For further information about the trials or to discuss the initial findings, contact Charlie Gifford on 0438 602 689 or email c.gifford@indooroopillygolf.com.au



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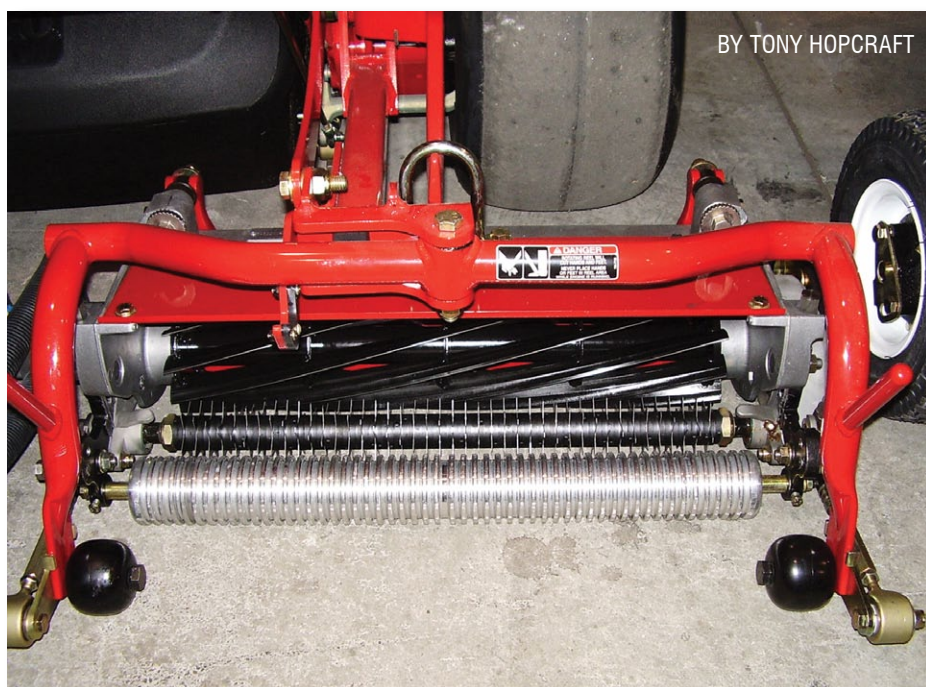
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Since adapting to the use of grooming reels, they have afforded great improvements to surface presentation

Grooming the perfect surface

In this modern world of golf course equipment the range of extras available to the industry has become very significant. A great product range is now available for all turf management applications and the major machinery companies all offer a very selective range of optional turf equipment accessories, among them rear power brushes and grooming attachment reels for greens and fairway mowing units.

As you would expect in this industry, superintendents, turf equipment technicians and managerial groups expect top quality playing surfaces whether they be golf course greens and fairways, bowling greens or sports fields. The options we have available in selecting optional turf equipment accessories can not only enhance the playing surface but also improve the quality of turf types.



Playing surface presentation is a constant hot topic among turf managers with a wide variety of optional attachments now available for maintenance machinery to help produce quality turf surfaces. Here Victorian Turf Equipment Technician Association president and Flinders Golf Club technician Tony Hopcraft looks at the use of groomers and rear power brushes.



GROOMERS

Grooming reels generally sit between the front roller on a cutting unit and the start of the cutting cylinder. Once in place, the turf groomer should be set to the correct height and be ready for active work. Once it has been set for the right application, it's away and ready for the grooming process. There

Rear power brushes can play a huge part in the after-cut appearance of turf surfaces

are many theories about how good grooming reels are but since adapting to their use they have granted huge improvements to the final presentation of our playing surfaces.

As with all turf equipment, maintenance can play a huge role in the performance and longevity of groomers. Yearly maintenance to most optional turf accessories does not need to be expensive and requires only a little forethought.

Depending on cutting procedures and regimes, groomers generally only have to be overhauled once or twice a year if all is going well. Maintenance and parts are usually a small expense, but it's always good to carry replacement stock in the workshop. These parts generally include a belt and up to four bearings per cutting unit.

Overhaul maintenance on grooming attachments can usually be incorporated with cylinder grinding programmes or half yearly maintenance checks and inspections, depending on growth patterns and yearly programmes for the area or turf situation.

After a general chat among many turf technicians and superintendents at the 24th Australian Turfgrass Conference in Melbourne, it was clear that groomers are becoming more important surface presentation.

REAR POWER BRUSHES

New innovative technologies now give the purchaser a great opportunity to add to optional equipment accessories. These options range from groomers, as mentioned above, through to rear power brushes. While rear power brushes have been around for quite some time, a lot of equipment owners are yet to put these accessories into use.

Rear power brushes can play a huge part in the after-cut appearance of your turf. Some examples of their use include on damp mornings where there has been heavy dew, or where there are excessive grass clippings and after-cut deposits.

Unlike the traditional rear scraper, power brushes provide far greater advantages. They don't drop grass in the areas being cut, like the rear scraper certainly does, especially in damp or wet conditions.

After seeing the two types of brush and scraper systems in action I would opt for the rear power brush system, the reason being it is a proven performer. The traditional rear scraper bar in wet, damp conditions left a lot of clippings and grass clumps.

Having both systems in place at Flinders Golf Club it certainly was not hard to convince the committee, and course maintenance staff as well, on how superior the rear power brushes were. Having the opportunity not only to purchase these optional pieces, but to compare their performances out on playing surface, one would say that any optional piece or accessory certainly helps the industry to strive for best playing conditions.

Turf groomers and rear power brushes can often have a slight downside, that being when

it comes to maintenance. Most turf equipment technicians generally have a proactive maintenance schedule for these optional extras including greasing, belt inspections, bearing checks and grease seal inspections as well. Depending on individual programmes this type of maintenance can be incorporated with yearly grind programmes, overhaul and rebuild schedules.

These optional accessories can be quite reasonable come the time of replacement parts and pricing. In this day and age we are very fortunate to be able to access and purchase these great optional accessories which the manufacturers have designed to assist the turf professional.

In closing, we try to maximise and utilise every little advantage we seek for the ultimate finish and the above accessories are another means by which we can achieve this. 🌱



Around 50 turf technicians gathered at the recent conference in Melbourne

TETA STATE CONTACTS AND UPCOMING EVENTS

NSWTETA

Membership Enquiries: Sam Olah

M: 0418 296 111 E: s-m-s@bigpond.com

Next Meeting: 21 October, 2008 – Cess Hill Industries Day

VTETA

Contact: The VTETA committee comprises of president Tony Hopcraft (ph 0411 106 429, email tony@vteta.info); vice-president Luke Spartalis (ph 0418 444 883, email luke@vteta.info); treasurer John Phelan (ph 0412 121 533, email john@vteta.info); and secretary Greg Stringer (ph 0432 397 329, email greg@vteta.info)

Next Event: 16 September, 2008 – Annual General Meeting at Silvan Australia, 244-264 Greens Road, Dandenong.

QTETA

Contact: Phil Newton

philnewton@people.net.au

For a full rundown of the turf technicians stream at the recent 24th Australian Turfgrass Conference, read John Phelan's account in the state reports section at the rear of this edition.

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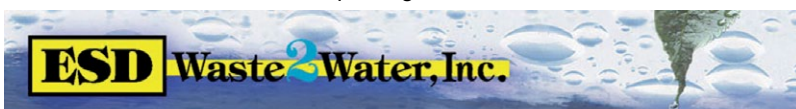
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After more than 19 years as superintendent at Green Acres Golf Club, Tim Pierce departed earlier this year which opened the door for recently appointed assistant Mat Poultney to take the reins. Just five months into his new role at the Melbourne course, ATM knocks on the shed door to see what life is like in the big chair.



Recently appointed
Green Acres Golf Club
superintendent Mat
Poultney with the 13th in
the background

Mat Poultney – Green Acres Golf Club

Full Name: Mathew Poultney.

Nickname: Greenie.

Age: 36.

Family: Wife Natalie, daughters Peppa, Goldie and Lulu.

Period as a superintendent: Five months.

Period as an AGCSA member: Five months.

Previous clubs: Wembley Golf Complex, WA (three years); The Vines Resort, WA (three years); Stockley Park Golf Club, UK (four years); Freeway Golf Course, VIC (five years). Current club: Green Acres Golf Club, VIC (1.5 years).

Number of staff: Nine.

Course specs: 18 holes, par 71, 5935 metres. Wintergreen couch tees, Legend couch fairways. The greens are a mixture of bents (two greens Penn G2, one Cobra, six Penncross and nine Pennlinks).

Turf qualifications: Certificate in Turf Management and Master of Agriculture (Turf Management).

Congratulations on your recent appointment. Give us a bit about your background and how have you settled in?

The start of my career was over in the West at the University of WA in 1989, mainly involved in the irrigation team. I then moved on to golf courses a year later working at Wembley Golf Complex where I learnt the processes involved in the maintenance of a golf course. It was then onto The Vines Resort where my real education in turf management began. I was lucky to be involved in the preparations for the Heineken Classic for three years which showed me the time, effort and nous needed to produce a course for international tournament play.

At the start of 1997 I had a bit of a sojourn to Europe for four years, working for European Tour Courses P/L based at Stockley Park Golf Club on the outskirts of London. During this time I was fortunate enough to be involved in preparations for the Scandinavian Masters at Kungsängen Golf Club.

I came home to settle in Melbourne and was lucky enough to be appointed assistant at Freeway Golf Course, which gave me the opportunity to establish myself in the industry on this side of the country. Freeway was a good opportunity for me to develop my skills as there were numerous major developments happening at the time and we had a small staff. It was a quick learning curve.

After five years there an opportunity arose at Green Acres in an assistant role. Being a private club I thought it was a good time to move, especially as it is only a kilometre or two down the road. After 12 months as assistant, superintendent of 19 years Tim Pierce left and the opportunity arose to take the position. I think already having experience at Green Acres was definitely an advantage in ultimately getting the job, although it is always a risk for a club to go for an inexperienced person in the role.

At this stage I am settling into the superintendent position without any problems, although it is the quiet time of the year and my answer may be different after a full growing season.

What are the challenges taking over from such an established superintendent and how are you finding the transition from assistant?

The main challenge I have found is that the wealth of knowledge that Tim had about Green Acres and its turf has moved on. That knowledge is irreplaceable in the short term and it will take time to develop my own understanding of the golf course and its environment. I was lucky enough to gain large portions of this information in my short time as Tim's assistant.

Gaining the trust of the membership is another challenge to deal with. Tim had a good relationship with the members and produced great results for them, especially during a large turf transition period. The only way to gain their trust is to produce a quality surface for them year round and to minimise mistakes.

The move from assistant to super has been quite smooth so far due to a combination of the club's and staff help and also a good grounding as an assistant for a lengthy period of time. Tim's availability to provide information about Green Acres is also a bonus.

What are some of the main challenges with your new posting?

Professionally, time management and administration duties are the main challenges. The finishing of work programmes on time is always a task especially with a full syllabus each year. A great deal of the hard yards had been done on course before I became superintendent, with the transition from Poa-dominated greens to bent greens, cool-season fairways, tees and surrounds to couch, water storage enlargement and numerous other construction projects. So the challenge for me is to grab the baton and run with it, moving the course further forward.

Personally, I think having the confidence to back your own judgement and skills is a challenge as there is always a lot of advice on offer to superintendents.

Is there much opportunity within the industry for aspiring assistants to move upwards?

There are opportunities, although I found it is not a quick process. You have to be patient and not worry about the positions you miss out on. Any interview experience that you can gain is always going to help for the next opportunity that arises. The right opportunity may mean you have to make a move sideways first before you can reach the position you want.

What is the one thing you miss about your old assistant role?

I don't think about life as an assistant anymore. There really isn't enough time to reminisce.

What plans are there for Green Acres in the coming years?

Plans for the immediate future are to continue with the improvement of the playing surfaces, especially the Legend couch. Edges of fairways have a lot of competition for water and nutrients from the mature trees that line the course. Also trying to stay on top of the *Poa*, experimenting with different methods and products to see which gives us the best results in our conditions.

Reviving the couch nursery is a priority along with extending the bent nursery to ensure we have turf available quickly if needed. New sand bins were constructed over this winter which will keep the materials off the nursery, giving it a chance to thrive.

No major works are scheduled for the immediate future. Our last major works project was water storage enlargement, which was completed at the end of January 2008. New path construction will be completed over the next two years as will the transition of the remaining four cool-season tee complexes to Wintergreen. Some bunker refurbishment will also take place this summer. Extending irrigation lines to roughs and tee carries will also continue, enabling the couch to be pushed further into rough lines.

What are some of the major turf management issues facing Green Acres at present?

Given the weather of the last few years, water availability quickly rose to the most important issue facing turf managers and all sporting clubs. The previous super and the club had the foresight to act quickly and hence water storage was enlarged. It has also improved the visual aspect of the course and created a larger wildlife habitat.

Being on the Yarra River floodplain, we are dealing with silty clay based acidic soil. There will be a continuing programme to improve the soil structure and pH levels through lime and calcium based applications, coupled with constant verti-draining to ensure plenty of air flow and water movement into the soil, along with breaking down the build-up of sulphur in certain areas. Constant monitoring of sodium levels in the soil is required due to the use of river water for irrigation.

Water is obviously a critical issue around the country at present. How is Green Acres off in terms of its water supply, quality and quantity? As stated earlier, Green Acres enlarged its water storage last summer from 11M to 30M. Harvesting of stormwater was also incorporated into the plans. This hopefully will be enough to continue watering for the periods when we are unable to draw water from the Yarra River due to restrictions. Quality of the water is average.

OFF THE COURSE

Any claims to fame outside of turf management?

Bouncing Dean Jones in the WACA practice nets as a 17-year-old. After a growl and a glare he then proceeded to hit the next four balls over the fence, across the road and out of sight into the Gloucester Park harness racing venue. Talk about being put into place!

Favourite movie? Donnie Darko.

Three albums you could not live without.

Ritual de lo Habitual (Jane's Addiction); Get Ready (New Order); The Early Years Vol. 1 (Tom Waits).

If you could be any musician, who would you be? Tim Rogers (You Am I frontman).

Food you could not live without? Red meat.

Favourite sporting team? Australian cricket team.

Sporting team you despise? England and South African cricket teams are on a par. It's always nice to beat them.

Dream car? Winnebago.

Irritations? People who make judgements without knowing all the details. Golfers that don't repair pitch marks.

What book are you reading now? Usually the weekly edition of the Winning Post.

Favourite golfer? Ernie Els.

Golf handicap? 22 and rising fast.

What do you do to get away from it all? Camping, when time allows and going to interstate racing carnivals if the syndicate has had a good year.

Best part about being a superintendent?

Being responsible for the upkeep and future development of a sports turf environment. Also, having the opportunity to exhibit my skills as a turf manager in the role.

Best advice you have ever received on the job and who gave it to you?

The two best bits of advice I have received were from the early days and then later in my career. Early advice was from Trevor Strachan when I made a comment on how you went about getting a job with the European Tour course set-up staff at the Heineken Classic. He advised me that if I wanted a position like that I'd have to work a lot harder. It put me in my place and made me realise my efforts at the time weren't good enough to fulfil greater ambitions. A wise superintendent advised me later in my career that a good turf manager looks at his turf everyday, no excuses.

Favourite spot on your course?

Standing on the back tee on the 13th looking down the fairway. The hole has a billabong to the right of the tee complex and the green has a nice backdrop of mature trees.

Favourite piece of machinery?

Dakota 410 topdresser and Toro Procore 648 pedestrian unit.

Worst excuse from a staff member?

I was late because the nightclub didn't shut until 5am and it was hard to get a cab.

Career highlights?

Completing my Masters degree and being appointed superintendent at Green Acres. All tournament experiences have also been a highlight.

Overseas course you'd most like to visit?

Cape Kidnappers in New Zealand. The scenery in photos looks unbelievable.

You and your staff attended the recent 24th Australian Turfgrass Conference in Melbourne. What did you get out of the event?

With the conference being on 'home turf', it was a good opportunity to expose the staff to relevant topics in today's environment and also for them to see what is out there in regards to products and machinery.

The talks we attended were insightful and relevant to what we are dealing with here at Green Acres. We have a young staff and the exposure to such an event helps them to realise the effort and knowledge required in the life of a turf manager. 🌱

ROYAL HORTICULTURAL SOCIETY HONOURS BEARD

The Royal Horticultural Society recently awarded eminent turf professor Dr James Beard the Veitch Memorial Medal during a special awards dinner held at Hampton Court Palace in London. In receiving the award Dr Beard becomes the first turfgrass scientist to receive the international honour.

The Veitch Memorial Medal is conferred on persons who have made outstanding contributions to the advancement of the science and practice of horticulture.

Dr Beard has served the international turfgrass and landscape community for the past 50 years through his pioneering research concerning sustainable grasses, practical worldwide lectures, widespread publishing of articles and international leadership.

ACT TURF COMMUNITY FAREWELLS STALWART

The ACT turf industry was in mourning recently following the death of colleague Paul Shepherdson (aka 'Puds') aged 47, who died on 10 June after a long battle with liver disease.

Shepherdson was very active in the local turf scene after arriving in Canberra from South Australia in the mid-1980s. Starting as a casual

gardener at the Australian Institute of Sport, Bruce Stadium, he progressed to Parliament House where he worked as part of the turf management team. From Parliament House he moved to the then Football Park Phillip as grounds curator before winning the job of superintendent at Murrumbidgee Country Club where he stayed for 10 years.

Shepherdson, who was on the list for a liver transplant at the time of his death, finished his working career just four days before his passing at the place where it all started - Canberra Stadium where he was grounds supervisor.

A one-time committee member of the TGAA ACT, Shepherdson loved his footy (he was an Adelaide Crows fan), loved animals and nature. He was a member of the local Finch bird club, enjoyed a round of golf on a weekly basis and was a gifted artist and musician. He was a devoted family man to wife Diane, son Shane and granddaughter Jamie and extended family.

FUEL TAX CREDITS SCHEME EXPANDED

Superintendents and turf managers could benefit from changes made to the current fuel tax credits scheme for businesses. Introduced in 2006, the scheme has been expanded

from 1 July 2008 to include all taxable fuels (eg: petrol and diesel) used in machinery, plant and equipment for business activities not previously eligible.

Some examples of equipment businesses will now be able to claim fuel tax credits for include all-terrain bikes (off-road use), backhoes, blower vacuums, bobcats, chainsaws, compressors, front end loaders, graders, lawn mowers, motorcycles (off-road use), pumps and whipper-snippers. Businesses using such equipment will now be allowed to claim 19.0715 cents per litre under the scheme.

For more information about the impending changes and what it could mean for your facility, visit the fuel schemes section on the Australian Taxation Office website www.ato.gov.au/fuelschemes.

In other Federal Government news, Labor has recently released its final version of the National Employment Standards (NES). It is expected that the NES will be introduced as draft legislation at the end of 2008 and become law in 2010. To find out more information about the NES and what employers should do in relation to this impending legislation, visit www.workplace.gov.au. The AGCSA's law firm Madgwicks also has a fact sheet available by calling 9242 4744.

ON THE MOVE

Up at Gold Coast Burleigh Golf Club immediate past president of the AGCSA **Jeff Gambin** has had a slight reshuffle of the deck following the departure of long-time assistant **Alan Mulcahy**. After being Gambin's right hand man for the past 15 years (he also completed his formal qualifications alongside Gambin at Ryde College), Mulcahy bit the bullet and has shifted north to take over as superintendent at Helensvale Golf Club.

In his place, Gambin elevated **Allan Bishop** to the assistant superintendent position shortly before winter. Bishop was one of three apprentices at the club when Gambin started there back in the early 1990s and served a stint as assistant at Parkwood International before heading back to Gold Coast Burleigh.

Speaking of shuffling the pack, AGCSA Board member **John Odell** is also considering his options following the departure of two assistants in recent months. Both **Bevan Pulley** and **Rodney Springall** have recently resigned from Royal Sydney Golf Club, venue for this year's Australian Open. Pulley, originally from New Zealand, has joined lifestyle management I've Got Time while Springall is now working with a local council.

Not long after collecting the VGCSA's prestigious Powell Trophy with a round of 72 on Royal Melbourne's West Course, superintendent **Michael Grant** departed Kooringal Golf Club in Melbourne's western suburbs. Grant has switched sides and is now a rep for **Scott Kempster's** company Independent Turf Services.



Former Royal Sydney Golf Club assistant
Bevan Pulley

on 26 August with 2IC **Matt Crowe** set to make the move up to superintendent.

Following **Aaron Miller's** move to Tura Beach Golf Club recently, **Sara Hagy** has been appointed the new superintendent at Howlong Golf Club on the Murray River.

Matthew Kennedy from Wallacia has been successful over a high quality field of applicants and has been appointed as the new superintendent at Port Kembla Golf Club in NSW (he was due to start in mid-August).

Lucas Skelton has departed Heritage Golf and Country Club where he was assistant superintendent to take up work in Vietnam.

And finally, after 11 years at The Glades Golf Club on the Gold Coast, **Ben Baumann** has reached the top, taking over from **Paul Lierse** who has been appointed as the club's general manager. A few doors down at Royal Pines, another long-serving employee **Trevor Honnery** has been appointed assistant superintendent after being 3IC for the past six years.

RINGWOOD FENCE HITS NEW HEIGHTS

The Rabbit Proof Fence might be the longest fence in Australia, but the new Eastlink Freeway in Melbourne, which opened in late June, can lay claim to having the highest.

Bordering Ringwood Golf Course (superintendent Jeremy Cutajar) adjacent to Eastlink and Canterbury Rd, Ringwood, the safety screen is designed to stop errant golf balls from the course and towers at over 30 metres high for almost half a kilometre.

Mike Baker, spokesman for appointed design and construction firm Country Club International, says that the Eastlink fence just shades a similar screen the company built at Ryde Parramatta Golf Club in Sydney last year.

"It is the tallest engineered fence in Australia," says Baker. "More importantly, though, to meet the specifications set down by Eastlink's engineers it incorporates some unique design aspects that we believe have set new world standards."

Engineered to cope with wind speeds in

Standing over 30m high and nearly 500m long, the safety screen bordering Ringwood Golf Course in Melbourne and Eastlink is hard to miss



excess of 46m/s (over 165kph), the slim step-tapered steel poles are internally reinforced rather than externally braced to achieve strength requirements. Exotic Redden polyester netting from the USA was used and at 92 per cent sheer it is almost transparent when looking square on which significantly

reduces the visual intrusiveness of such a large structure.

With safety as the paramount concern for Eastlink's management authority SEITA, golf course architects Cashmore Design provided advice on safety design issues including recommendations for the 30m high screen.

NEW GENERAL MANAGER FOR RAIN BIRD AUSTRALIA

Rain Bird has announced the appointment of John Wright-Smith to the position of general manager of Rain Bird Australia Pty Ltd. Wright-Smith's Rain Bird territory responsibilities cover Australia, New Zealand and the South Pacific. He comes to Rain Bird with a strong background in product and system sales, contracting, training and design, having been both a customer and a service provider.

One of Wright-Smith's primary roles is to implement effective sales and marketing strategies for the Rain Bird range of commercial, residential, golf and agricultural irrigation products. Wright-Smith, a member of Royal Melbourne Golf Club, has a Master of Business Administration (MBA) from RMIT University and a Bachelor of Engineering (Electrical) from Monash University in Melbourne.

Wright-Smith can be contacted at jwsmith@rainbird.com or on 0417 724 626.

BETTER METHODS NAMED DISTRIBUTOR FOR UNDERHILL

Established golf products distributor Better Methods will now represent Underhill International, distributing the company's line of water-efficient turf equipment to the Australian golf market.

Better Methods, which has been in business since 1962, is headquartered in

Caringbah, near Sydney, and operates a second warehouse in Melbourne.

Among the many featured products from Underhill that will now be available through Better Methods are: FCI Profile solid metal golf rotor nozzles; LiquidPro and PelletPro applicator guns for wetting agents, fertilisers and micronutrients; CoolPro professional turf cooling nozzles for greens; Precision solid metal fixed spray nozzles for syringing sports fields; Magnum solid metal variable spray hose nozzles; The Tracker portable irrigation carts; RollerPro portable sprinkler bases for supplemental watering; DeepDrip tree watering stakes; Gulp Series water removal suction pumps; HoseTap solid metal hose adapters; and Nastek early stress detection glasses.

For more information about Underhill products or Better Methods, visit www.underhill.us or www.bettermethods.com.au.

NUFARM NABS KIRBY

Peter Kirby has joined the Nufarm specialty products division as product development manager - amenity horticulture, turf and ornamentals.

Kirby has an extensive background in agrochemical research and development in the amenity horticulture and turf industries. Through his past employment with retailers in the turf industry and most recently as an R&D

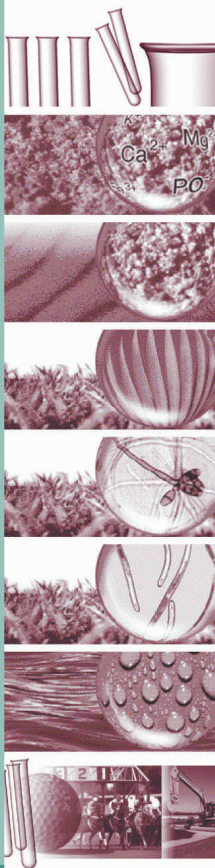
pesticide specialist with Sydney Environmental and Soil Laboratories, Kirby has built up a wealth of experience and knowledge.

Within his new role Kirby will take responsibility for the future business direction of the amenity, turf and ornamental markets for Nufarm and will be the first point of contact for all day-to-day business requirements relevant to these areas of the market. Kirby will be developing a broadened distribution strategy for Drive (quinclorac) and Gard (fipronil) that will allow greater penetration for these products.

Kirby can be contacted on 0458 032 869 or email peter.kirby@au.nufarm.com. For more information on the Nufarm Specialty product range, talk to your local turf specialist or go to www.nufarm.com.au.

BECKER UNDERWOOD LAUNCHES NEW WEBSITE

Global bio-agronomics and specialty products company Becker Underwood has re-launched its website - www.beckerunderwood.com - with a new appearance and expanded functionality. As well as being easier to navigate, users can now choose from four languages - English, French, Portuguese or Spanish. Users may also choose to view only information relevant to their region or explore the entire website. When first visiting the site, the user is asked to identify their desired country region.



Research

Soil Nutrient Analysis

Soil Physical Analysis

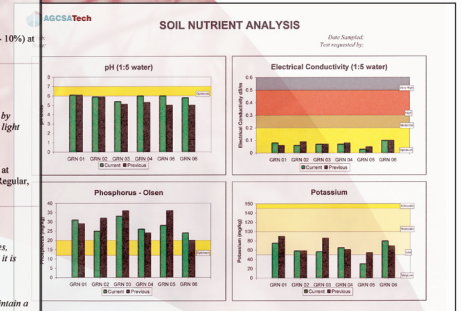
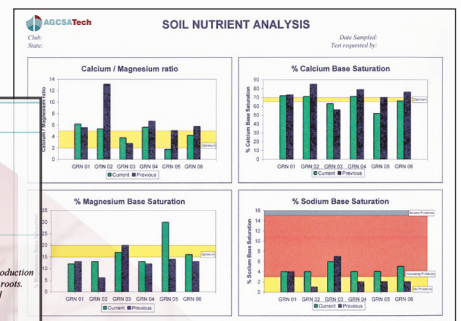
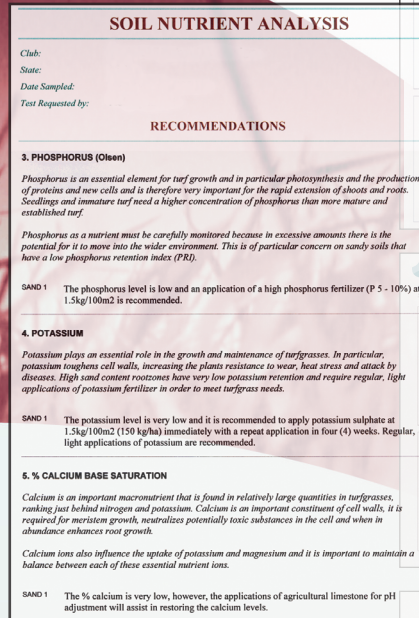
Plant Tissue Analysis

Disease Diagnosis

Nematode Diagnosis

Water Analysis

Advisory Services



AGCSATech SOIL NUTRIENT ANALYSIS

Club: State:

Sample Description	Units	Optimum Range	GRN 01
pH (1:5 water)	-	6 - 7	6.1
pH (1:5 CaCl2)	-	-	5.3
Electrical Conductivity (1:5 water)	dS/m	< 0.2	0.08
Total Soluble Salts (calc)	mg/kg	< 600	238
Phosphorus (Olsen)	mg/kg	12 - 20	31
Potassium (calc)	mg/kg	-	75
Extractable cations	-	-	-
Calcium	meq/100g	-	1.20
Magnesium	meq/100g	-	0.19
Sodium	meq/100g	-	0.07
Potassium	meq/100g	-	0.19
Calcium / Magnesium ratio	-	2 - 5	6.2
Base Saturation	-	-	-
% Calcium	% of cations	65 - 70	72
% Magnesium	% of cations	15 - 20	12
% Sodium	% of cations	< 3	4
% Potassium	% of cations	5 - 10	12
Turfgrass Species	-	-	BG
Turf Use	-	-	GRN



John Neylan and Andrew Peart

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TURF INDUSTRY BOOKSHOP

AGCSA PRODUCED DVD's	Non-Member	Member
(DVD) Environmental Issues for Golf Course Architecture	\$88.00	\$66.00
(DVD) HR presentation and templates by Daryl Sellar	\$88.00	\$66.00

AGCSA PUBLICATIONS	Non-Members	Members
2008 Turfgrass Management Diary	\$86.25	\$73.30
Sportsturf Protection Manual - The Complete Guide to all Turf Protection Products	\$253.00	\$215.05
Improving the Environmental Management of New South Wales Golf Courses	\$57.50	\$50.00
Improving the Eco-Efficiency of Golf Courses in Queensland	\$57.50	\$50.00

GOLF	Non-Member	Member
A Century of Greenkeeping	\$142.36	\$123.80
A Natural Course for Golf	\$142.36	\$123.80
A Practical Guide to Ecological Management on the Golf Course	\$ 87.04	\$ 73.98
Best Golf Course Management Practices	\$316.25	\$275.00
Bird Conservation on Golf Courses	\$ 94.88	\$ 82.50
Bunkers, Pits & other hazards	\$194.11	\$168.80
Cricket Grounds	\$208.39	\$181.30
Cricket Wickets: Science & Fiction	\$62.50	\$ 50.00
Discovering Donald Ross-The Architect & His Golf Courses	\$300.49	\$261.30
Ecological Golf Course Management	\$197.68	\$171.90
A Guide to Golf Course Irrigation System, Design & Drainage	\$253.00	\$220.00
Golf Course Architecture -Design, Construction & Restoration	\$208.49	\$181.30
Golf Architecture - A World Perspective Vol 3 - Paul Daley	\$ 63.25	\$ 55.00
Golf Course Design	\$221.38	\$192.50
Golf Course Irrigation: Environmental Design & Mgmt Practices	\$221.38	\$192.50
Golf Course Management & Construction	\$445.63	\$387.50
Golf Course Tree Management	\$151.00	\$131.30
Golf Course Turf Management: Tools and Techniques	\$316.25	\$275.00
Golf Facility Planning	\$222.86	\$193.80
Golf Greens and Greenkeeping	\$155.25	\$135.00
How to Build a Sand based Golf Green	\$86.00	\$ 75.00
Human Resource Management for Golf Course Superintendents	\$126.50	\$110.00
IPM Handbook for Golf Courses	\$197.68	\$171.90
Keepers of the Green: A History of GC Management	\$150.29	\$130.70
Managing Wildlife Habitats on Golf Courses	\$150.29	\$130.70
Masters of the Links-Essays on Art of Golf Course Design	\$ 87.04	\$ 75.70
Practical Golf Course Maintenance - Magic of Greenkeeping	\$173.99	\$151.30
Problem Solving in Golf courses, Sportsfields, the Landscape, and Racecourses	\$80.00	\$ 70.00
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Superintendents Handbook of Financial Management	\$126.50	\$110.00
Sustainable Golf Course:Guide to Environmental Stewardship	\$165.36	\$143.80
The Care of the Golf Course - 2nd Edition	\$166.06	\$144.40
The Cricket Pitch & its Outfield	\$142.36	\$123.80
The Golden Age of Golf Design	\$221.38	\$192.50
The Golf Rules Dictionary	\$158.15	\$137.50
The Golf Course - Planning, Design, Const and Mgmt - HB only	\$366.61	\$318.80
The Good Doctor Returns	\$ 71.18	\$ 61.90
The Life and Work of Dr Alistair Mackenzie	\$215.63	\$187.50
The Links	\$189.75	\$165.00
The Sand Putting Green - Construction & Mgmt (leaflet)	\$ 28.51	\$ 24.80
The Sandbelt	\$156.25	\$135.90
The Spirit of St. Andrews	\$102.81	\$ 89.40
The Superintendent's Guide to Controlling Green Speed	\$142.36	\$123.80
Turf Management for Golf Courses	\$363.74	\$316.30

SOILS	Non-Member	Member
Growing Media for Ornamental Plants and Turf	\$100.63	\$ 87.50
Bioremediation of Contaminated Soils: Agronomy Monograph 37	\$347.88	\$302.88
Introduction to Soil Microbiology	\$173.99	\$151.30
Mineral Nutrition of Higher Plants - 2nd Edition	\$205.61	\$178.80
Practical Soil Management	\$ 57.50	\$ 50.00
Principles of Soil Chemistry - 3rd Edition	\$208.49	\$181.30
Soil Analysis: An Interpretation manual	\$194.11	\$168.80
Soil Fertility Evaluation and Control	\$180.25	\$156.74
Soils & Soil Management	\$257.36	\$223.80
Soils & Their Environment	\$215.63	\$187.50
Turfgrass - No 32 in the series Agronomy	\$221.38	\$192.50

TURF & PESTS	Non-Member	Member
Ausgrass: Grasses of Australia: CD-Rom & Manual	\$142.36	\$123.80
Australian Weed Control Handbook - 10th Edition	\$110.74	\$ 96.30
Beards Turfgrass Encyclopedia for Golf Courses, Ground, Lawns And Sportsfields	\$395.36	\$343.80
Biological Control of Weeds	\$142.36	\$123.80
Bowling Greens - A Practical Guide	\$ 35.99	\$ 31.30
Color Atlas of Turfgrass Diseases	\$270.25	\$235.00
Color Atlas of Turf Weeds	\$308.78	\$268.50
Compendium of Turfgrass Diseases	\$71.88	\$ 62.50
Compendium of Turfgrass Diseases 3rd Edition	\$205.62	\$178.80
Complete Guide to Pest Control With & Without Chemicals	\$208.49	\$181.30
Controlling Turfgrass Pests 2nd Edition	\$337.87	\$293.80
Creeping Bentgrass Management - Summer Stresses	\$184.00	\$160.00
Cricket Grounds	\$208.49	\$181.30
Cricket Wickets - Science vs Fiction	\$75.00	\$ 65.00
CSIRO Handbook of Australian Weeds	\$ 79.11	\$ 68.80
Destructive Turfgrass Insect - Biology, Diagnosis & Control	\$258.75	\$225.00

Diseases of Turfgrass	\$345.00	\$300.00
Diseases of Turfgrass CD-Rom	\$316.25	\$275.00
Fertilisers for Turf	\$ 79.11	\$ 68.80
Field Guide to Weeds in Australia	\$136.61	\$116.10
Fundamentals of Turfgrass Management	\$181.12	\$157.50
Fundamentals of Weed Science 2nd Edition	\$237.24	\$206.30
Gardening with Grasses	\$86.25	\$75.00
Grasses of New South Wales	\$ 51.75	\$ 45.00
Grasses of Temperate Australia - A Field Guide	\$103.50	\$ 90.00
Grasses: Systematics & Evolution	\$251.61	\$218.80
Handbook of IPM for Turf & Ornamentals	\$337.86	\$293.80
International Turf Management Handbook	\$337.86	\$293.80
Lawn Care - A Handbook for Professionals	\$222.86	\$193.80
Management of Turfgrass Diseases -3rd Edition	\$244.37	\$212.50
Managing Bermudagrass Turf - Selection & Construction	\$229.31	\$199.40
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Manual of Grasses	\$142.36	\$123.80
Mathematics of Turfgrass Maintenance - 3rd Edition	\$126.50	\$110.00
Native Grasses:Handbook for Temperate Australia 3rd Edition	\$ 38.86	\$ 33.80
Natural Turf for Sport & Amenity	\$173.99	\$151.30
Noxious Weeds of Australia - Revised Edition	\$280.36	\$243.80
Nursery & Landscape Weed Control Manual	\$142.36	\$123.80
Organic Control of Weeds	\$ 26.67	\$ 23.20
Picture Perfect, Mowing Tech for Lawn, Sports & Turf	\$122.24	\$106.30
Poa Annua - Physiology, Culture & Control of Annual Grasses	\$174.22	\$151.20
Rootzones, Sands & Top Dressing Materials for Sports Turf	\$122.24	\$106.30
Salt Affected Turfgrass Sites	\$221.38	\$192.50
Sands for Sports Turf Construction & Maintenance	\$ 79.11	\$ 68.80
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Sports Turf & Amenity - Grassland Management	\$158.13	\$137.50
Sports Turf - Science, Construction & Maintenance	\$316.25	\$275.00
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Turf Irrigation Manual	\$179.74	\$156.30
Turf Managers HKB for Golf Course Construction, Renovation & Grow-In	\$213.54	\$185.70
Turf Weeds and Their Control (HB)	\$313.38	\$272.50
Turfgrass: Agronomy Monograph No 32	\$221.38	\$192.50
Turfgrass Diseases & Associated Disorders	\$115.00	\$100.00
Turfgrass Installation, Management & Maintenance	\$337.86	\$293.80
Turfgrass Maintenance Reduction Handbook - Sports & Golf	\$258.75	\$225.00
Turf Management in the Transition Zone	\$156.25	\$132.80
Turfgrass Management - 7th Edition	\$284.63	\$247.50
Turfgrass Management Information Directory	\$126.50	\$110.00
Turfgrass Patch Diseases	\$194.11	\$168.80
Turfgrass Pests	\$ 94.88	\$ 82.50
Turfgrass Problems: Picture Clues & Management Options	\$102.81	\$ 89.40
Turfgrass Science & Culture	\$323.49	\$281.30
Turfgrass Science & Management 3rd Edition	\$222.86	\$193.80
Turfgrass Soil Fertility & Chemical Problems	\$287.50	\$250.00
Weeds an Illustrated Guide to Weeds of Australia	\$197.68	\$171.90
Weed Science: Principles & Practices	\$284.63	\$247.50
Weed Ecology: Implications for Management 2nd Edition	\$401.11	\$348.80
Weed Control Handbook: Principles 8th Edition	\$363.74	\$316.30

WATER & IRRIGATION	Non-Member	Member
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Design & Construction of Small Earth Dams	\$230.00	\$200.00
Drainage for Sportsturf & Horticulture (PB)	\$ 58.53	\$ 50.90
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Fertigation	\$253.00	\$220.00
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Simplified Irrigation Design 2nd Edition	\$196.29	\$170.70
The Surface Irrigation Manual	\$316.25	\$275.00
Turf Irrigation Manual	\$186.88	\$162.50
Wastewater Re-use for Golf Course Irrigation	\$316.25	\$275.00
Water in Australia: Resources & Management	\$136.55	\$118.75

BEST SELLERS FOR 2007/2008

Turf Managers Handbook for Golf Course Construction and Grow-In - **B. Charles**
 Destructive Turfgrass Insects, Biology, Diagnosis and Control - **Daniel A. Potter**
 Discovering Donald Ross-The Architect & His Golf Courses - **Bradley S. Klein**
 Growing Media for Ornamental Plants and Turf - 3rd Edition - **K. Handreck, N. Black**
 Golf Course Management & Construction - Environmental Issues - **James Balogh and W. Walker**
 Golf Course Irrigation System - Design and Drainage - **Edward Pira**
 Keepers of the Green - A History of Golf Course Management - **Bob Labbance**
 Turf Managers Handbook for Golf Course Construction, Renovation and Grow-In - **B. Charles**
 Turf Management for Golf Courses - **James B. Beard**
 Turfgrass Soil Fertility & Chemical Problems - **R. N. Carrow, Waddington & Rieke**

Please note: All prices include GST - Prices are subject to change without notice

The AGCSA has an extensive range of books that can ordered through the AGCSA website, and also through the accompanying order form.

Postage: \$9.90 for first book and \$1.10 for every book after.

Turf Management Safety DVD

Produced by VGCSA and Channel 1, 2008

AVAILABLE THROUGH THE VGCSA (\$33) AND AGCSA (\$38)

Occupational health and safety has become a major focal point for the turf industry in recent times and many golf clubs have invested considerable amounts of time, effort and money into ensuring their facilities comply with the gamut of legislation.

One of the keys to ensuring a safe working environment is the continual education of course maintenance staff, especially those new to the industry. Working on a golf course poses a number of risks, whether it's working with potentially dangerous machinery, working outdoors and being exposed to potential skin cancers, being knocked out by errant golf balls or using toxic chemicals as part of turf management spraying programmes.

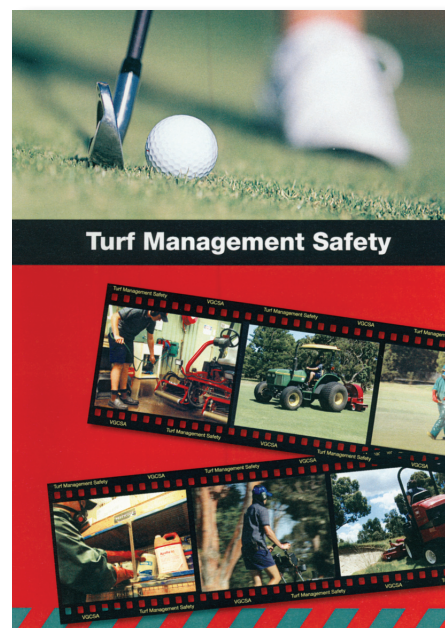
Given the importance of OH&S, the Victorian Golf Course Superintendents Association has taken some positive steps towards helping inform those new to the profession of the risks associated with working in a golf course environment.

The brainchild of association committee member Trevor Uren, superintendent at Devil Bend Golf Club on the Mornington Peninsula, the VGCSA has produced a 15 minute Turf Management Safety DVD designed to give a quick and succinct overview of how to make the golf course working environment a safer place.

Essentially the DVD acts as an induction programme for any new turf management employees, welcoming them to the workplace and then taking them through the day-to-day golf course maintenance tasks and the health and safety risks associated with them. While not going into any huge detail, it does cover all the basic areas and is designed to supplement the OH&S practices and policies that a golf club should already have in place.

Topics covered in the DVD include:

- Machinery safety – pre-use checks, faults;
- Mowers – operating mowers and mowing on undulating surfaces;
- Herbicides and pesticides – handling and application, MSDS, spraying equipment;
- Golf balls – being aware of them and golfer movements;
- Moving vehicles – utilities, tractors and front end loaders, PTOs (as an aside there is a rather nice dramatisation of a long-haired turfie getting his locks caught in a PTO shaft). This section also looks at refueling and washing down machinery;
- Skin cancer – wearing protective clothing, taking precautions, and checking the body regularly;
- Chainsaws, whipper snippers and brush cutters – wearing protective clothing, inspecting equipment;



- Hearing safety;
- Manual handling – lifting and carrying; and
- Drugs and alcohol.

The DVD was filmed over one day last summer at Huntingdale Golf Club, the home of VGCSA president Michael Freeman. Presented in association with Toro, the DVD has been compiled firstly as a resource for VGCSA members and since its release has been distributed to all VGCSA Class A members. The NSWGCSA is also distributing it to members.

The DVD is currently available by contacting VGCSA president Michael Freeman or treasurer Brett Chivers. The AGCSA also has a small number of copies available for sale. 🌱

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It is with great pleasure and honour that I am writing my first state president report on behalf of GCSAQ members. It is also a touch unusual as I looked out across my golf course (Coolangatta Tweed Heads) this morning to probably the most widespread frost I have seen in nine years at my club. The good part is that the frost is already thawing and it will be 22°C in no time! Ah Queensland, beautiful one day...you know the rest!

The GCSAQ AGM was held on 11 August at Gary Topp's Twin Waters Golf Club on the beautiful Sunshine Coast. Topp has been a long-time member of the GCSAQ and one of our most loyal supporters. After seeing his golf course it is quite obvious that he has been paying attention to all the lectures and talks he has attended over the years as the golf course was simply stunning (of course, a little bit of know-how and work ethic may come in handy too).

After the first two pristine holes (of turf that is) my playing partner and I started looking for weeds on a playing surface and found four individual weeds in the next 16 holes! I don't think I have seen a more pure playing surface anywhere and not only pure, but excellent to play from and putt on too. The members and those lucky enough to play it are blessed to have such a competent superintendent leading an equally competent staff.

The AGM is always a big day and this one had a number of special events planned by the committee. First item of the day was the golf where a field of 56 teed up for an 8am shotgun start on a beautiful sunny morning.

As mentioned above the golf course was in superb condition and the golf nearly matched it with some fine scoring. Royal Pines superintendent Paul McLean prevailed in A Grade from Ben Cavanagh, while former assistant and recently appointed The Glades superintendent Ben Baumann took out B Grade. C Grade was a very close result with Murwillumbah's Brian Cox winning from man of the moment Jeff Gambin.

Lunch followed in the clubhouse and we then moved to the meeting room where Craig Johnston from Toro and Indooroopilly Golf Club superintendent Charlie Giffard gave a couple of very informative talks. Craig covered some of the R&D being carried out by Toro in the USA on alternative fuels for turf machinery and what the future may hold in this area. Charlie gave us an insight to his experience using bio diesel over the past six months (see his article on page 56 for the latest results to come from his trials).



Jeff Gambin was honoured with life membership of the GCSAQ at the association's recent AGM at Twin Waters Golf Club. With Jeff is newly appointed GCSAQ president and Coolangatta Tweed Heads Golf Club superintendent Peter Lonergan

The AGM followed with the new committee comprising the following;

President: Peter Lonergan (Coolangatta Tweed Heads GC)

Vice-president: Brian Cox (Murwillumbah GC)

Treasurer: Dave Morrison (Windaroo GC)

Secretary: Mark Hauff (Colonial GC)

Committee: Ben Cavanagh (Brisbane GC), Charlie Giffard (Indooroopilly GC), Brent Robinson (Surfers Paradise GC), Peter Smith (Tewantin Noosa GC), Ben Tilley (Headland GC), and Craig Toms (City GC, Toowoomba).

There are two very prominent names missing there in Rod Cook and Justin Kelly. Rod stood down from the presidency after four years and Justin from the vice-president position after a three year stint on the committee. It is obvious that they are two very large pairs of shoes to be filled but with the quality of the newcomers to the committee I am sure we can.

On behalf of all GCSAQ members and the Queensland golfing industry at large we owe a great debt to Rod who has literally been the face of our association within the industry. Not only as president but also previously as a committeeman, Rod contributed a huge amount on our behalf. Thanks Cookie.

Justin has also done a great job as our meeting co-ordinator and more recently as the convenor of our annual bus trip. Perhaps Justin's greatest contribution was his decision to include a game of skirmish on the bus tour this year which has already gone down in GCSAQ folklore! With the re-development of Gainsborough Greens over the next few years, Justin will be particularly busy but we are sure he'll be back. Thanks for your contribution Justin.

We must be doing something right as there was virtually no general business until Rod Cook took the floor for a very important announcement. At our most recent committee meeting it was unanimously decided that both

Doug Robinson and Jeff Gambin be nominated for life membership of the GCSAQ. This was then put to a vote of members and was again unanimously endorsed.

Unfortunately Doug couldn't get away from his Dent Island paradise on which the golf course is at a critical stage of construction, but Jeff spoke of the honour that he felt and his debt of gratitude to the members.

Doug and Jeff have given a huge amount to the entire golf course industry and the profession that we all enjoy at both a state and national level. I mentioned at the AGM that there would hardly be a person in the room who hadn't directly benefited from them either as an employee or from tapping into their vast pool of knowledge which they are both only too keen to pass on. There is no question of their qualifications for life membership and they join Barry Cox and Les Austin on the GCSAQ honour board.

In summary, it was an excellent day and many thanks are due to our sponsor Toro for their ongoing support of our AGM, to all those who made the trip to Twin Waters and to Twin Waters GC who made us feel most welcome.

UPCOMING EVENTS

The next GCSAQ meeting is the John Deere Day on Tuesday 9 September. GCSAQ gold sponsor Chesterfield Australia invites you to inspect and drive existing golf and turf equipment and will also introduce some key new products at Windaroo Lakes Golf Course from 9am. Call Ryan Mulcaster on 0409 628 316 for all the details.

This year's Turf Research Day will be held at Robina Woods GC on Monday 10 November with an 8am shotgun start. Entry forms will be circulating shortly.

PETER LONERGAN
PRESIDENT, GCSAQ

It is with pleasure that I am in the position to be compiling my first president's report for the NSWGCSA. I would firstly like to thank the rest of the NSWGCSA board for having the confidence in me to be capable of holding such an important position to manage and be the driving force behind ensuring that the association continues to grow from strength to strength, and further improve relations throughout the industry from state to federal level.

The voluntary role that all NSWGCSA directors hold, I am sure, is greatly appreciated by the membership and I am looking forward to continually working together with them.

We have recently had some changes on the board which has seen myself take over the reins from our previous president Andy Huggill. Andy served six years on the board, including the last two years as president. I would like to thank Andy for his time given, professionalism and encouragement to all of us.

Darren Jones has also stepped down from his position on the board. Darren served on the board for five years including nearly four years as treasurer and has been

instrumental in managing the financial affairs of the association throughout his time. Darren's management of MYOB and reports tabled has been a huge improvement for all directors to be able to manage their portfolios. Darren had also worked tirelessly in ensuring that many outstanding debts were collected. Mark Warwick has also stepped down during the year. Mark was secretary of the association during his time of three years.

As a result of all the movements, Kenton Boyd (Magenta Shores Country Club), Ryan Fury (Eastlakes Golf Club) and Steve Jacobsen (Carnarvon Golf Club) have joined the NSWGCSA as directors. I would like to thank them for giving up some of their valuable time. The new-look line-up is as follows.

President: Craig Wright

Vice President/Treasurer: Craig Molloy

Secretary: Steve Jacobsen

Membership: Stuart Hall

Merchandise/Advertising: Mark O'Sullivan

Newsletter: Justin Sheehan

Education: Shaun Probert

Environment: Nathan Elder

Field Days: Kenton Boyd and Ryan Fury

It was great to see so many of you at the Melbourne conference during July. Congratulations to the AGCSA board and staff for the organisation of such a great event. To Jeff Gambin, thank you for your passion and love of the industry which I hope has rubbed off on newly elected president Allan Devlin. Congratulations also to newly elected Bryce Strachan (Pambula-Merimbula Golf Club).

Congratulations to our own Kenton Boyd for taking out the 2008 AGCSA Claude Crockford Environmental Award, Chris Thompson (Maclean Golf Club) 2008 AGCSA Graduate of the Year Award and Barry Cox (ex-Ocean Shores Country Club) who was named the 2008 AGCSA Distinguished Service Award. It's great to see all these guys doing NSW proud.

In June we held our Annual Ambrose event at The Vintage Golf Club. Thanks to our host Steve Harris and the staff at The Vintage. A special thanks must go to our sponsors Dad & Dave Turf Supplies, Scotts Fertilisers, Vermont Sands, Syngenta and Lindemans Wines.

CRAIG WRIGHT
PRESIDENT, NSWGCSA

Australian Golf Course Superintendents Association PRESENTATION AND COMMUNICATION WORKSHOP

It is now time for Queensland, New South Wales and Victorian superintendents to access the Presentation and Communication Workshop.

Hosted by Daryl Sellar and Sharon Moore of Leapfrog Consulting.
This is a "Not To Be Missed" opportunity.

FREE TO AGCSA MEMBERS

VICTORIA: Monday 15 September, Kingston Links Golf Club
NSW: Monday 22 September, ANZ Stadium
QLD: Tuesday 23 September, Doomben Racecourse

Register NOW: go to www.agcsa.com.au or email simone@agcsa.com.au



NZGCSA



Kia ora from the "land of the long white cloud". Well, to be fair if the last couple of months are anything to go by perhaps that should be the land of the big wet! The entire country has copped some pretty testing conditions recently with storms and wet weather wrecking havoc from one end of the country to the other. I know of one course in the North Island that lost 74 trees in one weekend!

At least the storage lakes will be full and the risk of widespread power cuts and price rises may have abated... yeah right!

While winter conditions may have snuck up on us, the last couple of months have seen both the North and South Island Turf Seminars take place. Both were highly successful with excellent support from both delegates and our ever-reliable trade sector.

The South Island seminar in "sunny" Nelson saw people from the entire mainland and a few from the North enjoy a well put together programme by the Canterbury association. Special mention needs to go to Richard Belcher for his tireless efforts throughout the event and leading up to it.

The NZGCSA AGM was held in conjunction with the seminar which saw Grant Bunting of Wanaka Golf Club elected to the board. Along with the re-election of John Spraggs (The Royal Wellington Golf Club) back onto the board and

my re-election as president, we now have a full complement of six board members.

Back to basics was the theme for the North Island seminar hosted by the Taranaki association, the first national event it has hosted for 25 years which seems remarkable given the resounding success it achieved with excellent numbers and support from the trade sector.

The enthusiasm and great work done by Martin Berry, Steve Hodson and all of the organising committee was a credit to them in what was a very polished event that will be talked about for a long time to come. I certainly hope we don't have to wait another 25 years to enjoy this venue again.

The NZGCSA has been fortunate to gain the services of Jo Hannah to fill the role as association administration officer. Jo brings a skill set to our association and has made an immediate impact into the running of our affairs. We look forward to her continued work for the benefit of all our members and their interests.

Like a lot of you I was fortunate to attend the recent Australian Turfgrass Conference in Melbourne. A good contingent of Kiwis made the trip and we were once again immensely impressed with the quality of the week provided. I would like to thank the AGCSA for the time they gave me and the hospitality

shown throughout the week and I look forward to the continued support and advice as we continue to move forward as an association.

During the week, after much persistence from certain South Island delegates, a North Island v South Island ten-pin bowling challenge took place. Much debate was entered into over eligibility rules and the like but it is with great pleasure that I can report that the North Island side took out this prestigious event that was generously sponsored by Parkland Products (Toro NZ). Thank you Tony. Mutterings have already emerged from the deep south over the next event and what it should be.

The next NZGCSA Board meeting along with the regional representatives will coincide with this edition of the magazine and I hope to be able to report in coming editions of the introduction of e-par into New Zealand through our work with Terry Muir.

Finally, it is with sadness that I report the passing of John Dixon. John was a life member of the NZGCSA and a true character who was a real pioneer in the greenkeeping industry here in New Zealand. He was always keen to share his knowledge and pass on his advice, and shaped many careers.

PETER BOYD
PRESIDENT, NZGCSA

SAGCSA



The Australian Turfgrass Conference has come and gone and was to the credit of the AGCSA staff and board a really enjoyable event with a good variety of presentations delivered by the speakers. The international speakers were great with content including Tim Moraghan of Aspire Golf Consulting who spoke on his role and experiences as director of championship agronomy for the United States Golf Association.

The local superintendents also performed admirably with full credit to Richard James, Darren Wilson, Gary Dempsey, Jim Porter, Stuart Moore, Doug Robinson, David Warwick and Symon Scott for their talks. One of the highlights for me was the presentation Doug Robinson gave on the perils involved with golf course construction on an island which highlighted the massive undertaking of building a course on Dent Island). I don't think there could have been a much worse place to try and build a golf course.

The terrain is covered in dense shrub and numerous boulders which required some serious earthmoving and rock breaking equipment to be brought across via barge (when tides allowed), with some 180,000 cubic metres of bulk earthworks undertaken and an onsite quarry developed which has produced around 33,000 cubic metres of varying sized aggregate to be used during construction. It is hard to put the scale of the project into perspective. All I can say is congratulations Doug on your ability to manage a project that is so ambitious and difficult in its undertaking.

The South Australian contingent had a great time and it was really good to have some new faces there including Chad Dawe, Sam Fraser and SAGCSA Graduate of the Year Scott Murray. It was a good opportunity for an array of turf managers to get together with the likes of Les Burdett and Jamie Butterfield in attendance. The conference was really well attended and the trade show enjoyable.

Congratulations go to Jeff Gambin who has done a wonderful job serving on the AGCSA board for the past nine years and as president for the last four. Jeff is a true gentleman and clearly has the respect of all who have been lucky enough to get to know him.

Congratulations also go to the AGCSA board members, in particular to Allan Devlin, who is the newly elected president of the AGCSA. The board members put in a lot of hard work over the course of their terms and should be very much appreciated by us all.

Locally conditions have been cold and damp with rainfall figures close to average for July. Several courses suffered turf damage from a couple of severe frosts while the conference was on. Hopefully the rain will hang around well into spring.

ANDY BLACKER
PRESIDENT, SAGCSA

The 24th Australian Turfgrass Conference has been and gone and congratulations must go to the great team at the AGCSA for putting on a magnificent week. The balance of education topics through to the social entertainment was spot on.

I can remember the first conference I attended in Melbourne 1984 and coming home with an overload of information, because back then it was five days of education. The AGCSA have it just right now with enough information for everyone to take home and work on for the next 12 months.

By the time this goes to print the Port Sorell two-day seminar will have been and gone. I would like to thank all the sponsors who kindly gave their time during a busy period of the year to attend this seminar. Also, thank you to Peter Frewin and Daryl Sellar for travelling to the Apple Isle to be our guest speakers. A big part of getting the seminar to run smoothly was due to Paul Darnell and Neville O'Boyle at Port Sorell Golf Club. Thanks guys.

After being in Melbourne at the conference, I lost count of the amount of people that came up to me and said "you must feel right at home with this wet and cold weather". Well, just to prove them all wrong, upon returning to Hobart a small article appeared in the Mercury newspaper on 1 August under the headline 'Hobart declared driest capital'.

Despite receiving almost average rainfall in July, Hobart remains so parched it was declared Australia's driest state capital up to August. Hobart's rainfall for January-July was just 208.6mm, which is 129mm less than the long-term average of 337mm. Adelaide, usually Australia's driest capital, received 234mm for the same period, while Canberra had received just 232.8. So there you have it!

STEVE LEWIS
PRESIDENT, TGCSA

The TGAA WA AGM and lunch was held at Wembley Golf Complex in July, and was attended by approximately 40 members.

Course superintendent Darren Wilson kindly gave a presentation to the meeting followed by a course inspection. The new irrigation system was of great interest to our members, along with the trial work to control Parramatta grass. Darren is also president of the GCSAWA and we have agreed that our associations should look at holding combined

My first 12 months as GCSAWA president has been rewarding on many levels as well as challenging. The structure and integrity of our association formed over many years is underpinned by great individual professionalism, strong business ethics and camaraderie from the committee and its members. We must keep the preservation of this unique association our major consideration as part of our daily interactions with golfers, managers, committees, the general public and other external stakeholders.

Today the association is in a strong position financially under the control of firstly Jeff Lane, who left to go to Cairns, then myself and followed by Craig New since January. Together with the broader committee we have ensured our small association can absorb any future shocks while providing the essential membership benefits at low cost. Support from our trade sponsors has again been exceptional and they remain key stakeholders in the development and success of this association. We are deeply appreciative their generosity and support.

Professionally we are placed well within the turf industry with members sitting on committees having input into UWA research projects, the AGCSA, the DEC, Turf and Landscape Industry Association and TAFE.

The most disappointing part of the past 12 months has been the response by superintendents and their assistants to support events throughout the year. The cancellation of the Rottnest Island conference was the lowlight mainly because after so much work the support was not there. I must congratulate Craig New on the organisation of the event and the double amount of organisation to cancel. It must be noted that without Craig's organisational skills we would have incurred a large financial loss due to the deposit we paid which he managed to recover.

educational events that would be beneficial to members of both associations.

There was also a tremendous response to our field day in May, with 47 people visiting Baileys Fertilisers and the Lark Hill Sporting Complex. The staff at Baileys provided a very interesting tour of their Kwinana facility.

This was followed by a tour of Lark Hill, a 30-hectare sporting field development in the City of Rockingham that was opened this winter.

At the committee's August meeting we were pleased to welcome Jeff Lane as an honorary member, "Class E", in recognition of more than 10 years on the GCSAWA committee as past president and treasurer. It is only fitting to reward and recognise Jeff's efforts in this manner and also see this as a way to keep him informed on what's happening in WA while living and working in Cairns. This was voted upon with a majority by the GCSAWA committee.

At our August AGM two new positions were received as nominations on our committee, with Simon Bourne (Cottesloe Golf Club) as golf secretary and Brad Sofield (Gosnells Golf Club) returning after a year's break as secretary. I welcome both Simon and Brad on the executive committee and look forward to their input in the future.

An additional item to be included to our code of ethics was also voted upon. This is as follows: "No.10: All members are to be committed to ensuring staff and those who work on behalf of their club or employer embrace and demonstrate environmentally responsible behaviour." This passed with the majority voting for inclusion. This was deemed necessary given the importance and perception of the environment by the GCSAWA and its members.

The GCSAWA committee next season comprises:

President: Darren Wilson
Vice President/UWA Rep: Brad Anderson
Treasurer: Craig New
Secretary: Brad Sofield
Golf Secretary: Simon Bourne
Education/Events: Glen Cross
Co-opted Committee: Geoff Kirk

DARREN WILSON
PRESIDENT, GCSAWA

Our association is pursuing a unique opportunity to employ an industry development officer for the turf industry in WA, in conjunction with the local Turf Growers Association and the Turf and Landscape Industry Association. We are currently applying to HAL for matching funding with the voluntary contributions from these associations.

PETER RUSCOE
PRESIDENT, TGAA WA

VGCSA



Winter in Melbourne – what a place to be! I preferred Cairns to escape the winter cold, but it was still great to see so many delegates at the recent 24th Australian Turfgrass Conference.

For those who played golf at Royal Melbourne and Huntingdale, hopefully you enjoyed the architectural beauty that the sandbelt has to offer. The guest speakers during the conference were very informative and entertaining and congratulations to the AGCSA staff and the board on a very well organised week.

On a slightly different note, I was a little disappointed to hear some of the negative comments made by a few superintendents during the Open forum session at the conclusion of the conference. Some remarked they wouldn't encourage their son or daughter to get into the profession which I think is a sad indictment. I was encouraged into the trade by my father and I love what I do and the industry I am a part of. We encourage other people's children to become involved, so why not our own?

VTETA



The 24th Australian Turfgrass Conference and Trade Exhibition in Melbourne attracted 46 turf technicians from around the country. The four-day turf technician's stream provided a great deal of information and networking opportunities while the trade show enabled many to view the latest machinery and equipment available on the market.

Castrol technical service manager Rod Crow kicked off the education sessions on Monday with a look at the advantages and disadvantages of biodegradable and synthetic oils versus mineral oil. He discussed low sulphur oils as well as long grade oils lasting 250 to 500 hours for longer service intervals to reduce waste oil.

From there the group travelled out to PowerTurf's Derrimut facility where national service manager Ray Grech, Nigel Thorp (warranty repairs) and Glen Right (Jacobson technical training manager, Pacific Rim) spoke about electric mower technology, specifically the hybrid petrol electric walker mower and the future direction of new controllers being fitted to new mowers.

Next stop was the Melbourne Cricket Ground where turf supervisor Scott West showed us the maintenance facilities of the ground.

Day two was spent at Toro's Braeside

As those who played golf on the Monday of conference week will have experienced, Melbourne's rainfall levels are slightly up on 2007 and we can only hope that it continues to rain during spring to replenish Victoria's storage dams and get levels on the mighty Murray River back to peak to relieve the burden up on the border.

The most recent VGCSA meeting was held at the new Eynesbury Golf Course on 25 August, sponsored by Scanoz. The day included presentations on soil testing and their relevance, while superintendent Garry Collins spoke on the construction and grow-in of the course before taking us on an inspection.

The Bayer Environmental Science annual golf day at Woodlands Golf Club will be held on Friday 17 October. This should be a fantastic day with the chance for A Class members to win \$2000 towards registration for any turf conference. Those who are not A Class members can win \$500. With the chance to play one of Melbourne's great sandbelt clubs followed by a BBQ dinner to cap the day off, it should make for a fantastic event. The

last meeting for the year is at Rosanna Golf Club on 1 December, sponsored by Active Safety.

The Turf Management Safety DVD has been given to all A Class members of the VGCSA. Special thanks to Toro for their generous support and we have received very positive feedback from our membership. Once again I would like to thank all those involved and I hope this makes a safer working environment for everyone.

On a personal note I was fortunate enough to be asked to join the Toro Turf Pros Tour to the USA recently. I thoroughly enjoyed touring the Toro manufacturing plant in Minneapolis and I met some fantastic guys from Australia and the United Kingdom. We all shared similar problems so hopefully I can network with these guys again in the future. Many thanks to Toro's Barry Beckett, Jace Bertsch, Andy Brown, Robert Rein and Craig Johnston for a well organised insight into their company.

MICHAEL FREEMAN
PRESIDENT, VGCSA

complex. Asia Pacific managing director Richard Ward gave an overview of the company and its future direction before a series of presentations were made. Greg Turner (Foley United) spoke to us about how to get the best out of reels and grinders before Craig Day discussed how to set up a sprayer correctly as well as nozzle sizes, spray patterns and calibration.

Toro field engineer Garry Price gave a presentation on electrical and hydraulic testing procedures and troubleshooting. He also provided us with information on training sessions available over the next year.

Dr Van Cline concluded the day by speaking about developments in turf management 2010 and beyond. He provided information on emerging technologies in turf equipment including electric mowers, hybrid mowers, robotic controlled mowers and alternative fuels.

Dr Cline backed up by beginning Wednesday's sessions with a presentation on 'Photosynthesis', a turf scanning system that is currently being developed by Toro. This system has sensors on the back of the mower which enables an inspection of the condition of the turf on fairways. It can pinpoint problems such as turf stress, diseases, watering problems, fertiliser overlap problems or missed areas.

On a different tangent, AGCSA HR and

best practice manager Daryl Sellar discussed and identified problems that can arise with staff and management and coping mechanisms to solve them. Following his earlier presentation during the conference, Pacific Coast Design head Phil Ryan spoke about job opportunities in South East Asia.

A joint presentation then followed by Jim Frances (Glenmac John Deere) and Mick Licht (Toro) about manufacturer expectations pre- and post-delivery in relation to operator and OH&S issues.

John Deere representatives Mark Shoemaker and Brook Hastings then looked at the future and new direction of turf equipment and machinery which covered the research and development of new technology trends.

The final day of conference kicked off with a technical presentation by Steven Newman from Briggs & Stratton. David Smith and Rod Bamford from BOC then took us through the various MIG and TIG welders and plasma cutters that are currently available.

A big thank you to all turf technicians who attended the conference and to all the speakers and companies.

JOHN PHELAN
TREASURER, VTETA

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"The growing-in phase of a new golf course is critical and requires detailed planning, particularly when it comes to irrigation.

When the new Settlers Run Golf Course at Cranbourne was in the early stages of planning we had no hesitation in recommending a Lowara pumping system because of its better control, long term reliability and ease of maintenance.

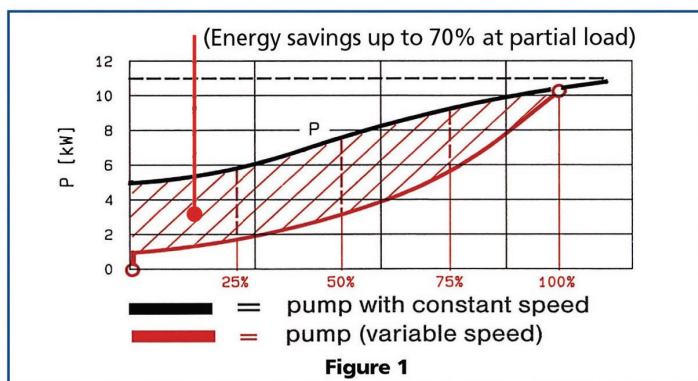
The Settlers Run pump installation incorporates 4 variable speed Hydrovars which are uniquely linked to Toro Irrigations' Sitepro software which delivers to the Superintendent precise information on the performance of the total pumping system, which is absolutely critical to the grow-in phase.

Combine that with Brown Brothers' exemplary after sales service and Settlers Run couldn't be in better hands."

Brendan Graham, A&M Watering

How the Hydrovar reduces energy consumption.

Most applications involve the pump operating either along its full speed performance curve or the pumps performance is throttled or regulated by a valve. The Hydrovar eliminates these operating methods by regulating pump speed and hence output to match the system demand. This saves wasted energy traditionally lost in these conventional pump systems. Energy savings of up to 70% can be realized. (figure 1)



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Hydrovar has gained a reputation as THE pump mounted microprocessor pumping system controller. But it does much more than just change motor speed.

It actually manages the performance of the pump to match a wide range of system conditions and requirements.

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How Hydrovar reduces maintenance cost.

Hydrovar software is designed specifically for centrifugal pump operation, control and protection. Hydrovar can thus be setup to protect the pump from operating under various unfavourable conditions eg. cavitation, operating against closed head, low NPSHa or operation past a pumps maximum flow rate. Hydrovar will automatically shut down and alarm if adverse conditions occur.

Hydrovar provides the Golf Course Superintendent with the flexibility of watering required with substantial savings on installation, power usage and maintenance. For details about the experience of some of Australia and New Zealands most prestigious Golf Clubs who have installed Hydrovar pumping systems, contact the Lowara distributors nearest you.

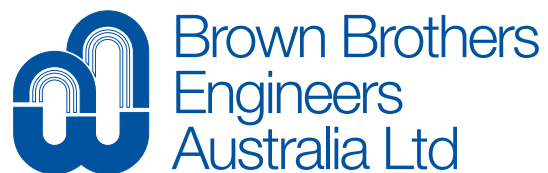
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