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MANAGEMENT JOURNAL

OH&S management

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Terrey Hills
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COVER PHOTO: THE LAKES GOLF CLUB:

Having undergone a dramatic transformation a little over a year ago, The Lakes Golf Club in Sydney will host the 2010 Australian Open from 2-5 December. Pictured is the par three 7th.

Photo: Brett Robinson.



COVER STORY: New-look Lakes continues proud tradition

6

The Lakes Golf Club in Sydney has a very proud history when it comes to holding major tournaments and this December it will again be in the limelight when it hosts the 2010 Australian Open. ATM catches up with superintendent Russell Fletcher to look back at what has been a hectic past couple of years following the complete redevelopment of the course by Mike Clayton Golf Design.

FEATURES

Wicket soils put to the Test

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What sets Australian wickets apart from others around the world is their diversity and over the past two years Gary Beehag and Ernie Gmehling have undertaken a study into the varying types of clay soils used around the country. Here they review their findings which are being used to form a base for further research into revising current methodologies and guidelines for testing wicket soils.



How safe is safe enough?

22

OH&S expert Steve Wait attempts to answer the unanswerable question about occupational health and safety and forces the professional turf manager to consider some hard decisions. Here he focuses on what managers are required to do to ensure compliance with OH&S legislation and challenges the view that 'doing' safety is an isolated task. Superintendent Paul McLean also recounts the lessons learnt from a recent workplace accident.

Winter workout for Terrey Hills

38

Rather than sit back this past winter and tidy up a few odd jobs around the maintenance facility, Terrey

Hills Golf & Country Club superintendent Stuart Gill and his team embarked on a massive greens resurfacing programme. Here he recounts what was a full on 14-week workout for his dedicated crew.



Northern impressions of a southern sojourn

44

As well as being one of the keynote speakers at the 26th Australian Turfgrass Conference, Turnberry's Euan Grant spent time visiting a number of Australian golf courses during his recent trip to Australia. Here he reflects on his Down Under travels.



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Following on from Steve Wait's article, The Pulse asks superintendents and turf managers how they go about OH&S training at their facilities.

AGCSATECH UPDATE

An investment in the industry

John Neylan stresses the importance of using turf registered products and revisits Marysville Community Golf and Bowls Club to see how it is faring 18 months on from the Black Saturday bushfires.

RESEARCH

Mite-y adversary

James Reinert outlines results from a research project at Texas A&M University which screened commercial cultivars and 47 other couchgrass genotypes for their susceptibility to couch mite.

Also in this edition...

Foreword Thinking

Tech Talk – Trial establishment

Country Profile – Traralgon GC

News

Around the Trade

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State Reports



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Ted Baker (Globe Australia); Simon and Marina Bourne; Chris Chapman (STA NSW); William Cheateley (Traralgon GC); Brett Chivers (VGCSA); Glenn Cross (Mt. Lawley GC); Russell Fletcher (The Lakes GC); Stuart Gill (Terrey Hills GC); Euan Grant (Turnberry, UK); Gary Hoy (Knox Grammar School); Andy Knox; Peter Lonergan (GCSAQ); Peter Macintosh (Hagley GC, NZ); Paul McLean (RACV Royal Pines Resort); Terry Muir (e-par); John Neylan (AGCSA); Andrew Peart (AGCSATech); James Reinert (Texas A&M University); Matt Roche (DEEDI); Mark Schroder (Liverpool GC); Sam Sherriff (SAGCSA); Tony Smith (TGCSA); Geoff Stephens (Toro Australia); Nathan Tovey (TGAA VIC); Steve Wait (SafeTee Pro); Brock Weston (TGAA ACT); Brad White (Cottesloe GC); Byron Williams (Cottesloe GC); Darren Wilson (GCSAWA).

Much the wiser

I would rate as the dumbest thing I have done in my life and potentially one of the most deadly. My father still shakes his head on the occasions I bring it up and even today, some 18 years after the event, I'll still catch myself thinking 'what if'.

During my mid to late teens, I worked at a garden centre in the marvellous City of Sails (that's Auckland, NZ). The pay was rubbish, but it was mainly outdoor work, gave me some coin to waste on gigs at the weekend and I even gleaned a little bit about horticulture. The sought after job among us casual grunts was when deliveries came. Every week a semi would rock up to the delivery bay with pallets of soils, fertilisers, bark, compost etc. The garden centre site was two-tiered with deliveries coming in down the bottom and the soil bays up top, so whoever was on when deliveries came would jump on a beat up old Iseki tractor fitted with hydraulic forks and ferry pallets back and forth.

Despite having never driven a tractor, let alone a manual car up until this point of my life, I became one of the few on staff entrusted to undertake the job. The assistant manager gave me a five-minute lesson on how to operate it and that was that. No induction manuals or SOPs to sign off or any other OH&S protocol whatsoever.

The more I drove the tractor the more I became familiar with it and soon realised that with the hand throttle and separate brakes for both back wheels you could actually make the thing do doughnuts. Yes, I know, dumb. It gets worse. Late one summer evening after closing time, myself and a colleague were taking empty pallets back down to the delivery bay. The area adjacent was being developed into a new shopping strip and the garden centre car park, which sloped gently, had also been torn up and at that stage was dirt. With no one around, except the assistant manager who was shutting up shop, we proceeded to put the Iseki 'through its paces'.

All was going well until it was my turn. Normally I would apply the brake, ease off the clutch, pull the hand throttle down and the tractor would slowly start to turn, but this time, for some inexplicable reason I thought 'let's see what happens if I pull the throttle all the way down'. Five seconds later and I was having one of those surreal moments where everything turns slow motion and to this day I can recall every detail. Within an instant the tractor was spinning out of control and on about its third rotation finally tipped. Thankfully my mate, who was also hanging on, had jumped clear, but I went down with the ship so to speak, somehow managing to leap off as it crashed to the dirt. Aside from shock I walked away unscathed.

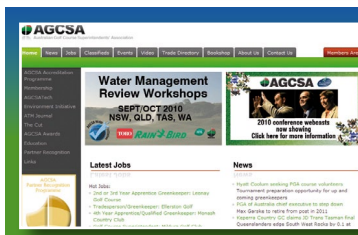
Despite nearly losing my job – I ended up with an official warning and was banned from using the tractor again – some good did come out of the incident. It sparked a complete review of all practices within the garden centre and from that point on a series of what could be termed SOPs were instituted and staff trained in proper use of all machinery.

As mentioned, my little brain fade was nearly two decades ago. The phenomenon of OH&S has come a long way since then to the point where it is now one of the key management areas for any industry. Unfortunately a couple of recent incidents at golf courses have again highlighted the necessity that OH&S practices are at the top of a turf manager's priority list, or if not, should be.

Having spoken with both superintendents about their respective incidents, they can attest to having been put through the wringer, but have come out the other end much wiser and have made the necessary adjustments. In response, this edition kick starts a series of OH&S articles over coming editions which we hope will assist turf managers to improve this vital area of their operations. Enjoy the read.



Brett Robinson
Brett Robinson,
Editor



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Solid foundation set as association looks to the future



In 2007 the AGCSA developed a strategic plan and as with all plans it is of little value unless programmes are implemented and future plans reviewed. I have found that strategic planning is an ongoing process and we are continually evaluating what we are doing and what we hope to do in the future, while at all times thinking of how to add value to being a member of the association.

In the first 18 months of my time as general manager we were managing through the uncertainty of the global financial crises and we implemented several strategies to ensure the security of the association and the services it provides. Over the past six months it has become obvious that our position is very sound and that we now have funds to invest into our member services.

To this end, at our September 2010 meeting, the board were put to the task of strategic planning with the main purpose of the review to determine:

- Whether the AGCSA as an organisation is still operating within the parameters of the vision and mission statements;
- What has been achieved in the past three years;
- What have been the most notable achievements;
- What had been the most notable challenges or where improvements could be made; and
- Objectives for 2011-2014.

The key outcomes required were:

- To determine how the AGCSA is perceived;
- Determine new initiatives by way of promoting the AGCSA and its activities;
- Generating new business; and
- What are the activities that our members want us to undertake/concentrate on? Where does the membership want us to head?

The main areas of discussion were membership, technical services, research, communication,

promoting the profession of being a golf course superintendent, education and HR and best practice services.

The AGCSA has three fundamental aims:

- To promote the profession of turf management;
- To provide continuing educational opportunities to its members; and
- To provide support services and information to turf managers to assist them in their professional development.

To these aims the board also added:

- To provide quality golfing surfaces in a sustainable manner; and
- To be a strong contributor to the golf and sports turf industries.

There were many great ideas floated and a consensus that the AGCSA was continuing to operate within the intent of the vision and that over the past three years there had been a number of key achievements including:

- Consolidating the financial position of the AGCSA;
- The work undertaken following the 'Black Saturday' fires;
- The increasing quality of its award-winning publications;
- The high profile consultancy work undertaken by AGCSATech;
- The water and environmental initiatives;
- Development of the AGCSA website;
- Continuing to provide a high quality conference and trade show;
- Inviting the trade to be represented at board meetings;
- Member advocacy; and
- Providing leadership in developing the National Education Framework.



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There were several challenges and areas of improvement identified including weathering the financial crises while maintaining services, engaging the wider golfing and turf organisations and providing better services to those members in regional areas. Of the ideas that came out of the discussions, the following were generally agreed upon as the key objectives for the next 2-3 years:

- Increase the promotion of the profession of greenkeeping in general and in particular the role of the golf course superintendent;
- To increase the membership of the AGCSA and in particular the number of golf clubs represented;
- Develop closer working relationships between the AGCSA and allied associations. To eventually develop joint conferences and trade shows;
- To provide greater value in membership for regional and remote members; and
- Develop research projects on biodiversity and carbon sequestration; course quality objectives as a means of establishing a sustainable golf course; the impact of organic matter accumulation on the performance of greens profiles and putting surfaces; the influence of fans on the quality of putting surfaces.

So where to from here? Over the next 4-6 weeks we will be developing a member's survey to gain your input on what we are doing and what we should undertake in the future. AGCSA members are very good at providing responses to surveys and again we will be looking for a high return rate when we roll it out.

It will be a great opportunity for you to finetune the direction of the AGCSA. We always appreciate members' input as it tends to straighten us up when we stray. In the meantime, if you have any suggestions, comments or concerns please contact me or any of the board members. sional teaching are also eligible for additional points. 🙏

MEMBERSHIP UPDATE

To all greenkeeping staff who are not yet members of the AGCSA, we would like to invite you to be a part of the golf course maintenance industry's peak body so that you and your golf club have access to the wide and varied resources and benefits available to our members.

Simply fill in the form on this page or for further information or details on membership categories and benefits, please contact membership coordinator Lyndel Conway on (03) 9548 8600 or info@agcsa.com.au

LYNDEL CONWAY
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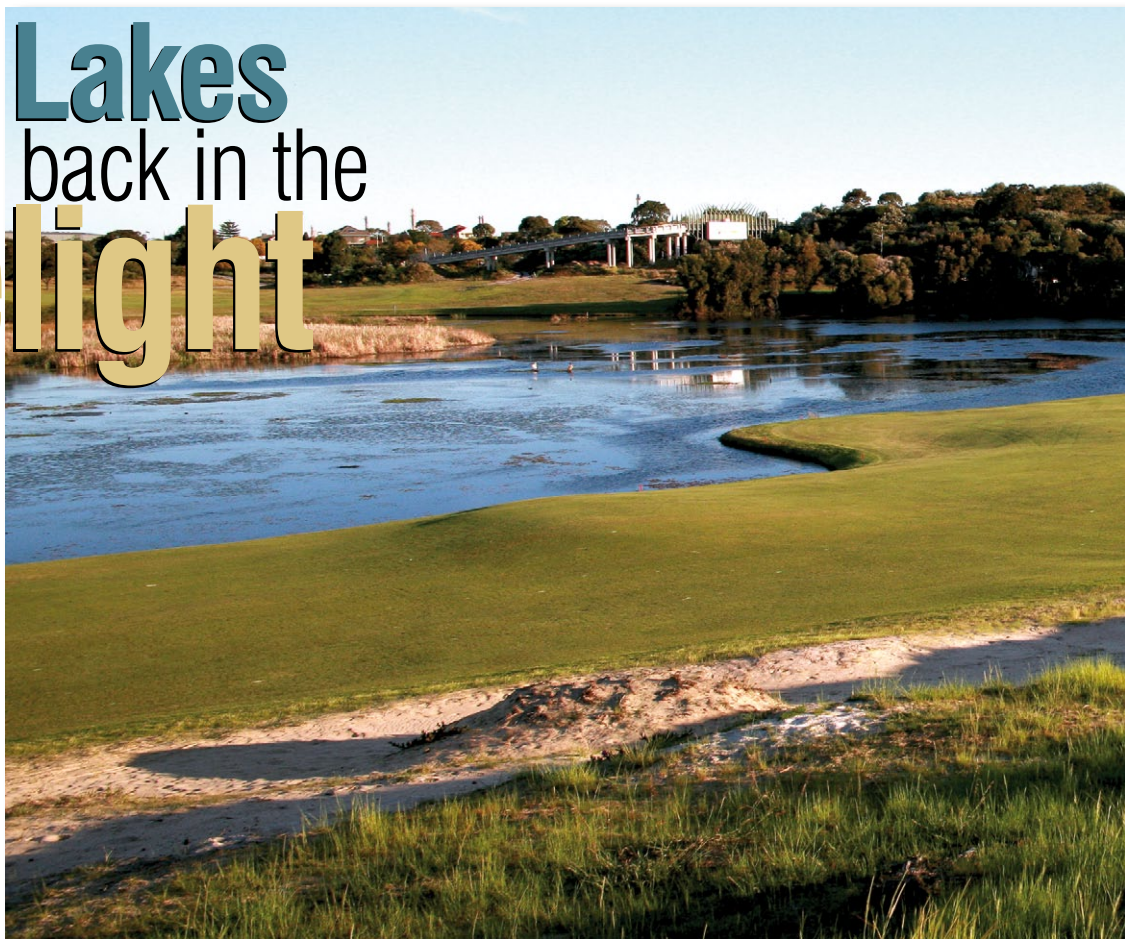
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THE NEXT GENERATION (STUDENT MEMBERSHIP)

The Lakes back in the limelight

The Lakes Golf Club in Sydney boasts a proud tournament tradition and after a break of nearly a decade will step back into the limelight when it hosts the 2010 Australian Open in the first week of December. After a history of continually tweaking areas of the course, in 2008 the club took the bold step and embarked on a total course reconstruction orchestrated by Michael Clayton Golf Design. The end result is a look unique in Sydney and as ATM editor Brett Robinson discovers it is also providing some distinct management challenges for course superintendent Russell Fletcher.



By his own admission Russell Fletcher is not the sort of chap who likes to sit still. The 51-year-old is not averse to a challenge or 10 either so it was more than likely fate which brought him and The Lakes Golf Club together back in 1994. Like Fletcher, The Lakes has proved in recent history that it too doesn't like to sit on its hands, taking the liberty on a number of occasions to tweak what has always been one of Australia's great championship golf venues.

No sooner had Fletcher rolled through the gates of the prestigious Group 1 club to take on the assistant superintendent role than he was helping well respected boss, superintendent Peter Brown, oversee a major greens resurfacing programme. In 2003, Fletcher, who by this stage had taken over from the retiring Brown, was again in the thick of it after the club decided to embark on a complete bunker reconstruction and refurbishment project.

While each of those projects carried its unique challenges, they pale in comparison to what the club has taken on over the past two years. With the character of the course continually altered through a piecemeal approach to past course improvement works, in 2008 the committee bit the bullet and gave the go ahead for a complete course reconstruction.

Completed midway through 2009, what now presents is something of a throwback to the days when the course was first routed on the barren waste of sand hills fronting Gardeners Rd in the south Sydney suburb of Kingsford. The recaptured

links look of The Lakes has certainly become a talking point among the golfing community, while the new incarnation is certainly not without its challenges from a turf management perspective.

Just to make matters more complex, no more than 18 months after the works were completed, the club and its still-maturing course is about to play host to Australia's national championship – the Australian Open – from 2-5 December. If it was a challenge Fletcher was looking for when he joined The Lakes all those years ago, 16 years on he is still getting what he wished for.

BREATHING NEW LIFE

Originally a links style course when it began life back in 1930, the current day routing of The Lakes came about in the late 1960s following the construction of Southern Cross Drive which effectively split the course in two. The existing Eric Apperly and Tom Howard designed course was closed in 1968 and Robert von Hagge was engaged to come up with a completely new design which subsequently opened for play in 1970.

His design saw seven holes – 2 through 8 – located on the western side of the new thoroughfare, with both sets of nines uniquely closing with par 3s. The new design also saw significant stands of *pinus radiata* and other non-indigenous vegetation planted which changed the character of the course significantly, moving it away from its traditional links roots.



Residing on the heritage-listed lakes of the Botany Water Reserve, The Lakes Golf Club has always been one of this country's premier championship venues. A complete course reconstruction staged over 2008 and 2009 has breathed new life into the layout and for the first time since 1992 it will play host to the Australian Open this December

Below: Russell Fletcher has been at The Lakes for the past 16 years, including the past seven as superintendent. Fletcher joined as an assistant under former superintendent Peter Brown after a stint at nearby Moore Park Golf Course where he played a major role in its redevelopment

Bottom: The redesign has seen a huge amount of vegetation removed, especially on holes 2-8 (pictured is the 3rd). Making use of the topography and the natural sands, expansive sandy wastes have been created to great effect

Both before and after the 1968 course redesign, The Lakes harnessed a reputation as one of Australia's major tournament venues. Some of the game's big names have triumphed there – Nicklaus in the 1964 Australian Open; Lee Trevino, then the world no.1, in the 1973 Chrysler Classic; and Greg Norman who, like Nicklaus, claimed his first Australian Open at The Lakes.

That reputation, however, had diminished somewhat in recent years and the last major tournament to stop off was the 2001 Greg Norman Holden International. In a bid to regain some of that lost allure, the club embarked on construction of a multi-million dollar clubhouse, completed in 2005, and then within the space of a year had engaged Michael Clayton Golf Design (MCGD) to formulate a masterplan with a view of reinvigorating the layout.

As well as calling for the significant reconstruction of the greens complexes, the masterplan also pinpointed some dramatic changes to the aesthetic and strategic elements of the course. Summarising

their intent in the masterplan presented to the club in mid-2006, the designers commented:

"The Lakes has the potential to be one of the finest inland courses in the country. It is blessed with a combination of wonderfully rolling sandy ground and spectacular water bodies that combine to make some of the best holes in Australia. Strategically the course set up does not make the most of the potential of the routing. The greens are not generally oriented to reward a drive to a particular place on the fairway and until the greens are reconstructed with this principle in mind the course will not reach its strategic potential.

"The bunkering is disappointing and much of the drama of the original hazards has been lost. A more rugged natural bunker style would enhance the look and feel of the golf course and some repositioning of the bunkers could add significantly to the strategic interest of several holes. Future bunkering should replicate the sandy wastes one imagines were an original part of the property.





The new-look uphill par three 7th from the tee (top) and how it used to look (bottom). Across the course, the cluttered look of the past has been replaced by open sandy wastes and carries which make better use of the site's topography

"We are recommending the fairways are widened to create areas close to the edge of the fairways that will become the perfect place to drive... It is vital that the grassing lines around the greens are rationalised. Currently there are four separate grasses employed within 10 metres of the greens (kikuyu, couch, ryegrass and bentgrass) and nothing contributes more to the unnatural feel of the green complexes than this policy.

"A significant amount of vegetation has been planted around the golf course since 1970 but it has been of little visual, environmental or strategic interest. Golf courses only truly feel natural if they employ indigenous plants and...we strongly recommend ... the removal of many non-indigenous plants including pines, cypress and coastal tea-tree."

From a turf management perspective The Lakes had certainly become tired and as Fletcher attests was in much need of a revamp. The old push up

greens had accumulated a fair amount of thatch which was preventing the ability to produce a firm and fast playing surface, while the variance and fineness of the existing Botany sands, used when the greens were reconstructed in 1994 under the auspices of Newton, Grant and Spencer, meant that moisture retention and drainage rates were different across the whole course. The 1020 bentgrass was also fairly weak and was continually pounded by dollar spot.

An ailing irrigation system, which had been successively retrofitted over the years, was also compounding the upkeep of the playing surfaces, while the mixture of grass species around the greens – bentgrass greens, ryegrass collars, couch aprons and kikuyu surrounds – provided further management headaches.

During the completion of the new clubhouse development, Fletcher and his team reconstructed the practice putter and chipping greens, importing sand to construct the profile to USGA specifications and seeding with Penn A4 bentgrass. Sourcing the profile sand proved to be one of the more interesting and educational parts of the whole project for Fletcher and the end result was an imported sand which was amended with 10 per cent soil and 5 per cent cocoa peat.

With those greens providing a far superior surface and confirming that the USGA spec profile was the way forward, at the start of 2008 greens 1 and 18 were reconstructed in accordance with the MCGD masterplan, which not only gave the members an insight into the designer's vision but also an idea of the work involved in reconstruction.

Six months later and with a new state of the art Toro irrigation system and pumping station added to the project, which would be installed simultaneously much to Fletcher's delight and relief, the full reconstruction began in earnest. The front nine, which involved the most work, was tackled first followed by the back nine, with Fletcher splitting his crew across each nine so they would all get a taste of the reconstruction. Hydrotechnics handled the installation of the irrigation system.

THE LINKS LOOK

With works completed mid-2009, the end result is something certainly unique for a metropolitan Sydney course. Gone is a serious amount of vegetation, integral to MCGD's overall vision, which has opened the place up dramatically, especially on holes 2-8. Making use of the topography and the natural sands, expansive sandy wastes have been created to great effect, while complementing them is the bunkering which now has a rough and rugged appearance.

Thanks to some impressive undulations, the greens now have a greater sense of drama about them, while the repositioned teeing grounds and widened fairways ensure that the golfer is thinking from the minute they step off the previous green.

Looking at the scorecard, the changes have actually shaved 170m off the overall length and reduced par from 73 to 72, but it's the strategic element which makes the course a much harder prospect despite the drop from 6460m to 6290m.

The front nine without question has undergone the most dramatic transformation and as soon as you emerge from the tunnel beneath Southern Cross Drive which links the first green and second tee, the change is striking. The once claustrophobic feel of the tree-lined fairways on this stretch of the course has been replaced by a vast openness characterised with snaking sandy wastes and carries which have an unmistakable pink tinge thanks to liberal plantings of pig face (*Carpobrotus* spp.)

Formerly a par five, the 2nd is now a 400m par four, the green having been brought forward and tees shifted right. The fairway now merges half way up with the adjacent 8th, while on the right a massive sandy waste separates it from the par four 3rd. The 4th, which before was one of the course's weakest par fours, has been transformed into one of the more interesting and significant holes on the course. It has been shortened by 40m and a broken sandy waste area now sprawls across the width of the fairway, virtually eliminating the driver as an option which has helped to remedy serious boundary issues which had existed.

On the back nine, where the lake system of the Botany aquifer comes into prominence, the changes have been more subtle and strategic in nature. Greens have been realigned, tees repositioned (in fact, all but four tees across the whole course were shifted during the project) and fairways widened and brought closer to the water, such as in the case of the sweeping 11th hole, which ranks as one of this country's best par fives.

At the 14th, another great par five, the bunkers to the left and in front of the green have disappeared and the green now tumbles right down to the water's edge. The 17th remains a superb penultimate hole due to its forced carry although the strategy of the hole has been completely reversed, while the finishing par three has been slightly lengthened to 191m ensuring a long iron is required to finish.



From a turf perspective, the old 1020 greens have made way for Penn A4 bentgrass which has been used for the collars as well. With the decision to reconstruct the course happening relatively quickly, Fletcher didn't have the time to undertake in-house trials and relied on visits to the likes of Concord (A4), Royal Sydney (G2) and neighbouring The Australian (A1) to convince him that the A4, which exhibited greater vigour and recovery from pitch marks, was the most suitable.

The new greens were hydroseeded and to date Fletcher's decision to go with the A4 has been vindicated and with a few minor tweaks to his management regime, which now includes an intensive dusting programme, the greens are the least of his worries heading into this year's Open.

The kikuyu fairways were always going to stay – as Fletcher says kikuyu is a perfect fit for The Lakes – and it has also been used to replace the former couch approaches. Where sandy waste areas were created, the existing kikuyu fairway turf was stripped and reused on the approaches, although during the grow-in there have been significant issues with this turf taking due to sting nematode (*Ipibora* spp.) activity.

To complete the new turf composition, fine fescue (a mix of hard fescues) was boldly chosen for the roughs and in and around the new-look bunkers, despite being at the very edge of its climatic range.

As part of the redesign, many of the fairways have been widened and where water is in play they have been taken right down to the edge

To assist in the management of the expansive sandy waste areas, Fletcher has rigged up a couple of golf carts with small spray units



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Where sandy wastes were incorporated, kikuyu turf was stripped and re-laid to replace the former couch approaches

"I think Clayton has achieved something unique here in Sydney," reflects Fletcher on the course's new look and feel. "The course was old and needed revamping and I think the members have certainly got something they can be proud of. It is a great draw card having a links style course in the heart of Sydney and it certainly stands apart from other courses around here."

BATTLE LINES DRAWN

The uniqueness of The Lakes' new look does, however, come at a price and its Fletcher, his assistant Dean Hopper and crew of 15 who now find themselves having to adapt to a new way of managing the course, while at the same time gently coaxing an immature turf stand up to a level of presentation expected of an Australian Open venue.

With the bentgrass collars and fescue roughs and bunker surrounds, Fletcher is now locked into an ongoing delicate battle with Mother Nature. Sydney's heat and humidity make the management of these areas particularly challenging and Fletcher is having to draw a line in the sand over how far he can push them.

While the newer bentgrasses, like the A4, exhibit good tolerance to heat and humidity when cut at greens height, they can rapidly deteriorate when cutting heights are raised. As many Sydney

superintendents have found to their detriment, at increased heights they can quickly develop a thatchy mat of grass that holds moisture and provides an ideal environment for disease.

That certainly manifested itself when, prior to the reconstruction, Fletcher undertook a trial on the 7th green where the cutting height was raised to 8mm. Today, Fletcher maintains the collars at a strict 5mm and although the definition is somewhat lacking he is acutely mindful of the problems likely to arise should he adjust the mowers any higher. The same applies to the fescues as well.

"It is certainly a far more challenging course to manage," states Fletcher. "It was always going to be a fine line in maintaining the fescues in Sydney given the heat and humidity which is a real killer in summer. We have had to draw the line on cutting heights, when to cut and when not to cut it, as well as make sure we feed it up to make sure that it survives.

"From a training point of view we have had to get the guys used to what we want to achieve, especially with the fescues. The guys were not accustomed to fescue, so we have had to train them up a little on their management, like telling them not to cut them in summer or else we'll start losing them. Certainly the inputs are a lot greater and we are spraying a lot more selective herbicides to keep the couch and kikuyu out of the fescues.

"Maintaining the fescues around the bunkers is a big challenge, especially trying to keep the moisture content up. We put out regular applications of wetting agents and granulars to feed them up coming into spring and then keeping them healthy and strong enough to get through the summer.

"From a maintenance perspective, the biggest thing that we have got out of this whole project is the irrigation system. We needed to have a top of the line irrigation system and luckily we had the right committee at the time which had the foresight to include it as part of the reconstruction. Having to manage fescues in this climate you need the water, which we have, but we also need to be able to deliver it effectively and the new system certainly makes that side of our management a lot less stressful."

From a logistics point of view, the reconstruction work has also seen the overall fairway size increase from 15 to 20 hectares while green size has also risen from 1.5ha to 2ha. That has put the existing machinery fleet under greater pressure and combined with the changes in greens and fairway shapes, Fletcher is discovering that a lot of his old equipment is simply not up to the task. He is currently addressing that with club management and is hoping to update parts of his fleet in the not too distant future.

While the amount of rough mowing has reduced significantly, the sandy wastes which now feature so prominently also require special management. Although the architects would prefer them to be

Fletcher split his crew in two with half working on the front nine, which was constructed first, and the other on the back nine



natural and the prevailing winds left to sculpt and shape them over time, from a practical point of view a small amount of maintenance is required, especially to keep on top of weeds as well as to provide a degree of presentation. To assist in managing these expansive areas, Fletcher has rigged up a couple of golf carts with small spray units which enables staff quick and easy access when spraying.

By far the most challenging aspect of the new course, however, has been the grow-in of the kikuyu used to turf greens approaches and surrounds which, as mentioned, has been significantly hampered by nematode activity. The problem has been present since those areas of turf were stripped from other parts of the course and re-laid, with some of the worst affected areas including the approach to the 2nd green, around the 4th and 7th greens and the 8th tee complex.

Although he jokes that he must be the only superintendent in Australia that can't grow kikuyu, with the prospect of the Open looming Fletcher has had to throw everything including the kitchen sink at the problem. He has sought the advice of numerous industry experts to help remedy the situation and it has only been within the past month that he has finally started to see some coverage returning.

OPEN FOCUS

While many would say that it is probably a year too early for The Lakes to be hosting such a major championship, especially from a turf maturity point of view, Fletcher isn't dwelling on that and is concentrating all his efforts on the first week in December. Certainly the level of expectation among the crew is rising each week as the Open draws closer and they are eager to show off the course and its changes.

For a number of Fletcher's crew, this tournament will be their first taste of the pointy end of turf management and presentation and the core crew of 17 will expand to 32 with help coming from the likes of Eastlake, The Australian, Asquith, Concord, Elanora, Ryde-Parramatta and Royal Canberra golf clubs.

According to Fletcher the players who have come in to familiarise themselves with the new course set up have given their tick of approval to the new changes, which make it a far more strategic prospect than before. Already the short par four 13th has become a bit of a talking point, especially the perched narrow green which is bound to end the title hopes of some.

"If we can get over the issues with the surrounds, I'm comfortable with the way we are looking," sums up Fletcher, who predicts the greens will be running at between 10 and 10.5 for the tournament. "The greens have established really well and, touch wood, we won't have many problems with them in the lead up to the tournament. We have started an intensive dusting programme to ensure they are smooth and firm and I have also been trialling the



use of beneficial bacteria which they seem to be responding well to.

"I think everyone will be pleasantly surprised with the new look. Certainly some of the changes are radical, but they are unique and add to the challenge of the course. Strategically the course is a lot more difficult and it will be interesting to see how the pros approach it.

"The biggest thing about this place is the wind which can be really challenging. By taking the fairways right down to the water you really have to place the ball now and you can't just smash it off the tee like before. The sandy wastes too have really added to the character of the course and I think most people who have come in and seen what has been done agree we should have done this a long time ago." 🌳

Extensive nematode activity has set back the grow-in of many greens surrounds and approaches. Among the remedies tried was the application of 800m³ of fowl manure

FACT FILE – THE LAKES GOLF CLUB

Founded: 1928

Location: Kingsford, Sydney

Original design: Tom Howard and Eric Apperly

Redesigns: Robert von Hagge and Bruce Devlin (1968), Michael Clayton (2008)

Championship length: 6290m

Current Australian ranking: 17 (2010 Australian Golf Digest)

Tournament history: Australian PGA (1950, 1972, 1987), Australian Open (1964, 1980, 1992), Chrysler Classic (1973), Johnnie Walker Classic (1991), Greg Norman Holden International (1993, 1995, 1999-2001)

Course superintendent: Russell Fletcher

Assistant superintendent: Dean Hopper

Course maintenance staff: 17

Greens: Penn A4 bentgrass

Fairways and surrounds: Kikuyu

Tees: Santa ana

Roughs: Mix of hard fescues. Fescue also used around bunker edges.

Water sources: Botany Aquifer

Irrigation System: Toro Site Pro

2010 Open set-up: Par 72. Tournament staff levels will increase to around 32.

Major projects in recent times: 2008-09 complete course reconstruction

Did you know... Jack Nicklaus won the first of his six Australian Open titles at The Lakes Golf Club in 1964. The last Open hosted at The Lakes was won by Steve Elkington (280). Interestingly, Mike Clayton, the man behind the recent redesign, also played in that tournament and finished 14th, nine strokes behind the winner.





A sensitive site

The Lakes has a range of management practices in place to minimise any potential impacts that its operations could have on water quality of the Botany Water Reserve

The Lakes Golf Club is located within the Botany Water Reserve and due to this unique location and the historical significance of the site – it was Sydney's first water source – The Lakes is governed by strict environmental conditions regarding the management of the site.

Through a dedicated Environmental Management Plan (EMP) which is constantly monitored by Sydney Water who own the heritage-listed site, The Lakes actively pursues the preservation of the wetland areas with the aim of nurturing an environment that will protect rare and distinct remnant vegetation and will provide a sanctuary for wildlife. Among the issues that the club actively manages and monitors include:

- Water use and quality preservation
- Appropriate chemical usage
- Soil conservation
- Native bush regeneration
- Fauna and habitat

The club has a range of management practices in place to minimise any potential impacts that its operations could have on water quality. Stormwater entering the course is a major source of gross pollutants and between 20-50 tonnes of litter is

removed from the course's waterways each year as part of regular maintenance.

Management of water use extends to keeping and comparing records of rainfall and water usage, maintaining and improving irrigation infrastructure and minimising water use through a variety of well-established control techniques.

The use of fertilisers and pesticides is strictly controlled to avoid contamination and it is the club's policy to only apply enough fertiliser to allow the turf to recover from wear and tear. Fertilisers are only applied in the growing season and, where possible, application is timed to avoid heavy rain.

Pesticide use at The Lakes is part of an overall integrated pest management philosophy and approach. One example is hand spraying around the wetlands to prevent potential risks of contamination that could arise from boom spraying. The club keeps comprehensive and accurate records of all chemicals used on the course and a new chemical storage, fill up area and wash down bay were constructed in 2002.

Soil conservation is important both for the protection of the soil itself and to protect the wetlands from further siltation. Maintaining a constant vegetation cover over soil is the most effective way of minimising soil erosion and this practice is followed at The Lakes. Examples of active soil erosion management is the turfing of banks and the construction of sandstone retaining walls adjacent to the bridge abutments of three bridges on the course.

Like a number of golf clubs in the area, The Lakes also has remnants of the threatened Eastern Suburbs Banksia Scrub, which have been identified and marked. Although regeneration potential appears to be limited, efforts are being made to rehabilitate the areas, including the engagement of qualified bush regenerators to assist in the process.

Before and during the recent course reconstruction works, these areas were carefully cordoned off so as to prevent any damage, while other vegetation removal during the works was strictly monitored by representatives from Sydney Water.

The club is also required to undertake appropriate regeneration and revegetation works as part of its lease conditions. A strong emphasis on local indigenous species is being used to improve the landscape character which provides habitat for local fauna. 🌿



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Cricket has a proud place in Australia's sporting culture and the wickets produced by local curators are regarded as among the best in the world. What sets Australian wickets apart from others is their diversity and over the past year Gary Beehag and Ernie Gmehling have undertaken a wide ranging study into the varying types of clay soils used around the country. Here they review their findings which are being used to form a base for further research into revising current methodologies and guidelines for testing wicket soils.

Wicket soils put to the Test

Few ball sports played on natural turfgrass have generated more opinions and arguments among sports commentators, cricket curators, turfgrass researchers and consultants about playing surface requirements more so than cricket.

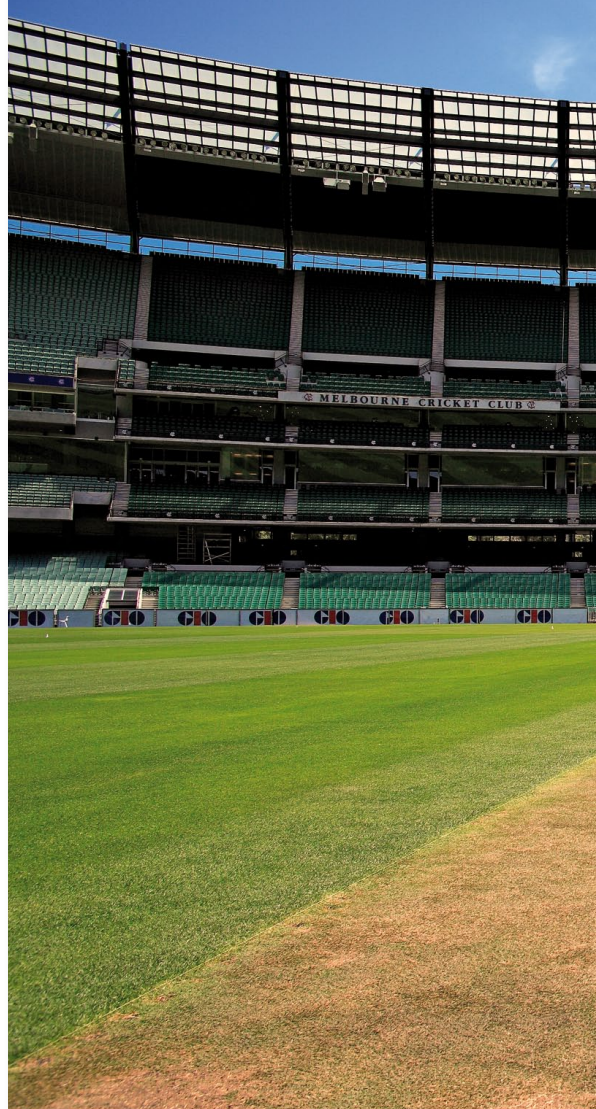
International and national Test match cricket is a highly competitive sport requiring the highest standards of surface preparation from cricket curators. Ultimately, cricket is all about the trajectory and velocity of the cricket ball after impact with the turfgrass/soil surface interface and the bounce and pace of Australian cricket wickets is recognised worldwide.

AUSTRALIAN CRICKET SOIL HISTORY

In Australia, the earliest known game of organised cricket was played on land within Sydney's Hyde Park in 1803 between naval officers of HMS Calcutta. Competitive cricket developed during mid-1800 on sites now occupied by our earliest cricket grounds including Adelaide Oval, Bellerive Oval, Brisbane Cricket Ground, Melbourne Cricket Ground (MCG) and Sydney Cricket Ground (SCG).

The history of several state cricket grounds has been published which includes references to their wicket soils and ground curators. For instance, the MCG and SCG are synonymous with two famous black clay soils, Merri Creek and Bulli.

Numerous deposits of high-clay content soils have been evaluated and utilised for cricket wickets throughout Australia for many decades. Some clay



soil deposits either became inconsistent in their physical quality, exhausted or simply unavailable, while other sources have proved unacceptable for five-day Test matches.

Consistent sources of high-quality clay soils found in several states and territories are sold commercially with some clay soil types being transported interstate and even overseas into regions including South East Asia and United Arab Emirates. In addition, the management of some elite cricket organisations have empowered their cricket curators to utilise a distinctive source of clay soil to present a unique playing surface for batsmen and bowlers alike.

CRACKING CLAY SOILS

Worldwide, cracking clay soils are known as vertosols and Australia has large areas of vertosols which are characterised by a minimum content of 30 per cent clay fraction and high shrink-swell behaviour. The unique physical behaviour of vertosols induced by fluctuating soil moisture content includes changes in volume, porosity and self-mulching properties.

In Australia, vertosols are important agricultural soils widely distributed throughout the eastern and northern regions, primarily found beneath woody grasslands and open forests. The unique properties of vertosols depend on their geographic location, regional climate and native vegetation.





The physico-chemical properties and physical behaviour of Australian wicket soils differs significantly from those used in other countries, most notably England and New Zealand. Recent analysis of different clay soils from around Australia shows that supplies are high in clay content ranging from 55-86 per cent with no sources recording clay contents less than 50 per cent

Australian vertosols vary in colour, clay fraction content and mineralogy, basic chemistry and aggregate stability, all of which influence their cracking behaviour when utilised on cricket wickets. The natural colour of vertosols ranges from brown, grey and red through to black, with the latter colour being most commonly known as black earths.

Black earths are basalt-derived soils commonly found throughout the higher rainfall and poorer drained regions of eastern Australia. Black earth deposits may contain carbonate nodules, gypsum crystals and variable amounts of organic matter.

Australian vertosols typically contain between 1-8 per cent organic matter and up to 80 per cent clay fraction content. The varying proportions of clay minerals influence not only cation exchange levels of clay soils but significantly influence their shrink-swell behaviour.

The most common clay minerals in Australian vertosols are illite, kaolin and montmorillonite with the latter type being dominant in the basaltic black earths of eastern Australia. As a group, smectite clays, such as montmorillonite, possess the highest cation exchange capacity and undergo the greatest volumetric change during wetting (swelling) and drying (shrinkage) cycles. Determination of clay mineralogy using a scientific technique known as X-ray diffractometry has been conducted on some wicket soil types.

USE OF CLAY SOILS FOR WICKETS

Throughout Australia since the late 1800's, numerous sources of high-clay content soils have been investigated for cricket wickets with some sources the result of enthusiastic cricket club secretaries and ground curators.

Australian cricket wicket soils are sub-soil deposits predominately of dark vertosols and the more consistent and extensive deposits have been commercialised, particularly in the eastern states. Mostly located on privately-owned pastoral land, commercially available cricket wicket soils require careful selective extraction to maintain their physical consistency, followed by extensive

Far left: Australia has large areas of cracking clay soils, known as vertosols, which are characterised by a minimum content of 30 per cent clay fraction and high shrink-swell behaviour

Below: A typical unprocessed form of black clay wicket soil. Australian cricket wicket soils are sub-soil deposits predominately of dark vertosols and the more consistent and extensive deposits have been commercialised, particularly in the eastern states



TABLE 1: BASIC ANALYSES OF AUSTRALIAN CRICKET WICKET SOILS BY STATE OR TERRITORY

	State	NSW	NT	WA	NSW	QLD	QLD	SA	TAS	QLD	SA	TAS	ACT	QLD	VIC	VIC	NSW
	sample No.	Smpl 1	Smpl 2	Smpl 3	Smpl 4	Smpl 5	Smpl 6	Smpl 7	Smpl 8	Smpl 9	Smpl 10	Smpl 11	Smpl 12	Smpl 13	Smpl 14	Smpl 15	Smpl 17
Gravel	% RETAINED	1	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0
Sand		5	1	4	3	9	2	5	5	6	12	12	15	2	12	2	7
Silt		22	34	10	28	21	39	22	13	22	32	17	27	26	15	13	22
Clay		72	65	86	69	69	59	73	82	72	55	71	58	72	71	85	71
pH		5.9	6.2	6.6	4.7	8.4	7.0	7.7	6.0	6.5	7.9	7.2	5.8	6.3	6.0	5.9	6
m/S		0.04	0.15	0.07	0.14	0.26	0.17	0.35	0.16	0.29	0.277	0.132	0.13	0.19	0.09	0.16	0.115
ppm		140	469	113	450	833	542	1109	512	940	886	422	416	608	288	506	368
LOI		8.1	8.3	9.8	15.8	11.3	7.7	6.9	14.0	10.3	10.7	13.6	10.2	10.8	12.9	13.2	13.9
Est organic content		3	4	4	11	6	4	2	8	5	7	9	6	6	8	7	9

Australian vertosols vary in colour, clay fraction content and mineralogy, basic chemistry and aggregate stability, all of which influence their cracking behaviour when utilised on cricket wickets

mechanical processing and finally weatherproof storage to eliminate moisture absorption. Extraction, processing, storage and transport of cricket wicket soils can present challenges for all processors and soil suppliers.

Characterisation of several Australian cricket wicket soils was published in the 1930s with more detailed physico-chemical and mineralogical studies conducted by CSIRO and published in the 1980s. Since this time, private and government laboratories throughout Australia, England and New Zealand have analysed numerous cricket wicket soils on behalf of wicket soil suppliers, cricket organisations and ground curators. Unfortunately the absence of standardisation of some testing methodologies among Australian laboratories has produced variable test values resulting in interpretation problems.

The physico-chemical properties and physical behaviour of Australian wicket soils differs significantly from cricket wicket soils utilised in other countries, most notably England and New Zealand.

Historically the clay fraction content of English wicket soils ranges between 20-40 per cent with kaolin and illite being the dominant clay minerals. Organic matter levels of English cricket wicket soils

range between 6-9 per cent. In New Zealand wicket soils, clay fraction content ranges between 30-87 per cent with some soils being true cracking clays. Some wicket soils in Asia, South Africa and the West Indies are known to have high clay content and shrink-swell properties.

It was decided that we should have a broad look at the Australian soils available in 2010 for use in cricket wickets, with an assessment conducted on the critical elements including particle size, clay silt content, organic matter, pH and salinity. The soils presented in Table 1 above have been supplied to the authors during 2010 and tested by Ground Science Pty Ltd, a NATA accredited testing laboratory in accordance with AS1289 3.6.3 – 2003 to ensure consistency for comparative purposes.

The results have indicated that the Australian geology of these specific supplies are high in clay content ranging from 55-86 per cent with no sources recording clay contents less than 50 per cent. Silt percentages vary from 10-34 per cent and sand contents ranging from 1-15 per cent.

It is interesting to observe that the organic content of most soils are above the industry desired <5 per cent with five of the samples tested below the 5 per cent limit. (It is noted that the determination of organic matter by loss on ignition is an industry accepted estimation suitable for general use). As a comparison Table 2 (page 20) indicates results of International cricket soils also conducted by Ground Science during 2007.

BULLI AND MERRI CREEK SOILS

Bulli and Merri Creek soils remain two famous Australian wicket soils despite their original extraction sources now long exhausted. Bulli soil is synonymous with the SCG where cricket started in the 1850s and the first SCG curator Ned Gregory was appointed around 1867.

Black clay soil was extracted from at least two locations near Wollongong to the south of Sydney prior to 1900. One source of black soil extracted in 1884 was at Bellambi Point on coastal land then owned by the Bellambi Coal Company and another source nearby at Bulli Point.

Black clay soil from Bulli Point was obtained by the SCG around 1888 believed partly due to



the efforts of Ned Gregory. During the early 1900s, SCG curator Bill Stuart is known to have visited the locations to select Bulli soil for delivery by rail to Sydney. Sydney-based company M. Collins & Sons became involved in the supply of Bulli soil to the SCG around 1900. Today in South Africa, the name Bulli is a generic word used for all cricket wicket clay soils.

Bulli soil became widely accepted around greater Sydney and elsewhere, possibly including the initial construction of the centre wicket at Manuka Oval (Canberra, ACT) in 1930. The remaining supply of Bulli soil was delivered to the SCG when Athol Watkins was curator prior to the land at Bellambi Point being acquired by the state government in 1950 for a housing estate. Of Bulli soil, cricket legend Don Bradman stated in his book 'Farewell to Cricket', "It was black, hard as flint and very fast."

A replacement source of black clay soil, selected for the exclusive use by the SCG by then curator Peter Leroy, was first sourced from a site at Wollongong Golf Club during the early 1980s. This soil source, known as New Bulli in some literature, was last extracted in 2006.

Merri Creek soil is synonymous with the MCG which has occupied its current site since the 1850s with Rowland Newbury appointed the first curator. Tom Wray, then MCG club secretary, is known to have used a black soil and manure on the centre wicket during 1859.



The geographic locality of Merri Creek occupies an important environmental corridor north of Melbourne. Black soil was known to have been extracted from sites including Brunswick during the 1930s and one source of black clay soil is still extracted from within the region. The black soil is derived from weathered rock from ancient volcanoes, including nearby Mt. Fraser.

Charles Trippet, an early cricket curator at Melbourne University Cricket Club during the 1920s,

A typical processed black clay wicket soil. The most common clay minerals in Australian vertosols are illite, kaolin and montmorillonite with the latter type being dominant in the basaltic black earths of eastern Australia



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extracted black clay soil adjacent to Merri Creek at one site at Campbellfield around 1946 before moving to nearby sites. The Trippet family also records that bags of Merri Creek soil were shipped to the Western Australian Cricket Ground (WACA) in the late 1950s and that Don Bradman visited one extraction site within Merri Creek around 1967.

Merri Creek wicket soil became widely used throughout Victoria and even interstate. It is known to have been used at the Brisbane Cricket Ground or Gabba in the early years and on the strip at the SCG centre wicket used for the 1894 Test match. The MCG centre wicket was re-constructed using Merri Creek soil supplied by C. Trippet & Son in 1981 and the name Merri Creek soil remains a registered company.

CURRENT SOURCES OF WICKET SOILS

In Queensland, the Gabba dates back to 1895 and black clay soils have been extracted from several regions around Brisbane including Redbank Plains, Gatton and Goodna. The soil source at Goodna was widely used around Brisbane during the 1930s.

Commercial sources of black clay soils are currently extracted from sites around Ipswich and supplied throughout central Queensland and northern New South Wales. Black clay soils sourced around Brisbane have been taken to Darwin (NT) and even exported into South East Asia and Dubai (UAE). An additional source of unprocessed soil



extracted near Brisbane has been made available with the involvement of well known retired curator, Kevin Mitchell Senior.

In far north Queensland, a black clay soil is sourced from the Atherton Tablelands and utilised at Cazaly's Stadium (Cairns). In the Northern Territory, black clay soil is sourced south of Darwin and used at Marrara Stadium.

Throughout eastern New South Wales, numerous sources of clay soils have been investigated and used on cricket wicket tables. Apart from Bulli soil, further sources have included Prospect (Sydney), Berry, Bombala and Milton (South Coast), Bredbo and Cooma (Monaro), Wamberal (Central Coast), Hunter, Blue Mountains and the Southern Highlands. The light-coloured Wamberal soil became exhausted

Cricket wicket soil having been hoed when dry. Extraction, processing, storage and transport of cricket wicket soils can present challenges for all processors and soil suppliers

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◀ **The management of some major cricket organisations, such as the MCC, have empowered their wicket curators to utilise a distinctive source of clay soil to present a unique playing surface**

in late 2005. Cricket wicket soil from Sydney was transported to Gloucester Park (Perth) for use during a World Series Cricket Test match.

In the ACT, wicket soils have been sourced from locations within and outside Canberra including Conder and from Murrumbateman and Queanbeyan (NSW). One clay soil type is available through the ACT Government to affiliated clubs in Canberra.

In Victoria, several sources of wicket soil are commercially available. Black clay soil is still sourced adjacent Merri Creek and from sites at Bendigo, Colac and a lighter-coloured clay soil from Portland.

South Australian cricket is synonymous with the Adelaide Oval established in 1871. The first curator George Gooden was appointed in 1872 and well known curator Les Burdett retired in mid-2010. Clay soil deposits around Adelaide have been evaluated and utilised for many years from numerous sites including Ashbourne, Athelstone and Echunga.

The original deposit at Athelstone was the exclusive source for Adelaide Oval as early as the 1930s. The land was sold in 1966 for housing and Don Bradman is known to have visited this and other sites with then curator Arthur Lance and soil scientists in 1967 looking for alternative sources. Adelaide Oval has since secured a source of soil with the assistance of Burdett, while another source is sold commercially throughout the region.

In Tasmania, cricket was played from the early colonial period and Bellerive Oval (Hobart) was established during the 1920s. Several sources of cricket wicket soils have been investigated within Tasmania and until recently black clay soil was previously sourced near Launceston.

In Western Australia, the first turfgrass cricket pitch at the WACA ground (Perth) was established in 1880 by English emigrant gardener W.H. Wise. This famous Perth cricket ground saw cricket played in 1894 and is synonymous with Waroona clay soil which has been extracted from several sites adjacent the Harvey River, south of Perth.

The Western Australian Cricket Association secured supply of the Harvey River soil in 1920 and much has been published about this unique clay soil since 1983. The first test match at the WACA was played in 1970 and the centre pitch was re-constructed during 1985 using Harvey River soil during an era when these wickets were acclaimed as the world's hardest and fastest.

ACKNOWLEDGEMENTS

We would like to thank all the soil suppliers, cricketing bodies and ground curators for showing interest, enthusiasm and allowing us the use of their soils in this the most extensive study of Australian crickets soils conducted to date. We would also like to acknowledge the generosity of Ground Science who carried the total cost of conducting the laboratory testing in this trial. This work forms the lead up to the second phase of the work to improve the understanding, methodology and revised project specifications for the supply of cricket soils.

REFERENCES

For a full list of references for this article, please contact the AGCSA on (03) 9548 8600 or email info@agcsa.com.au.

Editor's Note: Gary Beehag and Ernie Gmehling will be presenting a follow-up paper on this work at the 27th Australian Turfgrass Conference in Adelaide from 13-17 June 2011. 🏏

TABLE 2: BASIC ANALYSES OF INTERNATIONAL CRICKET SOILS¹

	Country	United Arab Emirates	England	England	Pakistan
	Year of test	2007	No.1 2007	No. 2 2007	No. 1 2007
Gravel	% RETAINED	1	2	0	0
Sand		9	41	22	4
Silt		34	14	28	30
Clay		56	43	50	66
pH		8.6	6.6	7.8	8.7
m/S		1.6	0.36	0.34	0.17
ppm		5120	1152	1088	544
LOI ²		26.2	6.1	7.2	6.7
Est organic content		22.3	3.1	3.7	2.1

¹ Conducted by Ground Science during 2007.

² The UAE material potentially contains high levels of calcareous material and therefore the LOI is somewhat inaccurate.

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A couple of recent incidents within the golf course maintenance profession have again highlighted the importance for superintendents and turf managers to have their occupational health and safety practices up to speed. Expert Steve Wait from SafeTee Pro looks at the OH&S minefield and hammers home the need to make safety and safe practices an integral part of the industry.

The title of this article, 'How safe is safe enough?' is deliberately provocative, aimed at answering an unanswerable question and forcing the professional turf manager to consider some hard decisions. The article focuses on what managers are required to do to ensure compliance with OH&S legislation. It also challenges the view that 'doing' safety is an isolated task separate from everything else that we do.

The article will attempt to identify, from a practitioner point of view, some helpful tips and measures to assist the professional facility and site manager with some of the more daunting and confronting aspects of OH&S from a broader organisational perspective such as:

- Due diligence;
- Risk assessment;
- Meeting the requirements of the law as an employee and as a manager; and
- Creating a safe workplace culture (behavioural safety).

I work with managers in golf courses, clubhouses, turf facilities and other industries across Australia, however, the fundamentals for safety are the same. Whatever the industry, making things safe has been an increasing challenge in recent times, both from rising societal expectations and the 'outrage' factor following every major accident. What may be acceptable now will not be in five years' time.

How safe is safe enough?

WORKPLACE ACCIDENT HISTORY

If we were to look at accident rates for 2005/06 and then compare them with say when the Sydney Harbour Bridge was built, you can see that levels of expectation and tolerance to workplace injury and fatality have changed. If we use 2005/06 figures on the Australian working

population (reported by the ABS), there were 10.2 million workers. The average likelihood for different levels of injury according to the commonly used classifications were:

- Class I (traumatic fatality) – 1 in 26,000 worker years;
- Class I (non fatal) – 1 in 160 worker years;
- Class II (temporary) – 1 in 26 worker years.

Is the likelihood of a fatality of 1 in 26,000 worker years a good performance? It is useful to consider some of the history of the construction industry for example to get an idea of how we have improved, or otherwise, over time.

Between 1924 and 1932 the Sydney Harbour Bridge was constructed which involved 1400 workers. Sixteen people lost their lives with the likelihood of a fatality 1 in 700 worker years. The extent of any safety management systems and legislation back then would have been minimal.

The Australian construction industry now enjoys one death per 15,000 -20,000 worker years, so using it as an example it could be said we have improved safety by twentyfold from the early 1900s to early

2000s. This is to be commended and many workers owe their lives to our interventions.

What then is a useful target for the next hundred years? I have posed this question to many managers and workers in the equally dangerous activities of agriculture and horticulture. Their inevitable response is "What? A target! No death is acceptable."

Superintendents and general managers in the facilities I have worked with over the last five years in golf courses naturally express this view or indeed that any serious injury or accident is considered acceptable, yet the risk, as can be seen above, despite our vast improvements is always present.

MANAGERIALISM VS PROFESSIONAL JUDGEMENT

Whoever is responsible for OH&S is established by the compliance system put in place by an organisation to meet its obligations to the prevailing OH&S laws and regulations under which it operates. On the other hand, in terms of managing OH&S, many of the decisions in regard to safety that were once made by competent frontline staff, are now often being made or taken by more senior management, who in some cases lack the technical expertise of the industry and may tend toward a risk averse approach to OH&S.

What is risk aversion? This is a modern organisational safety phenomenon where there is a shift in the balance of judgment in safety related decisions towards an overly cautious, approach driven by fear of blame, job loss, scrutiny,

prosecution and, in the extreme, a reluctance to make any decisions at all.

Where a risk averse approach is predominantly taken in the resolution of day-to-day matters on a golf course or in the maintenance facility, decisions with a safety consideration can tend to be held up by the following:

- Senior management taking quick, expensive often poorly thought through action – to be seen to be doing something;
- Reliance on decisions by committee – spread the responsibility;
- Reliance on excessive analysis instead of professional judgment – to protect against personal liability; and
- Reliance on strict compliance standards and regulations, instead of professional judgments on whether compliance is necessary, given other mitigating circumstances.

OH&S LEGISLATION

So, where do you go to ascertain the legislative requirements for OH&S in each state and what are the impacts for non-compliance? Before tackling this question of legally what you have to do to as a manager, consider first that there are in effect very few decisions that you make as a manager that are 'pure safety' decisions but equally there are probably no decisions that you will make as a manager that will be 'non-safety decisions'.

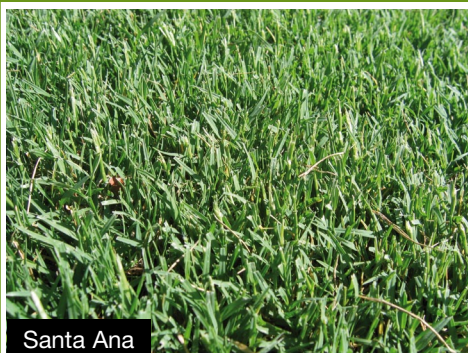
It is important as a manager to be aware of the intention of OH&S law and the direction that lawmakers have taken in shaping it toward



Above: Whatever the industry, making the workplace safe has been an increasing challenge in recent times, both from rising societal expectations and the 'outrage' factor following a major accident

Far left: Given the risk profile of the turf management industry, the need to make safety and safe practices just part of what turf managers and superintendents do is critical

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No matter how OH&S issues are managed, a simple fact remains that 88 per cent of workplace accidents and injuries are directly attributable to the unsafe actions of workers



Research has identified that the four states that cause workplace accidents are rushing, frustration, fatigue and complacency

what is most commonly referred to as 'zero harm' safety legislation and policy. This approach is also being reflected in the systems being adopted by corporations and larger organisations with regard to the management of risk in OH&S, environment and dangerous goods.

Legislation, in part, has driven this focus. Every Health and Safety Act that I am aware of within Australia has as its objective the prevention of a person's death, injury or illness, or protecting people from risks to health or safety, or eliminating risks to health, safety or welfare of persons.

For example, in the objectives of the Queensland Workplace Health and Safety Act 1995, it states: "The objective of this Act is to prevent a person's death, injury or illness being caused by a workplace, by a relevant workplace area, by work activities, or by plant or substances for use at a relevant place. Injury is defined under Queensland legislation as anything from first aid upwards."

Under the NSW Occupational Health and Safety Act 2000 its objects similarly state:

- To secure and promote the health, safety and welfare of people at work;
- To protect people at a place of work against risks to health or safety arising out of the activities of persons at work; and
- To promote a safe and healthy work environment for people at work that protects them from injury and illness and that is adapted to their physiological and psychological needs.

The Victorian Occupational Health and Safety Act 2004 echoes the same intent:

- To secure the health, safety and welfare of employees and other persons at work;
- To eliminate, at the source, risks to the health, safety or welfare of employees and other persons at work;
- To ensure that the health and safety of members of the public is not placed at risk by the conduct of undertakings by employers and self-employed persons; and
- To provide for the involvement of employees, employers, and organisations representing those persons, in the formulation and implementation of health, safety and welfare standards—having regard to the principles of health and safety protection set out in Section 4.

It is obvious then that governments in all states are pushing employers to eliminate all fatalities, injuries and illnesses associated with work. It is totally understandable then that responsible employers are doing everything reasonably practicable to eliminate these from their workplaces.

IMPLEMENTING A SAFE SYSTEM OF WORK

Without exception a further requirement of legislation across Australia when you unpack the regulations is that employers are required to provide a safe system of work. Safety regulations require all workplaces to effectively manage health and safety by applying a systematic approach.

This is called the risk management process and its purpose is to ensure all hazards identified are dealt with quickly and effectively to reduce the risk of causing injury or ill health to employees. A hazard is defined as a source of potential harm to people or a situation with potential to cause injury or loss to plant, property or equipment

Equally and again without exception across all jurisdictions in Australia, there are similarly, with regard to the individual employee in the workplace, clear requirements under the law which are:

- Take care to protect their own safety;
- Avoid adversely affecting the safety of others;
- Correctly use equipment; and
- Obey reasonable instructions.

Despite employee perceptions, however, managers alone are not the OH&S system. And this is reflected in prosecutions and fines under the legislation. For example when a prosecution or breach of the OH&S law is found the penalties will be against the corporation and tend to follow the hierarchy of the organisation when the penalties are imposed. That is the company may be fined \$500,000, a CEO or senior manager may be fined \$50,000 and any other parties involved would be fined in regard to their culpability or responsibility in the incident.

STATE AUTHORITY WEBSITES

NSW: WorkCover www.workcover.nsw.gov.au

ACT: WorkSafe ACT www.ors.act.gov.au and WorkCover www.worksafety.act.gov.au (these websites are soon to be merged following the creation of WorkSafe ACT in May 2010)

VIC: WorkSafe www.worksafe.vic.gov.au

QLD: WorkCover www.workcoverqld.com.au

SA: WorkCoverSA www.workcover.com and SafeWork SA www.safework.sa.gov.au

WA: WorkCover www.workcover.wa.gov.au

TAS: WorkCover www.workcover.tas.gov.au

CONTINUED ON PAGE 27

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A course superintendent's **worst** nightmare

In mid-September Paul McLean experienced what every course superintendent or turf manager fears – a serious workplace accident involving one of his crew. Here the RACV Royal Pines Resort superintendent recounts one of the most harrowing events of his turf management career and what he and the club have learnt as a result.



RACV Royal Pines Resort superintendent Paul McLean

On 15 September 2010 one of our more experienced golf course maintenance staff Tim Palmer was operating a zero turn rough mower cutting the grass at the top of an embankment on the western side of RACV Royal Pines Resort, about 11 metres from the edge of a lagoon.

While operating the mower to 'cut in' around certain areas, before a much larger mower is then used to cut the grass area on the slope, Tim spun the mower to change direction. The mower then began to slide down the embankment towards the lagoon. Tim pulled back on the mower controls, however, the mower kept sliding towards the lagoon.

Tim believed that he was able to steer the mower away and avoid going into the water, however he began to panic and attempted to jump from the mower just as it flipped into the water. The mower controls were not 'spread', which prevented Tim from escaping the mower and subsequently he was pinned by the mower in about 1-2 foot of water.

Another staff member Matt was working on the green nearby, witnessed the incident and immediately went to Tim's aide, followed closely by another staff member Glen. They attempted to assist Tim from the mower and hold his head above the water. Tim became unconscious after swallowing water and was reported as going blue in the face.

Matt began to shout for help and was assisted by three other men from a nearby worksite. It was later reported that Tim had suffered some bruising,

RACV Royal Pines on the Gold Coast was the scene of a workplace accident involving a member of the course maintenance crew in September. Groundsman Tim Palmer was pinned underneath by a zero turn mower in one of the course's lagoons before being pulled out by his crewmates and workers from an adjacent building site

suspected fractured ribs and had water on the lungs. He was kept in hospital for two nights to monitor his recovery.

To put it bluntly, what happened here at RACV Royal Pines was a golf course superintendent's worst nightmare. To have a workplace accident on your watch that could have resulted in serious injury or even death sent cold shivers through my whole body. It was a massive wake-up call for all of my staff on just how dangerous the golf course can be as a work site.

As far as OH&S was concerned, I was confident of having everything in order but the accident proved that we were far from ready for such an event and that much more was needed to be done. It has prompted us to undergo a complete overhaul/review of all of our policies and procedures. Our policies were adequate, it was just the operator inductions and training that needed improving. The question had to be asked "what if the slope is too severe to mow" and what and how we assess the risk.

RACV and Royal Pines Resort were very supportive through the whole process during and after the event. Our security manager David Clarke was very hands-on throughout the ordeal making sure that all of my staff and myself were offered counselling while helping deal with Work Cover and senior management.

We had to provide a detailed report for both the board of RACV and (Queensland safety authority) WorkCover outlining the accident from go to woe. This report included statements from all parties including the operator, the rescuers, security, witnesses and senior management, including the general manager.

We were very fortunate and didn't receive a fine of any description although we were issued with an 'Improvement Notice'. This means we need to review the entire site and identify any potentially dangerous areas. We were also told to review all of our Standard Operating Procedures and create a practical machinery operation test (a bit like a driving test) that is given to the operator before they are allowed to operate the mower.

There have been many lessons learnt from this whole experience but the biggest thing I will take away from it as a golf course superintendent is that you can never do enough operator training and the more you review your policies and procedures the better off you will be. Also, allow time in your programme for regular staff meetings and involve all staff at all levels so that everyone is on the same page. 🙌

PROFESSIONAL MANAGERS MANAGE THE RISK

It is sound practice then as a course superintendent or turf manager to have in place your own clearly developed and, if possible, documented responsibilities for OH&S. Once having clearly articulated these in relation to the organisation's OH&S policy, you should then have them documented, signed off and authorised for use and then placed on display. The authoriser is generally the person with ultimate responsibility for the business or club.

Issues may arise and professional liability may be heightened in regard to an OH&S incident where a manager is exposed professionally by not being able to demonstrate adherence with the law and regulations either through poor professional practices or not being able to show compliance with the organisation's OH&S policy. It is most likely that malpractice will be evident where there are gaps in safe practices and procedures and critical lines of responsibility.

These 'gaps' in the management of OH&S often don't get recognised until an incident occurs. However, it is recommend that good practice as a manager would be to ensure that you have adequate resources and support from the highest levels of the organisation and that you commit



sufficient resources from within your own budget to manage OH&S.

Most legislation in each state offers senior managers and directors of businesses a number of potential 'escapes' from liability for contravention of Health and Safety law. One of these is where the senior executive 'used all due diligence to prevent the contravention by the corporation'. The best way to evidence the due diligence is with records.

TIPS TO KNOWING AND MANAGING THE RISKS

It therefore follows from the previous section then that if controllers or managers can use records to show they used all due diligence to eliminate or reduce those risks then they have grounds to defend against criminal negligence prosecution by

A study by WorkCover NSW found that male workers under the age of 25 were among the group at greatest risk of being injured or being involved in workplace accidents

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The purpose of risk management is to ensure all hazards identified are dealt with quickly and effectively to reduce the risk of causing injury or ill health to employees.

Safety regulations require all workplaces to effectively manage health and safety by applying a systematic approach



a safety authority such as WorkCover or WorkSafe.

The law recognises that the principle of a risk management approach to OH&S compliance will provide senior management with the opportunity to demonstrate that they have taken all reasonable steps to avoid negligence. It is therefore up to the business and senior management to know what all the hazards and risks are in the processes carried out by its employees.

One of the best pieces of advice I ever saw given to managers about the most important due diligence tool was that of a 'risk management register'. Interestingly not one OH&S Act or regulation in Australia mandates that you have one. The reason why you should consider having a register is that managing workplace safety is all about;

- Identifying hazards;
- Assessing risk;
- Eliminating or controlling that risk; and
- Making sure any controls implemented are effective.

Hazards should be in your own working manager's register and be addressed by reference to gravity of risk. The register, which could be kept and authorised by you, serves as a working record of professional judgment of your prioritisation of your site hazards from most serious to least serious.

Using this approach, if an employee is injured as a consequence of a known hazard, as opposed to a merely foreseeable one, your chances of being prosecuted are much higher. A register assigns accountability and timeframes to provide senior management, the general manager or a board of directors and provides some comfort that a programme of corrective action is in place and is being managed by you.

Safety meeting agendas typically lack substance and punch. A register on the other hand can be tabled at meetings creating greater workplace visibility and accountability. One approach that has worked well in regards to use of the register approach is for the manager to document what they see as the top five tasks, equipment, procedures or activities which most concerned them as a manager in terms of gravity to injury, incidents or accidents.

They then use this register strategically to progress their position in order to achieve the best allocation of resources or budget allocations to address the identified risks based on their professional assessment and judgment.

WHICH WORKERS ARE YOUR BIGGEST RISK?

If we were to judge and to record what we saw as the highest risks by using a risk management register can we equally know whom on our staff might pose the biggest risk? A recent study by WorkCover NSW found the following workers have the greatest risk of being injured or being involved in accidents:

- Young workers (under 25);
- Male employees; and

- New workers including those entering the workforce for the first time, re-entering the workplace, employed less than 12 months, or transferring to a new job.

Another interesting Australian research project further identified the four states that cause workplace accidents were rushing, frustration, fatigue and complacency. Factors that can cause or contribute to these errors were eyes or mind not on the task, line of fire and poor balance/traction/grip.

CONCLUSION

Despite what we do or how we manage OH&S, a simple fact that remains present throughout is that 88 per cent of accidents, illnesses and injuries in the workplace are directly attributable to what are called 'man failures', or in other words unsafe actions of workers. So as managers we need to acknowledge this reality. We also as managers, given the human impact of an accident or fatality in the workplace, never assume it will never happen to us.

We should consider strongly given the risk profile of this industry the need to make safety and safe practices just part of what we do and as a professional manager make sure we have written records that we have done it. 🌱

GA UNVEILS NEW CLUB INSURANCE PARTNERSHIP

Golf clubs now have access to some of the widest cover available following the formation of a new insurance product partnership between Golf Australia and insurer Sportscover.

Announced in October, the Australian Golf Insurance programme provided by Sportscover's Lloyd's syndicate, will offer comprehensive cover for golf club property, liability, professional indemnity, management liability and voluntary workers risks. Golf clubs can access these products through any licensed general insurance broker in Australia.

"The Australian Golf Insurance programme provides Golf Australia and the states the ability to minimise risk for all Australian golf clubs and golfers," said Golf Australia chief executive Stephen Pitt. "This is a unique offering which provides all golf clubs in Australia the ability to obtain broad suitable cover as well as the ability to choose which broker they wish to deal with. No longer do clubs need to go to a single insurance broker to receive benefits that our buying power can generate."

The anticipated support of golf clubs for this initiative will allow the golf industry to play a role in influencing sustainable competitive risk and insurance costs for all stakeholders. The new product is available now and clubs and their brokers can obtain more details at www.australiangolfinsurance.com or by emailing golfaust@sportscover.com

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A couple of incidents recently within the turf industry have again highlighted the importance of OH&S and the need for turf managers and superintendents to be on top of this most challenging of management issues. The Pulse asked turf managers how they implement staff training for OH&S issues at their turf management facility.

OH&S training

Liverpool Golf Club in western Sydney has recently gone back to an in-house maintenance set up after five years under contract maintenance and one of the major items that I have had to undertake since being appointed superintendent has been to formulate and update OH&S policy, documentation and associated training at the club's turf management facility.

An OH&S groundstaff officer is both the spokesperson and action representative for our division. In brief, my OH&S officer's key role from the onset is to constantly remain focused and committed to four key areas in the OH&S process:

- Identifying the hazard or potential hazard;
- Assessing the risk;
- Controlling the risk; and
- Reviewing the risk including action plan with accompanying updated documentation and any associated policy changes.

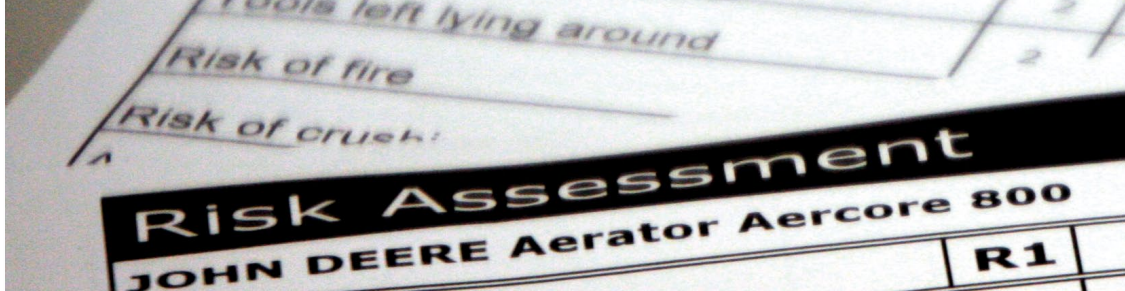
From a duty of care, OH&S and risk management perspective, turf machinery and associated operation is always on top of the list of a potential hazard. With Liverpool Golf Club's recent purchase of a new fleet of Toro equipment (the previous equipment had been sold off), a hazard identification mechanism along with establishing an induction procedure has been implemented for each individual plant item. The methodology of this process, in conjunction with individual machinery operator manuals and Toro supplier end-user training, is a pooling of resources and data of potential risk and associated hazards.

Areas of refinement that have been found to be of great benefit to further enhance a safer working environment have recently included individual consultation with experienced operators and other qualified training personal, whom have

highlighted examples of potential risk. This has proved to be of great benefit in terms of steps in hazard reduction with the added advantage of their acquired knowledge being machine-specific. Other sources included the compiling and development of individual machinery item limitations along with initial group hazard inspection and discussion meetings with groundstaff.

From this accumulation of information, an OH&S checklist was compiled for each plant item which is then ticked off and signed which forms part of the machinery induction protocol and procedure before any one-to-one on site operational training commencement.

Refinement, revision and constant updating of the club's OH&S course operations manual, OH&S policy and associated documentation so as to comply with OH&S law and legislation is one of relentless change and challenge but is very rewarding.



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3			6				maintain guards. Turn machine off prior to going near parts. This machine has a dead mans switch - ensure it working in guards. Turn machine off prior to going near check cut off switches p	

At the end of the day we are secure in the knowledge of adopting OH&S best practice and that the club is satisfying its primary obligations of a duty of care and providing a safe working environment to both its major assets – its employees and the golf club membership.” **Mark Schroder, Liverpool Golf Club, NSW**

“As the grounds manager of Knox Grammar School in Sydney, staff training has always been a priority of the school to ensure safety not only to the staff but just as importantly the 2000-plus students that attend the school and the many visitors that come through the gates on a daily basis.

First, all new staff members that are hired through the school for any type of grounds work are put through an induction on how the school operates when it comes to staff/student safety. New staff members are then put through a training induction programme one-on-one by a senior staff member on all safety aspects of each machine that is going to be used by the person involved.

They are shown such items as safety covers on machinery that need to be in place when used at all times, as well as visual inspections of all belts, blades, bolts etc so as to make sure all parts are completely safe for use not only by the operator but those around as well. They are also told that when a person is near a machine that can cause harm to anyone within a certain vicinity to stop and turn the machine off and wait till it is safe to resume.

All operators are told that if they see a safety issue within the school grounds to report it to myself immediately and if a machine is not operating to the recommended standards to cease operating until the problem is rectified on the machine.

Staff are shown a risk assessment document on all activities performed on any machine they are asked to use that has been standardised to ensure all aspects of how dangerous to the operator and the public they can be. All staff are also put through a safe manual handling course to ensure correct lifting techniques.

Documents for all safety aspects such as policies set by the school or myself are available



at all times. A safety gear list has to be signed off by staff so as to take accountability for their own personal protective equipment and if there are any faults or equipment lost they report this to myself straight away so we can replace immediately. All major documents such as MSDS sheets and spray records are left out for all staff to see and sign once the task has been performed.

Any major document involving the safety of workers or students gets reviewed and revised annually. If I set a task for a worker and they deem it as a danger to themselves or anyone else, I have told them not to perform the task and report back to myself on the concern. From there, if needed, we work out a way of going about the task differently.

OH&S is such an important part of our operations and does require effort, but it can be made simple provided you get the basics done correctly and staff are fully aware of the dangers around them. **Gary Hoy, Knox Grammar School, NSW**

“We have a very simple system in place. Each new staff member is given a club-specific OH&S handbook that they are to read and sign. They are shown through our emergency evacuation plan and muster points. As far as operating machinery, they are shown the machine and its operations by the mechanic, then in the correct use of the machine by one of our assistants. Once the operator is confident, they are left on their own, but are closely monitored by myself and assistants until we feel they are competent.” **Glenn Cross, Mt Lawley Golf Club, WA**

superintendents and golf clubs course maintenance practices



No, it's not a pile of left over proceedings from this year's annual turf conference, rather Justin McBeath (left) and John Hall of Bayer Environmental Science show just a portion of the documentation required to get an active ingredient registered through the APVMA

In this edition's AGCSATech Update, John Neylan stresses the importance of using turf registered products and takes a day trip to see how Rob Christie and the Marysville Community Golf and Bowls Club are faring nearly 18 months on from Black Saturday.

The pros and cons of using turf registered products have been hotly debated for many years and continue to be a key point of discussion within the industry. The trade representatives that attend AGCSA board meetings have raised the issue on several occasions and see the AGCSA as the lead agency in promoting best practice.

The following article has been compiled in conjunction with Ted Baker, general manager of Globe Australia, who is a trade representative to the AGCSA board, and is intended to provide some background information on why it is important to use turf registered products.

WHY BUY TURF REGISTERED?

First and foremost everyone must comply with the law. There is no point in trying to "do the right thing" by saving a few dollars and then if there is a problem finding that you and your club has to accept full responsibility.

In using non-turf registered products the responsibility for minimising public health and environmental risk sits squarely on the shoulders of the user, who is probably the least informed and least able to make a value judgment on the relative risk he/she is undertaking. If there is a problem, where is the support and back up and how good is the golf club's insurance policy in defending such an action?

Using registered products is an investment into the companies that develop new chemistry and products and investigate the critical aspects of efficacy, application technology, phytotoxicity and OH&S factors.

There is also the technical support provided by experienced agronomists that provide advice on how to get the best out of the product and to assist in working out why a particular product was not as effective as the label may suggest. There is no doubt that over many years that the interaction between turf managers and product supply company agronomists has been a key factor in fine-tuning the use of particular fertilisers and chemicals.

Turf supply businesses have a strategic investment in the turf industry and support it not only by providing product but also through the support of field days, conferences, advertising and sponsorships. The AGCSA and all the state associations rely on this source of income in order to operate and its members have an obligation to support them in return. Alternatively, agricultural supply companies do not necessarily have the same investment or interest in the turf industry and accordingly there is little investment back into it.

COST OF PRODUCT REGISTRATION

In my time in turf there have been many new pesticides come onto the market as others have disappeared. Pesticides are constantly under review

and there is increasing pressure to develop products that are safer to use, less harmful to the environment and break the resistance chain.

As an example, two well known turf products have been under review in the past 12 months resulting in the removal of a cheap stalwart in carbendazim with a similar fate awaiting quintozene. To this end there is a need to develop new active ingredients.

There are long time frames and high costs involved in developing new products and the following information, drawn from the Bayer Environmental Science and Syngenta AG websites, is typical of the exhaustive process involved in developing new chemistry.

The role of pesticide research is to ensure that products are developed which meets users' needs, while conforming to the strict legislation controlling pesticide approval. Every pesticide is based upon an active ingredient(s) and it is these active ingredient(s) which have activity against the target pests.

All active ingredients must demonstrate proven levels of efficacy and safety and only those which conform to all the strict legislation governing chemical registration will gain approval. For example, on average 10,000 potential herbicides are tested each year with initial screening testing the potential of the herbicide to control the major weeds of the world, while having no effect on major crops such as rice, cotton, maize etc. When an active ingredient shows potential, the crop and weed spectrum will be widened. Those potential candidates that fail to meet the extensive safety testing will proceed no further.

From the 10,000 potential active ingredients tested, about 150 will be tested at commercial dose rates and of these only 20 of the original potential candidates will proceed into field studies. So strict is the legislation governing the potential development of an active ingredient, that from the 10,000 potential candidates per year, the industry average for approval is only one new active ingredient every 10 years, or one from 100,000.

The development of an active ingredient is only half the story. The active ingredient must be presented either alone or in combination with other approved actives, into a product which is stable in storage, can demonstrate efficacy in its use area and is available to the user in a format which enables effective application.

No active ingredient will ever be developed purely for use on turf because of the huge cost. The initial development is always focussed on the major world crops and only once an active has approval, will studies be initiated for other areas such as turf.

Using diflufenican as an example, the active ingredient was first approved in the UK in 1986 for use on cereals. In 1987 Rhone-Poulenc Amenity took the active ingredient and developed many formulations, the specific aim being a broad-

spectrum turf selective herbicide. It took a further eight years of turf specific research to gain approval for the use of diflufenican in turf.

To develop a new molecule globally is about \$240 million and then to register it in Australia is an additional \$2.6-\$5.6 million to cover the costs of undertaking efficacy studies, product development and registration. The documentation alone required by the Australian Pesticides and Veterinary Medicines Authority (APVMA) requires a small forest.

So what does this mean to you as a consumer? In simple terms if you invest in turf registered products, manufacturers will continue to develop new products for the turf industry.

THE RISKS AND RESPONSIBILITIES

The AGCSA has worked very closely with Terry Muir of e-par over several years as we have promoted environmental best practice. The use of non-turf registered chemicals has been an ongoing discussion point and again we present some key considerations in the area of risk and responsibility.

Everyone involved in the decision-making for the use of a pesticide is responsible for ensuring proper use. Therefore everyone also shares the liability if the pesticide use results in damage or injury to people, property or the environment. Decisions about the application of off-label pesticides are often shared between the pesticide applicator (the spray tech), the occupier of the land (the golf club) and the superintendent.

What we have here is shared liability. Has the spray tech, the GM and the Board been informed that the club is using product off-label and that by using it they are accepting total responsibility for any undesirable outcomes?

From a professional and ethical perspective the strategic position a superintendent should take is to focus attention on risk reduction. The real challenge is for superintendents to discuss strategic risk as an integral part of their overall discussions with management. A strategically minded superintendent that engages effectively with management can make a significant contribution to long-term success. He or she should leverage their skills and experience in an effective and efficient way and explain the risk of off-label use to management.

Using registered products is an investment into the companies that develop new chemistry and products and investigate the critical aspects of efficacy, application technology, phytotoxicity and OH&S factors



Eighteen months on since Black Saturday the Marysville Community Golf and Bowls Club is back on its feet thanks to the help of many within the golf and turf industries



It is tempting to believe that using off-label product saves money, but once risks have been identified, assessed, documented and communicated and liability for outcomes apportioned to each individual, the real costs become apparent.

The focus now shifts towards decision-making. Strategic options can be defined as those with the greatest potential for creating or destroying stakeholder value. Does using product off-label create value to you and your club because it is less expensive? Using off-label carries a much higher risk profile, so is value compromised by carrying a higher risk profile? That is why it is everyone's concern if your club decides to use chemicals off-label.

Just 18 months after some of the state's most extreme temperatures, the past winter was one of the wettest on record and resulted in flooding of the Marysville course



THE DIRECTION FORWARD

There is often an argument made for the use of off-label products based on price differential. The counter question is "what will the cost be if there is a problem and will the club's insurance policy cover the damage?" Can you as the turf manager afford to defend any action taken against you and the club if there is a problem with an unregistered product? Registration is like most insurance – we pay for it in the hope that we will never need it.

When considering the cost of products, the trade argues that there is strong competition among the present distributor system that is already keeping pricing competitive. Use this competition as leverage when purchasing products.

It is important that turf managers consider the implications of using non-turf products and must be prepared to argue for a budget that allows the use of registered inputs into the business. Why put yourself and the business at risk? If you have concerns in this area contact the AGCSA.

Where agricultural products are used it does allow people with little or no expertise to enter the industry and therefore weakens the support base. The use of agricultural alternatives also acts as a disincentive to register the generic products.

In summary, consider the medium- to long-term benefits of using turf registered products and support the companies that support our industry. The AGCSA has a strong focus on good environmental practice through its environmental initiative and the e-par programme and recommends against the use of products not registered for turf.

RISING FROM THE ASHES

Since the Black Saturday bushfires of 2009 we have

had a special interest in the two golf courses most severely affected – Marysville and Horsham – and from time to time we have reported on how they are progressing since that fateful day. As many of you would have read, the golf industry rallied in many different ways following this tragic day to assist both clubs to get their courses up and functioning again.

In early September I was fortunate to attend a special function at the Marysville Community Golf and Bowls Club. The club had a Black Saturday “Adopt-a-Hole” sponsors thank you day where they unveiled their new course signage, acknowledging the assistance that they had received from around Australia. On a wet and cold day, with the creek that bisects the golf course meandering down the adjacent fairway, it was a stark contrast to the conditions that the community faced back in early 2009.

Club president Doug Walter spoke of the gratitude that the club has for all the assistance that it has received over the past 18 months. The club has acknowledged this help by placing a plaque on each tee which names each organisation that provided valuable assistance during the recovery.

The AGCSA is acknowledged on the 6th tee and it is with great pride that the AGCSA has been recognised for the small part that its members were able to play in helping the club back on its feet. There have been numerous sponsors, golf clubs and individual donors that have contributed to the revitalisation of the golf course and the table below outlines those who have been recognised.

When we inspected the golf course a few weeks after the fires there was extensive infrastructure damage to pumps, machinery, irrigation pipework, trees and turf. Following the fires there was a period of further hot weather that finished off the greens, requiring all of them to be replaced. Miraculously the clubhouse was spared and became the communal hub for Marysville.

In walking the golf course some 18 months after the event, the turf on the fairways has recovered and the greens are providing an excellent bentgrass



putting surface. If it wasn't for the blackened trees in the surrounding landscape it was almost as if nothing had happened.

The golf course is beautiful and tranquil, however, the struggle for the club is not yet finished. There is a wonderful golf course ready for play and it needs visitors to come and play so that it guarantees its long-term viability.

The Marysville experience starts with the picturesque drive through the Black Spur lined with towering Mountain Ash and stunning tree ferns. Driving through the township itself is a humbling experience but gratifying to see that a new Marysville is gradually rising from the ashes.

The golf course is an absolute gem prepared by superintendent Rob Christie, apprentice Kellan Fiske and some very loyal and hard-working club volunteers. The golf course provides a level of challenge for both the low and high handicapper, which ensures an enjoyable round for all golfers.

The course measures a deceiving 5472 metres with a par rating of 72. The course has long scenic fairways that will challenge the longest hitter but also has some tight fairways that require a good eye and an accurate shot. Take a drive, experience the countryside and have a fun game of golf – they continue to need our industry's support. 🙏

The club has recognised the support it received in the aftermath of the bushfires by placing a plaque on each tee which names each organisation that provided assistance. The AGCSA is acknowledged on the 6th tee

GOLF CLUBS AND INDUSTRY ORGANISATIONS ACKNOWLEDGED BY MARYSVILLE CG&BC

Anglesea Golf Club	Gungahlin Lakes Golf Club	Simplot-Proline
Australia Seed & Turf	Kattanning Country Club	Sorrento Golf Club
Benalla Golf Club	Kilmore Golf Club Ladies	Strathbogie Golf Club
Box Hill Golf Club	Kingston Heath Golf Club	Tees and Greens
Brown Brothers/ITT	Lang Lang Golf Club	The National Golf Club
BSF Golf Management	Mallee Golf Action Group	The Sandhurst Golf Club
Centenary Park Golf Club	Mooroopna Golf Club	Sorrento Monday Golf Club
David Golf	Nowra Golf & Recreation Club	Thomson Perrett
Euroa Golf Club	Nuturf	Toro Australia
Federal Golf Club	Peregian Springs Golf Club	Trentham Golf Club
Flinders Golf Club	Rain Bird Australia	Victorian Golf Association
Glenmac	Rossdale Golf Club	Women's Golf Australia
Goldacres	Royal Perth Golf Club	Woollahra Golf Club
Golf Australia	Shoalhaven Heads Golf Club	Yering Meadows
Green Acres Golf Club	Silvan	AGCSA



In-house trials do not need to be unduly time consuming to establish or monitor but can provide a great deal of useful information when assessing the effectiveness and performance of products. Ideally any trial area should be flat, unimpeded by shade and have a consistent soil type

Undertaking small in-house trials can provide a wealth of information if turf managers are looking to embark on a new management practice or switching turf cultivars. In this instalment of Tech Talk, AGCSA senior agronomist Andrew Peart looks at establishing such trials and how to get the most out of them.

Depending on why the trial has been undertaken there can also be quantitative assessments undertaken such as surface hardness or ball roll

Trial and error

With more and more new products being introduced to the turf market, the ability to assess their attributes within one's own environment should be viewed as being very important. Whether it's assessing a new grass cultivar, an alternative fertiliser or even the efficacy of different wetting agents, a trial in your own grounds will provide you with the best available data.

Most companies supplying new products would have or should have undertaken independent trialling of their own, however, the situation where it was trialled may have been totally different to yours. In large areas where large quantities of a product are required, such as a fairway fertiliser, a small in-house trial would be an excellent idea before applying large quantities to the entire fairway. Not only could a proposed new fertiliser be tested against a non-fertilised area, but against the existing fertiliser previously used and at different application rates to assess its response and longevity.

It is also important when evaluating any trial data that results are from a replicated trial where statistical analysis has been performed and a least significant difference result (LSD) is stated. If trials are undertaken with just one replicate they are often referred to as an 'observation trial' which provide an indication of the result that could be expected from that product, but its response may be hindered or enhanced based on its locality.

The most valuable trial should have a minimum of three replicates so that any variations within a site are minimised and that statistical analysis can be undertaken. As well as the replication the trial should have an untreated control as one of the treatments. The untreated control provides an indication of what would have happened if nothing was applied. As well as untreated control plots, sometimes, depending on what is being trialled, an 'industry

standard' may also be included when comparing new products/cultivars.

SITE REQUIREMENTS

There are a number of aspects which need to be considered when choosing an appropriate trial site. These include:

- Uniformity of the site;
- Presence of reliable irrigation;
- The continuing availability of the site;
- Ability for it to be well maintained;
- An appropriate site to test for the desired outcomes; and
- Ample area to facilitate the required number of products (treatments) and replicates;

Ideally any trial area should be uniform in terms of being flat, unimpeded by shade and having a consistent soil type, and depending on what is being trialled a mono-stand of vegetation. Generally in-house product trials may only run for a couple of months, however, if a cultivar trial was to run for a couple of years the area would need to be secured. It is no good setting up an area that may be disturbed prior to the completion date.

Irrigation is the key to all turf management and particularly with trial sites. Even if a drought tolerance trial is being undertaken with different turf cultivars or a dry down trial with wetting agents, there is more than likely a need for irrigation prior to the start, if not during, the trial. Ideally a uniformity test should be conducted on the system beforehand.

Generally an individual plot size may not have to be greater than 1.5m x 2.0m for turf cultivar, fertiliser or wetting agent type trials. However, if a trial was to assess differing aeration techniques the plot size would need to be large enough to facilitate the piece of machinery to be used in its normal fashion.

TRIAL ESTABLISHMENT

Before establishing the trial, the total area must be ascertained by multiplying the number of



treatments (products and possibly different rates of that product) by the area of each plot by the number of replicates. For a scientific replicated trial ideally there should be a minimum of three replicates.

For example if you were conducting a simple fertiliser trial using four products, each at a single rate, that would be five treatments due to the inclusion of an untreated control. An individual plot size of 1.5x2.0m (3m²) and three replicates would be a total of 45m². For scientific purposes more replicates are better than greater plot sizes.

The layout of the trial area ideally should be square, that is having two sets of parallel sides and in a block formation, where the longer side contains one replicate. Exceptions may be in a racetrack situation where the trial is along the outside edge of the track, or the perimeter of a green.

To ensure the trial area is square it is important to measure the length of the diagonal distance from one edge of the plot to the opposite edge. This is the hypotenuse and can be calculated using Pythagoras theory or otherwise known as a 3-4-5 triangle. Figure 1 illustrates a basic trial layout with eight treatments and three replicates. The length of the diagonal in this instance is 13.42m.

ASSESSING THE TRIAL

Considerable information can be gained from a trial site from simple visual observations with a subjective rating system of 0-9, where 0 is equivalent to none or very poor and 9 being equivalent to totally or excellent. This type of rating is used extensively in all the NTEP turfgrass cultivar trials for assessing turfgrass colour, density and overall quality. Although subjective, if it is undertaken by the same person on a regular basis the results can be very accurate.

Depending on why the trial has been undertaken there can also be quantitative assessments undertaken where actual numbers are recorded, whether it be thatch depth (measured in millimetres), ball roll (measured in centimetres), surface hardness (measured in gravities) or salinity (measured in decisiemens).

Generally there can be considerable information gathered without having to undergo more expensive off-site testing, however, sometimes this may be required. For example, testing the effectiveness of products/methods to reduce organic matter accumulation should not just be a subjective assessment or even a measurement of its depth within the profile using a ruler, but should involve the use of laboratory equipment to assess a percentage of organic matter using a loss on ignition test.

COLLATING THE DATA

The reason for undertaking a scientific trial, that is one with multiple replicates, is to undertake statistical analysis to accurately state whether one product or treatment is better than another by obtaining a significant difference in their performance.



Individual results from each plot must first be recorded for each assessment date and then the results of each treatment must be grouped together so that they can be statistically analysed. For example, if there were eight treatments and three replicates (as shown in Figure 1) there would be 24 individual plot results for any one assessment date. Those 24 results would then be grouped into eight lots of three representing the results for each treatment. Once grouped into their treatments they can be statistically analysed.

Undertaking an Analysis of Variance (ANOVA) test will determine whether the results from each treatment are significantly different from each other, or not, depending on the confidence level being sought. The confidence level is an indication of the likelihood the result was as a result of the specific treatment rather than by chance.

Generally a confidence limit of 95 per cent is used, meaning that if the P value is less than 0.05 there is a significant difference between treatments. If the P value is greater than 0.05 there is no significant difference between any of the treatments for that assessment date.

The LSD figure can be calculated if $P < 0.05$ which will determine what treatments are significantly different to each other. For a significant difference between treatments the difference between their two averages must be greater than the LSD figure. For example, if the average for Treatment 1 is 7.2 and Treatment 2 is 7.8 and the LSD figure is 0.4, then there is a significant difference between those two treatments. However, if the LSD was 0.6 there is no significant difference.

CONCLUSION

In-house trials do not need to be unduly time consuming to establish or monitor but can provide a great deal of useful information when assessing the effectiveness and performance of products. With so many new products in the market place and most claiming to provide better results than previous products, in-house trialling can provide the best method for assessing their performance in a turf manager's own environment. 🏌️

Considerable information can be gained from a trial site from simple visual observations with a subjective rating system of 0-9. Although subjective, if it is undertaken by the same person on a regular basis the results can be very accurate

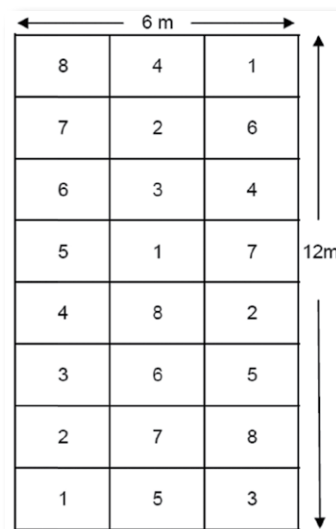


Figure 1: A basic trial layout with eight treatments and three replicates. The layout of the trial area ideally should be square, that is having two sets of parallel sides and in a block formation, where the longer side contains one replicate

Winter workout for Terrey Hills

The winter months are generally one of the quieter times for golf course maintenance crews, but as Sydney superintendent Stuart Gill reveals this past season was anything but the team at Terrey Hills Golf & Country Club as they undertook a major project to resurface all 18 greens.

The decision to carry out the resurfacing project on all greens at Terrey Hills Golf & Country Club (THGCC) over winter this year was not made overnight, instead it was made back in late 2008. We had around 25 per cent *Poa annua* in our 1020 bentgrass greens and we also had issues with root depth, black layer and infiltration rates.

According to most of the members the greens had shrunk by, 'well, you wouldn't believe how much' over the years through couch encroachment. They also picked up on the increasing *Poa* population which was fast becoming a main concern. Compounding matters was the club didn't have a bentgrass nursery which I felt was a major hurdle as the most efficient way of removing the *Poa* was to plug it out.

THGCC is owned by a Japanese company and therefore our owners are only able to see the golf course once or twice per year. With this in mind I thought it would be in my best interests to highlight the *Poa* prior to their visit by spraying the greens with endothal and paclobutrazol. This, I thought, would stand me in a better position when asking for the approval to build a bentgrass nursery.

Upon their visit they were taken aback by the amount of *Poa* in the greens and immediately asked if we should consider resurfacing. This was not exactly the outcome I had been striving for although I did think, 'wow, how good is this!' Not only would we get rid of our *Poa* problem we would also be able to address the 'real' problems such as removing the black layer, improving infiltration rates as well as being able to choose a newer bentgrass cultivar which would perform better within our environmental limitations.

A trial had been carried out in June 2009 on one of our putting greens to give us an idea of how long the process would take, as well as how long the grow-in would take. This trial worked extremely well and indicated a few problems we could expect to face, as well as give us some ideas on how to improve procedures. All in all it was the best part of the planning stage and looking back it would have been ludicrous not to have done that.

SURPRISE FINDINGS

Before the project started we decided to survey the greens through a company called Power Survey. The reason for this was that the original plans did not seem to replicate the undulations in the greens, although overall area measurements may well have been accurate. With the committee looking for the greens to be returned with no change to the undulations, I felt that this was the most effective way to ensure we were as close as possible to achieving this.

On 31 May 2010 the project began in earnest with the removal of the couch surrounds first on the agenda. This served a twofold purpose – to reduce the amount of contamination of couch into the greens profile and so we could also locate the original green edge. Remarkably, in some cases the original green edge was about six metres from where the actual green had been. Maybe the members were right – the greens had shrunk!

I still to this day believe that at some point in the past the green edges were either turfed out with couch or the greens did not in fact go to the edge of the greens profile. If not then the couch would have encroached by around 333mm per



Far left: During a 14-week period from May to September 2010, Sydney-based Terrey Hills Golf & Country Club resurfaced all greens to the tune of \$1 million. The greens now sport a new profile and a mix of A1 and A4 bentgrass



Left: The project began with the removal of the couch surrounds (top left). This helped to reduce the amount of contamination of couch into the greens profile and also aided in locating the original green edge. Once removed the remaining couch root system was dug out (top right) and then the old 1020 bent stripped (bottom)

year since construction! With this information came the possible answer to why many of our green surrounds would dry out and become thin through traffic as the couch was not growing on topsoil but on a greens profile instead.

Straight away this opened up a whole new thought on how much new material would be needed, as well as turf. Luckily we had budgeted for the final green sizes to be around the 1.4 hectare mark, a figure which was arrived at by using the original plans. In any case, Anco Turf in Melbourne was growing 3ha for the club as part of a quality control measure so having enough turf would not be an issue.

Once the couch surrounds were removed we had to dig out the remaining root system from the edge of our greens to the edge of where the new greens would be. We had originally thought that we would be removing around 75m² by 250mm in

depth but in fact we would be removing around four times that amount. Not only did this mean more material going in and more material coming out, it also meant more time to carry out the job. As we were already on a tight schedule this was clearly going to be an issue.

It was quite uplifting when we sat the boys down after the first week and told them that the job just got harder that they unanimously agreed that no matter what it took they would still "get this done". Make no mistake, if we didn't have an extremely committed team, this kind of project would not have been completed in the three-month timeframe we had set for ourselves.

To add to the challenges, on the first day of the project the clouds came rolling in and the rain began to fall. We hadn't had a drop for the previous six weeks yet within the first week of the project we had notched 150mm!

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One of the major problems with the old greens was the varying profile depth. It was decided with the new greens to adhere to USGA specs



DIGGING DEEP

So, the couch was gone; the bent was next. We had at one point toyed with the idea of saving some of the bent to make our temporary greens. Thankfully this was not the case and removing the bent was somewhat of an easy process. The excavators and bobcats pushed the bent to one end of the green and from there it was loaded into trailers and taken to one of our dump sites.

We had two 2 tonne tippers and three tractors with 3 tonne trailers as well as an 8 tonne dump truck, so in effect we were able to remove 21 tonnes per trip. With an estimated 150 tonnes being removed from each green we were looking at eight trips per machine per green. One trip took about 25 minutes so it calculated to 3.5 hours for one green to be stripped once the couch had been removed.

We removed the top 100mm of rootzone of the green and started to probe the depth of rootzone still left, thinking it would be around 200mm deep given that USGA specifications dictate a 300mm profile. What we found, however, was that in some areas

of the green, mainly where the major undulations were, the depth was still around 400mm ranging to 150mm in low areas. It immediately became apparent that one of the reasons we had previously struggled with dry patch in certain areas was due to the depth of the profile.

So what to do now? Do we put the greens back to the way they were as we had promised the members or did we remove more rootzone to get the desired 300mm of depth in line with USGA specs? Following discussions with our owners in Japan, the general manager, the club captain and I, commonsense prevailed and we decided to stick to the latter. After discussing the range of depth within the USGA guidelines with John Neylan (AGCSA), we decided that we could go to 325mm at the crest of an undulation and 275mm at the foot of an undulation. This would enable us to get the maximum gradient without going outside the specifications.

Once that had been decided we could move ahead with the project and managed to get the first green turfed by the Thursday of the first week while Golf Shapes Australia worked on getting the next two greens ready for turf to be laid the following day. During turfing the 2nd green, which was the first to be resurfaced, we experienced 52mm of rain which made life tough. It also made it impossible for Golf Shapes to get the next two greens ready as the rootzone began to wash.

The following day we experienced another 98mm of rain which set us back again by washing most of the turf to the front of the green and with it around 9 tonnes of rootzone. It was now Friday of the first week and in effect we had not completed one green (and we had set ourselves the target of three greens per week!). Luckily on Friday afternoon the rain subsided and we got back to it.

In an effort to keep spirits high in the camp I thought it best to returf the 2nd green on my own, hoping that the boys would feel that they were still

The A1/A4 bentgrass turf used to resurface the Terrey Hills greens was harvested and transported from Anco's turf farm in Melbourne



moving forward. Golf Shapes staff and the green staff again put their hands up to work through the weekend in order to get the two remaining greens completed.

While they were working on the 5th and 8th greens I peeled back the turf on the 2nd. As it had already been cut to shape I had to number each roll of turf in order to put it back in the right place. I then had to re-probe the profile depth in order to replace the rootzone that had washed. Once that was done the turf went back down. Somehow, by Sunday afternoon a beer was cracked open to toast the first three greens of the project being complete... and we were still on schedule.

While we had some extra rootzone in the greens I thought it best to push some of the excess into the gaping trenches we had around the green edges as this would enable us to reduce some of the cost of bringing in more new sand as well as replicate a more uniform rootzone profile with original rootzone in the bottom 200mm and the new rootzone in the top 100mm.

Once we had the profile to a depth of 200mm throughout the green we used the power harrow to mix up this rootzone to a further depth of 150mm. This in effect meant that we had now at least broken up and let the top 250mm of a 300mm profile breathe. Following the power harrow we added the new rootzone. In the end we used about 120 tonnes of sand per green. Once the sand was in and had been 'smudged' into place, we ran the power harrow over the green again, this time to mix the old with the new.

Obviously before we started the project I took some samples of the greens profiles in order to find a sand which best resembled that profile as we would be mixing new with old. We found that the closest match was Vermont's construction sand.

The rootzone was mixed with Aussie Verm wormcast at 5 per cent. The theory was that if we



Brushing in the topdressing. While the surrounds were being returfed, the greens had to be manually topdressed



A4 was incorporated into the greens mix for its increased shade tolerance

added 100mm and mixed it with the power harrow to a depth of 150mm this would reduce the organic content to approximately 3.5 per cent. After that it was down to the final shaping which was carried out by Darby Muller and Ben Chambers (Golf Shapes Australia).

ALL IN THE MIX

The washed bentgrass turf came from Anco's Melbourne base on a Thursday at 7am as planned every week and the quality was excellent. It was

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◀ **The finished practice putter, chipping green and 19th green**

imperative that the turf was laid as uniform as possible and without the slightest of gaps if these greens were going to be opened on 4 September as planned.

The turf we decided to go for was a mix of A1 and A4 bentgrass. A1 is fine textured, has a dense sward with upright growth for a tight, true putting surface that resists spiking and is somewhat resilient towards *Poa* infestation. It also has improved heat and humidity stress tolerance and disease resistance, including dollar spot which is one of our main disease issues at Terrey Hills.

We also knew that our neighbours – Elanora GC – had had good results with their A1 greens so this convinced me that this variety worked well in this area. With A4 being similar to A1, only more resilient to shade which is also an issue at Terrey Hills, I thought it best to blend the two together.

TRENCH WARFARE

Once all the greens were resurfaced you could be forgiven for thinking that this was the end – most

certainly not. The plan now was to install a new mainline to feed the new green surrounds sprinklers. With cool-season grass on the greens and warm-season grass on the surrounds it seems more practical to have two sets of sprinklers as they both have completely different water management needs.

With no spare station wires available and not particularly wanting to trench in a new wiring system from the satellite boxes, I decided to go with battery operated solenoids. This did mean, however, that we would need to run a new mainline around the green.

So we dug a trench around all the greens for the pipe work and added the new part circle sprinklers for the surrounds and swapped our old 360 degree greenside sprinklers for another set of part circle Hunter G75s.

This turned out to be the most time consuming part of the project as once we dug our trenches it inevitably rained, filling the trenches with water and making it near impossible to back fill and get a firm finish in order to turf the surrounds. Eventually though we got them done and began to turf.

The immediate green surrounds were turfed with Santa ana couch for a width of 1.8m and anything outside that was turfed with Wintergreen couch to match in with the rest of the golf course. The reason for going with Santa ana was that it will tolerate traffic better than the Wintergreen as well as give a nice dark definitive colour in the summer.

Turfing of the surrounds was more difficult than turfing the greens as the turf was heavy due to the thickness of cut needed for laying couch in winter and that there was so much of it. We would have turfed about 900 square metres of couch per hole. Although we had used ground protection mats to protect our surrounds during the resurfacing, the amount of machinery that used them coupled with the wet weather, all the drive in and drive out areas had to be turf cut, removed, leveled with new top soil and returfed.



The finished product – the resurfaced 18th green

In the end we managed to get the last surround completed on Thursday 2 September. This gave us one day to get the golf course cut and presented well for the opening day that Saturday. On Friday I carried out an inspection of the new greens in preparation for opening and found the root depth to be beneath the hole changer which is set at 9 inches. I found the surface to hold up reasonably well in regards to pitch marks and therefore I deemed them ready for play on the target date of 4 September.

At the same time as the greens resurfacing we also constructed our new bentgrass nursery. This valuable asset is about 800m², is 65m long and ranges between seven and 18 metres wide. It is located behind the driving range nets, right next to the irrigation pump shed, so installing irrigation was relatively straight forward.

REAPING THE REWARDS

It must be said that overall I am happy with the performance of the new greens since their opening. The putting surface is beginning to firm up and with that some speed as well as reduced indentation from pitched balls. The surface is not quite at the final stage with some more site specific topdressing to be carried out.

What is usually the case when laying turf, some rolls are a little thinner than others and therefore following grow-in the surface is not 100 per cent level. This may only be a millimetre of difference but when the turf is on a golf green this is too much. We will therefore need to continually add small amounts of sand to these areas in order to match them in. All greens are being cut at 3.5mm with floating head walk-behind mowers and will remain at this height for a couple of months until we have managed to improve the overall surface.

During the returfing of the surrounds, we had to topdress the greens as we were planning to have people play on them in early September. For those who have manually topdressed greens before, spare a thought for two of our staff members who topdressed 1.5 hectares of greens three times in the space of eight weeks on their own! We also had two

guys, sometimes one, mowing all the greens with walk behinds every day, gradually reducing the cut from 7mm to 3.5mm. We worked it out to be about a 1km walk per green.

Total cost of the project, including loss of revenue, was around the \$1 million mark and we came in on budget. This did not include our staff wages although did include overtime. Material costs, including contractors fee, was \$500,000 and loss of revenue was another \$500,000. If other clubs were looking to do the same sort of project they would have to look at how many corporate events, trade days and drop in guest rounds they would lose.

This project, while challenging, was certainly very rewarding and many thanks are due to all those involved. Darby and Ben (Golf Shapes) worked tirelessly to get three greens formed up every week; Julie-Anne and Glen from Vermont Sands never missed a beat with sand deliveries; and Bruce from Anco Turf managed to get 2400m² of top quality bent turf here every Thursday at 7am sharp. Most importantly, however, was the Terrey Hills maintenance crew. For 14 weeks they worked their bodies into the ground to make this project happen and they should be extremely proud of the end result. 🙌



The new A1/A4 bentgrass nursery



The new greens took well and a day out from their opening root depth was beneath the hole changer which was set at 9 inches

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Dryject machine in action at St Andrews Beach Golf Course

As well as presenting at the annual conference, Turnberry course superintendent Euan Grant took the opportunity to visit some of Australia's top courses while Down Under. Here Grant is deep in conversation with Victoria Golf Club superintendent Ian Todd literally just a few hours off the plane from Scotland



Northern impressions of a southern sojourn

At the 26th Australian Turfgrass Conference and Trade Exhibition, keynote speaker Euan Grant provided delegates with a tremendous insight into a career which has taken him from the Old Course at St Andrews to his current role at Turnberry. His visit back in June was his first Down Under and as well as presenting at the conference he took the opportunity to acquaint himself with some of this country's finest layouts.

At the bottom of the world, 17,000 kilometres from the origin of golf that I call home, I was overawed by the welcome, the quality of golf courses and the warmth and generosity of the golf course superintendents that I was honoured to have met and spent time with while in Australia.

Within 12 hours of touching down in Melbourne in the middle of the night, I had visited the AGCSA offices in Clayton to meet with Simone Staples, John Neylan and the rest of the staff before being whisked off to Victoria Golf Club by John Geary and Brett Robinson for the first of my Australian golf course experiences.

I have had the privilege of working alongside some Aussies over the past 20 years and met many more on their pilgrimages to the promised land, and have to say that their honesty and enthusiasm for life made the request to attend the 26th Australian Turfgrass Conference as a keynote speaker an easy one to make – regardless of being slap bang in the middle of our golfing season, your winter. The difficult decision to make, from a work point of view, was to take advantage of the opportunity and add on some vacation time to – as most within our profession do – visit more golf courses.

With a full itinerary planned in Melbourne including Victoria, Royal Melbourne and Kingston Heath, the quality of the sandbelt courses, built in an era of massive expansion in the game with a huge hand from Dr Alistair Mackenzie, were as fine as any seen and very reminiscent of the Surrey heathland courses back home. My appetite was whetted and I appreciate that I missed many more classics.

I was honoured to have been invited to actually play Royal Melbourne with course superintendent Richard Forsyth which was a fascinating walk with one of the recognised standard bearers for the industry around a golf course with a recent troubled past. Richard's professionalism and experience will no doubt guide the club successfully through any issues they may be currently facing. It would be very close to the truth to say that as agronomic conversations gained intensity my golf game went rapidly downhill.

Before leaving Victoria I also had the pleasure of staying with John Geary and his family in the depths of the Mornington Peninsula, visiting Portsea Golf Club, Moonah Links and having the pleasure of an early morning round with Leigh Yanner at his magnificent National Golf Club. The land on the coastal edge of this peninsula was made for golf.

I have to mention that I also played golf at The National with Tony Gordon, assistant arena manager from the MCC, where I was most fortunate to have a tour the previous day and witness an AFL match of the highest calibre, I think. I have to be honest



and say that the game must grow on you. There appeared to be a few rules that I couldn't quite come to terms with!

NORTH OF THE BORDER

Onwards to Sydney, I was hosted by David Warwick and his family and again treated to an excellent choice of golf courses and extra-curricular activities. I must say, there cannot be many more spectacular cities in the world! Winter in Manly was definitely different to how I remember winter to be – you certainly don't see bikini clad girls playing volleyball on the beach during a Scottish winter.

David toured me around Manly, Pennant Hills and Concord and we managed a game at Avondale, Royal Sydney and New South Wales. I had been excited about my trip to Avondale as David is keen to take on young Scots for work experience and I had benefited from this myself, employing Keith Martin after a year with David and recently organising a placement for one of our younger greenkeepers, Scott McCaig from Turnberry. They were and will certainly be treated to some innovative practices that are being thought of outside the box.

Without disrespect to any other courses, my favourite visit of the trip was to Gary Dempsey at New South Wales Golf Club. The history, layout and breathtaking views made this a very memorable experience. I even use a photo of my shot over the ocean at the par 3 6th as my Facebook profile!

I was pleasantly encouraged by the close network of greenkeepers within the Sydney area who regularly get together to discuss issues and support each other through the tough times, as well as enjoying a cold beer putting the world to rights.

The final leg of my trip took me further north to the Gold Coast for the conference. David had already arranged a trip around the wonderful course at The Grand and Robin Doodson, fellow Scot with a working history at Turnberry, had invited me around Sanctuary Cove with the architect of all the current refurbishment works, Ross Watson. Ross is a passionate and very clever architect who had a complete understanding of the golf course.



Such was the lasting impression of NSWGC's iconic 6th hole, Grant now uses this photo as his Facebook profile

I thoroughly enjoyed my time at the conference and felt overwhelmed by the hospitality shown. With the opportunity to speak on two very different subjects it was a challenge to an inexperienced presenter to entertain the auditorium in a way that Dr Thom Nikolai could. I only hope that my story was of interest to those that subjected themselves to the 9am slot.

I was intrigued to find in conversation with all of the superintendents that I met during my time in Australia that a great many of the issues being talked about are the same all over the world. With understanding, grass species are different due to climatic considerations but the talking points within the industry are exactly the same.

The need for year round play, the desire for fast surfaces, the lack of understanding with summer aeration, irrigation practices and water sources, bunker sands and man management. I must say though, I will never understand the practice of allowing trolleys/pull carts on greens! But making all golfers carry a small bucket of divot mix is invaluable.

I have many stand out memories of my trip of a lifetime 'Down Under' and have made many friendships that will remain strong, all the more so by use of the Internet. If anyone is ever in Scotland please contact me and I would love to repay some typical Aussie hospitality. My huge thanks to those that helped me in many ways and to the AGCSA for the invite. 🇬🇧



Grant takes a closer look at the revegetation work at The Victoria Golf Club



Far left: There were plenty of photo opportunities for Grant, this the unmistakable 10th at Kingston Heath

Left: Allowing trolleys on greens proved a perplexing practice for the Scot

When a susceptible cultivar is infested by couchgrass mite, most of the terminal growth will become distorted and tufted and the grass may often die. Damage is usually accelerated when another stress (either biotic or abiotic) is present

Damage by the couchgrass mite can cause a significant loss of stands of couchgrass especially when other biotic or abiotic stresses are present. James Reinert outlines results from a research project at Texas A&M University which screened commercial cultivars and 47 other couch genotypes for their susceptibility to couchgrass mite.

Mite-y adversary

Cultivars of couchgrass (*Cynodon* spp.) are among the most widely used warm-season turfgrasses throughout much of the tropical and subtropical regions of the world. Over 60 cultivars of couchgrass have been developed in the United States alone and the species is used extensively on golf courses, sports fields and throughout residential and commercial landscapes and other high traffic areas.

The couchgrass mite, *Eriophyes cynodontiensis*, is a reoccurring pest throughout much of the area where couchgrass is adapted. However, over the last few years, it has again become a major pest on golf courses and other sports fields in Texas and other states across south USA.

The couchgrass mite is very small and not visible to the naked eye – 20 to 30 X magnification is required to see it – but its presence can readily be identified by its characteristic damage in couchgrass turf. Couchgrass damaged by this mite exhibits shortened leaves and internodes producing a typical rosetted and tufted growth, or 'witch's broom' effect.

When a susceptible cultivar is infested, most of the terminal growth will become distorted and tufted and the grass will often die. Damage is usually accelerated when another stress (either biotic or abiotic) is present and the combined stresses are often too much for the grass. If the mite-infested grass is left untreated, large areas of couchgrass are often killed.

One of the best alternatives to the use of chemical pesticides is to develop and use well adapted cultivars of couchgrass that are resistant to the couchgrass mite. Several couchgrass genotypes have been identified in various studies by

Baltensperger (1961), Butler (1961, 1962 and 1965) and Johnson (1975) in field studies and by Reinert et al. in greenhouse studies (1978 and 2008).

In the latter study, FloraTex, a coarse-textured type of couchgrass, was identified as resistant and exhibited no symptoms while Tifway was identified as susceptible with 44 per cent of the test plants exhibiting symptoms of the mite. In both greenhouse (nine months) and field studies (six years), the couchgrass mite never expressed any damage to FloraTex.

Resistance has also been identified to a related eriophyid mite, *Eriophyes zoysiae* Baker, Kona and O'Neill, that is host-specific to zoysiagrass. Royal and Zorro are fine-textured zoysiagrasses that are highly resistant to this mite (Reinert et al, 1993).

MATERIAL AND METHODS

The present study at Texas A&M University was initiated to evaluate hybrids from the couchgrass breeding programme at Oklahoma State University (OSU) and many of the newer commercial cultivars, including the ultradwarfs that have become very popular across the turf industry in recent years, to determine their susceptibility or resistance to the couchgrass mite.

Couchgrass cultivars and genotypes were established and grown in 18-cell trays in greenhouse culture at the Texas AgriLife Research and Extension Urban Solutions Center in Dallas. Tray cells measured 7.5cm x 7.5cm and 4cm deep. Both Experiment 1 with hybrids from OSU and Experiment 2 with mostly commercial cultivars were established during January 2010 in a greenhouse at the Dallas center.



Floradwarf was included in both experiments as a susceptible standard, while Tifgreen (328) was also included in Experiment 1 as an additional standard for comparison with the hybrids. For both experiments, one 7.5cm x 7.5cm plant of each genotype was randomly assigned to a cell in each replicate consisting of several trays. Six replicates were used in both experiments.

For each experiment, the entire set of trays (six reps) was placed on greenhouse wire-mesh benches and surrounded with additional trays of either Baby, Champion, Floradwarf or Tifdwarf. These trays were heavily infested with couchgrass mites before the test and they were placed around each experiment to provide adequate mite inoculum for the grasses in the experiment.

By placing infested plant material on all sides of each experiment, mites were in position to readily disperse across the test plantings. The air circulation from the cool-cell fans at one end of the greenhouse provided a gentle breeze across each experiment. Since eriophyid mites are known to readily disperse from one plant to another by wind, this method provided ideal conditions for the mites to disperse naturally across each set of plants. Plants were watered daily and inspected and trimmed as needed to prevent vegetative contamination.

Plants in both experiments were assayed in March, about nine weeks after exposure to infestation, for susceptibility to mites by closely examining each plant and counting the number of deformed or rosetted terminals per plant. Plant texture varied significantly among the genotypes and since the potential number of infested leaves could vary accordingly, the finer textured genotypes

had the potential of a much greater number of deformed/infested terminals.

RESULTS

A wide range of susceptibility to couchgrass mite was recorded among the couchgrass cultivars and genotypes evaluated. Susceptibility ratings ranged from zero rosetted terminals on five cultivars and four hybrids to a mean of 160 rosettes and a high of 265 deformed terminals on one of the experimental varieties (cultivar 4200W 47-1).

Among the commercial cultivars evaluated, Floradwarf had significantly more rosetted terminals than any other cultivar tested, with highs of 69 and 76 (Experiment 2 and 1, respectively) deformed terminals on at least one replicate plant with means of 45.5 and 58.8 rosetted terminals respectively.

Additionally, eight other cultivars – Champion, Continental, Lakewood, Tifdwarf, Baby, Majestic, Ormond and Tifgreen – each had means more than 20 rosetted terminals per plant and at least one replicate plant with at least 36 rosetted terminals. Four more cultivars – TifEagle, Shangri La, MS Supreme and Blue-Muda – each had means between 5 and 20 rosetted terminals per plant.

An additional eight cultivars exhibited mean infestation levels between 0.5 and 5 infested terminals per plant with some replicate plants with at least 2 rosettes. Six of the cultivars – Jackpot,

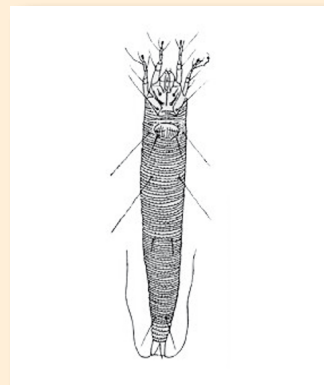
LIFE CYCLE OF THE COUCHGRASS MITE

The couchgrass mite (*Eriophyes cynodontiensis*) is extremely small and is invisible to the naked eye. Hand lenses usually do not have the magnifying power to make the mite visible. The mite appears worm-like with two pairs of legs facing forward.

The life cycle of this mite is quite rapid. Under ideal conditions the mite can complete its life cycle from hatching to an adult in seven days. Under most summertime conditions, the adults lay eggs every 2-5 days with the mite completing its life cycle in 10-14 days. The mites tend to develop between the leaf sheath and blade. This location makes it often difficult to get a chemical spray to the mite.

Culturally, lowering the mowing height will make for a less favourable environment for the mite. Care should be done not to cause scalping. Removing clippings will also help reduce mite populations. Irrigating and fertilising make for a healthier couchgrass turf. Miticides may or may not be effective. If used be sure to apply with adequate water. Short residual insecticides are effective but may need to be applied multiple times. In the United States many managers try to 'outgrow' the mite through fertilisation and irrigation.

– Source: www.greencast.com.au



Couchgrass mite (*Eriophyes cynodontiensis*)

Couchgrass damaged by mites exhibits shortened leaves and internodes producing a typical rosetted and tufted growth, or 'witch's broom' effect



NuMex-Sahara, Riviera, Princess 77, Savannah and Shanghai – were moderately resistant with a mean of only 0.17 rosetted terminals per plant. To have this susceptibility level, at least one of the six replicate plants for each cultivar exhibited one rosetted terminal. Cardinal, Greg Norman 1, Midlawn, TifSport and Tifway did not exhibit any rosetted plants in this study.

DISCUSSION

This study emphasised the wide range of susceptibility to the couchgrass mite among couchgrass germplasm. The levels of infestation may appear to be skewed to some extent since the more dwarf genotypes tend to have the highest number of rosettes per plant. There are many more terminals to express symptoms on an ultradwarf like Baby, Champion, Continental, Floradwarf or Tifdwarf than are available to be distorted on the coarser textured cultivars like Arizona Common or NuMex-Sahara.

Additionally, the infested cultivars or hybrids expressing rosetting and tufting create the potential for continued and increasing damage with a longer exposure to mite infestations. There was also the possibility that some of the cultivars avoided heavier infestation because they were infested late in the study. Likewise, some of the cultivars may have been only lightly infested during the test period but would have continued to express more damage with additional time and exposure to the available mite inoculum.

A good example of this second possibility is the failure of Tifway to become infested during the test period in this study. In a previous experiment, 44 per cent of the Tifway test plants expressed rosetting after an eight-month infestation period (Reinert et al, 1978). Since this study was much shorter and lasted only nine weeks, plants may have

OBSERVATIONS FROM TU05001 – WARM-SEASON GREENS TRIALS

As part of the recent Horticulture Australia Limited Project TU05001 – Management guidelines for new warm-season grasses in Australia – conducted by DEEDI in conjunction with the AGCSA – the following observations were made about mite damage (pgs 116-117). The final report for this project can be downloaded from the AGCSATech section on the AGCSA website (<http://www.agcsa.com.au/agcsatech/research>)

"Insecticides were applied as needed to control mites (*Eriophyes* sp.) which were possibly couchgrass mites (*Eriophyes cynodonsensis*), ants, mole cricket, lawn armyworm and African black beetle larvae. A preventative programme was not adopted which provided us with an opportunity to observe and record any differences seen within the susceptibility of the cultivars trialed.

Repeat application of miticides were sprayed in an attempt to control two-spotted mites in October of 2006, but no further applications were applied throughout the duration of the trial. This does not mean that the mites were not present, or were not causing underlying problems to turfgrass quality and playability.

On 21 September 2009 an inspection and visual rating was undertaken of mite damage of the *Cynodon* hybrid cultivars growing in the unreplicated turf demonstration plots (measuring 3m x 2.5m) at DEEDI Redlands Research Station. General observations were made and the plots were given a rating from 'no effect present' to 'severely affected' (Table 1).

Results indicated from the unreplicated plots that there were some cultivars that showed signs of possible mite resistance or tolerance, while others had varied levels of infestation.

Further research is warranted in this area to determine what species of mites are causing problems, but also whether certain cultivars are resistant to the effects of mites. A digital photograph was taken of a medium-to coarse textured *Cynodon* hybrid cultivar on 6 January 2010 showing the damage commonly seen following an infestation of mites.

Mites possess the ability to inhibit the lateral development of the turf plant by feeding on plant tissue following the puncturing of the surface cells with their fangs or stylets. The damage can often be seen following a close inspection of the turf. However, the arachnids, which are between 0.2mm and 0.5mm in size, are commonly very hard to find and accurately identify. The result if not detected poses a threat to new leaf and stolon tissue that become severely distorted effecting lateral growth and turf vigour."

TABLE 1. RATINGS OF MITE DAMAGE OF CYNODON HYBRIDS AT REDLANDS RESEARCH STATION

Cultivar	Damage Rating
Champion Dwarf	Medium
FloraDwarf	Severe
MiniVerde	Medium
MS-Supreme	Light
Novotek	Light
TifEagle	No effect
Tifdwarf	No effect
Tifgreen	No effect

TABLE 1. RANGE OF SUSCEPTIBILITY TO THE COUCHGRASS MITE AMONG COMMERCIAL CULTIVARS

Resistance	Range of infestation ¹				
	0	<1 to 1 Low	>1 to <5 Moderate	>5 to <20 High	>20
Cardinal		Jackpot	Arizona Common	Blue-Muda	Baby
Greg Norman 1		Mirage	Mobile	MS Supreme	Champion
Midlawn		NuMex Sahara	Patriot	Shangri La	Floradwarf
Tifsport		Princess 77	Southern Star	TifEagle	Lakewood
Tifway ²		Pyramid	Sydney		Majestic
		Riviera			Ormond
		Savannah			Tifdwarf
		Shanghai			Tifgreen (328)
		Sundevil II			Transcontinental

1 – Number of rosettes per 7.5cm x 7.5cm plant
2 – Tifway was found to have 44 per cent of the plants infested with couchgrass mite in a previous test (Reinert et al, 1978), therefore, the other four cultivars with no rosettes and those with low levels of infestation in this experiment may also be susceptible.

expressed symptoms after a longer exposure to the surrounding infestations. It is also possible that the mite-induced injury symptoms are slower to develop on some of the more coarse genotypes.

In two field evaluations of couchgrass rated for mite injury symptoms, Tifway, Baby, Continental, Floradwarf and many other cultivars that were very susceptible in this study showed no symptoms from this mite even after 1-2 years post-establishment in field studies (NTEP 1992 and 1997).

A summary of the ranking of the cultivars evaluated in these Texas A&M tests is provided to quickly visualise the ranges of susceptibility among

the cultivars (Table 1). Additional evaluations of the cultivars and hybrids with less than 1 rosette per plant is needed to confirm whether these plants are consistently resistant to the couchgrass mite, or whether they avoided infestation and symptom expression during this short-term exposure.

ACKNOWLEDGEMENTS

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Traralgon Golf Club VIC

His beloved Collingwood may have nabbed a memorable premiership this season, but as ATM discovers Traralgon Golf Club course superintendent William Cheatley is kicking some goals of his own down in Victoria's Latrobe Valley.



Full Name: William Cheatley.

Nickname: Cheaters.

Age: 24.

Period as a superintendent: 18 months.

Association involvement: AGCSA (18 months).

Career: Traralgon Golf Club (5 years); Keysborough Golf Club (9 months).

Turf management qualifications: Certificate III – NMIT. Currently studying Certificate IV (Diploma) via correspondence at NMIT.

Tell us a bit about your background in turf management. How did you start out in the industry? After completing school I applied for an AFL Sportsready traineeship and moved to Melbourne to begin at Keysborough Golf Club. After experiencing Melbourne and becoming homesick, an opportunity opened up at Traralgon Golf Club and I was successful in obtaining an apprenticeship. When the former superintendent resigned, the club gave me an opportunity to become the caretaker superintendent for around eight weeks while a suitable replacement was found. I applied for the position and was successful.

Give us an overview of Traralgon Golf Club and some of its unique characteristics?

The Traralgon Golf Club was formed in 1901 and has had several course locations since its formation; its most recent prior to this

was near the Traralgon Railway Reserve. The current site was developed and designed by Vern Morcom in 1947. It comprises a modern and large clubhouse, an on course golf shop run by professional Martin Clements and is situated on the north side of the Princes Highway on the Melbourne side of Traralgon.

One unique aspect of the course is its location – the town centre is just a two minute drive from the course. Characteristics of the course include narrow fairways, small greens and heavily treed.

Take us through your turf management operations and how you have fine-tuned them during your time as superintendent? In the last 18 months we have focused back on the condition of playing surfaces and selective tree removal. Our fairways have been a big focus and getting our Santa ana fairways up to scratch has been one of our big priorities. We have also employed a part-time mechanic to try and prevent machinery breakdown as much as possible. With somewhat limited machinery resources, a machine that has a lot of downtime really effects the presentation of the course.

What are some of the unique features about Traralgon Golf Club from a turf management perspective? Is it an easy or hard facility to manage? Our soil profiles are mainly clay and this poses a massive issue trying to keep moisture up to the playing surfaces throughout January and February. We have eight sand-based greens and eleven clay-based greens. Because of the number

of rounds played per annum, through summer we have to be very mindful of maintaining adequate moisture levels in our greens, tees and surrounds. Overall, from a management perspective, summer poses much harder challenges than winter does.

What are some of the major challenges facing Traralgon Golf Club both from a turf management perspective and general club management perspective? Prolonged drought has taken its toll on the course. With a somewhat basic irrigation design, keeping enough moisture in our fairways has proved our toughest challenge, hence the decision to convert our fairways to couch. On top of this, through the dry conditions our cypress and pine trees have proved a nuisance in the amount of water they take from the soil. Continual removal of these exotic species and root pruning of tree lines is beginning to show results.

From a general management perspective, the club has been very aggressive in promoting its membership and now has the largest membership base in the Latrobe Valley. The club has been very disciplined in spending over the last few years, trying to consolidate revenue to shore up the club's long-term future.

Many people have worked long and hard at board level to do this and the result will mean the club and course will only prosper for years to come. I think most regional courses all face these challenges and all are doing their best to see a brighter future.

Outline any major course improvement works you have completed in the past couple of years and highlight any ongoing or future works? Our biggest capital works have been the removal of around 100-150 pine and cypress trees. These works are really starting to pay dividends with improved soil moisture content and more sunlight improving our playing surfaces. We have also undergone a couch conversion programme that will see all fairways and tees Santa ana by 2013.

Both these programmes tie in together with improved playing surfaces year round from tee to green and will also provide us with a more consistent and better looking course that is easier and more sustainable to manage.

How is Traralgon GC faring in the water management stakes? We are very lucky to have a stormwater creek that runs through the heart of our course. Most of the stormwater that is collected from the eastern side of the town is diverted through our course and we pump this reclaimed water into our two dams. If we have an inch of rainfall in Traralgon, then our stormwater pump will be hard at work for a 24-hour period. With this setup in place we have not run dry for a very long period and I have been told by various members that I would be very unlucky to see the dams dry.



The one product I couldn't manage my course without is... Wetting agents. The only way we see out summer.

What are some pros and cons of being a regional superintendent? Being a regional superintendent requires forward planning and a lot of time spent on the phone with people in the industry as face-to-face contact with sales reps etc. may only happen once a month with each of the suppliers. Though parts and products are only two or three days away, a well-stocked chemical shed and spare parts for machinery in stock are vital for us. But in general I think country living is a great way of life.

Are expectations of course presentation and conditioning any less than that placed on your metropolitan counterparts? Yes and no. Our members understand that with our limited resources

Above: Course superintendent William Cheatley (right) with assistant Justin Horton. Cheatley has been superintendent at Traralgon for the past 18 months

Far left: Located about two hours east of Melbourne, Traralgon Golf Club has been an important part of the Latrobe Valley township since 1901. Today it boasts 700 members, one of the strongest in the district. Pictured is the par 3 8th

OFF THE COURSE - WILLIAM CHEATLEY

Family: Fiancé Michelle and dogs Ralph and Hamish.

Claims to fame outside of turf management: Back-to-back senior football premierships with Trafalgar in 2009 and 2010; 1st XI one-day and two-day cricket premierships for Trafalgar.

Unusual hobbies/past-times away from turf? I play cricket for Gormandale and football in the winter for Trafalgar. Reading a book and having a beer on a Sunday afternoon is when I'm in my element.

Favourite sporting team? Collingwood.

What book are you reading now? 'Hey, You in the Black T-Shirt' – Michael Chugg's autobiography.

Golf handicap? Myself.

Favourite golfer? Shingo Katayama.

The best thing about Traralgon (aside from the golf club) is... The people. The Latrobe Valley is a fantastic place to live – an hour and a bit from Melbourne, the beach and the snow. Everything you need is here and the laidback nature of it all suits me perfectly.

What do you do to get away from it all? Sport, music, reading and heading to Merimbula for a few days of oysters and beers.



Over the last 18 months the focus has been on improving the condition of playing surfaces and selective removal of some 150 pine trees. Fairways have been a big focus with the club embarking on a major conversion programme to Santa ana couch

and staff that we present the course as best we can, though our biggest downfall is that Melbourne and some of the world's best courses are only a two hour drive away. If given the budgets and staff numbers of our city colleagues, we would certainly improve the standards of our course but with that we would also have the same expectations as they have placed upon us. In some ways though these expectations are a good thing as it places us in a position to try and get the best out of our course.

Do you have to be more resourceful as a regional-based superintendent? Regional superintendents have to be a 'jack-of-all-trades', from plumbing

irrigation leaks to fixing machinery and also carrying out our turf responsibilities. Probably our best move was employing a mechanic which has led to less downtime with machines and it frees the remaining staff to concentrate on the more important things.

How important are the relationships you have with other regional supers or trade reps? Having close working relationships with trade members is important as it is an outlet to bounce ideas around and learn from their experience. We are very lucky to have a number of great sales reps that are only a phone call away and generally will be the first with any new trade and product information. Daniel Docherty (Globe), Neville Treadwell (Simplot), Mark Burchell (Floratine) and Dieter Kaiser (Glenmac) have been great sources of information and are always ready to assist with any inquiries.

I find it hard to get to trade days and so on, but with the help of the AGCSA website and this publication, as well as regular chats with sales reps and others involved in the trade, I can get by keeping up with the latest information.

What have you got in your shed and what's on the wish list? John Deere 2500 E triplex; John Deere 2500 A triplex; Toro 3250-D triplex; Ransomes Commander 2000 fairway unit; Chetech bunker rake; Toro 2110 Workman; Ransomes Cushman

AT A GLANCE - TRARALGON GOLF CLUB

Where in the world is Traralgon? Traralgon is located about two hours down the Princes Highway east of Melbourne in Victoria's Latrobe Valley.

Climate: Traralgon is located in the Latrobe Valley in the south eastern corner of Victoria and has a maritime climate meaning mild temperatures with large amounts of rain, the occasional frost and snow on neighbouring hills. The Latrobe Valley's warmest month is February with an average temperature range of 12.5°C to 26.4°C and the coldest month is July with an average temperature range of 3.6°C to 13.5°C. The most rain occurs in late winter and spring, with average yearly rainfall about 800mm.

Course specs: Traralgon Golf Club is set on about 40 hectares and is an 18-hole facility measuring 5939 metres from the back markers.

Greens: Bentgrass/*Poa annua* mix. Cutting heights are between 3.0mm and 3.5mm.

Tees: Half our tees are a rye/*Poa/kikuyu* mix and the other half are Santa ana couch. Maintained year round at 11mm

Fairways: Six fairways are Santa ana couch, six are a rye/*Poa/kikuyu* mix and two are in the process of conversion to Santa ana. Cut at 20mm.

Roughs: A mix of all of the above grasses (75mm).

Members: 700

Annual number of rounds: 25,000

Major tournaments/events: Traralgon Pro-Am, Traralgon Classic and our annual Traralgon Tournament.

Course management budget: \$300,000.

Staff structure: Rick Alexander (course director), William Cheatley (superintendent), Justin Horton (assistant superintendent), John



Hutchison (mechanic), Greg Banks-Smith, Russell Gates and Robert Williams.

Water sources: Stormwater taken from a creek that runs through the heart of the course is pumped into a holding dam of around 25 megalitres and then siphoned down into an irrigation dam which holds around 8ML. This is a reliable source which has not failed, even in recent years.

Irrigation system: Water is delivered throughout the course via a Lowara pressure pump system that runs at around 1000kPa. Greens are serviced by Rain Bird 750 E electric valve-in-head sprinklers, tees are by Toro T5 series rotor. This is all run from a Rain Bird Master II Junior irrigation computer. Each fairway has between two and four quick coupling valves.

Renovations: In spring, greens are cored with 5/8" tines and in autumn verti-drain tines are alternated between 1/2" and 3/4" sizes.

Major disease pressures: Fusarium patch through winter and brown patch through spring and summer. With the fusarium we are trying to keep our greens as dry as possible with the use of soil penetrants and also removing/pruning any trees causing shade issues.



Traralgon GC is blessed with a reliable water source with stormwater taken from a creek that runs through the heart of the course pumped into a holding dam of around 25ML before being siphoned down into an 8ML irrigation dam

with topdresser attachment; John Deere 1445 rough cutter; Toro 328-D rough cutter; Ransomes 238-D rough cutter; Kubota FEL; Turf Tec roller.

Our rough cutters would be the machines that do the hardest work and get trashed the most. Our Ransomes rough cutter has done some pretty hard work over the years and the deck resembles more an army tank than a cutting unit with the amount of welding and panelbeating it has required. It still gives a good cut when it's up and running. The wish list would have a new fairway mower at the top, closely followed by a Toro Multipro.

What are some of the more unusual requests you have had as a regional superintendent? I had a local school contact me asking for information on how to construct a golf green for use in their school grounds. I went to see them and the first question they asked was "How much concrete do we need as a base for the artificial turf?"

Do you think regional superintendents have a better work-life? I think there is a lot less stress involved with regional courses compared to our city colleagues. Also, I think the relationships you form

with members and the friendships that develop are quite unique.

Favourite spot on your course? Second championship tee. The view takes in the water, the par 3 8th and Mt. Baw Baw in the distance.

Most pleasing/rewarding moment during your time as Traralgon Golf Club superintendent?

When I first took over the membership decided to suspend our couch programme because of the result we had the previous year. We were given 12 months to get the couch fairways to a standard that was acceptable and the subsequent membership vote six months later was all for the programme's resumption. Also having members and guests comment on the condition of the course is very pleasing.

Name three golf courses that you would most like to visit and why? St. Andrews, Augusta National and Turnberry. St. Andrews due to the history associated with, Augusta to see turf management on that sort of scale and Turnberry because of the degree of difficulty. 🌿



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CANTERBURY GOLF COURSES LEFT SHAKEN AFTER EARTHQUAKE



Golf courses in the New Zealand South Island region of Canterbury were literally jolted into spring this year following a massive earthquake which struck the region. At 4.35am local time on Saturday 4 September, a 7.1 magnitude earthquake hit the region, causing widespread damage to Christchurch, New Zealand's second largest city.

The earthquake's epicentre was 40 kilometres west of Christchurch near the town of Darfield and was recorded as being at a shallow depth of 10km. In the month following the main quake, there were upwards of 1800 aftershocks ranging in magnitude from 2 to three which registered 5.4.

As well as extensive damage to many buildings and residences in Christchurch, a number of golf courses in the city and surrounding Canterbury region were also affected. One of the hardest hit was Hagley Golf Club, the region's oldest golf course and New Zealand's second oldest behind Balmacewen in Dunedin.

Located just two kilometres from the centre of Christchurch, the course sustained significant damage with fractures opening up on some

greens, fairways and bunkers, major damage to irrigation infrastructure and silt contamination from liquefaction. Such was the damage, it forced the cancellation of the club's major annual tournament, the Hagley Open.

Long-time course superintendent Peter Macintosh, who doubles as the club's general manager, provided this summary for ATM a few weeks after the earthquake struck:

"We were only closed for about four hours to allow us time to rope off the affected areas. In fact by mid-afternoon on the day of the earthquake the course was quite busy which was surprising considering the amount of destruction around town. We didn't start the real clean up until the Monday to allow staff time to sort themselves out.

"Most of the damage to the course was centred around one area where we could track part of a fault line. We had major damage to one green that had cracking through it as well as mounding. Where the cracking occurred there was a change in level of 50mm which required the turf to be removed, the cracks filled and the area levelled. We used about 1m³ of soil to achieve this.

"The mounding was more problematic as liquefaction had pushed silt up into the greens profile but still remained about 100mm to 150mm below the surface. This caused a mound 40mm high by 400mm wide and about 6m long.

"The main problem in the fairways and bunkers was liquefaction. On the Saturday morning following the quake we had large amounts of surface water on three fairways. This was all just ground water forced up to the surface. As well as the water, large amounts of silt also came to the surface. Where this happened on fairways and rough we were able to remove it by hand and we ended up moving about 4m³ of silt.

"Where this happened in bunkers, the problem become more difficult as the silt and sand mixed together. We will have to replace all of this contaminated sand (approximately 20m³ to 30m³). In some areas of the rough where the silt was in very small amounts we left it and just spread it out, although we have noticed that in these areas the grass appears to have been burnt. There may be large amounts of salt or other elements in the silt causing this.

"One bunker and one fairway also suffered major cracking along with asphalt pathways around the course. The fairways we have been able to fill with about 4m³ of soil, but the bunker will require major reconstruction.

"Interestingly, even a number of weeks after the earthquake we found more liquefaction happening behind our 1st green. This is the only time since the main shock that we have had this occur and it makes you wonder just what is going on underground.

"The irrigation system suffered damage in four places, ranging from 80mm pipe down. This became a major problem when Canterbury's dry nor-westers started blowing, drying out the surfaces of the greens very quickly. At its worst we couldn't automatically irrigate three greens but we were able to hand water them by joining all the hoses we have together – it took one hour to water one green.

"It will be some months before all the damage is repaired as we come into our spring growth period which keeps the staff stretched without all this extra work on top. We lost a complete week cleaning up the damage to the course and at this time of year we can ill afford that. It has been interesting to note the effect on staff with the continued aftershocks on top of the damage to the course and stress levels have certainly been at their highest level in a long time."

Other clubs to sustain minor damage included Clearwater Resort, home of the NZ PGA Championship. As well as cracking to the clubhouse, the 10th fairway, 13th fairway and 16th tee were also affected. Greendale Golf Club, the closest course to the earthquake's epicentre, surprisingly suffered little visible damage, however, there were several breaks in the irrigation mainline and laterals.

LIVERPOOL GETS NEW LEASE ON LIFE

Renovations can often be a time consuming process, but for one Sydney superintendent there was a definite spring in the step as the new growing season clicked over this year.

Thirteen years after leaving Liverpool Golf Club, Mark Schroder returned to his old club on 1 July after being appointed superintendent following five years of the club being under contract maintenance.

Schroder, who in between had stints at Waverley Golf Club and Woodburn-Evans Head Golf Club, has literally had to start from scratch in his new role as the club starts the huge task of reinstating the course to its former glory.

Whether it has been running in a new fleet of machinery, instituting a raft of OH&S practices or improving the playing surfaces, Schroder and his new-look crew have had their work cut out and no more was this evident than during spring renovations.

With no thatch removal or decompaction undertaken for almost six years, the greens were in a sorry state and just 2mm of rain would result in water pooling on the greens. Come renovations, Schroder hoed into them with a Coremaster Royale 1560 from Greencare fitted with ¾" hollow tines to a depth of 7-plus inches.

The greens were then topdressed using 90 tonnes of river sand with 5 per cent by volume organic carbon and after being allowed to settle for a few days were then further opened up using a Shattermaster with 9" bullet blades.

"I was thrilled with the amount of material we pulled out without disturbing what was a fairly poor surface," says Schroder. "Three frosts slowed down our recovery but after a few warmer days and nights the roots are progressing well and the greens look 100 per cent better from where they were. 🌱

Far left: Hagley Golf Club in Christchurch was one of the worst affected golf courses following the 7.1 magnitude earthquake which struck New Zealand's Canterbury region in early September. The course sustained significant damage with fractures opening up on some greens, fairways and bunkers, major damage to irrigation infrastructure and silt contamination from liquefaction

YELVERTON HEADLINES BAYER SEMINARS

Well renowned North Carolina State University turf weed expert Fred Yelverton was guest speaker at four seminars conducted by Bayer Environmental Science around Australia in September.

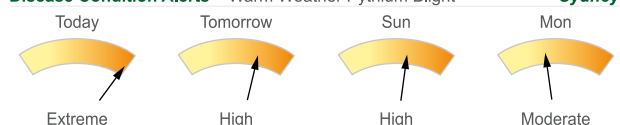
A regular visitor to Australia over the years, Yelverton covered two topics during the seminars including using sulphonyl urea herbicides for the management of turf weeds and the latest developments in turf weed research. In the latter presentation Yelverton delved into treatments for *Poa*

control in bentgrass, using PGRs to suppress *Poa* in bentgrass, managing couchgrass invasion of bentgrass greens as well as providing updates on various products in the pipeline.

More than 200 attended the four AGCSA accredited seminars held in Melbourne, Sydney, Brisbane and on the Gold Coast with golf course superintendents, turf managers, bowling greenkeepers, TAFE College students, distributors and local government all represented.

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TURNPOINT INJECTS NEW TECHNOLOGY DOWN UNDER



DryJect's high-pressure, water-based injection system blasts aeration holes through the rootzone while vacuum technology simultaneously fills holes with amendment

DryJect aeration technology has landed in Australia after Turnpoint Services recently announced that it had secured the exclusive license to operate the system both here and across the Tasman in New Zealand. Turnpoint Services has imported a number of DryJect machines from the US and has already provided the service to golf courses, including Kingston Heath and St Andrews Beach, with positive results and feedback.

The DryJect system can reduce the need for core aeration and amplifies the benefits of sand amendments by distributing them into the ground more completely. High pressure water is injected into the soil profile and the amendment of choice is drawn from a hopper and injected via the venturi effect created.

The result gained is a shattering of the soil profile and filling of fracture lines to amend the overall soil system, dilute thatch and firm the playing surface. A variety of amendments can be blended and injected, ranging from sand through to wetting agents, fungicides, and Profile porous ceramic.

One of the key benefits of the DryJect system according to Turnpoint Services is that there is virtually no disruption to golfers. Traditional core aeration can be time consuming and requires several steps to return turf to a playable surface, however once the DryJect has passed over the playing surface it is ready for play within an hour.

For further information on the DryJect system, contact Brian Clapp at Turnpoint Services on 0466 797 727.

GP FLOOR-LESS

Profloor Portable Flooring has rolled out its latest protection product in the form of the translucent Pro-Floor GP (Grass Protection), specifically designed for turf situations.

More than two years in development, Pro-Floor GP is made from an engineering grade polypropylene copolymer material designed for high impact and known for its toughness, flexibility and resilience.

Developed for stadiums, sporting arenas and public parklands, Pro-Floor GP features a light, water and air flow circulation that protects natural turf against the abrasion and wear of large crowds at stadiums, racetracks, events and exhibitions. Pro-Floor GP has a moisture containment canopy to prevent burns from severe sunlight, is slip-resistant, lightweight and easy to store and install. It works on uneven ground and is designed to withstand heavy-duty impact.

In an independent study carried out by AGCSATech, Pro-Floor GP caused no visible damage to cool-season turf, such as yellowing or reduction in colour and density, despite being down for 15 days. The key to this was the product's ability to let in light and air to the turf underneath, reducing the risk of damage to the turf.

Profloor Portable Flooring managing director Paul Blackie said the development of a translucent polymer that also has very high UV resistance and maintained the company's traditional mechanical properties was the real challenge with this new product. "We've tested Pro-Floor GP in the field

for two years now and we have full confidence in offering it to the market as a benchmark product for turf protection."

For more information on Pro-Floor GP visit www.profloor.com.au or email info@profloor.com.au

RGF RELEASES NEW WASH WATER RECYCLING SYSTEM

RGF Environmental Group has released the Universal Advanced Bio-reactor wash water recycling system to the Australian golf and turf industry. The Universal Advanced Bio-Reactor is a closed-loop wash water recycling system designed to treat, filter and deliver the cleanest wash water for re-use at the wash bay.

According to RGF the system has been developed in response to the industry's desire for a product that has few moving and replaceable components, minimal consumables usage and no chemical or microbe addition. It also claims that the system has the lowest operating and maintenance costs with the smallest footprint on the market.

The Universal Advanced Bio-Reactor incorporates solids screening, oil water separation, advanced biological treatment along with RGF's patented Advanced Oxidation UV Chamber for enhanced treatment of recycled wash water. It is totally enclosed within a lockable stainless steel enclosure and is constructed of all non-corrosive materials.

For more information on the RGF Universal Advanced Bio-Reactor, contact Paul Richards (QLD) on 0412 069 864 or Allen Middleton (VIC/NSW) on 0432 740 521.

RGF's Universal Advanced Bio-reactor wash water recycler





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ALSO CURRENTLY AVAILABLE THROUGH THE AGCSA BOOKSHOP....

Color Atlas of Turfgrass Weeds: A Guide to Weed Identification and Control Strategies (2nd Edition)

For more than a decade, Color Atlas of Turfgrass Weeds has been one of the leading authorities for turf and horticulture industry professionals in their ongoing quest to control weeds and limit their deleterious effects.

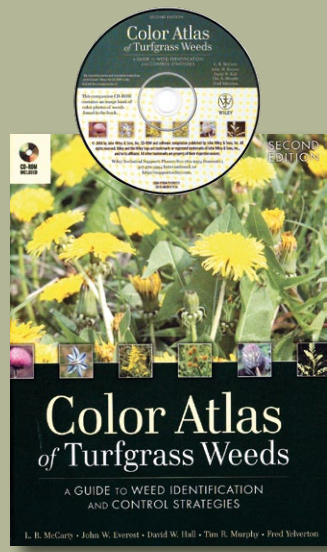
The second edition of the Bert McCarty, John Everest, David Hall, Tim Murphy and Fred Yelverton was released in early 2008 and has been updated to provide control information that professionals need to maintain the quality that is so vital to the golf, sports field and managed landscape industries.

This expanded edition includes 50 new weed profiles, plus 400 additional, high-quality, full-colour photographs of weeds in habitat, seedhead or flower, and in some cases what the weed looks like when dormant.

An accompanying CD features more than 1000 photographs and valuable control strategies and recommendations for every weed. Each weed is alphabetically arranged by family and scientific name.

AGCSA member price: \$170

Non-member price: \$205



Australian Native Grasses: A Manual for Sowing, Growing and Using Them (3rd Edition)

By Ian Chivers and Kath Raulings

Native Seeds, 2009

The trend towards using native grasses within the golf course environment has developed momentum in recent times with many new course developments and course revegetation programmes taking advantage of the many benefits native grasses afford. Their tolerance to drought and ability to grow in challenging environments with minimal inputs, not to mention the aesthetic value they also add, have made native grasses a logical choice.

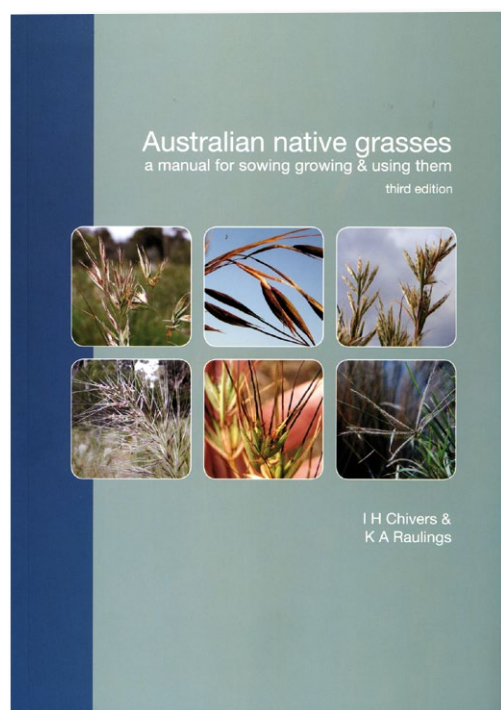
Growing native grasses successfully, however, requires knowledge of the optimum conditions for each species and to assist superintendents, revegetation officers and horticulturalists alike the founder of Melbourne-based company Native Seeds, Ian Chivers, together with Kath Raulings, has produced a manual for their use.

Formed in 1988, Native Seeds specialises in the production and sale of seed of selected species of warm- and cool-season Australian native grasses. Chivers has spent some two decades growing and researching native grasses and today his company monitors over 120 hectares of seed production on different farms around the country.

Native Seeds also currently holds exclusive licences to the production of all of the native grass varieties that have been developed by public breeders in Australia.

This manual, printed in 2009 and titled Australian Native Grasses: A Manual for Sowing, Growing and Using Them, actually started life back in 2005 as a catalogue of the native grasses Native Seeds was growing. Following a reprint in 2007, it was decided to expand on the initial catalogue and develop a practical publication for the identification and understanding of how native grasses can be grown and used. The end result is a 60-plus page manual which at just \$19.95 is a must have, especially for those looking to incorporate native grasses on their site.

Although there are some 1100 species of grasses native to Australia, the manual concentrates on 16 of the most commonly found varieties. The authors have chosen to keep botanical terms to



a minimum for ease of reference and to include practical information that is not generally available. The manual is split into cool- and warm-season grasses with the following varieties included:

- Kangaroo grass;
- Redgrass;
- Mitchell grass;
- Tall windmill grass;
- Curly windmill grass;
- Silky bluegrass or Queensland bluegrass;
- Barbed wire grass;
- Cotton panic grass;
- Black spear grass;
- Wallaby grass;
- Weeping grass;
- Wheat grass;
- Red anther grass;
- Spear grasses; and
- Tussock grass.

Each entry contains distribution maps, plant descriptions, information on soils and sowing as well as plenty of photographs of plants, seedheads and seeds and pictures and descriptions of grass seedlings in the two- or three-leaf stage. In addition to specific information on native grass varieties, the manual also takes a broader look at the benefits of using native grasses, their various applications (whether for revegetation, landscaping, use in lawns etc...), sowing guidelines and ongoing research and development. 🌱

AGCSA BOOKSHOP

The AGCSA has access to a huge variety of turf management books and can offer members substantial discounts off the retail price of many titles. A full list of books currently available through the AGCSA Bookshop can be viewed through the AGCSA website <http://www.agcsa.com.au/products/books>. The website also contains

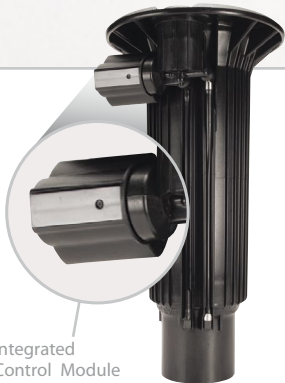
reviews which have appeared in Australian Turfgrass Management over the years.

Please note that the prices contained within the list are subject to change due to exchange rates. If you want to order a book call the Lyndel Conway on (03) 9548 8600 or email info@agcsa.com.au to confirm exact price and shipping costs.

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Barnboughe Lost Farm is gearing up for a full opening on 10 December

I am proud to be writing this report after recently being elected as president of the TGCSA. I look forward to serving the members and having another go at the role after spending one term in the position back in 2005-06. Please don't hesitate to contact myself or other committee members if you have any queries or suggestions.

I would like to congratulate Steven Lewis (Royal Hobart GC) on behalf of the TGCSA, who stood down this year after his second term and another three years as president. Steven's dedication and commitment has been paramount in keeping our association running smoothly. The new TGCSA committee is comprised of the following:

President: Tony Smith (Launceston GC); **Vice-president:** Mark Johnson (Ulverstone GC); **Secretary:** Dan Gilligan (Tasmania GC); **Treasurer:** Adrian Box (Claremont GC); **Committee:** Scott Williams (Bicheno GC), Ricky Barr (Longford GC), Doug Ollington (Tas Turf Solutions) and James Pyke (Deloraine GC).

Thanks also to Kane MacDonald and Mal Godfrey for their help on the committee. Kane has been a keen member of the committee for five years and recently took over as curator at Launceston Grammar School. Despite losing these two we welcome back Ricky Barr and Doug Ollington, while James Pyke, who took over the superintendent role at Deloraine during the year, is the new face on the committee.

Another change during the year saw former TGCSA president Chris Hay take on a curator role at Kingborough Council's new ovals and wicket complex after winding up operations with Coretaz. Chris found that the lure of a job closer to home would give him more time with family after spending long hours on the road over the last three years.

Up in Bridport, Richard Sattler and course superintendent Phil Hill are gearing up for the full opening of the new Bill Coore designed Barnboughe – Lost Farm on 10 December. I look forward to having a game with Phil in the near future at the new course after visiting during construction and seeing it progress over the last three years.

Those lucky enough to have already played the new course after a soft opening on 2 October are already raving about the new world class golf course, believing it could rate as high as the existing Barnboughe Dunes.

The recent Tasmanian Golf Industry Dinner was held at the Country Club Casino in Launceston on 30 October with the TGCSA presenting two awards on the night. Congratulations go to Greg Duff from Burnie Golf Club who was the winner of the TGCSA's Distinguished Service Award. Nominated and chosen by the committee, this was an easy choice, recognising Greg's 30-plus years in the industry and long-time support of the TGCSA.

Greg has worked at several courses around the state and is currently superintendent at Burnie. Greg is a true Aussie battler, providing quality playing surfaces within the constraints of the available budget. He not only looks after the nine holes at Burnie with only the help of an apprentice, but also helps out with looking after nearby Penguin Golf Club in his spare time. Well done Greg and keep up the great work.

Congratulations are also due to Bradley Lovell from North West Bay Golf Club who received the Academic Achievement Award. This award was open to all students who have completed turf studies (namely golf course management) over the past two years at any level. Bradley finished his Cert III in 2009 with an early completion of studies, submitting outstanding assignments and showing an intricate knowledge of all subjects. Bradley has shown with his dedication to the industry he has a promising career ahead in turf management.

Our last education day for the year will be held at Ratho Golf Links at Bothwell on Wednesday 1 December. The day will have some light information sessions from sponsors followed by Greg Ramsey talking about the restoration of Australia's oldest golf course. This will be followed by a BBQ lunch and golf in the afternoon with the coveted Pellows North v South Trophy up for grabs. The northerners will be out to get revenge after seeing the trophy head south for the first time last year. With the ledger at 4-1 in favour of the North I would expect the cup to come back to its rightful home in Boag's country!

On a more serious note, we keep our fingers crossed for some decent spring rainfall for turf managers in the south. Some areas and golf courses in the south had recorded little over 200mm of rain at the end of September.

Finally the TGCSA wishes to thank all members and sponsors for their continued support over the last 12 months and wish you all a safe and prosperous Christmas and New Year.

TONY SMITH
PRESIDENT, TGCSA

As quick as the year starts, the end of the year approaches. The winter rains in Perth were poor with figures of only 88mm, 51mm, 144mm, 63mm and 43mm recorded since May and only 454mm year to date (mid-October). That number is certainly nowhere near our average of 852mm or last year's year to date of 608mm, so it is no wonder we have had the second driest winter on record.

The Department of Water informed me recently that we needed at least 250mm from June before any runoff goes into the dam catchment areas – we were short by 200mm. September and October have seen drier than normal weather which has placed irrigation systems under a lot more pressure than previously for this time of the year.

One day per week scheme water sprinkler bans are in place and may become permanent. There is no sprinkler ban threat to our association, however, and I have been assured by the Department of Water that our allocations are safe and further sprinkler bans are not planned for our industry.

This has prompted our association to approach the Department of Water recently to initiate a water wise golf course programme. This is where golf courses can have their irrigation practices assessed by an independent source to meet certain criteria to be officially recognised as a 'water wise golf course'.

If awarded the club can then advertise this by signage, on their website and throughout their club showing their responsible use of water and also show the Department of Water how efficient our industry is with water use. Such a recognition system is used by other industries.

The 2010 GCSAWA committee is nearing completion and publication of The History of the GCSAWA. This publication will compile all the past minutes, AGM, superintendent appointments and committee throughout the last 25 years. This was brought about by events in the early 1980s where records were destroyed and the GCSAWA history prior was lost forever. All the records now are electronically kept but prior to 2003 all records are paper copies.

These records could easily be lost again so a central electronic database needs to be compiled to ensure the long-term history is never shredded again. Many thanks to the past presidents, committee, superintendents and the AGCSA who have helped compile the data. A printed booklet will be sent to all past presidents and A class members when complete.

The WA golf industry awards night will be on again in February and more than 600 attendees are expected at Burswood so please ensure you book your seats when tickets become available. The award structure and nomination has changed with nominations coming from individuals and clubs, so

a club or individual can nominate anyone, as long as they meet the selection criteria. Nominations can be sent now and should be forwarded to gcsawa@bigpond.com.au.

The bi-annual Margaret River Conference is on again in 2011. The response by superintendents and their assistants in supporting this event last time was exceptional and I look forward to the same support.

Finally, the GCSAWA committee for 2010-2011 has been finalised. I hope all members make contact with the elected people with any issues within their portfolios. The committee is:

President: Darren Wilson (Wembley Golf Complex)
Vice-president and Secretary: Des Russell (Busselton GC); **Treasurer:** Craig New (Lakelands GC); **Golf Secretary:** Paul Needham (Secret Harbour); **Trade Representative:** Simon Bourne (Cottesloe GC); **Education and Events:** Glenn Cross (Mt Lawley GC); **Peak Body Representative:** Brad Anderson (Sun City CC); **Co-Opted Trade:** Geoff Kirk.

All the best over the summer months.

DARREN WILSON
PRESIDENT, GCSAWA

TGAA ACT

Well, I've certainly been giving the old Telfast a workout over the last few weeks which can only mean one thing – either my wife has been washing a cat with my clothes or spring is in the air.

None of my industry acquaintances seem to have had too many dramas during their spring renovations aside from a bent PTO shaft here and a blown tyre there. The weather has also been kind with temperatures not too warm and not too cold.

The TGAA ACT held its AGM at the Queanbeyan Bowling Club in August with the night being a great success. Around 50 members enjoyed a first class meal and then participated in a rather amusing trivia night. As predicted in my previous report the boys at Parliament House are not only a good looking mob but their general knowledge was superior on the night and we, I mean they, took home the prizes.

Also as predicted, the Royal Canberra team struggled and rounded out the field not too far behind the Federal Golf Club boys. Thanks to Glenn Huender and

his wife for putting together the trivia component of the evening.

In the only change to last year's committee, long-time committee member and treasurer Wade Turner has retired from his position. On behalf of the committee and all members I'd like to thank Wade on his commitment and professionalism over the past 20 odd years and best of luck for the future. Thank you to all committee members for committing their time once again. The new committee is:

President: Garry Dawson (CIT); **Vice-president:** Mick Waring (Royal Canberra GC); **Secretary:** Scott Harris (Gold Creek CC); **Treasurer:** Jason Ferry (Queanbeyan GC); **Committee:** Keith McIntyre, Stu Miller (Living Turf), Norm Dunn, Glenn Huender and Brock Weston (Parliament House).

Because of an extended period of absence I haven't seen nor heard many rumblings around town so unfortunately that's all from me. Good luck to all turfies over the warmer months.

BROCK WESTON
COMMITTEE, TGAA ACT

A strange start to spring up here with temperatures down and water levels up, on golf courses and in the dams. It was amazing to see the footage of Brisbane's Wivenhoe dam with the floodgates open to release water and subsequently threatening to flood parts of Brisbane. And only a couple of years ago it was at less than 25 per cent!

The very wet period has disrupted a lot of course renovations and when the course is closed for a day or a week to allow for the works, the renovation show must go on. The lack of light intensity and low temperatures is also affecting recovery times so not all is as it should be on the turf front.

The amount of rainfall has again caused course closures due to the wet or flooded ground which again impacts revenue. Let's hope that the six cyclones that are being predicted for the coastal areas of Queensland this summer either don't

eventuate or come onshore in uninhabited areas. Some of the boys in Cairns were saying that their winter was one of the warmest they can remember, so you just never know what is going to happen. Is this where I mention global warming?

On a personal note, my course (Coolangatta & Tweed Heads GC) copped 400mm in the first two weeks of October but stopped just in time for my renovations to get done. I remember talking to Jeff Gambin in the late 1980s when he was the incumbent super here and he was telling me how he was in the middle of a huge drainage project and they were using two kilometres of 900mm mainline drainage pipes and I thought he was crazy. Fortunately he did a good job, as per usual, because they still form the backbone of our current drainage system that can keep the courses playable in all but the most extreme weather.

One upside of all the rain occurring now is that Gold Coast supers may not get that annual text message from Paul McLean asking for help to get Royal Pines dry after the rain that normally inundates the course come every Australian Ladies Masters tournament!

Congratulations to Keperra superintendent Keith Johnson on his efforts in spearheading his club to a win in the John Deere Trans Tasman Teams Championships at Arundel Hills in September. A stiff cool wind made scoring tough on the final day, but the boys hung on to take the title by the barest of margins. Teams from Paradise Palms and Nambour were our other state representatives.

John Deere must have been a bit desperate because they invited yours truly to the final as a VIP and I can assure you they know how to run a great event. Hats off to Rene Lubbers from John Deere and his hard working staff for a job very well done and the hospitality provided.

Recently appointed Cairns Golf Club superintendent Brendan Clark is keen to get a bit of a regular meeting amongst turfies happening up in that region, so if you are reading this and you are from FNQ then give Brendan a call. The Globe Tour earlier this year was a great success and the GCSAQ is looking to hold at least an annual day in the area.

Finally, the annual Wet'n'Wild Christmas party is just around the corner – 4 December – so make sure you get your form and money paid ASAP.

PETER LONERGAN
PRESIDENT, GCSAQ

For upcoming state association events
check out the AGCSA website
www.agcsa.com.au/event-upcoming

SAGCSA

Spring conditions so far for South Australia generally have been very wet with cool temperatures. The season definitely has arrived late which has resulted in some late spring green up for the warm-season grasses and interrupted greens renovations.

While we might complain about the heavy rains, the benefits far outweigh the negatives and it is nice to see some water flowing down the rivers and the dams full to capacity. We all hope there is some relief for clubs who rely on this water and who have suffered with reductions in water allocations.

In late August the SAGCSA and South Australian General Managers Association held its annual seminar at Tanunda Pines Golf Club in the picturesque Barossa Valley. A small number of 15 attended the two-day event.

Day one was an afternoon of golf and while the weather was far from brilliant the course provided a challenging layout and was in great condition. Superintendent Steve O'Donnell and his crew have done a great job with the course with some interesting work oversowing couch greens with bent grass in an attempt to look for a more consistent surface through the winter. By the way, the greens played fantastic.

That night provided an opportunity to discuss with the managers present the future of the event and what direction

we should head. The feeling from both bodies is that the organisation of the event needs to improve and involve more interstate trips as well as contain greater education content. This can be achieved through increasing communication with the managers and have topics organised well in advance. The SAGCSA will be endeavouring to do this in the future.

Day two saw Angus Davidson from Jacobs Creek Wines talk about the operations of a big time winery in South Australia and viticulture management techniques. Following this Daryl Sellar was kind enough to give us his time and talk about his recent trip to The Open Championship. The passion in Daryl's voice was evident in what was an experience of a lifetime and there were a number of jealous faces in the room.

With the benefits of just networking with other superintendents and golf club managers you can always walk away with something and take back to your own club. This is an important part of these events and I would like to thank Steve O'Donnell and club manager Shane Robinson on being great hosts.

Finally, with conditions now starting to warm up I wish everyone a successful run into the busy Christmas season.

SAM SHERRIFF
PRESIDENT, SAGCSA

The big news from the STA NSW AGM on 21 September was the announcement that Graeme Logan would be stepping down as president. After 10 years in the role he felt that the time was right to stand aside and let someone else carry the torch. Graeme's contribution to the association over the years has been the major reason for the success and development of STA NSW and previously TGAA NSW. Although stepping down as president, Graeme is happy to remain on the committee.

After being nominated and accepting, I am very proud to take on the role as the new STA NSW president. While Graeme's shoes are very big ones to fill, I will do my best to continue to develop the association over the next 12 months. There was one other change to the committee with Ryan Buttel of Wentley Leagues filling the vacancy left by the departing Dave McGlynn from Strathfield Golf Course. Many thanks to Dave for his work and support over the years and a big welcome to Ryan.

Just over a week before the AGM, STA NSW conducted a two-day Cricket Wicket Seminar which included presentations, a trade exhibition and the chance to see live demonstrations of wicket management practices. More than 200 attended and the feedback was very positive.



Left: Chris Chapman (left) has taken over the STA NSW presidency from Graeme Logan (right) who stepped down after 10 years

Above: More than 200 attended the STA NSW Cricket Wicket Seminar in early September

We were fortunate to have the expertise of recently retired Adelaide Oval curator Les Burdett during the seminar. Les worked with the staff at the venue – Blacktown Olympic Park – demonstrating a variety of techniques. To hear delegates comment that they learnt more in two days at the seminar than they had in years was very rewarding.

We are currently preparing for our final event for 2010, the Sportsman's Charity Luncheon on 12 November. At this year's event we will celebrate 10 years as an association in NSW and we will hold the event at ANZ Stadium. The luncheon not only brings the turf industry together but also raises money for Camp Quality.

I look forward to bringing you more reports from STA NSW in future editions of ATM, but until then you can keep up to date by checking www.sportsturf.asn.au.

CHRIS CHAPMAN
PRESIDENT, STA NSW

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Well, spring has well and truly sprung. With our water reserves slowly being topped up, it is great to get out and see the sunshine after what has been a wetter winter than we can remember. With good news regarding water restrictions, we should see some great results for the industry state-wide.

On the TGAA Victoria front, the committee has been working hard behind the scenes putting together some fantastic days for our members. Coming up we have the Summer Seminar at AAMI Park (24 November) and our 21st birthday celebrations (contact TGAA VIC office for further details), while next year sees our annual Regional Seminar heading to the Bendigo area. Keep an eye on the website for more details.

In conjunction with Cricket Victoria, on Sunday 17 October we held a day for volunteer curators from Melbourne and around Victoria. This is a

partnership that over the years has benefited both sides and we held our first curators day last year. This year we ventured down to Casey Fields and talked about management techniques and thoughts on wickets and outfields. I would like to thank all those who helped on the day (by giving up one of their precious weekend days) and Cricket Victoria for the continued support.

On behalf of the committee, I would also like to thank Graeme Logan for his contributions to STA NSW (formally TGAA NSW), after he recently stood down as president. Graeme held this position for 10 years since the inception of the association in NSW.

Until our next article, good luck to all turf managers in preparing their facilities for the upcoming summer.

NATHAN TOVEY
PRESIDENT, TGAA VICTORIA

VGCSA



Sunshine Golf Club will host the final VGCSA meeting for 2010

Spring has seen a continuation of wet weather and good rainfalls which saw the lifting of water restrictions from Stage 3a to Stage 2 and water storages at 50 per cent. Since the tightening of water restrictions, many golf clubs and sporting bodies have looked at other viable sources of water, but no doubt the easing of restrictions will help many people.

The VGCSA Annual Turf Research Day golf tournament was very well supported with 80 people teeing off in the afternoon at Riversdale Golf Club. Credit must go to host superintendent Dave Mason and his team for the condition of the course, especially after it had received 60mm of rainfall in the days leading up to the event.

Winner on the day was Frankston Golf Club course superintendent Dean Hadfield who received \$2000 to put towards any turf registered conference from the VGCSA. Winning guest was Bryon Langsford who received a \$500 Ray Drummond

voucher. Money raised from this event will be used to help fund research currently being conducted by the VGA.

In previous years money raised from the golf event has been directed towards the production of the OH&S Induction DVD that all VGCSA members have a copy of. This DVD has now been sold nationally and has just been approved for distribution in Asia. This is a credit to both the past president Michael Freeman and also committee member Trevor Uren for the hard work and professional DVD that was produced.

Our final meeting of the year will be at Sunshine Golf Club, hosted by course superintendent Mark Findlay. This will be a great opportunity to see the new course since Sunshine moved to a new site at Mt. Derrimut a couple of years ago. Anco Turf will be the sponsors for the day and Phil Ford will be a guest speaker.

If you didn't already know the VGCSA has launched a range of apparel for sale. We have kept the cost very low and sourced quality material. We have two different types of jackets, a vest, a shirt and cap for sale. If anyone is interested please contact Steve Hewitt (Thirteenth Beach Golf Links) on 0409 162 547.

Finally, I would like to thank all the companies that have again supported the VGCSA through sponsorship both this year and into 2011. Without these sponsors the association would not exist and continue to grow. I encourage all members when purchasing products to consider buying from our sponsored companies.

BRETT CHIVERS
PRESIDENT, VGCSA



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One of two LOWARA Dual SV92 Hydrovar controlled irrigation pump sets installed at the Virginia Golf Club in Brisbane by Australian Irrigation Services. Barry Lemke (pictured right) the Club Superintendent said " he is very pleased with the trouble free operation and considers the efficiency and simplicity of the Hydrovar system far superior to the manual pump system it replaced ". Australian Irrigation Services Dean Smith (pictured left) said " he had now installed several LOWARA Hydrovar systems at Golf Courses in Brisbane with very pleasing results". The second LOWARA Dual SV92 Hydrovar controlled irrigation pump set will be put into service later this year.

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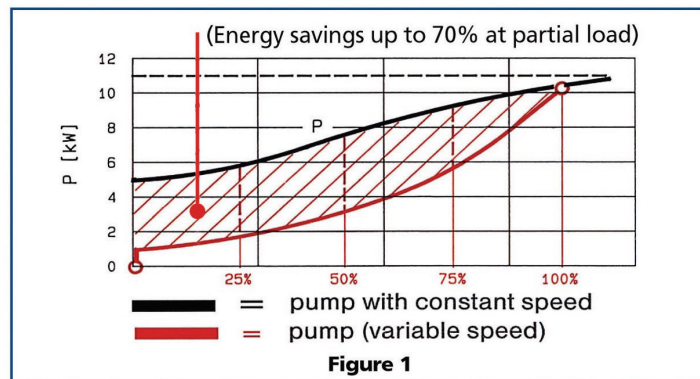
How The Hydrovar reduces energy consumption

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