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# Turfgrass

VOLUME 8.2 APR - MAY 2006

MANAGEMENT

## Research

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Reclaimed water users

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Summer decline

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How the new employment  
laws will affect you

## Profile

MCG's Richard Winter

## How does your shed shape up?

Maintenance facility  
construction and upgrade

What to do on a limited budget

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## COVER: Shedding Some Light

Over the next two editions, ATM magazine takes an in-depth look into the many facets which go into the process of constructing or upgrading a maintenance facility. Throughout February, ATM surveyed a number of superintendents to gauge the scope of works being undertaken as well as draw together some useful advice for colleagues about to enter into similar works.

**Photo: Brett Robinson**

**Design: Jo Corne**



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### GETTING THE MIX RIGHT - WASHDOWN BAYS AND CHEMICAL MIXING AREAS 10

Washdown bays and chemical mixing areas generate plenty of discussion when it comes to what is required to 'comply'. ATM's environmental guru Terry Muir looks at these critical components of any maintenance facility and outlines some cost-effective methods that superintendents can use to help meet compliance issues.

### WORK CHOICES - HOW THE NEW LAWS WILL AFFECT YOU 22

The Workplace Relations Amendment (Work Choices) Act 2005 proposes dramatic changes to the Australian workplace, in particular to the current provisions governing termination of employment. The changes set out in the



Act are expected to come into effect this month and will be far-reaching. Here ATM's legal eagles Tracey Davies and Kerrie Murphy examine what the changes will mean for those employed in the wider turf industry.

### A NEW WINTER DAWNS ON MCG 36

From working under his father as a 12-year-old at Manuka Oval to his current position as arena operations manager at the Melbourne Cricket Ground, Richard Winter has spent much of his life immersed in the world of turf management. ATM caught up with Winter who last July moved across from the WACA to take charge at one of Australia's most iconic sporting venues.



### OPINION THE PULSE 34

Last year saw a number of high-profile superintendents leave their clubs to take up positions within the trade. In this instalment of The Pulse, ATM asks whether this employment trend is on the increase and examines the reasons behind why some have made the switch across.



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Treated effluent or reclaimed water has been used to irrigate golf courses in Australia for at least 25 years, but until now little has been done to quantify its use and gauge some of the turf management issues that superintendents are facing with its use. Over the past six months AGCSATech manager John Neylan has conducted a survey into the use of reclaimed water on Australian golf courses and here he presents some of the study's key findings.

### EVALUATING IRRIGATION PRACTICES ON COMMUNITY SPORTSFIELDS

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Over the past seven months Craig Henderson and Kaylene Bransgrove from the Queensland Department of Primary Industries have continued their research into irrigation practices on AFL community sportsgrounds. Their latest research compared the irrigation practices of experienced ground curators at Morningside and Mt Gravatt ovals, with alternative strategies targeted at potentially improving irrigation efficiency.

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# taking the big step

**B**y the time you grab a cuppa and sit down to peruse this edition of ATM, yours truly will be married. Yes, I know, it's a bit drastic but there comes a time in your life when you have to bite the bullet and take that next big step.

If there is one group which knows all about taking big steps, it's golf course superintendents. Whether it's the decision to reconstruct parts of their course, converting from one turf variety to another, or the installation of a new irrigation system, superintendents are constantly called upon to plan and implement major works at their clubs. In many cases superintendents are the driving force behind these changes and one area where this is particularly evident at present is in the construction and upgrade of maintenance facilities.

Maintenance facilities have come under intense scrutiny in recent times, particularly post-Warringah, and as part of an overall remit to improve environmental management practices, superintendents are diligently undertaking major works to secure their facility's future. Committing to such a project is a major step for any club and the plethora of issues surrounding maintenance facilities and their operation is, quite frankly, mindboggling. Just as my wedding required military-like planning, the construction or upgrade of a maintenance facility requires countless hours of research and forethought to ensure all contingencies and requirements are covered.

No matter which state you are in, the topic of maintenance facilities is never too far away from the conversation, so in February ATM undertook a major survey of superintendents who were in the process of constructing or upgrading their maintenance facility. The survey asked superintendents to outline the works they have undertaken, with particular focus on the process they went through and how they tackled such crucial components as chemical mixing areas, washdown bays and fuel storage.

Reading the surveys, you get a real impression of just how much work is being put in by superintendents and some of the major hurdles they have to overcome in improving the performance and function of their maintenance facility, whether it is in regards to cost, recalcitrant committees or the minefield of state and local authority compliance issues and regulations.

Over the next two issues ATM will present these case studies from various courses around the country with the aim to give superintendents who are contemplating an upgrade or construction of a new facility some base knowledge and useful advice which they can draw from.

While maintenance facilities are a major discussion point for superintendents, another serious workplace issue which has gained plenty of attention in recent months has been the Federal Government's new Work Choices legislation. Set to herald a new era in Australian industrial relations, much has been made of the impacts the new laws will have, particularly those which relate to unfair dismissal. In this edition ATM takes an in-depth look at the implications these changes will have on those employed in the turf industry. Enjoy the read.



**Brett Robinson**  
Editor

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Peter Harfield (Blackwood GC)	Pat Pauli (Horton Park GC)	Leigh Yanner (Moonah Links)



Now with the Globe Team



## foreword thinking

AGCSA CHIEF EXECUTIVE, STEVEN POTTS

**W**elcome to the April-May edition of Australian Turfgrass Management.

The increasing requirements and expectations on the conditions of playing surfaces are a constant challenge for the turf manager and are never more relevant than at the end of what has been a long and unusually hot summer in most parts.

While the presentation and upkeep of playing surfaces is paramount to Board and members' satisfaction, the turf manager has also been tackling several other legislative requirements which form a necessary backbone of a successful organisation. With the ever-increasing and changing legislation, it is now essential for turf managers to review their organisation's current and future requirements.

As reported in the last ATM, the AGCSA is working in conjunction with Terry Muir (Environmental Business Solutions) to develop an environmental management system that is accessible for all clubs and produces a report back to all stakeholders and legislative bodies. This will provide a tool for the turf industry to meet current and future environmental legislation.

While this is an exciting step for our industry, there are a number of other requirements that need to be addressed. Two of those areas are discussed in this edition of Australian Turfgrass Management – the upgrade and construction of maintenance facilities and the new changes to industrial relations law.

The introduction of the new WorkChoices employment legislation has received an

enormous amount of both positive and negative media attention and is causing a great deal of uncertainty throughout the industry. With the majority of Australian clubs to be affected by the new laws, it is essential that all within the turf industry get up to speed with how the new regulations will affect them.

The AGCSA has assisted many turf managers with their individual needs and maintains a free 30-minute consultation for members with Madgwicks Lawyers to discuss any personal employment issues. In this edition Tracey Davies and Kerrie Murphy from Madgwicks highlight areas of the new legislation which will directly impact upon our industry.

As we begin April, and ponder just how fast the year is going, the AGCSA is gearing up to host the 22nd Australian Turfgrass Conference in Brisbane from 17-21 July 2006. The conference will have five streams including golf course management, sportsfield management, turf mechanics, general managers and Gold Coast Ground Staff Association, and is gearing up for what is set to be one of the biggest turfgrass industry gatherings in the Southern Hemisphere.

Keynote speakers for the 22nd Australian Turfgrass Conference include: Dr Milton Engelke (Professor in Turfgrass Breeding and Genetics, Texas A&M University), Professor John Haydu (Professor and Agricultural Economist, University of Florida), David Howard (Sportsturf agronomist New Zealand Sports Turf Institute), Jimmy Kidd (Director, Agronomist and Design Associate, DMK Golf



Design), Billy McMillan (Vice-president British International Golf Greenkeepers Association), Dr Greg Moore, (Head, Institute of Land and Food Resources, University of Melbourne) and Professor Fred Yelverton (Professor of Crop Science, North Carolina State University).

A conference registration brochure has been distributed and is also available via the website. Simply go to [www.agcsa.com.au](http://www.agcsa.com.au) and head to the conference section. You can also register online.

The 2006 AGCSA Awards brochure has also been distributed and I encourage all superintendents to consider what they or their colleagues have achieved in recent times and whether they should be nominated. The AGCSA Awards are the pinnacle of recognition and in 2006 the AGCSA is pleased to once again have the support of Scotts, John Deere, Syngenta and Toro to support the industry in recognising its leaders. 🌱



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**The maintenance facility is the nerve centre of any golf course operations and makes an important statement to employees, golfers and visitors concerning the professional standards of the superintendent in charge**



In this climate of heightened environmental and OH&S awareness, the golf course maintenance facility has become a major focus for superintendents. From issues of compliance, safety and risk through to useability, aesthetics and cost, there are a plethora of things that superintendents need to consider before embarking on an upgrade or construction of a new maintenance facility. ATM investigates.

## Does Your Shed Shape Up?

### The upgrade and construction of maintenance facilities

If we are led to believe that a man and his shed are inseparable, then the same can surely be said of a superintendent and their maintenance facility.

As Beard (2002) states in his seminal work 'Turf Management for Golf Courses', a golf course maintenance facility is "in its truest sense the nerve centre of the golf course and should be designed, constructed, organised and maintained to fulfil these important functions. Its function and appearance make an important statement to employees, golfers and visitors concerning the professional standards, or lack thereof, of the golf course superintendent in charge."

In recent times, thanks to the burgeoning issues of environmental management and OH&S, maintenance facilities and their requirements have dominated many state superintendent meetings and national conference seminars.

The Warringah incident of 2001 has seemingly sparked a flurry of activity as superintendents around the country evaluate their current environmental management practices with a central component being how their maintenance facility measures up.

Many superintendents are now embarking on projects to upgrade their facility to comply with legislation and to facilitate industry best practice, while some clubs are moving forward by constructing brand new facilities which boast some of the most technologically advanced systems available in the market.

With maintenance facilities generating such wide and intense discussion, in February ATM magazine sent a questionnaire to over 20 superintendents around Australia who were in the process of constructing or upgrading their maintenance facility or who were in the planning stages of doing so.

The aim of the exercise was to gauge

the scope of works superintendents are undertaking at their clubs and to get an indication of some of the major challenges they have faced or are facing in improving the performance and function of their maintenance facility.

The questionnaire asked superintendents to detail the process which they had gone through/were going through at their club, how they addressed/were addressing the critical areas of pesticide storage and handling, wash down bays and fuel storage, and to impart some advice to help out other superintendents about to undertake similar works.

Over the course of the next two editions we will outline the responses from those superintendents surveyed, as well as look into some of the key things to take into consideration when constructing or upgrading a maintenance facility on a limited budget (see Terry Muir's article 'Getting the mix right' this edition, page 12-16).

#### LAKELANDS COUNTRY CLUB

**State:** Western Australia

**Superintendent:** Craig New

**Approx. Cost:** \$330,000

#### SCOPE OF WORKS

Lakelands Country Club undertook the construction of a new maintenance facility to replace the existing 20-year-old facility which comprised a combination of six large garden sheds. The old facility was unsightly and also breached WorkSafe, environmental and water pollution laws.

The entire process started in September 2001 with staff moving into the facility in October 2003, a little over two years later. The process involved:

- Club and members needed convincing – 18 months and two AGMs;
- Five different state, local and environmental departments had to approve the site and construction, due to the low water table and semi-rural area. The five departments were Wanneroo Shire Council (local), Western Australian Water Authority (state), WorkSafe (state), Water and Rivers Commission (state) and EPA (state);
- Once the members of the club approved and all requirements put to the club from the five independent departments were satisfied, the time-line for construction was only four months.

The most challenging aspect of the construction according to superintendent Craig New was environmental law due to the run-off of chemicals and waste. A thorough investigation was required with regards to static water table depth (only 1.9 metres below site) and consequently a sophisticated wash down and chemical storage facility was required and built.

Many legislative requirements were thrust upon the club, including:

- Building site had to be raised two metres due to water table (WAWA, WRC and EPA);
- Wash down and chemical storage (WAWA, WRC & EPA);
- Above-ground bunded fuel containers (Wanneroo Shire, WAWA and WRC);
- Height of shed so as not to upset neighbours (Wanneroo Shire);
- WorkSafe compliance (Work Safe).

The machinery washdown bay comprises a 5mx5m concrete pad with a 1200-litre siphoned strainer that runs through a separator, then through two more 1200-litre gravel filled tanks before returning to ground water.

The pesticide storage and handling areas ►

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## maintenance facilities

include a 5mx2.5m bunded storage room with two internal exhaust fans, with stainless steel storage shelves. A separate 1200-litre holding tank is attached to the bunding.

The above-ground fuel storage unit contains a 4000-litre tank with bunding to hold 4400 litres in case both tanks split and possibility of rain before fuel could be removed.

### COOLANGATTA AND TWEED HEADS GOLF CLUB

**State:** New South Wales

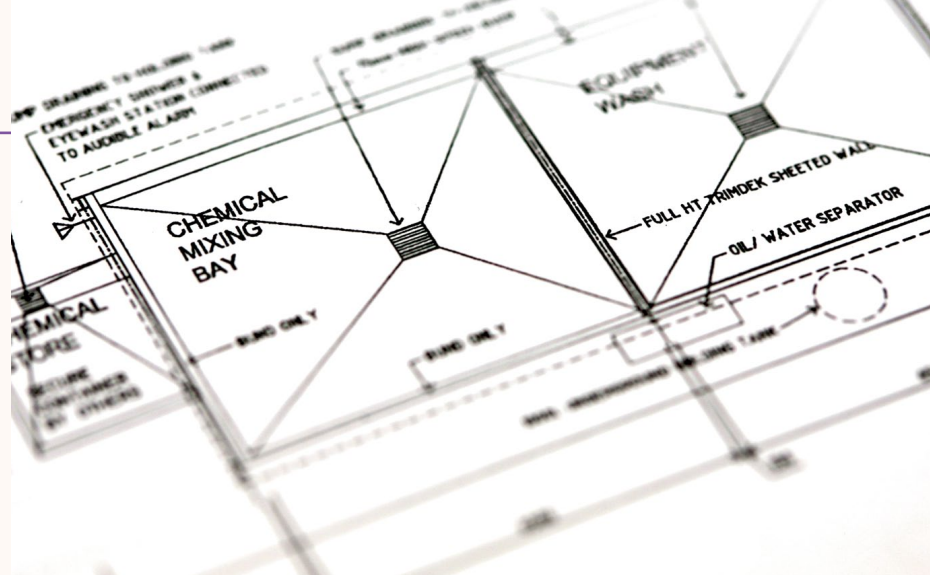
**Superintendent:** Peter Lonergan

**Approx. Cost:** \$22,500

#### SCOPE OF WORKS

The lack of an adequate chemical handling area has seen Coolangatta and Tweed Heads Golf Club superintendent Peter Lonergan install a dedicated facility which means chemical handling is no longer conducted on the machinery washdown area. The new facility includes:

- An extension to the existing chemical storage to house the new facility. The easterly facing side has access gates for machinery and allows for good air circulation. The area also allows for the secure storage of spray units;
- A 3000-litre underground tank equipped with submersible pump and electronic level monitor to facilitate emptying. The waste is either re-sprayed on to the golf course roughs or collected by waste contractors;
- A concrete slab and bunding to ensure all spillage/overflow is collected in underground tank after going through a silt trap that collects leaves and sand;
- Eye wash and shower station; and
- New shelving in storage room and water supply including backflow prevention devices.



**Chemical mixing and wash down areas need to be carefully planned and must take into consideration issues of compliance**

"There were no real problems convincing the club on the chemical handling facility as a concise and well-detailed proposal was put forward which left no questions unanswered," says Lonergan.

At present a washdown bay, fuel/oil storage area and machinery storage extension is in the planning stages and is expected to be constructed late this year. A tour of several Sydney club's in November was part of the costs and provided Lonergan with an invaluable insight into what was required.

"The project we are currently planning has had a positive response from the club, although only ballpark figures are available at this stage," says Lonergan.

### GLENELG GOLF CLUB

**State:** South Australia

**Superintendent:** Daryl Sellar

**Approx. Cost:** \$1.5m-plus

#### SCOPE OF WORKS

Glenelg Golf Club superintendent Daryl Sellar is currently in the middle of planning a new all-in-one facility which is set to quadruple the size

of the existing maintenance facility.

"It's optimistic, but it's what we are aiming for," says Sellar. "The club was aware there were issues with the maintenance facility, but not the extent of the problems."

So far the process has involved:

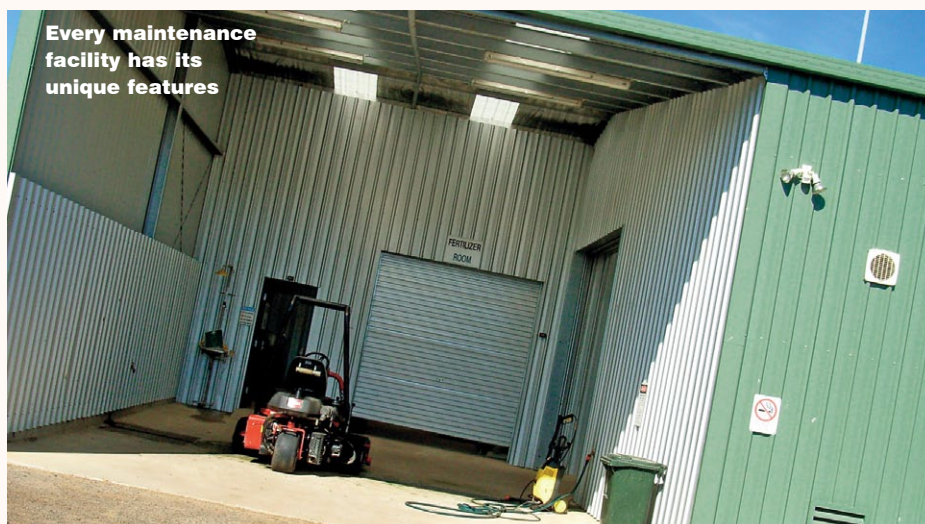
- Glenelg Golf Club staff providing the club with their broad requirements;
- Evaluating suitable sites, and identifying nine, short-listing five sites, then conducting weighted matrix evaluation of each, including likelihood of development approval and ranking each site; and
- Engaging project managers and architects and these parties meeting (frequently!) to detail design requirements to establish a design and construction brief.

"The process has relied heavily on spatial requirements determined by Glenelg Golf Club staff, and design features we would like implemented," says Sellar.

"This has proved to be the most challenging aspect of the process to date, as the detail required has virtually seen us roughly design the facility already, and has consequently consumed a lot of hours. Also, due to the selected site having limited space, compromises in spatial needs have to be considered frequently.

"Despite recommending their involvement before now, the EPA and OH&S consultants have not been engaged at this point. However, we tried to accommodate what we feel/understand would be the requirements regarding fuel storage, washdown areas, truck/fuel delivery access, noise levels, water catchment and reuse, visual considerations, member access, staff safety, fire exits etc.

"We have also just met with council to discuss proposed changes to planning regulations that may have further limited our options to redevelop the facility. This was a positive outcome."



If plans go ahead to rebuild on the existing site, Sellar and his crew will need temporary accommodation for between six and nine months. Being on top of a dominant sand dune, there are numerous environmental considerations, as well as challenges to ensure it doesn't "stand out like a beacon". The club has costed marquee hire and temporary car park relocation, but due to costs is more likely to utilise a smaller existing shed and house some equipment off site.

"If this is the case we will need to develop excellent neighbour relations as we would be within 30m of their back doors, and would potentially be restricted in hours of operation, with turf/course management issues compounding as a result," says Sellar.

"An alternative site is still being presented to the committee to consider for longer-term benefits that would allow us to operate out of our existing facility until the new one is complete."

The machinery washdown bay, chemical handling and fuel storage areas are all to be under the one roof line off the main shed. Rinse water from the machinery washdown bay will be recycled and discharged to sewer,

while the pesticide storage and handling areas will comprise a standard compliant chemical shed with hot water service and mixing bench, which opens onto a bunded chemical mixing bay with blind sump.

#### BALLARAT GOLF CLUB

**State:** Victoria

**Superintendent:** Jeff Powell

**Approx. Cost:** Budgeted \$300,000

#### SCOPE OF WORKS

A new maintenance facility is in the early stages of planning as part of major reconstruction of the entire Ballarat Golf Club site. The new, larger facility will contain improved staff amenities, have up-to-date washdown bay and pesticide storage facilities and be more accessible (only access to the present shed is past the clubhouse and first tee).

Ballarat superintendent Jeff Powell says that groundstaff have been involved in a lot of the planning and ideas, with the club committee's only input being in regards to cost. The most time-consuming part has been planning out the yard and finding out about regulations and EPA issues.

Other issues include shed orientation, access for delivery trucks, what is needed in the shed and how the shed should be set up. The area where the facility is to be has also changed from time to time depending on plans of the course being constructed.

"The biggest challenge has been with the committee and the developer involved," says Powell. "Everything from clubhouse to course was budgeted for in the overall works, except the maintenance facility. Even new and additional machinery wasn't budgeted for in the deal.

"A \$300,000 costing by the committee was agreed, yet no costing was actually done. This would be very tight bearing in mind that it's a brand new facility in a new area and has to include everything from security, fencing, plumbing and electrics down to towel racks.

"The club is looking towards the next 100 years with this plan and it is disappointing not only to myself but to the groundstaff that we may not be able to get what is planned for. The committee would rather put more money towards the clubhouse, rather than the course or maintenance facility even though staff have to work out of it six days a week. ►



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## maintenance facilities

“The area inside this shed would only be 80 square metres more than we already have for machinery storage. With the \$300,000 budget there is a possibility that our maintenance facility will be going backwards to what we have rather than forward. But it's only early stages yet and hopefully this budget will increase as they realise what's involved.”

The washdown facility planned will be big enough to accommodate two machines being washed at the same time, and Powell is hoping for a drive-through bay. Air connections for air hoses and any water will be directed to the Water Stax to be treated.

The pesticide storage and handling area will be a separate area to the side of the wash down bay with shelving, whirlybird ventilation or exhaust fans on sensors, and interceptor drains directed to the Water Stax for treatment if any spill occurs. A separate storage area is to be constructed for the spraying unit so if won't stink out the main shed and if left overnight with a tank of chemical the storage will have its own interceptor trap which will lead to the Water Stax. Fuel storage facilities are still in the planning stages but Powell is hopeful of a Convault fuel tank that holds both diesel and petrol incorporated in the same area as the washdown bay.

### PACIFIC HARBOUR BRIBIE ISLAND

**State:** Queensland

**Superintendent:** Marcus Hartup

**Approx. Cost:** \$1.01m

### SCOPE OF WORKS

As part of the new Pacific Harbour 18-hole championship complex on the environmentally-sensitive Bribie Island, a new facility was constructed to service the needs of construction and maintenance staff. Started in December 2004, the facility was completed in April 2005.



Superintendent Marcus Hartup says a major challenge was in the practicality of compliance and ensuring that what was built would still be current or compliant in the long-term.

“The input of David Nicholls, the vice-president of science and agronomy for Troon Golf's Australia-Pacific region, was invaluable,” says Hartup. “Troon's experience in operation of 185 courses around the world has provided maintenance facility briefs, plans and operational requirements for dozens of clubs. Troon provided the conceptual design to the engineering and building consultants for construction documentation.”

“David has had inputs for the construction of several other Troon-managed facilities namely Brookwater, Pelican Waters, Settlers Run, Kooindah Waters and various facilities overseas. The Pacific Harbour facility is the evolution of the past five maintenance facilities constructed on courses managed by Troon in Australia. The lessons learned at each facility are carried on to the next and that has allowed the continued refinement of the design process.

“All sites are unique and here at Pacific Harbour it was no different. Our maintenance facility is adjacent to our aquatic driving range which also doubles as our irrigation source. The proximity of the facility to the driving range and clubhouse has required extensive earthwork and landscaping to soften the appearance of the building.”

In planning the new facility a private certifier was used to obtain the DA, while the washdown facility and oil separators were approved by local council together with plumbing and drainage drawings. A gross pollutant tank was installed to collect all stormwater and run-off that then feeds to the irrigation lake.

The pesticide storage and handling areas were built to Australian Standards 1940 with appropriate signage and correct ventilation. The chemical washdown area is undercover and contains emergency shower and eyewash. An isolated storage tank is also located in the washdown area.

A Convault CVA-4D tank was installed, storing diesel (2000 litres) and unleaded petrol (2000 litres). The tank has a mechanical overfill protection valve, dust caps, mechanical level indicators and 9V electrical stand-alone overfill alarm.

### GOSNELLS GOLF CLUB

**State:** Western Australia

**Superintendent:** Brad Sofield

**Approx Cost:** \$450,000-plus

### SCOPE OF WORKS

GCSAWA president and Gosnells Golf Club superintendent Brad Sofield is in the process of planning a major new facility to replace the existing complex which was in poor condition (termites and vermin damage), too small (around \$80K worth of equipment has to be stored outside and there is no dedicated turf technicians area) and non compliant in many areas (chemical/fertiliser/fuel storage, wash down area).

To be located some 600m out in the centre of the course, the process to get the new facility built has been lengthy. A special general meeting was called in May 2004 to propose and substantiate a five-year membership

### PROPOSED CHANGES TO UNDERGROUND FUEL STORAGE LAWS IN NSW

The Department of Environment and Conservation (DEC) is proposing new measures that address petroleum contamination from underground storage tanks and pipes in NSW.

The proposed regulation will make sure leaks are detected, reported and investigated earlier to minimise the likelihood of far-reaching contamination. All new underground storage tanks will need to comply with the Australian Institute of Petroleum's code of practice based on the best available technology, including the use of double-walled tanks and piping, leak detection and groundwater monitoring wells.

Owners of existing tanks will need to ensure that all tanks have leak detection systems within the first year of the regulation, and install groundwater monitoring wells within the second year. Also, all tanks

in NSW will need a site environmental management plan including a maintenance program complete with contingency procedures.

The regulation will relate to underground storage for petrol, diesel, kerosene, heating oil, aviation fuel and waste engine oil.

For superintendents this means that if you are considering installing new underground tanks carefully consider it as there will be significant ongoing management and maintenance costs.

If you have existing underground tanks expect to find resources for the installation of groundwater monitoring wells and regular testing/sampling. If you already have underground tanks you will be also required to put in place procedures for monitoring the integrity of the tank. You will also be required to develop a plan of management with contingency procedures.

construction/debt management levy which was passed almost unanimously. Timelines for funding accrual provided to membership with a July 2007 proposed start date, but may take a further year to complete.

A subcommittee was formed to review Sofield's investigations and audit other newish facilities in Perth after which the building design was formalised with course staff. The DA was submitted and approved in November 2005 with final design work and costings now being prepared.

"We are currently waiting for funds to accrue and looking at the option of staging the construction to try and beat any further cost increases," says Sofield. "Maybe we will be able to start services and civil works at the end of 2006, with the main facility to follow.

"We still have not appointed a builder at this stage because funds still limit any significant action. We need a certain amount of money to warrant enough work to apply for a permit. Fortunately the levy is in place and will get us there eventually."

Sofield says that one of the most challenging aspects of the process has been cost management and sourcing information

regarding specifications.

"To be compliant today as well as forecasting future requirements is difficult and costly," says Sofield. "Trying to set budgets for everything (steel, concrete, contract rates, chairs, tables, aircon etc) when the project start is a way off is difficult. The club has also recently undertaken some capital works (eg: alfresco dining area, underground buggy storage and pro shop) which means trying to generate funds quick enough to beat the cost increases is tricky.

"Sourcing information, specifications or standards for washdown areas, fuel storage, wastewater quality etc is also difficult. Everyone has different ideas and even those people in such departments give conflicting information. Fortunately there have been some really good facilities built over the last 10 years which can be benchmarked and improved slightly."

The machinery washdown bay will see the plate separation of oils and grease, detergents, and spill containment devices in the event of a spill. All chemical rinsate is returned to the course under the club's triple rinse procedure.

In the event of an accidental spill the underground containment tanks will hold spill

until pumped out to industrial waste. Tank size will be determined by floor surface area, roofed or not roofed etc. Airlines will be installed to blow off debris instead of wash.

The pesticide storage and handling area will have a bunded concrete floor with drain to 800-litre underground storage tanks. The tank's size will be determined by the store's total capacity. Handling area on washdown bay, with chemicals transported from the store to area in container trolley.

The fuel storage and filling facility will be a Convault system or bunded above-ground tanks with electric bowser. Fuel-up area to be located in washdown bay areas on same bunded pad to contain minor/major spills.

**ATM will continue its examination of maintenance facilities in the next edition (Volume 8.3), including an in-depth look into the construction of the new complex at Barwon Heads Golf Club in Victoria. ATM will also present some useful advice from superintendents as to what to do and what not to do for those who are planning to construct a new facility or upgrade their existing compound.**

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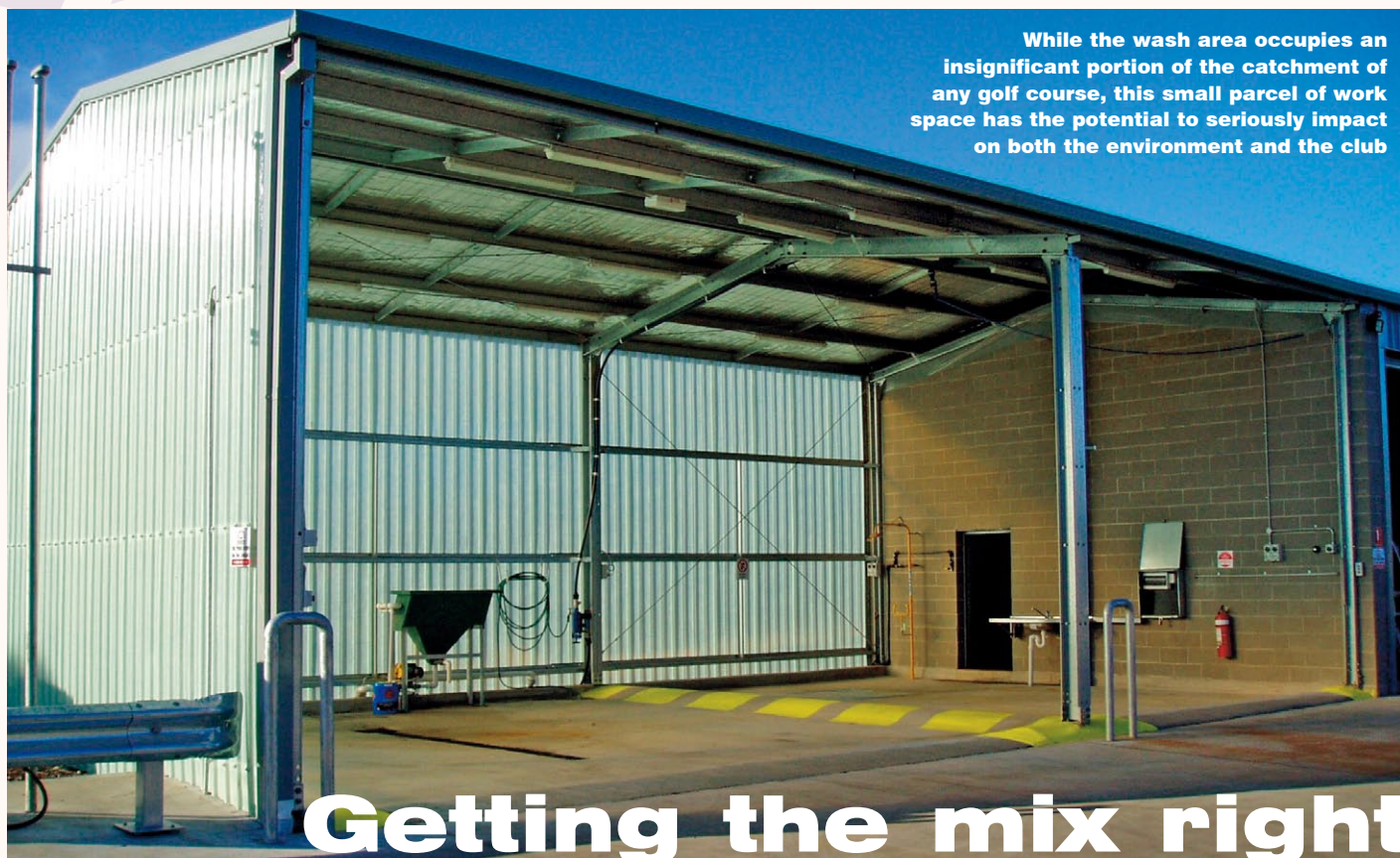
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While the wash area occupies an insignificant portion of the catchment of any golf course, this small parcel of work space has the potential to seriously impact on both the environment and the club

# Getting the mix right

## Washdown bays and chemical mixing areas

When it comes to constructing or upgrading a maintenance facility, the washdown bay and chemical mixing areas are integral components. Here Terry Muir outlines some of the practical and cost-effective permanent and temporary measures available to superintendents to prevent and minimise potential environmental impacts of these areas.

**A**cross the Australian golfing industry, superintendents are committing to a vision of what their maintenance facility “ought to be” from an environmental management perspective.

The term “ought” is the product of enlightened reasoning, of an unfolding rational process derived from a heightened awareness of environmental responsibility, a desire to meet high environmental expectations and the need to minimise environmental liability and demonstrate environmental stewardship.

As superintendents continue to increasingly embrace ecological thinking, they seek a vision of what environmental protection and management measures their maintenance facility should incorporate.

Any maintenance facility should, as a minimum, be “healthy” as a place to work but also “healthy” from an environmental perspective. An environmentally healthy golf course maintenance facility will, as a minimum, incorporate the following principles;

- Minimum intrusion into the natural state;
- A closed system as possible; and
- Achieve an optimum balance between expenditure and environmental protection infrastructure.

A superintendent's course maintenance

activities carry significant environmental risk. They consign fuel, chemicals and fertiliser product. They have these products delivered to the site where they are stored, mixed, dispensed, and transported in and around their maintenance facility. They then wash and clean the plant and equipment used in this activity. It is a hectic centre of economic and environmental interaction that requires diligent management.

Good environmental health and diligent management imply the achievement of a dynamic balance between a club's turf expectations and the facilities provided to the superintendent to meet those expectations. It can best be maintained in circumstances in which there are containment areas for significant activities such as mixing and washing, and delivery, storage, dispensing and removal of product. The extent to which a maintenance facility can achieve good environmental outcomes depends on the conditions the superintendent and the club create to accommodate their maintenance activities.

There is an ever-upward spiral of new environmentally related technology and many clubs have responded by resorting to high-end technology to overcome the environmental

concerns associated with chemical mixing and washdown operations. The Water Stax is one example of this whereby chemical mixing and washing can be conducted on the same surface area with the wastewater (both chemical and hydrocarbon) being treated for environmental release.

Superintendents also turn to legislation for guidance as to what is appropriate to meet their environmental concerns. However, as many have discovered, they cannot rely on legislation alone as the primary guide on how to design and construct a wash bay or a chemical mixing area. The legislation contains no effective direction on the unique design elements required for such structures.

The legislation in jurisdictions across the country will state the general water pollution deterrent - "a person must not pollute waters" or "a person must not discharge a pollutant into any waters or onto land where it may enter waters".

The standard solution available to the superintendent from the legislation is a benign "don't pollute", with no detailed guidance on how "not to pollute".

There are, however, cost-effective steps



**Environmental best practice requires that chemical mixing be conducted in a contained area**

that can contribute to wash bay and chemical bay environmental performance. For those clubs unable to afford the high-end technology, the likelihood of pollution from washing operations and chemical mixing bays can, step by step, be minimised – not immediately, not all at once, but over time through a predictable and documented program of simple improvements.

## THE WASH BAY

This is where pollution of soil, surface water, or ground water is most likely to occur on a golf course unless appropriate protection systems are in place. Washwater generated from the cleaning of equipment can contain suspended solids, nutrients, coarse sediment, oil and grease and heavy metals. Contamination of soil and water can occur unless appropriate infrastructure and procedures are in place.

While the wash area occupies an insignificant portion of the catchment of any golf course, this small parcel of work space has the potential to seriously impact on both the environment and the club. Superintendents freely accept responsibility for their decisions and actions, and recognise the need to identify and correct problems and improve their washing practices. Regulators freely caution on prospective problems arising from "not having a wash bay" but offer little specificity regarding appropriate design.

The first principle of any strategy to manage this activity is that any material that collects on the wash area is contained. To achieve this, management responses need to be largely operational as well as focused on the provision

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◀ of capital works improvements at many clubs. This may require:

- A review of current maintenance area layout as well as the current water treatment measures;
- Ensuring appropriate physical structures are in place to prevent pollution;
- A cleaning and maintenance program is in place;
- Staff responsibilities are known and communicated;
- Staff receive appropriate training; and
- Legislative requirements are known.

Important issues related to wash bay performance criteria, system layout, wash bay size and bunding, system efficiency, maintenance and management are buried in detailed standards and guidelines.

Wong et al (2001) referred to a “treatment train approach” in which a pollutant trap is just one component of a waste water management program. The treatment train approach for a golf course wash bay would need to consider the following:

- Wash bay location and layout;
- Designed flows;
- Trapping efficiency;
- Pollutant loads;
- Dimensions of structure;
- Management and maintenance;
- Procedures and training; and
- Legislative requirements.

## WHAT IS BEST PRACTICE?

A designated area designed to contain and collect any waste water concentrates or other substances is ideal. The area should be constructed of impermeable material that contains and retains any wastewater or spill.

## WHERE SHOULD IT BE LOCATED?

The wash bay should be alongside or part of the maintenance area. Ideally the wash bay would be located close to a traffic lane that allows returning equipment to drive through the wash bay on the way to equipment storage areas.

## HOW BIG DOES THE WASH PAD NEED TO BE?

It needs to be large enough to contain at least the largest volume of material expected to be placed in the area and big enough to house your club’s largest equipment on the pad with room to spare at the side and end. Ideally the user should be able to have two large machines in the wash bay at the same time and wash them without any overspray or splashing of water leaving the wash area.

STANDARD OPERATING PROCEDURE - WASH BAY	
SOP NUMBER: 1/2006	DATE ISSUED: 1 April, 2006
PURPOSE AND SCOPE	
Fuels, detergents and organic matter discharged to stormwater during washing operations can impact the environment. This procedure establishes a standard for washdown operations and provides a guide to prescribing the use of our club’s wash bay.	
CHEMICAL RINSING OR CHEMICAL WASHOUT IS <u>NOT</u> PERMITTED IN THE WASH BAY	
PROCEDURE	
<ol style="list-style-type: none"> <li>1 Ensure all excess mud and grass or other material is removed prior to entering wash bay.</li> <li>2 Safely park the vehicle/equipment free of any hazards (e.g.: electrical) and ensure the engine is off and the vehicle is immobilised. Ensure the vehicle/equipment is positioned within the confines of the wash pad bunded area.</li> <li>3 Look over the vehicle/equipment for where dirt, plant material, including seeds, grass are lodged.</li> <li>4 Remove any guards, covers or plates if required being careful of any parts that may cause injury.</li> <li>5 Check oil/water separation unit is operational.</li> <li>6 Check the sump and solids screen in the wash bay are clear. If not, clear them.</li> <li>7 Check condition of hose and cleaning equipment.</li> <li>8 Activate the oil/water separator.</li> <li>9 Clean down with a high pressure hose and stiff brush. (Use only biodegradable detergent)</li> <li>10 Start with the underside of the vehicle, wheel arches.</li> <li>11 Clean any associated implements (e.g.: buckets, catchers, cylinders).</li> <li>12 Wash effluent away from vehicle.</li> <li>13 Turn off all supplies (water, electricity, air).</li> <li>14 Do not drive vehicle through wash effluent when leaving wash bay.</li> <li>15 Ensure sediment, silt or grass clippings are removed from wash pad area and clean sump and screen if necessary.</li> </ol>	
AUTHORISED BY:	DATE:

## DOES IT NEED A ROOF?

An open wash bay will collect a lot of rain water. This water must be collected and stored for disposal along with any waste collected. Covering the wash bay with a roof eliminates that problem. The NSW DEC recommends roofing be installed to stop rainwater ingress.

Steps must be taken to ensure the roof will not cause a build-up of dangerous or poisonous gases, or restrict the application of water in an emergency, and a 12° from vertical overhang is required to help stop rain entering the wash bay from the side.

In South Australia the requirement is that the roof should have a one metre overhang for every three metres in height above the bund. This overhang requirement, however, varies between state jurisdictions and contact should be made with a local council officer for confirmation of their roofing requirements.

## DOES THE WASH BAY REQUIRE A SUMP?

Yes. The wash bay will transfer the waste water to an oil separator for disposal either to sewer or to land application or for reuse. Simply

grade the wash bay floor, (the minimum grade should be 1:80), to drain towards the sump where a trash rack or perforated screen in the sump will also be required to retain gross solids such as clippings.

## WHAT DISPOSAL OPTIONS ARE THERE?

Reuse of treated washdown water is preferred. This may include irrigation of the wash water or recycling for reuse in future washdown. Other options include discharge to sewer via an oil water separator. Some clubs are installing systems that enable them to irrigate garden areas adjacent to their wash bay.

## DOES THE WASH BAY REQUIRE BUNDING?

A raised edge or lip is required to contain the wash water and prevent water from entering the wash area. This is important if you discharge to sewer under an agreement with your local water authority as the discharge of stormwater to sewer is not permitted. A lipped edge (speedhump) around the wash bay will allow access of vehicles to the wash bay.

### HOW IMPORTANT IS TRAINING?

This is a major component of the wash bay's operation. The construction of a wash bay will not remove all environmental risk. There is still the human factor and clubs should develop standard operating procedures (SOP's) and provide training on a regular basis. It is important that staff know how to operate the wash bay and that procedures are adhered to. On the previous page is an example of a SOP for washing operations in a dedicated wash bay.

### IN-FIELD WASHING

An alternative option is to wash in the field if you do not have a dedicated contained wash bay. In-field washing is an appropriate alternative for many clubs where they use a dedicated vegetated or landscaped area where washing is undertaken under strict controlled conditions and criteria. Again, the important consideration is that the activity must not put wastewater in a position where it can pollute or is likely to cause pollution.

Ideally an in-field wash area will be located in the rough, be well vegetated with a surrounding vegetative and buffer area. It will



Covering the wash bay with a roof eliminates rain ingress

be located away from any stormwater drains and on flat land to minimise the risk of runoff but not in a swale so as to cause pooling. It will be open enough for sunlight and wind to dry the site.

The in-field wash area should be well away from a waterbody – at least 40 metres and 100 metres may be required by some local councils. The washing area should be rotated regularly to ensure site soils are not saturated.

The in-field option is an appropriate short-to

medium-term one and should not be the long-term wash bay solution. If this is the proposed option it is critical the activity is conducted under controlled conditions to ensure that you can demonstrate you are taking reasonable steps to protect the environment. On the following page is an SOP for in-field washing.

### CHEMICAL MIXING AREA

Environmental best practice requires that chemical mixing be conducted in a contained



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area with an impermeable floor. The mixing area is best located adjacent to or as close as possible to the chemical store to minimise the risk of a spill event during transport. The same criteria as that applied to a wash bay apply in regard to roofing, size and layout of a chemical mixing area.

Ideally, the sump should be large enough to contain the maximum product that can be mixed plus 33 per cent. For example, if your largest boom spray tank is 400 litres, a sump that contains approximately 540 litres is best. If a pump fails, if the weather changes, the full boom spray can be parked in the mixing area. Any spill event, for example a tank rupture or failure during filling, can be fully accommodated in the sump.

The sump can be a blind sump (no connections or discharges from the sump) or it can connect to a pit or underground tank which can be used to contain spilled material during filling. This underground tank can be emptied and disposed of via a waste contractor.

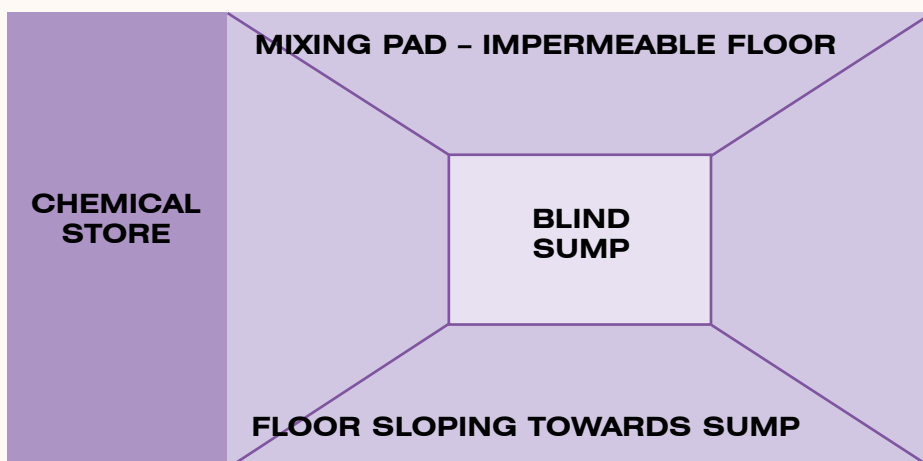
I prefer the blind sump option as it provides for visible capture, the identification of any spill, the capability to capture and reuse. This option also does not require the maintenance of an underground storage tank that will require monitoring and integrity testing.

A simple layout sketch is provided below.

The chemical mixing area can also be used as the nominated delivery point for all chemical product delivered to the site. In the event of a spill the delivered product can be contained.

### OTHER CHEMICAL MIXING OPTIONS

Spill equipment companies provide for temporary containment equipment. For example, I have seen the contained pallets used for the storage of 205-litre drums in many workshops. They make ideal containment options/capture pad during filling operations.



### STANDARD OPERATING PROCEDURE – IN-FIELD WASHING

SOP NUMBER: 02/2006

DATE ISSUED: 1 April 2006

#### PURPOSE AND SCOPE

Fuels, detergents and organic matter discharged to stormwater during washing operations can impact the environment. This procedure establishes a standard for in-field washdown operations.

We have nominated two wash areas – the rough adjacent to the 3rd fairway and the rough adjacent to the maintenance facility. Both areas are signposted as In-field Wash Area. These areas have been identified as temporary wash areas. The sites are free of stormwater drains, any surface runoff is limited and the site is well vegetated and at least 100 metres from any waterway or sensitive environmental receptor.

#### CHEMICAL RINSING OR CHEMICAL WASHOUT IS NOT PERMITTED IN THE IN-FIELD WASH AREA

#### PROCEDURE

- 1 Ensure all excess mud and grass or other material is removed (blown off) prior to washing.
- 2 Safely park the vehicle/equipment free of any hazards (e.g.: electrical) and ensure the engine is off and the vehicle is immobilised.
- 3 Look over the vehicle/equipment for where dirt, plant material, including seeds, are lodged.
- 4 Remove any guards, covers or plates if required being careful of any parts that may cause injury.
- 5 Check condition of hose and cleaning equipment.
- 6 Activate the hosing equipment.
- 7 Ensure no wash water or spraying is running off from site and that water is being dispersed over well grassed and vegetated areas.
- 8 Turn off all supplies (water, electricity, air).
- 9 Ensure wash water is directed away from vehicle and there is no pooling.
- 10 When leaving wash area do not drive through wash effluent or wet grass/soil/vegetation.
- 11 Wash sites will be rotated on a weekly basis as directed by the superintendent.

AUTHORISED BY:

SIGNATURE:

They can also be effectively placed under boom spray tanks that have already been filled if required.

A simple capture pad, such as an inexpensive plastic bin/tray or metal tray, can also be used. Simply place the tray under the tanks during filling to capture any overflow or spill which is ideal for in-field tank filling operations. This minimises the risk of product coming into contact with the soil during filling operations.

### CONCLUSION

Managing the potential environmental impact of washing and mixing operations is a major challenge for all superintendents. It does not have to be a resource-intensive exercise as superintendents at many clubs are faced with having to drive the environmental catch-up process at their club.

Better environmental management is not a luxury that clubs cannot afford. There are inexpensive options for wash bay and chemical mixing operations that have been identified and discussed. However, that remains only information unless it can be turned into action at many golf club's.

Superintendents have to translate these options into something that will move their club's decision-makers to action. Some will be moved by money, some by politics, some by social conscience and some by fear. These are passion buttons and superintendents have to push them. 🙌

**The mixing area is best located adjacent to or as close to the chemical store to minimise risk of a spill during transport**



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The recent AGCSA study is the first large scale quantifying survey to be undertaken on Australian golf courses using reclaimed water



Over the past six months the AGCSA has been conducting a study to quantify the use of reclaimed water on Australian golf courses. Here AGCSATech manager John Neylan outlines some of the key findings from the project.

## Reclaimed water users study



With the greater demands on our water supplies for domestic consumption, there is less water available for irrigation purposes. The increase in urban development has increased the demand for potable waters, however, there is also more wastewater generated.

The treatment of this wastewater and its disposal has become a significant environmental issue and in particular, the disposal or reuse of wastewater must be done in an ecologically sustainable manner so as to avoid the degradation of soils and water. Reuse of wastewater on turf areas and in particular golf courses is seen as a means of meeting these environmental objectives.

Treated effluent or reclaimed water has been used to irrigate golf courses in Australia for at least 25 years with the use on golf courses in Victoria, South Australia and Queensland representing excellent examples of the long-term sustainable use of reclaimed water.

As the number of users increase and with anecdotal evidence that many sources of reclaimed water are increasing in salinity, sodium, chloride and other dissolved constituents, there are concerns regarding the long-term sustainability of reuse sites.

With the recent trial work undertaken at the Barwon Heads Golf Club (HAL Project TU 1003), inquiries from golf clubs through the Australian Golf Course Superintendents' Association (AGCSA) and involvement with several new golf course projects, it has become apparent that there is a lack of information regarding the number of courses using reclaimed water, the quality of the water and the implications of using it.

Many turf managers were looking for examples of reuse projects that they could refer to and turf managers they could liaise with in order to better manage their reclaimed water.

Therefore, it was decided to undertake a

survey of all known golf courses in Australia using reclaimed water so as to determine:

- The number of reclaimed water users;
- Area being irrigated;
- Reclaimed water quality;
- Soil types being irrigated;
- Grass species and turf cultivars being irrigated;
- Problems and solutions associated with using reclaimed water.

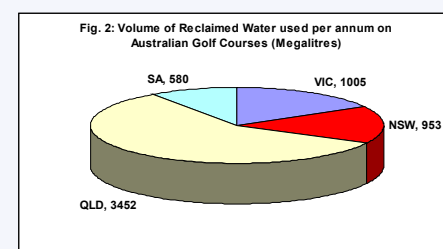
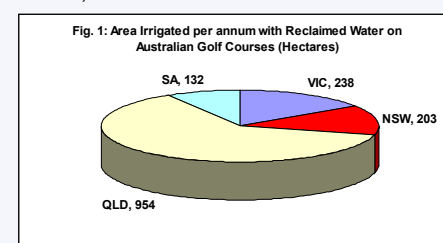
The first challenge in this project was to identify the golf courses using reclaimed water. There are various authorities, even within the same state, responsible for overseeing the use of reclaimed water including local government, EPA and water and sewerage authorities, and none of those contacted had a consolidated list of courses.

However, through the state superintendent associations, course superintendents, the AGCSA website and local authorities we managed to establish a reasonably comprehensive list. Once the users were identified they were contacted and invited to fill out the online survey that was posted on the AGCSA website.

### FINDINGS

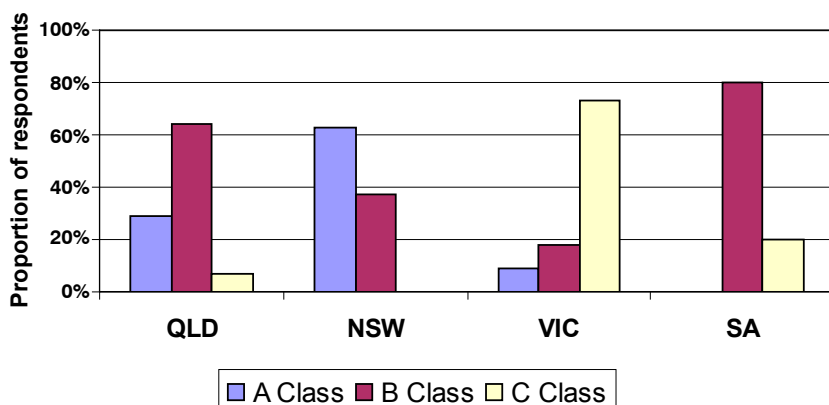
There were a total of 79 golf courses identified as using reclaimed water for irrigation purposes. Of the clubs contacted, there was an overall return rate of 45 per cent which is considered to be excellent and provides a very good picture of reclaimed water use in Australia.

The key findings can be summarised as follows;



1. Total area irrigated – 1527 hectares (Fig. 1);
2. Total volume of reclaimed water used per annum – 5990 Megalitres (Fig. 2);
3. The predominant class (i.e. A, B or C) of

**Fig. 3: Class of Reclaimed Water Used on Australian Golf Courses**



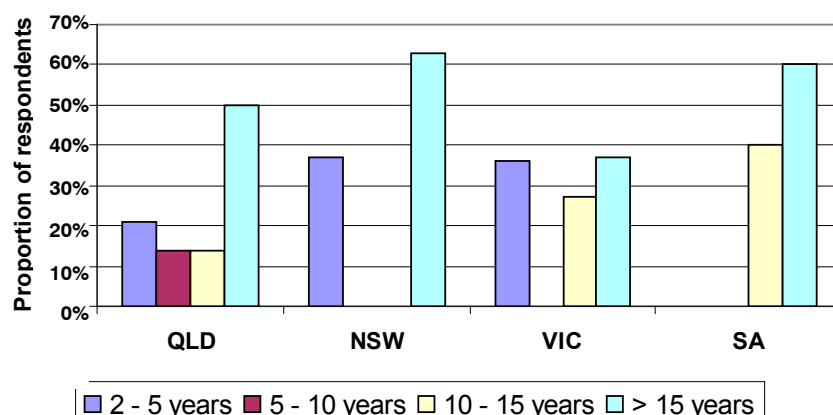
Reclaimed water has been used to irrigate Australian golf courses for at least 25 years



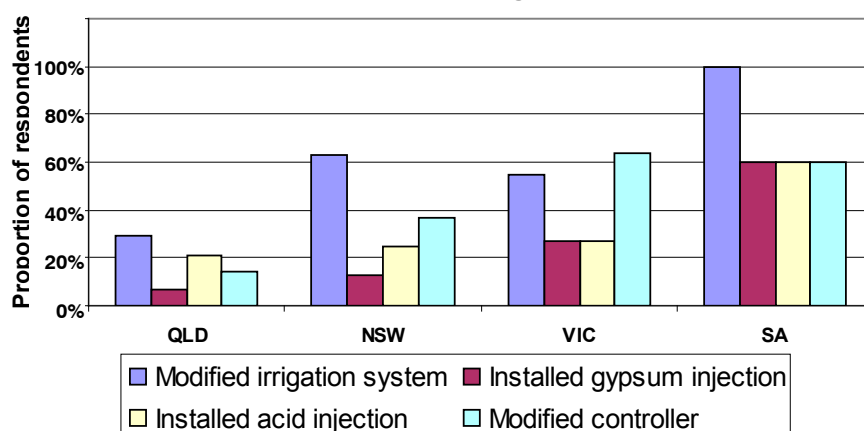
reclaimed water varied from state to state (Fig. 3). The main classes of reclaimed water used in each state are as follows; New South Wales (A class), Victoria (C class), South Australia (B class) and Queensland (B class);

- In most states reclaimed water has been used for more than 15 years (Fig. 4), however, there were substantial numbers in the two-to-five year category coinciding with recent water restrictions, droughts and construction of new golf courses;
- A considerable number of respondents reported the need to modify their irrigation system when reclaimed water came online (Fig. 5). The installation of acid and gypsum injection and new controllers were the main modifications reported.
- The salinity of the reclaimed water varied from 500mg/L to 1500mg/L with a high proportion of respondents reporting the salinity to be in the 0-500mg/L category (Fig. 6). Victoria and South Australia reported the highest salinity water.
- The chloride concentration of the reclaimed water varied from 100mg/L to 300 mg/L with Victoria and South Australia reporting the highest chloride concentrations (Fig. 7).
- Sodium is potentially the main concern with the quality of the reclaimed water (Fig. 8) and has the greatest effect on soil chemistry. A large number of respondents reported sodium levels greater than

**Fig. 4: No. of Years Reclaimed Water Used on Australian Golf Courses**



**Fig. 5: Modifications to Irrigation System on Australian Golf Courses Using Reclaimed Water**



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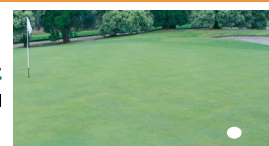
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200mg/L with South Australia having the most respondents with concentrations around 300 mg/L.

9. While the state environmental protection authorities are responsible for the guidelines on reclaimed water use, the regulatory authorities vary within each state and between states and include local government and water and sewerage authorities.

10. The cost of reclaimed water is highly variable within and between the states. The charges reported were as follows:

- NSW, 0- \$50/ML
- VIC, 0-\$880/ML
- QLD, 0-\$150/ML
- SA, 0-\$170/ML

While the charges reported are indicative, the charges for reclaimed water are being reviewed in all states as authorities acknowledge that reclaimed water is now a valuable resource rather than a waste product that has to be disposed of. All indications are that the cost of reclaimed water will rise significantly in the short-term as a response to both demand and improvements in quality (i.e. move to A and B class).

Most reclaimed water users reported some detrimental effects due to water quality. The main effects were related to changes in soil chemistry and in particular increases in exchangeable sodium.

Bicarbonate was also reported as being a concern and combined with the sodium concentrations in the water were considered to be the main causes of changes in soil chemistry. Only a few of the respondents reported a significant affect on turfgrasses.

Some respondents were also having difficulties in dealing with the elevated nutrient concentrations and in particular nitrogen and phosphorus. All respondents undertake regular soil and water testing as part of a monitoring program.

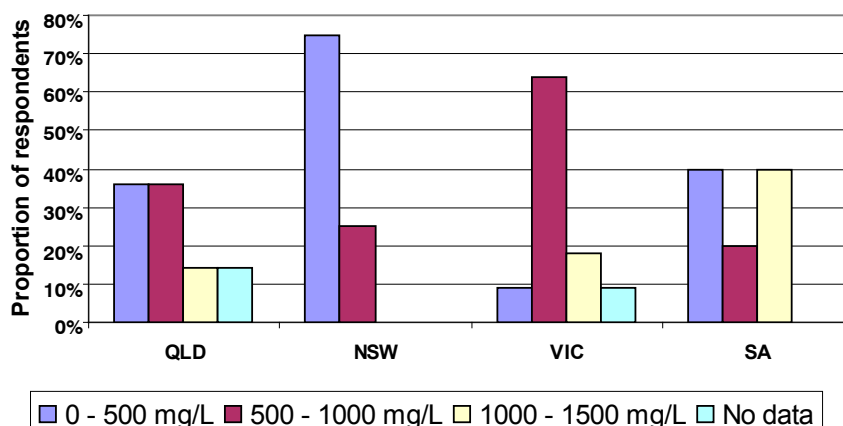
## CONCLUSIONS

Reclaimed water has been successfully used on golf courses for at least 25 years and with the correct management practices and techniques has demonstrated that a long-term sustainable system is possible.

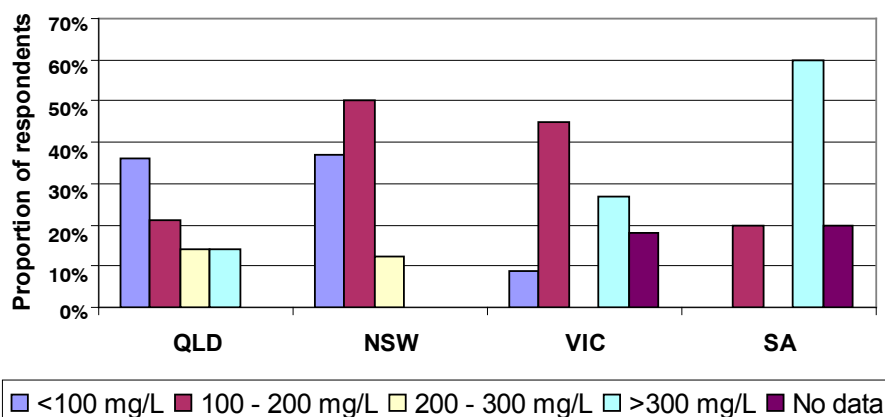
From this survey the main challenges to be faced in the future will be;

1. To maintain a sustainable reuse system while managing salinity, sodium and nutrients; and
2. The cost of reclaimed water and the demands from other potential users.

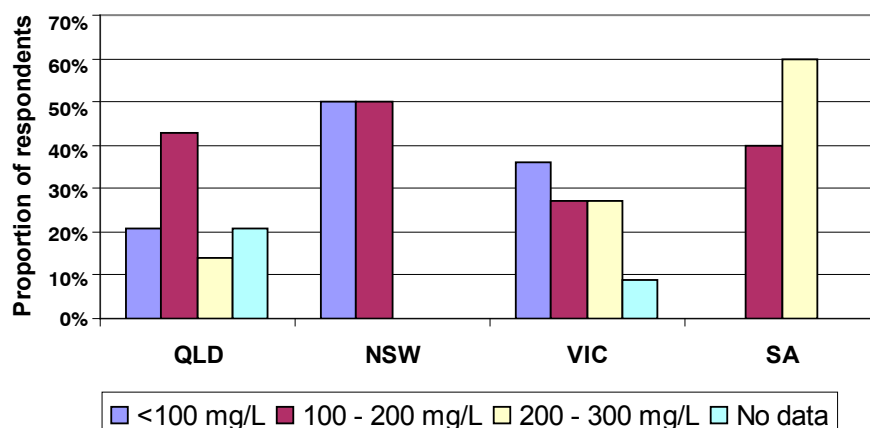
**Fig 6: Salinity of Reclaimed Water Used on Australian Golf Courses**



**Fig. 7: Chloride Concentration of Reclaimed Water Used on Australian Golf Courses**



**Fig. 8: Sodium Concentration of Reclaimed Water Used on Australian Golf Courses**



The completed report, including all the individual state statistics, will be made available from the AGCSA website shortly. Visit [www.agcsa.com.au](http://www.agcsa.com.au).

## ACKNOWLEDGEMENTS

The AGCSA is grateful for the support of those clubs that filled in the survey and to Horticulture Australia Limited for funding the project. 🌱

# 1921 - 2006

## A HISTORY OF LEGENDARY PERFORMANCE

1921



Oscar Jacobsen tests one of his first power lawn mowers. Gaining its name from a breakthrough cut rate of four acres a day, the 4-Acre Mower cut a swath of 24" and is intended for use on "the vast estates of millionaires". The mower sold for around \$275 and 75 were produced in the first year.

1989



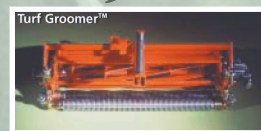
The LF-100 is introduced. An industry first, the lightweight 5-gang mower was specially designed from the ground up to be as light as possible, providing less compaction and healthier turf.

1968



Jacobsen leads the way by producing the first riding greens mower - the Greens King. The mower becomes the standard of the turf maintenance industry.

1986



The Turf Groomer developed and introduced. Invented by superintendent Larry Lloyd, the turf groomer served as a major advancement in greens care by increasing green speed without lowering the height of cut.



1991



The HR-5111 and ST-5111 introduced to the field. One of the first intermediate rotary mowers between 6-16', the HR-5111 could cut an 11' swath - the perfect rotary mower for mid-range cutting.

2006



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The changes set out in the new Work Choices legislation will have a direct impact upon those working in the turf management profession



# Work Choices

## How the new industrial relations law will affect you

Last year the Australian Government announced sweeping reforms to industrial relations law which will likely affect 85 per cent of the working population. The changes have sparked huge debate across many sectors with significant discussion about the practical effects on both employees and employers. Here Tracey Davies and Kerrie Murphy from Madgwicks law firm highlight some of the most significant changes that will impact on those involved in the golf course maintenance industry.

**T**he Workplace Relations Amendment (Work Choices) Act 2005 ('the Act') proposes dramatic changes to the Australian workplace, in particular to the current provisions governing termination of employment. The changes set out in the Act are expected to come into effect in March or April 2006 and will be far-reaching.

Business has hailed the government's legislation as the reform needed to remain competitive in a rapidly changing world. The unions have condemned it as an attack on the nation's workers, while the millions of employees around Australia have been left wondering just what exactly the legislation will mean for them.

### A NEW SYSTEM

Save for Victoria, Australia's states operate

under a two-tier industrial relations system. That is, there is both State and Federal legislation which governs employers and employees. The Act moves the regulation of most employment conditions out of the realm of the states and under the control of a single Federal system.

In order to enact this legislation, the Federal Government relied upon the 'Corporations' power in the Australian Constitution. The use of this power is being vigorously challenged by all of the states. The states have alleged that the subject matter of the Act exceeds the Federal Government's power over corporations. The matter is listed for hearing on 8 May, 2006 in the High Court.

The Act, if it is upheld by the High Court, will be limited in coverage to corporations and their employees. Accordingly, any other employers such as sole traders, partnerships or unincorporated bodies will not be caught by the Act. It is thought that approximately 85 per cent of employees will be covered.

#### DISMISSAL OF EMPLOYEES

Currently, for a fee of about \$50, an employee who has been dismissed is able to lodge an unfair dismissal claim at the Australian Industrial Relations Commission (AIRC) or a State Commission. Under the Act an employee will be no longer able to lodge an unfair dismissal claim in the following situations:

1. If they are engaged on a seasonal basis. If a person is employed for a seasonal period they cannot lodge a claim for unfair dismissal, even if the end of the season is not expressly known or identified at the beginning of the employment period. Provided the end



**Under the Workplace Relations Amendment, seasonal workers will not be able to lodge a claim for unfair dismissal**

of the season can be objectively ascertained and is related to the nature of the work to be performed, then the exclusion will apply and preclude the right to bring a claim.

It should be noted however, that the end of the season must be related to the nature of the work performed. For example, "engagement as a mechanic until Collingwood Football Club wins another AFL premiership" would not be related to the nature of the work. A greenkeeper employed "until the 2006 Championship is won" would constitute employment for a seasonal period and, accordingly, a claim could not be lodged.

2. If they have been employed for less than six months. The Act extends the qualifying period to lodge a claim in the AIRC from three

months to six months. Thus, a terminated employee must have been employed for at least six months before he or she will prima facie have a right to complain of unfair dismissal. If an employee has worked for the employer for less than six months they cannot lodge a claim.

This qualifying period differs from a probation period which an employer may require as a term of an employee's contract. If the probation period is three months and the employee's employment is terminated at four months, the employee would still not be able to lodge an unfair dismissal claim as the termination occurred within the qualifying period.

3. If the employer has 100 employees ►

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**Companies that employ 100 people or less will be exempt from unfair dismissal claims under the new Act, a change which has drawn significant criticism**

or fewer. An application for unfair dismissal cannot be made against an employer who employs 100 employees or fewer at the time notice of termination is given or termination was effected, whichever occurs first. This is a significant exclusion and has generated substantial discussion in the media.

The Explanatory Memorandum of the Act provides no explanation as to why 100 employees should be the appropriate threshold for exclusion or even why numbers of employees are a more appropriate determinant of what constitutes a small- or medium-sized business (as opposed to, for example, turnover).

In many cases, whether an employer falls above or below the threshold for exemption will be self-evident. However, in other cases, for example businesses who conduct themselves almost exclusively by the use of casual labour, the case may not be so clear. In determining the number of employees, for the purpose of the threshold, permanent part-time employees, permanent full-time employees and casual employees engaged by the employer on a regular and systematic basis for at least 12 months, are all taken into account.

The Act contains grouping provisions to ensure that employers cannot restructure their businesses into corporate entities of less than 100 employees each. If they do so, all corporate entities will be included when determining the number of employees.

4. If the employer can provide 'genuine operational reasons' for the termination. If an employee's employment is terminated for 'genuine operational reasons or for reasons that include genuine operational reasons',

then an application to the AIRC is barred. Operational reasons are said to be 'reasons of an economic, technological, structural or similar nature relating to the employer's undertaking, establishment, service or business, or to a part of the employer's undertaking, establishment, service or business'.

The definition of 'genuine operational reasons' is quite wide and will be open to discussion. Redundancy would clearly fall within the parameters of this definition but whether it will be interpreted more broadly remains to be seen.

Significantly, genuine operational reasons only need to be part of the reason for termination. Therefore, a wise employer, who may have a number of issues with a particular employee, should focus on this when terminating an employee. If this is the only

reason given, an unfair dismissal application is prohibited.

This exclusion applies to all businesses, including those medium to large businesses that employ more than 100 employees and cannot rely upon the small/medium business exemption. It has the capacity to afford significant protection against unfair dismissal claims.

Not surprisingly it has attracted a large amount of public comment as no employee in Victoria (and no employee of a constitutional corporation in other states) will be entitled to complain about the unfairness of their

selection for termination if it involves genuine operational reasons.

Although recourse to unfair dismissal claims is dramatically reduced under the new legislation, actions for unlawful termination remain. That is, termination for reasons set out in s.170CK of the Workplace Relations Act, are still prohibited. Most notably these reasons include, but are not limited to, termination for reasons relating to race, colour, sex, sexual preference, age, physical or mental disability, marital status, family responsibilities, pregnancy, religion, political opinion, national extraction or social origin.

### AWARDS

The Federal Government believes that the current award system is unduly onerous and complicated. An Award Review Task Force will be established with the role of considering and recommending to the government rationalisation of Awards. The Act also defines two categories regarding Awards - allowable award matters and non-allowable award matters.

Allowable award matters include: ordinary time hours of work and the times within which they are performed; rest breaks; notice periods; variations to working hours; incentive-based payments and bonuses; annual leave loadings; public holidays; loadings for working overtime or shift work; penalty rates; redundancy pay for employers with 15 or more employees; stand-down provisions; dispute settling procedures; and type of employment, such as full-time employment, casual employment, regular part-time employment and shift work.

Matters that are non-allowable award matters include, but are not limited to, the following: rights of an organisation of employers

## "Recourse to unfair dismissal claims is dramatically reduced under the new laws"

or employees to participate in a dispute unless the organisation is the representative of the employer's or employee's choice; transfers from one type of employment to another; the number or proportion of employees that an employer may employ in a particular type of employment; the maximum or minimum hours of work for regular part-time employees; restrictions on the range or duration of training arrangements; restrictions on the engagement of independent contractors and labour hire workers and requirements relating to the conditions of their engagement; union picnic days; dispute resolution training leave; trade

union training leave; and any other matter prescribed by the regulations.

The government has the opportunity to increase, by way of government regulations, those matters which must be excluded from any Award. When the Act comes into operation any non-allowable award matter will automatically be excluded from existing Awards.

#### AUSTRALIAN FAIR PAY AND CONDITIONS STANDARD

The Act alters the role of the AIRC by moving its wage setting role to the Australian Fair Pay Commission. The Commission will be responsible for setting a minimum safety net of conditions for all Australian workers to be known as the Australian Fair Pay and Conditions Standard. It will consist of:

- Four weeks paid annual leave per year;
- 10 days paid personal/carer's leave after 12 months of service;
- 52 weeks of unpaid parental leave (including maternity leave);
- A maximum of 38 ordinary hours of work per week; and
- Payment of the minimum wage as set by the Australian Fair Pay Commission.

All Australian workers will be deemed to have this standard as part of their employment conditions.

When the Act's details were originally announced, a number of employees were concerned that generous award conditions would be removed. Accordingly, the Act now provides that a 'preserved award term', if it is more generous than that provided for in the Australian Fair Pay and Conditions Standard, will still apply. A 'preserved award term' only applies to annual leave, personal/carer's leave, parental leave, including maternity and adoption leave, long service leave, notice of termination, jury service and superannuation.

#### AGREEMENT MAKING UNDER WORK CHOICES LEGISLATION

The new system will not abolish awards. Awards are to be rationalised and simplified. However, as a general statement, awards will effectively be made optional because their terms can be excluded by the making of a Workplace Agreement.

The Act provides for six types of Workplace Agreements – Australian Workplace Agreements (AWAs), Employee Collective

Agreements, Union Collective Agreements, Union Greenfields Agreements, Employer Greenfields Agreement and Multi-Business Agreements.

AWAs are individual agreements between one employee and his/her employer. The five remaining agreements are all prepared on a collective basis. If approved, a Workplace Agreement will override any Award which may apply to the employee.

Prior to the Act, all Workplace Agreements had to pass the 'no-disadvantage test'. This test ensured that a comparison of the proposed Agreement was made with the relevant Award. To be approved, the Agreement could not decrease an employee's overall employment conditions.

Previously, AWAs were lodged with the Office of the Employment Advocate ("OEA") and Collective Agreements with the AIRC. All agreements will now be lodged with the OEA and the AIRC has no jurisdiction. The 'no-disadvantage test' has been removed and replaced with the Australian Fair Pay and Conditions Standard. A Workplace Agreement must contain this Standard. There is no ability to 'trade off' the Standard other than the ►



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◀ ability to cash out up to two weeks worth of annual leave entitlements in any one year. This 'cashing out' of annual leave can only occur in a Workplace Agreement.

Employees are required to have seven days to consider an Agreement before it will be approved. Once an Agreement is approved the employer has 14 days to lodge the Workplace Agreement with the OEA. Provided the document complies with the Act's requirements, the Workplace Agreement will come into operation on the day the Agreement is lodged.

The Act provides that a Workplace Agreement comes into operation even if the procedural requirements have not been met. Therefore, an Agreement can still be valid even if employees have not been given sufficient time to consider its terms. An employee who does not wish to be bound by such an Agreement would need to apply for a court order that the Agreement is void.

The Act provides that 'protected allowable award matters' can only be excluded or modified in a Workplace Agreement by an express written clause. Protected allowable award matters include, but are not limited to:

- Rest breaks;
- Incentive-based payments and bonuses;
- Annual leave loadings;
- Monetary allowances for expenses incurred in the course of employment;
- Loadings for working overtime or for shift work; and
- Penalty rates.

A term of a Workplace Agreement is also void to the extent that it contains 'prohibited content'. The Employment Advocate must remove prohibited content from the Agreement. While the exact items which fall within the definition of 'prohibited content' have not yet been specified, the government has already indicated that clauses relating to harsh, unjust and unreasonable dismissal will be considered prohibited content.

The aim of the legislation is to put in place a simpler and more efficient method of negotiating Workplace Agreements and then ensuring their enforceability. Such Agreements can have a life of up to five years, an increase from the current three years.

### EXISTING AWARDS AND TRANSITION TO THE NEW SYSTEM

Transitional provisions of the Act set out how existing industrial instruments are brought into the new system.

The golf course maintenance industry is largely governed by state awards, which are



**Under the new legislation, those on state awards will be 'encouraged' to enter into Workplace Agreements**

dealt with in Schedule 15 of the Act. This schedule aims to preserve, for a time, the conditions of employment of those covered by state awards and 'encourage' them to enter into Workplace Agreements under the Act.

The Act provides for 'notional agreements which preserve state awards'. A notional agreement exists when a term or condition of employment of a person has previously been regulated under a state award, and where no term or conditions of that employment have been regulated by a state employment agreement. Notional agreements will terminate three years after the reforms start or if the employee becomes covered by a Workplace Agreement, whichever occurs first.

Notional agreements must comply with the terms of the Australian Fair Pay and Conditions Standard. If the state award contains less favourable conditions, then the employee will have the benefit of the more favourable conditions set out in the Australian Fair Pay and Conditions Standard. If the Award is more generous, then these more generous conditions will still prevail.

Employers and employees are able to negotiate a Workplace Agreement at any time during this transitional period. If a Workplace Agreement is entered into, the Award ceases to operate and can never operate again.

If a Workplace Agreement is not entered into during the three-year transitional period, at the end of that period the parties will revert to the relevant Federal Award for their industry.

For those employees who are under a current state agreement, rather than state award, these agreements will be known as 'preserved state agreements'. These agreements will continue to operate and expire pursuant to their terms, usually three years. Alternatively, if the employee enters into a Workplace Agreement under the Act, the state agreement will cease to exist and can never operate again for that particular employee.

### CONCLUSION

The Federal Government has consistently stated that the aim of the Act is to simplify the obligations on employers to promote the hiring of more staff and productive businesses. The Act itself is extremely large and some say over-regulates employers and employees.

The Federal Government believes the legislation will assist the economic development of Australia and will lead to a better working environment for all Australians. This is obviously not the position taken by unions, the Labor Government and a number of employee and religious organisations.

Over the next few years, as the practical effects are implemented, a clearer picture will emerge as to the benefit of this legislation.

### ACKNOWLEDGEMENTS

Tracey Davies is a partner at Madgwicks Lawyers and head of the Workplace Relations Section. Kerrie Murphy is a lawyer in the Workplace Relations Group. 🙏



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The new trial plots at Redlands Research Station

**In this instalment of AGCSATech Update, John Neylan outlines the new collaborative research project being undertaken by the AGCSA, GCSAQ and QDPI to assess the performance of new warm-season grasses for putting and bowling greens in Australia.**

**A**fter more than 30 years in which Tifgreen and Tifdwarf were the only greens-quality turfgrass varieties available, the choice for golf courses and bowling greens in northern Australia has been expanded to include five new hybrid *Cynodons* (bermudagrasses).

Four of these - Champion Dwarf (Texas), MS-Supreme (Mississippi), FloraDwarf (Florida) and TifEagle (Georgia) - are from US breeding programs, while the fifth, TL-2 (to be marketed as Novotek once Australian PBR has been obtained) was selected in north Queensland. In addition, new greens type *Paspalum vaginatum* (seashore paspalum) cultivars Sea Isle 2000, Sea Isle Supreme and Velvetene (where tolerance of salty water is required) expand the range of choices for greens in difficult environments.

The hybrid *Cynodon* cultivars differ in their rates of vertical extension and lateral stem development, and in their shoot density. The finer, denser and lower growing of the new varieties enable very low mowing heights (2.5mm) with the result that denser, smoother and faster putting and bowling surfaces can be produced under optimum management. However, they also require intensive management for thatch control and behave differently to the older standard varieties in

terms of their response to mowing height, nitrogen fertiliser rates, and even winter over-seeding with *Poa trivialis*.

Because these cultivars are relatively new to Australian conditions and management practices, there is still a lot to be learnt about how these grasses will react to existing management practices and what changes in management will be required in order to develop the full potential of these new grasses.

In order to develop management guidelines for these grasses, the Australian Golf Course Superintendents' Association (AGCSA), the Golf Course Superintendents' Association of Queensland (GCSAQ) and the Queensland Department of Primary Industries (QDPI) at Redlands have initiated a research program.

The grasses will be compared in detailed studies at one location (QDPI) in which the responses of each variety to management variations will be measured (e.g.: nitrogen fertiliser rates, cutting height, grooming treatments, and, possibly later, selective herbicides and winter over-seeding). In addition to the detailed investigations at QDPI, there will be regional sites established on golf courses in order to broaden the information base.

The objectives of the trials are;





1. To establish the characteristics, relative merits and differences in management requirements of Tifgreen (328), Tifdwarf and seven new putting green grasses across a range of environments as a guide to their selection and management by golf courses and bowling greens in northern Australia; and
2. To provide concurrent access to, and involvement in, the comparative evaluations by golf course managers in strategic locations, enabling informed decisions on the future replacement of greens.

### REDLANDS RESEARCH STATION

At Redlands Research Station a replicated comparison of nine grasses (Table 1) has been established on a sand profile green constructed to USGA specifications. Individual varieties are being established in 3mx3m main plots and once established, each will be crossed by three nitrogen fertiliser levels and three cutting heights, giving 1mx1m subplots for each treatment combination.

**Table 1: Turfgrass species and cultivars established at QDPI**

HYBRID CYNODONS
MiniVerde™
Tifgreen
Tifdwarf
TifEagle <sup>(1)</sup>
MS Supreme <sup>(1)</sup>
Novotek <sup>(1)</sup>
PASPALUM VAGINATUM (SEASHORE PASPALUM)
Sea Isle 2000 <sup>(1)</sup>
Velvetene <sup>(1)</sup>
Sea Isle Supreme

The Redlands experiment will make detailed measurements of growth rates, turf structure and condition through all seasons, and will be closely monitored for pests and diseases. The initial study will run for three years, after which the mature greens will be maintained under optimum management for each of the 3mx3m main plots and be available for other studies (e.g. thatch management, winter over-seeding and growth physiology).

### GOLF COURSE TRIAL SITES

In order to develop a comprehensive database on the climatic adaptation and management of these new grasses, golf courses and bowling clubs have been given the opportunity to act

as regional collaborators. At each location, plots of each of the grasses under trial will be established and assessed for quality, density, disease, insects and management inputs.

The regional trials will be established on sand profiles with up to six of the new *Cynodon* varieties as well as the new *Paspalum vaginatum* cultivars depending on local preferences and needs. Maintenance of each site will be the responsibility of the host superintendent or greenkeeper in collaboration with the principal investigator.

Each of the regional comparisons and the Redlands site will be accessible to other superintendents and greenkeepers for personal visits and periodic group activities. Records of performance will be available to all participating clubs and an annual report incorporating an overview across all regions will also be compiled.

QDPI will negotiate Materials Transfer Agreements with cooperating clubs/courses to prevent unauthorised propagation from experimental plots. Cooperating clubs/courses, however, are free to make separate arrangements for commercial supplies of any promising varieties for their wider use direct with the appropriate licensee.

The project is being funded through contributions from the following golf clubs, associations and companies;

- Bowls Australia
- Queensland Golf Union
- Victorian Golf Association
- SAGCSA
- GCSAQ
- AGCSA
- Horton Park Golf Club
- Sanctuary Cove Golf Club
- Indooroopilly Golf Club
- Twin Waters Golf Club
- Jimboomba Turf Group
- Tropical Lawns

The contributors will have access to the plant material for establishing the regional trials which provides clubs with a unique, first-hand experience of establishing and maintaining these new cultivars. The project requires additional funding to allow all the assessment work to be undertaken and the AGCSA and QDPI would welcome any other clubs that would like to participate.

The main field trials were started at QDPI in late December and there will be plant material available for the regional collaborators in the next few weeks. We are grateful for the assistance of the above participating

clubs, associations and companies as well as the following people and organisations: Horticulture Australia Limited, David Hanby (irrigation design), David Burrup (profile design and construction) and John Cooper (Globe).



**The Rain Bird float at The Rose Parade**

### RAIN BIRD'S INTELLIGENT USE OF WATER SUMMIT

I was recently invited by Rain Bird, along with several Australian golf course architects, to attend a summit on water issues. The event took place in Pasadena, California and I was one of a panel of speakers discussing the challenges of irrigation in a world where the demands for potable water are ever-increasing.

The summit coincided with Rain Bird's week of involvement with the annual Rose Parade in which they enter a float that relates to water, the environment and conservation. This year's theme was 'mist-ical marsupials' and featured the koala and other Australian animals as central features of the float. Many of the functions during the week had an Aussie theme with Australian wild flowers, koalas and wallabies requiring explanation for our curious American hosts.

The Rose Parade is a horticultural extravaganza that is televised internationally and ranks with Disneyland as a 'must see'. There were 46 floats in the parade and every surface on each float must have an organic covering. Everything organic imaginable is used including seaweed, beans, corn, orange peel, coconut, vegetation and millions of flowers. The Rain Bird float was 17 metres long and nine metres high and featured the koala as its central theme with the frilled neck lizard, the sulphur-crested cockatoo and the crocodile as prominent accessories.

During the week we also attended the ►



◀ Rose Bowl, the biggest of the College Football games, between the University of Texas and the University of Southern California.

The Intelligent Use of Water Summit focused on the relationship between water conservation and landscape water use, water conservation policies and legislation, and potential programs and initiatives to bring greater awareness to the need for water conservation.

The expert panel consisted of individuals with water conservation expertise as it relates to academia, public and private water agencies and municipalities, media, government, landscape architecture and agriculture, and came on the heels of the UN report predicting an eminent and devastating global water shortage by the year 2025.

While the summit emphasised many issues as they relate to the USA, they are also highly relevant to Australia. The main issue worldwide is the dramatic increase in population growth and the incredible pressure this is placing on available water resources.

An expert in water law, Professor Robert Glennon, emphasised the importance of having an appropriate pricing policy for water that reflects its scarcity. The price of water in Australia has been a hot political issue for many years and one that governments are still struggling with. The challenge for the turf industry is can it justify using first grade water when the demands for human consumption are so high.

It was interesting to note that two of the speakers were from organisations that were utilising Australian expertise in water conservation promotion (from Melbourne Water) and irrigation monitoring equipment and proved yet again that Australia, as one of the world's driest continents, is a leader in water conservation.

The proceedings from the summit can be



Rain Bird's snappy croc



Gold Coast Stadium has undergone a significant upgrade in order to host four AFL matches this season

downloaded in PDF format from the Rain Bird website at [www.rainbird.com.au](http://www.rainbird.com.au). I must thank Wayne Brown and the Rain Bird organisation for their invitation to attend the event and their hospitality throughout the week.

## CARRARA MAKEOVER

February and March saw a flurry of activity as AGCSATech undertook ground inspections around Australia for the Australian Football League in the lead-up to the NAB Cup and NAB Challenge. The NAB Challenge in particular is a great event as the 'big league' is taken to all corners of the country including Alice Springs, Cairns, Darwin and other country centres. Once again we were grateful for the assistance of Peter Ruscoe (Sportsturf Technology) and Daryl Sellar (Glenelg Golf Club) in assisting with the inspections in WA and SA.

With the Melbourne Cricket Ground unavailable until 25 April due to the Commonwealth Games, Gold Coast Stadium in Carrara was chosen to host two pre-season matches and two premiership matches in round three and seven. In order to host these games the Carrara facility required a significant upgrade to the playing surface and player facilities. AGCSATech agronomist Andrew Peart has acted as the AFL's project manager for the playing surface upgrade in conjunction with Doug Robinson (Pacific Golf Operations), who has acted as our man on the spot, and Nick Jeffrey (AFL Queensland).

The works program involved stripping

11500m<sup>2</sup> of turf, levelling the surface, installing 1200 metres of drainage, upgrading the irrigation system and laying washed Greenlees Park sod to complement the existing surface. The ground successfully hosted its first major event during the first round of the NAB Cup between the Brisbane Lions and Essendon.

In reflecting on the pre-season competition and the demands of AFL football, there is little doubt that the quality of the playing surfaces of these secondary venues has improved dramatically over the past three years. What is still apparent is the significant increase in resources required by all of the regional venues if they are to successfully host an AFL game.

The overriding factor is attention to detail and, in particular, where it relates to irrigation uniformity, maintaining an even turf cover, establishing a level surface free of localised depressions, turf repair and preparing cricket wickets so that they are not too hard. 🏏



Carrara during its transformation

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Bare areas on wicket tables can be hazardous for football players and a management headache for turf managers

# Switching codes

## Making the successful transition from cricket to football

**W**ith water restrictions imposed in many regional areas as well as water saving rules in metropolitan regions, the watering of sports grounds has become more difficult and been exacerbated this year with a very hot and dry summer, at least in Victoria, South Australia and New South Wales.

The lack of water from either limited rainfall or lack of irrigation has a two-fold affect on the playing quality of outfields. Firstly, it is difficult to maintain an adequate turf cover and secondly very hard surfaces result from dry and compacted soil profiles.

Irrigation is the most important requirement for grounds over the summer months not only to maintain an adequate grass cover but to provide a surface that is not unduly hard at the beginning of the football season.

The two greatest threats to the effective use of an irrigation system are water restrictions, as mentioned earlier, but also sprinkler uniformity. Many sprinkler systems on grounds provide very poor distribution uniformity. Reasons for this are no doubt varied but may include poor system pressure, wrong nozzle sizes or simply incorrect sprinkler spacing.

In some years these deficiencies may be masked by sufficient rainfall, however, without rain these can ultimately cause the loss of turf

cover if not diligently given supplementary water by hand.

Many grounds have implemented couch or kikuyu conversion programs that rely on far less water over the summer to maintain a turfgrass sward. This has no doubt been driven by water restriction concerns and means that there is more likelihood of having complete grass surfaces at the end of the summer as opposed to ryegrass-dominated grounds that were very common in the past.

### SURFACE HARDNESS

Surface hardness was generally not an issue with ryegrass grounds that were adequately watered to maintain their grass cover. This was due to the amount of water having to be applied and therefore the soil profile was not allowed to dry.

However, due to warm-season grasses' ability to survive under much lower watering regimes, surface hardness can still be a major concern even when these grounds have sufficient cover.

Hard surfaces are the delight of every batsman, but come football training can be very hazardous. Indeed, footballers have identified hard surfaces as one of the greatest hazards of any ground.

With the onset of another football season many ground managers have faced the difficult transition from cricket over the summer to providing a safe playing surface for football. Here Andrew Peart examines some of the key factors ground managers need to take into consideration to help smooth this process.

The Clegg Impact Hammer has been identified as the most appropriate tool to measure surface hardness in relation to player safety for AFL football. To identify whether grounds are too hard and therefore pose too greater risk to players, Clegg readings are taken at 20 locations over the ground in relation to testing venues for AFL matches.

Guidelines have been established, and are presented on the page opposite, to categorise results of surface hardness readings with both an upper and lower level of acceptability. The greatest impact on surface hardness is determined by the amount of grass cover, thatch depth, soil type and moisture content. The hardness of the surface should be within the preferred range as shown in Table 1.

### WICKET TABLES

By far the most disliked area, are those grounds that contain turf wickets. By their nature turf wickets are supposed to provide a far different surface to an outfield. However, during a football season it is expected that these areas provide as little difference as possible to the rest of the ground. Again with the outfield, the two most important factors are grass cover and surface hardness.

Maintaining an adequate grass cover on

Performance Indicator	Unacceptably Low	Low Normal	Preferred Range	High Normal	Unacceptably High
Hardness (gravities)	<30	31 - 69	70 - 89	90 - 120	>120

**Table 1. Reference: Aldous and Chivers (2004) AFL ground monitoring study – AFL Grounds, Turf Managers Seminar, July 2004**

the entire wicket block over the summer is a vital component to presenting a safe wicket table for football. Certain pitches on a wicket table can be heavily overused due to the fact it produces an excellent pitch. Unfortunately the down side is that these areas will be very slow to recover and in some instances may never provide a complete grass cover again.

Ideally, pitches should be regularly rotated through the wicket table so that recovery time is allowed for between games. Pitches without grass cover can be either incredibly hard or subsequently incredibly slippery depending on the moisture content.

The benefit of a complete grass cover means that some cushioning is provided by the grass, or at least limits skinning of knees from direct contact with the soil, but secondly it prevents the surface from becoming a skating rink in wet weather, or over-enthusiastic watering prior to a match.

Pitches have been known to have hardness readings in the mid 200 gravity range prior to a cricket match that is far in excess of the upper limit of acceptability. The only way to lower this hardness is through watering.

Watering should be applied in frequent light amounts so that penetration through the profile can occur. If water is applied in large amounts the majority will simply run off the surface or evaporate prior to infiltration. It is important that the wicket is moist below the surface so the top 10mm or so can slightly dry to allow for some elasticity of the surface.

This drying of the surface is important in areas where there is little or no grass coverage.

### GRASS COVER

As stated earlier there has been a transition, at least in Victoria, to warm-season grasses for many sports grounds. This primarily has been driven by water usage and, in some degree on sand profiles, to aid in surface stability.

Irrespective though of grass type, maintaining a full cover is vitally important. At the end of many football seasons large areas of the ground may become bare from extensive use and a lack of adequate recovery or growth.

During the spring it is therefore critical that the weak or bare areas are either oversown with an appropriate turf type or repaired with sprigs or sods, particularly in the case of warm-season grasses. This work should be conducted as early in the spring as possible to allow these areas to fully mature.

In the case of couch or kikuyu surfaces they can become quite spongy due to an increase in thatch accumulation. These should be heavily scarified to reduce this accumulation but then have enough time to recover and provide cushioning at the on-set of the following football season. Depending on the ground's usage and fertiliser regime, this operation may need to be performed more than once over the growing season.

It is interesting to note in an AFL players' survey that players perceive that a ground can

never provide too much traction, however it has been hypothesised that too much traction can be a cause for injuries such as anterior cruciate ligament damage. However, this must be taken in conjunction with other parameters such as footwear and the player's actions.

### CONCLUSION

There will always be a conflict between users of cricket and football/rugby that share the same ground. As ground managers, the ability to manage both sports is vitally important. Match schedules have increased the workload and decreased the time between seasons so that extensive renovation practices are no longer feasible between seasons.

With this in mind work must be done throughout the season to manage the ground effectively to provide a smooth transition.

Irrigation provides the key element to conduct such work and needs to be correctly managed to ensure a safe playing surface exists. For those grounds that are not irrigated, the task becomes far more difficult.

Renovation practices must therefore be conducted around rainfall events when the profiles have adequate moisture to allow for verti-draining or similar de-compaction works and gypsum applications on heavy soil types that over time may improve the soil profile and aid in less compacted and hard surfaces. 🌱



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## THE PULSE

In 2005 a couple of high-profile NSW superintendents created headlines throughout the industry after leaving their clubs to take up positions within the trade. Movement between both sides of the industry has often been a topic of conversation and in this instalment of The Pulse ATM looks into whether such an employment trend is on the rise and examines the reasons why some have made the switch.

### Craig Easton Nuturf



Udeniably the most common question I've fielded from Sydney superintendents after I switched from golf course superintendent to Nuturf territory manager was simply, "Why?" Was my career change precipitated by the necessity to facilitate and comply with the burgeoning bureaucratic legislative requirements such as OH&S legislation, task risk assessments and environmental management? Not really. Ironically, I enjoyed the enlightening compliance challenges and fully supported these long-overdue initiatives.

When I departed Carnarvon Golf Club after 15½ years as superintendent, I still adored the place. I had fantastic rapport with my course staff and I had an extraordinary forward-thinking and supportive Board. So, it wasn't Carnarvon Golf Club. I couldn't have asked for a better employer. I also enjoyed the challenges in my role as NSWGCSA president.

Basically, I needed a new challenge and Nuturf has delivered on the promise of job satisfaction. It's a great career move and I'm working with some incredibly clever people. The turf industry has been extremely accepting of my occupational change and I've been genuinely grateful. If I can assist a superintendent it makes my day.

But more importantly and above all, I needed to be able to plan my weekends with my family. I needed the assurance of quality time without the usual weekend interruptions. I've got that now and I'm ecstatic.

When I became a superintendent in 1989, 15 to 20 young superintendents started in Sydney within five years of my appointment. There are a lot of 10 to 15-year service superintendents in the market at the moment. If I was to make a guess, there is a good chance that a huge employment shift from the top will occur in the next five years. 🌱

### Guy Thomas Maxwell and Kemp



I moved from one side to the other simply because I was lacking the fire in my belly to continue producing the goods, week in-week out, and also a very strong desire to spend more quality time with my children. After 24½ years, weekend work was taking its toll.

Without a doubt one of the best parts of being a superintendent is the camaraderie. Relationships formed at TAFE or in the workplace are those I will value and treasure all my life. Being able to put your hand out and introduce yourself to other supers and talk about turf related issues over a coffee or a beer without anyone thinking they are superior, makes other industries envious.

From experience, some of the aspects of the job that superintendents are disenchanted with are the long hours, seven-day weeks during the growing season, staff management issues, OH&S issues, club politics, water restrictions and environmental issues. Superintendents embrace all of these issues and deal with them as best they can, however these issues were not covered when we went through TAFE.

Training in a number of these key areas have come via state or national association training days that delegates generally show little or no interest in. Those that embrace these issues and train their staff as a good manager often get no reward from their employer.

Being on the road now and meeting young and creative superintendents is a real eye opener and shows me there are some just waiting for an opportunity to shine at a facility that does not have staff/budget issues.

While it has been a steep learning curve, I am enjoying my new role immensely and it's affording me more time with my family. How many superintendents who have young kids can say they've had breakfast with them five times in one week lately. Not many I bet. 🌱



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## David Worrada Nuturf



It is interesting that the question of employment trends and superintendents taking on sales roles has now become topical. Turf managers and superintendents have always tended to prefer dealing with someone who understands their patch, what they are going through and the related challenges.

Since the Chemturf days, Nuturf has always tended to recruit new representatives from within the industry. From a Nuturf perspective I think it is critical to provide the highest quality representation we can to ensure we combine practical experience with the most comprehensive advice, product information, analytical and diagnostic services. Nuturf puts a lot of technical and service training into our team of representatives that they see as a stimulus to their career development and knowledge. We hope they are happy to have made the change.

A career in sales and service is not easy. It requires specific skills and attributes of personality, knowledge, attitude and commitment. This line of work isn't for everybody and working in sales can be an emotional rollercoaster ride.

Being a good greenkeeper and a nice guy doesn't ensure sales success that can be confronting and stressful for some. On the other side, it can be exciting and most fulfilling and provides a broader and different view of the industry.

When the opportunity arises to further expand our service offering we access resumes we have received, look at who would be a good fit and then proceed forward. We are regularly approached by turf managers and superintendents investigating a career change, and welcome their interest. As with any company, we are always looking for good people to grow our business. 🌱

## Mick Holohan Globe Australia



After 11 years with the City of Greater Dandenong I thought the timing and opportunity being offered was too good to pass up. The role at Globe was something I had thought about doing before and I had actually applied for similar positions in the past. Another reason for the shift was that I felt I had gone as far as I was able within local government.

There are certainly many pros and cons of both sides, with the satisfaction of producing quality playing surfaces the best part of being a turf manager. But you weigh that up against the long hours and weekend work as well as the unrealistic views of certain user groups. Working in the trade, you have a great variety of work, meet a great number of people and you suddenly have weekends! On the flip side, however, is the never-ending driving.

I found the learning curve when I shifted across was rather dramatic and more intensive than anticipated. But that was something that has helped me be more prepared to help people with their situations better. (The biggest hurdle was adjusting to the lack of physical activity and controlling the waist line!)

I would like to think that most of us in the industry have an understanding of what each side has to offer and the roles they play, and that any misconceptions are more hearsay than actual beliefs. I think in some quarters there may be a stigma attached going from one side to the other because some believe you're just pushing a certain barrow. However, I like to think that most sales people are genuinely interested in assisting turf managers in their efforts to produce great surfaces.

During my time in the industry there has certainly been a history of turfies becoming reps and vice versa. Some people go back because it just isn't everyone's cup of tea, but at least they can say they had a crack. 🌱

## Peter Lonergan Coolangatta Tweed GC



I had always envisaged a move to the other side and after 13 years as a superintendent a territory manager position became available at Chemturf. It was certainly different from

what I had expected and is not as glamorous as it may appear. You spend a lot of time away from home, long days on tradeshow floors, there's the pressure to make your sales budget and trying to service customers from one end of the state to the other. The worst part as a rep was budget time. After 13 years of deciding where I would spend the money, I now had to figure out a plan of how to sell enough to make the sales budget!

Another interesting aspect was the reaction of individual superintendents to my switch. Some were very guarded and somehow seemed threatened by my presence on their course while others were very welcoming. The upside of being a rep is the great people you meet and the hidden gems of golf courses and/or fine turf you find along the way and what you learn about greenkeeping from all sorts of characters, especially some of the country bowls clubs!

While I had a great time with Chemturf, I was feeling a bit bored as I had always worked longer hours, so when the opportunity arose to take on a superintendents position, I jumped sides again. In my opinion there is hardly a better job than a super's, so long as you can keep the golfers and committees happy and you have enough water. It does take a lot of work but the resultant ride around the course on a Friday afternoon to peruse the results of your toils makes it all worthwhile.

In hindsight, I would definitely do the trade thing again as you can't put a price on what I learned and the friendships I made. I think it is a trend that will continue as you get to stay in an industry that we all seem to love. 🌱

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The MCG not only has a new look, but also a new arenas manager



MCG arena operations manager Richard Winter

## New Winter dawns on MCG

In July last year, amid all the dramatic changes the Melbourne Cricket Ground (MCG) was undergoing in the lead-up to the Commonwealth Games, off the field there was another key change taking place.

After seven years as curator at Western Australia's premier sporting arena, the WACA, Richard Winter shifted interstate to take up the position of MCG arena operations manager.

Taking over the day-to-day turf management operations from Tony Ware, who has shifted to a more strategic and project management role as a result of the MCG redevelopment, Winter joined at a time when the arena was undergoing an unprecedented transformation.

It was certainly a case of being thrown in the deep end for the 35-year-old, but it was the move he was after and one that is set to add another impressive chapter in his already extensive turf management career.

"Tony (Ware) and I had a couple of chats and I knew that the job was becoming available," says Winter, who moved to Melbourne last June with his wife Sharon and children Jakob (3) and Ashleigh (20 months). "I sat down with my wife and we talked it through and thought it was a good move to make.

"The WACA was going through a few hardships and I felt like I wasn't developing any more skills. So to come to the MCG, especially at a time with all the works surrounding the Commonwealth Games, was a 'no-brainer'

Over the past 23 years Richard Winter has experienced more than most as a turf manager. Starting out as a keen youngster working alongside his father at Manuka Oval, Winter has gradually risen to the top of the ranks. Last July that path was seemingly complete when he was appointed arena operations manager at the Melbourne Cricket Ground. ATM catches up with Winter to see how he has settled into his new role at one of the world's most famous venues.

really. I've settled in really well and the crew are fantastic to work with. Some of them have been here for a long time so you try and draw on their knowledge to help you settle in.

"The last eight months has been a really exciting time. To come on board and get thrown in the deep end has been great and I am certainly enjoying the ride so far. That's one of the reasons why I came over – to get exposed to major projects such as the redevelopment and different levels of arena operation."

As the Melbourne Cricket Club's (MCC) new operations manager, Winter oversees a staffing contingent responsible for the upkeep of not only the MCG but also the Junction

Oval, Albert Reserve and the MCC's bowls and croquet facilities.

With the MCG out of commission for most of past nine months due to the Games, a lot of the focus has gone into establishing the Junction Oval as a first class venue.

"It's a pretty intensive job with the different venues, but that's where the rest of the team come into their own," says Winter. "Because we have such good people who work at the other venues, I don't interfere too much and try and leave it up to them to run. I just support them as best I can."

### IN THE BLOOD

Born and bred in Canberra, Winter was

introduced to the turf industry at an early age through his father Ron who looked after the grounds at the Australian Defence Force Academy.

However it was Ron's other job, as curator at Manuka Oval, where the young Winter got his first taste of turf management.

From the age of 12, Winter spent many hours alongside his old man learning the trade and developing a worth ethic which has since earned him an excellent reputation throughout the industry.

"I pretty much fell into the role," laughs Winter. "I was always giving him a hand and it sort of evolved from there. Manuka was more of a second job for him as he also looked after the defence grounds.

"We would do bits and pieces together but he would often leave me on my own which was good. In fact we hardly worked together at all at Manuka. It was more the work ethic that I learned from dad and also what to look for in preparing a good wicket."

At the age of 17, Winter took over as curator at Manuka, a position he held for a number of years before taking up a position as assistant curator to Ray Moffett at one of New Zealand's premier sporting venues, Eden Park in Auckland.

After four years across the Tasman, the head curator's position became available at the WACA following the departure of well-respected turf manager David Crane. The opportunity to return to Australia after a solid innings in New Zealand proved too irresistible and Winter started in Perth in May 1998.

True to his management philosophy of

getting back to basics, during his time at the WACA Winter reintroduced the original native couchgrass that predecessor Roy Abbott had great success with in preparing wickets during the 1970s. Winter was also on hand to witness the major makeover the ground went through in April 2002.

"Compared with all the works that has gone at the MCG, I guess what we did in Perth was pretty minor, but at the time it was a pretty big step for the WACA which funded the upgrade without government assistance," says Winter.

"It was hard leaving the WACA. Seven years is a long period to establish a bit of status there. We did a lot of stuff there, most of which was successful, and we had a really good team of guys there."

Heading back East has meant a few changes for Winter, including reacquainting himself with the upkeep of portable pitches as well as adapting to the different climatic conditions.

"The first thing has been reintroducing myself with cool-season grasses," says Winter. "Melbourne's climate is obviously different to Perth's, although it has been pretty good since I started.

"I guess because I have experienced conditions in Canberra, Auckland and Perth, I have a pretty broad understanding of what is required. So it wasn't too much of a change; it was more a case of getting used to all the work that was going on before the Games.

"One thing I am also definitely enjoying is the access to the resources we are lucky to have here. It does make the difference."

**The new MCG practice facility can house 30 wickets**



#### LOOKING AHEAD

As with the arrival of any new personnel, Winter has brought a fresh pair of eyes and ears to the MCC set up and over the course of the coming years is keen to move forward and examine turf management practices and ►

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review structures within the arenas team in order to fine-tune operations.

Winter has wasted little time and shortly after arriving brought across his former WACA colleague Andrew Dalby who was appointed curator at Albert Reserve. Winter says the move was a fantastic opportunity for the young turf manager and one that he has taken to with a great deal of enthusiasm.

"I do want to try and institute a few changes," says Winter. "One area I want to look at is the working culture. There are certain things that need to be freshened up or reviewed and a few subtle changes need to be made here and there. Even just little things like the new uniform we got late last year. Something as simple as that can lift a team."

With the Commonwealth Games now out of the way, Winter is looking forward to the football season and getting back into a more established routine. The 2006 AFL season, which will be Winter's first full season of football at the MCG, will afford the crew a chance to see how the new stand will affect the performance of the surface and what strategies and cultural practices will need to be implemented to overcome any problems.

While the lead-up to the Games was somewhat disruptive with the MCG surface out of commission, it did have its benefits. Winter and his team were able to spend more time concentrating on the MCC's other venues as well as complete turfing of the new 30-wicket practice facility adjacent to the MCG.

"We were able to do a bit of catch-up work on some of the other venues which has been good, as well as getting on top of our procedures and processes," says Winter.

"We've been able to plan some good renovation work and sort out some irrigation issues.

"For example at our bowling club we had to reconfigure all the sprinklers after we did a flow test which showed only half the volume of water was being applied. And we were wondering why some of the greens were getting dry patch! We would like to do some work to the other venues, but at this stage we have no major plans.

"But now that things have settled and the Games are past us it will be good to get into the footy season, get that under our belts and then we can start looking at some more long-term management strategies."

## MCC ARENAS TEAM

**RICHARD WINTER**  
**ROGER WADE (34-YEARS' SERVICE TO THE MCC)**  
**MARNIE PITT**  
**ROBERT NICHOLSON**  
**SCOTT WEST**  
**ADAM THORNE**  
**STEVE MITCHELL**  
**PETER GOUGH**  
**ROSS BOURNEMAN**  
**MARK HIBBINS**  
**TOBY LUMSDEN**  
**(JUNCTION OVAL CURATOR)**  
**BEN MILLIKEN**  
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**ANDREW DALBY**  
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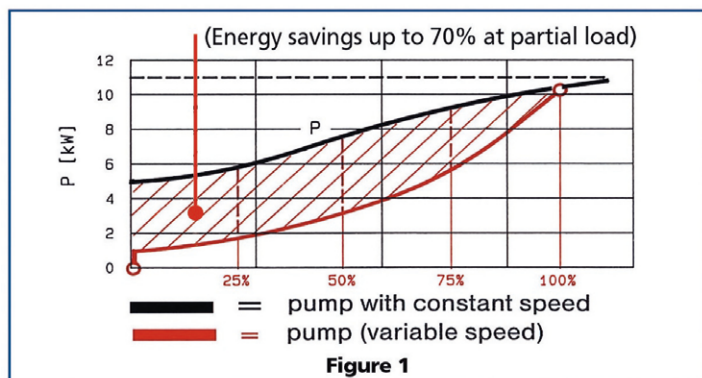
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The QDPI has undertaken extensive research into irrigation efficiency

QDPI researchers Craig Henderson and Kaylene Bransgrove provide ATM with an update on their continuing studies into improving the irrigation efficiency and practices at AFL Queensland grounds and how differing strategies can affect surface hardness.

## Evaluating irrigation practices on community sportsfields

Over the past seven months the Queensland Department of Primary Industries has carried out irrigation research on two AFL community-based, natural soil fields in Brisbane.

The study, conducted as part of the Sureplay research project (principally funded by Horticulture Australia, Department of Primary Industries and Fisheries, AFL Queensland and Brisbane Lions), compared the irrigation practices of experienced ground curators at Morningside and Mt Gravatt ovals, with alternative strategies targeted at potentially improving irrigation efficiency.

In a nutshell, one of the initial conclusions made was that irrigation helped keep the soil surface soft enough for playing football, while rain provided the moisture for good turf condition and growth. Other findings suggest:

- Weekly watering was as effective as irrigating two-to-three times per week, in providing a suitable playing surface for AFL football;
- Over the seven-month period from June 2005 to January 2006, we used around 0.5ML/ha less by weekly watering, compared to more regular scheduled irrigation;
- Applying 'obvious' irrigation principles (deep watering, less often) may not always save water, as some irrigation may be needed to moisten the top soil, rather than grow grass;

- Some sites on natural soil playing fields may become hard following 7-10 days without rain, even if the soil profile was moist before the drying period, and a good turf cover exists. On sand-based fields this interval may be shorter.
- Steps to decrease soil compaction, and reduce the dependence on high soil moisture levels to provide a suitable playing surface, may improve irrigation efficiency.

### IRRIGATION COMPARISONS

On the two football fields, we have been measuring ground hardness, surface water content, and turf condition twice a week since

the end of June 2005. We have selected three comparable sites on each field, generally low wear areas away from the centre corridor and dressing sheds.

Site 1 was irrigated by the curator, representing the bulk of the field (what we termed 'standard irrigation'). Site 2 was irrigated only once per week ('weekly irrigation') and we set the controller to use between 75-80 per cent of the weekly water volume applied by the curator.

Site 3 was irrigated at our discretion ('strategic irrigation'). We tried to irrigate 15-20mm per time to promote deep wetting and turf root growth. In this 'strategic irrigation', we maximised the period between waterings by

Table 1. Weather and irrigation at two AFL sports fields, June 2005-January 2006. All measurements in mm.

	June – Mid-October		Mid-October – January		TOTAL	
	Morningside	Mt Gravatt	Morningside	Mt Gravatt	Morningside	Mt Gravatt
Rain	52	53	541	597	593	650
Effective Rain	51	46	445	501	496	547
Evaporation	403	403	728	728	1131	1131
Standard Irrigation	64	105	59	78	123	183
Weekly Irrigation	51	89	26	45	77	134
Strategic Irrigation	45	74	60	80	105	154



monitoring turf and soil surface condition, and seeing what curators were comfortable with.

### SEASONAL CONDITIONS, IRRIGATION AND TURF CONDITION

From June until mid-October 2005, only 50mm of rain fell (Table 1), with one event on each field over 10mm. Due to limitations on sprinkler hours and days (imposed by Brisbane City Council as part of its Level 2 water restrictions), the 'standard irrigation' at Morningside comprised two irrigations per week of only 2.5mm per time. Weekly irrigations at Morningside were 4mm. There were three 'strategic irrigations' of 15mm during this period.

Mt Gravatt is watered from a bore, and is currently not subject to water restrictions. The curator was generally applying 4mm every three days, while the 'weekly irrigation' was 9mm, and five 'strategic irrigations' of 15mm took place during the four months (Table 1).

By late September 2005, the rain, irrigation and stored soil moisture at both fields was not enough to keep the turf fully transpiring. By mid-October all treatments were showing water stress (e.g. Plates 1 and 2 from Morningside).



Plate 1: Standard irrigation



Plate 2: Standard irrigation

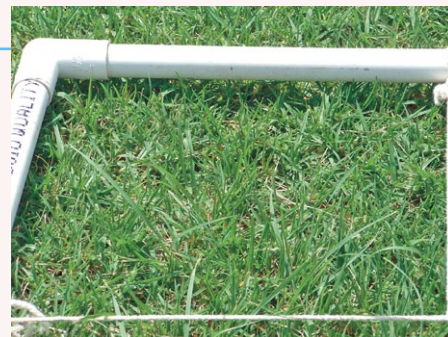


Plate 3: Strategic irrigation



Plate 4: Strategic irrigation

Between mid-October 2005 and January 2006, between 540mm and 600mm of rain fell on the fields, of which we estimate about 100mm was ineffective (i.e. rain that ran off the surface, or drained beyond the turf

rootzone). This compares with evaporation of around 730mm (Weather Bureau Class A Pan data) for the corresponding period.

For several significant two-to-three week stretches during this time, the 'standard

(use extraordinary technology)

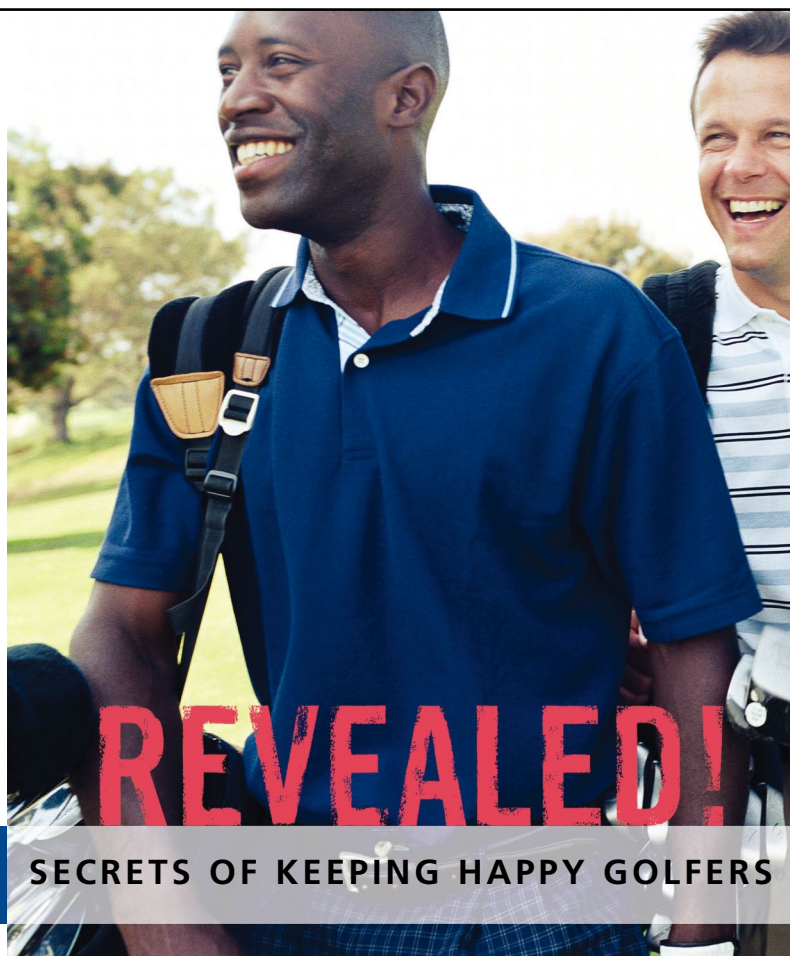
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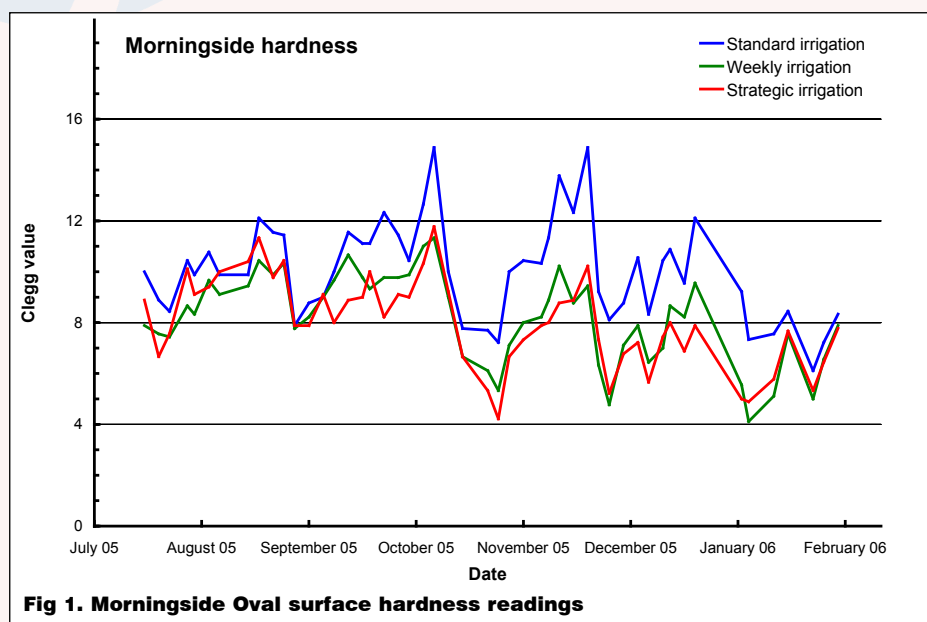
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irrigations' and 'weekly irrigations' were switched off by the automatic rain sensor, or the curators manually ceased watering. The amounts of irrigation applied in these two treatments were less than in the drier spring period (Table 1).

Interestingly, the 'strategic irrigation' did not save water compared to the regular waterings; we always seemed to be applying 15-20mm just before an unpredicted summer storm!

Looking at turf pictures from Morningside in late December (Plates 3 and 4), it is obvious that the grass was growing well, and benefiting from the summer rain.

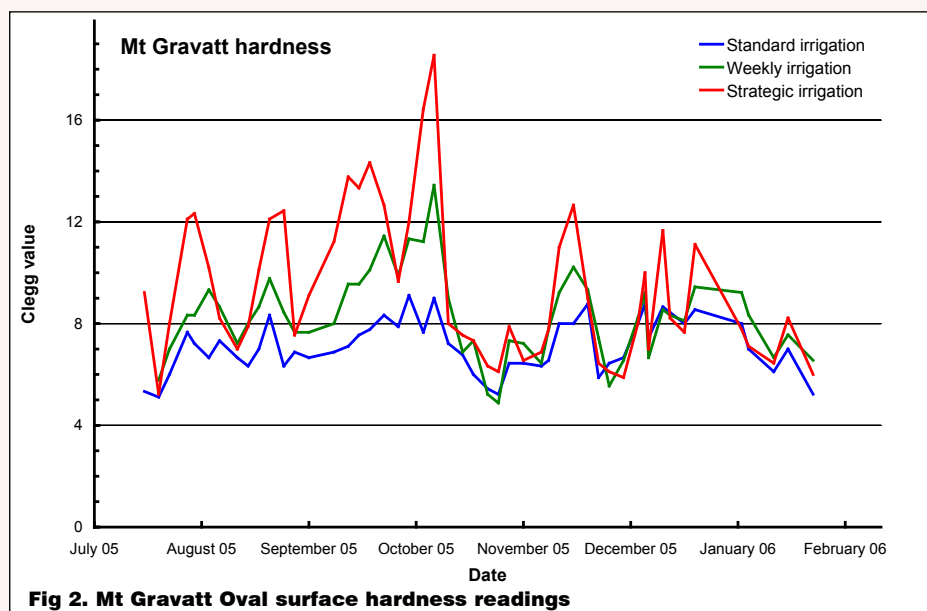
## SURFACE HARDNESS

Reviewing the Clegg Hammer values from Morningside Oval (Fig. 1), we can see that hardness gradually increased from late June

until the 10mm rain event in early September, however they remained at an acceptable level for a community field (<12). There were no differences between irrigation treatments in surface hardness.

During hot dry spells in early October, late November and late December, hardness levels on all irrigated areas at Morningside rose as surface moisture levels dropped. The site receiving the 'standard irrigation' treatment was particularly sensitive to increased hardness as moisture levels fell, peaking above 12 Clegg Hammer units on two occasions.

At Mt Gravatt (Fig. 2), the 'standard irrigation' kept the site uniformly moist, and hardness remained constantly low for the whole period. The surface of the 'weekly irrigation' site dried out slightly during the early October dry spell, with hardness gradually



increasing, but only reaching a value of 13 units just before the October rain. From then on it remained at 10 units.

The interesting and informative site was where we were conducting the 'strategic irrigation'. The curator had previously suggested this was a "difficult area, which always seemed to dry out and needed watering before other parts of the field".

Our results confirmed that it did behave differently, with a very strong relationship between soil moisture content and surface hardness. Its surface water content was always lower than other parts of the field, and it reached peak hardness levels of concern on several occasions between irrigations.

As an example, the field was waterlogged by 75mm of rain on 6 November. Eight days later, following a week of fine weather, 50mm of evaporation and no irrigation, hardness on the 'strategic irrigation' site reached a level of 11 Clegg units (even though the turf was not showing any signs of stress), compared to 8-9 units on the other irrigation sites.

## DISCUSSION POINTS

Many of these natural soil fields are highly variable, and will require different irrigation schedules for different parts of the field to maximise irrigation efficiency. Many curators already apply some differentiation through experience. How can we best measure and manage that variability?

It is difficult to second guess the weather! It seemed that when we held off irrigation, and applied it in one efficient dollop, it was always just before a summer storm, and we ended up applying more than the other strategies.

The next best-bet strategy we will try is irrigating just enough (say 8-10mm once a week) to maintain surface hardness at acceptable levels. We will rely on rain to provide the water to re-wet the full turf rootzone at regular intervals (say at least once a month). If within a month, no rootzone wetting rain falls, then we will initiate one major irrigation to provide some re-wetting of the rootzone.

A combination of a sufficiently sensitive rain sensor on the irrigation system, and conjunctive curator reaction to rain, may further increase our water saving.

## ACKNOWLEDGEMENTS

Craig Henderson is principal horticulturist and Kaylene Bransgrove a scientist at the Department of Primary Industries and Fisheries. Any comments or queries on their irrigation research can be directed to Kaylene Bransgrove on (07) 3286-1488. [🌱](#)

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# Creeping bentgrass tolerance to summer stresses

## The importance of carbon balance and root activity

With parts of Australia experiencing one of the warmest summers on record, many superintendents were left battling the effects of summer decline across their courses. Research in the United States has looked into the causes of this phenomenon and here Rutgers University professor Bingru Huang outlines his work into the importance of carbon balance and root activity and its role in summer bentgrass decline.

**T**urf quality of creeping bentgrass often declines on golf courses in warm climatic regions during summer months, which is typically accompanied or preceded by root shortening or death. This problem has been broadly defined as summer bentgrass decline complex (Carrow, 1996; Dernoedon, 1998).

Many cultural and environmental factors could be associated with summer decline in turf quality and root growth. Dernoeden (1998) suggested that summer bentgrass decline may be more a physiological rather than a pathological problem.

Indirect high temperature is one of the major factors causing loss of turf for creeping bentgrass. Mowing turf too short, such as under putting green conditions, imposes additional stress on the turf by removing a large amount of leaf area that would otherwise be available for photosynthesis or carbohydrate production.

Non-structural carbohydrates in plants serve as energy reserves to be used under stressful conditions (Hull, 1992). Closely-mowed turf may suffer from heat stress injury by depleting carbohydrate reserves due to the increased demand for carbohydrates and decreased production of carbohydrates.

This report summarises results of our controlled-environment and field studies with the aim to better understand how carbohydrate

metabolism is related to summer decline in turf quality and root activities for creeping bentgrass. Such information is important for developing effective management practices to prevent or control summer bentgrass decline.

### DECLINE IN TURF QUALITY AND ROOT GROWTH UNDER HEAT STRESS

Decline in turf quality and root growth for creeping bentgrass has been observed under high temperatures (above 27°C) in controlled-environment studies and during summer months in field plots (Liu and Huang, 2000; Xu and Huang, 2000a,b; Huang and Gao, 2000; Liu and Huang, 2001).

Creeping bentgrass cultivars varied in heat tolerance, as demonstrated by differences in severity of turf quality decline with increasing temperatures.

Our studies have identified L-93 to be relatively more heat tolerant than Pennncross, with less severe decline in turf quality and physiological activities under high temperature conditions in controlled environment studies and during summer months in the field.

Root production and mortality of three creeping bentgrass cultivars, Crenshaw, Pennncross, and L-93, were monitored using the mini-rhizotron imaging technique in a USGA-specification putting green mowed at 1/8

(3.2mm) and 5/32 inch (4mm) in Manhattan, Kansas during 1997 and 1998 (Huang and Liu, 2003).

For all cultivars, the length and number of newly produced roots decreased while those of dead roots increased from July to September (summer/start of spring) in both years. Root mortality rate exceeded root production rate, resulting in decline in total root length and number.

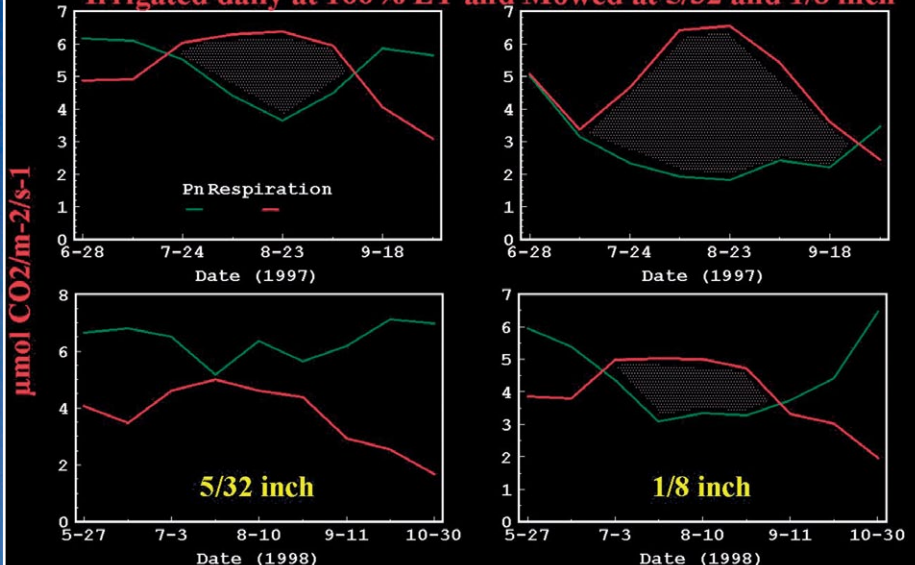
L-93 maintained higher new root production and lower root mortality than Pennncross during summer months, suggesting that cultivar difference in root production and mortality was associated with the variation in summer turf performance between heat-tolerant and heat-sensitive cultivars.

One of our recent studies found that root death and decreases in root metabolic activity, such as hormone synthesis (i.e. cytokinins), nutrient, and water uptake, precede turf quality decline under heat stress in controlled-environment conditions (Liu and Huang, 2005).

Root death occurred at five days of exposure to 95°F (35°C) followed by decline in cytokinin synthesis, nutrient and water content, and at last with turf quality decline at 20 days of heat stress (Table 1).

These results suggested that decreases in root activity and increases in root mortality may

## Photosynthetic rate and respiration rate for Penncross Irrigated daily at 100% ET and Mowed at 5/32 and 1/8 inch



**Main pic:** The summer of 2005/06 will be one a number of superintendents will remember. Above average temperatures and high humidity saw a dramatic rise in the levels of summer decline

contribute to turf quality decline in creeping bentgrass exposed to high temperatures. Improving heat tolerance of the root system is important for maintaining high quality turf during summer months in warm climatic regions.

**Left: Figure 1.** Photosynthetic and respiration rates of Penncross creeping bentgrass mowed at 5/32 inch (4mm) and 1/8 inch (3.2mm). Green lines indicate carbohydrate-producing photosynthetic rates while red lines indicate carbohydrate-consuming respiration rates

PARAMETER	DAYS OF HEAT
Stress	
Root death	5 days
Cytokinin decline	5-10 days
Water deficit	15 days
N, P, K content decline	15-20 days
Turf quality decline	20 days

**Table 1.** Sequence of changes in different physiological parameters of bentgrass in response to heat stress (35°C soil temperature)

## CARBOHYDRATE METABOLISM AND SUMMER BENTGRASS DECLINE

A field study was conducted in 1999 and 2000 in Manhattan, Kansas to investigate whether summer decline in turf quality and root dieback is related to carbohydrate availability during



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summer months. Penncross and L-93 were examined in the study. Grasses were managed under USGA-specification putting green conditions with daily irrigation and mowing at 4mm.

Turf quality and the content of total non-structural carbohydrate (TNC) and soluble

sugars in shoots and roots, as well as carbon allocation to roots, exhibited seasonal variations as temperature changed across the seasons (Xu and Huang, 2003). Turf quality of both cultivars was highest in May (end of spring), declined to the lowest level in August and September (end of summer, beginning

of autumn), and returned to a high level in October (middle of autumn).

Corresponding to seasonal variations in turf quality, the content of TNC, sucrose, and fructans in both shoots and roots for both cultivars was highest in spring and autumn and lowest during summer months in both years.

## FEELING THE HEAT

The summer of 2005/2006 will go down as one of the warmest and most humid on record for parts of Australia, bringing with it plenty of headaches for superintendents and turf managers.

January was a scorcher in NSW, with the state experiencing its warmest month ever with a mean temperature 3.5 degrees above the January average of 24.7°C. It was also the tenth consecutive month of above average mean temperatures for the state.

The state-wide average maximum temperature for January was 35.2°C, the second highest on record and 3.5 degrees above the average of 31.7°C. Most of the state recorded well above average maximum temperatures with the only areas of the state to record close to average maximum temperatures the Metropolitan and Illawarra districts.

The state-wide average minimum temperature for January was the highest on record, 3.5 degrees above the average of 17.7°C. The entire state recorded well above average minimum temperatures, with almost half the state, including much of the coast and ranges, recording their highest January mean minimum temperatures on record. This was combined with a mixed pattern of rainfall across the state for January.

Victoria also experienced a hot start to 2006 with the third-warmest January since state-wide records began in 1950 and the warmest January since 2001. The mean temperature for Victoria was 2.5 degrees above the average of 20.16°C. The northern half of Victoria experienced average daytime temperatures of 3-4 degrees above normal, while the southern half experienced average daytime temperatures of 1-3 degrees above normal.

In stark contrast, Perth experienced an unseasonably cool January period. Rainfall came in above average (28.4mm was recorded compared with 0mm last year), while mean daily maximum temperatures were well below average. Perth's mean daily maximum temperature in January was 28.8°C, the lowest mean daily maximum temperature since the 28.1°C in 1990, compared to the average maximum temperature of 30.6 degrees.

Following the record low December mean maximum temperature in Perth, the continuing below average temperatures in January made it the coolest first two months of summer (December-January), in terms of maximum temperatures, since 1922/23.

Looking back at 2005, official Bureau of Meteorology statistics reveal that it was Australia's warmest year on record. The annual Australian Climate Statement released in early January showed that the average mean temperature for 2005 was 22.89°C, 1.09°C warmer than the standard mean period of 1961-90, making it the warmest year since at least 1910.

The 2005 Australian temperature record eclipsed the old record, set in 1998, by a considerable margin. Data held by the Bureau of Meteorology shows that the previous record was +0.84°C.

Data also showed that more than 95 per cent of the continent

experienced a warmer than average year, with the most anomalous month being April, when temperatures averaged nearly 2.6°C above normal.

Rainfall for the full year was below normal, with an average of 399mm falling nationwide. This is 73mm less than the Australian mean rainfall of 472mm.

### SUMMER DECLINE ON THE RISE

The warmer summer months meant a trying period for superintendents, particularly those in NSW. In a poll conducted through the AGCSA's weekly email newsletter 'The Cut' on the incidence of summer decline, 75 per cent of respondents indicated that it had been more prevalent this summer than in previous seasons. In fact, so harsh were the conditions at one course, the superintendent tendered his resignation.

"No amount of preventative spraying or hand watering or anything else could control it (summer decline) this summer," said the superintendent in 'The Cut'. "With water restrictions 10 minutes per green only a day maximum, the extreme heat of December and high humidity of January, soil temperatures were so high that the die-back of *Poa annua* could not be stopped. The end result was my resignation after 16 years of loyal service! Good luck to my replacement."

The poll also asked what superintendents had done to combat the effects of summer decline. Here were some of their responses:

- Fertilise and fungicide it out;
- Mini-tyning, verti-drain, use of verti-cut heads on greens mower, fungicide program, sound irrigation practices;
- We seem only to get it in our bentgrass aprons. Generally coring is all that is required;
- Preventative application of fungicide;
- I currently have various temps in play. All greens have been verti-drained (8mm tynes), dusted, greens not cut for three days and height raised. Showing signs of recovery, slowly. Going to verti-drain again to help with the air flow;
- More intensive greenkeeping, more preventative fungicide spraying than usual and the use of many cultural practices - not overwatering, raising mower height, verti-cutting, judicious use of fertiliser, increasing K content in fertiliser applications, making sure mowers are sharp, sharing the wear around more. More syringing on hot days, closer inspection of turf and keeping abreast of what disease intensity is like in our area;
- Monthly applications of profile and spot hand watering with a wetting agent; also syringing when possible;
- Raised height of cut, kept mower off the collar and ring lap;
- Multiple applications of select fungicides, applications of wetting agents, use of kelp seaweed products and molasses.

**BRETT ROBINSON**

Summer decline in carbohydrate content was more pronounced in roots than in shoots. In addition, the amount of carbon allocated to roots also decreased during summer months, particularly for heat-sensitive Pennncross.

Our studies conducted in controlled-environment growth chambers also found that carbohydrate availability in shoots and roots decreased with increasing temperatures along with the decline in turf quality (Liu and Huang, 2000; Xu and Huang, 2000a,b; Huang and Gao, 2000; Liu and Huang, 2001).

Our results demonstrated that the decline in carbohydrate availability in shoots and roots, particularly in roots, and limited carbon allocation to roots during summer months could contribute to the decline in turf quality and root dieback of creeping bentgrass under high temperature conditions.

The decline in carbohydrate content in both shoots and roots during the summer may have resulted from an imbalance between carbon production in photosynthesis and consumption in respiration (Huang and Gao, 2000; Liu and Huang, 2001; Xu and Huang, 2000b).

Our study also measured seasonal



changes in turf quality, carbohydrate production through photosynthesis, and carbohydrate consumption through respiration using an infrared gas analyser for creeping bentgrass mowed at 5/32 inch (4mm) and 1/8 inch (3.2mm) height (Figure 1)

Turf quality declined more rapidly at the lower mowing height, which was attributed mainly to reduced leaf areas that are otherwise available for photosynthesis. We found that canopy net carbon fixation rate decreased whereas respiration or carbon consumption rate increased for both L-93 and Pennncross during summer months.

Carbon consumption rate exceeded carbon fixation rate in August and September when temperature was highest, particularly for grasses mowed at 1/8 inch (3.2mm) height (Figure 1). The imbalanced carbon fixation and consumption, particularly for low-mowed turf may lead to carbohydrate depletion and thus

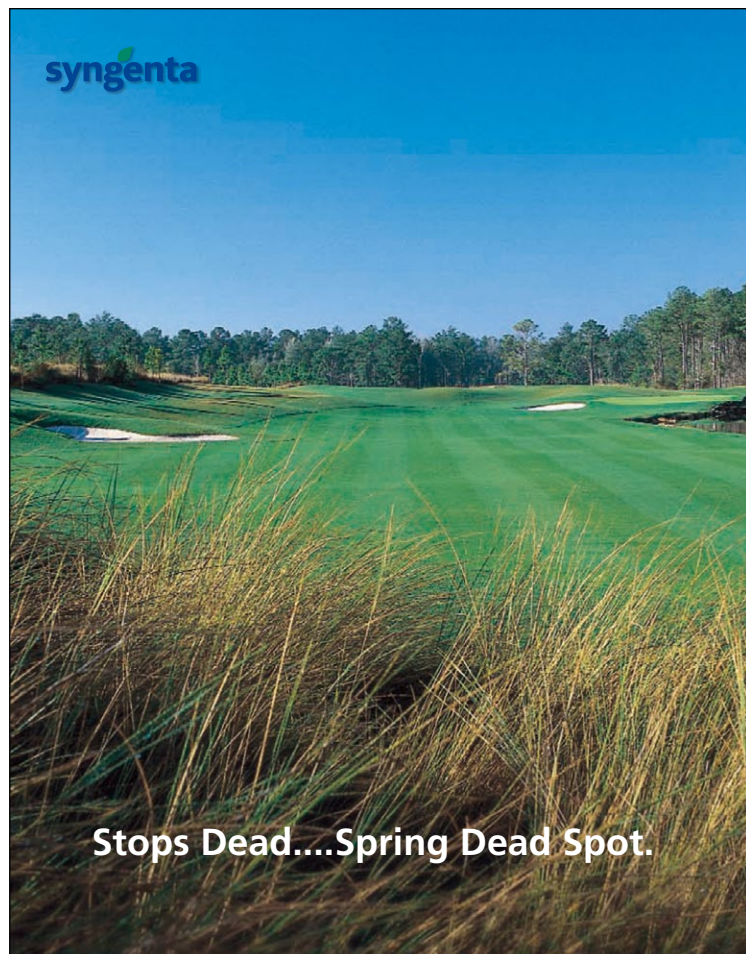
decline in turf growth and root growth during summer months.

#### SUMMARY POINTS

- Decreases in root growth and activities may lead to turf quality decline with increasing temperatures. Promoting extensive, healthy root systems is important for preventing or controlling summer turf quality decline in creeping bentgrass.
- Promoting carbohydrate production and reducing carbohydrate consumption may lead to increases in carbohydrate accumulation, which would help plants to survive hot summers.
- Low mowing height causes reduction in carbohydrate production, which may contribute to a decline in turf quality and root growth during summer months.

#### ACKNOWLEDGEMENTS

ATM magazine wishes to thank the authors and USGATERO for allowing publication of this research. Bingru Huang is professor in the Department of Plant Biology and Pathology at Rutgers University. A full list of references can be obtained from the AGCSA. 🌱



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## INTERNATIONAL MILESTONE FOR MARSHALL

2005 AGCSA Claude Crockford Environmental Management Award winner Ben Marshall from Club Pelican in Queensland has won further recognition for his work, this time on the biggest stage of all – the Golf Course Superintendents Association of America (GCSAA) conference.

Marshall and his team at the Caloundra-based Greg-Norman designed course won the coveted GCSAA Environmental Leaders International Golf Award which was awarded at the association's February conference in Atlanta. It is the first time that a golf course in Australia has won the award and it is the first time that this award has been won by a golf course in the Southern Hemisphere.

"It was a great honour collecting the award and flying the flag for Australia in front of a capacity crowd in Atlanta," says Marshall, who received the award from outgoing GCSAA president Timothy O'Neill. "Only after accepting the award did I realise the enormity of it. I had a number of American superintendents coming up to me and introducing themselves and offering their congratulations."

The honour caps off a remarkable year for Marshall and makes it a hat-trick of awards in the space of 12 months. At the 21st Australian Turfgrass Conference in Echuca-Moama, Marshall was named joint winner of the Claude Crockford award alongside fellow Queensland superintendent Scott McKay, while later in the year he picked up the 2005 Superintendents Environmental Award at the Queensland Golf Industry Awards.

As well as receiving many accolades from GCSAA conference delegates, Marshall returned to Australia to find a letter from golfing icon Greg Norman congratulating him and his team on their history-making achievement.

"Congratulations to you and the entire staff at Club Pelican Golf Course for winning the GCSAA Environmental Leaders International Golf Award," the letter began. "I am honoured that this award has not only been given to a golf course I have designed, but also that you and your team share the same passion that I have towards preserving the environment. This is a tremendous accomplishment and something you should be extremely proud of."

"I realise golf's relationship with the environment may be the single most important issue facing the game today and for generations to come. We have the opportunity to provide a profound and positive influence on both the game and the business of golf."

"As you may be aware, I serve as chairman of the Advisory Council for the Environmental



**GCSAA Environmental Leaders International Golf Award winner Ben Marshall**

Institute for Golf, the philanthropic organisation of the GCSAA. That is a position I am honoured to hold, for I truly believe golf courses can be a gift back to Mother Nature. Your work at Club Pelican is clear evidence of this."

Marshall has been superintendent at Club Pelican since 2001. Club Pelican is owned and managed by Sunshine Coast-based business Titanium Enterprises and is home to the Australian PGA Seniors Championship and the ALPG Players Championship.

Since taking over, Marshall and his team have made a strong commitment to the environment by working towards full accreditation in the Audubon Co-operative Sanctuary Program for Golf Courses.

"Winning the GCSAA award is something I'm very proud of," says Marshall. "It is extremely rewarding to receive recognition for the work that we do at Club Pelican from peers in the international arena."

"To be recognised in an international forum is indeed an honour. Maintaining a golf course using environmentally sound principles is rewarding in itself. The Audubon Program has given Club Pelican the framework to highlight efforts in water quality management and conservation as well as wildlife and habitat management, with particular attention focused towards maintaining the course using

environmentally sustainable principles.

"Club Pelican has significantly reduced chemical application to the course while maintaining its world class standard. This has been achieved through the use of sound agronomic principles, cultural practices and integrated pest management. Support from the club's owners has also allowed me the freedom to explore alternate management techniques."

Marshall's achievement will provide a huge fillip for the industry in Australia and AGCSA chief executive Steven Potts says it proves that Australian superintendents are at the forefront when it comes to improved environmental management practices.

"The Australian golf course industry has responded to environmental pressures by increasing its investment in environmental research and development, and by demonstrating a capacity to adapt to changing conditions and societal demands," says Potts.

"Winning such an award provides the ultimate in recognition from our American peers of the lengths the Australian golf course industry is going to improve its environmental management practices and systems, which is one of the major issues facing the industry as a whole."

"Not only is it great kudos for the extensive environmental work that Ben Marshall has achieved at Club Pelican, it will also go a long way to encourage other superintendents in Australia to adopt best management practices when it comes to the environmental management of their golf course." 🌱

### CONFERENCE CALL

Royal Pines Resort will play host to the 2006 Queensland Golf Industry Conference from 21-24 June. Hosted by the nine major golfing organisations in Queensland, including the Golf Course Superintendents' Association of Queensland, the conference carries the theme 'working as one'.

Topics of note include the latest research into water use and water efficacy. Other topics include marketing the game and lifting its profile within Queensland and Australia, sustainability of clubs and golf development. The conference is the second Queensland golf industry conference and follows the highly successful 2004 conference.

For more conference information email [golfconference@acclaimsemm.com.au](mailto:golfconference@acclaimsemm.com.au).

## SYNTHETIC TEE-OFF FOR CENTENARY PARK



**Centenary Park  
superintendent Chris  
Bardsley (left) and  
professional Steve  
Montgomery on the  
new synthetic green**

Centenary Park Golf Course superintendent Chris Bardsley may be getting a few visits from other Melbourne superintendents over the next few months after the installation of a complete synthetic green at the Frankston-based course.

In what is believed to be the first synthetic green to be part of an 18-hole championship-length layout in Australia, Frankston Council has spent \$90,000 on constructing the new green and surrounds as part of an overall upgrade to the course which began in March.

The new 800 square metre undulating two-tiered green, ringed with bunkers, makes up a testing 90-metre par three that abuts the pro shop on the old practice area. It will be used as part of the 18 holes when other greens and holes are closed for upgrading. At other times it will be used as a practice green for short irons, chipping, bunkers and teaching.

Constructed in a week by Tour Greens Australia, 60 tonnes of crushed rock was used to form the base of the green over which 30 tonnes of metal dust and silica sand was spread to shape the undulations and tiers.

A specially manufactured rubber underlay was then smoothed out over the top followed by the laying of the synthetic turf. Creating a

firm and true putting surface was finalised by brushing in silica sand to the top of the turf strands and then rolling the entire surface area. Longer synthetic turf is fixed to the edges of the green to act as a fringe, while nine hole placements are built into the surface which are covered by a plug when not in use.

At its official opening in mid-February by Frankston mayor Vicki McClelland, the green was running at 11.5 on the stimp meter and received the thumbs up from local professionals on the green's ball-holding and putting characteristics.

Bardsley, who has been superintendent at Centenary Park for over 30 years, recommended the synthetic green to Frankston Council along with club professionals Steve Montgomery and Warren Young. Research included a visit to a driving range in Yarrambat in Melbourne's northern suburbs which has a synthetic green set up for wedge shots, lobbing, chipping and putting.

According to Tour Greens Australia co-founder Paul Ammoun, the synthetic green requires little maintenance and no watering, sanding, weeding or feeding and plays "as true as the top professional putting greens around the world."

## TEACHERS TALK TURF

In early December 2005 turf teachers from TAFE NSW conducted their annual meeting at Wollongbar Campus to discuss assessment validation and the implementation of the new turf course structure.

Convened by Graham Scobie, head teacher of horticulture at Wollongbar, the meeting discussed the new Certificate II learning guides produced by the National Turf Education Group and any impacts on current delivery and assessment strategies.

Talks also centred on the 2005 delivery and assessment of the 3727 Certificate II and 1912 Certificate III courses. The main areas for discussion were units of competency (i.e. modules), validation of the assessments and the appropriate delivery strategies or changes.

Agreement was reached to maintain state-wide consistency of delivery and assessment in all TAFE NSW and ACT turf courses. It was established that the priority of the meeting should be given to the upcoming Stage 3 assessment strategies.

The ten units of competency to be delivered in Stage 3 of course 1912 Certificate III were discussed and the consensus was that a variety of assessment strategies and assessment weightings of marks were to be drawn up for the various units of competency. The assessment examiners and assessment validators came from across all TAFE NSW institutes and all assessments were to be finalised by February.

The synthetic green came into play when the first stage of redevelopment works began last month. The Centenary Park master plan recommends major upgrading of the course in stages over the next few years including the enlargement of all greens to twice their current size, bigger and longer tee areas, more bunkers, the redesign of several holes and improvements to fairways. 🌱



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## NEW DAKOTA RANGE HITS AUSSIE MARKET

The Dakota 410 Turf Tender



The evolution of one of Australia's most popular topdressers continues with a range of new models, a larger number of options, performance enhancements and a new design.

According to ASPAC Golf and Turf product manager Steve Lewis, the new Dakota design – the first major revamp of the successful line since it was introduced – features a number of enhancements which have come about from requests by Australian golf courses.

"The most significant modification is to the control panel that now has a key start from the controller, as well as a throttle



The control panel on the Dakota 410 has undergone significant modification

control and LED display for spinner and belt functions," says Lewis.

"The completely independent electric

controller on the 410 engine powered unit accounts for over 95 per cent of sales in Australia, but missing until now has been the ability to throttle down between greens or turn the unit on or off without leaving the seat. As such we expect this to further enhance the popularity of the fully-optional 410 model."

A number of other enhancements have been made to the 410 including a more effective wiper to prevent leakage, single-point belt adjustment along with a range of minor and aesthetic changes.

Adding to the versatility of the 410 is the ability to mount a rear conveyor enabling operators to fill bunkers, or spread any manner of materials. The rear conveyor can be fitted to all 410s.

The 410 is not the only model to undergo a facelift. All units in the Dakota line-up, including the Dakota 412 – the two cubic metre mid-sized unit – and the 440 – the large four cubic metre unit for fairway and sportsground applications – have also been enhanced.

The new Dakota range will be on display at the 22nd Australian Turfgrass Conference tradeshow in Brisbane this July.

For more information on the full Dakota line-up, including a full colour catalogue and DVD, contact ASPAC Golf and Turf on 1800 640 305 or visit [www.aspacgolfandturf.com.au](http://www.aspacgolfandturf.com.au).

### CLEARMAKE'S QUICK FIX

Clearmake has become the first manufacturer of trade waste equipment to introduce a series of degreasers and cleaning products designed for the use with water treatment equipment and water recycling systems.

Clearmake engaged a team of chemical engineers to formulate the 'Quick Break' series of products specifically to improve the recycled/treated water qualities. This came about after a number of Clearmake's customers experienced problems with discharge quality while using conventional cleaning chemicals not suitable for the use with water treatment equipment.

The products have a significant impact on the efficiency of all trade waste equipment and water recycling systems, while offering above-standard cleaning abilities and being environmentally friendly.

Clearmake product manager Chris Garratt says results in field tests show that on difficult sites the Quick Break products solved

discharge quality problems. Some degreasers and cleaning products are very high in alkalinity and contain detergents that are not designed to work with water treatment equipment. The use of those products creates an oil/water/detergent emulsion which requires much more complicated and expensive equipment to process it. As a result the discharge does not meet regulatory requirements.

Clearmake's proprietary Quick Break technology has produced a product that is rapidly biodegradable and is presented in translucent colours to minimise the loading of chemical dyes in the waste stream and the environment.

The Quick Break products are named in accordance with their colour: Blue 42 (water-based degreaser); Red Devil (solvent-based degreaser); Green Machine (vehicle wash). Gold Nugget (water-based heavy equipment cleaner); and Vanquish (hand cleaner and body shampoo).

An online shop [www.quick-break.com.au](http://www.quick-break.com.au)

provides customers with a 24-hour, seven-day-a-week ordering facility and all relevant documents such as MSDS.

For further information about the Quick Break range, contact Chris Garratt on (07) 5455 6988, 0438 667 525 or email [Chris.Garratt@clearmake.com.au](mailto:Chris.Garratt@clearmake.com.au).

### PATON FERTILIZERS' NEW PRODUCTS

Paton Fertilizers has launched several new products onto the Australian market – Sirflor Liquids, Entec Solubles and a soil conditioner Pedocare.

#### SIRFLOR LIQUIDS

After 12 months' development, Paton Fertilizers offers the highest NPK analysis slow-release liquids based on methylene urea and offering longevities of up to eight weeks from one application. Three analyses are available – 35-0-0, 22.5-3-16 and 29-0-12.

#### ENTEC SOLUBLES

DMPP, the nitrification inhibitor that this range

of soluble fertilisers is based upon, has been trialled extensively over the last few years in agriculture and has been gaining excellent results. In turf the concept of a slow-release soluble is a new one but one Paton Fertilizers hopes will gain widespread acceptance.

Where this range of products has been used, results have been encouraging whether on bowling greens or golf courses with rates of 1kg/100m<sup>2</sup> giving longevities of up to five weeks from one application without surge growth. Three analyses are currently available, all containing iron for initial greening – Nutrafeed Entec Hi K (10-0-20+Fe); Nutrafeed Entec Hi N (17-0-6+Fe); and Nutrafeed Entec Balance (16.8-0-14.1+Fe)

"One of the most noticeable responses you gain from using these is the excellent colour response following application," says Paton Fertilizers turf manager Stuart Miller. "This is due to what is termed partial ammonium nutrition whereby the plant is tricked into taking up ammonium nitrogen rather than the preferred nitrate form."

#### PEDOCARE

After six months of screening, Paton Fertilizers has also launched Pedocare, a soil conditioner that can help water penetrate the soil, help it remain in the soil profile and also aid in the removal of sodium from the soil profile.

In sodium removal field tests at Strathfield Golf Club in Sydney, there was a 56 per cent reduction in sodium levels over six months which resulted in a significant improvement in turf quality. Trials have also shown increased germination rates. Pedocare is available in 15l drums or can be coated on NPK blends.

"We have applied this at five-times the recommended rate to bent/Poa cut at 3mm with no damage occurring to the turf," says Miller.

**For more information on these Paton**

**products contact Stuart Miller (NSW and ACT) on 0438 604 459, Chris Doyle (VIC and SA) on 0438 870 519, or Ron Bollard (QLD) on 0438 166 262.**

#### TORO'S TR70XT



Hot on the heels of the release of the TR50 and TR50XT sprinklers, Toro has released the larger and more commercially oriented TR70XT. Development of the TR70XT has been driven by requirements from the market and boasts a longer throw than its smaller stable mate.

The TR70XT, which incorporates Trjectory, has an arc adjustment of 30 to 360 degrees. It also includes a smart arc memory and slip clutch to combat vandalism. The minimum radius of the arc is 10.1 metres and the maximum radius is 22.3m. The TR70XT also has:

- X-flow shut-off with metal stem;
- Tall rubber cover hides all adjustment pins;
- 127 millimetre pop-up height for taller grasses;
- Cluster, water lubricated gear drive;
- Over-moulded wiper seal. Unique design for debris resistance and 15 millimetres below grade installation so topdressing will not affect the sprinkler;
- There are seven different nozzle sizes available from 20.2 to 101.4 LPM;
- The TR70XT is fast to install and has extremely durable performance.

Also new to the Australian market is the P150 plastic valve. With 25, 40 and 50 millimetre inline globe/angle valves, it is suited for commercial applications. Like the P220,

the P150 is compatible with Toro DC latching solenoids and takes the Toro 811 AC coil.



Nuturf has a new chief executive with the appointment of Bob Opacic in January as part of his overall CEO role with CK Life Agricultural.

Parenting its offspring companies Nuturf, EnviroGreen, Paton Fertilizers, NutriSmart Australia and Fertico, CK Life Science Group Australia is a multi-faceted company with business interests in agriculture, turf and environmental and human health.

"It is our aim to further grow our business in the Australian turfgrass industry through strong alliances and smarter business strategies," said Opacic. "Logistics and products will be a major focus while maintaining our company's strong service culture."

Opacic recently returned from the GCSAA conference in Atlanta, USA where he met with a number of key suppliers to the Australian turf market. "It was exciting to meet the players Lesco, Ninemire and Aquatrols. Heading up a company which maintains strong supplier/distributor relationships really excites me, especially considering some of the product and company developments on the agenda."

Lesco is the number one name in the American turf industry boasting one of the largest distribution networks in the USA.

One of the discussion points in the US was the success of the joint decision to have Lesco Poly Plus slow-release technology imported into Australia in the straight form, and blended with Australian phosphate and potassium by Paton Fertilizers. 🌱

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## NSWGCSA

What a summer! I don't know whether NSW superintendents have ever experienced a season quite like the summer of 2005/06. Record after record was broken in the process with the hottest, most humid days and months recorded.

It's at times like these when you rely on the quality of your staff, training and communication you have with the chairman of greens and club management. It may be difficult for club management to understand, but you need to make them aware of the reality of growing cool-season greens in such a climate. I tell my committee every November that if all things work perfectly we should not lose any turf over summer.

Rainfall was good for those who received it, but January had the second highest minimum temperature on record, the highest humidity on record and the lowest sunlight on record. This followed the hottest day on record (mid 40's) for many on New Years Day. All-round it was ideal weather for plant pathogens to attack weakened turf.

The pressure is on every member of staff, but particularly those at the top who walk the thin line. Any stress from any number of factors can tip greens over the edge and in such difficult conditions for bentgrass and particularly *Poa* they have no reserves left to recover. If summers in Sydney continue to be this hot and humid, we'll be planting couch greens in a few years.

**(Turn to page 44 to find out the official weather statistics for January which forms part of the research article on summer bentgrass decline - Ed)**

### DEARLY DEPARTED

Sad news struck the NSW industry before Christmas with well-known irrigatio expert Bob Ashley passing away after battling cancer for several months. Bob was director and partner in Hydrotechnics with Hugh Leicester since 1990.

Bob kept many a superintendent out of trouble in sticky situations with pumps and irrigation at critical times. He was a very casual bloke and a quick 'no worries' was his usual reply. Bob was just 45. Our thoughts and sympathy go to Bob's family and friends.

The passing of colleagues in the industry reminds us of the most important things in our lives. Regardless of the difficulties at work we should keep things in perspective.

### RETIREMENTS

Well-known long-serving superintendent Bob Chessell from Cabramatta Golf Club has retired after many years of service. Bob has been in the greenkeeping game for 47 years. With his early years spent at New Brighton before a short stint back on the bowls, Bob went on to be superintendent at Cabramatta where he served for 30 years.

Kevin Johnston from Kurri and formerly Charlestown TAFE is also retiring. Kevin worked in the turf industry for 11 years before moving to teaching. He has taught at both colleges for 28 years and was instrumental in setting up the new facilities at the Kurri campus after being kicked out of the Charlestown site with only a few weeks warning.

Kurri was very run-down and could not be used for teaching until considerable work was carried out. Kevin begged, borrowed and lobbied to get funding and help get the campus into the fine position it is in today.

I would like to wish both these gentleman a well-earned and wonderful retirement from the Board and members of the NSWGCSA.

### BOARD NEWS

Members of the NSWGCSA Board have been extremely busy keeping their own courses in order and I would like to thank them all for their dedication to keep things going through this challenging period.

Over the coming months the Board will be looking at the possibility of employing a part-time person to assist with the running of various aspects of the association. A similar role is envisaged to that used by the VGCSA and NSW TGAA.

### DEC ORGANIC TRIAL

The use of recycled organic material on golf courses will be trialled in a joint initiative with the Department of Environment and Conservation and the NSWGCSA.

Clubs involved in the trial are Ryde Parramatta, Northbridge, Muirfield, Vineyards and Manly. An application of recycled green waste will be applied in late summer and spring. Soil, tissue and biological analysis will be carried out before, during and after the applications. Each site has a treated and untreated area to compare results. All the best for autumn.

**MICHAEL BRADBERRY,  
PRESIDENT, NSWGCSA.**



## GCSAQ

It's back to a regular season for many in Queensland with a hot, humid and stormy summer behind us. However, the catchment areas for Brisbane have received little rain and at the time of writing this the dams are at 33 per cent of capacity.

On a personal note, The Grand Golf Club received 500mm of rain for the January-February period, compared to 60mm for the same period last year. These conditions have caused some concern with the odd club experiencing ERI fungi and stress-related problems.

Water in Queensland, like all other states, is still the major talking point, with an urban irrigation best practices guideline workshop being held in Brisbane. The Queensland Government has started community reference panels throughout the state, looking at long-term issues associated with water concerning the whole community. And on top of these, there is the study into the use of effluent water by the AGCSA and Central Queensland University's study on behalf of the EPA Water Recycling Strategy.

On the GCSAQ field day front, January took us to Gainsborough Greens for the Tru Turf equipment day. Thank you to Ray and Dorothy and their team for a great day, with some interesting new data on rolling from studies conducted in the US.

In February we were off to Lakelands Golf Club for the Simplot day. This day was also very educational with talks on fertiliser technologies, compatibility and injection. The highlight of the day was the 'Caddyshack' competition which was hotly contested. Thanks to John, Tim and Paul.

Congratulations to Ben Marshall on winning the 2005 Environmental Leaders International Golf award, a huge effort.

In other news, I would like to extend a warm welcome to Scott Calder who has started as assistant superintendent at Sanctuary Cove after moving north from Moonah Links. I know for one thing, the weather will be 100 times better.

Upcoming events include the Nuturf day in April, Globe Australia day in May and the turf tour to Bundaberg, Biggara and Coral Cove in June. See you there.

**RODNEY COOK,  
PRESIDENT, GCSAQ.**



# NZGCSA

Greetings again from across the Ditch. The NZGCSA has been through a quiet period in recent times as we worked our way through the summer period. It's generally a busy time for superintendents in New Zealand as no doubt it is in Australia. A lot of people choose to take their annual holidays at this time and what do they want to do? They want to play golf. So combined with the pressure of irrigation and other seasonal problems, it certainly makes for a busy time.

The executive of the NZGCSA held its last meeting for 2005 in early December. This was combined with a regional delegate meeting as well as the six-monthly update with our trainee moderators and representatives of the NZ Sports Turf Industry Training Organisation.

The nine regional delegates all reported busy years with numerous training days and other events. Many spoke about the downturn in numbers attending organised days as clubs place more demands on staff. I think some lose sight of the benefits of attending these days. They are a great way to network with fellow turfies and discuss seasonal issues that are common to everyone.

It was also announced at the meetings that from January 2006 all trainees in the golf turf industry will have their NZGCSA membership subsidised in full by the New Zealand Golf Association. This initiative came about after discussions with NZ Golf and the NZGCSA executive and should prove to be a great benefit for up and coming turfies.

The 2007 national conference took a large amount of time as well as we started to put together a program that will accommodate everyone's needs. The conference is being held in our nation's capital city, Wellington.

The 2007 conference will also mark the 75th birthday of the NZGCSA and we are looking at different ways of marking this achievement. The preferred option at this stage looks to be a formal dinner held prior to the conference. As details are finalised these will be posted on the NZGCSA website and other publications.

Registration forms are now out for both the North and South Island Fine Turf Seminars. If you're not already aware, the date for the South Island three-day seminar is 1-3 May in Queenstown at the Rydges Hotel. Topics to be covered include thatch management,

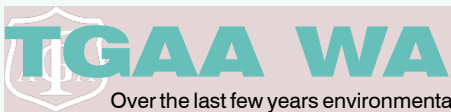
resort management and expectations as well as environmental issues in New Zealand and Australia.

The North Island three-day seminar is from 28-30 May at the Bureta Park Hotel in Tauranga. Speakers include Australian Open host superintendent Leigh Yanner from Moonah Links, Andrew Peart from AGCSATech and our very own David Howard from the NZ Sports Turf Institute. Subjects include the use of plant growth regulators, thatch management and environmental issues.

Both programs are very full and have something in them for everyone. The venues are first class and the organisers of both seminars are expecting a full attendance.

I think it's a prime opportunity for a few Australian superintendents to reward a staff member with a week in New Zealand and the chance to attend what will be two extremely good seminars. Food for thought! Registration forms are available from the NZGCSA website [www.nzgcsa.org.nz](http://www.nzgcsa.org.nz).

**BRETT BURGESS,**  
**PRESIDENT, NZGCSA.**



Over the last few years environmental issues have been a major concern for the turf industry in the Perth region. Some of these include water restrictions, ground water conservation and algal blooms in the Swan and Canning rivers. However, it seems that the major issue now facing the turf industry in WA is a shortage of skilled labour.

The feedback I am getting from our members is that it is increasingly difficult to retain qualified staff and also to find new people. While this is a common problem in many trades in WA, it is something that the turf industry needs to address to ensure a sustainable future.

We have identified the need to raise the profile of the turf industry in the community

and to promote it in schools as a viable career option. Some of our members have responded by offering work experience opportunities for students.

Another important issue that we have been dealing with is the proposed changes to horticultural training and apprenticeships in WA. Our members feel strongly that there should be no reduction in the current four-year apprenticeship, and that the TAFE training component should not be altered. We also had to lobby the Education Minister to retain funding for TAFE to offer certificate courses in horticulture this year.

Our first event of the year was the annual President's Breakfast in February at Kings Park. Over 50 members enjoyed a hearty

BBQ breakfast, followed by an update on the activities of the association and an open forum discussion. I'd like to thank Viny Kapur from Kings Park for his support.

In March, Perth was the venue for a meeting of the National Turf Education Working Group. While there were TGAA representatives from each state at the meeting, we took the opportunity to discuss the formation of a TGAA national executive. TGAA has over 1100 members nationally and we need to have a united voice to deal with issues that affect the turf industry at a national level.

**PETER RUSCOE,**  
**PRESIDENT, TGAA WA.**



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## VGCSA

March saw the VGCSA introduce a new style of newsletter, the first of four for the year which we hope members will enjoy reading. This new colour and larger format newsletter will give all superintendents throughout the state the opportunity to contribute with articles and interesting photographs.

If you have anything you consider of importance and wish to inform fellow members, this is an easy way to circulate such information. It is your newsletter, so the more input from you all the more enjoyable it will be for members.

On a sad note we pass on our condolences to the family and friends of Colin Cowden. Colin was superintendent at Rosedale Golf Club and passed away recently after a battle with cancer. Colin became a life member at our last AGM and had been at Rosedale since 1969. Colin's unique personality will be sadly missed at all our meetings.

The most recent VGCSA meeting saw 101 members and guests venturing to Sorrento Golf Club on the Mornington Peninsula. The clubhouse surrounds were very comfortable, the course was in great condition for the course inspection and those that later played, and the food was all the talk. It was a fantastic day and

our thanks go to course superintendent Shane Greenhill and general manager Andrew Davis.

The subject of *Poa annua* management on putting greens was put forward by two of our well experienced superintendents Peter Frewin (Barwon Heads) and Jim Porter (Royal Melbourne). It was great to see two sides of management practices and club policies on our old friend/enemy *Poa*. The AGCSA's John Neylan also gave some interesting theories and history on work he has done over the years.

This hot topic was quickly followed by another on summer stress by Phil Ford from NMIT and then a detailed discussion from Terry Woodcock (Sportsturf Consultants) targeting rhizoctonia. Thank you to all that turned up for making this such a successful meeting.

The VGCSA's annual general meeting will be held on Wednesday, 17 May at Victoria Golf Club (host superintendent Ian Todd). This day will be sponsored by Toro. Other dates to diary include the managers/superintendents day at Spring Valley Golf Club on 21 August (sponsored by Active Safety). More details will be given closer to the dates. Please ensure RSVPs are returned on time as it makes it easier to cater for with all associated clubs.

If you have ever thought of getting on board the VGCSA committee now could be the time! We have had suggestions from some committee members that their time on the committee may be up and we are looking for nominations for these rewarding and recognised positions.

We are now allocating golf clubs to host our meetings for 2007. If you would like to request your club or suggest another club, please do so by the start of April by contacting one of our committee members.

Congratulations must go to the following superintendents who held major tournaments early in 2006 - Peter Jans (Sanctuary Lakes Golf Club) who hosted the Victorian PGA, and Glenn Stuart (Woodlands Golf Club) who hosted the Victorian Open.

This year's VGCSA calendar has been mailed to all members and has a changed format which really highlights not only the sponsors but all courses where VGCSA meetings will be held this year. We would like to thank all our generous sponsors and the co-operation of all participating golf clubs.

**MARK PROSSER,**  
**PRESIDENT, VGCSA.**



## GCSAWA

Hello to all avid ATM readers. WA turf managers endured a rather unusual and unseasonable summer period, leaving most a little confused as to where we are situated on the Aussie map. By the end of February we had only one day over 40°C. While there was plenty of humidity and tropical storms, there wasn't the ongoing searing heat which is typical of a WA summer.

In March, we saw the arrival of the National Turf Education Committee to WA for their quarterly meeting and inspection of our training facilities. The draft Delivery and Assessment guidelines for Certificate 4 Turf Management were presented to the committee for approval prior to finalisation and implementation.

It has been a great achievement for the committee to have the first four levels of turf management training fine-tuned to industry expectations and nationally standardised in just a little over two years. It represents the high level of commitment industry and training providers have to providing high level

training and bettering our industry's position in the workforce.

The next step, which I believe needs to happen sooner rather than later, is to educate, encourage and support the rationalisation of wage structures through all levels of golf employees, to ensure the right calibre or employees are attracted to our industry and paid at a fair rate commensurate of their skill and productivity expectations.

Congratulations to Dion Warr, his assistants Paul Wright and Scott Parker and their staff for the success of the 2006 Johnnie Walker Classic staged at the Vines Resort in February. The event was a tremendous success and the course was presented in fabulous condition.

The 2006 Golf Masters Cup kicked off at the Vines shortly afterwards, allowing members to also enjoy the great layout and get a closer look at what the pros encountered. Darren Wilson, now superintendent of Wembley Golf Complex and ex-Vines 21C, drew on his local knowledge to take out round

one with 22 stableford points, just pushing aside Dan Young from Rocla Industries who finished with 20 points. Thanks to the field of guys who enjoyed the day and a special thanks to Callum Hitchings (Busselton GC superintendent) for putting in the extra effort by driving from down south to attend.

Plans for our 2006 Margaret River conference are well underway and we have secured John Odell (Royal Sydney GC) and Terry Muir (Environmental Business Solutions) as guest speakers. This year's event will again be hosted at the Best Western Colonial Lodge and will run from 13-15 August.

On a closing note, I would also like to extend to Alan Redmayne a sincere thank you for his support of the GCSAWA while superintendent at Cottesloe Golf Club and wish him the best of luck in his future ventures. We still hope to see you around the traps throughout the year.

**BRAD SOFIELD,**  
**PRESIDENT, GCSAWA.**



# SAGCSA

Weather conditions over summer were dry and warm, with the extreme conditions coming around Australia Day when Adelaide experienced four consecutive days over 43°C degrees. Then we had a weather change which brought high humidity and some rainfall which had superintendents everywhere running for a fungicide to treat rampant dollar spot.

A very successful Jacobs Creek Open was held on 16-19 February at Royal Adelaide Golf Club and superintendent Jeff Kaines and his staff are to be congratulated on the presentation of the course. Jeff and the crew have worked feverishly over the past year reconstructing some of the greens and bunkers with work carried out to the 2nd, 4th, 7th and the famous 'crater hole', the 11th. This together with the selective pruning of trees, will help improve turf quality on the already impressive RA surfaces.

Just around the corner from Royal Adelaide, The Grange superintendent Chris

Klei is even busier with reconstruction work. The greens on the West course are to be reconstructed in conjunction with a master plan developed for the club by Clayton and Associates. This is combined with other works on the East course which include an aquifer recharge wetland system.

With all these works going on at both clubs and with the Eisenhower Trophy scheduled for 2007, I couldn't think of two better superintendents directing traffic on their respective courses.

Other interesting work going on around SA includes that being undertaken by Tanunda Pines superintendent Steve O'Donnell, who over the next three years is converting all greens to Penn G2.

Recently completed work at Blackwood Golf Club has seen bunker reconstruction as well as a new fairway bunker on the first hole. To complement this, shrubs were cleared at the rear of the 1st green to allow easy access to the men's 2nd tee.

The first SAGCSA meeting for 2006 was held on 14 February at Tea Tree Gully Golf Club (host superintendent Ivan Swinstead). Topic for the day was irrigation, and together with Darren Ferber from Aquatek, Ivan was keen to show off his recently commissioned system. Darren delivered a presentation to the 25 members gathered about the GPS system which was used to help design and install the system.

AGCSA chief executive Steven Potts came across for the day to give an overview of AGCSA activities for the last 12 months. Daryl Sellar also addressed the gathering with an update from the national education working group which has put in a tremendous amount of work in the past 12 months for training providers.

Our next meeting is scheduled at the Vines of Reynella Golf Club in May.

**PETER HARFIELD,  
PRESIDENT, SAGCSA.**

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### TGAA ACT

The TGAA ACT is constantly reviewing aims and objectives to keep it heading in a direction aimed to best service members and industry.

As we progress into 2006, we ask association members to help us to make the TGAA better for them. There are many scheduled events and fixtures planned for members this year, but we need suggestions and feedback so as to provide a service that is indicative to your needs. So please get in touch with us and let us know what you want!

Recent topics of conversation through the local trade have included the outsourcing of maintenance to contractors. Although this is a common practice in other states and for the public sector in the ACT, it is a relatively new concept for the private sector within the territory.

As greenkeepers, we are witnesses to the fact that clubs around the country have been closing their doors more frequently every year. Commonly believed thoughts for this have been reduced memberships, rising costs, increased capital expenditure and higher costs for public liability insurance. In many cases, clubs feel they have no option but to cut costs to stay viable and the highest cost is grounds maintenance, so it is the first to go.

What does this mean for those of us working in the industry? That's anyone's guess, but what we do know is that a new concept for grounds maintenance is sweeping through the trade and we should all be prepared to make changes to the way we look at and do things.

An excellent way to gain access to the latest up to date information on renovation equipment, products and techniques is the Internet. It is apparent that many greenkeepers are not using the service to its full potential, and that increases in services that are being given online. If you are interested but having difficulty in locating particular information, the TGAA ACT has put together a database of turf related websites. To receive a copy of this, please contact the association.

**JUSTIN A. K. HASLAM,  
COMMITTEE, TGAA ACT.**

### TGAA NSW

Hello from TGAA NSW. We have managed to survive the hottest summer in Sydney's history and we are looking forward to some cooler weather and getting into winter sports.

Times are changing on the TGAA front here in NSW. First, I would like to thank all the committee members who have recently stepped down or moved on for one reason or another - Jock Millward, Colin Wise, John Cullen, Matt Cairns and Mark Hill.

To all those mentioned, we, the TGAA, have appreciated the countless hours you have put into our events to make them a success. You have all been major contributors in putting us on the turf industry map and for that you should be, as we are, very proud. But we know the dedicated types you are and I am sure we will see all at an upcoming TGAA event. We welcome back to the committee Gary Hoy of Knox Grammar and also welcome newcomer Justin Hollis of Sterling Group Services.

TGAA NSW is heading north to the Hunter region where we will hold a Regional Turfgrass Seminar on 2 May at Kurri Kurri TAFE. We are looking forward to introducing TGAA to many country greenkeepers who don't often get the opportunity to attend seminars.

We have an interesting line-up of speakers

### TGAA VIC

On Sunday 12 Feb, TGAA VIC held its first six-a-side cricket competition. Held at Wesley College's Glen Waverley campus on neighbouring turf wickets, the day was an absolute corker. We had six teams contesting, made up from Globe, Nuturf, Active Safety, Anco, NMIT and the MCG. Four round-robin matches each were played with a semi-final and a final to decide the winner.

In a hard-fought competition the final was played between Nuturf and the MCG boys. It was a close match but the Nuturf team managed to defend their modest total and hang on to win by 10 runs. The Nuturf team received a winner's trophy as well as 12 months' worth of bragging rights.

The highlight of the day for me was Stan Wells tearing a hammy in the first five minutes but playing the day out to eventually take the catch of the day - a blinding full stretched one handed to his right while wicket keeping. There were also some very memorable batting performances that really hurt the fieldsman.

Overall it was a fantastic day. The weather

covering many topics. Newly-appointed curator at Energy Australia Stadium, Scott Egan, will talk about achieving your goals within the industry, while Terry Muir from Environmental Business Solutions will explain what we should get for our environmental dollar.

The creator of Sir Walter turf, Brent Redman, will talk about his experiences in developing the variety and NSW Golf Club superintendent Gary Dempsey will give us an insight into working at international golf courses. We are also very pleased to present a motivational speaker for the day, the legendary Wayne "Junior" Pearce will share the secrets of teamwork and how to get the best out of your workers.

It's set to be a very full program and will be complimented by a tradeshow during the event. To finish things off we will sit back and enjoy the country atmosphere at Kurri Kurri with a BBQ. All the details are available on our website. Other dates for your calendar include the Sydney Seminar on 15 August at Sydney Showground's and our Sportsman's Luncheon on 17 November.

**GRAEME LOGAN,  
PRESIDENT, TGAA NSW.**

was about 28°C and the ovals were in immaculate condition and families had a great time. Needless to say there were plenty of beverages consumed as well.

The social six-a-side cricket day will become an annual event and one not to be missed. I have heard rumours of teams already being formed for the next big event. Many thanks go to Wesley College and in particular Rob Savedra and crew for all the work done to prepare the facilities at such short notice.

The next TGAA function will be the OHS&E day to be held on 2 May. A venue is still to be confirmed. It promises to be a day with a difference with the possibility of looking at a recycling station as well as some hands-on displays and talks from various suppliers. Information will be forthcoming soon.

Nearly time to start preparing for those dreaded leaves again as we head into autumn. All the best.

**MATT HANRAHAN,  
COMMITTEE, TGAA VIC.**

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