

AUSTRALIAN Turfgrass MANAGEMENT



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vol/ 1.6

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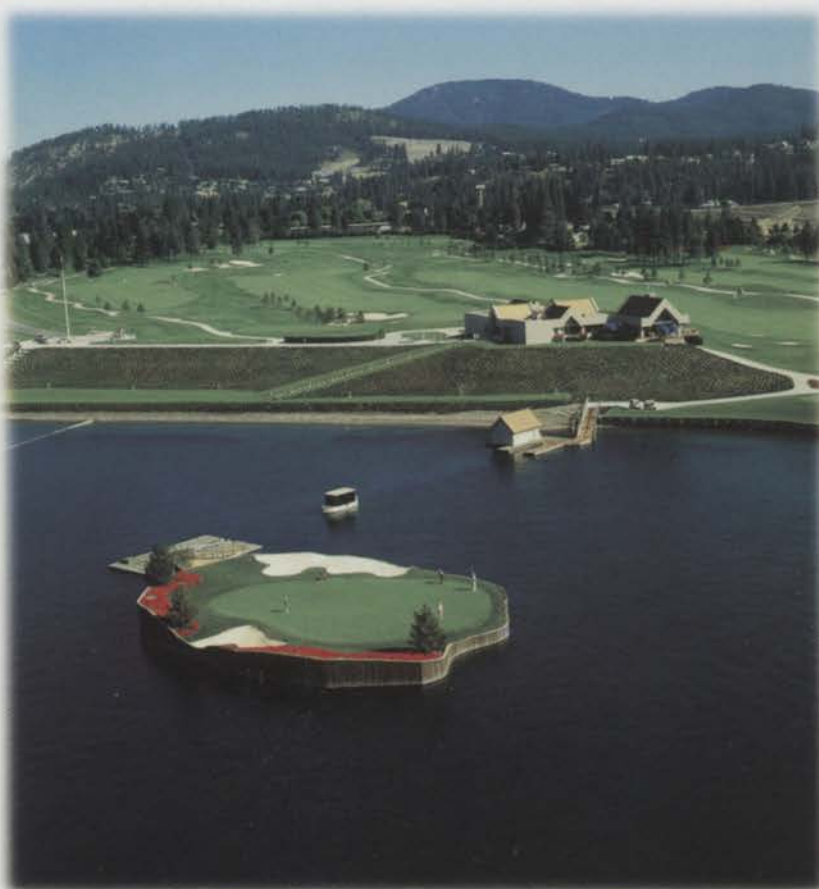
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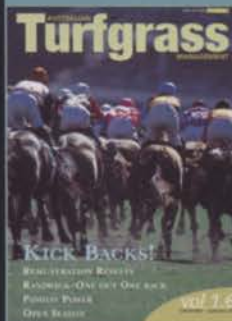
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cover

Norman Robinson Stakes, Caulfield
Photo courtesy of AllSport Australia



special features

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Although plagued by delay, Melbourne's Colonial Stadium is scheduled for completion early next year. With 'in-door' one-day cricket already scheduled, it is set to become the country's premier multi-purpose stadium. Paul Simpson from RA Young Consulting Engineers outlines the flexibility of this marvellous facility and discusses the management challenges that lie ahead.

THE POWER OF PASSION

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AGCSA Claude Crockford Environmental Award finalist Michael Nicholls from the Echunga Golf Club in South Australia, shows us what can be achieved with resourcefulness and passion.

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Having borne the brunt of some terrible Sydney weather resulting in numerous race cancellations, The AJC is midway through the installation of a new 'all-weather' surface on the 'inner' track at Royal Randwick. This is the pre-cursor to a massive course redevelopment and will be watched closely.

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Turf Consultant, Terry Woodcock puts International Turfgrass Management - Handbook, (edited by David Aldous) under the 'microscope'.

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In the first of what I hope will become a more regular feature in ATM called 'Curators Diary' Les Burdett, curator at the Adelaide Oval gives us his guide to preparing a consistent and fair cricket pitch suitable for club level cricket.

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Are you getting paid enough? Go straight to page 38 to find out.

in every edition

REVIEW - KICK-BACKS, ARE THEY WORTH IT?

Who's paying for your Christmas vacation? Well, before you accept there is something you should know.

TECH TALK - HOW DO PLANTS USE WATER?

Realising the importance of understanding basic scientific principals of turf management, Dr. Tim Colmer has been commissioned to write a series of articles addressing relevant aspects of plant and soil science.

AGCSA BOOKSHOP

NEWS

Featuring notes on preparation for the Australian Open by John O'Dell

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A Set of Six

Welcome to the sixth and final edition of Australian Turfgrass Management (ATM) for 1999. In this edition, Paul Simpson gives us a look at a venue set to become Australia's premier multi-purpose stadium and we visit the Royal Randwick Racecourse to check on the progress of their new 'all weather' racing surface.

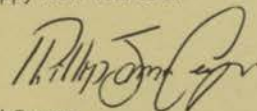
Lorna Gelbert, lays down the law on 'kick backs' and Michael Nicholls from the Echunga Golf Club demonstrates the 'Power of Passion'. Les Burdett, Curator at the Adelaide Oval gives us his recipe for preparing consistent and fair cricket pitches and in the first of a series called 'Tech Talk', Dr Tim Colmer from the University of Western Australia discusses the science of plant water use.

In addition to this, John Odell gives us some idea of what it takes to prepare for an Australian Open, Terry Woodcock reviews a new turf management book edited by David Aldous and if you want to know whether or not you are being paid enough, turn to page 38 for a look at the results of our remuneration study.

Due primarily to the support of our readers, now numbering over 6000, and the incredible support and faith shown by our advertisers, ATM has flourished since this time last year when the AGCSA decided to 'take the plunge' and produce their own, 'industry owned' publication. It has been a successful and incredibly rewarding venture and on behalf of the AGCSA I would like to thank you all.

On a personal note, I would like to take this opportunity to thank the board and staff of the AGCSA for their strength in allowing the magazine to be different and to evolve. I would also like to acknowledge the efforts of my editorial committee and the many contributors to the magazine who have ensured that it covered all aspects of our industry. Finally, thanks to the team at Publicity Press who have helped create a product set to promote and encourage this industry into the next century.

Merry Christmas and a Happy New Year to all



Phil George
Editor

Editorial committee



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The PITCH, The FOCAL POINT



ARTIST IMPRESSION OF THE COMPLETED COLONIAL STADIUM AT NIGHT

The Colonial Stadium, located at the Docklands in Melbourne, Australia, is one of the new generation of stadia designed to be truly multipurpose. Whilst the architectural and structural features of the stadium are breathtaking, it is the Arena which is the focal point. The development of an international standard natural turf sports surface has involved extensive research and development in order to address the balance of architectural, engineering and agronomic design considerations.

The arena will be a natural turf sports surface capable of sustaining the requirements for international standard events under an intensive usage regime.

The arena is capable of hosting:

- Australian Rules Football
- Soccer
- Rugby League
- Rugby Union
- Cricket
- Concerts
- Special Events

The stadium structure rises 35m above the 20,000m² arena to what will be one of the worlds largest opening roofs. The arena and playing surface is supported on a high strength reinforced concrete slab with a 2500 space carpark below. The stadium also accommodates a high level of spectator amenity for oval and rectangular sports by use of a moving tier which will extend forward some 18m on all sides to provide side line viewing for Soccer, Rugby League, Rugby Union, concerts & special events.

The stadium form, proposed uses, and event schedule provide a challenging set of conditions to be addressed in the design construction and maintenance of an international standard natural turf sports surface.

The project is being constructed by Baulderstone Hornibrook for Stadium Operations Limited. Architects for the project are Daryl Jackson Bligh Lobb Sports Architecture Pty Ltd. The specification for Pitch Construction has been designed and documented by Young Consulting Engineers as part of the Daryl Jackson Bligh Lobb team of Engineering Consultants.

Young Consulting Engineers has significant experience in the area of sports field construction. The Company has developed a niche market over the last 15 years which has culminated in appointments for design, documentation and construction management for high profile projects which include Olympic and international standard facilities for;

- | | |
|----------------|------------|
| • Athletics | • Hockey |
| • Soccer | • Rugby |
| • Softball | • Baseball |
| • Horse Racing | • Tennis |

THE STADIUM ENVIRONMENT

As with many modern stadia the commercial reality of providing a "paying venue" compromises ideal growing conditions for a natural turf surface. The requirements for maximised seating configurations, under cover seating, closing roofs and cost effective construction provide a number of challenges to be overcome.

The extent of shade on the Docklands Stadium arena is one of these challenges. Up to 30% of the arena will be in constant shade for the mid winter months, a period which is likely to correspond with a high frequency of usage.

The result will be that the turf will exist in areas of reduced light condition and will have little opportunity for recovery through natural processes during the cooler months.

This aspect combined with use of the moving tiers and an intensive event schedule have been addressed through investigation, design and documentation.

PITCH PROFILE

The pitch profile will be 500mm in depth, and will be placed over a concrete slab which is the roof of the 2500 vehicle carpark. The profile above the concrete slab includes slab waterproofing, drainage and irrigation zone, reinforced, sand rootzone and grass.

Documentation prepared by Young Consulting Engineers uses a reinforced USGA (United States Golf Course Association) based profile as a benchmark. This profile has been installed at a number of venues in Australia, including the Melbourne Cricket Ground, Parramatta Stadium Sydney and Moonee Valley Racecourse, Melbourne.

The profile has a proven history in Australia providing what is considered an "all weather" natural turf sports surface capable of sustaining an intensive event schedule.

Whilst this system was provided as a benchmark, overriding performance criteria allowed companies bidding for the arena construction to submit a number of alternatives and variations.

The use of a "reinforcing agent" is seen as necessary to achieve maximum performance from the playing surface. Performance requirements include:

- Maintenance of the playability characteristics of natural turf.
- Improved stability of turf surface.
- Reduced wear by protection of turf canopy / turf rootzone.
- Increased turf recovery.
- Capacity for turf replacement.
- Increased load bearing capacity of the surface.



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TURF REPLACEMENT

Notwithstanding the advantages of providing a reinforced profile, the Stadium environment and event schedule will mean that the grass surface will wear out, affecting surface appearance and playability.

The solution to this challenge is the development of an advanced method of turf replacement which can be undertaken in affected areas of the pitch within a short changeover period. Performance requirements for the system include:

- Stringent placement tolerances
- Surface stability
- Rapid changeover times

MOVING TIER SODPANS

The support system for the moving tiers includes eight (8) trenches up to 18m in length and 120 spigot supports to be covered by natural turf contained in "sodpans".

Approximately 200m² of sodpans will form part of the playing surface for Australian Rules Football, Cricket and other events using an oval configuration. Performance requirements for the sodpans include:

- Stringent placement tolerances.
- Surface stability
- Rapid changeover time
- Consistent performance with the adjacent profile

The moving tiers for such events will be in the retracted position. For rectangular events such as Soccer and Rugby the sodpans can be removed, allowing for the support mechanism of the moving tier in its extended position.

IRRIGATION SYSTEM

The effects of the moving tiers and differential surface conditions caused by

shade requires an irrigation system capable of high degree of flexibility.

The system will include abilities for zoning control to cater for moving tiers, capabilities for running multiple schedules and individual sprinkler control.

Additionally 24 soil moisture sensors will be placed within the profile to provide constant feed back as to the level of moisture and nutrients held within the profile.

Both the irrigation controller and soil moisture sensors have the ability to be connected to the Stadium's Supervisory Control And Data Acquisition System (SCADA system).

CLOSING ROOF

In the Australian experience one of the greatest causes of turf damage relates to match play and training on wet grass. Whilst the profile will have a high ability for drainage (greater than 100mm/hour), play on the wet grass will still cause damage.

Whilst decisions on whether match play will occur with the roof closed have not been finalised, the ability to close the roof in the period leading up to match provides the potential to reduce the turf damage.

CONSTRUCTION

Construction of the Stadium is nearing completion with works on the competition arena programmed for October and November 1999.

Tenders for the arena works were received from a number of experienced pitch construction firms with a mix of Australian and international experience. The successful tenderer was StrathAyr Pty Ltd who will also be responsible for the maintenance following the Stadium's completion.

THE FUTURE

The commercial reality of Stadium design for the new millennium is that sports surfaces will be pushed to the limit by stadium managers to maximise event scheduling and returns.

The challenge for designers and constructors of Natural Turf Arenas is to provide sports surfaces which exhibit:

- Flexibility in use and configuration
- Consistent all weather characteristics
- High level amenity for spectators, media and advertisers.
- Compliance with the requirements of respective sports and athletes.
- High level of maintainability and sustainability.

Design and documentation for the Colonial Stadium Docklands has recognized these issues.

Young Consulting Engineers Pty Ltd
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Advertisement - Australian Turfgrass
Management November 1999



Colonial Stadium

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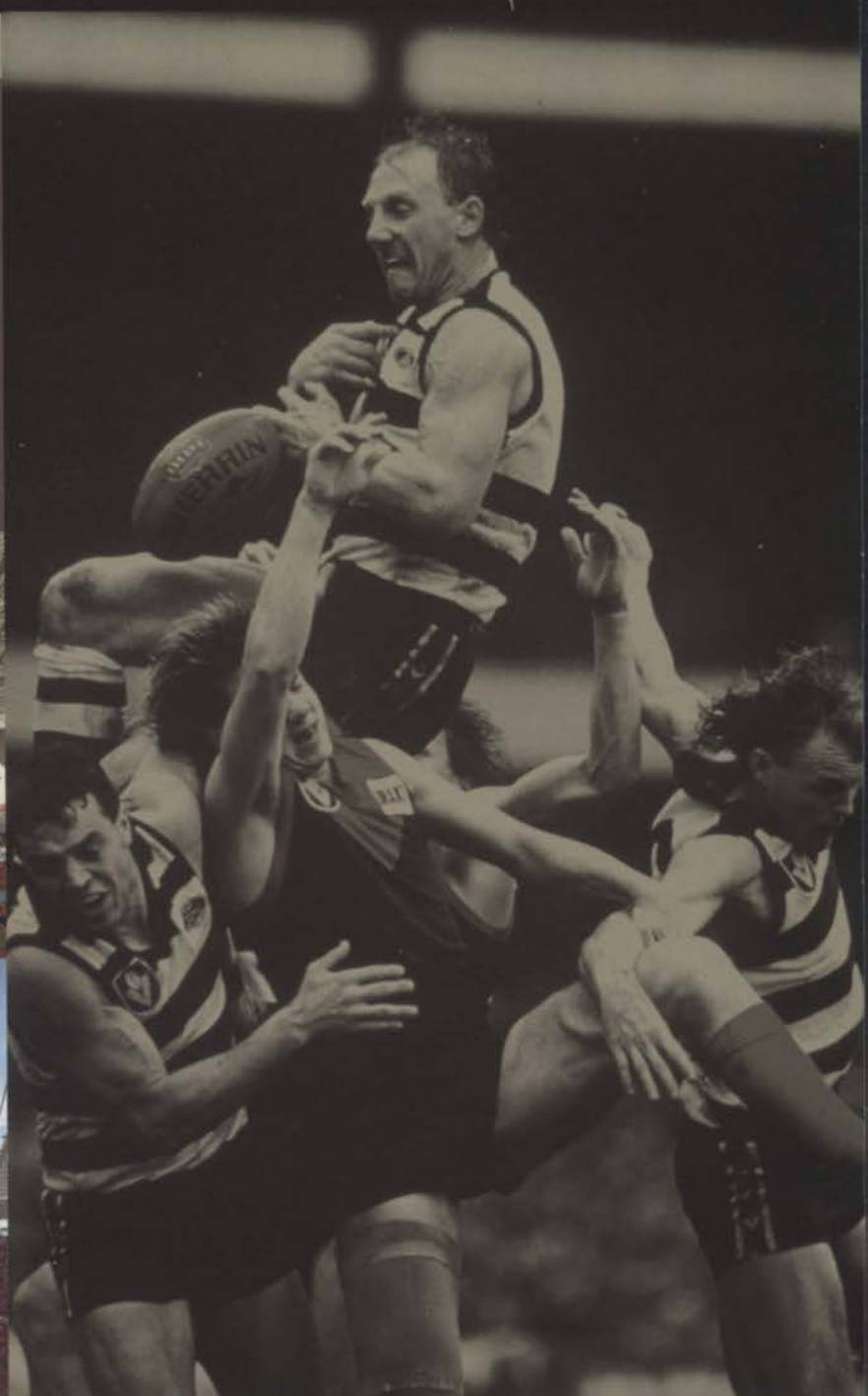
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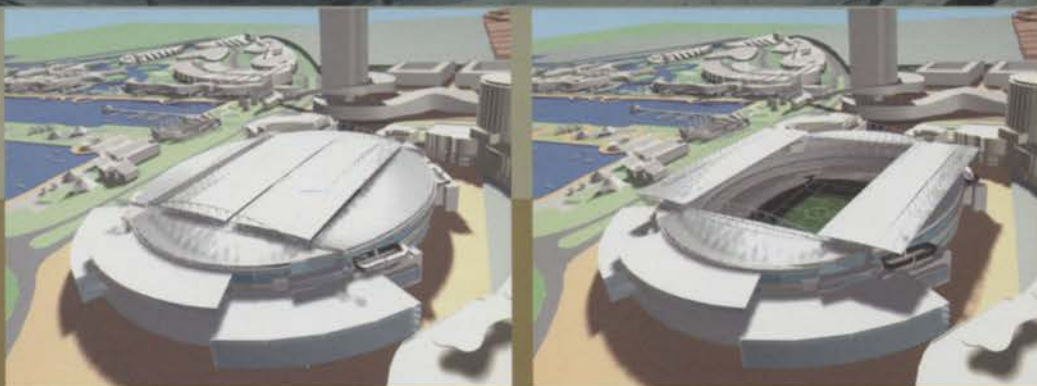
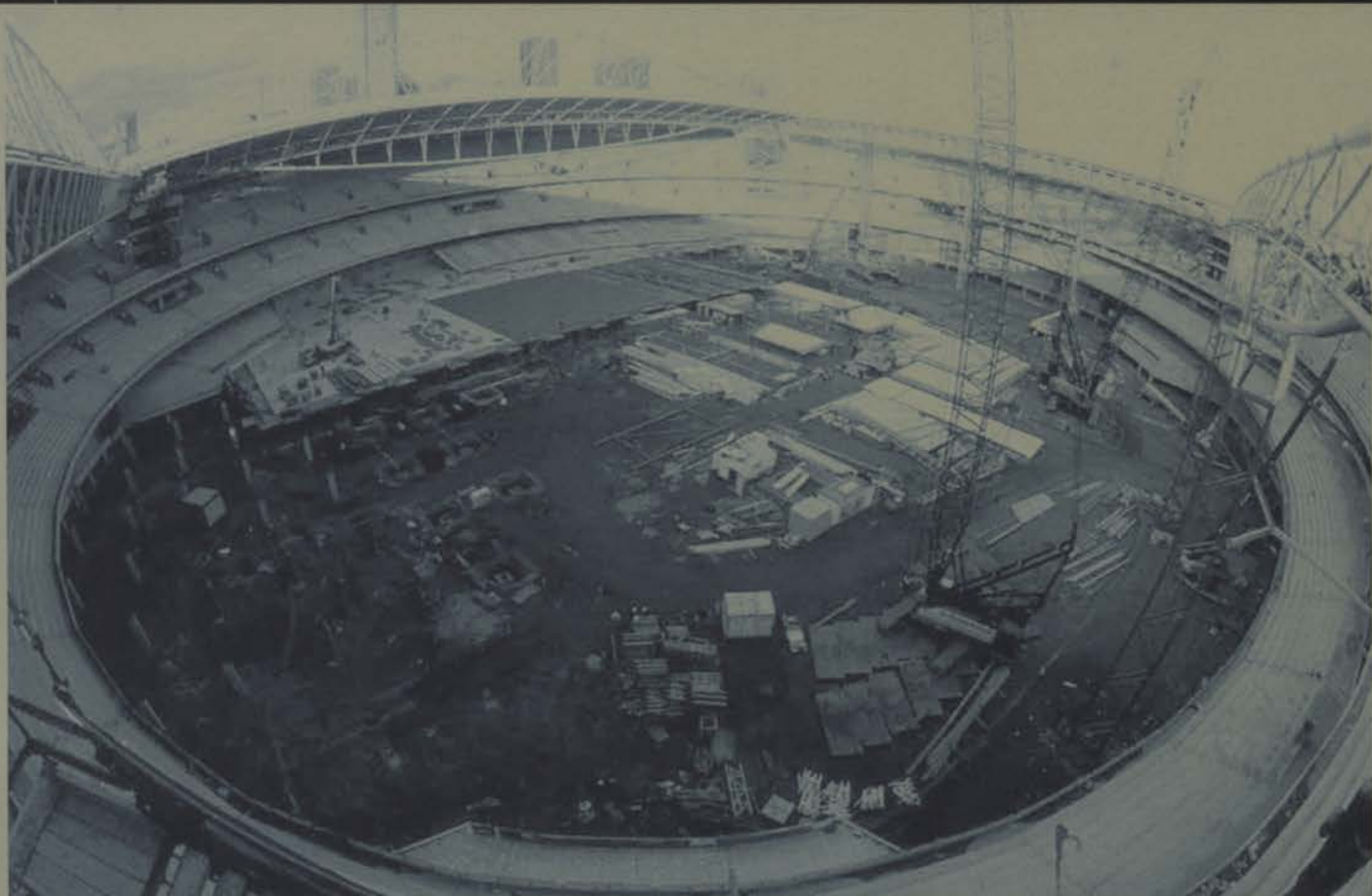
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ABOVE: COLONIAL STADIUM MIDWAY THROUGH CONSTRUCTION

ABOVE RIGHT: THE RETRACTABLE ROOF TAKES WEATHER OUT OF THE EQUATION

BELOW: COLONIAL STADIUM VIEWED AT NIGHT FROM PORT MELBOURNE





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'KICK-BACKS'

ARE THEY WORTH THE RISK?

By Lorna Gelbert

In today's competitive market, suppliers and retailers are looking for that certain something that will give them a marketing edge. What will convince the buyer to purchase their product over their competitors? One way is to offer trips interstate or overseas, electrical appliances, cash or other benefits - sometimes called 'kick-backs' in return for a certain level of business. Terrific you might think - if you would have bought the product anyway, why not get a free trip for doing so?

However, if the buyer is an employee, he or she may run foul of the law unless those 'kick-backs' are fully disclosed to the employer and the employer's consent is obtained.

An employee who has discretion to spend the employer's money on supplies for the employer's business, is considered to be in a position of trust and to have a fiduciary duty to their employer and would be considered as the trustee of the employer's funds for that purpose.

If an employee decides to buy products from a supplier because he or she will receive a benefit of some kind and without the employer's knowledge or consent, the employee may, in fact, be receiving a 'secret commission'. In Victoria, for example, that would be an offence under the Crimes Act 1958 for which the penalties can be very severe - heavy fines or up to ten years imprisonment. Anyone aiding or abetting the offence may face similar penalties. It makes no difference whether the employer also benefits from the acquisition of the goods.

Under that legislation, any employee who owes a fiduciary duty to the employer and

then diverts, obstructs or interferes with the proper course of the employer's business or who fails to negotiate in good faith with the intent to obtain a gift, benefit or advantage, will be deemed to have solicited valuable consideration from the person doing business with the employer. 'Valuable consideration' includes money, a benefit, an advantage, discount, commission or valuable thing.

If a significant possibility of conflict exists, therefore, between the employee's personal interest and the interest of the employer, an employee may well fall foul of the law. So too, will the person offering the secret commission.

For an offence to be substantiated against the employee under the Crimes Act (Vic), it would be necessary to prove, beyond a reasonable doubt, that the employee was an agent of the employer; that the offeror of the valuable consideration was a person having business relations with the employer; and that the employer had not given its consent.

The offeror of the secret commission could also face the same severe penalties if the following were proven;

- That he or she gave or offered valuable consideration to the employee
- The offeror had business relations with the employee's employer;
- The consideration was given as an inducement or reward for the employee to do or refrain from doing something without the employer's consent in connection with the employer's business;
- That the offer of the inducement influenced the employee to act or refrain from acting in that way and the employee was, in fact, influenced in that way.

If the elements of the crime have been proven, it would then be up to the

employee, in his or her defence, to show, on the balance of probabilities, that the valuable consideration was not received 'corruptly'. Once the valuable consideration has been given and received, without the employer's consent and with the intention of influencing the employee, there will be a presumption that it was done corruptly.

To displace that, the accused employee would have to show that the valuable consideration was not given with the intention of inducing or rewarding the employees for acting in a particular way in relation to the employer's business affairs; and the employee was not influenced by the promise of the valuable consideration. This is a very high hurdle for an accused person to get over.

What are the consequences? If proven, apart from the risk of a severe fine or imprisonment, the employee may be required to account to the employer for the benefit or advantage received or may be deemed to be holding the benefit or advantage on trust for the employer.

So, while many people would consider receiving a trip, a new microwave or other gift from a supplier as a 'perk' of simply doing their job, they need to think very carefully before accepting it. Does the employer know? Does the employer give consent? Does the promise or the chance of obtaining the gift influence, in any way, the decision whether or not to buy that product instead of another product? These are the questions to ask. If there was no influence and the employer knew, then enjoy! If not, it would be wise to think twice before accepting any of these sorts of incentives offered by suppliers.

LORNA GELBERT IS A PARTNER AT MADGWICKS, LAWYERS, MELBOURNE.



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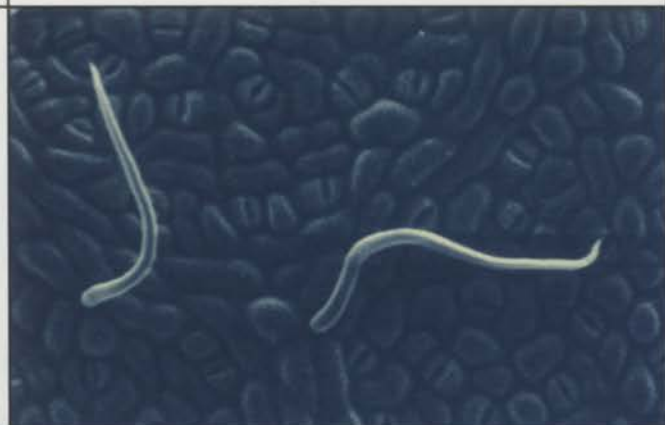
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How do plants use water?



SCANNING ELECTRON MICROPHOTOGRAPH OF A LEAF SURFACE

By Dr. T Colmer

Water is essential for biological life. Water in cells provides the medium for the numerous chemical reactions, which when coordinated by a series of enzymes is the basis of biology.

INTRODUCTION

Despite the apparent abundance of water on earth, fresh water is relatively scarce. In addition to this, the atmosphere is often "dry" so the gradient (ie. driving force) for water loss from plants is enormous. To cope with these challenges, plants have evolved efficient root systems, and mechanisms for the strict regulation of water loss from the leaves. These features are essential in order to prevent desiccation and death of the leaves. Thus, the supply of plant-available water in the soil often limits plant productivity although species differ in their ability to cope with limited water supply.

WATER IN THE SOIL-SYSTEM

Water applied to soil moves downwards due to gravity, but some water is retained in pore space and as a thin film around the soil particles. The volume of water held in a well-watered, fully drained soil is termed the field capacity. Fine textured soils, such as clays, contain many small pores and these hold water effectively. In contrast, coarse sands have fewer small pores and

many large channels so that water drains quickly and much less water is stored. Sandy soils are therefore better aerated than clays, but the sands also store much less plant available water.

The 'energy' holding water in a soil is usually discussed using the term 'water potential' (symbol: ψ ; units, MPa). By definition, the ψ of pure water at 25°C and atmospheric pressure equals zero. The soil water potential (ψ_{SOIL}) is a function of the matric forces (ψ_{MATRIX}) holding water in the soil pores and the osmotic potential (ψ_{SOLUTE}) resulting from solutes dissolved in the soil water (see Equation 1). The ψ_{MATRIX} is determined by the texture and structure of a soil and ψ_{SOLUTE} is largely influenced by salinity.

EQUATION 1.

$$\psi_{\text{SOIL}} = \psi_{\text{MATRIX}} + \psi_{\text{SOLUTE}}$$

The energy by which water is held in a soil by matric forces can be measured by applying a suction force to a soil column and quantifying the release of water from the soil. We are interested in the force required to extract water from any particular soil since this provides an estimate of the amount of plant available water; plant roots can only work to extract water up to a matric potential of -1.5 MPa. Water held in very small pores at matric

potentials below this value is not available to plants. Once soil moisture declines to this level the plants wilt. Typical values of plant available water in soils of different texture are given in table 1.

WATER UPTAKE AND TRANSPORT IN PLANTS

Water status in plant cells and tissues is also described by the theory of water potential (ψ), and plant ψ can be measured. However, the components of ψ in plant tissues are not exactly the same as in the soil. Water potential in the plant (ψ_{PLANT}) is a function of the turgor pressure potential (ψ_{TURGOR}) generated by the forces of water against the cell walls and the osmotic potential (ψ_{SOLUTE}) resulting from solutes dissolved in the cellular water, for example sugars and nutrient ions (see Equation 2). The ψ_{TURGOR} is evident in well-watered plants with upright leaves and stems, whereas poorly-watered plants wilt due to the loss of ψ_{TURGOR} .

EQUATION 2.

$$\psi_{\text{PLANT}} = \psi_{\text{TURGOR}} + \psi_{\text{SOLUTE}}$$

Water potential in the soil-plant-atmosphere system is of interest since water will move according to ψ gradients in adjacent locations. In fact, water will only

TABLE 1. TYPICAL VALUES OF WATER AT FIELD CAPACITY AND PLANT-AVAILABLE WATER IN SAND, LOAM, AND CLAY.

Soil Texture	mm of water per m soil depth		
	Field capacity	Plant-available	Unavailable
Sand	90	70	20
Loam	340	220	120
Clay	500	200	300

enter a plant root if the ψ_{ROOT} is lower than ψ_{SOIL} . The rate of flow of water will be directly proportional to the magnitude of the ψ gradient and inversely proportional to the resistance to water movement between the soil and root. This phenomenon describes why water uptake by plant roots declines as a soil dries. Water is first extracted from the larger pores, eventually leaving only water in the very small pores for which the ψ_{MATRIX} is too large to be overcome by the plant roots. Water will only continue to enter the plant if a favourable ψ gradient towards the roots exists.

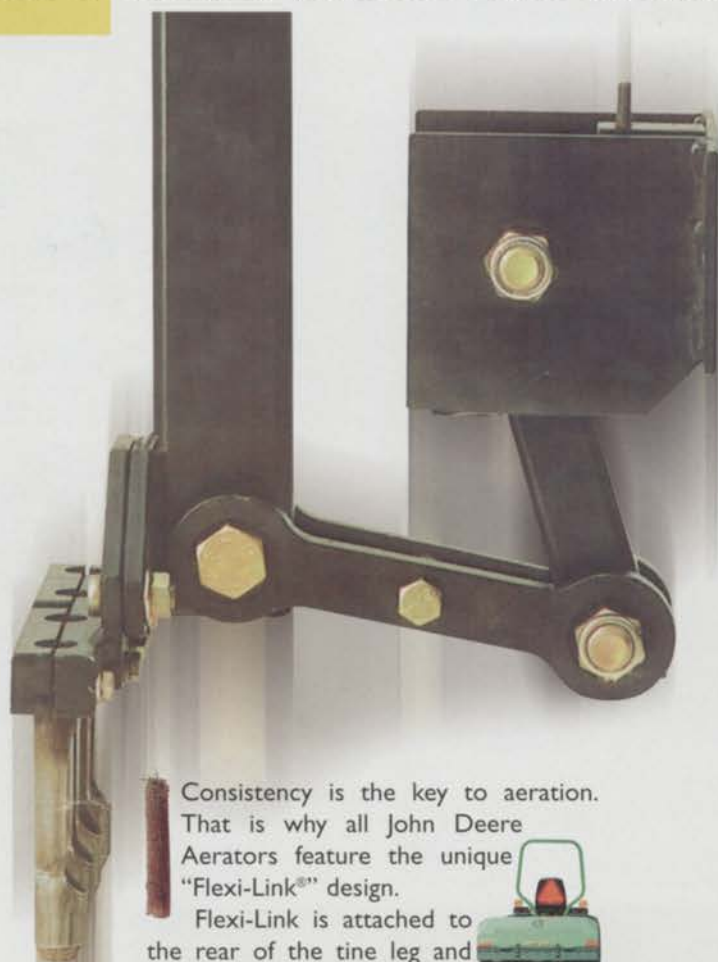
Gradients in ψ also drive the processes of water delivery to the leaves and water loss from the leaves to the atmosphere, termed 'transpiration'. The concentration of water vapour, relative to that of the other major gases in the atmosphere, is extremely small (ie. low humidity). In contrast, the humidity inside a leaf is very high so that an extremely large ψ gradient exists for water loss from the leaves to the atmosphere. Water loss from the leaves establishes a ψ gradient within the plant so that more water is 'pulled' up from the soil, across the roots, and via the transport vessels in the roots and stems, eventually arriving in the leaves to replace the lost water. Transpirational pull occurs because:

1. $\psi_{\text{ATMOSPHERE}} < \psi_{\text{LEAF}} < \psi_{\text{STEM}} < \psi_{\text{ROOT}} < \psi_{\text{SOIL}}$, and
2. The strong cohesive forces between water molecules prevents the water column in the stem transport vessels from breaking.

This 'transpiration stream' of water is important for the delivery of nutrients to the leaf tissues. The evaporation of water from the leaves also has a cooling effect which is essential to prevent heat damage on hot summer days.

Water loss from the leaf is controlled. Firstly, the leaf surface is lined with a thin waxy (water-impermeable) layer termed the cuticle which prevents leaf desiccation. However, plant leaves must not be totally isolated from the atmosphere since they must absorb carbon-dioxide from the

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atmosphere for photosynthesis. The leaf surface contains thousands of small openings, called stomates. Each stomata consists of two "guard cells", one on either side of the stomata which control the size of the opening. In times of high light under well-watered conditions the stomates are fully open. During the night they close. As the soil dries the guard cells respond by decreasing the size of the opening to conserve water. Once water becomes limited the stomates will close. Under dry conditions the stomates may open partially for only a few hours during the early morning.

MANAGEMENT IMPLICATIONS



Water management in turf may be aided by the selection of appropriate genotypes to match the environmental conditions (eg. cool- vs warm-season grasses) and by cultural practices to ensure your turf has a healthy root system (eg. avoid soil compaction; control root nematodes and fungal diseases). Less frequent, but



SCANNING ELECTRON MICROPHOTOGRAPH OF THE SURFACE OF A LEAF. LEAF HAIRS ARE VISIBLE AS ARE THE NUMEROUS STOMATES. EACH STOMATA APPEARS AS A SMALL OPENING OF "GUARD CELLS". PHOTOGRAPHS COURTESY OF J. KUO AND A. NEUHAUS, THE UNIVERSITY OF WESTERN AUSTRALIA.

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deeper irrigations have also been promoted as a method to enhance soil exploration by roots and to conserve water. Also, mild drought between irrigations may lead to "physiological hardening" of the turf and improvements in water use efficiency. The suitability of these methods for maintenance of high quality turf, particularly in traffic areas, needs careful examination.

A challenge for managers is to match irrigation scheduling with turf water demands. Turf management decisions may be aided by: (i) soil moisture monitoring equipment, and/or (ii) crop factors for irrigation.

Several different systems are available for measurements of soil moisture content and even ψ SOIL. These systems differ in the ease of use and degree of automation. The objective when using these systems is to schedule irrigation in order to maintain soil water content within desirable limits.

A crop factor is an experimentally derived parameter which defines the plant water requirement as a percentage of the daily evaporative demand for water. Crop factors depend on the genotype, irrigation system, season, and climate of the region. This management technique depends on the availability of data for daily evaporation rates, and these can be measured using an evaporation pan or a weather station, or can be requested from your regional bureau of meteorology.

Experience is a valuable thing but tools such as these can be very useful.

DR. TIM COLMER IS A LECTURER IN PLANT SCIENCES AT THE UNIVERSITY OF WESTERN AUSTRALIA. DR. COLMER CO-ORDINATES THE TURFGRASS RESEARCH AT UWA, A PROGRAM IN COLLABORATION WITH INDUSTRY.



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The Power of Passion

By Michael Nicholls,
Echunga Golf Club

The Echunga Golf Club is a low budget country course located in the Mount Lofty Ranges, 45 km from the city of Adelaide. The course is open to the public but also has approximately 400 members, 95% of whom actually travel from the city to enjoy the serenity of the Adelaide hills.

In 1993 the club decided to extend the course from nine to eighteen holes and it was at about this time that my two staff and I decided to add an environmental focus to all work done on the course.

This began with the design of the 'new' nine where as much as possible of the existing native vegetation on the wooded grazing land was retained. This was important from a design point of view as the large number of well established trees are a real feature of the 'old' nine and the club wanted the two nines to blend

in with each other as well as possible.

During this construction phase we were careful to protect and enhance the numerous stands of native grasses and shrubs that dot the site. Ranging in area from a few hundred square meters up to an acre, these areas are not large but have proven to be a haven for native wildlife.

In addition to preserving as much existing vegetation as we could, the club embarked on a revegetation program to develop 'out of play' areas that had previously been cleared for grazing.

Essentially, this involved growing and planting large numbers of tube stock and after consultation with the then President Peter Vivian, I thought this may be an opportunity to involve the local primary school.

The school was approached and they were only too willing to help. As fate would have it, one of the teachers at the school, Noelene Sharrod, happened to be a member of 'Trees for Life' and was very enthusiastic about getting her class involved and was able to assist with advice on seed collection and propagation.

Noelene and her class of budding environmentalists ventured onto the course to collect seed from the existing vegetation which, mainly included wattles, eucalyptus



ECHUNGA GOLF CLUB



WATER HAZARD



MICHAEL NICHOLLS WITH LOCAL SCHOOL CHILDREN



SOUTHERN PURPLE SPOTTED GUDGEON

and melaleuca species. This seed was then propagated at the school and once they were ready for planting out, the students from the Echunga Primary School were given some simple instructions then let loose with the hand trowels they had brought from home. Within an hour over 400 trees had been planted. Whilst the planting technique of some were a little unorthodox it was extremely successful and a survival rate of 95% was achieved.

The next stage of the revegetation program was to do the 'fill in' trees in areas further back from the fairway. Noelene mentioned a planting technique known as 'direct drill seeding' where the seed is put straight into the soil and is then left to germinate and grow on its own accord. A local Greening Australia group had a machine suited to this task and in return for access to the course to promote their methods and \$350 to cover the running cost of the machine, the job was done.

Once again, the school children were involved with the seed collection and then all had an opportunity to get on the machine and place the seed in the hopper as it moved along. It was a very successful process and within six months the seeded plants were larger than the tube planted stock.

A small water hazard was built on the 'new' nine and we decided to stock it with native fish. Not knowing much at all about the fish indigenous to the area, I did some research and discovered that there were several types of small fish that would be suitable. These included Hardyheads, Line Eyes, Gudgeons and Murray River Rainbow fish. I also learnt of the Southern Purple Spotted Gudgeon that was almost extinct in the wild so was especially keen to

develop a stock of them.

I began to acquire a real interest in these fish. I bought some from a specialist fish shop and after a couple of tries I was able to breed them quite successfully at home in an aquarium. Once I had sufficient numbers I transferred them into the newly constructed water hazard and once they had established I introduced some larger Silver Perch. The size of the hazard does limit the amount of fish that can live in there but it will be able to hold more once the reeds and other aquatic vegetation develops, creating more habitat. Some of the slower breeding species have diminished slightly in numbers but the 'micro' ecosystem of the pond does seem to have found its own equilibrium with most species still present.

Response from members to the flourishing pond community has been fantastic and they actually seek me out and ask me what's happened if they are unable to catch a glimpse of them as they walk past.

As the trees on the 'new' nine are so young, nesting hollows for birds and possums are few and far between. I made some enquiries with some local environmental groups who were able to help me get hold of approximately 50 boxes of all shapes and sizes, which we have placed around the course. One type of box was for small bats, which are common in the Adelaide hills but was a species that we hadn't even considered attracting to the course. For this reason, we were interested to see how the boxes would perform. They have been great and just recently we observed up to 10 bats roosting in just one box.



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In 1996, a member who had a keen interest in frogs approached me, concerned that our management practices might be affecting the local frog population. Rather than view this enquiry negatively, I invited her frog and tadpole study group to do a 'census' on the course to assess the frog population. At least then we would know for sure how they were going and if needed, we could take steps to minimise any negative impacts.

Results of the census were encouraging, in fact, one location on the course was reported to be the most highly concentrated congregation of frogs ever heard by the Herpetologist from the Department of Natural Resources. Needless to say, he was very impressed with the site.

Earlier in the year I was nominated for the AGCSA Claude Crockford Environmental Award. Whilst I didn't win the award, it has been very successful in promoting what we are doing through articles in the local paper 'The Courier'. Also, since returning from the AGCSA's 4th National Turfgrass Conference in Perth, we have been approached by local land care groups offering free manpower to eradicate introduced species from the course. These people have not been associated with the course in any way but just wanted to help.

I have also received a congratulatory letter from the South Australian Environmental Minister, Dorothy Kotz, as well as being interviewed on an ABC radio talk show. I have no idea how these people have found out about the work we are doing but it

seems as though the grape vine is growing with increasing numbers of people continuing to contact us. I welcome the ideas and advice of others and I am always willing to put them into practice provided that it does not affect the golfers. After all we are a golf course.

All these projects have been done at no cost to the club and I have been extremely fortunate to have been able to work with such incredibly supportive local groups that have proven to be a wonderful source of information and ideas. It has generated tremendous community support for the club and while we are not currently working on any new projects, the school still visits the course to monitor water quality and run other environment programs.



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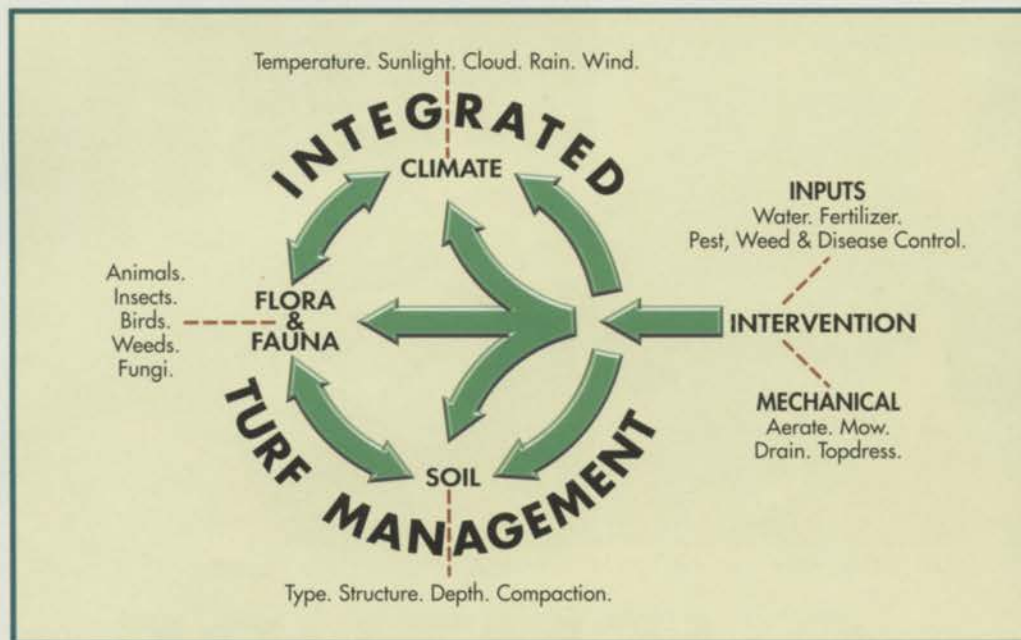
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RANDWICK

ONE OUT ONE BACK

By Phil George

Preparing a safe and fair horseracing surface week in week out that meets the expectations of an increasingly demanding viewing public is a racecourse managers job. Do it on a track that has received little more than remedial work in the best part of 150 years and you have the same job as Norm James.

Norm began his career at the Bendigo Jockey Club almost 20 years ago and has had the top job at the Royal Randwick

Racecourse for just over 15 months.

To say that Sydney has been a little wet over the last 18 months would be an understatement. The truth is that since January 1998, Sydney has received 3181mm of rainfall, which is about 60% more than the yearly average. Sydney's inner eastern suburbs have been worst hit and apart from sustaining \$3 million worth of damage to the roofs of stables, grandstands and staff accommodation in the April hail storms, the club has had to cancel six race meetings due to excessively wet tracks.

These lost race meetings cost the club additional revenue from TAB turnover. Something had to be done.

After much deliberation and consultation, the Australian Jockey Club (AJC) decided to reconstruct the 'inner' track, which is used primarily as a galloping surface for the 600 horses stabled on the property, but is also used for trials and is raced on up to eight times per year.

The club wanted to have the capacity to shift races to the inner track if the course proper was unsuitable so they decided on building a sand based reinforced 'all-weather' track. Once this decision was made, the AJC decided that it was in the best interests of themselves and the racing industry in general to undertake a thorough investigation of all available construction options.

The obvious place to start was with the 'StrathAyr' track at the Moonee Valley Racing Club but in addition, Norm travelled to the United States to evaluate the performance of 'Turfgriids'. Norm visited Santa Anita in California, Churchill Downs in Kentucky, the Lone Star Race Club in Texas and Golden Gate Fields in San Francisco.



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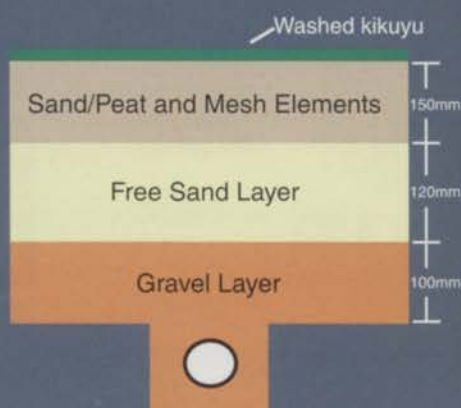
Norm said that although he was very impressed with what he saw, it was hard to make a direct comparison with the 'Reflex' mesh elements because the style of racing over there is so different. In America, horses race predominantly on dirt and where grass tracks are available they are generally only used for one or two races per meeting. In addition to this, the grass tracks are generally built not from sand but from a much loamier material and they tend to race only in three-month bursts rather than all year round.

The club also investigated the Desso 'Grassmaster' system that is in trial plots at the Cranbourne Training Centre and Flemington racecourse. However, in light of a successful Moonee Valley surface and a lack of alternative installations managed under Australian conditions to provide meaningful comparison, the club, in consultation with their consulting engineers selected 'Reflex' mesh elements supplied by StrathAyr, as the preferred stabilising agent.

The new inner track at Randwick will be 2087m long, 18m wide and will be approximately 4.5 hectares in area.

The profile consists of a 100mm gravel drainage layer, 120mm non-amended growing medium, 150mm growing medium with peat moss and mesh elements added. The mesh elements will be mixed at the rate of 5kg/m³. The turf will be washed kikuyu sods of the male sterile variety and it is being grown under contract at Windsor, north west of Sydney.

New Track Profile





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Norm expects that starting at the 2000m mark and working anticlockwise, turfing of the track should be completed in late December. As the club is under no real pressure to begin racing on the new surface, Norm said that "it won't be used until it is ready". Having said that, the club do intend to rebuild the course proper after their Autumn carnival in 2000 and if those plans go ahead, the new inner track will certainly be tested through its first winter.

Norm believes that the main challenge in managing the new sand based profile will be the management of moisture, nutrient and thatch levels and finding out how to best cope with the anticipated divoting, through winter in particular.

A close working relationship with Martin Breen at the Moonee Valley Racing Club who has as much experience as anyone with reinforced sand profiles and who has access to a whole room full of relevant facts and figures that bare legacy to Ian Trevethan, (Martins predecessor), should ensure that lessons from Moonee Valley need not be re-learned at Randwick.

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International Turf Management Handbook

Edited by Dr David Aldous, University of Melbourne, Burnley College Victoria. Inkata Press 1999

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David Aldous has drawn together a range of contributing authors from both Australia and overseas. Major areas covered are turfgrass growth, development and establishment, nutrition, irrigation and renovation, soil structure, drainage and machinery operation. In addition, there is an overview of pests and diseases, and an interesting section on turfgrass performance measurement.

Practical areas of construction and maintenance are covered in a number of separate and specific chapters for a range of sports including golf, bowls, racing and sportsfields with a separate section especially for cricket wickets. Other chapters cover environmental issues and there is a good section on administration and contract development and management.

The scope of the book is quite wide but all of the topics are reasonably well covered.

Different authors write each chapter so there is some minor overlap in material presented. However, this overlap provides some continuity and reinforces the main aspects of turf management. The topics in the book are treated at different levels and range from detailed information of a highly technical nature in turfgrass identification and physiology and soil drainage theory to more mid range applied technical areas such as that found in the chapters on turfgrass establishment, irrigation and nutrition.

The very nature of the technical material in the book makes some chapters especially hard to read but others flow easily. Having said that it is definitely worth the effort to read the whole book at least once to know where to find the valuable tables and the one line tips that are buried like pearls in a sometimes heavy sea of information. This book is packed with valuable information; you just have to find it.

It was disappointing to find that in a book with such good quality information there are

only black and white photographs. Pictures of grasses, weeds, diseases and insects have no impact and are of little use for identification. Although space is always at a premium, larger figures and tables with a bolder text are needed to make them more readable. The total lack of colour, except for the cover, detracts from an otherwise good book.

In structure the book has the most intense topics in the first few chapters and it gets lighter but no less valuable as you proceed. I recommend you start at chapter 14 to get the real flavour of 'International Turf Management' and then work your way back through the text.

This is a good sound technical book that despite its lack of colour will provide you with background science in turfgrass, soils and irrigation as well as guide you through the construction and maintenance of sports facilities. Some contract management is also present for professional administration development.

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CLUB PITCH PREPARATION

BY LES BURDETT

It is every turf pitch curators aim to produce pitches that have a flat, hard surface with an even cover of fine turf. A pitch with these characteristics produces a surface that provides true playing conditions and an even chance for both bowlers and batsmen. These seem like relatively simple and achievable criteria yet inconsistency of pitches at club level continues to be an issue with most cricket associations.

What follows are some detailed notes that if followed correctly and given suitable weather conditions should help curators with the difficult task of preparing suitable pitches for club matches.

Ideally, cricket clubs should have a table of at least 5 pitches. To obtain full utilisation of these 5 pitches, the following sequence should be followed:

PITCH USE SEQUENCE

1	4	2	5	3
---	---	---	---	---

PITCH NUMBER 1 2 3 4 5

This sequence allows time for each pitch to rejuvenate between matches and enables the growth of the couch grass to be controlled, ensuring that it remains fine and manageable.

If the same pitch is used for several weeks, it will overstress the grass and the rest of the table will become thatchy. Too much grass induces excessive cutting and seaming of the ball. Pitches void of grass play very low and inconsistent. Share the wear and work all pitches.

MAINTENANCE IS PARAMOUNT

After the completion of each match, wait two week for the couch grass to shoot back, plant couch runners as close as possible (75 to 100 mm) and re-level the pitch with soil as required. This will bring the used pitch back to the original unprepared level state.

If time and labour is a problem and the planting program seems too intense to handle, seek the support of the Club as a full grass cover is the ultimate and the Club may see the benefit in providing additional resources.

TIMING OF CLUB PITCH PREPARATION

Every cricket ground has its own problems relating to weather and winter sport



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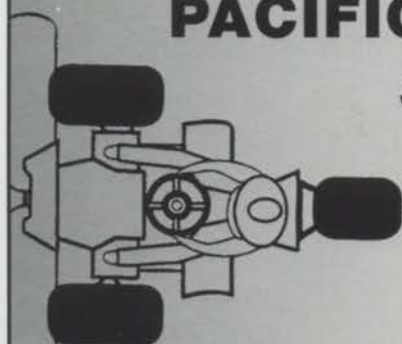
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programs, which will dictate preparation schedules but a successful Club pitch requires at least 10 days preparation.

When levelling and topdressing has been completed successfully and the pitch table is well grassed, preparation of the pitch can commence.

EQUIPMENT REQUIRED

- Tape measure
- Whiting mix and 2" (5cm) brush
- Four string lines
- 24" (60cm) cylinder mower (or smaller)
- One light hand roller (25kg to 100 Kg)
- Heavy roller (1.5 to 2 tonne)
- Scraper to keep mower rollers and rollers clean
- Hard broom
- Marking frame and straight edge 8'8" or 2.6 m

Given suitable weather conditions, follow these guidelines:

Using the following daily preparation schedules commence preparation of the first pitch of the season 10 days prior to the first match.

Day 10 - Wednesday:

- Afternoon - Select pitch using pitch no. 1 (see chart pitch sequence).
- Measure out (3m or 10 feet)
- Double cut at 6 to 8 mm using string lines
- Slowly soak, deep through the profile.

Day 9 - Thursday

- 7-9am - Make sure the pitch is sufficiently moist. If not, re-water as required and wait till it is ready or use supper sopper to remove surface water
- Apply a light covering of grass cuttings (as required).
- Cross roll with light hand roller (2 rolls 30-40 mins). If time allows, apply more light cross rolling.
- Normally before 12 noon - As soon as moisture content allows, apply heavy roller in low gear (20-30 mins).
- Afternoon, two or three more such heavy rolls (last roll in top gear).

Day 8 - Friday

- Provided all roller creases have flattened out. Cut pitch at the final height of 4mm and roll once over.
- Water prepared pitch and pitch square.
- Rope off area.

Day 7 - Saturday

- No preparation work required

Day 6 - Sunday

- No preparation work required as Saturday

Day 5 - Monday

- If required plant couch runners on pitch numbers 2, 4 and 5 and level accordingly. Mindful that No 3 Pitch will be used next.
- Plantings must remain damp until Saturdays match.
- Consider covering plantings with Agril or Cropguard heat sheets for a better couch strike

Day 4 - Tuesday

- Repeat or carry out Mondays duties as required.

Day 3 - Wednesday

- Afternoon, cut out No. 1 pitch again at 6 to 8 mm, although the pitch was cut last Friday at 4 mm the grass was rolled into (the damp clay) and by now will have stood up again.
- For this example No. 1 pitch is for a 1 day game the next Saturday, therefor No. 3 pitch will be 10 days away and preparation must begin. So cut out No. 3 as No. 1 and water thoroughly.

Day 2 - Thursday

- 7-9 am - Make sure both pitches are sufficiently moist. If not, re-water as required and wait till they are ready or remove surface water with supper sopper.
- Apply a light covering of grass cuttings (as required).
- Cross roll with light hand roller (2 rolls 30-40 mins). If time allows, apply more light cross rolling.
- Normally, before 12 noon - As soon as moisture content allows, apply heavy roller in low gear (20-30 mins) to both pitches, No. 1 and No. 3.
- Afternoon, 1pm, 2.30pm and 4pm - Three more such heavy rolls (last roll in top gear).
- 6-7pm - Late roll is desirable (if possible).
- Obviously No. 1 will require more attention than No. 3 pitch.

Day 1 - Friday

- 7-9 - Double cut both pitches at 4mm.
- Heavy roll (20-30 mins) and hand water No. 3 to recover pitch from the preparation stress.
- Before 12 noon - Apply second heavy

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Curators Diary

roll (20-30 mins) to No. 1 Pitch Only.

(d) 1-2pm - Final double cut 4mm.

(e) Final heavy roll (20-30 mins).

(f) 2-3pm - Measure out pitch and mark with frame and straight edge.

Saturday - MATCH DAY

(a) A Saturday pitch should be playable by Friday afternoon, given good weather conditions.

(b) If labour allows, give the pitch a final cut and roll before the start of play, especially if covers were used on Friday night.

(c) Double cut at 4mm.

(d) Roll between popping creases.

(e) Stumps in position, ready for play.

(f) As soon as possible after the match, broom & level foot marks so pitch square can be watered.

Sunday

(a) If it is a Saturday/Sunday game sweep loose debris from pitch, cut, roll & remark as Saturday's procedure.

(b) Do not water pitch during a 2, 3 or 4 day game. The laws of cricket do not allow for the watering of the pitch during the course of the match. Water added at this stage will change the performance of the pitch.

Monday

(a) Morning - Rope off pitch square, broom level and water (if not done after completion of play, Saturday or Sunday).

(b) If watered Saturday or Sunday, follow day 5 Monday program. Consider pitch rotation).

Tuesday

As Day 5 Monday program, consider pitch rotation.

Wednesday

Start back at day 10 Wednesday and repeat procedures.

When Monday to Friday matches (special carnivals etc.) are programmed, these guidelines should be considered and worked around accordingly.

A 3 or 4 day cricket pitch requires much more intensive preparation, but for Club games, these guidelines are adequate.

N.B.

1. The Christmas break is an ideal time to carry out an intensive planting and leveling program with assistance of the Club for the following reasons:

- The entire pitch square is free of traffic
- Time to keep water up to newly planted couch runners
- The ground temperature is warm and couch grass is active

2. To alleviate the problem of poorly grassed square at the start of a cricket season, all planting must be conducted during the growing season, to establish a good sward of couch grass. Planting runners early or late in the season is not recommended (ground temperatures are too low for growth to commence unless

heat sheets are used). The ideal situation is to finish the season with a good healthy grass cover. This will be the foundation for next season.

N.B.

The pitch square must be at least 75mm above Oval surrounds to allow ample surface drainage during winter months to avoid the pitch from becoming a dam.

3. Monday or immediately after matches is an ideal time to apply light applications of fertilisers as required (to dry grass).

Like all other turf surfaces, cricket pitches are 'living' and by definition they will have some measure of individuality and unpredictability. As such it is not possible to prescribe a preparation program that will suit every pitch but with common sense and a degree of flexibility the above information should serve as a suitable guide to the 'art' of cricket pitch preparation.

LES BURDETT IS THE CURATOR AT THE ADELAIDE OVAL. PICTURES SUPPLIED BY ROBERT SAVEDRA, WESLEY COLLEGE (Vic)



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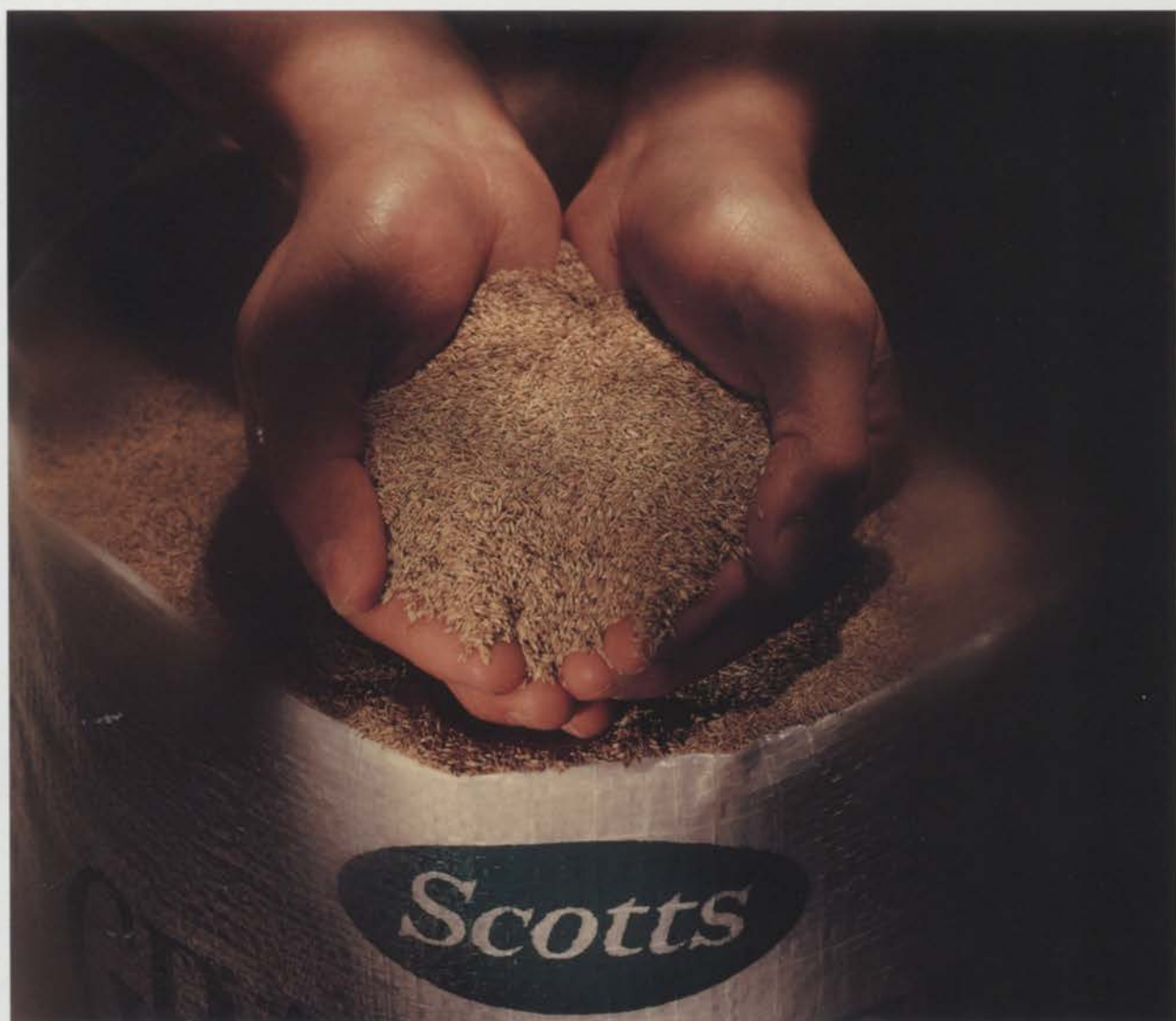


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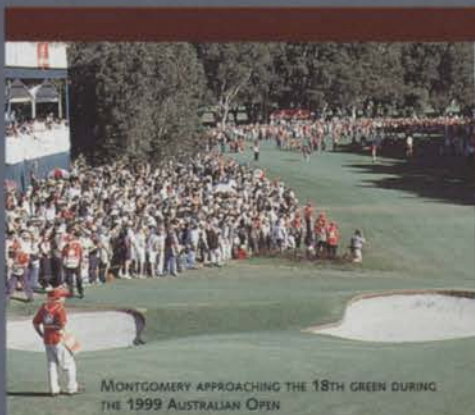
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MONTGOMERY APPROACHING THE 18TH GREEN DURING THE 1999 AUSTRALIAN OPEN

The 1999 Holden Australian Open returned to The Royal Sydney Golf Club in November. Remembered for the final round stumbles of tournament leaders Brett Ogle and eventual winner Robert Allenby, the course last played host to the tournament in 1994.

It was the 11th time that the Club has held the nations premier golf tournament and for course superintendent John Odell and his staff, it was 3rd time perfect.

Since the clubs first Open in 1906 the course has undergone some major changes. During the 80's course architects, Peter Thomson and Michael Wolveridge, rebuilt all greens and tees on the Championship Course. Major drainage and re-grassing works followed and in 1992 the automatic irrigation system was replaced with a computerised electric 'valve in head' Rainbird system supplied by a Grundfos pumping station which pumped water from a new groundwater fed 7 megalitre lake at the end of a remodelled driving range.



JOHN ODELL AND STAFF CELEBRATE ANOTHER SUCCESSFUL OPEN

Back to back par 4's, holes 4 and 5, were then remodelled to avoid a busy road that runs adjacent to the property. The 9 hole Short Course, so popular at the Club with new players learning the game and older players, was totally reconstructed over a 9 month period from September 1996. This work involved the importation of some 75,000 tonnes of sand to lift the course off the impervious peat and mould it into the new Thomson, Wolveridge and Perrett 'links like' design. The greens were sown to a three way blend of Providence, 1020 and Pennlinks bent and the rest of the course was grassed with Wintergreen couch stolons taken from the Championship Course.

To complete the facelift, the Club has rebuilt 4 of its lawn tennis courts, all 7 hardcourts, both croquet lawns and one of its 2 bowling greens. Another 9 lawn tennis courts are scheduled for reconstruction 2 weeks following the Open. During all of this work, major improvements have also been carried out in the Clubhouse Gardens and a new 265 car, 5 level car park was constructed in 1997.

When questioned further on his hectic schedule, Odell said, "my staff and I are constantly challenged to maintain and

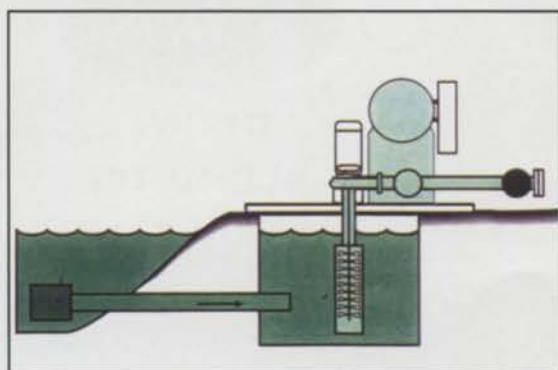
improve the members' facilities. In some ways we are always in a state of flux in one area or another but in a place as big as this it is impossible to keep still for any length of time".

When the Club agreed to host this years championship back in 1998 the Australian Golf Union asked their Australian Open supervisory architects, Peter Thomson and Mike Wolveridge, to inspect the course. Given the incredible improvements in golf equipment and the longer distances that players are hitting the ball these days they recommended some minor architectural changes to tighten a few areas. However, the Club did not decide to implement these changes until May this year which made for some hasty redevelopment involving the importation of 2000m3 of filling for new mounding and swales on holes 2, 5, 10 and 15, new fairway bunkers on holes 5 and 16 and a new championship tee on the 11th which lengthens the hole by 20 metres.

Due to the unpredictability of spring in Sydney, major renovations to fairways started one month earlier than our 1994 Open preparation. Extra grass was left on the fairways during winter for added protection from traffic but the mild wet winter experienced this year saw that mat carry over into spring. A major renovation was required to remove the sponge and give a firm tight surface conducive to good shotmaking in the tournament.

On September 6 the fairways were heavily scarified, Odell shaving them down to soil level. This operation saw 500m3 of 'chaff' removed. This was followed with coring at a square 75mm spacing with 1" tyres to a depth of 150mm. Winter soil tests showed pH levels to be below optimum in many areas of the property so CaCO3 was spread

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at up to 2 tonne/ha in split applications over a 2 week period.

The greens are not normally renovated prior to a major tournament but the abnormally wet winter and heavy traffic had left the greens compacted and a bit 'skinny' in areas so John decided to wheel out the new vertidrain. In late August the weaker greens were lightly aerated with the 8mm solid tynes leaving a barely discernable mark. This was followed in late September with an intense renovation including double scarifying, vertidrain with 12mm solid tynes and topdressing.

The greens responded quickly to this work and were in quite good condition for the qualifying rounds of the Members Club Championships in October. In the ensuing 8 weeks, greens were treated for a number of specific problems and programs such as Dry Patch, Brown Patch, Dollar Spot, Argentine Stem Weevil, Mole Crickets and Poa annua sp.

During this time the walk-behind mowers were used virtually exclusively except on weekends. The height of cut was gradually reduced from 4.5mm in winter to 3mm for the tournament. Selective use of the 'sidewinder' type rollers gained the extra speed required and regular verticutting and brooming with a stiff nylon box broom 1 week prior to the tournament helped to reduce grain and excessive spiking.

The tees were vertidrain in mid August to assist warmer daytime temperatures and encourage early spring root growth. Despite the intensive cultural practices that were employed on tees and fairways to stimulate the couch through October spring soil temperatures were unusually low and 'greenup' has been painfully slow. This has resulted in sodding and oversowing of many tees and some areas of greens surrounds right up to mid November.

Thomson & Wolveridge expressed a desire for the greens surrounds to be much shorter than usual so that the ball that rolled off the green would keep going. This philosophy is very similar to the way Paul Jett prepared Pinehurst for this years US Open. The shaving and scarification of these usually thick areas at Royal Sydney was as intense as the fairway program and left many areas quite threadbare only days before the big event.

Finally, the AGU has decreed that those golf courses selected to host our nations major golf tournament should prepare rough to be quite penal off the fairways. Royal Sydney is very much a members golf course set up for regular membership play so the goal of presenting rough as treacherous as Shinnick Hills, Olympic or Pinehurst or even our own Royal Adelaide, so beautifully presented last year was

always going to be a big ask. This is especially so when one has to grow the rough the previous summer to the height and thickness to have it stand up to winter dormancy and traffic then sit up and catch the errant shot in late spring. Hence, the rough at Royal Sydney was not as tigerish as one would desire but many winter growing native grasses such as Rats Tail Fescue and Veldt Grass have been left to flower and seed. This gave the rough some teeth and provided an aesthetically pleasing contrast with the intensively manicured playing areas.

The presentation of a golf course for a major tournament is a challenging and exacting process that is influenced by a plethora of agronomic, edaphic, seasonal, turfgrass management and administrative factors. The tireless efforts of John and his dedicated staff have been rewarded by another successful Open held on a course beautifully prepared for the game of golf. Congratulations to all involved.



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TURFGRASS MANAGERS REMUNERATION Survey 1999

Results

In the August edition of ATM, we asked you to complete a survey providing information on details such as education, staff numbers, maintenance budgets and salaries. We received almost 100 responses from the golf course sector and what follows is a summary of these results.

When respondents were asked to quote their highest completed level of formal education, 'Secondary' and 'Tertiary certificate' was by far the most common response. Victorians and those from New South Wales were the highest qualified with 44% and 23% of respondents from

those states holding a Tertiary Diploma or better. None of the respondents were degree qualified.

Excluding courses overseas, staff numbers were greatest in Qld with 25% of respondents having a staff greater than 16. Just behind them with very similar numbers were NSW and Vic. Tasmania and South Australia had the lowest staff numbers.

As shown in table 1, the average gross salary of those surveyed was \$60,993. As expected, gross salary varied between states. Course superintendents in WA were

the highest paid, followed by those in NSW and Vic. Although results are not shown, the average gross salary of the two superintendents surveyed from overseas was \$120,000.

As expected, table 2 shows that there is a positive correlation between average gross salary and the size of the annual maintenance budget. This correlation was strongest in NSW and Vic which were the two states accounting for the bulk of respondents and indicates that level of responsibility is a factor critical in determining remuneration.

TABLE 1 AVERAGE GROSS SALARY

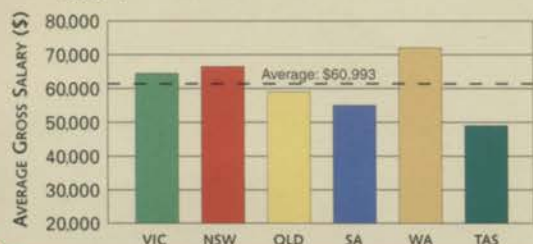
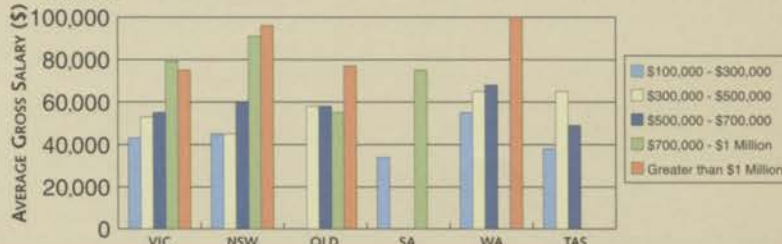


TABLE 2 AVERAGE GROSS SALARY VS MAINTENANCE BUDGET \$/ANNUM



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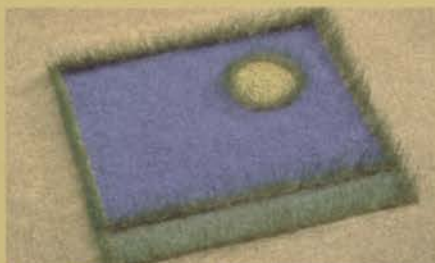


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
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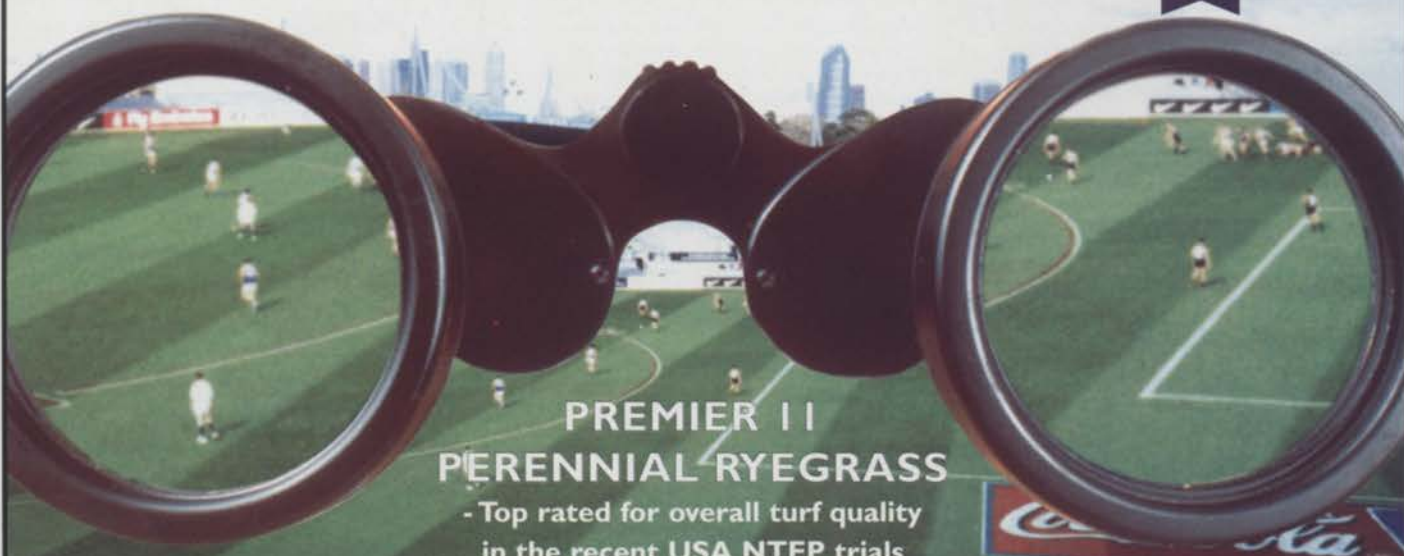
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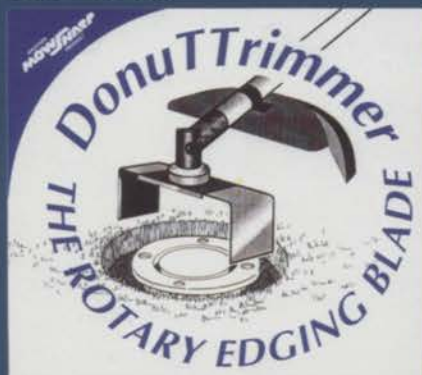
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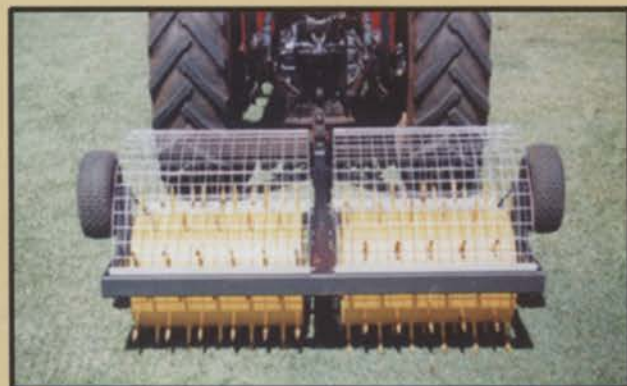
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- SAGCSA Membership Fee: \$50.00
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Member Class: _____ Tick Which Association(s) you wish to join

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President's Pen

Firstly, I would like to wish all our members, readers and advertisers, a happy Christmas and prosperous New Year. Australian Turfgrass Management is now almost one year old and has achieved a great deal of success in a very short time frame and now has a solid base from which grow further in the Year 2000.

January 1st is the starting point for the new AGCSA Skills Recognition Program. This voluntary program will enable AGCSA members to have their existing skills and knowledge recognised against the National Turf Industry Competency Standards. This can provide AGCSA members with formal educational qualifications and immediate recognition on the AGCSA Accreditation Program (more details available early in 2000).

The Year 2000 AGCSA Awards Program will be launched this month and is set to recognize individuals who have made a special contribution to our industry. Nomination forms will be mailed shortly with nominations closing April 7th, 2000. This year will see several minor modifications to the AGCSA Awards Program with the AGCSA Distinguished Service Award being bestowed by the AGCSA Board, rather than nominated as in

previous years. The AGCSA will also be sponsoring the Graduate of the Year Award, other awards will be presented in partnership with our existing sponsors - Chipco, John Deere and Scotts and I thank them for their continued support.

The Holden Australian Open was recently held at The Royal Sydney Golf Club and we must congratulate John Odell and his staff for the excellent condition of the course. Course Quality Officials were again provided by the AGCSA in partnership with the Toro Company. All that participated had a great time and all were unanimous in two things;

1. the superb condition of the course, and
2. that being a CQO was one of the best ways to see the golf.

Thank you to all who participated and also our members who released staff to participate in the event.

The AGCSA Board met early in December and has re-set controls in terms of the AGCSA's strategic plan. This is an annual part of AGCSA operations and ensures the organization stays on line with the needs of the membership.

The largest item on the AGCSA's agenda in

2000 is undoubtedly the Millennium Turfgrass Conference. As this event is being administered by the AGCSA, the first six months of 2000 will be a hectic time for the AGCSA, but the end result will be a conference befitting the occasion.

I look forward to seeing members in 2000.

Peter Frewin
President, AGCSA

FNQGCSCA

Above average rainfall, low humidity and plenty of fine sunny days over the past few months, has resulted in excellent reports from all courses involved with course grooming and greens renovations.

One golf club hoping for milder conditions is Half Moon Bay Golf Club who have been given some adjacent land to extend their course to 18 holes. This land (an ex-council tipping site), has been capped with a clay layer (400mm in depth), and has been given the OK by the environmental departments.

Construction of 3 new holes and improvement



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to 2 others will be an interesting project for Superintendent Mark Davis and his crew. Many water features including dams and lakes are in construction with the excavated sand being used in construction with an average depth of 500mm from Tee to Green.

Our annual general meeting is set for Wednesday 27th October at Paradise Palms Golf Course. This is an important meeting with a full committee to be elected for FNQ for the first time. The outcome of the meeting and committee will be named in the first edition for 2000.

I'd like to take this opportunity to wish all AGCSA Presidents, Committees, fellow Superintendents, staff and families a great Christmas and a prosperous New Year in 2000.

Regards,

Paul Earnshaw
President, FNQGCSA

GCSAQ

As the weather heats up, courses here have started growing grass like it was going out of fashion. All the wet weather earlier seems to have provided a base for some good growth and it is a difficult task just to keep it all cut. Our annual Christmas Party at the lovely Wet and Wild Water World was a raging success with members and their families coming from

far and wide to enjoy this very relaxed get together. Highlights once again the brilliant culinary skills of those maestros of the barbecue tongs, Pat Pauli and Vern Jepson. With the help of able committee men they fed the multitude breakfast, lunch and tea in between some frantic watersliding action that saw many a superintendent achieving remarkable speeds with a bit of winter puppy fat remaining from the cooler months still to be burnt off.

Our latest field day was at Nudgee in November a fine layout in good condition.

Wishing everyone a happy festive season, best wishes to all from the GCSAQ.

Jon Penberthy
President, GCSAQ

GCSAWA

With summer fast approaching, some late autumn rain has been well received in the west, boosting dam capacity levels to 40% prompting the Water Authority to announce no further water restriction for this summer.

1998-1999 has certainly been a big year for local Sun City Golf Course Superintendent Grant Chettleburgh. Grant topped the state in 1998 Greenkeeping Trade Course winning:

- TAFE award Cockburn Rotary Club Apprentice of the Year

- Rossmoyne Rotary Club and South Metro TAFE Apprentice of the Year
- Bankwest Student of the Year
- Westtrak Equipment Apprentice of the Year

Well done Grant, I'm sure that's a name we will hear a lot more in the future.

Speaking of winners, thanks to everyone who attended the Toro Cup and machinery demonstration at Margaret River. The event was well attended with Golf Course Superintendent's from both metro and country courses enjoying some great southern hospitality and the magnificent course and weather.

Thanks to the hard work of Geoff Kirk and major sponsorship from Baileys Fertilisers this year's Harvey Bash continues to be a terrific fundraiser for our association with good support from our country courses.

Niall Laird, Golf Course Superintendent at Melville Glades recently announced his resignation. After 14 years in the industry 5 of which he held a position on the state association committee. Niall has now joined the Total Eden Irrigation Company. Niall's commitment and dedication to the industry has been very commendable and on behalf of all member's we would like to wish Niall and his family all the best for the future.

Rob McDonald
President, GCSAWA



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FURTHER INFORMATION

Professor Peter Martin
Dept. of Crop Sciences, University of Sydney, NSW 2006
Ph: (02) 9351 2946. Fax: (02) 9351 4172

NSWGCSA

Mild conditions have persisted in Sydney over the last two months, with the hottest news being the continuing scandals and bungling over ticket sales for the Olympics.

Nematodes appear to be increasingly a common problem on greens in NSW, with very few answers available as to why. Speculation has been rife, with many attributing the problem to increased use of sand profiles, increased awareness (hence more sampling), or even whether previous control was being obtained through non-target control from now banned pesticides. If anyone has control suggestions, be sure to send them our way!

The annual Club Management golf day was held recently at Bonnie Doon Golf Club, with the Sec/Man., Golf Professional and the Superintendent from different clubs playing a three ball aggregate. The event has increased in popularity, with 140 players participating. Gary Smith (host Superintendent) had the course in immaculate condition, and a good day was had by all.

The tournament season is once again with us, placing host Superintendent's under the microscope, and giving the rest of us a chance to observe some of the leading Clubs in their prime condition. The major events for NSW in this season are the Australian Open at Royal Sydney (host

Superintendent John Odell), The Greg Norman Classic at the Lakes Golf Club (host Superintendent Peter Brown) and the Cannon Classic at Castle Hill Country Club (host Superintendent Martyn Black). Our best wishes are extended to these gentlemen, may the weather be with you!

Mark Parker
President, NSWGCSA

VGCSA

The change of venue for our October meeting did not deter one of the best attendances at a VGCSA meeting for some time. In excess of 90 VGCSA members and guests made the journey to Amstel Golf Club to an educational day with a new construction theme. Peter McMaugh made the trip south to provide two keynote sessions on Green construction. Peter is very knowledgeable and extremely passionate about this subject. His two presentations were very informative, entertaining and provided an excellent question time.

Host Superintendent Neil Craig outlined the new 18-hole development at Amstel, scheduled to commence in January 2000. Michael Clayton from Clayton Golf Design addressed the meeting discussing the design philosophy for the new course. A brief inspection of the site was conducted. Following lunch Mark Burchell Golf Course Superintendent, Heideberg Golf Club,

Shane Jacobsen Golf Course Superintendent Torquay Golf Club and Neil Craig host Superintendent gave short presentations on their recent experiences with new construction at their courses.

Globe Australia were our breakfast sponsor for the day providing an excellent start to the day. Certainly an improvement on Chris' last effort with burnt bacon on the BBQ. Thankyou to Globe, Peter McMaugh, Michael Clayton, Neil Craig and Amstel Golf Club.

The combined Project on organic alternatives for putting green management with the VGA Turf Advisory Board has been given the green light and funding has been approved by HRDC. Turfgrass Technology will be coordinating this project which has already commenced and will run for two years. We look forward to the results from this trial.

Richard Forsyth
President, VGCSA

SAGCSA

Our meeting on September 8th at North Lakes Community Golf Course was well attended and sponsored by Murt Fam Pty Ltd who have taken over the running of the course. Howard Murton gave us a short talk on their operations and expectations. John Deere gave a demonstration of the 2500 greens mower and the front loader quick release.



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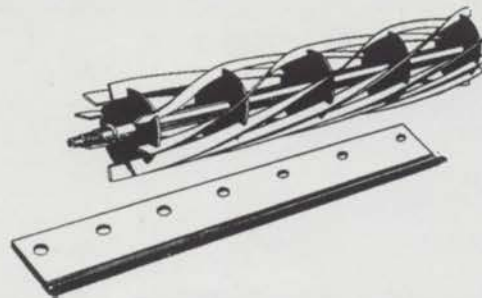
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Simon Foord, the Course Superintendent, who also runs the hiring side of Belair Turf Management, gave a rundown of equipment for hire, verti drain, corer, sander etc. We then went on a course inspection where Simon talked about problems they have found with high salinity water and sand greens with no organic amendment and how they intended rectifying the problem.

The AGCSA Roving Seminar was very informative day for those who attended. A pity a few more club committee members did not come. Thanks to the AGCSA for organising and to Yates Commercial for being sponsors.

Bob Dellow
President, SAGCSA

TGCSA

The TGCSA Committee has met to discuss Trade and Machinery Days and also Field Days and Seminars for the Millennium year.

It was agreed that in February we would hold a Seminar on irrigation. All of our irrigation problems will be fresh in our minds to discuss at a professional level. Andrew Price from Controlled Sprinkler Supplies will address this particular seminar. Andrew will touch on a variety of problems including uniformity.

Our second seminar will be held in May and will be associated on a more agronomic technical side of turf management. This day will also incorporate Secretary/Managers.

I hope everyone has had great results from spring renovation. Looking forward to summer - "bring it on".

Phil Hill
President, TGCSA

TGAA (Vic)

As usual the start of the summer sports season was touch and go, following typical spring showers effecting wickets, grounds and most other activities. As Turf Managers we must make every post a winner and use these conditions to our advantage.

The TGAA Committee is steadfastly reconstructing the business plan in an attempt to set the TGAA up to ensure a prosperous future into the next century. Our priority areas are education and member services. We feel the Millennium Conference will be the starting point of our new initiative and trust you will support us in our endeavors by getting your registration in early.

Thank you to our sponsors for their continued support and interest in our future development.

Please refer to our website for forthcoming

activities and updates on our awards program; www.tgaa.asn.au

Robert Savedra
President, TGAA(Vic)

TGAA

(ACT and Surrounding Region)

Turf managers throughout the district only had to read the latest newsletter to realise the expansion of the association over the last twelve months. The association hopes to increase diversity by setting up a TGAA on the South Coast. Activities for the next few months include organising transport and accommodation for people in the region interested in attending the Millennium conference. Suggestions for next year's mid-year seminar include topics covering integrated pest management (IPM), identification and control of weeds, pests and diseases.

In an effort to increase development within the industry and provide practical learning resources for students at the Canberra Institute of Technology, with the support from the TGAA is looking into setting up an AUSTEP seed evaluation trial in the area.

'Til next time, Agrostologists.

Justin AK Haslam
Committee, TGAA (ACT & Surrounding Region)

VGA

With the bowls season well under way, it was time for the VGA to hold their Opening and Presentation Day at Maribyrnong Park Bowls Club.

A good number of Greenkeepers turned up to see Ian Latham, Len McKenzie and Ray Thorne be presented with their life member badges. These three people have done many years with the Association and we are all very grateful for their work.

After a good feed, we all had the opportunity to listen to Steve Byrne from Chipco who was talking to us about new Aliette Signature.

The VGA this season will be presenting two new awards; the VGA Greenkeeper of the year and the VGA Distinguished Service Award. These awards can only be won by current financial VGA members, so it is important that you pay your subs this year. These awards will be presented at the Millennium Turfgrass Conference in June next year. All members should be aware of this conference. Make sure that you all fill out your registration form to get your ticket.

Toby Lumsden
President, VGA

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Scott Williams - Course Superintendent, Coolangatta Tweed Heads Golf Club, Queensland

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