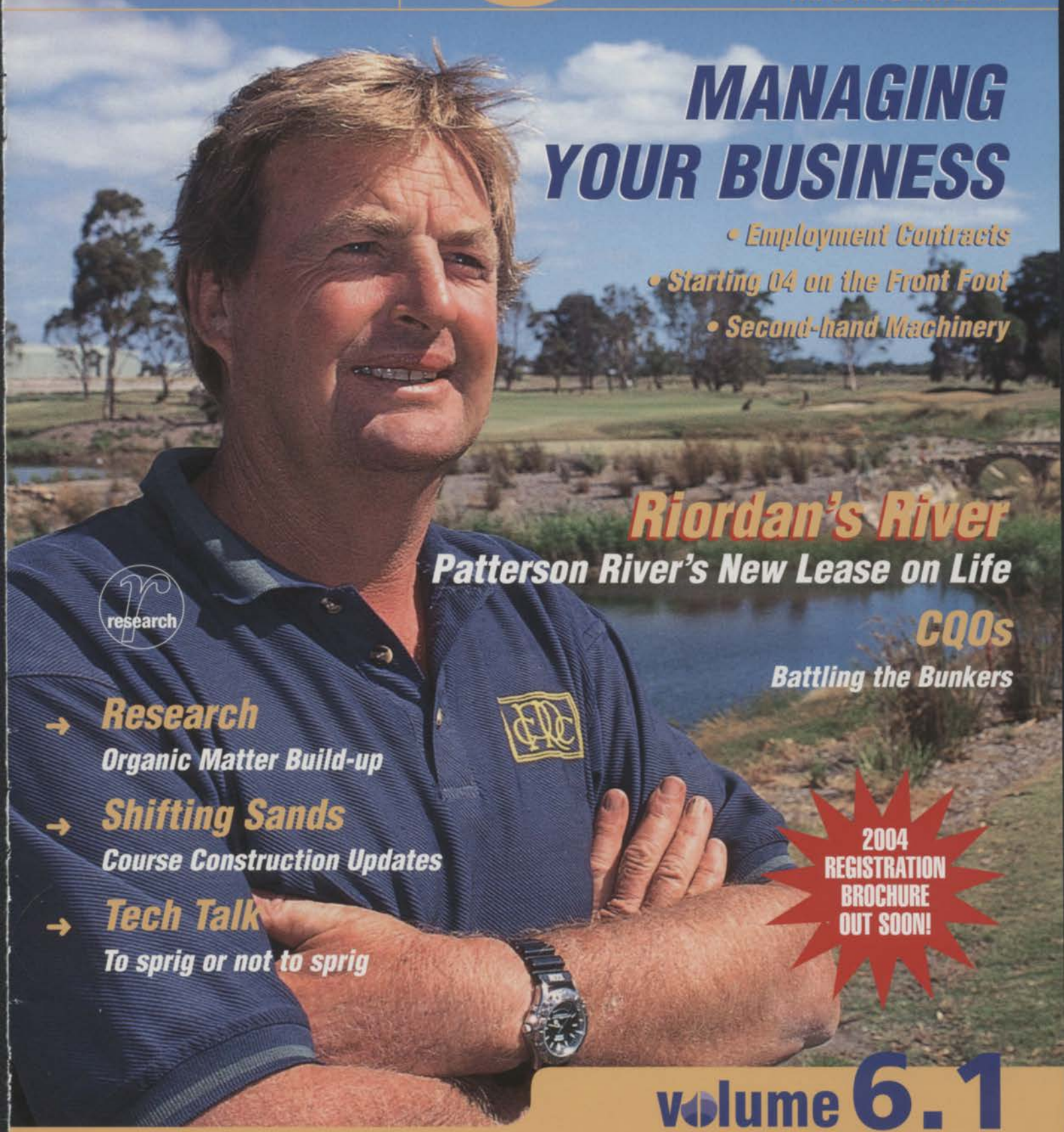
AUSTRALIAN
Turfgrass
MANAGEMENT
ISSN 1442-2697
RRP $6.00 PLUS GST



MANAGING YOUR BUSINESS

- Employment Contracts
- Starting 04 on the Front Foot
- Second-hand Machinery

Riordan's River

Patterson River's New Lease on Life

CQOs

Battling the Bunkers

research

→ **Research**
Organic Matter Build-up

→ **Shifting Sands**
Course Construction Updates

→ **Tech Talk**
To sprig or not to sprig

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volume 6.1
February - March 2004

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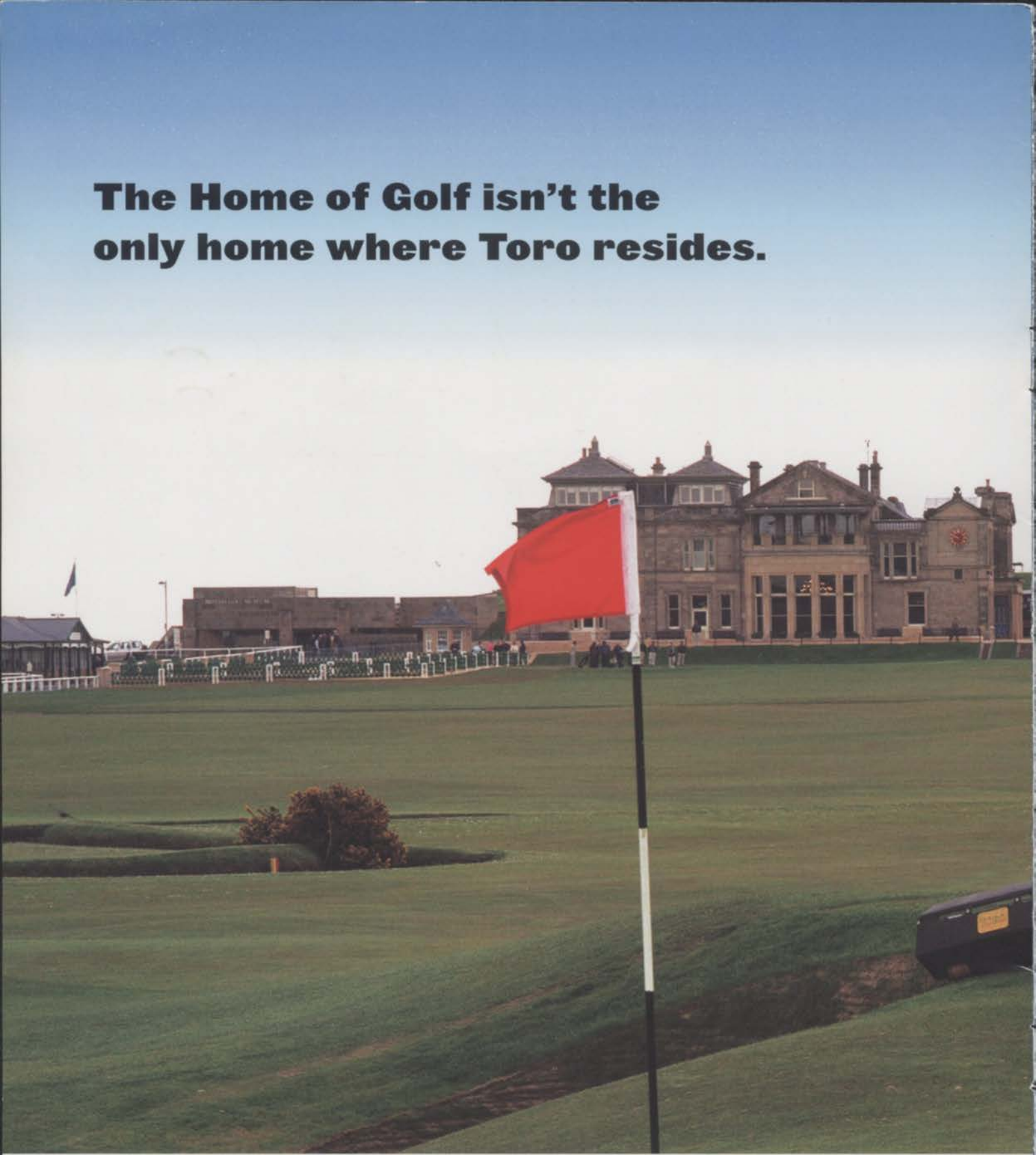

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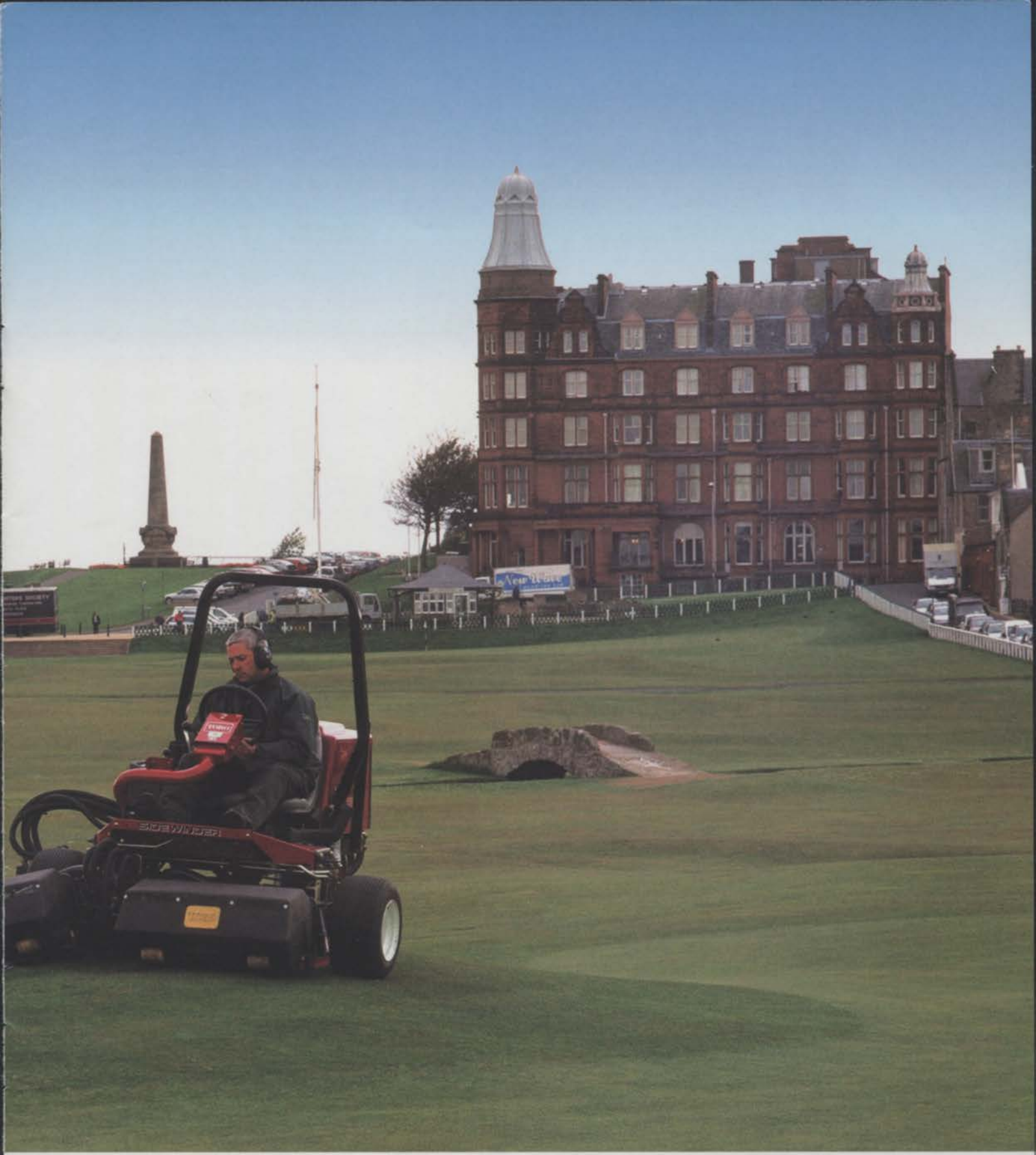

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AUSTRALIAN Turfgrass MANAGEMENT

Australian Turfgrass Management
Published by:
Australian Golf Course
Superintendents Association
ABN 96 053 205 888

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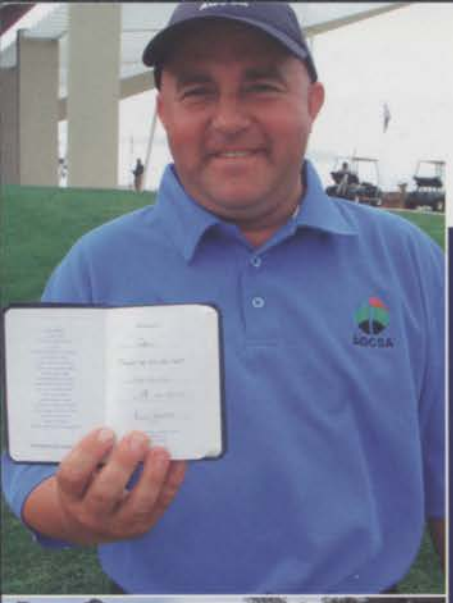

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Patterson River Country Club superintendent Michael Riordan.
Photo: Brett Robinson

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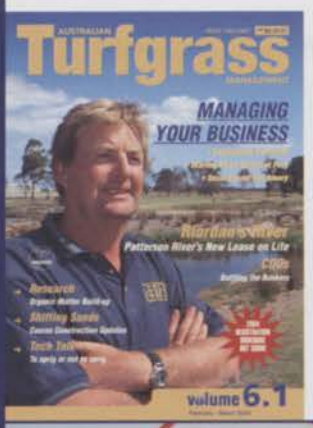

research

in every edition

New Year, No Fear

A hearty welcome to 2004 and what is set to be another challenging year for superintendents and turf managers throughout this fair land of ours.

Summer has brought with it some pretty extreme weather conditions which have kept everyone in the industry on their toes. While Queensland looks to be verging on another drought, Victoria experienced its hottest December on record while in the same month Melbourne was awash after a one-in-a-hundred-year storm wrecked havoc across the city.

Mother Nature has a lot of answer for.

Feedback from the last edition *(Vol 5.6: Warringah Golf Club: An Accident Waiting to Happen)* has been tremendous and I can safely assume that it has made for much debate in sheds and clubhouses across the land.

No doubt opinions as to the incident itself and the consequences for both superintendent and club are wide and varied, but in the end the lessons need to be learned from both sides. Lets hope we never see another cover like we did in Vol. 5.6.

With 2004 now in full swing, this edition kicks off the year looking at how superintendents can better manage their business and human resources. Planning and strategy guru Terri Clementson starts proceedings with a look into planning for the year ahead and methods superintendents can employ to effectively do so.

In response to issues raised during the AGCSA's AGM at last year's conference in Adelaide, the Association's legal eagle Lorna Gelbert tackles the thorny quagmire that is employment contracts.

We also revisit the topic of machinery washdown and waste disposal facilities, while mechanic Mark Browne swaps a spanner for a pen to regale us with the ins and outs of purchasing second-hand machinery.

Now, how about this edition's cover model! A looker or what?! ATM has never had such a stunning supermodel on its primary page! Owner of the svelte physique is none other than Patterson River Country Club superintendent Michael Riordan who for the past four years has had the sound of excavators, diggers and chainsaws ringing in his ears.

Riordan has overseen what has been a mammoth project at the Melbourne bayside club and in this edition we look at his exploits and achievements. The article serves as a lead-in to a general wrap of other projects and construction work that are currently on the go at various clubs around Victoria and Tasmania.

This is the first of an ongoing feature which will tour each state. So supers, get those makeovers on the go. You never know who might be the face of Vol 6.2!

And finally, while we're on the topic of new features, we also welcome back AGCSA Technical Officer Andrew Peart's regular Tech Talk column. Peart, who fancies himself as a bit of a wordsmith, presents an article on vegetative planting. So, plenty to delve into. See you in the autumn.

Cheers.

Brett Robinson
Editor

BRETT ROBINSON
EDITOR

IAN CHIVERS
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JOHN NEYLAN
AGCSA

LES BURDETT
S.A.C.A

WARREN WILLIAMS
DOOMBEN RACING CLUB

President's Pen

Mark Couchman, AGCSA President

Welcome to 2004 which marks the sixth year of Australian Turfgrass Management magazine. Over the past five years the magazine has developed into what is the benchmark publication for the turf industry by being able to deliver to readers the latest information and research articles for dissemination.

The AGCSA is proud of its magazine and I am sure that this sixth year will see it continue to grow and develop even further.

The end of 2003 saw three great golf tournaments telecast around the country, and congratulations must go to those facilities in the very professional way in which their courses were presented.

It is a credit to all those involved and I am sure that a great deal of satisfaction comes from having your facility presented to a huge television audience and to the other forms of media.

The Australian Open in particular marked the beginning of a special arrangement between the AGCSA and the Australian Golf Union. AGCSATech manager John Neylan played an integral role in the course preparation committee as an agronomic consultant before and during the tournament.

The arrangement was a huge success and John will again be involved when the Centenary Australian Open will be played out at The Australian Golf Club in November.

Also, a big thank-you goes to all those people who took the opportunity to get up close and personal at the Open by taking part in the Course Quality Officials program. Ninety-one CQOs battled the mammoth Moonah Links layout which was in top notch condition under the auspices of superintendent Leigh Yanner.

The New Year will herald the new-look AGCSA website and the beginning of a regular electronic newsletter to all members who have furnished their respective details into the AGCSA database.

Preparations for the 20th Australian Turfgrass Conference in Melbourne continue to progress well. Tradeshow booth sales are on target while an elite line-up of international guest speakers has already been confirmed.

The autumn roving workshop series is just around the corner, with the first due to be held in Melbourne on 22 April. Adelaide, Perth, Sydney, and Brisbane follow in that order. Check your AGCSA 2004 year planner for exact dates.

The last edition of Australian Turfgrass Management magazine (Vol 5.6 – Warringah Golf Club) has certainly created a lot of bar chat in many golf clubs around the country and the feedback has all been of a very positive nature.

I am sure that quite a few golf club boards and committees are now taking some form of measures to ensure that compliance is the word of choice when it comes to all things of an environmental nature as well as issues involving occupational and workplace health and safety.

The AGCSA Board has also had the opportunity to meet over the past two months to review the Association's strategic plan and also receive updates from the turf education committee. The AGCSA is also looking into establishing an environmental working group in light of recent events, so the next few months will keep everyone on their toes.

I hope that the New Year brings all our readers the best of health and all that they wish...especially rain to all those drought effected throughout Australia.
Enjoy the magazine.

Mark K Couchman
President, AGCSA
Golf Course Manager, Cromer Golf Club

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Starting '04 on the Front Foot

Managing Your Business and Human Resources

Human and business resource management expert Terri Clementson looks ahead to 2004 and gives superintendents some tools to plan and manage the challenging year ahead.

Most superintendents I've spoken with already in 2004 are working hard to make it through a tough summer.

Water resource management problems are creating a more complex backdrop than usual in the busiest time of the year. Many are also now thinking ahead and trying to anticipate the work associated if it's a dry winter. There is little time to think long-term right now.

Most superintendents say that planning, research, budget forecasting and any kind of long-term development of the course or their team realistically has to wait for space and time in winter. They also acknowledge that they need to do more of this and never seem to get that time.

It may seem unrealistic, but now is the time to be thinking, researching and planning the year ahead. Seasoned superintendents know that, even though the timing couldn't be worse, those around them think "new year, new plans".

This article gives you a simple template to ensure you are ready with clear thinking; information and a clear direction to meet the New Year zeal of course committees, treasurers, members and staff who see it as the start of their new year, not the middle and peak of yours.

A Visual Plan – Your Best Defence

The most common tension, frustration and time consuming distraction for a superintendent can be managing the input and influence of committees and members who feel they are managing the course, instead of overseeing the quality of your management of it.

Many committee members will assume control if you don't clearly take it. A simple visual plan for all to see says "We've got this under control". It also offers a clear signoff tool that may help curb a committee's desire to change priority or direct resources to what are, in the bigger scene of things, relatively minor matters that take attention and resources away from managing significant risks.

A simple visual tool can be a great anchor-point, not only for committees but also for your team.

A Simple Template

Planning doesn't need to involve lots of time and long wordy documents that sit on shelves gathering dust. The best plan is visual, simple, clear and can be viewed at-a-glance.

Planning really just involves using a structured approach to put a few pegs in the sand about changes you'll be making this year and giving some clear thought to the risks you need to manage. The easiest way to organise your thoughts is to work methodically through each area of business management responsibility associated with your role. These include:

- The club and course's current direction and focus;
- Operations management;
- Finance;
- Marketing;
- Human Resources;

You might also consider the drivers you have to work with - external influences and you and your team's readiness for change. Managing these last three factors will determine your capacity to execute the plans you've made.

In the box opposite is a simple template. It offers you prompts to consider. Work your way through each heading checking, and ideally jotting down a few ideas about, how you plan to respond to or lead changes in each area.

Control, Modelling Leadership and Managing Others' 'Buy-In'

The best results are often achieved when this type of analysis is done quickly and then thrown over to the team behind you to add their ideas and give some input before it looks like it's cast in stone.

It would be nice to do lots of analysis – gather data about weather trends; monitor and track player traffic and behaviour for impact on surface and player satisfaction etc – but quite frankly, club environments and money for research probably only warrants that level of detail every five years.

Documenting your planning on butcher's paper using the template as a prompt means it is a living document. You can take it into committee meetings to discuss your plans in a practical and efficient matter then take it back and put it up in the work area, as a guide.

There really isn't much benefit in throwing resources at this and getting too glamorous with PowerPoint or a detailed report. It may give some comfort that it looks good, but using the time to develop neat content will pay a better dividend for your effort.

The idea of getting plans down in January in a form you can use to brief others at the start of their year is designed to demonstrate;

- That you *have* already done some clear, solid thinking and planning – to lead those who are helping drive the course's development (secretary manager, committee and staff);

- That *you* are actively leading the area, managing your business not just working in it;
- That the planning process is dynamic and collaborative. Edit the model as you discuss it; add ideas; expand it if necessary; and
- That once agreed, the plan becomes the roadmap for the year and remains in use, displayed and referred to regularly. Only extraordinary unforseen issues should call for action outside this plan.

Turn Plans into Reality

The final step is to take the plan and break it into sub-steps for the seasons. Take each area, jot the objective and then outline the steps to achieve the objective in each sector for each season.

For example, there are multiple issues to consider in Operations Management. One may be the need to work on looking at sustainable grass use on your course. The task involves multiple steps: researching alternatives; costing alternatives; doing a few trial plots in optimal weather; reporting on them over changing seasons; getting member feedback on the trial holes then putting the decision to the committee for implementation at the right time to enable optimal yield.

Plotting what you will do towards this objective each season gives those involved a sense that objectives need to be broken down into action steps and the timing of their execution, and associated expenditure, planned.

Planning is a simple process. Procrastinating about it or treating it like a huge exercise that competes for limited time will mean you never make time to think and plan. Failure to plan gives others an 'in' to think they need to do it.

Using a streamlined approach; racing through it with a few hours thinking and turning it into a practical map for the year can set a fabulous tone and inspiration for the year ahead.

If you wait till winter you've missed the New Year wave and sure enough, someone else will be trying to push you to implement the plans they had in their head in January for your course! Do it now! Start the year on the front foot.

Terri Clementson is a consultant with McArthur Management Services in Melbourne.

COURSE AND TEAM

Direction and Focus
- 12-month course priorities. Specify changes to fairways, greens, tees etc;
- Define seasonal priorities and 'fit' with course calendar/events;
- Committee's top six priorities
- Member-interest areas;
- Wider club objectives and assistance;
- Potential risks ahead –eg; compliance, legislation;
- Industry trends to be watched/adopted.

Drivers
- Changes to:
  Motivation/morale of staff;
  Leadership style in use;
  Physical environment (non course);
  Committee style/information supplied;
  Resources use.

Operations Management
- Changes in efficiency of key activities;
- R&D plan;
- Drought impact forecast/responses;
- Long-term water action plan (and budget).
- Construction works (disruption timing).

Human Resources
- Ability to attract/retain great staff;
- Training plans for staff;
- Pay and conditions;
- Review staff performance, give feedback;
- Ask for staff feedback/ideas/share the load;
- Celebrate their success. Say 'thanks' often.

Marketing
- Marketing plans of the club;
- Member communication plan;
- Image of the team/unit;
- Perception of the course and club by professional peers/associations/suppliers.

Finance
- Half-year budget position;
- Relationship with treasurer;
- Critical long term capital required (five years);
- Cost changes on horizon (from suppliers).

Key Relationships
- Relationships with staff;
- Members and committee;
- Peers in the sector – allies;
- My industry association;
- Secretary manager;
- Bureaucrats re: compliance.

External Influences
- Compliance action to take (EPA, State, OH&S);
- Changing player expectations/technology;
- Information required from industry associations;
- Local council and media affecting course.

Readiness for Change
- Ways to recharge team's batteries after summer;
- Ways to clearly describe your vision for changes;
- Identify where the stress will come from;
- Letting staff take ownership for a particular area;
- Ways to keep inspiring my team about the future.

Employment Contracts – What You Need To Know

Managing Your Business and Human Resources

LORNA GELBERT

DO YOU NEED AN EMPLOYMENT CONTRACT?

Every employee has an employment contract whether or not it is in writing. An oral contract will come into existence when a prospective employee applies for a position in answer to an employer's advertisement in a newspaper, an interview takes place, the employer offers the job to the candidate and the candidate accepts the offer. The offer and acceptance are sometimes in writing, sometimes verbal.

The new employee then starts work and is paid by the employer and both parties are then performing the contract.

This oral contract represents an agreement reached between the employer and the employee. Once the contract is made, one party cannot change the terms and conditions of that contract without the consent of the other party. For example, the employee cannot insist on working different hours; the employer cannot pay the employee less than was agreed or demote the employee.

If there is no written contract the terms and conditions of the oral contract will be determined in a number of different ways, for example;

- As set out in any letter of offer (eg: the position offered, the wage or salary payable, allowances such as for a motor vehicle, the specific duties of the position);
- An award or industrial agreement (eg: minimum pay rates, leave entitlements, overtime and penalty rates, minimum notice periods on termination, redundancy);
- By law (eg: long service leave entitlements, minimum terms in the Workplace Relations Act 1996 (for Victorian employees));
- Conduct and practice. That is how the contract of employment has been performed during an existing employment relationship (eg: when leave is taken, the policies and procedures of the employer, payment of redundancy pay at certain rates by the employer to previously retrenched employees);
- Terms and duties that are implied by law.

WRITTEN EMPLOYMENT CONTRACTS

Written employment contracts are far more prevalent than in past years. Many employers now have standard employment agreements and position descriptions or duty statements for their staff and now require an employment contract to be signed.

If an employee is covered by a State or Federal Award, an employment contract will not override that award unless it is:

- A Certified Agreement (CA), which is an agreement made between the employer, employees and, usually, the employee's union. It is certified by the Australian Industrial Relations Commission (AIRC); or
- An Australian Workplace Agreement (AWA) which is an individual agreement negotiated between the employer and the employee and registered with the AIRC.

Both Certified CAs and AWAs are used to build flexibility into the award that governs the working relationship. The AIRC measures these agreements against an applicable award to ensure the employee suffers no overall disadvantage under the terms of the employment contract.

Employment contracts that are not CAs or AWAs are referred to as common law contracts. If an employee is covered by an award and has also signed a common law employment contract, the employee will have the best of both worlds. If the award condition is better than the contract, the award condition will prevail. If the contract condition is better than the award, the contract condition will prevail.

NEW EMPLOYEES

If it is a condition of the offer of employment in a new position that the employee will sign an employment contract then the employee will have no grounds to refuse to sign a reasonable contract.

Before commencing work however, prospective employees must make sure they obtain a copy of the contract, read it very carefully and, preferably, have a lawyer advise them on it.

There will almost certainly be a number of clauses in it that could have a significant effect on the way in which the employment relationship will continue. As these matters may not be covered by the award, they will apply if the contract is signed.

The employee must also ensure that all relevant matters are included in the contract.

The advantage of having a well written employment contract is that the terms and conditions of the employment will be clear and will be binding on all the parties.

It is often the case, however, that the terms are not expressed clearly and causes ambiguity that creates conflict. If you are unclear about the meaning of any clause in a contract, ask for clarification and have the wording changed so that it is clear.

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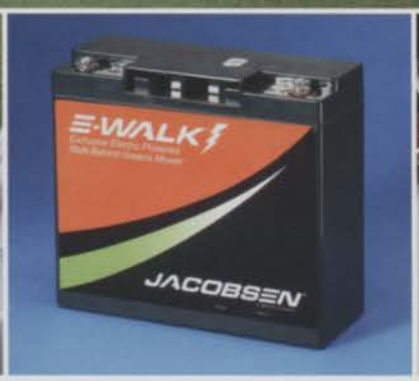

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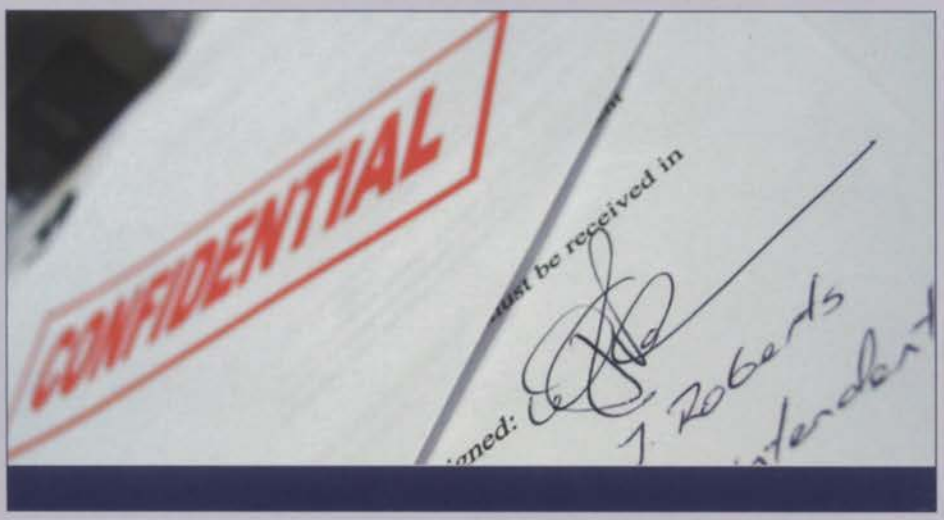


EXISTING EMPLOYEES

An oral employment contract is a legally binding agreement just like any other contract. It creates legally enforceable obligations on both parties.

If an employment relationship is already being performed under an oral contract of employment, the employer cannot force an employee to sign an employment contract – particularly where the terms and conditions of employment may be different to and less favourable than the oral contract already in existence. If an employee signs that contract, they will be bound by its terms.

If the terms of the written contract are different to the previous oral employment contract, the signing of the contract will be evidence of an agreement to vary the previous oral contract.

For example, most employment contracts have termination clauses in them that give either party the right to terminate the employment on giving a specified period of notice (eg: one month).

The Workplace Relations Act and most awards provide for minimum notice periods of between one and five weeks depending on the length of service of the employee. However, if an employee has been employed for a long period, say 10 years or more, the common law requires an employer to pay "reasonable notice" which would be much more than the minimum notice.

A long term employee may be entitled to three, six or even up to 12 months' pay in lieu of notice in certain circumstances. If that employee signs a contract agreeing to accept only one months' notice, he or she may be limiting their rights at common law.

Consequently, before signing any employment contract, existing employees must obtain independent advice to ensure they are not unwittingly signing away entitlements.

IMPLIED DUTIES AND TERMS

In addition to the express terms in an employment contract or award, the law implies into the employment relationship other terms that are binding on the parties including;

The duty to work in a skilful and competent manner.
Employees must carry out their duties to the best of their ability.

The duty to obey the employer's lawful commands.
An employee is required to carry out all reasonable commands of the employer. What is reasonable will vary according to the nature and duties of the employment but, generally speaking, commands that relate to safety in the workplace, standard of dress, observing the employer's practices, procedures and policies will be considered reasonable.

The duty to provide faithful service.
An employee must not behave in a way that will harm the employer or its business. An example of this would be an employee who sets himself or herself up in competition.

An employee who leaves the employment and then sets up in competition will not necessarily be in breach unless there are restraint provisions in the employment contract that would prevent him or her from doing so. If there are restraint provisions, they will be binding on the employee provided the restraints are reasonable.

The duty to keep the employer's information and trade secrets confidential.
An employee necessarily becomes familiar with the employer's confidential information and trade secrets, which, if they were given to other persons, might harm the employer's business.

During the employment, if an employee divulges this information to others, he will be in breach of this implied duty. The same does not apply after the employment ends, provided the information was not taken from the employer without consent.

But many employment contracts include express conditions prohibiting an employee from releasing confidential information and this will be binding on an employee after the employment. Confidential information should not be confused, though, with the general experience that an employee acquires

CONCLUSION

The law relating to employment contracts is very complex. In an article this size, it is not possible to cover all the issues. The important thing to remember is that an employment contract is a contract like any other contract.

Before you sign an employment contract, you must be absolutely certain you understand fully what the terms of it are and that you are prepared to accept those terms.

If you do not understand clearly what the contract says, do not sign it until it has been explained to you by an independent lawyer or other person who is familiar with this sort of document. You will not be able to change the terms later unless the other party agrees.

ACKNOWLEDGEMENTS

Lorna Gelbert is a Partner with Madgwicks, Lawyers in Melbourne and is an experienced employment lawyer. She has provided legal advice to the AGCSA and its members for many years.
If you need advice on any employment matters, call the AGCSA office and, if appropriate, you will be given Lorna's contact details.

How Green is Your Golf Course?

Managing Your Business and Human Resources

An example of a typical water recycling system

In light of the recent Warringah Golf Club verdict, ATM revisits the topics of machinery washdown facilties and the disposal of waste water, which should prove handy revision for most.

With the continuance of drought and water restrictions, global warming, environmental degradation and a host of other headline issues related to water use, conservation and quality, public awareness of water issues has soared.

Regulation and enforcement has increased in a commensurate manner to the point where all facilities generating washdown water are now required to have a treatment or recycling system in place and face hefty fines if they fail to do so.

Golf courses invariably face the need to wash turf machinery which generate contaminated waste water requiring treatment prior to discharge to the environment or council sewer.

Where sewer is available golf courses generally are required to discharge waste water to sewer after it has been treated to a level that complies with the council sewer admission standards which form part of the Trade Waste Agreement issued by the council.

If sewer is not available on site then discharge to the environment is governed by the EPA whose admission standards are considerably more stringent than sewer as the water passes directly to the environment without further treatment.

While many golf courses have a designated storage area for pesticides, only a few have dedicated washdown bays and even fewer treat the wastewater generated.

The traditional washdown facility on many golf courses in Australia is at best a concrete washdown pad and pesticide mixing area, with a drain that discharges into a soakage pit, stormwater drain or directly to surface waters.

Allowing contaminated wastewater from washdown bays to drain directly into stormwater or surface waters would be an offence and could lead to fines and/or notices being imposed on operators.

Local councils regulate pollution of waters provisions applicable to golf courses under the POEO Act, unless that council is the golf course operator/owner (in which case the EPA becomes the regulator).

Washdown facilities also have to cope with clippings, oils and other contaminants. Of particular concern is the spillage of pesticide concentrates that could enter local waterways. Such an occurrence is not only environmentally unacceptable, but will also reinforce any community perceptions of golf courses being environmental polluters.

Washdown facilities are recommended to be separate from spray tank filling facilities to reduce the likelihood of a spill from mixing pesticides or filling or cleaning spray tanks and equipment lines.

If such activities were conducted on the machinery washdown facility loading, it could lead to pesticide contamination of the greater volume of washdown water and render that waste water to be hazardous waste.

Factors to consider when designing such a machinery washdown facility are listed below.

Trade waste may be accepted into the sewerage system if it complies with council's or the water authority's requirements and only under the terms and conditions of a council trade waste permit/agreement.

This permit controls the quality and quantity of trade waste, allowing it to be transported without having any adverse effects on the sewerage system, wastewater purification process, the safety of workers or the environment.

Wherever trade waste is generated, the property owner must apply to council or water authority on a prescribed form for a permit/agreement that allows the discharge of trade waste.

A trade waste permit/agreement will have standard conditions as well as specific requirements for the particular demands of the activity. The agreement is negotiated on a case-by-case basis.

If a trade waste discharge is to be considered, it is important that the waste stream is analysed for the various contaminants that can be in the waste stream. Each council or water authority is responsible for setting its own limits and needs to be consulted locally for requirements.

A general set up of washdown facilities at some courses around Australia are as follows;

- A concrete pad that slopes inwards towards a central pit. The design is such that all washdown water is contained and that no stormwater can enter the facility
- The water enters a pit in which there is a mesh screen to catch grass clippings. An appropriate lifting device (e.g. a gantry lift) is often needed to remove the grass screen as it can become very heavy;
- Water passes through the grass screen and then through a sand/silt trap to trap all soil particles;
- Water is then pumped through a triple interceptor pit to separate the oil/grease from the water;
- The clean water is then discharged to the sewer or other approved location. It may be possible to filter the water through a constructed wetland or to irrigate adjacent turf/garden areas.

In terms of the size of the washdown facility, the minimum area would need to be adequate for taking the largest machine. At golf courses with larger numbers of machines it will be necessary to set up the facility so that multiple machines can be washed at the same time. This is important in ensuring that staff are not waiting unnecessarily until they can access the washdown facility.

Generally speaking there are two types of installations available for golf courses: standard treatment systems and recycling systems which are applicable to golf courses.

STANDARD SYSTEMS (ROOFED AREA)

This would typically employ an oil/water separator system which will treat water captured from workshop and machinery washdown and enable the water to be discharged to sewer or, with modification, to the environment and will meet all council or EPA requirements.

A pump supplied with the system is utilised to draw the water from a holding tank and pump into a coalescing type separator which will remove much of the solids and over 99 per cent of any oil which is ducted to a waste oil drum.

It is simple to install, operate and maintain and requires an in-ground holding tank to be installed for dirty water storage.

The separator discharges directly to sewer by gravity or alternately the water can be pumped for irrigation or dust suppression.

The discharge from this system is not suitable for recycling.

Equipment cost for these systems, excluding site work, holding tank or installation, can be anywhere between $5000 and $7000.

RECYCLING SYSTEMS (ROOFED AREA)

Recycling systems treat waste water and produce recycled water that is suitable for reuse for wash down.

Depending on the facility and how much water is lost to evaporation or overspray, the system will recycle approximately 80 per cent of all water used, dramatically cutting water costs and satisfying water restriction rules.

The water is injected with a flocculent to drop oil and solids out and is subsequently filtered and chlorine dosed to ensure that it is pressure washer friendly, odour free and meets OH&S requirements.

The equipment cost for these systems, excluding site work, holding tanks or installation can be anywhere between $15,000 for a small system through to $30,000 for a large system.

General considerations for a machinery washdown facility.

- The likely composition and volume of the wastewater;
- Characteristics of the local environment (e.g. natural surface and ground waters, endangered species and their habitats, remnant vegetation, adjacent land uses), that may be at risk from any releases or will receive any current or proposed stormwater or other discharges that have been appropriately treated;
- Legislative requirements including preventing water pollution (POEO Act);
- Installation and maintenance costs;
- Sufficient containment area/holding pit for washdown water;
- Collection and storage facility for washdown water for current or future use;
- Screen and settling pit fitted to trap solids such as soil and grass clippings;
- Interceptor pits to remove grease and oil;
- Facility to treat wastewater to reduce biological oxygen demand;
- Facility to reuse wastewater on site for irrigating turf;
- Water quality that meets requirements for approval of local sewage service provider for disposal of treated wastewater to sewer.

Buying Second-Hand Machinery - Do The Homework

Managing Your Business and Human Resources

Victorian Turf Equipment Technicians' Association vice president Mark Browne looks at the burgeoning second-hand machinery market and provides a useful checklist that mechanics and superintendents should consider when buying used equipment for their golf course.

When considering the purchase of second-hand machinery for golf courses, a number of factors must be looked at and put into the equation when weighing up whether to buy used or buy new.

Of course, the purchase price of a second-hand machine can be considerably less than buying new. This would be a main factor to some clubs, and more so for smaller clubs and country clubs on tighter budgets where the purchase of a new machine could be out of the question.

Price alone, of course, is not the only consideration when buying second-hand and many other factors come into play that must be taken into account.

With an emerging second-hand market and turf equipment magazines such as The Groundsman advertising an array of turf equipment, the second-hand market is large, which augurs well for those superintendents and turf managers intending on buying second-hand.

By browsing through these types of publications buyers can get a good idea about the market value of a particular model of machine they require.

In my experience at the Eastern Golf Club in Melbourne, most of our main equipment is purchased new, such as fairway mowers, greens mowers, outer surrounds mowers, commercial deck rotary mowers and turf trucksters.

We also have the ability to have a machinery replacement programme whereby equipment is purchased when it has reached a certain age. This is fitted into the overall budget of machinery and doesn't come unexpected when $90-100,000 has to be provided for a new fairway mower.

The purchase of second-hand machinery for probably most of the metropolitan and country clubs comes into importance when buying equipment that would be used on a seasonal basis and as such tends to last many more years.

Therefore items such as topdressers, sod cutters, walk-behind cylinder mowers and scarifiers, tractors, vertidrains and aerators could be considered as items to look for second-hand.

Of course there are many more things to look out for when buying second-hand.

We must remember that we are purchasing something that may have done anything from 500-5000 hours work and the risks of blowing the budget on a machine that at first looked a good buy on price could make the machine not worth purchasing, as the cost involved on ancillary repairs and parts could make the purchase not viable.

Warranties are considerably less on used machinery as where a new machine would come with a 12 month to maybe two year warranty, used machinery may only come with a three month warranty.

The golf course turf mechanic and course superintendent should liase with each other and inspect the item of machinery being considered, as two heads generally are better than one when looking over a piece of second-hand machinery.

Whereas the mechanic may look at the condition of the engine and hydraulics as a major factor, the superintendent may consider the type of cutting unit to be of more importance.

Below is a checklist of some points that are important to consider when purchasing second-hand equipment.

Another worthwhile point would be to speak to the mechanic and superintendent where the machine originally came from. Most reputable dealers should have no hesitation in giving that information to a potential purchaser.

Dealers usually have the first choice of second-hand machinery when a buyer trades up and therefore have the first call on whether a trade-in is worthwhile to put on their second hand lot. The main manufacturers and their dealers are a very useful source for finding good second-hand machines.

As with the purchase of a new car, large dollar savings can be made on machines that have been used for demonstrations at trade fairs etc. and would still normally come with a full manufacturer's warranty and with only small hours on the clock. Some dealers also offer free delivery to capital cities in Australia for their second-hand machines.

All of the well-known turf equipment manufacturers such as Jacobsen, John Deere and Toro make very good equipment and debate arises on the issues of ease of serviceability, operator comfort, spare parts availability, cutting units and overall quality of

cut. Most of the larger dealers also offer finance and leasing deals on their equipment.

So in summary, when looking for used equipment, as in most purchases, the buyer needs to do their homework in regards to studying the second-hand market.

Looking through magazines and newspapers, we can find an array of second hand machinery. The Victorian Turf Equipment Technicians' Association magazine also offers members and their golf courses the ability to advertise second hand machinery and these can be a good source too.

And don't forget word of mouth through technicians' meetings and golf course superintendents' meetings as you never know what might be hidden in the old shed behind the ninth green at someone's golf club.

ACKNOWLEDGEMENTS

Mark Browne is mechanic at the Eastern Golf Club in Doncaster, Victoria and is vice president of the Victorian Turf Equipment Technicians' Association

SECOND-HAND CHECKLIST

- Look at the overall visual appearance of the machine (eg: dents, scratches on the bodywork, tyres, seat, cutting units);
- How many hours has the machine done, and does it look in good condition for the amount of hours it has done?
- Look at service records. Has the engine oil and filters been changed regularly and hydraulic oil and filters been serviced regularly?
- Has it been greased regularly?
- Is there any freeplay in the steering and steering ram and bushes?
- Are the drive belts for hydrastat and fan belts in good condition?
- Are there any oil leaks from engine, hydraulic lift rams or hydraulic hoses or hydrastatic transmission?
- Is the engine cooling system in good order? Are there any coolant leaks? Are the coolant and radiator hoses in good order? Has the cooling system been serviced regularly?
- Start the engine. Does it blow smoke when started or when it is operating?
- Do the safety interlock systems work (i.e. does the engine cut out when you get out of the seat)?
- Does the park brake work?
- Is there excessive freeplay in lift arms for cutting units indicating worn bushes and yokes?
- Does the workshop and owner's manual and operator's safety manual come with the machine?
- Are the cutting units in good working order (eg. bedknives, reels, reel bearings freeplay, rollers and roller bearings)?

Testing Time
Managing Your Business and Human Resources

BRON BLANCH

With summer coming to an end, Bron Blanch from Sportsturf Medics - the medical service provider for the AGCSA – provides superintendents with a timely reminder on the requirements of monitoring staff members for exposure to pesticides.

Despite the high level of OHS requirements pertaining to the application of insecticides, it is just as crucial for superintendents to be aware of their responsibilities when it comes to having members of their staff monitored for exposure to such chemicals.

Inappropriate exposure to organophosphate insecticides can interfere with the normal function of the nervous system. They do this by blocking cholinesterase enzyme activity, which are the reason organophosphate insecticides are called anti-cholinesterase compounds.

Absorption
Most poisonings from pesticides result from skin absorption. The greatest numbers of these happen during summer when arms and legs are often exposed.

Symptoms
Symptoms of acute toxicity to pesticides include salivation, sweating, lacrimation, increased bronchial secretions, constricted pupils, chest tightness, abdominal cramps, nausea, diarrhoea, loss of bladder control, weakness, fatigue and involuntary twitching.

Long Term Health Effects
Tingling and a burning sensation in the hands and feet followed by weakness in the lower limbs and impaired ability to coordinate movement. No pesticides are currently listed in the NSW carcinogenic Substances Regulations.

Precautions
The minimum recommended personal protection from organophosphate pesticides is a boiler suit buttoned at wrist and throat, impervious hat and gloves, washable hat, eye protection and a breathing filter.

Street clothing should not be worn under the boiler suit and following spraying, the equipment should be quarantined then washed separately.

Monitoring
Biological monitoring is done by measuring the depression of cholinesterase from exposure to organophosphorous pesticides or carbamate insecticides.

Medical testing should be carried out to establish baseline levels for each relevant employee. It is recommended by WorkCover that once a baseline is established, monitoring should be carried out at least twice a season, at the end of a working day that has included spraying.

Workers who may be exposed to chemical hazards should be monitored in a systematic program of medical surveillance that is supervised by a WorkCover Authorised Medical Practitioner.

The law pertaining to this is very explicit and Clause 165, Chapter 6, Part 6.4 of the Hazardous Substances, 2001 regulation reads as follows.

1) An employer must provide health surveillance for each employee who is exposed to a hazardous substance if there is a risk to the health of the employee as a result of that exposure, and:

a) The hazardous substance is referred to in column 1 of the table to this clause, or

b) The exposure to any other hazardous substance is such that:

i. An identifiable disease or other effect on health may be related to the exposure, and

ii. There is a reasonable likelihood that the disease or other effect on health may occur under the particular conditions of work, and

iii. There is available an effective technique for detecting indications of the disease or other effect on health.

An employer is not required to provide health surveillance within the period of 12 months after commencement of this clause in case of exposure of an employee to benzene, chromium, creosote or pentachlorophenol.

2) An employer must provide biological monitoring for an employee if there is a reasonable likelihood that the employee could be exposed to levels of a hazardous substance that could be a risk to health and an effective procedure for the biological monitoring of those levels is available.

3) The employer must ensure that:

***a) The health surveillance is performed under the supervision of an authorised medical practitioner,** and*

b) If there is a significant risk to the health of an employee from a hazardous substance referred to in the table to this clause.

4) The selection of an authorised medical practitioner to supervise the surveillance must be undertaken by the employer after consultation with the relevant employees.

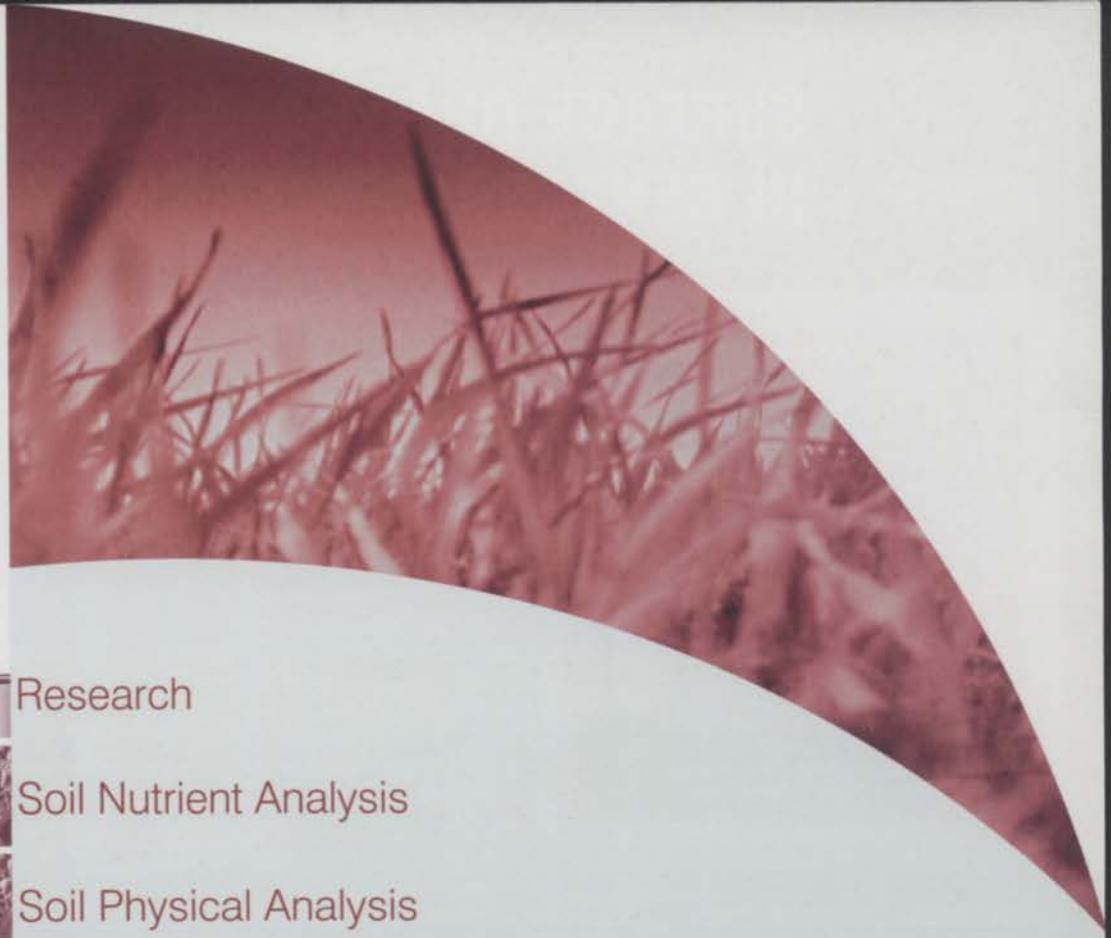
5) The health surveillance must be undertaken at the expense of the employer.

Maximum penalty. Level 4."

Table 1. Hazardous substances

Acrylonitrile
Arsenic
Asbestos
Benzene
Cadmium
Chromium
Creosote
Crystalline Silica
Isocyanates
Lead
Mercury
MOCCA
Organophosphate Pesticides
Pentachlorophenol (PCP)
Polycyclic Aromatic Hydrocarbons
Thallium
Vinyl Chloride

The AGCSA's Sportsturf Protection Manual contains all the information superintendents need to know on the proper ways to handle and apply pesticides safely. The manual can be purchased from the AGCSA for $220.



Research

Soil Nutrient Analysis

Soil Physical Analysis

Plant Tissue Analysis

Disease Diagnosis

Nematode Diagnosis

Water Analysis

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research

SURFACE ORGANIC MATTER IN BENTGRASS GREENS

Secluded greens with poor air circulation and drainage often exhibit excessive organic matter in the surface layer.

University of Georgia researchers are investigating how various aeration methods can limit organic matter build-up in newly constructed putting greens. The information sheds new light on the effectiveness of conventional aeration methods.

WHY BE CONCERNED ABOUT ORGANIC MATTER?

The USGA golf green specifications were developed to create a rootzone media that would exhibit good physical properties under continuous traffic; namely water infiltration/percolation, oxygen status, and resist soil compaction.

Golf greens, however, are dynamic systems where the norm is change over time, especially within the surface two inch (5.1 cm) zone (18, 20). During the first couple years of grow-in the greatest changes often occur, but changes also may continue over years, and within a year in total organic matter content, thatch/mat status, turfgrass rooting, and even the nature of the organic matter. All of these may influence water infiltration/percolation and soil oxygen status.

In long-term field studies, Waddington et at (20) noted that saturated hydraulic conductivity (SHC, the infiltration rate under saturated profile conditions) decreased to 30-40 per cent of the initial within two years after establishment on high sand mixes. A ten-fold decrease in infiltration within six months was reported by Murphy and Nelson (15) and 33-94 per cent reduction within one-two years by Neylan (18).

Concurrent with a reduction in SHC has been an increase in organic matter content within the surface two inches (1,2, 14, 15, 16, 20). An upper limit of 4.5 per cent by weight of organic matter in a sand media was suggested by Murphy et al (16) because macropores important for rapid SHC were insufficient above this level.

McCoy (14) recommended a maximum of 3.5 per cent organic matter by weight based on his work and a review of other studies using sand and organic matter mixes with or without a turfgrass, since macroporosity starts to decline after this value. The decline in root growth often observed within two to three years after establishment has been attributed to accumulation of organic matter in the surface (13, 17, 18).

SUMMER BENTGRASS DECLINE—PATHOLOGICAL OR PHYSICAL?

The USGA sponsored project, "Organic Matter Dynamics in The Surface Zone of a USGA Green: Practices to Alleviate the Problems" arose from observations in the late 1980s of summer bentgrass decline (SBD) on bentgrass greens in the southern zone of bentgrass adaptation.

At that time the prevalent theory for the underlying cause of SBD was root pythium. However, from field observations and a review of the literature cited in the previous section, I came to the hypothesis that many of the "primary" problems on high sand bentgrass/annual bluegrass greens, including SBD, were due to changes in soil physical conditions in the surface zone related to organic matter dynamics in this zone.

It appeared that either too much organic matter accumulation or rapid death of surface roots (i.e., the "nature" of the organic matter changed) could result in reduced water infiltration and higher water holding capacity, while decreasing O_2 content within the zone and O_2 diffusion across the zone. However, the author was unable to find any research in the early 1990s that actually determined O_2 status within the organic matter zone or below it.

Other secondary problems could arise if the primary problem was organic matter accumulation and/or change in nature of the surface organic matter such as more disease activity, severe physiological O_2 stress and further root decline in summer time, softer greens, etc. But, to achieve a reduction in occurrence of these secondary problems would require correction of the physical conditions within this zone.

As with any turfgrass management problem, it is essential to understand the enemy; what caused it to happen, what specific challenges arise from changes in surface organic matter conditions, what are the logical corrective/preventative practices to deal with it, will it occur again, under what conditions, etc.

Only with a good understanding of a problem can effective site-specific management options be developed and refined by the superintendent. Approaching the problems of surface organic matter as primarily physical (3, 4, 14, 16, 18) in nature that have adverse physiological consequences (3, 6, 10, 11) rather than due to pathogens (7, 8, 12) has a major influence on management approaches; and whether the underlying (primary problem) is the focus of management or whether management focus is on secondary problems.

TWO TYPES OF SURFACE OM PROBLEMS

The two common surface organic matter problems are suggested from field observations and turfgrass science literature.

The first situation is excessive accumulation of organic matter in the surface zone. USGA specification greens normally contain 1-3 per cent by weight of organic matter throughout the rootzone mix.

Research has consistently demonstrated that as organic matter content in a sand mix increases to above 4-5 per cent by weight the per cent of larger soil pores (macropores, aeration pores) of >0.08mm diameter between sand particles decreases due to plugging by organic matter (1, 14, 16, 18).

Even with very good turfgrass management, the organic matter content in the surface two inches is often observed to be >3 per cent by weight: 4.4-16.8 per cent (4); 4.7-7 per cent (G. Landry, bentgrass cultivar trial, 1999, personnel communication); 4.5-20.3 per cent (9).

The most common conditions that cause excessive organic matter accumulation are;

- Prolonged cool temperatures on cool season turfgrasses when temperatures are between 0°C and 13°C, where microbial activity declines and organic matter decomposition declines. Cool, humid temperate climates may have such conditions most of the year, while in the southern regions of bentgrass adaptation, this climatic condition may be for five to seven months per year.
- Use of aggressive bentgrass or couchgrass cultivars that exhibit high rates of organic

This rootzone profile is of a one-year-old putting green showing the organic matter build-up near the surface.

matter accumulation. Many of the newer greens-type cultivars exhibit this tendency.

• Poor air drainage that allows the surface to remain excessively moist for long periods. This allows for longer periods of anaerobic conditions and stimulates production of adventitious surface rooting, contributing to more organic matter. These are often the secluded greens with many trees in the surrounds, little natural air drainage, and shade on the green surface for a period of time.

• Inadequate integration of sand to sustain a media where sand is the dominant matrix rather than organic matter. Sand must be applied not just by topdressing, but also in vertical channels by hollow-tine core aeration that remove plugs of organic matter and allows large quantities of sand to be added.

• Addition of organic matter to the surface as sod (even washed sod), compost, or organic matter-containing amendments.

• Acidic pH at <5.5, which limits bacteria and actinomycete populations and activity.

• Maintenance toward rapid growth or thatch build-up, such as high levels of nitrogen use, frequent irrigation, and high mowing height.

• Low earthworm activity.

A second situation suggested to cause problems is when the "nature" of the organic matter changes from structured organic matter (mainly as live roots) into a gel-like consistency as roots rapidly die and cause a rapid O_2 stress.

The author hypothesised that this sequence of events was the primary reason for SBD in hot, humid climates or weather conditions. The hypothesis was based on field observations of SBD and the symptoms before, during and after the injury.

This situation is most likely to occur on a cool-season grass during hot, humid weather that induces rapid root death; therefore, this problem would be more common in the warmer regions of bentgrass adaptation.

Root dieback/death occurs every summer to some extent, but microorganisms can sufficiently break down the fresh organic matter to prevent excessive sealing. Under unusually hot, humid weather for one or two weeks or for a prolonged period, root death occurs more rapidly and can induce low infiltration and low aeration (fresh dead roots hold more water and are gel-like so macropore sealing occurs) by altering the nature of the organic matter. The remaining live, but O_2 stressed roots, cannot obtain enough water uptake for transpirational cooling because of the low O_2.

Root cells loss their permeability to water when rootzone O_2 is low and, thus their ability to take up water. Low soil O_2 in the surface

SURFACE ORGANIC MATTER IN BENTGRASS GREENS

layer where the remaining live roots are present leads to reduced water uptake, stomatal closure, and direct high temperature kill.

This is usually evident by yellowing of the turf and death over a one to three day period of hot, humid weather when plant and microbial oxygen demand is very high. The more the organic matter content is above 3 per cent by weight, the more likely a massive root dieback from hot, humid weather would cause a rapid O_2 stress and plant death.

However, even relatively low organic matter contents of 3-5 per cent seem to be sufficient to enhance SBD as the gel-like material from recently dead roots retains considerable water, and these dead root tissues are very effective in sealing the surface pores in this state.

This physical stress basis as the primary cause of SBD rather than a pathological one is now considered by many to be the number one cause of SBD under hot, humid weather conditions (3). It is not the lack of roots from root dieback that is the problem, but the creation of an excessively moist layer with very low O_2 during hot weather in response to the rapid root dieback, resulting in inability of remaining roots to take up sufficient moisture for transpirational cooling.

In the late 1990s, Huang et al (10, 11) provided strong evidence of adverse effects of the combination of high temperature plus low O_2 on bentgrass root viability to support this hypothesis. Also, the author conducted oxygen diffusion rated (ODR) measurements in a study funded by Toro from 1992-1995 within the surface zone and found numerous periods when ODR was less than 20-40mg 0_2 cm^{-3} min^{-1}, which is considered sufficiently low to limit rooting of grasses. In the very hot, humid summer of 1995, almost all readings were well below this limit.

RESEARCH APPROACH USED IN THE STUDY

The focus of the research in this study was on management of the second problem – the change in nature of the surface organic matter during the summer months. Research was conducted from 1996-1998 at Griffin, GA on an experimental golf green with the rootzone mix meeting the USGA specifications.

Treatments consisted of various non-intrusive cultivation approaches that would not cause surface disruption in the summer, topdressing, wetting agent, sand substitute, and cytokinin combinations.

Saturated Hydraulic Conductivity (SHC)

One of the most important characteristics for bentgrass golf greens in the summer time is the ability for excess moisture to infiltrate into the surface and percolate through the rootzone. If saturated flow does not occur in a rapid fashion, a saturated surface can occur.

Table 1. Treatment effect on summer saturated hydraulic conductivity (SHC)[a], oxygen diffusion at 1.2 inch depth, and organic matter content in the 0 to 1.2 inch zone at 30 months after treatment initiation.

Treatment and Contrast	Average SHC (1996-1998) 1-7DAC	17-26DAC	Lowest SHC	Readings >0.20 µg 0_2 cm^{-3} min^{-1}[b] 1996	1997	1998	Organic Matter at 30 months (0-3cm)
	inch hr^{-1}			%			% (wt.)
Control vs.	5.9	5.1	0.8	-	-	-	9.8
CA	9.3	5.8	3.2	0	100	87	7.3*
HJL	12.9	13.2*	3.2	-	-	-	9.9
HJR	23.5**	16.0**	7.6	14	84	75	9.1
HJR + Sand	24.0**	18.0**	6.2	-	-	-	9.3
HJR + Greenchoice	20.2**	10.8H	6.4	-	-	-	9.3
HJR + WA	25.6**	16.2**	5.8	29	100	100	8.9
HJR + C	23.0**	15.8*	4.0	-	-	-	10.3
HJR + Sand + WA	20.2**	14.8*	4.5	-	-	-	10.0
HJR + Sand + WA + C	21.5**	14.4*	4.3	-	-	-	9.1
LP + Greenchoice I	7.9	5.9	3.2	-	-	-	9.0
LSD (0.05)	9.7	6.9	-				2.2
F-test	**	**	-				.38

CA = Core-aeration; HJL = HydroJect run in lowered position; HJR = HydroJect run in raised position; Greenschoice = fired calcined clay; WA = wetting agent; C = cytokinin; LP = LandPride dry injection

[a]Core-aeration was in March and October but SHC readings were in the July to September period so SHC for the CA treatment is not at 1-7 or 7-26 DAC

[b]An ODR rate of > 0.20 to 40 µg O_2 cm^{-3} min^{-1} is considered as non-limiting for root growth, while below this value root growth is less than optimal.

[c]Average of 7 time periods during summers of 1996 – 1998.

In Table 1, SHC values at 1-7 and 17-26 days after cultivation treatment are presented with the SHC values an average of seven summer-time measurement periods during 1996-1998. Within 1-7 days after cultivation application, SHC increased at least 3.4-fold to > 20.2 inches per hour for all HJR treatments (HJR = HydroJect operated in a raised position to provide a hole of approximately _ inch diameter) compared to 5.9 inches per hour in the non-cultivated control.

The plots that were core-aerated in March exhibited no difference in SHC compared to the control. This illustrates that the effectiveness of spring hollow-tine cultivation on SHC declines over time as holes refill with root mass; and would suggest that cultivation methods that are normally non-disruptive of the surface, such as HydroJect or solid quad-tines, would be necessary to maintain higher SHC during the summer periods.

Comparing HJL to HJR treatments (HJL = HydroJect operated in a lowered position to provide a hole of approximately 1/8 inch diameter) at 1-7 days after cultivation, demonstrated that the larger hole formed by the HJR operation was more effective in increasing initial SHC.

The LandPride device (dry injection) did not result in any increase in SHC when a sand substitute was injected. LandPride cultivation alone (without amendment injection) was not evaluated in the study. The same sand substitute amendment when applied as a topdressing after HJR cultivation tended to decrease SHC, especially at 17-26 days after cultivation.

At 17-26 days after cultivation, all HJR treatments exhibited SHC of 2.2-3.6-fold greater than the control with SHC values of 5.1 versus 10.8-18.0 inches per hour. The lowest summertime SHC observed on the non-cultivated control was 0.8 inches per hour versus > 3.2 inches per hour for plots that received cultivation in the summer. The decline in SHC from 1-7 days to 17-27 days after cultivation is expected as the surface starts to reseal from root mass growing across the hole or collapse of the hole.

Oxygen Diffusion Rate (ODR)

ODR readings were taken in the surface one-inch depth during the summer months for selected treatments and results varied with the year (Table 1). In 1996, readings were <20mg 0_2 cm^{-3} min^{-1}

most of the time regardless of treatment. There were periods of limited O_2 within the surface zone in the other years.

These results, plus similar ODR findings from a subsequent study (20), confirmed that critically low O_2 levels can occur even under non-saturated conditions. Low ODR levels would be expected more frequently when rain is frequent or daily irrigation is practiced that keep the surface zone moist.

Turf Quality and Shoot Density

Improved turfgrass quality and shoot density were noted for most of the HJR and HJL treatments relative to the control (Table 2). The reduction in the turf quality and shoot density of the core-aerated plots occurred in the early summer when some residual effects from the spring treatment were still evident.

Generally, when sand or a sand substitute was applied immediately after the summer cultivation operation, visual quality and shoot density ratings were not as high as when the topdressing was omitted.

Only the hollow-tine treated plots received spring core-aeration with sufficient topdressing to fill the holes. The surface organic matter accumulation was the least in this treatment, illustrating the importance of hollow-tine core aeration, which allows for more sand to be incorporated into the surface organic matter zone than by topdressing alone. All treatments resulted in organic matter levels above the < 4.5 per cent level desired.

IMPLICATIONS FROM THIS STUDY

The immediate increase in SHC following cultivation treatment demonstrates that the surface conditions do control SHC on high-sand greens and that creation of temporary macropores across this zone results in SHC that is substantially higher.

Superintendents may use infiltrometers to determine SHC on their greens in the field. One question that often arises is whether the field SHC will be the same as the laboratory SHC for the rootzone mix without a turf sod on the surface. The answer to this question is yes and no, depending on:

- If field SHC is taken at several weeks after a cultivation event and the holes have had time to seal, the SHC can be appreciably less than lab SHC.
- If field SHC is measured within the time period when the cultivation holes may still be partially open, SHC rate may be intermediate compared to obtaining the SHC rate within a few days after cultivation. SHC measured within a few days after cultivation often is within the same general range as the laboratory SHC if the

SURFACE ORGANIC MATTER IN BENTGRASS GREENS

Table 2. Summary of treatment effects on turfgrass visual quality and shoot density.

Treatment And Contrast*	Visual Quality*		Shoot Density*	
	<	>	<	>
	---------- % ----------			
Control vs.	-	-	-	-
CA	29	0	29	0
HJL	0	19	0	38
HJR	0	14	0	24
HJR + Sand	0	0	0	0
HJR + Greenchoice	10	0	0	10
HJR + WA	0	14	0	29
HJR + C	0	14	0	14
HJR + Sand + WA	5	19	0	24
HJR + Sand + WA + C	0	0	0	10
LP + Greenchoice I	48	0	33	0

CA = Core-aeration; HJL = HydroJect run in lowered position; HJR = HydroJect run in raised position; Greenschoice = fired calcined clay; WA = wetting agent; C = cytokinin; LP = LandPride dry injection
***Based on per cent of ratings (18) when the treatment was significantly less than (<) or greater than (>) the control.**

rootzone mix below the surface couple inches has not been appreciably altered after construction. Factors often observed to alter the SHC below the surface two-inches include movement of salts that precipitate within this zone, movement of fine materials during grow-in into the subsurface or a layer, and a high organic matter layer that becomes buried. That may include thatch that develops during grow-in that has not had sufficient sand integrated into it and is buried with subsequent topdressing.

A suggested protocol to determine the SHC with and without the influence of surface conditions is to conduct the field SHC determination using a field infiltrometer and record the value. Then, while the infiltrometer is still in place, push a _ inch diameter solid-tine with a sharpened end to a depth of three inches a couple times into the turf surface within the infiltrometer, then repeat the infiltrometer reading.

Do not go deeper than three inches so that the zone that controls SHC can be identified. If the reading is similar to the initial reading but low for both of the above determinations, push the rod in the same holes to the bottom of the rootzone mix (about 10-12 inches) and determine SHC.

If readings dramatically increase, this would indicate that conditions from 3-12 inches control SHC rather than surface conditions. But if SHC greatly increases after creating macropores just within the surface three inches, then the controlling zone is at the surface.

Another implication of this study is that it demonstrated that when surface conditions control SHC, most cultivation operations that create at least a _-inch diameter hole can dramatically and immediately enhance SHC. But, SHC will then decline over time.

These responses have impact on cultivation timing and frequency. Some observations from the current study and other cultivation studies that the author has conducted over many years are;

- The holes made by HJR, _ inch solid quad tines, and the Aerway Slicer 100 greens cultivation device all initially enhance SHC, but by about three weeks their effectiveness starts to decline with the HJR least affected, probably because a hole is cut out instead of created by pushing materials to the side. This is the basis for suggesting an approximate three-week schedule of non-disruptive cultivation treatments. Personal observation has been that sites receiving appreciable sodium and/or very heavy traffic will exhibit hole closure at a faster rate.
- When hollow-tine core aeration has been conducted with holes filled by topdressing, the duration of improved SHC is usually five to eight weeks for _ to 5/8-inch diameter holes on high sand greens.
- The responses just noted would suggest that non-disruptive cultivation should be initiated within five to eight weeks after a hollow-tine cultivation operation and repeated on a three week schedule to maintain high SHC conditions during the summer months.
- In another study (20) where the focus was not on the summer but the cooler months, we found that the lowest SHC and O_2 values came in the December to February period. Since cooler weather favours bentgrass root growth and regrowth from the summer, it appeared that the massive root growth in the surface two-inches essentially plugged the macropores with live roots to the point that water and air movement were greatly reduced. The implication would be that rooting could be limited during this period and until core aeration occurs. Thus, a non-disruptive cultivation application in late winter/early spring before the temperatures are favourable for hollow-tine core aeration and/or an application at five to eight weeks after autumn coring could assist in maintaining macropores for water and air movement in cool periods. The very low soil O_2 in the winter to early spring may be a primary reason for the long-term observation that rooting declines in high sand greens after the initial one to two years.

Low O_2 within the surface two-inches due to high moisture retention of the organic matter means that the lower crown, lower portion of stolons, and roots in the layer are exposed to low O_2, especially in wet or humid years where drying of the surface would be slow.

Perhaps this is the primary problem that weakens the plant and triggers diseases that are associated with root rot injuries. If so, than primary preventative control measures would be to dilute the organic matter layer, remove some of the organic matter, maintain macropores, and improve air drainage to dry the zone.

An excellent article by O'Brien and Hartwiger (19) reports on options for controlling the organic matter zone. One question that arises in their article as well as this study is, 'What is an acceptable level of OM in the surface two-inch zone?'

The author's view on this question is based on experiences gained from several cultivation studies, visiting golf courses in a number of locations in the world, and from literature previously cited. These views are summarised as follows;

- Regardless of climate zone, greater than 4 per cent organic matter content in the surface two-inch zone becomes a "red flag" value that indicates the probability of developing low O_2, excessive surface water retention, and reduced SHC. The more organic matter increases above this value the greater the potential for these problems. This level is a guideline to assess the potential for certain problems and to indicate when more aggressive management is needed. It is not a specific level that means turf death is imminent.
- In the USGA green construction method, organic matter mixed throughout the rootzone mix is capped at about 3 per cent (by weight) since above this level it is difficult to achieve a mix that allows sand to be the dominant media and maintain a balance between moisture retention versus aeration porosity. If the soil physical reasons are true at establishment to maintain < 3.0 per cent, they continue to be valid after establishment. Who recommends 4-10 per cent by weight of organic matter within high sand green mixes?
- Within the southern zone of bentgrass adaptation, the 4 per cent level is especially critical because the opportunities for low soil O_2 to occur in conjunction with hot, humid, wet

This rootzone profile demonstrates a putting green that has developed a surface organic matter problem that has limited gas exchange which has led to the development of a black layer beneath the organic matter layer

weather are greater. But, such hot, humid, wet periods can also occur during certain years in many cooler regions.

• I have heard turf managers indicate that the organic matter content in their greens are higher than 4 per cent and they do not see any problems. As noted, the cooler the climate the more likely that organic matter will accumulate to greater than 4 per cent unless a vigorous control program is followed. It is within these climates that SBD is most rare. However, the onset of low O_2, waterlogged, soggy greens becomes more dominant over time in these same climates as well as the pathogens that such conditions may enhance.

• Another reason that somewhat higher organic matter content than 4 per cent seems to occur in some situations (or even at times within a year at a location) without evident problems, may be that much of the organic matter is present as live roots. Live roots have a structure that allows better air exchange and water movement compared to when many of the roots die and the organic matter becomes more of a massive, spongy nature with macropores less defined.

• Maintaining sand as the primary surface matrix rather than organic matter (remembering that 1 per cent organic matter by weight equals about 5 per cent organic matter by volume) is also important for maintaining a firm surface for putting quality as well as one that will hold the mower without scalping.

It is informative to remember that since the very early days of USGA greens and high-sand greens that preceded the formal USGA specifications, the early agronomist recommended twice annual core-aeration plus heavy topdressing at the time of coring (15-20 ft^3 of sand per 1000 ft^3 per topdressing). Why would this be the recommended practice except to dilute the on-going problem of organic matter accumulation in the surface?

History often has a story to tell us today.

ACKNOWLEDGEMENTS

THE AGCSA is grateful to the author and USGA Turfgrass Environmental Research Online for allowing publication of this research in Australian Turfgrass Management magazine.

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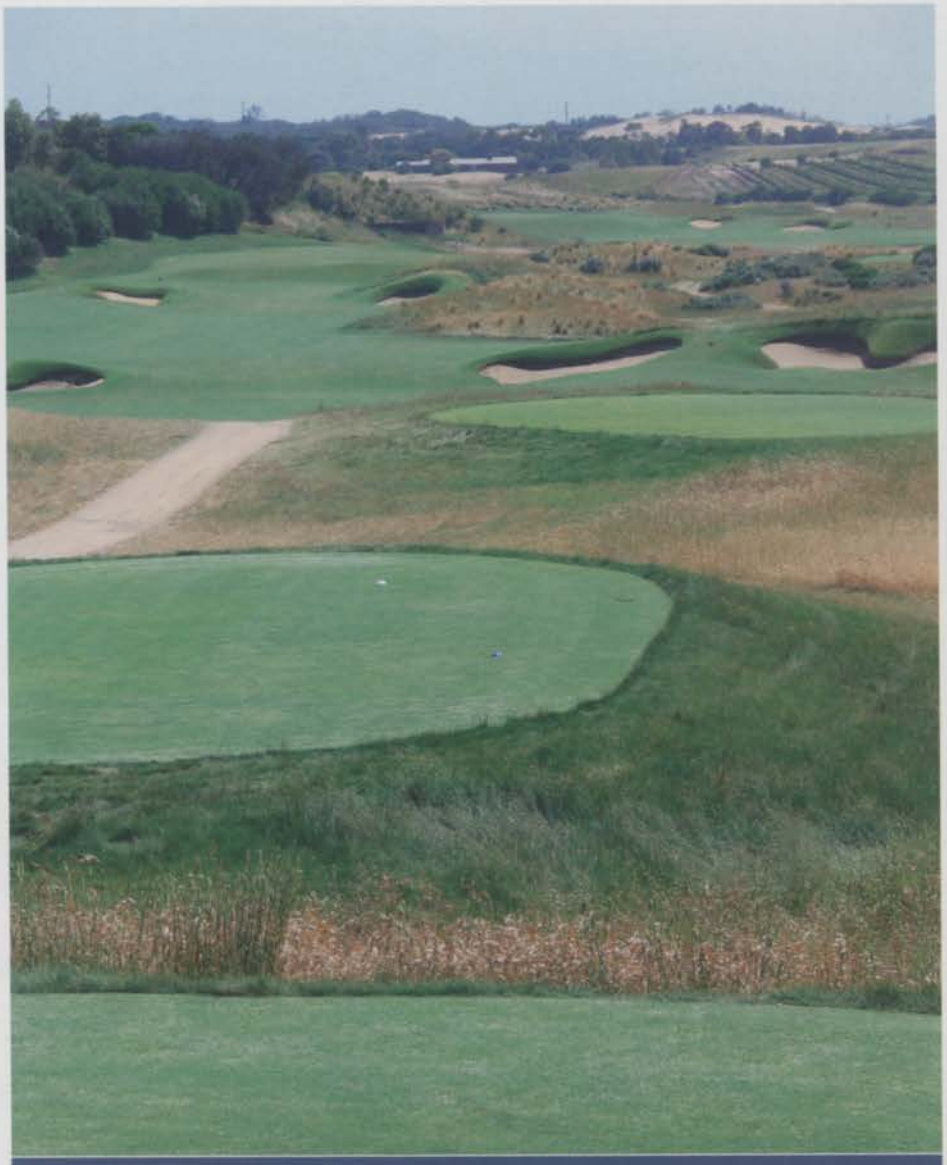
REFERENCES

Please contact AGCSA for a complete list of reference material used. (03) 9548 8600

AGCSATech : Update

By John Neylan

AGCSATech manager John Neylan reviews a successful 2003 Australian Open and discusses ways to control the destructive couchgrass mite.



The spectacular eighth hole at Moonah Links

AUSTRALIAN OPEN 2003 - MOONAH LINKS

During 2003 we were privileged to have a close association with the Australian Golf Union and Moonah Links Golf Club in the lead up to and during the Australian Golf Open. It was a very interesting and valuable experience to observe all the preparations and goings on at close range.

From my perspective, what I was most impressed with was the great effort put in by the ground-staff not only for the tournament itself but also the 12-18 months leading up to the event.

It was only a relatively short time ago that the golf course had completed the grow-in and the conditioning period was only beginning. The condition of the turf for the tournament was exemplary given the time frame involved and the extensive area that has to be maintained.

In September/October 2002 the maintenance of the golf course was taken in-house, groundstaff had to be appointed and the facility tooled-up.

Over the past 12 months the groundstaff have had to condition the Open course for play, complete the grow-in and bring into play the Legends course, construct the Australian Institute of Sport facilities, construct a monster putting green in the middle of the hotel complex and take charge of turfing around the clubhouse and the hotel. All of this was happening with the Australian Open a constant presence.

Most Australian Open courses are well established, with the experience of hosting major events and rarely have to cope with the above distractions.

The maintenance at Moonah Links is very well managed by superintendent Leigh Yanner with his very capable assistants Scott Calder (Open course) and Nathan Bennett (Legends course). The ground staff are hard working and enthusiastic and a pleasure to be around.

It was also interesting to see the influence of high profile golf courses such as Metropolitan, Royal Melbourne and Lakelands on the key members of staff.

Well done to each and every person involved in preparing the Open course for the 2003 Australian Open.

COUCHGRASS MITE DAMAGE

During the spring and early summer, couchgrass mite damage has been quite noticeable and in particular where the couchgrass is under moisture stress or has been damaged by disease (in particular Spring Dead Spot).

The couchgrass mite is an Eriophyid *(Eriophyes spp.)* mite that is extremely small - about 0.2mm long - yellowish-white in colour, and worm-like in appearance with four legs.

Combined effects of mite and Spring Dead Spot damage

They cannot be seen with the naked eye, and a hand lens is of little help. A microscope is needed to find them on infested grass. They multiply very fast, requiring only about seven days to complete their cycle from egg to adult at ideal temperatures (27-43°C) and humidity.

The mites tend to develop between the grass stem and blade sheath; this area protects them and makes spray penetration into this area difficult. They remain for most of their life beneath the grass sheath, and large numbers in all stages of development may be found under infested sheaths.

Since the couchgrass mite is so small, it can be identified only by the symptoms of damage to the grass unless sufficient magnification is used. Fortunately, the mite causes a characteristic type of damage.

Initial damage is observed in the spring when the couchgrass fails to begin normal growth. These areas may be yellow or brown in colour. Damage appears as a typical resetting and tufting, caused by a shortening of the internodes. The tufts produce clumps or "witches brooms" in the grass. The grass loses its vigour, thins out, and may die.

Injury is more pronounced during dry weather and especially when the grass is stressed. In recent observations it has been strongly associated with areas damaged by Spring Dead Spot that are beginning to recover where the mites attack the new growth. Infested grass will have large brown clumps of distorted stems that usually die.

Control

As with many pests, good irrigation practices, the proper use of fertilisers, and other approved maintenance practices to encourage vigorous growth and good plant health will often disguise the effects of infested couchgrass.

However, where the couchgrass is recovering from other problems or it is newly planted stolons, regular treatment with a registered insecticide is required. In some situations with new plantings, treatment every 7-10 days will be necessary because of the rapid lifecycle of this pest.

Damage thresholds have not been established for this pest, but if a treatment seems necessary, mow the turf closely and remove clippings first. In addition to physically removing most of the population, it may also displace remaining mites so that they are more readily contacted by the miticide. After mowing, irrigate the turf and spray while the grass is still wet.

To increase the chance of getting the pesticide under the leaf sheath, add adequate spreader-sticker to the spray mixture. Do not water or cut the grass within 24 hours of chemical treatment. A second application 10 days after the first may be necessary on established turf to obtain satisfactory control (and more frequently on new plantings).

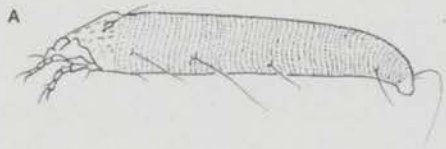
INSPECTION OF ADELAIDE GOLF COURSES AND GMA CONFERENCE

In November 2003, AGCSATech undertook inspections of several golf courses in Adelaide as part of an initiative by the South Australian Golf Association (SAGA) and the South Australian Golf Course Superintendents' Association. SAGA subsidised the costs of the inspections and reports as a service to its member clubs.

It was a pleasure to inspect the courses and to discuss local issues including water quality and continuity of supply.

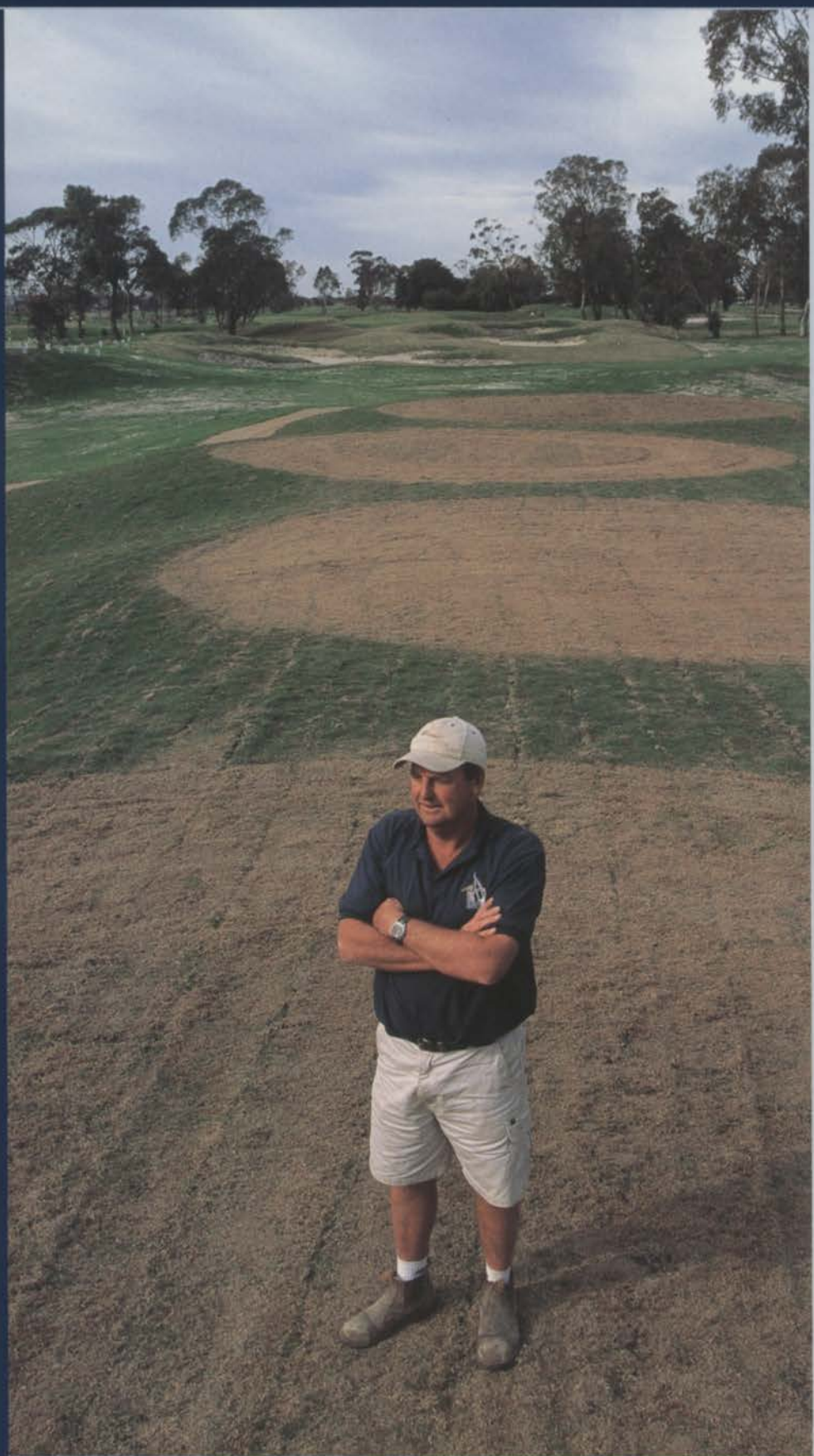
During the week in Adelaide, Glenelg Golf Club superintendent Daryl Sellar and I made a presentation to the Golf Management Australia (Secretary/Managers Association) conference on the superintendent's role and the future challenges of course management. It was a good day and we had some positive feedback on the presentation.

A few judicious photos of the pesticide spill in Manly Lagoon *(see Australian Turfgrass Management Vol 5.6)* produced a collective gasp as we discussed due diligence and environmental responsibilities.



Couchgrass mite (A: adult; B and C: Damaged and healthy plants)

Riordan's River



Patterson River superintendent Michael Riordan surveys the radically reconstructed course from the 16th

After worrying times, the future now seems assured for the Patterson River Country Club, but achieving it has taken a land deal, clever planning and one very shrewd superintendent.

To be a member at Patterson River Country Club these past four years has meant calling on all one's reserves of stoicism.

A few gave up and walked away, but everyone else endured what no other golf club in the country has ever experienced – the building of an entirely new course on top of the existing one while the members kept playing.

To be course superintendent there? Well that's another matter completely!

Meet Michael Riordan, superintendent for nearly 20 years and possibly just a little bit greyer than he was when he scored the job at Patterson River back in 1999.

It has been an extraordinary feat to say the least, but the end is in sight with construction due to be finished by the end of March, an incredible 12 months ahead of schedule.

"It has been a challenge but one which has been hugely rewarding," says Riordan.

"We've still got the entire 13th hole to do and 9th green but the finish line is in site. Everyone can see what the finished product will be like now and everyone's very pleased with it.

"The further we go the better we get at doing things. At this stage it is making sure that we don't take any shortcuts to finish it on time."

To keep the course open throughout was a seemingly endless test of ingenuity, determination, perseverance and much hard work.

Almost from the moment the earthmovers and giant tip trucks began assaulting the old 6300-metre, par 73 layout, members and guests were confronted with an ever-changing, contrived course.

Anyone returning from a long holiday could have been excused for losing their way around the track, but Riordan and course architect Phil Ryan, from Pacific Coast Design, ensured 18 holes always remained in play. And in all the re-jigging, members have played briefly to only one temporary green and played off two temporary tees.

Club captain Peter Bleazby is high in his praise for what Riordon and Ryan have achieved. "They have done a mighty job."

For Riordon it was a case of the wheel having turned full circle. After serving the earlier part of his career at Patterson River, he left in 1985 and went to Whittlesea until 1989. From there he moved to the Mornington Peninsula and acquired the job of construction superintendent at Eagle Ridge.

It was the experience he gained there that landed him the superintendent position back at Patterson River in 1999.

"At times it has been tough but I've been a superintendent for nearly 20 years and I think you would have needed a bit of experience behind you to do something like," says Riordan.

"There are lots of pressures, lots of people want to push you around, and being able to take no shit from anyone certainly helps.

"But the club really went out on a limb doing this. For them to stay competitive in the Melbourne metropolitan region they had to do something pretty radical and that was to get their turf surfaces up to the quality of other clubs in the area.

"I worked here as a kid so I sort of knew what the problems were and what was going to be involved. The job has been bigger than what I thought when I applied. I would have put another $50,000 on my salary if I had known!"

The mammoth operation began back in November 1999 shortly after Riordan came on board. The first thing he did was plant a hectare nursery of Santa ana before embarking on the first three holes (14, 15 and 17) in February

Ground staff work on the bunkers on 160m par 3 7th

Riordan's River

The new par 3, 8th

The par 4, 5th hole takes shape

2000. After they opened in December 2000, work began on 10, 11, 12 and 18 which involved a lot of lake work.

The next stage involved what Riordan describes as the most difficult part of the project, providing almost 200,000 cubic metres of fill to Australand for their housing develop adjacent to the course.

The practice facilties were next, all 8000sqm completely sodded with turf brought in from Sydney, before serious construction began in 2002. During that year holes 1, 2, 3, 5, 6, 7 and 16 were constructed.

"2002 the course was like a moving minefield," recalls Riordan. "We were putting up barriers one day, taking them down the next, making fences for golfers to get through to different areas, whacking down mulch paths for golfers' access."

Last summer was a particularly trying period for players, who not only had to cope with an ever-changing layout but also 18,500 loads of fill being trucked across the fairways.

In the middle of Melbourne's worst drought in memory, the giant carriers created a haze that hung over the course each day unless it rained. When it did the fairways became a bog.

Mud is something Patterson River members have endured for as long as they can remember – the legacy of 30cm of peat covering the whole site. It only took a few millimetres of rain to turn the place into a quagmire. But that is no longer the case with a new fairway sand profile providing greatly improved draining.

2003 saw the turn for home – 4, 8, 9 and now 13. Upon completion, all fairways and tees will be Santa ana, all greens have been seeded with Pennlinks while the rough is a rye/fescue mix. Riordan has also instituted a tree management and replacement program which has seen the removal of up to 400 pine trees and the introduction of many native species which have been propagated in the on-course nursery.

Apart from the Patterson River snaking along the club's southern boundary, virtually no water came into play on the old course. But on the new 6200 metre, par 72 layout, nine lakes hold 15 hectares of the stuff.

Two par 3s – the 2nd and 12th – feature water carries, the latter tee shot being completely across water. Another channel-like water feature cuts across the par 4 5th linking lakes either side.

The lakes were the result of providing the landfill for Australand and according to club manager Brett Kerr the new course would not have been possible without the deal with the developer.

"Indeed, the Australand link has given the club financial security. It's no secret that we were struggling and facing some serious decisions," says Kerr.

"Clearly, if all had been well we wouldn't have sold our old practice fairway for housing, but by doing so we will shortly have a new course for under $6 million."

For Riordan, the completion of the course will be immensely satisfying in what without a doubt has been the biggest undertaking of his extensive career.

"Having the interaction of the golfers was an added nightmare, but I think a lot of other clubs can certainly achieve the same by just having an understanding membership," says Riordan who has also been able to triple the number of staff and purchase new machinery during the project.

"It also helps if you can have a couple of holes done early to be the showpiece so the members can see the end product. A lot of members became involved in the project and they have been happy to see the club take such progressive steps.

"The people who are going to benefit most are not only the members but those that come later on because we have done everything properly. We've set the club up for the next 50 years.

"The club has always been very supportive and they gave me whatever I wanted, within reason. And they're happy. The respect is certainly there from the club towards me and my staff."

Acknowledgements

This article has been adapted with permission from Golf Victoria magazine, Volume 44, Number 6, 2003. The original article was written by Graham Eccles with photography by Terry Phelan. Australian Turfgrass Management magazine is grateful for their assistance.

Shifting Sands –

A Spotlight on Victorian and Tasmanian Golf Course Projects

BARNBOUGLE DUNES

Project: *Construction of an 18-hole links course*
Superintendent: *Nathan McDonald*
Location: *Bridport, Tasmania*
Time Period: *August 2003 - ongoing*

Barnbougle Dunes with Bass Strait in the background

Comments:
Just as Peter Thomson gushed over his Moonah Links creation, so have those involved with this unique venture just outside of Bridport on the north coast of Tasmania.

Links Golf Tasmania has teamed with Michael Clayton Golf Design and respected US golf course architect Tom Doak to produce a links course they are hoping will rate among the top 100 in the world.

On the drawing board for the past two years, course construction began in earnest in 2003. A soft opening of the back nine holes is planned for April with the full 18 expected to be open in early spring.

The course has been designed over 113 hectares of coastal dunes which form part of a massive 5265 hectare property owned by prominent Tasmanian tourism industry identity and potato farmer Richard Sattler. The design features 14 holes which stretch along 3km of BassStrait coastline

Due to the undulating nature of the greens and exposed location, the greens will be a 70 per cent fescue/30 per cent bentgrass mix. It was felt that a wholly bentgrass green would become unplayable. All fairways are a fescue/bentgrass mix as well.

Construction has progressed steadily, although much effort has gone into the removal of marram grass, while a rampant population of tiger snakes proved a tricky hurdle.

Three fairways have been stolonised at Flinders this summer

FLINDERS GOLF CLUB

Work In Progress: *Sprigging, bunker reshaping, tee extensions*
Superintendent: *Colin Morrison*
Location: *Flinders, Mornington Peninsula*
Time Period: *December 2003 - ongoing*
Comments:
Flinders Golf Club celebrates its centenary in 2004 and superintendent Colin Morrison has kicked off the festivities by stolonising three fairways, these being (1,2 and 18) with Wintergreen couch.

The works are just part of many Morrison has on the go at the club, including extensive bunker reshaping and tee extension.

"Being 100 years old, a lot of the bunkers on the course are in the wrong place," says Morrison. "So we are looking at that and the design of the holes given today's changing playing conditions.

"It will be an ongoing project which we will just chip away at in the coming years."

Morrison blanket sprayed the three fairways with Round-up to kill off an ugly mix of rye, bentgrass, *Poa* and couchgrass and replanted 10 days later. Thanks to some warm December and January weather, the couch has flourished.

Water restrictions meant that only three fairways could be converted this season, but once they have been established and evaluated, Morrison says more holes will follow later in the year.

Construction of the new 1st at Freeway

FREEWAY GOLF CLUB

Project: *Layout change to first three holes. New maintenance facility.*
Superintendent: *Glen Davie*
Location: *Bulleen, Melbourne*
Time Period: *October 2003 – June 2004*
Comments:
Commencing in November, this $350,000 project involves altering the existing layout of the first three holes to address safety issues.

As the name suggests, the course lies alongside the Eastern Freeway in Melbourne and errant golf balls hit around 16 cars each year. The main issue surrounded the second shot into the long par 4 3rd, with a number of balls leaving the course onto the Bulleen Rd offramp.

The old 1st and 2nd holes will be combined into a par 5 with the old 2nd green now the 1st. The 2nd will become a short uphill par 3 complete with a new green which is being constructed halfway down the old 3rd fairway.

The troublesome 3rd will remain a par 4 although reduced in length. A new green (Penn G2) is being constructed which will change the angle of shot.

Superintendent Glen Davie says the project had been in the pipeline since 2000, however, was stalled while the club waited for council funding. Davie is hopeful the works will be completed and ready for opening in June.

The layout changes come on top of a new maintenance facility which was completed in October 2003. The new $540,000 48x15m shed replaces the existing 13x13m facility which was riddled with OH&S issues.

GREEN ACRES GOLF CLUB

Work In Progress: *Greens construction and fairway sprigging*
Superintendent: *Tim Pierce*
Location: *Kew, Melbourne*
Approximate Cost: *$200,000*
Comments:
Work is currently underway on the 8th, the final hole in what has been an ongoing greens reconstruction project which has taken place over the past 10 years. The green is Penn G2, while new surrounds and approach have been constructed. Superintendent Tim Pierce has also recently finished sprigging the 13th and 16th fairways.

Construction of the new 1st at Freeway

GROWLING FROG GOLF CLUB

Project: *Construction of an 18-hole golf course*
Construction Superintendent: *Spiros Skaftouros*
Location: *Whittlesea, Melbourne*
Time Period: *October 2002 - ongoing*
Approximate Cost: *$12 million*
Comments:
The final grassing of four greens and two fairways is underway at this new 18-hole course situated 5km outside the township of Whittlesea on the northern metropolitan fringe of Melbourne.

Construction superintendent Spiros Skaftouros, joint winner of the AGCSA's Claude Crockford Environmental Award in 2003, is hopeful the course will be open by April.

The course is situated on a former trotting training complex which was bought by the City of Whittlesea in late 2001. The site was typical of the remnant grassy redgum woodland ecosystem and was dotted with ancient redgums, many of them more than 200 years old.

The 6200m Graham Marsh-designed championship course covers less than 50 hectares and is situated on a parcel of land that is over 121 hectares. It boasts 57 bunkers while half the course is links style and the other half tree-lined.

The Santa ana couch fairways were line-planted by a NSW contractor and as of early January were 50 per cent covered. All greens are Penn A1 bentgrass.

The course will be irrigated using recycled water after the council entered into an agreement with the local sewerage authority to provide half a megalitre a day of Class B treated effluent.

HENLEY PARK GOLF CLUB

Project: *Construction of an 18-hole championship golf course*
Location: *Chirnside Park, Melbourne*
Approximate Cost: *At the outset, it was predicted the project would cost in excess of $11 million. This may have increased in light of extensive assessments to ensure compliance with the Environment Protection and Biodiversity Conservation (EPBC) Act 1999.*
Comments:
Located on the banks of the Yarra River in the northern outskirts of Melbourne, this Tony Cashmore-designed course will serve as the second championship 18 for the Heritage Golf and Country Club.

The birth of this project has been rather troublesome with environmental lobby groups kicking up a fuss over the course impacting on the habitat of nationally threatened fish species, namely the Macquarie Perch, Australian Greyling and Murray Cod.

The matter went all the way to Federal Minister for the Environment and Heritage, Dr David Kemp, who gave the final go-ahead in September 2003, subject to conditions.

The 210-hectare development, proposed by Yarra Valley Golf Pty Ltd, required assessment and approval under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 due to the potential impacts on fish species.

HUME COUNTRY CLUB

Project: *Construction of a new 18-hole course*
Superintendent: *Tim Hicks*
Location: *Albury-Wodonga*
Time Period: *Depends on land sales. First stage expected for completion mid-2004*
Comments:
After suffering severe financial difficulties during the 1980s and 1990s, the 27-hole Albury-based Hume Country Club was brought out in the mid 1990s by two private buyers.

Now, after a drawn out planning process, construction is finally underway on the first three holes of the new 18-hole Neil Crafter-designed course. Coinciding with this, construction of the first 80 properties in a 360-resident development has started.

As this magazine was going to print, shaping of the 1st and 9th fairways had been completed with sprigging expected in January. Work is also underway on the par 3 8th.

The course will boast Santa ana tees, Plateau couch fairways, Penn G2 bentgrass greens, while the rough will be a mix of native grasses, fescue and rye.

The course will be irrigated using Class A reclaimed water from the nearby Waterview Wastewater Reclamation Facility. The water will be gravity fed along a 5km pipeline from the treatment plant where it will be housed in storage tanks. Property owners will also have the option of using treated effluent to irrigate their gardens.

Stage two will see the construction of a further six holes.

KEYSBOROUGH GOLF CLUB

Work In Progress: *Bunker reconstruction and couch program*
Superintendent: *Brett Chivers*
Location: *Keysborough, Melbourne*
Time Period: *Bunker (August 2002, ongoing); Couch (December 2002, ongoing)*
Comments:
Keysborough superintendent Brett Chivers has two major projects on the go as he tries to return the course to the condition it was before the club endured financial hardship in the 1990s.

All bunkers are being reconstructed back to the original sandface style, while all fairways are being converted to Santa ana couch.

The front nine's 30 bunkers were reshaped during 2003 (at the time of writing, the final three were being completed) with work starting on the back nine 32 immediately after. Most of the work involves basic reshaping with no major drainage work.

As far as the fairway conversion project is concerned, in September 2002 Chivers put kerbing out on all fairways and evaluated them. That resulted in the row planting of seven fairways with Santa ana couch in September 2003. The sprigs came from nearby Southern Golf Club which has helped to dramatically reduce costs.

Fairways that were sprigged in September have close to 100 per cent coverage, although a couple of areas where the native couch was at its worse are still growing in.

The 5th at Kingston Heath

KINGSTON HEATH GOLF CLUB

Work In Progress: *Full greens conversion*
Superintendent: *Martin Greenwood*
Location: *Heatherton, Melbourne*
Comments:

Due for completion in 2005, Kingston Heath is midway through a full greens conversion project which has seen superintendent Martin Greenwood switch to Penn A1.

The project has seen all greens reconstructed to USGA rootzone specifications and seeded with Penn A1 bentgrass in replacement of the existing Egmont variety, which Greenwood regarded as being too slow and too hard to get speed out of.

Prior to Christmas greens 4, 5 and 18 were completed and following the British Open Qualifier in late January, work will start on greens 6, 9 and 10. The project has also seen the construction of a new 19th hole and one putter.

RIVERSDALE GOLF CLUB

Project: *Construction of two storage lakes; greens construction*
Superintendent: *Michael Picken*
Location: *Mt Waverley, Melbourne*
Time Period: *April 2002-November 2003*
Approximate Cost: *$1.2 million*

The new 13.5 megalitre storage dam and 10th green at Riversdale

Comments:

With water restrictions now an annual event around Australia, Riversdale Golf Club has ensured its future water supply through the construction of two major storage dams which, combined, have a capacity of 22 megalitres.

Starting in April 2002, stage one of the project consisted of constructing the first storage lake fed by Damper Creek, which runs through the northern section of the course.

Boasting an 8.5 megalitre capacity, the lake enabled 10 metres to be added to the par 5 13th, and has added water hazards to the 13th and 15th holes.

For its efforts, construction company Streamtech Pty Ltd received environmental accolades, winning the Case Earth Award Category 1 prize for construction work of up to $2 million.

Stage two of the project saw a second lake gouged out behind the 10th and to the left of the par 3 17th. As part of the works, a new 10th green was constructed which juts out into the lake, adding a further 25m to what was an extremely short par 4 hole. Again, the lake has added a water hazard to the 10th, while the tee shot on 18 requires a carry over water.

Riversdale superintendent and VGCSA president Michael Picken says there has been a noticeable increase in bird life as a result of the two dams, while 200 native Silver Perch were added to each lake.

Each stage cost around $600,000 with Melbourne Water contributing an undisclosed sum. The project means the club is no longer dependent on potable water and water levels can be completely controlled.

THE SANDS, TORQUAY

Project: Construction of an 18-hole golf course
Superintendent: Brad Marsden
Location: Torquay
Comments:

After a tumultuous 2003, The Sands, Torquay superintendent Brad Marsden is hoping for a more settled 2004.

"After a lot of uncertainty last year we are starting to kick some good goals out there at the moment," says Marsden, who moved down from Sydney for the project.

Midway through the construction phase, original tender Traditional Links was replaced by Turnpoint Constructions after many elements of the original construction were found to be severely lacking.

Coming on board in late August 2003, Turnpoint was charged with completing the grow-in phase as well as the mammoth job of rebuilding all 135 bunkers which were found to be poorly constructed.

"We had to strip them all out and start from scratch, redo the drainage," says Marsden. "And there's only one pot bunker on the course! It has been a massive job but we had to do it."

One of the huge bunkers on the 3rd, the largest on course and one that Marsden nicknames the 'snakepit', took an incredible 660 tonnes of sand to fill. Marsden is expecting 90 per cent of the bunkers to be completed by the end of February.

Other shortcomings needed to be rectified also, including the 14th green which was rebuilt due to structural problems with the base.

Apart from Traditional Links departing, Marsden says the other biggest hurdle was persevering with the extreme weather.

"September and October were disgusting," recalls Marsden. "We had horizontal rain, cyclonic winds which carved out the bunkers, and great weather for weeds."

Despite being close to the coast, the course is wholly clay based. All greens and tees have been built to USGA perched water table specs with many kilometres of underground drainage pipes that link to a series of ephemeral wetlands.

With the Stuart Appleby course (his first design project) expected to open in time for Easter, Marsden has welcomed the hot summer which has seen the Santa ana fairways, tees and approaches take off. The Penn G2 greens have also benefited.

While the course is on target, Marsden is awaiting approval from Barwon Water to use Class B treated effluent water for irrigation. He was hopeful of a resolution in late January.

The massive bunker on the 3rd at The Sands, Torquay which required 660 tonnes of sand to fill.

THIRTEENTH BEACH GOLF CLUB

Project: *Creek Course construction*
Superintendent: *Steven Hewitt*
Location: *Thirteenth Beach, Surf Coast*
Time Period: *July 2002-February 2004*
Comments:

February 2004 will see the opening of the second 18-hole Creek course at Thirteenth Beach, a collaboration between three-time British Open champion Nick Faldo (his first design project in Australia) and Melbourne-based architect Tony Cashmore.

The new course opened on 2 January for restricted play by members on Fridays and Sundays. The official opening will be on 9 February but superintendent Steven Hewitt envisages restrictions to remain during the initial weeks.

Hewitt reports the greens and tees are in fine condition, with some fairways a bit thin in patches. Staff are in tidy-up mode at present while one of the par 3s needs planting. An extensive tree planting program will begin in autumn.

The par 72 Creek course is in contrast to the existing Beach course which opened in December 2001. The new course boasts Penn G2 greens, common couch fairways which will be overseeded with fine fescue in the autumn, and Wintergreen tee tops.

WATERFORD VALLEY

Project: *Construction of an 18-hole golf course*
Construction Superintendent: *Peter Glidden*
Location: *Rowville, Melbourne*
Time Period: *Completion due April 2004*
Comments:

Dogged by delays, recently appointed construction superintendent Peter Glidden is hopeful the course will open in April.

"I will be glad when I see some golfers out there," says Glidden, who has been with the project from the early stages and replaced Greg Rooke who left for Southern Golf Club in August, 2003.

Part of a massive retirement village development by PrimeLife, the 18-hole international resort style course is a par 72, 6339m layout and is the first course in Melbourne to boast a full concrete golf cart path which stretches for 9.5km.

With last year's cool summer, fairways 4, 6, 8 and 10 (Santa ana) were badly affected but with this season's warm summer they are now on target. The rye/fescue rough is still to be grown in on 6, 7 and 8 while general tidying up of bunkers and garden areas is ongoing.

Over the past couple of months Glidden has been able to increase his staffing levels and has appointed Chris Allen as assistant. Glidden also received an early Christmas present in the form of machinery – a new fairway mower, greens and tees mower, two gators, and a sod cutter.

WAVERLEY GOLF CLUB

Project: *Relocation of existing club and construction of a 27-hole course*
Superintendent: *Mark Schroder*
Location: *Rowville, Melbourne*
Time Period: *Construction commencement Spring 2004*

Comments:

In the pipeline since 2001, Pacific Coast Design director Phil Ryan envisages six to seven more months of planning before construction on the new Lysterfield course can begin.

While approval has been granted for the new 27-hole Lysterfield course, planning approval for the existing Waverley course has still ongoing. The old course is earmarked for a housing development which retains nine holes.

In 2001 Waverley Golf Club made the decision to move the site of the course due to a number of difficulties including safety and steepness of slopes.

The next edition of Australian Turfgrass Management magazine will highlight projects in Western Australia.

Vegetative Planting – TECH TALK
Why and How

Row planting couchgrass

Result of row planting couchgrass after eight weeks

Using a muck spreader to broadcast sprigs

AGCSATech technical officer Andrew Peart examines the process of sprigging and the relative merits of broadcasting and row planting techniques in the establishment of hybrid couchgrass.

The enforcement of more stringent water restrictions have forced managers of both golf courses and sporting fields to utilise more water efficient means of managing turf surfaces.

The most logical solution is to use grass species that are better adapted to cope with higher temperatures while requiring less water for not only survival but producing very good playing surface qualities.

These are the warm-season (C_4) grasses, and primarily varieties of common couch (Cynodon dactylon), couchgrass hybrids *(C. dactylon x C. tranvaalensis)* and kikuyu *(Pennisetum clandestinum)* are commonly used. While there are some good varieties of seeded couches, the preferred couchgrasses, at present, for playing surfaces require planting by vegetative propagation.

Sprigging is a vegetative process of establishing warm-season grasses. It is considered to be the most cost-effective means of vegetative establishment although some golf courses have used solid turf in different situations.

Sprigs are often sourced from chopping up pre-harvested sod, or they can be obtained from rotary hoeing an area and raking up the chopped material.

The other source of sprigs is from verticutting existing fairways or mature stands of material. This method then generally requires a higher planting or sprigging rate because the roots and crowns of the turfgrass are missing (McCarty and Miller, 2002).

Ideally sprigs should be at least 100mm in length and contain at least two vegetative nodes with few green leaves. The presence of leaves tends to cause the sprig to dry out more rapidly which can be detrimental during transportation and storage.

Ideally sprigs should be planted within 48 hours after harvesting. Sprigs overheating are the most likely cause of desiccation. To increase survival, the sprigs should ideally be turned to allow for air movement through them, be kept moist and out of direct sunlight. Storage in a thin layer is more beneficial than a larger pile as the weight of sprigs will minimise natural airflow.

The process of sprigging can be undertaken by two methods – broadcasting and row planting.

Broadcasting involves spreading stolons and rhizomes over the surface and then cultivating them in, while row planting utilises a specialist piece of machinery that directly plants sprigs into the surface.

Broadcasting

Broadcasting is often used on newly constructed areas where the sprigs are spread by a muck spreader or similar piece of machinery. They are then either rotary hoed into the surface, or the preferred method is the use of power harrows. It is advisable to bury as much of the material as possible because the sprig requires soil contact to maintain their moisture and initiate root development.

This method of establishment can provide a very quick coverage, however, as the sprigs are often quite shallow in the surface there are more susceptible to drying out than if row planted.

Row Planting

Row planting or line planting is often used in situations where an existing grass cover exists or had previously existed before being sprayed out.

Row planting is far less disruptive to the overall surface than broadcasting and therefore the likelihood of weed seed disturbance is reduced. Secondly, surface levels are not disrupted meaning it is less likely that topdressing will be required after the operation.

Some row planting machines have the ability to make sprigs from rolls of sod meaning the sprigs are fresher when initially planting rather than being transported to the site as sprigs.

Row planting, as the name suggests, plants sprigs in rows that are approximately 100mm apart. The width of the row will have a direct impact on how quickly the surface will obtain a full coverage.

However, the closer the rows are together the greater resistance in being able to pull the machine through the ground, especially on heavy soil types or loose sandy surfaces. This then has implications on the depth that the sprigs can be planted.

It is important to plant the sprigs into the surface to a sufficient depth that they do not quickly dry out or blow away.

The soil should be moist when sprigs are initially planted. As the sprigs have no root system, irrigation should be light and frequent to replace moisture loss through evaporation to prevent sprigs from drying out.

As the sprigs develop a green shoot and immature root system, the watering frequency can be reduced as the sprigs will be able to uptake water further down the profile.

Burying the sprigs using a row planting machine

Establishment

Establishment time is dependant on sprigging rate, percentage loss through desiccation, time of year (temperature) and maintenance implemented after planting.

Competition is a major factor in the speed of establishment of couchgrass sprigs. Ideally any vegetation or grass cover existing in an area before sprigs are planted should be eradicated with one or more herbicide applications.

Once the area has been sprigged a pre-emergent herbicide should be applied depending on the situation, to reduce the amount of weed seeds that may germinate.

The VGA Turf Research and Advisory Board conducted a trial at Werribee Golf Club in the summer of 2000/2001 and one strip of oxadiazon (Ronstar® @ 150kg/ha) was applied to an area of Legend couchgrass that had been overplanted.

Fresh sprigs on surface after broadcasting

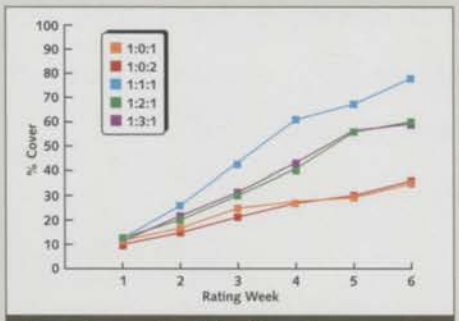
Ford (2001) states that in the critical early phase of establishment the Ronstar® has allowed the couchgrass to rapidly cover the ground, reaching the critical 80 per cent coverage (when the fairway should be 'ready for play') three weeks earlier.

Ford concluded that this trial clearly demonstrated the benefits of this herbicide and it is strongly recommended in couch establishment work.

Fertility is another important component in the success and speed of establishment to achieve a full coverage after sprigging.

Fast establishment reduces the ability of weeds to dominate if a pre-emergent herbicide is not applied and secondly allows play to occur in a shorter period of time.

Rodriguez, Miller and McCarty (2000) undertook a study in 1996 to evaluate five different N:P:K fertiliser ratios for the establishment of three couchgrass varieties.



Percent cover for Tifdwarf couchgrass under five fertiliser treatments during establishment

Rates consisted of N:P_2O_5:K_2 ratios of 1:0:1, 1:0:2, 1:1:1, 1:2:1, and 1:3:1 based on a nitrogen rate of one pound per 1000 sq. feet per week. The graph below shows the results of the establishment of Tifdwarf.

Their findings showed that the 1:1:1 ratio provided the best cover rate over the six week period for the Tifdwarf and Floradwarf establishment as well as the greater shoot and root weights.

Rodriguez et.al. (2000) concluded that these studies indicate the need for balanced nitrogen, phosphorus and potassium nutrition when establishing couchgrass on deficient soils.

Conclusion

Both techniques of hybrid couchgrass establishment have their respective benefits. The most important aspect of either method is to have the majority of the plant material covered with soil, have good weed control methods, apply adequate irrigation to maintain a moist surface to initiate root development, fertilise with a complete fertiliser and then to cut the couch as soon as possible to encourage lateral growth.

Temperature is also a vital component to the success and rate of couchgrass establishment. Even if all the aforementioned post-planting methods are in place the ultimate result is very much temperature dependant.

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BLUE BRIGADE BATTLES THE BUNKERS

The 2003 Australian Open Moonah Links crew

Ninety-one CQOs made the trek to do battle with the bunkers and undulating fairways of Peter Thomson's much publicised Moonah Links which hosted its first Australian Open in December.

Resplendent in bright blue, the CQOs were among a plethora of volunteers to make sure the Open went off without a hitch.

Despite plenty of hype generated prior to the tournament over the course's length and layout, the Leviathan proved to be rather tame as Peter Lonard clinched the tournament with a nine-under total of 279.

While the tournament went down to the wire – Stephen Leaney missing a six footer on the 18th to force a playoff – the Moonah groundstaff provided a bit of drama and tension of their own on the final day.

Up until then, the tournament had run without a hitch and according to Open course assistant superintendent Scott Calder had been by far the smoothest running tournament he had been involved in. Tempting fate, the inevitable happened.

What transpired was that one of the four mowers used to shave the monster's huge hectarage of Legend couch fairways was still in backlap mode when the team cut them before sunrise on Sunday.

The mistake wasn't picked up until first light forcing the team back out to re-mow three of the fairways, including the mammoth 582m 18th.

To complicate matters, the first group off on Sunday morning containing Queensland professional Tony Carolan and American Ryan Palmer, flew around the course and after an hour had devoured seven holes. The problem was that the fairway gang were still mowing the 13th which runs adjacent to the 9th.

Despite a few tense moments and plenty of terse banter over the radiowaves, the mowing was completed in the knick of time.

Although not quite living up to its fearsome reputation, the course received the ultimate of accolades from David Harrison, the newly appointed general committee chairman of the Royal and Ancient Golf Club.

Harrison commented that Moonah Links was "an absolute classic", the equal of any British Open course, and that if Open courses such as St Andrews were built in today's golfing climate they would be based more on the style of the Mornington Peninsula beast.

In accepting the trophy, Peter Lonard too praised the course and summed it up nicely when he said it was the first course that had "made me think" in a long time.

Aside from Lonard's popular victory, there were plenty of other highlights from the tournament. Here are just a few of them.

* The 'Johnny on the Spot' award goes to two CQOs, Angus McCulloch and Peter Ali. McCulloch was fortunate to witness at rake's-length the major dummy spit of the tournament between Marcus Cain and his caddy Mick Mato.

After 11 holes of continuous rumblings between the two, the bag man dumped the blades and walked off the course, taking the crucial yardage book with him. A rather shell-shocked Cain was forced to lug his clubs for a couple of holes until a benevolent Moonah Links pro shop employee spotted the despondent golfer and offered his services.

One the flip side, Ali got an expert lesson in how to play the game when Craig Spence fired a record seven-under 65 during the final round.

* More of a lowlight, the award for tournament clown is shared by the Seven Network camera crew who thought it a good idea to drag rather than lift a 100kg-plus camera and tripod across the 18th green for the presentation ceremony, leaving an ugly gouge mark for Yanner and his crew to repair.

Coming a close second was the official who called Yanner the 'head gardener' during the ceremony.

* NMIT's Phil Ford swapped the lectern for a rake and saw plenty of action during Paul Gow's eventful final round. On one of the par fours, the Queensland professional needed three shots to climb his way out of one bunker and almost lost the plot when he was penalised for grounding his club. A fair bit of elbow work was required by Ford to repair the trap. Gow finished with 81.

* Quote of the tournament goes to CQO Sam Templeton after completing his tour of duty with a group of lesser-knowns. When asked how his round went, Templeton quipped, "Well, I learned how not to play golf".

On the 18th green prior to the final round of the Open are, from left, Steven Potts (AGCSA chief executive), John Neylan (AGCSATech manager), Peter Spence (AGU president), Colin Phillips (AGU chief executive), Leigh Yanner (Moonah Links superintendent), Dominic Wall (AGU development manager) and Scott Calder (Open course assistant superintendent)

Rob Savedra cleans up after Stephen Leaney's (right) bunker excursion

Dean Johnson with the autographed bible

* The AGCSA's own business development manager Scott Petersen got a quick introduction to the art of being a CQO when he followed Tony Carolan's group during the second round. After the first two holes, Petersen – the current Australian open men's biathlon champ – was feeling the heat having already raked five bunkers.

Come the end of 18 holes, Petersen had clocked up 27 visits and pushed enough sand to construct a third Moonah course. Considering there are 77 bunkers on the course, that's not a bad ratio, and a workout the finely tuned athlete will well remember.

* Speaking of a brisk workout, spare a thought for Nhill Golf Club superintendent Ian Lawson who was the poor CQO paired with fast-finishers Carolan and Palmer in the first group on the final day.

The two pros blazed around the course, completing their round in an amazing two hours 45 minutes, a feat aided by neither of them getting snared in any bunker.

* Last and by no means least we have what must be one of the more unusual yet touching stories to emerge from the Open. It involves devout Victorian professional Euan Walters and Yarra Valley Country Club superintendent Dean Johnson.

During the round, one of the officials in Johnson's group whispered to him, "Just watch, Walters will give you a bible at the end of the round".

Not surprisingly, a perplexed Johnson thought the aging official might have had a few too many whiskies the night before, but true to form at the end of his round, Walters made his move.

Johnson was presented with pocket-sized Gideons bible bearing the autographed inscription 'Dean, thanks for your help today. Good golfing. Signed, Euan Walters, 2003 Australian Open.

According to the groundstaff at Yarra Valley, Johnson now begins his early morning shed meetings with a snappy sermon or two!

Acknowledgements

The AGCSA thanks all those who volunteered as a CQO and congratulates Moonah Links superintendent Leigh Yanner and his talented crew for presenting the course in world class standard.

The AGCSA will again run the CQO program for the 2004 Australian Open at The Australian Golf Club in Sydney (superintendent Rob Ashes), while AGCSATech manager John Neylan will again play an integral role as part of the AGU's course preparation committee.

The Innovative Way

Malcolm Williams aboard his modified Toro Sand Pro bunker rake that has been equipped with laser grade control and dirt shifting functions

CONSTRUCTION DOWN TO A TEE

Adelaide-based Malcolm Williams has created innovative new turf machinery which has enabled him to undertake course renovation projects at most of South Australia's premier golf clubs, including Royal Adelaide, Riverside, Glenelg and Mt. Osmond.

Williams' particular specialty is tee construction or renovation using a machine he conceived and has had specially built.

Based on the mechanics of the popular Toro Sand Pro bunker rake, Williams has added enhanced ability to move soil under laser levelling guidance.

The result, he says, is tees constructed or renovated to an extremely high accuracy, in fact perfectly level if that is the preferred lie.

"The machine is able to turn within its own radius and constructs tees without damaging or rounding the edges," says Williams.

Williams says he had the idea for the machine for some time but could not find anyone locally to help him out. That's when he met up with a Swan Hill company specialising in lasers and after a day of brainstorming the modified bunker rake was the outcome.

Williams, together with well-respected former Glenelg superintendent Darrell Cale, is currently undertaking construction work at the Hume Country Club.

After suffering financial hardships in years gone by, the Albury-based golf club was bought by two private developers in the 1990s who together with golf course architect Neil Crafter have come up with a new 18-hole resort style course.

Williams, Cale and Crafter have been working closely with Hume superintendent Tim Hicks and construction began in earnest late 2003.

Syngenta recognises our innovative Turf managers and superintendents and is proud to present Malcolm Williams with a $150 AGCSA book voucher.

If you have through necessity, devised/created/built a tool/piece of machinery/gadget or made additions/alterations to an existing piece of workplace machinery/tool to make the job easier, then we want to know about it!

Send your stories and photographs to the Editor, C/O AGCSA, Suite 1, Monash Corporate Centre, 752 Blackburn Rd, Clayton North, VIC 3168 or ph: (03) 9548 8600. Email brett@agcsa.com.au

Launceston Golf Club superintendent Phil Hill with apprentice Sophie

PHIL HILL
(Launceston Golf Club, TAS)

Full Name: Phil Hill
Age: 41
Family: Married
Years as a superintendent: 15
Years as an AGCSA member: 15
Years at current club: 7
Number of staff: 5
Course specs: Bentgrass/*Poa* greens, Rye/Fescue tees and fairways.
Favourite piece of machinery?
Our old Cushman – a grand old lady of the fleet.

Most embarrassing moment as a superintendent?
Springing a lady member squatting in the rough.
Plans for the course over the next 12-18 months?
Eradication of *Poa annua* from greens. Resurfacing tees and mounding and reshaping fairways.
Best advice you have ever received about the job?
Look outside the square. You need thick skin.
If you could change one thing about your job what would it be?
The weather pattern.
Best part about being a superintendent?
The satisfaction you get after manicuring the course for competition play or a tournament.
Worst excuse you have ever heard from one of your staff?
It was not me! This was after he had trampled Round-up from bunker to bunker, across greens and surrounds on the soles of his boots.
Career highlight?
Appointment at Launceston Golf Club.
Overseas course you'd most like to visit?
Augusta National.
Favourite movie?
Double Jeopardy.

Name 3 CDs you could not live without.
Bryan Adams – Unplugged, Bee Gees, The Corrs.
If you could be any musician, who would you be?
Robbie Williams.
Food you could not live without?
Steak and veg.
Favourite sporting team?
St Kilda Football Club.
Dream car?
New model Jaguar.
Irritations?
People that whinge.
What book are you reading now?
Anything turf related.
Golf handicap?
24
Beer or Bundy?
Beer – James Boag.

Growforce Australia recognises the job our superintendents do and is proud to present Phil Hill with a 20 litre container of NUTRI-GRO Plus.

AGCSA UPDATE

2004 Footy Tipping Competition

Yes it is official! Throughout the 2004 footy season the AGCSA will be running an online footy tipping competition for association members and Australian Turfgrass Management magazine subscribers. What's more it's FREE!

For those who like their Australian Rules Football, there will be an AFL tipping competition, while for the rugby league nuts, there will be an NRL sweep as well. For the hardened sports fanatic, members can enter both.

Prizes and competition structure are currently being finalised by AGCSA business development manager Scott Petersen. At this stage it is envisaged there will be weekly cash prizes, while at season's end there will be an overall winner who will pocket some serious dosh! The draws for the initial rounds of the 2004 AFL and NRL seasons are posted on the opposite page to give those keen punters the opportunity to mull over their picks.

Stay tuned to the AGCSA website for further details. C'mon the All Blacks!

(Sorry. I couldn't resist – Ed)

Jane Says...

The AGCSA is extremely pleased to welcome a new member of staff to the turf industry fold this month. Twenty-one-year-old university graduate Jane Phelan has joined the association as administration officer.

Jane hails from Clear Lake in Victoria and moved to Melbourne five years ago to attend Melbourne University. Being a smart cookie, young Jane amassed a Bachelor of Arts degree, majoring in political science, as well as a diploma in music (clarinet).

Jane, who started shortly after New Year, will take over a number of admin duties from Fiona McPadden, including membership services. Office heroine Fiona has taken on the new title of events manager. Jane replaces former admin officer Sarah Fagan.

AGCSA Administration Officer, Jane Phelan

AGCSA.com

Work continues to be made on the delivery of the AGCSA's new interactive website. Designs are being finalised at present and it is envisaged it will be up and running soon.

Sections of the website will be restricted to members-only so those who are not members and still want to receive the benefits of using the AGCSA website, sign up now. See the registration form in the front of this magazine.

20th Australian Turfgrass Conference, Melbourne

A top notch line-up of speakers has been confirmed for this year's 20th Australian Turfgrass Conference to be held in Melbourne.

Heading the bill is Dr Jim Moore, director of construction education for the United States Golf Association. Also making the trip from America are renowned turf agronomists Bob Carrow, professor of turfgrass science at the University of Georgia, and Ron Duncan, professor of crop sciences. Joining them is University of New Jersey plant pathologist Bruce Clarke. The AGCSA is also waiting to hear back from two other big name US speakers.

Closer to home, also confirmed are Ray Young, director of Young Consulting Engineers, and former EPA investigative officer Terry Muir, (now director of Environmental Business Solutions).

Dr Jim Moore, director of construction education for the United States Golf Association

Turf Education Working Committee

The National Turfgrass Education Committee has been busy addressing many of the issues identified during the education forum held in Adelaide during the 19th Australian Turfgrass Conference in June 2003.

One of the key projects currently being completed is the production of Delivery and Assessment Guides for all education levels. It is envisaged that the first draft of the level three guides will be released for feedback in May 2004.

The committee will meet again in March and will give a full report on its progress at the 2004 National Turfgrass Education Forum. The forum is scheduled for Thursday, 24 June during the 20th Australian Turfgrass Conference in Melbourne. All interested parties are invited to attend.

In other committee news, former Joondalup Golf Resort superintendent Rob Macdonald has resigned from his position on the committee after leaving the industry. Additions to the working group in recent times include;

Jeff Jones *(Primary Skills Victoria)*,
Scott McKay *(North Lakes Golf Club)*,
Duncan Knox *(Victorian Greenkeepers' Association)*,
Matthew Clarke *(Charles Darwin University, NT)*
Michael Bradbery *(Manly Golf Club)*.

GCSAA Conference – San Diego 2004

The AGCSA will be represented at the Golf Course Superintendents' Association of America conference in San Diego this month.

AGCSA president Mark Couchman joins AGCSA chief executive Steven Potts and AGCSATech manager John Neylan in the Australian delegation.

The conference runs from 9-15 February and encompasses a tradeshow which is expected to attract 700 exhibitors.

A full review of their trip will be contained in the next edition of Australian Turfgrass Management magazine.

Autumn Roving Workshops

A reminder to all superintendents, the autumn series of roving workshops will be held in April. The dates are as follows:

22 April: Melbourne
23 April: Adelaide
26 April: Perth
28 April: Sydney
30 April: Brisbane

At the time of deadline, venues and theme had yet to be finalised. Stay tuned to the AGCSA website for further details.

Indooroopilly Golf Club

Peter Sawyer, superintendent at the Indooroopilly Golf Club in Queensland and 2002 AGCSA Distinguished Services Award recipient, has contacted Australian Turfgrass Management magazine wanting to know how other superintendents who have treated effluent holding dams and lakes on their courses retrieve golf balls from them.

Any superintendent or turf manager that can assist Peter with this issue can contact him at: p.sawyer@indooroopillygolf.com.au

FOOTY TIPPING DRAWS - 2004

AFL

Round 1 (26-28 March)
Richmond v Collingwood *(MCG)*
Hawthorn v Melbourne *(MCG)*
Fremantle v Carlton *(Subiaco)*
Brisbane Lions v Sydney *(Gabba)*
St Kilda v Geelong *(Telstra Dome)*
Essendon v Port Adelaide *(AAMI)*
Kangaroos v Adelaide *(MCG)*
Western Bulldogs v West Coast *(Telstra Dome)*

Round 2 (2-4 April)
Melbourne v Richmond *(MCG)*
Collingwood v Western Bulldogs *(MCG)*
Adelaide v Brisbane Lions *(AAMI)*
West Coast v Port Adelaide *(Subiaco)*
Essendon v St Kilda *(Telstra Dome)*
Sydney v Fremantle *(SCG)*
Carlton v Geelong *(Optus)*
Hawthorn v Kangaroos *(MCG)*

Round 3 (8-12 April)
Brisbane Lions v Collingwood *(Gabba)*
Kangaroos v Carlton *(MCG)*
Essendon v West Coast *(Telstra Dome)*
Sydney v Geelong *(SCG)*
Port Adelaide v Hawthorn *(AAMI)*
Western Bulldogs v Melbourne *(MCG)*
Fremantle v Adelaide *(Subiaco)*
St Kilda v Richmond *(Telstra Dome)*

NRL

Round 1 (12-14 March)
Broncos v Warriors *(Suncorp)*
Bulldogs v Eels *(Telstra)*
Cowboys v Sea Eagles *(Dairy Farmers)*
Dragons v Raiders *(Oki Jubilee)*
Panthers v Knights *(Penrith)*
Roosters v Rabbitohs *(Aussie)*
Wests Tigers v Sharks *(Telstra)*
Storm *(Bye)*

Round 2 (19-21 March)
Broncos v Eels *(Suncorp)*
Bulldogs v Sharks *(Sydney Showground)*
Sea Eagles v Roosters *(Brookvale)*
Rabbitohs v Wests Tigers *(Aussie)*
Raiders v Panthers *(Canberra)*
Storm v Knights *(Olympic Park)*
Warriors v Dragons *(Ericsson)*
Cowboys *(Bye)*

Round 3 (26-28 March)
Cowboys v Raiders *(Dairy Farmers)*
Eels v Knights *(Parramatta)*
Roosters v Bulldogs *(Aussie)*
Sharks v Sea Eagles *(Toyota Park)*
Storm v Dragons *(Olympic Park)*
Wests Tigers v Broncos *(Campbelltown)*
Warriors v Panthers *(Ericsson)*
Rabbitohs *(Bye)*

Fire crews clean up after a triplex mower caught fire on the back of a transporter on the Monash Freeway in November

A TERMINAL SITUATION

We've all heard golfers whinging about mowers holding up play and disturbing the peace on the golf course, but how about on an entire city freeway!

'What?' you say? Well, if you happened to be travelling city-bound on the Monash Freeway in Melbourne on Thursday, 27 November around lunchtime you would have come across the most bizarre spectacle of a triplex mower on fire! No joke.

Parked in the emergency strip, the mower – which was being transported on the back of a flatbed truck – was engulfed in three metre high flames and billowing black smoke.

The driver of the truck, who only became aware of the situation after a motorist pulled alongside and alerted him, had to swerve across three lanes to make an emergency stop. He then had the presence of mind to tilt the tray so as to protect his truck from the consuming flames.

Two fire crews from the nearby Malvern and Burwood stations were dispatched to the scene and had the blaze under control within a matter of minutes.

The incident, however, left lunch-time traffic at a standstill while the crews cleaned up the debris, and even caused a nose-to-tail involving a taxi.

According to a Freedom of Information officer with the Metropolitan Fire Brigade, the cause of the fire was pinpointed to the battery.

Firefighters at the scene said the battery's terminals were not protected by any insulation covering and with the seat bouncing up and down while being transported, friction sparked a fire which quickly spread from the seat to the rest of mower.

No one was injured – except the poor mower which suffered terminal burns! Get it!?

APPOINTMENTS

Just 10 weeks after departing El Caballo, Jeff Austen has rejoined the industry as superintendent of Chequers Golf Club on the north east fringe of the Darling Ranges.

* * *

Also out WA way, a few well known superintendents have been playing musical courses. With former AGCSA Board member Rob Macdonald departing Joondalup Golf Resort to head to NSW, Jeff Lane has moved across from Gosnells Golf Club. The vacancy left at Gosnells has been filled by GCSAWA president Brad Sofield who returns to the club where he served his apprenticeship and rose to assistant superintendent during the 1990s. Sofield's former joint Melville Glades is now under the interim control of John Wanless who has been assistant superintendent there for the past 15 years. Wanless has applied for the top job and the club is expected to make a final decision in early February.

* * *

Wakehurst superintendent Bob Batho has appointed Nathan Elder as his assistant following the departure of David Manson, who had spent 10 years at the NSW club. Manson has left to join a landscaping company.

* * *

The Eaglehawk Golf Club in Bendigo has appointed a new superintendent in the form of (Mark Manson). He replaces the long-serving Arthur Smart who has called Eaglehawk home for the past 25 years. Smart has applied for a teaching position at the local TAFE.

* * *

Jason Maier has been appointed 3IC at the Pennant Hills Golf Club in NSW.

* * *

Nathan McDonald has been appointed superintendent at the new Barnbougle Dunes course in Tasmania. McDonald was formerly 3IC at Spring Valley Golf Club in Melbourne.

NEW AGCSA MEMBERS

The AGCSA welcomes new member Colin Raeburn from the Moree Golf Club in NSW.

Know of any new appointments? Contact Brett at the AGCSA on (03) 9548 8600 or brett@agcsa.com.au

The lower field at Marcellin College after the devastating storm which hit Melbourne in December

100 YEAR STORM TEES OFF

No doubt many superintendents and turf managers outside of Melbourne would have heard of the brief yet violent storm which descended on Melbourne on the night of Wednesday, 3 December leaving a $50 million trail of destruction.

While residents began cleaning up flood ravaged houses at first light, most Melbourne metropolitan superintendents turned up to their courses the following morning to find extensive flooding to holes and in some cases maintenance sheds.

Dean Johnson's Yarra Valley Country Club in Bulleen experienced 150mls in two hours causing extensive bunker damage, while Kew Golf Club had eight holes under water.

At the nearby Freeway Golf Club, floods caused disruption to construction work on the redesigned first three holes.

Earlier in the week the fairways had been prepped for sowing, but needed reshaping after the floods washed away tonnes of topsoil.

Marcellin College curator and TGAA (Vic) president Anthony Uhr-Henry was looking forward to a relatively stress-free summer, but instead turned up to work to find most of the school's sports fields flooded.

The lower field adjacent to Bulleen Rd flooded to depth of three feet, causing substantial damage to the wicket table.

The field opposite also flooded to two feet and a boundary fence was destroyed.

Groundstaff removed around 80 tonnes of debris in the aftermath, while the lower field wicket table had to be completely re-sodded to ensure a match on the ground in February.

Across the other side of Melbourne, the storm forced Huntingdale superintendent Michael Freeman and his staff to perform miracles to tidy up the course in time for the first group to tee off in the Australian Masters. A number of bunkers had turned into water hazards while faces had been carved out.

Choosing a Transitional ryegrass has just been made EZE

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TransEze in action

TransEze Ryegrass oversown into Kikuyu. Photo taken July 2002, Melbourne.

TransEze Ryegrass in Kikuyu fourteen days after sowing.

TransEze Ryegrass oversown into couchgrass. Pymble Golf Club, NSW.

Natural transition of **TransEze** in Kikuyu. Oct 2002.

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DACONIL WEATHER STIK

As part of its commitment to developing and refining chemistry, Syngenta is now able to introduce Daconil Weather Stik.

Daconil Weather Stik, available in 10 litre containers, is superior to the existing Daconil formulation as it contains improved wetting and dispersing agents. These agents allow Daconil Weather Stik to stick to the leaf surface even more strongly than before.

Daconil Weather Stik is a finely ground formulation, with smaller particles than generic chlorothalonil, and is ideal for controlling Dollar Spot, Brown Patch and Grey Leaf Spot.

As a contact fungicide, the more spray coverage the leaf receives, the better protection the turf will have. Good spray coverage is critical to ensuring the best possible efficacy.

Good coverage can be achieved by using flat fan spray nozzles as they provide uniform coverage. Daconil Weather Stik should be sprayed with 5-20 litres of water per 100m^2. Using less water may shorten the desired length of disease control.

Being a Group Y fungicide, the multi-site mode of action means that there is almost no chance of a disease developing resistance. It inhibits the synthesis of amino compounds and enzymes.

For further information, visit Syngenta's new turf website at www.greencast.com.au. Alternatively, contact your local Nuturf representative or call Nuturf on; 1800 631 008.

Syngenta's new formula Daconil Weather Stik

BLACKETT ON BOARD AT NUTURF

Craig Blackett has joined Nuturf has territory manager for the Sydney and north western NSW regions.

Blackett has a background that includes seven years as an agronomist based in south east Queensland and northern NSW before joining BASF as territory manager based in Tamworth and Dubbo.

Blackett has a Diploma of Applied Science in Agriculture and is now looking forward to servicing turf managers.

Craig can be contacted on 0418 266 413 or craig.blackett@nuturf.com.au

HERITAGE WINS CLUB CHIPCO COMPETITION

Heritage Golf and Country Club has won the inaugural Club Chipco competition sponsored by Bayer Environmental Science (BES). The club has won an all expenses paid trip for two to the GCSAA 2004 Conference in San Diego in February. Glenelg Golf Club in South Australia has also won a trip for two to the AGCSA's 20th Australian Turfgrass Conference in Melbourne in June.

The Club Chipco rewards program has seen over 120 golf, bowling, turf and sports clubs accumulating and redeeming special credit points in exchange for BES Chipco turf care products and having the chance to win prizes.

A new Club Chipco rewards program will be launched soon for 2004. Details will be available shortly from Bayer Environmental Science. **Email enquiries should go to: chipco.enquiries@bayercropscience.com**

Bookshop*

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Prices are subject to change without notice.

Managing Bermudagrass Turf

By L.B.McCarty and Grady Miller *(Ann Arbor Press)*

This book provides turf managers with a thorough understanding on the requirements of producing quality couchgrass playing surfaces.

There is a brief section on different couchgrass cultivars but does not review many of the varieties that are available on the Australian market today. The book provides detailed information on golf green planting and establishment, although as with most American publications quantities are primarily given in imperial measurements.

There is a detailed section on the management of couchgrass greens covering topics such as cultural practices, overseeding and stresses imposed on the grass. Cultural practices include irrigation or water management, covering issues of water quality and watering frequency. The section on fertilising provides a detailed explanation as to the nutritional requirements of couch and the function and source of each element, including micronutrients.

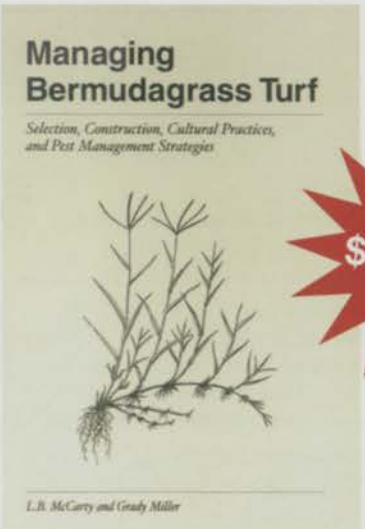
Cultivation practices cover the much-debated renovation topic of coring, spiking, slicing, vertical mowing, topdressing and oversowing. Oversowing of couchgrass greens is a very common practice in the US and this is reflected by a concise but comprehensive section in the book. It provides details on timing and techniques as well as post-seeding maintenance then winter management and the spring transition.

The middle of the book contains around 60 photographs illustrating various aspects of couchgrass maintenance.

The chapter on stresses refers to shade implications, the use of poor water quality and recommendations to overcome the impact as well as low temperature stress which thankfully is rarely a major problem in Australia

The last section of the book gives a detailed account of weeds both broadleaf and grassy that affects couchgrass playing surfaces. Tables are provided as reference for herbicide effectiveness on such weeds

As well as weeds, insects and nematodes are discussed with control recommendations. The section on disease is thorough and discusses diseases such as brown patch, dollar spot, fairy ring, spring dead spot, pythium and bermudagrass decline. Overall, this is an excellent publication for those super-intendents with not only couchgrass greens but also those with couchgrass tees and fairways.



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state REPORTS

GCSAQ

The Sunshine State has been living up to its name in recent weeks with some pretty extreme conditions for superintendents to deal with.

Around New Years Day we were experiencing 38°C days with 90 per cent humidity, while overnight lows were around 28. Further west, the Birdsville Golf Club hit 52°C degrees causing some wilt problems mainly on the players as the grass gave up long ago.

Thankfully some cooler conditions and scattered rain have made it more bearable but the whole State is on the brink of going into another drought unless there are significant falls in autumn.

Congratulations go to Bob Schmidt (Hyatt Coolum Resort) and Garry Topp (Twin Waters) for having their courses in immaculate condition for the Australian PGA and Jack Newton Classic tournaments.

On to matters more political, amendments to the Queensland Agricultural Chemical Distribution Control Act (ACDC) now require those spraying herbicide who are using ground spraying equipment to not only have an ACDC spray licence but also to be working under the authority of a ground distribution contractor who holds a ground distribution contractor licence.

For golf clubs this means each club will need to obtain a ground distribution contractor licence and each staff member who will be spraying herbicide, and not under the direct supervision of an ACDC commercial operator licence, will need to be licensed.

An application form can be obtained by calling the Department of Primary Industries on 12 25 23. Only one ground distribution contractor licence needs to be held by each club. For further information contact Darren Fry, ACDC licensing officer on (07) 3239 3975.

As with all things in our society today the trend towards regulation and licensing continues and we have to make sure we have the right systems in place to fully comply with the requirements.

This is a part of our job that is becoming more important as recent events have shown. Don't be surprised if you need a license to purchase fertiliser soon after the case of a maniac in western Sydney blowing a car to bits, which has sparked a public outcry about the availability of components needed to make a bomb.

With the year off to a flying start I hope you get the weather you need and the time to enjoy it.

Jon Penberthy
President, GCSAQ

GCSAWA

A happy New Year to everyone around Australia. I trust everyone has had a well-earned couple of days off over this time, but have now returned to their respective clubs ready to start 2004 on a high note.

Let's not let water restrictions, heavy work commitments, club member complaints etc... cloud our minds as to what is truly important for us as individuals, partners, fathers and course staff team members. Look what is happening outside our golf clubs – Australia.

Many excellent events have taken place in WA since the last report. We've had a few births, a few engagements, an excellent GCSAWA family bowls night and plenty of superintendent movements.

Unfortunately at the end off all this positivity comes a touch of sadness. We say goodbye to a respected superintendent and hard-working GCSAWA and former AGCSA member in Rob Macdonald who together with wife Sue is venturing back home to be with family in NSW.

Rob and Sue both attended the end of year family Christmas bowling competition where attending members fortunately had a chance to wish them the best and say goodbye.
Craig New presented Rob with a hand crafted oil painting featuring Eagle Bay at Rottnest Island on behalf of the GCSAWA for his tiresome efforts as former GCSAWA executive member, state president, project officer (waste audit), AGCSA director (education) and, most importantly, valued industry colleague and mate.

Rob and Sue, personally and on behalf of all GCSAWA members, best wishes for the future, and to reiterate previous sentiments, you both leave many friends here in WA, so come back soon to stay and we look forward to running into you soon over in the east.

Back to the positives, congratulations to the following people for their great personal or professional achievements of late;

- Gavin Castiglioni, formerly of Chequers Golf Club, has moved to sales with MacIntosh & Sons.
- Mick and Natalie Foskett's promotion to sales manager MacIntosh & Sons and the birth of baby son Jackson.
- Owen Oberg's (Seaview Golf Club) engagement to partner Claire.
- Eric Dennis' (Busselton Golf Club) engagement to partner Bronwyn.
- Jeff Austen's appointment as superintendent at Chequers Golf Club.
- Jeff Lane's appointment as superintendent at Joondalup Golf Resort.
- Brad Sofield's appointment as superintendent back to Gosnells Golf Club.
- Simon Bourne's appointment as assistant superintendent at Cottesloe Golf Club.

As touched on earlier, the Christmas family bowling tournament was a great success. For me personally attending my first such event, it was nice to see some prettier faces for once at an association event, with respect to each the wives, fiancées and girlfriends that is. Maybe Crossy slots in here somewhere also!

Again this year a team dominated by 'The Jet' Gerry New took overall honors at the playoffs, not forgetting Rob Macdonald as the other integral member. Runners-up were Jane Kirk and Glenn Cross *(I'm sure the fact that I would be presenting the trophies was enough to drive Crossy to win or come second so he could get close enough to plant one on me. Not interested, I keep telling you! Get over me man!)*

Coming up in 2004 is the re-birth of the old Super Series, now officially titled the GCSAWA Golf Masters Cup. Should be a classic.

All the best for the remainder of summer.

Brad Sofield
President, GCSAWA

NSWGCSA

First of all, on behalf of the NSWGCSA Board I would like to wish everyone a safe and prosperous New Year. Hopefully we will be blessed with what all superintendents dream of - plenty of rainfall and cooler conditions.

The NSWGCSA finished 2003 on a high with the annual Sydney Harbour Christmas cruise. The night's proceedings went off without a hitch in magnificent balmy weather conditions. The culinary specialties were second only to Martyn Black's good old Australian odes that kept the crowds entertained into the wee hours.

The NSWGCSA and the NSW Golf Association recently banded together to formulate a long-term strategy for submission to Sydney Water to ensure the continuing operation of potable water-dependant golf clubs in the Sydney and outer regions.

Our submission was successful and accepted based on the following conditions;

- Ten minutes irrigation per head for greens on Wednesday, Thursday, Friday, Saturday and Monday between 1am-4am;
- Ten minutes irrigation per head for tees on Sunday and Tuesday between 1am-4am;
- Hand-watering of greens is still permissible at any time;
- Extended irrigation times have been permitted for renovation purposes and to water in pesticides;
- Irrigation of fairways and roughs is strictly prohibited.

Although the outcome is not ideal for maintaining quality turf, it allows golf clubs to survive throughout this drought period. Courses that fall under these guidelines must be aware that these exemptions only apply while we are adhered to category one restrictions.

I would like to thank David Allen and his staff at the NSWGA for all their assistance and the use of their facilities during this conciliatory process.

For those that are not aware, Sydney Water is currently proposing a plan called the Georges River Program with a view to transport and redirect treated effluent to customers via a 50 kilometre pipeline from the Glenfield and Liverpool sewage treatment plants to the deep water ocean outfall at Malabar.

The significance of the effluent pipeline is that it has the capacity to provide a cheaper, fit-for-use water supply. Next year, Sydney Water will request consent from the NSW Government to proceed.

To make this proposal viable, Sydney Water is currently seeking as many potential customers as possible to ascertain commercial viability. All interested parties are urged to contact Sydney Water.

A detailed map of the proposed pipe route can be obtained from Sydney Water. Superintendents in regional areas can expect similar proposals in the future.

In other news, the NSW Department of Environment and Conservation (formerly the EPA) is currently working along side the NSWGCSA and the AGCSA to develop an environmental management template for NSW golf courses.

The template will be based on information contained in the recently released Improving the Environmental Management of NSW Golf Courses manual.

The initial aim is to address the specific needs golf clubs have to enable them to become or maintain environmental compliancy with DEC regulations. The DEC is currently canvassing suitable consultants with explicit expertise of golf course environmental awareness.

Once the preferred consultant has been chosen, he or she will conduct a series of pilot assessments on golf clubs and councils and outline key environmental issues.

The consultant will then conduct a series of environmental assessments on golf courses with a view to provide the basis of an environmental management plan (EMP) for the club. The consultant will then facilitate a half-day workshop for participating superintendents to assist with the process of writing an EMP.

This program is in its infancy, but is a positive move by the DEC to recognise the requirement to provide a working template for golf courses. I implore all superintendents to become actively involved.

The next NSWGCSA field day is the Rube Walkerdon Trophy day to be held at St. Michaels Golf Club on Monday, 29 March. I'm sure Darren Jones and his staff will have the course in magnificent condition.

Best of luck to those superintendents preparing for upcoming tournaments and for those that are just trying to survive.

Craig Easton
President, NSWGCSA

VGCSA

While writing this report, summer is in full flight in Victoria with December recording lower than average rainfalls and the highest ever recorded temperature of 41.

Compounding this are the well-documented water restrictions which all adds up to another tough summer for superintendents.

With that in mind our congratulations must go out to Leigh Yanner and his team for the outstanding presentation of Moonah Links for the Australian Open.

There was much deliberation about green speed as a consequence of last year's shortcomings but good management shone through to present an event worthy of this country's premier golf championship.

Huntingdale was also the subject for attention recently with its annual event.

Once again Michael Freeman and his crew presented the golfing public with the typical high standards we're used to seeing at the Masters.

From a VGCSA perspective the twilight meeting held at Kew Golf Club in December went off without a hitch, not withstanding the flash flood that occurred the week before.

Superintendent Adam Robinson rallied his troops for the week leading up the event, combating eight holes under water and a clubhouse gutted by a freak downpour which produced 120mm of rain in two hours around the Kew area.

In typical Melbourne weather, the VGCSA day was subject to temperatures in the high 30s with many superintendents finishing their golf and calling it a day to return to work for a busy night of irrigation management.

With 2004 about to fire up, a reminder to all Victorian superintendents about this year's meetings which are posted in the VGCSA calendar and in need of support, particularly the annual country meeting. The dates are;

Moonah Links, now changed from 25 February to 29 March;
Kingston Heath Golf Club 17 May (AGM);
Barwon Heads Golf Club 5 July (Superintendents/managers day);
Bairnsdale Golf Club 24 August (Country meeting);
Waverley Golf Club 11 October;
Southern Golf Club 13 December.

The added attraction will also be the 20th Australian Turfgrass Conference which is heading back to Melbourne this year from 21-25 June.

Having viewed a rough draft of the conference agenda, I encourage all members to make the effort to participate.

The format has a good educational component and the topic range is broad.

Michael Picken,
President, VGCSA

SAGCSA

A happy New Year to everyone in the turf industry! As I sit here and write this the rain is gently falling for the second time in the first week of 2004, which is always a welcome sight in summer here in SA especially after such a dry and warm November and December.

Hopefully this cool break will give our water supplies some respite and enable superintendents to catch up on those dry patches.

Congratulations to Leigh Yanner and all his staff for a job well done at Moonah Links during their first Australian Open championship. The course was presented in terrific condition and with time the course will no doubt mature into an outstanding challenge for all golfers.

Still staying in 2003 for a moment, the SAGCSA wrapped up the year with a joint twilight meeting at the Royal Adelaide Golf Club with the Turfgrass Association of SA in late November.

Superintendent Jeff Kaines led the 50-strong group on a tour of the course which included inspecting two of his fairways which have recently been de-thatched.

On one of these fairways the Jeffries landscape supply company demonstrated their new compost blower. This machine applied a recycled compost material together with a complete fertiliser to the renovated fairway. It was a very impressive piece of equipment with many applications for all turf managers.

At the conclusion of the course inspection Brian Goodrich from Toro gave an informative talk on risk assessments for turf machinery. This topic generated much discussion within the group.

The evening concluded with a great BBQ supplied and cooked by John Cooper and Andrew Manthorpe from Nuturf. The SAGCSA thanks all sponsors involved in what was a very successful evening.

The last official event for the 2003 was a joint family Christmas luncheon with the Turfgrass Association of SA at the Adelaide Oval bowling club. This was a good family day with lots of fun and games for all, most definitely an event to put in the 2004 diary.

A bonus on the day was having the opportunity to inspect preparations at the Adelaide Oval with curator Les Burdett just five days before the start of the second Test between Australia and India.

It was interesting to see the centre wicket area with sprinklers going and covered in water so close to a test match. Judging by the result of the match, Les needed to leave the sprinklers on for a fair bit longer!

Our first meeting for the 2004 will be at Fleurieu Golf Club on 4 March. Host superintendent is Wayne Dale.

I urge all members to set aside some time to be at Mt Compass on the day. I look forward to seeing you all there.

Peter Harfield,
President, SAGCSA

TGCSA

Happy New Year to everyone! I hope the summer has been kind to all superintendents and turf managers around Australia and that water supplies have held up during this period.

The big news down this way at the moment is the construction of the new Barnbougle Dunes course and resort.

TGCSA members were lucky to visit this North coast development late last year and we wish all those involved with the new links facility the best. It looks to be a fantastic addition.

In other news Cameron Hodgkins has taken over at Bellerive Oval and is doing a great job.

The Oval also hosted our AGM on 22 January which coincided with Tasmania playing Queensland in the Pura Cup.

Many thanks go to Pellows Saw's and Mowers and Toro for their sponsorship on this day, and Phil Hill and Pura Milk for tickets to the cricket. Thanks to everyone who attended.

In closing it would be great to see if we can get a roving seminar in Tasmania because I know it would be well supported.

It is in our hands to get out and support our association, which is going from strength to strength.

Chris Hay
President, TGCSA

VGA

The official release date of results from the synthetic surfaces vs natural turf bowling greens, is to be February 18. This is to be held at the Bentleigh Bowling Club and will commence at 1:30pm.

These results should prove interesting after the severe thunderstorms that hit the Melbourne metropolitan area during December, with more than 300mm of rain being 'dumped' in a short amount of time.

Most clubs with synthetic greens suffered some damage while others were way beyond repair. Yet with the grass greens, after a little bit of cleaning up, bowls was able to resume a few days latter.

Best wishes to Barry Smith from Kingsbury Bowling Club, Darren Smith from Moonee Ponds Bowling Club, and Tony Kelly from Buckly Park Bowling Club who have all decided to move on. Also to Warren from Sunbury Bowling Club who has taken up a rep position with T&I.

Golf & Bowls Machinery's annual open day will be held in early April, at 19-21 Norton Drive, Melton.

This will be one not to miss, and will provide a good opportunity to catch up on the latest machinery, talk to the boys and enjoy the BBQ and refreshments.

Matt Perkins,
Committee, VGA

TGAA (Vic)

On behalf of the TGAA(Vic) I would like to extend a hearty welcome to all members and associates to 2004. I trust you all enjoyed a safe and trouble-free Christmas and New Year. As we all start to get back into the swing of work, we think of the challenges ahead for the year, and reflect on our past year.

The past year has not been without challenge for many members of our turf community. However, despite these difficulties, or perhaps because of them, our members responded with suitable resourcefulness and resilience to again provide excellent results for all of our clients.

Our final seminar for 2003 was held in early December. Once again, this was a partnership program between TGAA(Vic) and Holmesglen TAFE. Our major sponsor for the day was Strathayr and the theme for the day was "Water Management-Sharpen your Focus".

Our first presentation was by Earl Pike, Horticultural Department Head at Holmesglen, who spoke of the challenges faced by all of us in the turf industry, particularly in relation to how we prepare our turf people with the appropriate training skills.

Our next presentation was by NMIT's Phil Ford. Phil spoke about some current trial works being undertaken at various sites around Victoria that are looking at the performance of a range of warm-season grasses. Of particular interest were the grasses that have shown good drought tolerance and tolerance of recycled-type water.

David Elliott from Yarra Valley Water provided a very thorough outline on water management plans (WMP). He was able to present suggestions and solutions as members prepare their respective WMPs for submission.

Michael Holohan from the City of Greater Dandenong gave a brief overview of a planned turf trial within that municipality looking at the performance of various transitional rye grasses in warm-season sportsfield grass stands. This trial should proceed this autumn with some results expected later this year.

Following on from a presentation from Strathayr, Ken Cuming from Watermatic Moisture Controls gave an update on the latest data available from trials on soil moisture sensors, and the potential they provide for improved water management.

In summary, this was another excellent day. The opportunity for members to access the latest information from these presenters was not missed by any of those attending.

There remains no doubt that the TGAA remains one of the best providers of seminar information for members. We have seen that clearly demonstrated this past year when other organisations that are basically outside our turf industry have presented turf seminars that have been extremely costly by comparison, and with minimal, and in one case, very out of date, content.

That we are able to continue to provide this service is due to the excellent support that we receive from our leading education institutions such as NMIT and Holmesglen TAFE, Burnley College, and the people within those.

I see that with continued work and good will, our seminars will continue to provide relevant and practical solutions for problems faced by members of our turfgrass grass industry.

We hope you can all keep your cool during these trying summer weather conditions. I look forward to catching up with as many of you as possible in the not too distant future.

The OH&S Day has been finalised for Tuesday, 20th April.

Jim Marchbank,
Vice President, TGAA(Vic)

TGAA (ACT & Surrounding Region)

The TGAA (ACT) hopes everyone had an enjoyable and smooth transition into to the New Year. Growth of the TGAA (ACT) in the past few years has progressed in leaps and bounds, and as with previous years, we hope 2004 will be no exception.

Just prior to the Christmas break, the TGAA (ACT) in conjunction with the local Landscape Contractors Association (LCA) indulged at a local restaurant to celebrate Christmas and New Year.

As a group of people whose work is closely related and affected by the same external forces as those of the TGAA, there is strong merit in working together to meet all challenges. The TGAA (ACT) feels that people with common interests should work together to improve all facets of our related industries. A delegate will now be attending the ACT LCA meetings as a representative of the TGAA (ACT)

The TGAA (ACT) would also like to wish turf and horticulture students just starting out or returning to classes this year, all the best in their chosen academic careers.

For an updated view of the newly improved TGAA (ACT) website, go to www.tgaa.asn.au For all the current news, views and information this is the site to see!

Till next time, agrostologists.

Justin A K Haslam,
(Committee, TGAA ACT & Surrounding Regions)

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