

RF 54.50

AUSTRALIAN

MANAGEMENT

Will it bounce or spin?

Soft Spikes

Garden Thugs

Bentgrass tees in Georgia

> 99 Seminar Review

vol 1.4

August - September '99

Toro. Solution for large scale



s utting



The turf conditions on Pinelium's
courses have been enhanced by Tous
for many years. We're confident
Toro's innovation and leadership will
provide the best turf solutions for the
1900 U.S. Open and beyond.

-Brad G. Kocher Director
of Golf Course Maintenance
for Pinehurst Resort and
Country Club

When it comes to large scale cutting coverage, no one offers solutions like Toro. With 8Reelmaster® fairway mowers from which to choose, you'll be assured the right machine for your climate and grass type.

Backed by more than 80 years of experience, Toro offers the perfect combination of precision performance in an easy-to-use machine. Our proven reliability will keep pro-

ductivity at its peak and ensure quality of cut with the results you need.

And only Toro can bring you Total Solutions, our customized program offering a complete range of products, services and irrigation, individually designed to meet the specific needs of your course.

Toro. When you demand quality, precision and reliability.

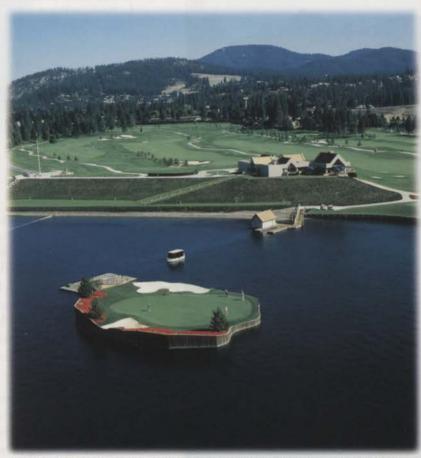




For over 60 years Jacklin Seed and BEST fertilisers have built strong reputations in the turf-grass industry. Emerging as a world leader, Jacklin is involved in breeding, production and distribution of turf and forage seeds. BEST, widely recognized for their technologically advanced fertilisers, have proven themselves as a market leader with superior quality, selection and competitive prices. Our success is attributed to our distributors and you.

The business units of Jacklin Seed and BEST fertilisers recently combined to form Simplot Turf & Horticulture Group. Together with our strong product lines and distribution networks, we provide unparalleled customer service. We remain dedicated to be the major international supplier of seed, fertiliser and technical support to the turfgrass and horticultural industries, including golf, landscape, sod farms, commercial nurseries, sports fields and general turf.

Together, Simplot Turf and Horticulture Group is the only name you'll need to **Seed It and Feed It.**



Coeur d'Alene Resort Golf Course floating green in Coeur d'Alene, Idabo

The Final Word in Turfgrass Seed and Nutrition







AUSTRALIAN JOHN SS MANAGEMENT

Australian Turfgrass Management Published by:

Australian Golf Course Superintendents Association ACN 053 205 888

Level 1, 19 Railway Parade North Glen Waverley, 3150

Ph: (03)9886-6200 Fax: (03)9886-6400 Email: info@agcsa.com.au Website: www.agcsa.com.au

President: Mr. Peter Frewin

Directors: Mr. Mark Couchman

Mr. Peter Schumacher

Mr. Jeff Gambin

Chief Executive Officer:

Euan Laird

Editorial / Advertising:

Phil George

Administration Manager:

Virginia Thompson

Design & Production:

Publicity Press

Art Direction: David Fry Design: Duncan Grant &

Design: Duncan Gran

Joanna Rutherford

Accounts/Subscriptions

AGCSA

Level 1,

19 Railway Parade North

Glen Waverley, 3150

(03) 9886-6200

(03) 9886-6400

Copyright @ 1999

AGCSA believes that material sourced and produced for Australian Turfgrass Management is accurate, but give no warranty in relation thereto, and disclaim liability for all claims against the AGCSA, Publicity Press, their subsidiary companies, their employees, agents or any other person which may arise from any person acting on the materials contained within. No portion, in whole or part, may be reproduced without the written permission of the publishers.

There's only one reason to design innovatively and manufacture with a focus on quality before cost.

It works!



Enviromist - Australia

World's best practice CDA technology. Capable of dramatically reducing chemical and water application rates, improving weed control and environmental safety even when spraying in windy conditions. Light-weight tractor mount or 4-wheel bike tow behind. Manufactured in Australia. Exported world-wide.



ProTurf - USA

The thickest, biggest, softest, strongest golf mat on the market and the choice of many of the world's best golf facilities including 70% of America's top 100 golf ranges. The octagonal design provides years of wear – even wearing spikes. Mats can be centrally security dynabolted making them ideal for practice bays.



Netting - Australia

Made to Country Club International's demanding specifications to suit Australian conditions. Impact netting for practice bays is 4mm 512 denier flat weave – the thickest you can get. Safety barrier netting is custom made to any size up to 50 metres high! All netting carries a 10-year UV Warranty.



Triangle Hitch - Norway

This is the world ISO Standard for 3-point tractor interlocking systems. It makes changing any implements made for 3-point linkage systems a simple and safe 1-person operation in as little as 30 seconds. Hydraulic top link systems and weld or bolt on receivers available for almost any application.



Flexitec - Australia

The ultimate paving system for golf course and other club applications. Manufactured in 1-metre square sections under extreme compression to produce a dense, attractive hard-wearing rubber compound paving in a range of colors. Can be laid loose internally for spike bars, pro shops and changerooms or adhered on external pathways.



"Supplying the best. Nothing less."

VICTORIA: Head Office. 466 Warrigal Road, MOORABBIN, 3189
Phone: (03) 9570 2202. Greg Walker – Mobile 015 546 565

NEW SOUTH WALES: Phone: (02) 9681 6926. Phil Costa – Mobile 015 899 605
QUEENSLAND: Phone: (07) 5528 9600. Ken Robinson – Mobile 0417 511 580
SOUTH AUSTRALIA: Phone: (08) 8322 1883. John Cox – Mobile 0417 979 339

contents volume 1.4

cover

Glenn McGrath getting some back in the 3rd test against Pakistan at the SCG in the 95/96 series.

(Photo Courtesy of Allsports)

special features

Sweet Georgia

Growing bentgrass tees is nothing unusual but why would you even attempt to do it as far south as Atlanta in the U.S.A. Superintendent Jim Dusch has his reasons and the AGCSA's Peter Schumacher was there to hear them.

Cricket Wicket Soils, will it Bounce or Spin?

How cricket wickets behave under certain conditions is dirrectly related to its mineralogy. Regular feature writer, Gary Beehag puts a practical "spin" on this rather complex topic

Garden Thugs

Weeds expert Kate Blood alerts us to the dangers of harbouring "environmental vandals" within our boundaries.

Turf Remuneration Survey

Please take the time to fill this out and return it to the address given.

Millennium Turfgrass Conference & Trade Exhibition Registration Brochure

This will be the biggest turf event ever held in Australia and here is all the information you will need. Take this opportunity to plan ahead

Washdown from Turf Areas

This article from the Waters and Rivers Commission in W.A. contains information required to construct and manage a turf washdown facility.

AGCSA Award Winners

Flemington First Past the Post

The management of training facilities can be an ongoing head ache for Racetrack Managers. The introduction of a revolutionary new training surface could offer a solution.



6

10

24

28

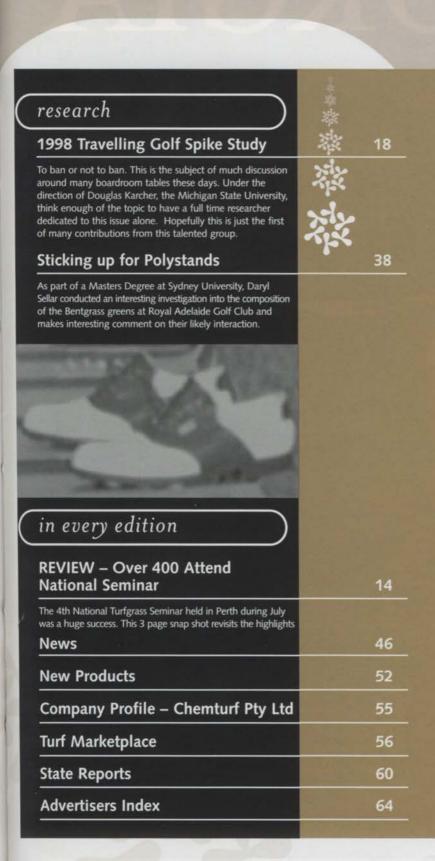
29

42

49

58





A spring in the step!

As if it was barely long enough, turfies throughout the south of the continent will have well and truly woken from their winter slumber and those in the north will be either recovering from or preparing for wet weather.

There is always a sense of urgency in the air at this time of year but spring feels extra special this time around. The Sydney Olympics countdown is in days and Victoria is mid way through a construction boom. Footy finals are in full swing, northern resorts that have stayed dry are just pulling out of an Asian currency induced nose dive and millions of dollars worth of horse flesh is returning to the track in better form than ever.

In this edition of Australian Turfgrass Management we go to Grey Hawk Country Club just outside Altanta Georgia where Course Superintendent Jim Dusch has recently established bentgrass tees. Gary Beehag and myself discuss the effect that clay type has on cricket wicket behaviour and weed expert Kate Blood reminds us of the dangers that may reside in our landscaped areas.

We feature a comprehensive review of information required for anyone managing or considering constructing a turf washdown facility and investigate a new horse training surface that has recently been installed at Flemington Racecourse.

This month in "Review" we revisit the highlights of the very successful 4th National Turfgrass Seminar and profile the 1999 AGCSA Award winners.

Daryl Sellar puts the greens at the historic Royal Adelaide Golf Club under the microscope and we are pleased to feature research from Michigan State University which seems to ad further weight to those on the affirmative side of the "ban metal spikes" debate.

Also included in this magazine is an 8-page information and registration brochure dedicated to the Millennium Turfgrass Conference scheduled for June 2000. This is going to be a fantastic event and I urge you all to plan for being there so we can celebrate the growth and success of this industry together.

I know this is a busy time for all so best of luck!

William of

Phil George Editor

Editorial committee



PHIL GEORG



IAN CHIVERS
RACING SOLUTIONS



PETER FREWIN BARWON HEADS GOLF CLUB



SCOTT BOLTON



LES BURDETT



WARREN WILLIAMS DOOMBEN RACING CLUB



ROSS WARD NOOSA HEADS BOWLS CLUB

SWEET ORGIA



About 20 minutes outside the Atlanta central business district golfing history is about to be made and it has nothing to do with a record low score.

Opening there this summer, Grey Hawk Country Club is attempting to grow bentgrass tees.

This has never before been attempted as far south as Atlanta.

Experienced Golf Course Architect Bob Cupp was the course designer and construction was undertaken by Landscapes Unlimited, who were simultaneously involved in about 20 other golf projects across America.

The first thing that you notice when you walk on the construction site is the shear number of people working on the project. It was not unusual for the turfing contractor to lay more than 12 semi-trailer loads of turf in 1 day, and all of it by hand.

Upon visiting the course in October 1998 and seeing the project in varying stages of completion one could not help but feel intimidated by the way those Americans go after their goals. Referring to the bentgrass tees, Golf Course Superintendent Jim Dusch said, "if it doesn't work out we'll sod them

reduced thatch accumulation. For these reasons, but in particular its resistance to Dollar Spot, Jim settled on L-93 creeping bentgrass.

The switch, in the planning stage, from couch grass to bentgrass on the tees meant only minor changes to the construction method used on the tees. They went from a 200mm sand carpet construction to a 250mm-sand carpet over a laser graded clay sub base with subsurface agricultural drainage lines installed at the appropriate intervals. Naturally all tees were finished dead flat with a laser level fitted to a sand rake.

Jim believes that the newer varieties of creeping bentgrass are excellent and if A1 needed a couple more fungicide treatments than L-93 then "so be it". It would only be 2 or possibly 3 extra applications over the entire year, not much really when you consider the putting benefits.

Construction of greens follows USGA specifications, without the blinding layer, and are modest in the severity of the surface undulations. The sub bases are compacted clay and mirror the final surface of the proposed green. Drainage is installed





out with Bermuda grass". The owners of the course were equally enthused and see this as an opportunity to set their course apart from others in the area. Something else interesting about Grey Hawk Country Club is that all the holes follow the same par running as the more famous Augusta National Golf Club. For example 10 is a Par 4, 11 a Par 4, 12 a Par 3, 13 a Par 5 and so on.

Standing on the tees I could just see the same drama unfolding here on a Sunday afternoon in spring. GCS Jim Dusch says that in time the course would be ideal for a major championship with the back nine providing rewards for the brave but disaster for those who develop "Sunday itis".

When contemplating what bentgrass would be sown on the tees, Jim's main requirement was quick recovery. Recovery from divots had to be achieved very quickly and by two main methods, stolon growth and seed establishment. Other factors effecting turf selection were fungicide resistance, colour retention and When walking around the parts of the course where the tees had been completed and the bentgrass was established, I could not help but feel impressed by the quality and shear visual appeal of the finished product. I also could not wait to carve a huge divot out of the par 3, 12th tee with a well struck, or even a poorly struck 7 iron.

Given the quality of the tees, the owners were certainly not going to settle for anything less than the best possible surface on the greens.

Jim said he originally planned to establish L-93 on both the tees and the greens but after discussions with other Superintendents in Georgia and a thorough inspection of the various trial plots at neighbouring courses, he selected A1 Creeping bentgrass. Under close cutting Jim believes that A1 gets that little bit tighter than L-93 and can therefore produce a denser, smoother and quicker putting surface. He says that their prospective members will expect nothing less than perfect putting conditions, and close cutting to as low as 2.5mm would be quite normal.

at the appropriate spacing and back filled with 5mm-pea gravel. This same pea gravel is then used as a carpet over the entire sub base to provide the cohesive and adhesive forces needed to perch the water table. Over the gravel blanket they have placed a 300mm organically amended growing medium. This medium consists of 92% sand (vol/vol) and 8% peat sedge incorporated through the entire profile.

The green surrounds are shaped up, completely turfed then left to settle for a few days before the seeding of the greens takes place. After the seedbed has been prepared the greens are seeded in two directions using a drop spreader. Using a drop spreader eliminates the possibility of seed being thrown onto the surrounds and germinating, creating the problem of unsightly bentgrass contamination in the couchgrass surrounds. "It's amazing how it can be difficult at times to successfully grow bentgrass on greens but when you try and remove it from a warm season species

you can never kill it". Sanitary practices are of the uppermost importance when constructing a golf course and go a long way to delivering a satisfactory result to today's golfers.

At the time of my visit there were many greens at varying stages of development and it was plain to see that good results were being achieved through the method outlined above.

Of critical importance and significant interest was the location, size, construction method and number of bunkers. Design issues were obviously taken care of by Golf Course Architect Bob Cupp, GCS Jim Dusch and the owners during the planning and budgeting process, but the construction methods used was something I witnessed first hand and had never seen before.

As the site was predominately made up of a clay loam material the sub base construction was made relatively straight forward. Bunkers were cut out and shaped so the water would collect in as few spots as possible and then be drained.

The sub base was then consolidated using a compaction plate until a smooth uniform finish was achieved. Drainage lines were cut into the sub base, slotted drainage pipe installed then back filled with gravel.

Around the perimeter of the bunker a "step" was cut by hand. This was to tie in the geo-textile cloth with the bunker surrounds. After the cutting of this step the geo-textile cloth was then laid over the bunker base and secured into the step with large headed nails. The cloth was then cut away over the drainage lines and a plastic wire mesh nailed in its place. This allowed for the rapid movement of water into the drainage pipes. Sand was then placed in the bunker and was compacted until firm. Turfing of the bunker faces went right up to a protective edging board that stayed in place long enough for the turf to establish.

When you see all of this happening and then you think that they are also putting in an irrigation system, over 10 km of cart path, a state of the art maintenance facility in addition to landscaping the clubhouse site, constructing practice facilities and turfing the entire course fence to fence its no wonder that golf in America is big business.

Time will tell whether or not bentgrass tees will be successful in Atlanta Georgia, but it is certainly encouraging and inspiring to see the healthy attitude GCS Jim Dusch brings to the job and the commitment of the owners in regard to this history making effort.

Sweet GEORGIA

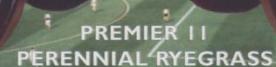




ABOVE: CONSTRUCTION OF BUGGY PATHS.

BELOW: FINISHED PRODUCT.

Looking for this years



- Top rated for overall turf quality in the recent USA NTEP trials
- Aggressive tillering restricts poa invasion and gives excellent wear tolerance
 - Excellent winter vigour
 - Very dark green

SEEDS ... S.

Melbourne: (03) 9561 9222 Fax: (03) 9561 9333 Mobile: 0418 399 518 email: michael@heritageseeds.com.au





UTILITY VEHICLE FOR XTREMELY ROUGH TERRAIN

SPRINKLER MOVING • GRADE CLIMBING A TRAIL TO SPRINKLER INSTALLING • HOLE DIGGING NEAR YOU SHOW THE BREE

STRAW PITCHING

MULE KICKING
 MUD JUMPING
 DEER HUNTING

TURF TAMING • DIRT MOVING • CROP SPRAYING • TOOI

CARRYING • GRADE CLIMBING • GATOR BITING • HILL

HAULING • CREEK CROSSING • DIRT DUMPING • TIMBER

HALILING . HILL CLIMPING . TOOL CAPPVING . SPRINKL

MOVING • GRADE CLIMBING • HOLE DIGGING • BRANCH

Breaking • Crop Spraying • Mule Kicking • Trail

BLAZING • STRAW PITCHING • MU

HUNTING • GATOR BITING • TURF

CROP SPRAYING • TOOL CARRYING

HILL HAULING
 CREEK CROSSIN

LEAN AND MEAN

HARD WORKING UTILITY VEHICLE



Cricket

wicket soils

WILL THE BALL BOUNCE OR SPIN?

By Phil George and Gary W Beehag, Sportsturf Products Manager, M. Collins & Sons (Contractors) P/L (Sydney)

Consistent ball bounce is arguably the most important criteria for cricket wicket curators to achieve in the preparation of clay soil wickets.

Australian cricket wickets utilize numerous clay soil types all with slightly varying properties. Studies conducted on these clay soils have characterized their properties to explain their physical behavior. Not all clay cricket wicket soils are the same and the main reason why they all perform differently under certain conditions is due to differences in clay mineralogy. Clay soils used in Australia for cricket wickets are black earths. Some of the best known include: "Bulli" and "Oberon" from NSW, "Merri Creek" from Victoria, "Redesdale" and "Athelstone" from South Australia, "Goodna" from Qld and "Harvey" soils from WA.

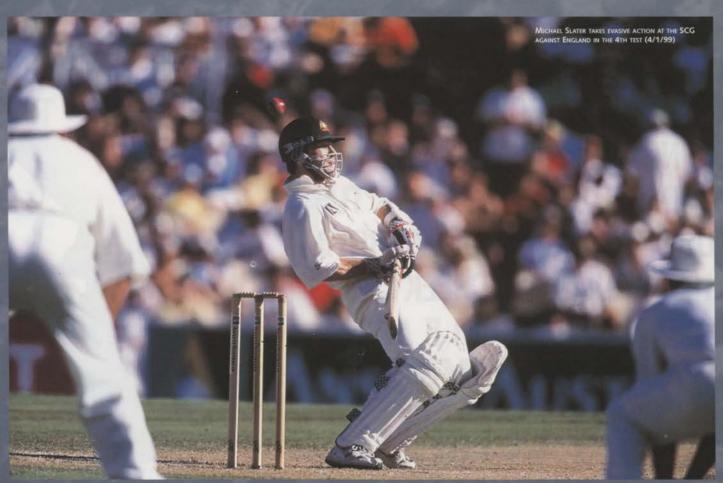
The supply of many of these traditional soils is beginning to dry up or become inaccessible due to the expansion of housing. For this reason, now more than ever it is important that wicket curators understand the mineralogy of clays to enable them to search for and subsequently evaluate suitable types if needed.

Work by Mr. Don McIntyre (CSIRO) in the early 1980's resulted in a list of "Desirable Pitch Characteristics" that have been virtually indoctrinated by leading consultants and curators. A review of these demonstrates quite clearly just how significant clay mineralogy is to the acceptable performance of cricket wickets.

DESIRABLE PITCH CHARACTERISTICS

For first class matches, soil and pitch should ideally have the following characteristics:

- 1. A soil plasticity which allows remoulding & compaction by rolling, to give a smooth surface.
- 2. A hard surface, so that elasticity of the ball is manifested, and preferably one that at some stage allows the ball to turn.
- Soil cohesion, which provides vertical stability, preventing differential change in the elevation of parts of the surface, lifting out of clods, crumbling or powdering.
- 4. Ability to recover from the compaction of preparation so that the soil structure and the couchgrass can regenerate in other words, a "cracking" soil.
- No excessive cracking (crumbling) nor excessively wide cracks.
- Sufficiently high permeability when wet to ensure reasonable rates of water movement and leaching of salts.



- 7. Means for removal of excess water so that aeration and leaching of salt occurs in short a drainage laver.
- 8. Complete grass cover, preferably with couch grass before the final preparation.
- 9. Sufficient plant available water (PAW) in the profile to maintain grass through six days without watering.
- 10. In cooler climates, a profile which minimizes heat loss from the root zone.

CLAY MINERALOGY

Clay soils are composed of secondary minerals derived from parent rock minerals during the natural processes of weathering. Most of the clay in natural soils is colloidal and is crystalline in structure. The crystalline structure can be seen by high powered microscopy (see below).





when it rains or is applied as irrigation.

Because the water is unable to penetrate

not swell when it is wetted. This makes

between the crystalline layers, kaolinite will

kaolinites less suitable as cricket wicket soils

environmental conditions and management

wicket soil.

Clavs are essentially made up of sheets of "ions" that create a crystalline structure that has either two or three layers. Ions are basically positively or negatively charged atoms. In clays, the dominant atoms are silicon, oxygen, aluminium and to a lesser extent magnesium, hydroxide and iron. How these ions are arranged will determine the crystalline structure of the clay which. will in turn, influence the degree and pattern of "soil cracking" during the normal wetting and drying cycles of wickets.

Clay minerals are classified into one of three clay types. These are kaolinite, illite and montmorillonite (more commonly referred to as "smectites"). Clay mineralogy is typically determined by X-ray diffraction techniques and differential thermal analysis. Cricket wicket soils are typically composed of each of these clay minerals in varying proportions. How these soils behave and react under different

be re-moulded after rolling to allow aeration of the profile and regeneration of

Illite has a structure comprised of three layers and like kaolinite it too will not swell when wetted. The reason for this is that sheets of positively charged potassium ions sit between the negatively charged clay crystals forming stable ionic bonds that prevent water molecules getting in between the layers of clay crystals. English wicket soils are largely composed of illite and kaolinite which would explain why the bounce is low and why they "spin" and are "crumbly".

Montmorillinite or smectite clay has a two layered crystalline structure held together with weak hydrogen bonds that do allow water molecules to penetrate them and hence swell when wetted. In addition to this the crystals are more easily compacted and thus produce a harder and faster



"YES WE DO"

"ORDER TODAY"

Tow-a-tarp

Take the hard work out of protecting centre squares. With drum mounted on sealed roller bearings. These provide easy, quick and reliable operation. Designed with occupational health and safety issues in mind.



Agua Wizard

The quality absorbent roller for large area application. Removes up to 32,000L/h (7000gal/h) with 120L (26gal) fast discharge pump from reservoir. Very sophisticated - check it out!



Mentay custom build machines and supply sportsfields, racecourses, tennis courts and golf courses nationally and overseas.

Contact MENTAY today on

freecall 1800 037 075 fax (03) 5338 1006

> Email: mentay@bigpond.com Website: www.mentay.com.au

FOR THE BEST SCORE ON A GOOD WICKET





ROLLERMATIC

For openers it's a real alternative to the hard work of hand rolling. The 10hp petrol or diesel motor gives you low operating costs, large diameter rollers offer flexible operating weights, 850kg to 2000kg with infinitely variable speed hydrostatic transmission. Get set for a long innings with Rollermatic from Lockwood. How's that?

For further information & colour brochure please contact:

LOCKWOOD ROLLERS

7 Dryden Court, Woodend, Victoria 3442

PHONE: (03) 5427 3088 FAX: (03) 5427 3378 surface when rolled. Montmorillonite clays also have a greater capacity to exchange cations which are held in the exchangeable (plant available) form (Donahue et al 1971). Both Bulli and Merri Creek soils are largely composed of Montmonillonite.

If we look at McIntyre's list of "desirable pitch characteristics" the first four point to the need for a clay soil which, swells and shrinks. Only a cracking clay will overcome the damage done to the soil by remoulding and compaction and regenerate a soil structure suitable for plant growth. High quality clay wicket soils must possess plasticity (ability to be moulded and shaped without rupture) and maintain coherence (ability to remain dense when in a dry and moulded state).

CLAY CONTENT AND TYPE

A clay content greater than 50% provides a sufficiently hard pitch irrespective of the clay type. If montmorillonite forms at least 50% of the clay minerals, then clay content should be between 50 and 60%.

A higher clay content may cause excessive cracking, or cracks which are too wide. Crack width should probably never be more than 10mm. If other clay minerals predominate, a greater clay content would probably improve the hardness.

In the absence of vermiculite, the soils which have the greater cation exchange capacity and amount of swelling per unit of clay, contain the most montmorillonite. This clay also provides the greatest plasticity, cohesion and hardness. These properties may be modified to some extent by the nature of the exchangeable cations but clay content and type are the two most important properties (McIntyre, 1983).

In conclusion, it can not be stressed strongly enough that a thorough understanding of the physical and chemical properties of cricket wicket soils is essential if as a cricket wicket curator one is to equip him/herself will the knowledge necessary to select and subsequently manage the best wicket soil available.

Table 1: Some properties of clay minerals found in cricket wicket soils (McIntyre, 1983)

CLAY TYPE	Surface Area m2/g	C.E.C. M.E.%	Swelling	PLASTICITY	Conesion
KAOLINITE	10-20	1-10	None - Very low	Low	Low
ILLITE	70-120	10-40	Low - Moderate *	MODERATE	Moderate
MONTMORILLONITE	600-800	80-120	High#	Нюн	High L
VERMIGULITE	800	120-150	Low		LOW

^{*} In soil illites: the pure mineral shows no expansion # Na in clay is infinitely expansible

REFERENCES

Brock, P (1997) Investigation and comparison of two cricket wicket soils at the Sydney Cricket Ground. Thesis for Associate Diploma of Applied Science, Parkville College of Tafe, Vic

Derriman, P (1981) The Grand Old Ground

– A history of the Sydney Cricket Ground.

Cassell Australia

Donadue, R L, Shickman, J and Robertson, L (1971). Soils – An Introduction to Soils and Plant Growth. Prentice-Hall, Inc. USA

McIntyre, D (1983). Australian cricket pitch soils and profiles. National Seminar on Turf Management. RAIPR May, 1983.

Piper, C (1931) Some characteristics of soils used for turf wickets in Australia. Trans. Royal Society South Australia. 56: 15-18.

Clay images from RR Anand (1994) mineral weathering in Lateritic Saprolite.

0.5µm



M COLLINS & SONS (CONTRACTORS) PTY LTD

TURE & SOLL

SPORTSTURF SUPPLIERS & CONTRACTORS

Sydney's Renown Specialist

CRICKET WICKET SOIL

Collins Cricket Wicket Soil has established the industry standard synonymous with quality wickets in NSW. Construction of Cricket Wickets also undertaken.

BOWLING GREEN SOILS

Bowling Green soil mixes are delivered throughout NSW to meet your individual green's requirements.

GOLF GREEN CONSTRUCTION SAND

Laboratory approved USGA greens mixes, topdressing and bunker sands.

SPORTSFIELD TOPDRESSING

Contract topdressing equipment for sportsfields, racetracks and ovals.

RETURFING SPECIALISTS

Suppliers of Quality Turfgrass varieties installed at Sydney International Equestrian Centre, Randwick and Canterbury Park Racecourses, Sydney Cricket and Football Stadium.



For Competitive Prices and Old Fashioned Service



M. COLLINS & SONS (CONTRACTORS) PTY LTD

25 Martin Crescent, Milperra 2214 Telephone: (02) 9774 1544 Facsimile: (02) 9792 1532 ACN 000 521 871

Over 400 Attend Seminar

Delegates from afar afield as the Middle East, Pakistan and Britain attended the recent 4th National Turfgrass Seminar and Trade Show held in Perth in July. Highlights of the week were the presentations from Dr. Bruce Martin (Clemson University) and Walter Woods (ex Golf Course Superintendent at St. Andrews). Dr. Martin was hosted in Australia by Chipco and Walter Woods was sponsored by the Toro company. The AGCSA arranged for Walter Woods to be interviewed and he duly appeared on the Chanel 10 News promoting golf courses. Walters' and Bruce's presentations were insightful, independent and enlightened those fortunate enough to attend on what the latest turfgrass management techniques are across the globe. Local presenters included Steven Appleyard from WA Water and Rivers Commission (see article this edition), John Neylan, David Aldous, Hazel Wemper, David Mead and a host of local golf course superintendents.

The trade show highlights included a visit from the Cricket World Cup, thanks to Scotts Australia, and Chemturf's novel idea of Café Chemturf.

The AGCSA Championships, sponsored by Toro, were held at Secret Harbour preceding the conference with Allan Devlin, the host Golf Course Superintendent winning the covetted AGCSA Championship from Jeff Lane another local. The Stableford event was won by Brendan Large and the State Teams was won by the local Western Australian Association - a clean sweep.









STARTING FROM TOP:

AGCSA CHAMPIONSHIP WINNER, ALLAN DEVLIN IS PRESENTED WITH THE CHAMPIONSHIP CUP BY CAMERON RUSSELL, BUSINESS UNIT MANAGER, TORO AUSTRALIA AND AGCSA PRESIDENT, PETER FAEWIN.

LOCAL TURF IDENTITY DIXIE JOY, ENJOYING HIMSELF AT THE WELCOMING COCKTAIL RECEPTION

CUPS, PINS AND FLAGS DONATED BY DGE LOOKED IMPRESSIVE ON THE SECRET HARBOUR LAYOUT



CONTROLLED SPRINKLER SUPPLIES

"Quality of product & service is the foundation of our business

th

National Seminar







WESTFARMERS DALGETY & CSS



TEXTRO



RIGHT TOP: DELEGATES INSPECTING THE WA WATER USE TRIAL SITE AS PART OF THE TURFGRASS TOUR

RIGHT BOTTOM:
WAYNE MILLAR,
GOLF COURSE
SUPERINTENDENT AT
LAKE KARRINYUP
COUNTRY CLUB
ADDRESSES DELEGATES.



HUNTER INDUSTRIE



DG



TOR



For all your imigation requirements
RESIDENTIAL - COMMERCIAL - TURF



National Seminar





CAFE CHEMTURE





RICHARD JAMES (SCOTTS) LOOKING LESS THAN COMFORTABLE ALONGSIDE THE NEW TEAM MASCOT HANDLED BY BRUCE CARRUTHERS, RIVERLANDS GOLF CLUB







TEXTRON



Contact your local branch on

Free Fax: 1800 444 448 Free Call: 1800 806 323

Green team goes for gold

For more than 35 years, right around Australia, the CHEMTURF team has earned a big reputation for excellence in the business of making and keeping our greens greener...

We were the first to introduce CHEMTURF Stores-on-Wheels, bringing the latest in turf technology right to your door.

We partnered Turfgrass Technology and introduced Australia's most switched on soil and leaf analysis service. We've blazed new turf trails with advanced products and new technology and there's more in store for '99.

As turf specialists, we're totally committed to the people responsible for making Australia's greens greener.

CHEMTURF's success is simply the result of our specialist people doing what they love most.

Want to talk turf? Talk to one of the CHEMTURF team today.



MAQUATROLS











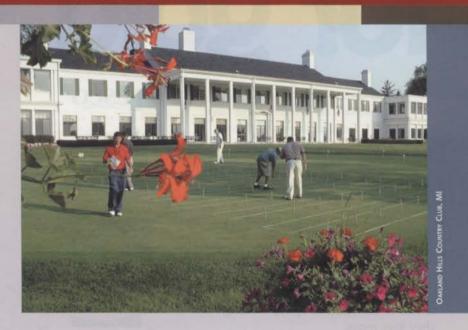
N.S.W. 02 9604 7200 QLD. 1800 631 008 VIC. 03 9584 3444 S.A. 08 8277 9494 W.A. 0418 955 127

CHEMTURF

LEADERS IN TURF INNOVATION, TECHNOLOGY AND SERVICE

1998 travelling COLF SPIKE STUDY

DR. J.N. ROGERS, III, DR. P.E. RIEKE, D.E. KARCHER, T.A. NIKOLAI, AND J.A. HARDY DEPARTMENT OF CROP AND SOIL SCIENCES MICHIGAN STATE UNIVERSITY, U.S.A.



INTRODUCTION

Golf is a game that has undergone tremendous technological changes in the 1990's. One of these dramatic changes has been the banning of the 8mm metal golf spike on shoes at numerous golf courses. In 1995 there were less than 100 golf courses worldwide (1) that had banned the traditional 8mm metal spike. At this time Michigan State University (MSU) began its involvement in alternative spike research (2). Our scientific commitment to concerns brought forth with changes in golfers footwear has been cautious and calculated. Through literature reviews we uncovered a conflict in opinions between turf-researchers, golf course managers and superintendents in 1959(3,4). There have been numerous changes in turf management since that time including: standards for green root-zone construction, thinner bedknives allowing tighter mowing heights, light frequent sandtopdressing, and the banning of insecticides that killed soil micro-organisms that alleviated the development of thatch. Each of these probably had had some bearing on the acceptance of today's alternative spike/sole. MSU was cognizant of the fact that rating wear caused by the 8mm spike (uplifting of the turf plant) and alternative spike designs (indentations on the putting surface) was similar to comparing apples and oranges. Not wanting to release results that might differ from public opinion

led MSU to conduct a golf sole/spike traffic survey in 1997(5). Prior to this survey, MSU never attributed a qualitative rating to any of the alternative spike research it conducted. Among the 1997 survey results was the fact that, regardless of the occupation of the surveyor, the uplifting of turf caused by 8mm spikes was perceived more damaging to a research putting green than indentations made by any of the alternative spikes. However, concerns and doubts persisted regarding the plethora of alternative soles and spikes available in today's market. These doubts led to MSU conducting the 1998 Travelling Golf Spike Study.

MATERIALS AND METHODS

In winter and early spring 1998, various nonmetal golf shoe spike manufacturers were asked to submit entries for the study. The different contributions from each company resulted in 27 shoe/spike combinations including metal spikes of different length and soft spikes with different types of soles.

The experiment was a randomized block design with 27 shoe/spike entries and 3 replications. It was conducted at 6 different locations (golf courses) thus providing an ability to evaluate and analyze a spike by location interaction.

The golf courses were chosen to represent the various types of putting greens that are managed on Mid-western golf courses. Each course is currently under a ban of metal spikes or under pressure to do so. Details of each golf course and its management characteristics are shown in Table 1.

This study was conducted between 6 July and 30 July 1998. Each golf course was visited one day during this period. The weather on each day that the golf courses were visited was very similar. Temperatures averaged 26°C and rain was not a factor before or during data collection.

Traffic was applied to each treatment to represent 200 foot steps around the cupping area of a putting green. 6-10 people (all wore approximately size 11 shoe) were responsible for applying traffic at each course. Each person applying traffic wore every shoe in the study and applied the same number of footsteps in the same pattern for each plot.

At the end of the traffic period the plots were rated using the scale detailed below. Measurements were made by MSU staff, golf course superintendents, and golfers.

SURVEY DATA ANALYSIS

Plots were rated using a turf damage severity scale (1 = Severe, 2 = Significant, 3 = Moderate, 4 = Minimal, and 5 = None) immediately following 200 simulated rounds of golf. For this study, a plot is one replication of a single spike/shoe treatments, spike/shoe replications, and raters is the number of observations taken from each golf course. Table 2 summarises the number of plots and rating observations taken at each golf course.

The survey categories imply a ranking of turf damage severity, but not quantifiable differences among plots. These data, called ordinal data, arise when a continuous characteristic (turf damage) is measured on a discrete scale with a finite, countable number of categories (severe, significant, moderate, minimal, and none). The assigned scores, 1 = Severe, 2 = Significant, 3 = Moderate, 4 = Minimal, and 5 = None to the categories for purpose of analysis is arbitrary.

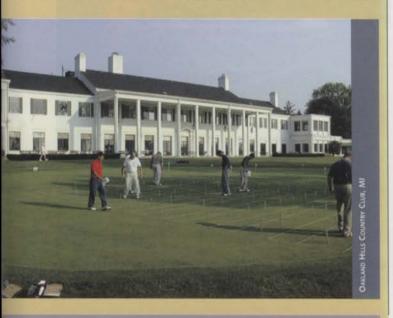
Ordinal data are discrete multivariate and follow the multinomial distribution law. Appropriate hypotheses for comparing treatments with an ordinal response are

Table 1. Participating golf courses and specific putting green information for 1998 Travelling Golf Spike Study – Michigan State University.

GOLF COURSE	FOREST AKERS-MSU	CC OF DETROIT	Oakland Hills CC	RED RUN GC	PINE VIEW GC	Inverness Club
LOCATION	E.Lansing .MI	GROSSE POINTE MI	Broomerd Hills, MI	ROYAL OAK, MI	Ypsilanti ,MI	TOLEDO ,OH
TEST GREEN	Pract /Putt	PRACT.	PRACT. /PUTT	PRACT.	181H	Pract Putt
DATE OF VISIT	e july	isJuly	15 JULY	16 JULY	27 JULY	30 JULY
Superintendent	Ron Foote	MARK JACKSON	STEVE COOK	GARY THOMMES	CHARLES GAIGE	Tom Walker
Mowing Ht. (INCH)	0.157	0.130	0.130	0.095	0.145	0.130
TURF SPECIES	PENNCROSS	PENN A-4	POA /AGROSTIS	POA	PENNCROSS	PENNLINKS
CONSTRUCTION (SAND/PEAT)	85/15	90/10	PUSH UP	Posn ur	80/20	PUSH UF
AGE OF GREEN	2 YEARS	2 YEARS	70 YEARS	90 YEARS	9 YEARS	11 YEARS
TOPDRESSING DEPTH (INCH)	0.25	0.19	3,0	4.9	0.5	2.0
TOPDRESSING FREQUENCY	3 WEEKS	2-3 WEEKS	3 WEEKS	2 WEEKS	6 WEEKS	1-2 WEEKS
Topdressing Material	100% SAND	100% SAND	100% SAND	100% SAND	100% SAND	100% SAND
DAYS SINCE LAST TOPDRESSING AT TIME OF VISITE	14	10	*	7	30.	10
Тнатен	MINIMAL	< 0.251NCH	MINIMAL	MINIMAL.	0.5 INCH	0.25 INCH

Table 2. Summary of rating observations at each golf course.

GOLF COURSE	COUNTRY CLUB OF DETROIT	FOREST AKERS	INVERNESS CLUB	OAKLAND HILLS COUNTRY CLUB	PINE VIEW	RED RUN GOLF CLUB
SPIKES SOLES	26	26	27		27	
REPLICATIONS	3	3	3	3	3	3
PLOTS	78	78	81	81	81	81
RATERS	13	20	8	14	6	11
Observations	1014	1560	648	1134	486	891





ENVIRO CARE

CARBO TEIN

A liquid nutritional package of carbohydrates, sugars and proteins which are easily taken up by both soils microbes and the turf plant.

FeATURE plex

Specially formulated to assist in developing a substantial root system. Contains Chelated trace elements, plant growth hormones and an organic wetting agent.

SPRINT

Designed to enhance the establishment of newly sown or sprigged sports turf.

Pacific Rim Turf

Available from: Oasis Turf 2 Downard St Braeside 3195 Ph: 03 9580 2488

Pn: 05 9360 2466

ENVIRO CARE



probabilities. Representing ordinal data should never include mean rating scores, but rather probabilities to observe a particular category. Recently, statistical techniques have been developed for ordinal data that permit treatment comparisons, statistical tests, and results similar to analysis of variance but take into account the distributional properties of ordinal data. These analyses are independent of category

labelling or numbering, adding an element of objectivity. Parameters of ordinal data models are statistically estimated by maximum likelihood techniques. Reliability of estimates increases with increasing sample size.

A proportional odds model with the logit transform was used to analyze the turf damage rating data and to test for shoe/spike effects, golf course effects, and their interaction. Results were given in terms of probability distributions rather than mean rating scores. Calculating a chi-square value for pairwise comparisons of parameter estimates separates probability distributions (results not shown).

RESULTS AND DISCUSSION

The results from our work and surveys reflect a strong spike x location interaction (results not shown).

One distinct difference in this study was the different responses of spike across the various putting surfaces. While the characteristics of each green have been presented in Table 1, there was no attempt in this study to correlate the importance of various management practices to these spike responses.

There did appear to be differences in spike response based on the age and maturity of the putting surface, as well as the turfgrass species composition. Future studies should be designed to evaluate these factors in a controlled environment.

It should be noted that across all locations the 8mm spike was rated below all alternative spikes. (The 6mm spike was also ranked at the bottom with the 8mm on 4 of the 6 locations). This continues to indicate the golfers distinct displeasure with the metal spike.

The Soil Reliever, Model 54

Deep **Ventional Aerifier** for greens. Fast, efficient, smooth, and will operate on a Cushman Truckster, a Toro Workman or a small tractor.

There are deep tine aerifiers and conventional aerifiers, now you have both with the **Soil Reliever 54**. Use the 5/16"x9" solid tines to aerify your greens anytime, without disruption in play. Other solid tines available are 3/8x10", 1/2x10", coring tines available are 5/8x7", 3/4x10". Aerify any depth to 10" with the **Soil Reliever 54** "deepventional" aerator. Operates on any mini tractor from 16 h.p up to 30h.p.

For a demonstration call BHM Machinery at (07) 3287 3877.



For more information contact:

BHM MACHINERY

26 OLD PACIFIC HWY, YATALA 4207 PH: (07) 3287 3877, FAX: (07) 3287 3977



"Breathin' a Whole Lot Easier!"

CONCLUSIONS

Some of the conclusions drawn from this study are shown below.

- The 8mm spike received the lowest rating at all six locations
- The ratings between golf courses were different.
- Not all alternative spikes caused the same amount of wear.
- Results from the seven golf soles fitted with the Softspikes XP lead to the conclusion that the smooth golf shoe sole causes more visible wear than the perforated golf sole designs included in the study. The Dry-Joys and the Foot-Joy Classics fitted with the Softspike XP were golf shoes that had smooth soles with a heel.
- Results from the five golf soles fitted with the Turf-Grips lead to the conclusion that some perforated soles cause more wear than others.
- There were five golf soles included in the studies that had perforated soles without an insert for alternative or 8mm spike. These soles are commonly called teaching golf shoes. The teaching golf soles caused different amounts of wear.

 There were differences in the amount of wear from location (different golf courses).
 However, the 8mm caused the most perceived damage at all locations.

FUTURE STUDIES

From listening to the concerns of all factors involved, through historical review, and through perfunctory steps in building a viable research base, MSU has built a knowledge base regarding the alternative spike/sole debate that is second to none. It is our contention to use this base to establish an alternative golf spike/sole research methodology that is pertinent and accurate that yields results that will be accepted world-wide. We have also come to the realisation that through our publications and the speaking circuit many golf course superintendents anticipate annual reports on the newest alternative golf spike/sole designs. For this reason, in the spring and summer of 1999 MSU has chosen one individual that will give 100% of his time to this issue. He will not only study the alternative soles, but will also continue identifying cultural practices utilised by the golf course superintendent that minimise the visual effect of traffic.



REFERENCES

- Source: SoftSpikes Inc.
- (2) Rieke, P.E., T.A. Nikolai, M.A. Smucker, P. Grow, and D.M. Roth. Turfgrass Soil Management Report – 1995. P. 17-22 In: Proc. Of 66th Annual Michigan Turfgrass Conference Proceedings.
- (3) Annonymous. 1959. Shoe-sold questionnaire. USGA Journal and Turf Management 12(3):25-27.
- (4) Ferguson, M.H. 1959 Turf damage from foot traffic. USGA Journal and Turf Management 12(5): 29-32
- (5) Nikolai, T.A. and P.E. Rieke. 1998 8mm metal spikes get failing marks. Golf Course Management 66 (2): 49-55.



Whether retrofitting your existing golf irrigation system or planning a new course with state of the art components, take a look at Legacy by Hunter. Our rotors offer technically-advanced features and water-saving benefits, while our Genesis control systems are easy to program and offer the management tools you need to keep your course in great playing condition. For technical assistance and after-sale support, your local Legacy distributor is ready to help.

AUTHORIZED HUNTER DISTRIBUTORS



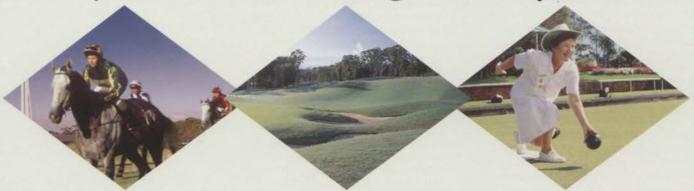
CONTROLLED SPRINKLER SUPPLIES National Free Call 1800 806 323



HR PRODUCTS

National Free Call 1800 998 037 WST Tollfree Fax 1800 651 680

reating and managing healthy turf. How Chipco helps you run an integrated system.



Turf does not live
in insolation from
its' environment.
Soil and climate create the
circumstances for healthy
grasses.

In turning these grasses into special surfaces for special activities - turf - the natural processes can no longer be left to their own devices. Now some plants become weeds,

Some insects become pests. Some fungi and moulds become disease.

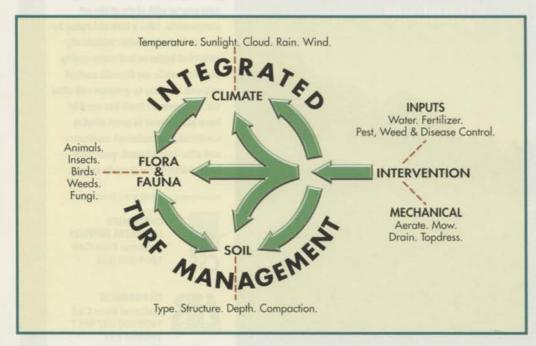
Professional turf management is simply the controlled process of intervention to alter what would otherwise be the natural cycle.

Intervention becomes complex because the age-old rule remains inviolate – for every action there is an equal and opposite reaction. One thing leads to another. Professional turf management describes the techniques of intervention that maximise turf health and minimise pest, weed and disease attack.

Turf playing surfaces are busy all year and must be strong and healthy all year, which is not necessarily natural.

It is immediately obvious that management intervention has the greatest potential for success if it is integrated – it recognises that intervention in one area may need a compensating effect in another.

An outbreak of disease may be directly attributable to earlier – even months earlier – interventions of fertiliser or irrigation.



How does Chipco integrate itself into the intervention process? In two distinct and vital ways.

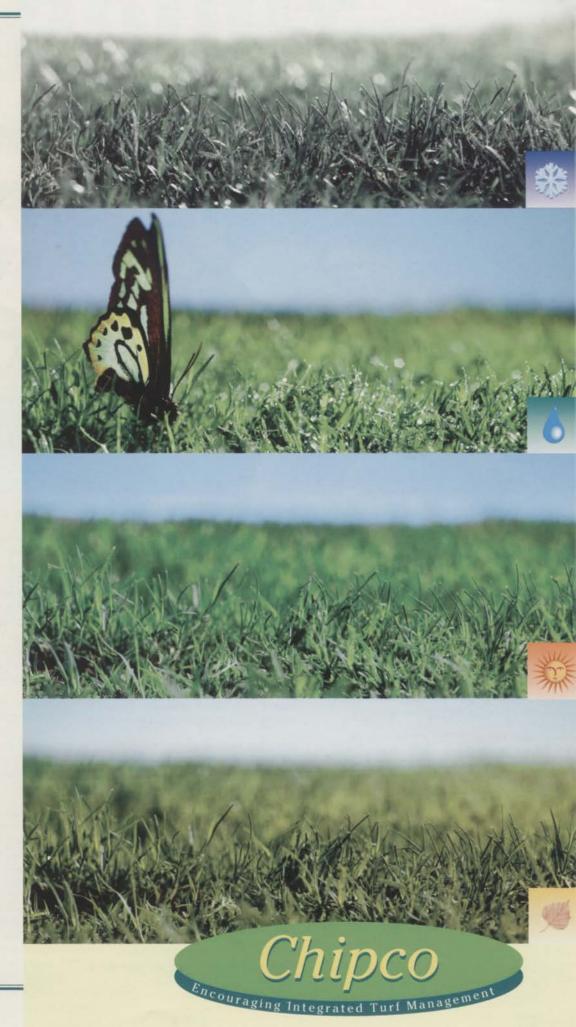
First Chipco chemical technology has a deserved reputation for superior control of weeds, pests and diseases in turf. Many of our products, MERIT* TURF, CHOICE*, ROVRAL* GREEN, and DIMENSION* among them are unsurpassed and are household names in the professional turf management industry.

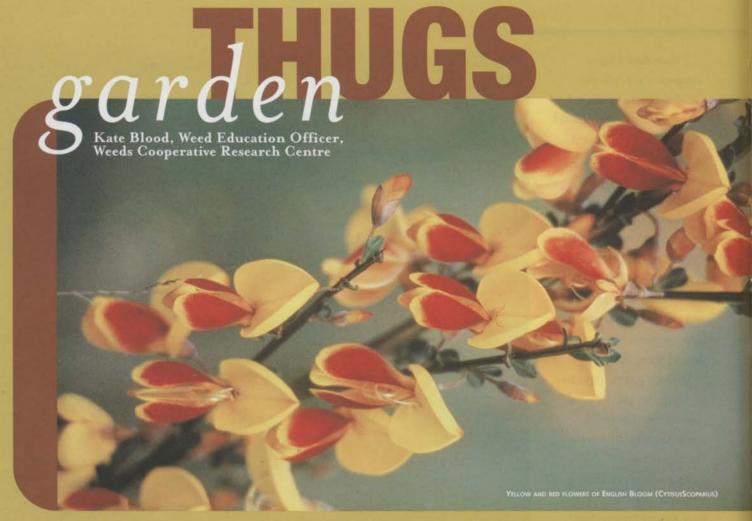
Perhaps just as important, we recognise that our chemical controls are not separate from the entire process.

This is why our field technical people – and we have more of them than any other – involve themselves with all the issues of turf management.

This is why we seek to work so closely with our customers to learn from them and impart knowledge to them. Professional turf management continues to evolve its' techniques and we pride ourselves on being in the forefront of this evolution.

This is why we sponsor the AGCSA Claude Crockford Awards and champion the issues of stewardship and safety.





Ssshhhhh.... Don't tell anyone, but there is sex going on in broad daylight on golf courses, bowling clubs, parks and racecourses around Australia. Correction. Not so much 'on' but usually around the edges of these large expanses of turf, in the gardens and roughs.

Who are the culprits? Garden Thugs! These fertile garden plants are setting seed and spreading them far and wide.

Not content with 'their side of the fence', these invasive garden plants are jumping the fence and invading National Parks, bushland and farmland from city to remote rural areas around Australia. No place in Australia is safe!

They commonly escape from domestic gardens whether manicured or neglected. They are also escaping from golf courses, bowling clubs, parkland and racecourses. It's not just one-way traffic either. Golf courses and parks that have remnant native bushland in their 'roughs' are being threatened too.

GARDEN THUGS

Garden thugs are often common, beautiful and hardy garden plants. Even the most innocent of garden plants can become a

bully when given room to move. It may be surprising to know that the elegant Arum Lily (Zantedeschia aethiopica) is a major agricultural and environmental weed in WA covering over 10,000 ha. It is becoming increasingly feral in other parts of Australia.

Of the over 2,800 weeds in Australia, about 700 are garden thugs. They threaten to become serious weeds or have already created major weed problems. Paterson's Curse (Echium plantagineum) was a popular ornamental plant in 1843 being sold through seed catalogues. It is now a well-recognised pasture weed in every State of Australia and costs this country over \$30 Million each year to control.

As well as competing with crops and pastures, garden thugs take over native plants hindering their growth, they destroy the natural homes of wildlife, clog up rivers and waterways, and can affect human health and poison livestock.

Some Australian plants, when taken away from their native areas go ballistic just like some plants from overseas. The Cootamundra Wattle (or 'Coota-mongrel' as some people like to call it), Acacia baileyana, comes from the Cootamundra area of NSW. When transplanted to other areas of Australia by humans, it is able to grow and flourish without being constrained by the bugs, climate and diseases that would have kept it in balance in its native habitat.

HOW DO THEY DO IT?

As you might expect, wind is a major carrier of seeds. The grasses are well adapted to this type of dispersal. Many ornamental grasses such as Pampas Grass (Cortaderia spp.), Foxtail and Fountain Grass (Pennisetum spp.), and non-native Spear and Tussock grasses (Nassella or some Stipa spp.) use the wind very effectively. The impressive tall flowering spikes of Pampas Grass can produce a whopping 10,000 seeds per head which can be blown over 25 km.

Some of the common turf grasses are also escaping into the bush. These include Kikuyu (Pennisetum clandestinum), Buffalo Grass (Stenotaphrum secundatum), Rye Grass (Lolium spp.), Kentucky Blue Grass (Poa pratensis), Couch (Cynodon dactylon), and some of the Fescues (Festuca spp.).

Many trees are turning feral also (garden thugs come in all shapes and sizes). Trees often use the wind to disperse seeds. Who could forget the propeller wings on tree seeds in David Attenborough's television series 'The private life of plants'?

Water is another mechanism for dispersal. Seeds and plant parts (such as stems and bulbils that can take root) are often washed down drains, waterways and slopes to invade areas downstream. The nice moist and fertile edges of waterways make attractive places for these plants to grow.

Over 40 kms of the edges of the Tambo River in East Gippsland in Victoria are infested with Blue Periwinkle (Vinca major) and Willows (Salix spp.) spread downstream especially during floods.

BIRD LOLLIES AND HALOES

Birds and foxes are great vectors (spreaders) of seeds. Birds easily carry the 'bird lollies' or berries of Cotoneaster (Cotoneaster spp.), Firethorn (Pyrancantha spp.) and Hawthorn (Crataegus spp.) from gardens to nearby bushland up to 3km away. When birds land in trees and let loose with their droppings, 'bird haloes' will often form under the trees. These are dense thickets of ornamental bird-dispersed plants growing under prominent perching trees.

There are some spectacular examples of bird haloes in Canberra bushland where many berry-forming ornamentals are grown in nearby gardens. It is not uncommon to find five to ten different invasive plants growing under a large old gum tree.

Humans are the other great vector. We often spread these plants without realising it. The worst offenders are the dumpers of garden waste who dump piles of prunings and mower clippings in local forest, bushland or over the back fence. These 'fertile offerings' act like mini volcanoes that simmer away sometimes for years until the conditions are right and then finally erupt sending rivers of invasive plants into the surrounding areas.

THE MECHANICS OF IT ALL

Mowers and slashers are also spreading weeds around the countryside. Many garden thugs have escaped to roadsides where annual slashing programs pick up the seeds and spread them further.

Two common examples of this are the tall orange flowered bulb, Bulbil Watsonia

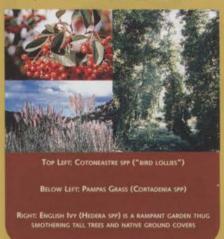
(Watsonia meriana) and the white-pink flowering shrub, Spanish Heath (Erica lusitanica often mistaken for the native Common Heath, Epacris impressa).

Local governments in southeastern Australia often do their annual fuel reduction slash in late spring and early summer when both these plants are covered in seed (for Spanish Heath) or tiny bulbils (for Watsonia). The slashers pick them up and spread them further along the roadsides and into other areas, so rapidly expanding infestations can occur if equipment is not cleaned thoroughly.

The same often happens in unsuspecting golf courses when roughs are slashed.

Every time soil is moved, there is the potential for weeds to be moved with it, infesting new areas. Vehicle tyres and undercarriages are also common weed spreaders. Putting the sludge from the bottom of a commercial car wash into pots and seeing what grows is an eye-opening experience!

Seeds are often moved on clothing, boots and tools. Good hygiene practices are very important if the spread of weeds is to be restricted.



NURSERIES HELPING OUT

The Nursery Industry Association of Australia (NIAA), the horticultural media and government are working together to educate the industry and gardeners about garden thugs. Over time, many garden thugs will be voluntarily withdrawn from sale in nurseries around the country and gardeners encouraged to replace them with safer alternatives. There are about 50,000 plants introduced to Australia so it shouldn't be too hard to find alternatives.

A recently released draft Australian strategy for invasive garden plants called "Garden plants under the spotlight" unites industry and government around the issue. The main emphasis of the strategy is raising awareness about garden thugs and agreeing on a short list of 52 plants to be withdrawn from sale.

WHAT CAN YOU DO?

What can bowling clubs, golf courses, racecourses and public open space managers do to protect their natural areas and to reduce the spread of garden thugs into surrounding areas?

- 1 Consider replacing garden thugs and creating garden thug free zones
- 2 Select safer alternatives carefully
- 3. Dispose of garden waste and grass clippings responsibly
- 4. Use good hygiene and management practices
- 5. Tell club members and visitors why you are making these changes
- 6 Train staff about garden thugs and how to manage remnant native vegetation (try Greening Australia for training opportunities at www.greeningaustralia.org.au)

For the perfect lawn!



Great where a premium landscape is desired. Suitable in parks, sportsfields or golf course semi rough. Sown at 4-5kg/100m², will provide a dense turf with all year colour, excellent drought tolerance and good wear capabilities. Statesman performs very well sown as a mono stand whilst making a perfect companion to bluegrass or turf type ryegrass.



CALL NOW 132009 Vic, SA, QLD, NSW WA Ph (08) 9472 5444

CO. Asses Av

A FULL RANGE OF SOLUTIONS

When it comes to achieving the professional finish you're looking for, you need to look no further than Agripower.

Agripower offers a full range of turf related products including; Rotary Hoes, Fertiliser Spreaders, Finishing Mowers, Mulchers and more.

When you put the time and effort into your turf ensure you receive superior results by using the best products for the job. Backed by Silvan, Agripower have a strong dealer network throughout Australia to service all your needs.

When only the best results will do, buy Agripower.



Silvan Pumps and Sprayers (Aust) Pty Ltd ACN 005 160 074 Head office 89 Lewis Road, Wantirna South 3152 Phone: (03) 9887 2788 Fax (03) 9887 1035 www.silvanpumps.com.au

THE TOP 15 GARDEN THUGS IN AUSTRALIA

These are the worst 15 invasive garden plants nominated by Australian weed scientists:

- · Brooms (particularly the yellow and white flowering brooms - Cytisus, Genista and Chamaecytisus species)
- · Invasive willows (Salix species)
- · Arum Lily (Zantedeschia aethiopica)
- · Horsetail (Equisetum species)
- · Cootamundra Wattle (Acacia baileyana
- a native to an area of NSW but invading bushland elsewhere in Australia)
- · Boneseed and Bitou Bush (Chrysanthemoides monilifera)
- Bridal Creeper (Asparagus asparagoides)
- · Pampas Grass (Cortaderia species)
- · Cabomba (Cabomba caroliniana)
- Madeira Vine (Anredera cordifolia)
- · Bulbil Watsonia (Watsonia meriana) · English Ivv (Hedera helix)
- Thunbergia (Thunbergia grandiflora)
- Mimosa (Mimosa pigra)
- · Blue Periwinkle (Vinca major)

Many introduced grasses used in gardens are also invasive, some are being sold as natives and are incorrectly labeled (eg Nassella species).

Many aquatic plants promoted for ponds, dams and aquaria are escaping into our waterways causing huge problems (eg Water Hyacinth - Eichomia crassipes, Salvinia - Salvinia molesta, Water Lettuce -Pistia stratiotes, Parrot's Feather - Myriophyllum aquaticum).

FOR MORE INFORMATION

Invasive plant lists on the web: http://www.agric.wa.gov.au/progserv/Pla nts/weeds/weeds/weedlist.htm

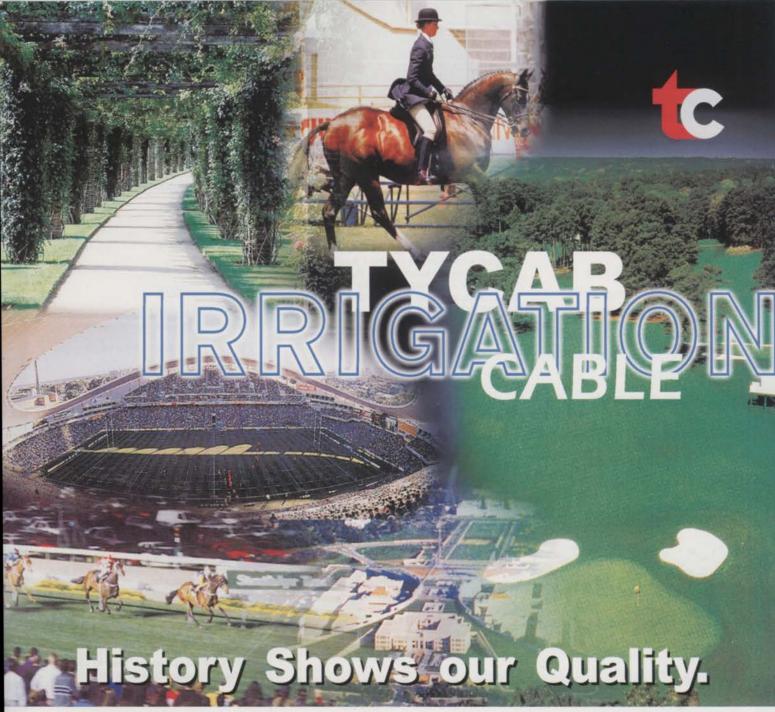
All your weed information on the web. Start here for hotlinks around the globe: http://www.agric.wa.gov.au/progserv/Pla nts/weeds/links.htm

Network with weed people around Australia on the ENVIROWEEDS email discussion group at: ENVIROWEEDS@majordomo.nre.vic.gov.au

The Weed Navigator is here! This two-book set is your first point of call to find your way around weed information in Australia and New Zealand It includes contacts, and lists of the weed books, brochures, posters, web sites and much more. Order your copy for Aus\$30 on (08)8303 6590 or at crcweeds@waite.adelaide.edu.au

Kate.Blood@nre.vic.gov.au

Garden Thugs are jumping the back fence and invading national parks, bushland and farms around Australia. Make your turf area a Garden Thug free zone.



Tyflo irrigation cable from Tycab ensures accurate, efficient and economical control of sporting and agricultural irrigation systems.

All around Australia, you'll find Tyflo at work on fairways and putting greens, racecourses, cricket and football fields, bowling greens and at most of our leading orchards.

Tyflo irrigation cable features:

- Multi-strand copper conductors
- PVC sheaths for moisture resistance, flexibility and easy installation
- HDPE core insulation to resist abrasion in direct burial applications
- Exclusive sealing system

So, when you want championship results, specify the championship irrigation cable. Tyflo from Tycab.



Sales Offices - Victoria (03) 9706 9770 NSW (02) 9772 2599 QLD (07) 3848 2200 SA (08) 8244 5777 WA (08) 9353 1788 Factory (03) 9791 7988 Fax: (03) 9794 0031 Int. Fax (613) 9794 0031 New Zealand (09) 636 9891 Tyflo cable is proudly made in Australia

Survey 1999

Q.1) What is your title?	Q.8 How many hours per week do you work in your position ?	Q.12 Please indicate your Total Gross Salary ie. Including superannuation and fringe
		benefits ie. use of car, phone, travel, etc.
Q.2 What turf industry sector do you work in:	Less than 20 hrs 20-30 hrs	20-30,000 30-40,000
Golf	30-40 hrs 40-50hrs	40-50,000 50-60,000
Bowls	50-60hrs More than 60 hrs	60-70,000 70-80,000
Private Schools	Q.9 What is your organisations expenditure	80-90,000 90-100,000
Horse Racing Facilities	(turf managers) or income (trade) per annum in the specific area that you	100-110,000 110-120,000
Sportsfield Management	manage / are responsible for. Include staff salaries and equipment purchases but do	>120,000
Turf Contractor	not include capital works.	Q13.) Please indicate the level of employer
Trade representative (state based)	100-150,000 per annum	contribution to your superannuation?
Area Manager (regionally based)	150-200,000 per annum	7% or less of base salary
State Manager	200-250,000 per annum	7-10% of base salary
Other, please specify:	250-300,000 per annum	10-15% of base salary
Other, please specify.	300-400,000 per annum	15-20% of base salary
Q.3 What State/ Territory is your base?	400-500,000 per annum	>20% of base salary
QLD NSW VIC SA	500-600,000 per annum	
TAS WA NT ACT	600-700,000 per annum	Q14.) Please indicate what form of employment agreement you have?
	700-800,000 per annum	Oral contract
Q.4) How many years have you been	800-900,000 per annum	Australian Workplace Agreement
employed in the turf industry ?	900-1mill per annum	Formal Written Contract
0-3 4-6 7-9	1.1-1.2 mill per annum	
10-12 >12	1.2-1.3 mill per annum	Letter of Appointment with Base Conditions
(5) Have many the base that have	1.3-1.4 mill per annum	No agreement
Q.5) How many years have you been employed in a management position in the	1.4-1.6 mill per annum	Other, please specify:
turf industry ?	1.6-1.8 mill per annum	
0-3 4-6 7-9	>1.8 mill per annum	Q15. How many days per year do you spend
10-12 >12	Q.10 How many staff do you manage?	attending training either on or off the job:
Q.6) What age are you?	<2 2-4	<5 5-7
20-29 years 30-39 years	5-7 8-10	7-10 10-15
40-49 years 50-59 years	11-13 14-16	15-20 >20
Over 60	>16	America Education
Q.7) What is your highest completed level	Q.11) Please indicate your base gross	IN ONE WALL AND ADDRESS OF THE OWNER, THE OW
of formal education?	salary level ie. Wages component of salary - do not include superannuation,	the latest the same and the sam
Secondary	fringe benfits, use of car etc.	
Tertiary- Certificate	\$ per annum	Return survey to:
Diploma Degree	20-30,000 30-40,000	AGCSA
Post Graduate- Diploma Degree	40-50,000 50-60,000	Level 1/19 Railway Parade North
	60-70,000 70-80,000	Glen Waverley, 3150
THE RESERVE AND PARTY AND ADDRESS OF THE PARTY	80-90,000 90-100,000	
GREAT CHARLES	100-110,000 110-120,000	RESULTS PUBLISHED EXCLUSIVELY IN THE DECEMBER EDITION OF
The state of the s	>120,000	AUSTRALIAN TURFGRASS MANAGE- MENT



MILLENNIUM Turfgrass TURFGRASS CONFERENCE & TRADE EXHIBITION

JUNE 5TH - 9TH, 2000 Melbourne Exhibition Centre REGISTRATION BROCHURE

The World of Turfgrass Management comes to the Melbourne Exhibition Centre in June 2000 for the staging of the Millennium Turfgrass Conference. The conference is organised jointly by the:

- Australian Golf Course Superintendents Association
- Australian Turf Equipment Technicians Association
 - Seed Industry Association of Australia
 - Victorian Greenkeepers Association
 - Turf Grass Association of Australia
 - Parks and Leisure Australia
 - Racetrack Managers
 - Turf Growers

Take advantage of this once in a lifetime opportunity to learn from the worlds leading and our own home grown turfgrass scientists, experts and turf practitioners. Come and see the largest turf trade exhibition ever held in Australia. This event is one not to miss - if you are involved in turf - this is the conference to end all conferences.

MAJOR SPONSORS















GENERAL INFORMATION

DISCIPLINE SPECIFIC STREAMS

To cater for all sections of the diverse turf industry, the conference will feature six discipline specific streams:

STREAM A Golf Course Management
STREAM B Sportsfield Management
STREAM C Racetrack Management

STREAM D Bowling Green Management
STREAM E Turf Production

STREAM F Turf Equipment Maintenance

As the extent, duration, inclusions and speakers vary for each specific stream, each carries a separate registration fee. Delegates attending the event must pre-register and pay for the specific stream they wish to attend. Delegates will not be able to move between streams during the conference.

STREAM A - GOLF COURSE MANAGEMENT

Enquiries: Virginia Thompson (03) 9886 6200

Presented by the Australian Golf Course Superintendents Association, this stream is designed for anyone involved in the maintenance, management, design or construction of golf courses. Legendary Golf Course Environmental Architect, Dr. Michael Hurdzan heads the line up of international speakers which also includes Dr. Abdul bin Razaak, Professor Bob Carrow, Professor Gil Landry Dr. Richard Cooper, Mr. Craig Edminster and Mr. Keith McAuliffe. This stream features two days of plenary sessions followed by two days of workshops. Delegates can choose workshops specifically for their individual areas of interest.

Full Registration for Stream A includes the following:

- Attendance at Welcoming Cocktail Reception
- Attendance at Opening General Session
- Attendance at all Stream A plenary sessions Monday June 5th-Tuesday June 6th and "The Great Debate -To Spray or not to Spray" Thursday June 8th 8.00am-9.00am (see attached program)
- Attendance at nominated workshops Wednesday June 7th-Thursday June 8th (see attached program)
- Attendance at evening workshops Monday June 5th-Tuesday June 6th
- Free Trade Show Entry
- Conference satchel
- All morning/afternoon teas and lunches during conference

OPTIONAL EXTRAS FOR STREAM A

Conference Breakfast in Trade Show on morning of Wednesday June 7th

AGM Reception (AGCSA Members

- Pre-conference Tour

only)

- Post-conference Tour
- Conference Dinner

STREAM B - SPORTSFIELD MANAGEMENT

Enquiries: Simone Staples - TGAA office (03) 9842 6392

The TGAA is presenting a three-day sportsfield conference, which incorporates the extremely successful turf wicket seminar. The TGAA has assembled a wide range of quality speakers that will provide a comprehensive and informative seminar, with the ability to relate to the grass roots of the Turf industry.

Keynote speakers include Gil Landry, Robert Carrow and Craig Edminster. The key theme of the conference is to look at the Millennium and beyond, with many of our Australian speakers concentrating on topics that will affect all turf managers over the coming years.

The turf wicket seminar will be held in conjunction with the VCA on Wednesday, June 7th, and included within the sportsfield conference. We have been fortunate to obtain the services of one of Don Bradman's invincibles, Sam Loxton and other sporting personalities. Sam was a former Australian cricketer and National Selector and will talk about the 1948 Tour of England and a player's perspective on turf wickets.

Delegates can register for the entire Stream or for individual days, such as the turf wicket seminar. Delegates from all other streams are able to attend any TGAA session.

Full Registration for Stream B includes the following:

- Attendance at Opening General Session
- Attendance at all Stream B
 educational sessions including VCA
 Cricket Wicket Seminar
 (see attached program)
- Free Trade Show Entry
- Conference satchel (Full registrants only)
- All morning/afternoon teas and lunches on Mon June 5th Wed June 7th

THE MILLENNIUM TURFGRASS CONFERENCE PROGRAM

Note: Detailed programs for each stream, including speakers and topics are included as a loose leaf insert

Sunday June 4th Pre-Conference Tour

AGCSA Golf Championships - The Dunes Golf Club

Trade Exhibition Set-Up

Welcoming Cocktail Reception - Crown Entertainment

Complex

Monday June 5th

Opening Keynote Session - Crown Entertainment Complex Trade Show Opening - Melbourne Exhibition Centre Dedicated Sessions for Golf, Bowls, Racing, Sportsfields, Turf Mechanics, Turf Producers at Melbourne Exhibition Centre

Tuesday June 6th

Trade Exhibition - Melbourne Exhibition Centre Dedicated Sessions for Golf, Bowls, Racing, Sportsfields, Turf Mechanics, Turf Producers at Melbourne Exhibition Centre

Wednesday June 7th

Trade Exhibition at Melbourne Exhibition Centre. Close 3PM Dedicated Sessions for Golf, Bowls, Cricket Curators/Sportsfields, Turf Mechanics at Melbourne Exhibition Centre Turfgrass Tour for Racetrack Management Stream

Conference Dinner - Crown Entertainment Complex

Thursday June 8th

General Sessions for Golf Stream General Closing Session

Turfgrass Tour for Turf Machinery Stream

Friday June 9th

Post Conference Tour - all disciplines

OPTIONAL EXTRAS FOR STREAM B

- Pre-conference Tour
- Post-conference Tour
- Welcoming Cocktail Reception
- Conference Dinner, Wednesday June 7th
 TGAA Members reception, Tuesday

June 6th

STREAM C – RACETRACK MANAGEMENT

Enquiries: Arthur Stubbs (03) 9844 1135

This is the fifth national Racetrack Managers Conference and is again organised jointly by John Neylan from Turfgrass Technology and Arthur Stubbs from Primary Tasks in association with a committee representing Australian Racetrack Managers. The three-day conference includes an extensive one-day tour of horse racing facilities in the Melbourne region. The educational component covers racetrack cultivation, racetrack design, future trends in both warm and cool season grasses in racetracks, racetrack drainage and a look into the research needs of racetrack managers beyond 2000.

Full Registration for Stream C includes the following:

- Attendance at Opening General Session
- Attendance at all Stream C educational sessions (see attached program) Mon 5th Wed 7th
- Free Trade Show Entry
- Conference satchel
- All morning/afternoon teas and lunches during conference
- Racetrack Management Turf
 Tour Visit to provincial racetracks

OPTIONAL EXTRAS FOR STREAM C

- Pre-conference Tour
- Post-conference Tour
- Conference Dinner
- Welcoming Cocktail Reception

STREAM D - BOWLING GREEN MANAGEMENT

Enquiries: Peter Barron 0417 551 135

Presented by the Victorian Greenkeepers Association this three day conference will be the major educational turf conference for Bowling Green Managers held in Australia. Fully endorsed by the R.V.B.A., it will feature speakers such as Bob Middleton, Gil Landry, Richard Cooper and Phil Ford from The Northern Melbourne Institute of TAFE. This conference

ence will look at practical tips for maximising greens performance as well as the latest in Turfgrass Management including Gene Technology.

It will be a must for Green Keepers, Contractors and Greens Directors. Any person that is in an association that is affiliated with the Australian Bowling Greenkeepers Federation will be classified as a member.

Full Registration for Stream D includes the following:

- Attendance at Opening General Session
- Attendance at all Stream D educational sessions (see attached program)
- Free Trade Show Entry
- Conference satchel
- All morning/afternoon teas and lunches during conference
- Conference Breakfast in Trade Show on morning of Wednesday June 7th
- Bowling Green Management Turfgrass Tour

OPTIONAL EXTRAS FOR STREAM D

- Pre-conference Tour
- Welcoming Cocktail Reception
- Conference Dinner

STREAM E - TURF PRODUCTION

Enquiries: Euan Laird (03) 9886 6200

This two-day conference will be the first time that a dedicated educational program has been devised for Australia's turf producers. Focussing on issues including marketing turf vs seed, soil fumigation, the effect of the GST on turf producers and more, this event is one not to miss if your future relies on producing turf for the domestic or commercial markets. The program will provide information on turf production in both temperate and tropical climates.

Full Registration for Stream E includes the following:

- Attendance at Opening General Session
- Attendance at all Stream E educational sessions (see attached program)
- Free Trade Show Entry

- Conference satchel
- All morning/afternoon teas and lunches during conference

OPTIONAL EXTRAS FOR STREAM E

- Pre-conference Tour
- Post-conference Tour
- Conference Dinner
- Welcoming Cocktail Reception

STREAM F - TURF MACHINERY MAINTENANCE

Enquiries: Lindsay Tomlinson (03) 9580 7236

Organised and presented by the Australian Turf Equipment Technicians Association. Confront the future today with this four day conference which looks at the turf machinery of the future as well as how to maintain todays sophisticated turfgrass management weaponry. Speakers from all major machinery companies will cover aspects of machinery maintenance into the next millennium and three hands on workshops provide the ideal opportunity to solve those nagging maintenance problems. The conference includes a one-day turf mechanics tour. A preffered hotel is the Holiday Inn and is offering \$150/night to ATETA delegates. Phone 1800 039 099

Full Registration for Stream F includes the following:

- Attendance at Opening General Session
- Attendance at all Stream F educational sessions (see attached program)
- Conference satchel
- All morning/afternoon teas and lunches during conference
- Conference Breakfast in Trade Show on morning of Wednesday June 7th
- Turf Maintenance Facility Tour
- Welcoming Cocktail Reception
- ATETA Dinner at Holiday Inn on evening of Wednesday June 7th

OPTIONAL EXTRAS FOR STREAM F

- Pre-conference Tour
- Millennium Turfgrass Conference Dinner at Crown Palladium





THE TRADE SHOW

Put simply, the trade show represents an exceptional opportunity for you to update yourself and find the best products and services for your turf. If you are registered in any of the above educational streams, whether fully registered or a day delegate, then entrance to the Trade Show is included on a complimentary basis. Covering 7,000 square metres of clear span space in the Melbourne Exhibition Centre, the trade show will be the focal point of the conference week. The conference program has been structured to provide delegates with a minimum total of six hours of uninterrupted trade show viewing time.

PARTNERS PROGRAM

Partners will love every piece of Melbourne and its hinterland. The Partners Program kicks off with a Welcoming Breakfast on the 35th Floor of Melbourne's Sofitel Hotel on the morning of Monday June 5th. This is a great way to meet new friends and organise activities for the remainder of the week. Three pre-booked tour options have been provided for later in the week and are just some of the full range of tours on offer from Grayline Melbourne. These tours must be pre-booked and paid for on the attached registration form. For persons not wishing to pre-book before arriving in Melbourne, a detailed Grayline Sightseeing Tour brochure is included in each delegate's satchel together with a 10% discount voucher.

Once on site in Melbourne you can use the 10% discount voucher to book direct with Grayline on their full range of city sights and hinterland tours.

Grayline Tour 381- Sunday June 4th, The City Tour \$25

This morning tour gives you a brief taste of Melbourne, heart of Australia's classic south. Melbourne has compelling appeal in its gardens, history, character and charm.

Departs: 8.00am Returns: 12.10pm

Welcoming Breakfast - Monday June 5th, 2000 Sofitel Hotel \$30

Get the week off to a great start on the 35th Floor of Melbourne's Sofitel Hotel. Fine food and great city views. Brunch to your hearts delight.

Grayline Tour 386 - Tuesday June 6th. The Great Ocean Road Adventure \$45

Dramatic, powerful, dangerous and majestic. How can words describe some of the world's most impressive coastline. Highlights of this all day tour include Port Campbell National Park, "The Shipwreck Coast", Spectacular Coastal Views along the Great Ocean Road and evening views of the Melbourne Skyline from the Westgate Bridge en route home.

Departs: 8.00am Returns: 10.00pm Grayline Tour 344 - Wednesday June 7th, Yarra Valley Wineries \$94

This delightful afternoon tour through the beautiful Blue Dandenongs and the Yarra Valley will give you the opportunity to sample some of the best wine, food and scenery of Victoria. Fare includes lunch/wine tasting at Fergusson's winery, wine tasting at Oakridge Estate, wine tasting/tour at Domaine Chandon.

Departs: 10.00am Returns: 6.00pm

ACCOMMODATION

The Millennium Turfgrass Conference committee have negotiated a range of accommodation options for delegates attending the Millennium Turfgrass Conference. Bookings for accommodation and deposits should be made direct with each hotel. Mention that you are attending the Millennium Turfgrass Conference to gain the negotiated rates detailed below:

Centra Hotel

\$180 per room per night

This four and a half star property, ideally located on the banks of the Yarra, is situated directly opposite the Melbourne Exhibition Centre and is fully integrated with the Melbourne Convention Centre. This high quality hotel features 24 hr reception, room service and will be the Millennium Turfgrass Conference, head quarters for the duration of the event. Bookings to be made direct with the Centra on Telephone: (03) 9629 5111

The Trade Show Hours are:

Monday June 5th

Tuesday June 6th

Wednesday June 7th

Thursday June 8th

Trade Show Opening

Trade Show Hours

Trade Show Hours

Breakfast in Trade Show

Trade Show

Bump Out

10.15am

10.15am-5.00pm

8.00am-5.00pm

8.00am-10.00am

Close 3.00pm

by 5.00pm

All Seasons Paragon \$120 per twin/double room per night This three and a half star boutique style hotel has smallish but modern rooms and is centrally located in Little Bourke Street. It features 24 hr reception, ISD/STD

telephones, room service and a gymnasium. Bookings to be made direct with the All Seasons Paragon on Telephone: (03) 9672 0000.

All Seasons Premier Grand Studio Suites \$175, 1 Bedroom Suites \$195 per room per night

This 4 star hotel is situated in one of Melbourne's most historic buildings. Features include luxurious rooms, room service, 24 hr reception, heated indoor swimming pool, gymnasium, ISD/STD direct dial telephones, and full kitchen facilities in rooms.

Bookings to be made direct with the All Seasons Premier Grand on Telephone: (03) 9611 4567.

AIRFARES CANTAS

Qantas Airways has been appointed as the official Airline carrier for the event. Qantas is offering up to a 45% discount off the full economy domestic airfare excluding taxes, for delegates travelling to the Millennium Turfgrass Conference. This fare will be available on all Qantas domestic scheduled jet services, subject to availability at the time of booking. The discount is based on the full economy fare at the time of ticketing. As discounted seating can book out quickly, delegates are encouraged to book as early as possible to take advantage of the discount airfares. To gain the conference or discounted airfares simply phone Qantas Airways on 131313 and quote the Group Booking Number: 1209439.

CAR RENTAL

Avis has been appointed as the Official Car Rental Company for the Millennium Turfgrass Conference. To receive your Millennium Turfgrass Conference special rates call Avis on 1800 225533 and quote the number P129300.

CONFERENCE DINNER

Set in Melbourne's finest ballroom, the Palladium at the Crown Entertainment Centre, the Millennium Turfgrass Conference Dinner is guaranteed to be a very special occasion. A fabulous line up of comedians, entertainers, bands, and a few surprises, will ensure the industry welcomes in the new century with a bang. The Conference Dinner is an optional extra for all delegates.

AGCSA GOLF CHAMPIONSHIPS

The 2000 AGCSA Golf Championships,

presented in partnership with the Toro

Company, will be held on the morning of

Sunday June 4th at the Dunes Golf Club on Melbourne's Mornington Peninsula. This fine links style golf course provides a true golfing challenge. The Dunes is set in that famous strip of golfing country that also plays host to the National Golf Club and the new home of Australian Golf Union - Moonah Links. Presentations of trophies for tournaments will be held at the Dunes Golf Club, immediately after the completion of the final round. The entrance fee to play in the AGCSA Championships have been set at \$75 to cover the cost of green fees, presentation luncheon and bus travel to and from the Dunes Golf Club. Those intending to enter the golf championship are required to fill in the Golf Championship Section on the registration form and pre-pay their entrance fees. Golfers will be notified of their tee-off times the week prior to the tournament and will be allocated a bus departure time from the Centra Hotel. Golfers not staying at the Centra Hotel will be required to make their own way to the Centra Hotel or the host golf courses themselves.

PRE-CONFERENCE TOUR -SUNDAY JUNE 4TH, 2000

Departing the Centra hotel, this allencompassing turfgrass facility tour will visit three of Melbourne's finest turfgrass facilities. Note: Selection of facilities depends on sporting fixtures released early 2000.

POST-CONFERENCE TOUR -FRIDAY JUNE 9TH, 2000

This tour covers predominantly the golf course management industry and will visit some of Melbourne's premier golf courses.

Note: Selection of courses depends on sporting fixtures released early 2000.









REGISTRATION FORM Any queries please call (03) 9886 6200 or fax (03) 9886 6400 Please print, type or attach business card. Name: Partners Name (if applicable): Organisation: Address: City: Postcode/Zip: State: Country: Phone:(W) (H) Fax: REGISTRATION DETAILS Follow these five steps to register: STREAM A Golf Course Management (presented by the Australian Golf Course Superintendents Association) Fees are: Before April 7th 2000 After April 7th 2000 AGCSA Member \$750 \$850 Non-Member \$950 \$1050 Day Delegate Member \$200 \$300 Please Nominate Day Day Delegate Non Member Please Nominate Day \$300 \$400 Please nominate the workshops you wish to attend: Evening Workshop A Monday June 5th: 7.00pm-9.00pm Evening Workshop B Tuesday June 6th: 6.00pm-8.00pm Evening Workshop C Wednesday June 7th Workshop A Workshop B Workshop C Session 1 10.30am-12.30pm Workshop A Workshop B Workshop C 1.30pm-3.30pm Session 2 Thursday June 8th 9.00am-10.00am ☐ Workshop A ☐ Workshop B Workshop C Session 3 Workshop A Workshop B Workshop C Session 4 10.40am-11.00am Workshop A Workshop B Workshop C 12.30pm-2.30pm Session 5 STREAM A: TOTAL REGISTRATION FEE:\$ STREAM B Sportsfield Management (presented by the Turfgrass Association of Australia) Before April 7th 2000 After April 7th 2000 Fees are: TGAA Member \$220 \$320 Non TGAA-Member \$360 \$260 Day Delegate Member Please Nominate Day \$80 \$180 Day Delegate Non Member Please Nominate Day \$120 \$220

TGAA Member \$220 \$320

Non TGAA-Member \$260 \$360

Day Delegate Member \$80 \$180 Please Nominate Day

Day Delegate Non Member \$120 \$220 Please Nominate Day

VCA Cricket Wicket Seminar only \$140 \$240 (Wednesday June 7th)

TGAA Members Reception \$40 \$40 (Tuesday June 6th)

STREAM B: TOTAL REGISTRATION FEE:\$

STREAM C Racetrack Management (presented by Turfgrass Technology and Primary Tasks)				
Fees are:	Before April 7th 2000	After April 7th 2000		
Full Registration	\$250	\$350		
☐ Day Delegate	\$150	\$250 Please Nominate Day		
		STREAM C: TOTAL REGISTRATION FEE:\$		
STREAM D Bowling Green Management (presented by Victorian Greenkeepers Association)				
Fees are:	Before April 7th 2000	After April 7th 2000		
☐ VGA Member	\$250	\$350		
☐ Non VGA-Member	\$280	\$380		
☐ Day Delegate Member	\$90	\$190 Please Nominate Day		
☐ Day Delegate Non Member	\$110	\$210 Please Nominate Day		
		STREAM D: TOTAL REGISTRATION FEE:\$		
STREAM E Turf Production	n (presented by the AGCSA	5A)		
Fees are:	Before April 7th 2000	After April 7th 2000		
Full Registration	\$300	\$400		
Day Delegate	\$250	\$350 Please Nominate Day		
		STREAM E: TOTAL REGISTRATION FEE:\$		
STREAM F Turf Equipmer	at Tachnicians (presented by	by the Australian Turf Equipment Technicians Association)		
Tun Equipmen	it recrinicians (presented by	by the Australian furr Equipment reclinicians Association)		
Fees are:	Before April 7th 2000	After April 7th 2000		
ATETA Member	\$345	\$445		
☐ Non ATETA-Member	\$405	\$505		
Day Delegate ATETA Member	\$200	\$300 Please Nominate Day		
Day Delegate Non ATETA	\$260	\$360 Please Nominate Day		
		STREAM F: TOTAL REGISTRATION FEE:S		
STEP 2: OPTIONAL EXTRAS FOR	HILLY DECISIONED DELE	ECATES		
If not already included in the full regis	tration, please tick any option	nai extras you wish to attend below:		
Welcoming Cocktail Reception	\$45			
Conference Dinner	\$95			
Pre-Conference Tour Sunday Ju				
Post-Conference Tour Friday Ju	ne 9th \$40			
		2:TOTAL OPTIONAL EXTRAS FEE:\$		
STEP 3: AGCSA GOLF CHAMPIONSHIP - Sponsored by Toro				
To register to play in the AGCSA Golf Championship (A Class Members only) or the AGCSA Stableford Championship (AGCSA B-D				
Class Members), both to be held at the Dunes Golf Club fill in your details below. Please note that green fees include presentation luncheon to be held at Dunes Golf Club immediately at the conclusion of the Championships. The field will be limited to 120 players				
and positions filled according to the rules governing the AGCSA Championship.				
First Name:	Surname:	Town /Cubush		
Postal Address:		Town/Suburb:		
Postcode:				
Shirt Size for free Toro T- shirt: Small Medium Large X-large X-large				
I wish to enter the AGCSA Championship - stroke event (AGCSA A Class members with official AGU Handicap <12 only are eligible) - To be played at The Dunes Golf Club				
I wish to enter the AGCSA Stableford Event (AGCSA A,B,D, Members with official AGU Handicap are eligible)- To be played at The Dunes Golf Club				
Entrance Fee: \$75				
Note: Conference Cup (Trade mem	bers) will not be held this y	year.		
A CONTRACTOR OF THE PARTY OF TH		3: GOLF ENTRANCE FEE:		

À.

JILI H. PARTILLIS PROGRAM	
☐ I wish to pre-book for the following sec	tions of the Partners Program:
First Name:	Surname:
Contact Phone Number: ()	
Partners Welcoming Breakfast:	\$30
Welcoming Cocktail Reception	\$45
The City Tour:	\$25
The Great Ocean Road Adventure:	\$38
Yarra Valley Wineries:	\$94
Conference Dinner	\$95
The second second	4: PARTNERS PROGRAM: \$
STEP 5 : TOTAL FEE NOW DUE	
TOTAL FEES NOW DUE = Step 1-4	
Step 1: Registration Fee	\$
+ Step 2: Optional Extras	\$
+ Step 3: Golf Championships	\$
+ Step 4: Partners Program	\$
	= \$
Please note that the cut-off for earlybird is AGCSA office by the close of business April any penalties, however cancellations and ch	April 7 th , 2000. To be eligible, completed forms and payment must be received at the 7 th . Cancellations or changes will be allowed up until June 3 rd , 2000 without incurring langes after this date will incur a 10% administration charge.
PAYMENT Please find enclosed cheque being paym Please charge the total fee now due to a	nent for total fee now due. my credit card account details as follows:
Bankcard MasterCard	□ Visa □ Other
Card Number://	
Expiry Date:/	
Cardholder Name:	
Address:	
Signature:	
Please send completed registration form and	d payment to:
AGCSA, LEVEL 1, 19 RAILWAY PARAD	E NORTH, GLEN WAVERLEY, 3150
Confirmation will be sent in the mail within two	weeks from receipt of registration form and payment. No receipts will be issued unless requested.



IT'S HERE! IT'S DEADLY!

Poa annua. You know the problem. You may also know about Scotts Fertiliser with TGR (Turf Growth Regulator). It is the ultimate Poa constrictor. Now, thanks to Scotts expertise, TGR technology is available in Australia through the release of two TGR products, HIGH K 15-0-24 with TGR and FERTILISER 31-1-7 with TGR. Both products promote the growth of desirable cool season turf whilst simultaneously suppressing growth of Poa annua. So now you can control Poa without compromising the quality of the playing surface.

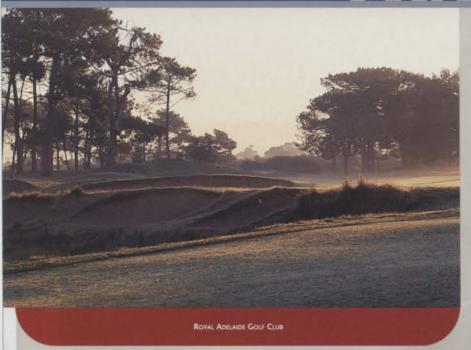


HIGH K 15-0-24 with TGR

FERTILISER 31-1-7 with TGR



STICKING UP FOR POLYSTANDS



Identification of Bentgrass Varieties at Royal Adelaide Golf Club using Gel Electrophoresis and Morphological Examination

Within any golf course, the greens are the areas that come under the closest scrutiny. Regardless of location or local topography the business of golf usually demands pure, blemish free surfaces of uniform speed and colour. In light of these demands, the greens at the Royal Adelaide Golf Club (RAGC) make for an interesting study. They are often "quilt-like" in appearance, with colonies of different species or varieties contrasting strongly with each other for much of the year. Despite contradicting modern trends, the greens at RAGC have rarely been the target of significant criticism and have provided very consistent putting surfaces for many years.

For all their wonderful attributes, very little is known about the composition of the "original" greens at RAGC. Exactly what is it that makes them a consistent surface throughout the year?

The primary purpose of this thesis was to identify what species or ecotypes of bentgrass exist within these greens through morphological and electrophoretic techniques. We can then begin to understand what conditions have favored their development, so that efficient replication and management of the greens can be preserved.

To this end, the fourth, eleventh, and eighteenth greens were selected for study as they represent the characteristics that the club is seeking to reproduce.

SAMPLE SELECTION

The greens at RAGC typically exhibit definite colonies of dominant bentgrasses, and the selection process involved the removal of two 12mm cores from up to 42 of these individual colonies throughout each of the chosen greens. This was achieved by transecting each green at 3m intervals, and selecting from the colonies about these transects. These samples were then planted out into a prepared area of the green's nursery.

OBSERVATION OF SAMPLES

Even within the documented variety sowings there would have been considerable variation. Conceivably, this could have resulted in thousands of subtly differing individuals in the original planting. This is common amongst open pollinated species, particularly hybrids with a more diverse range of parental material. Added to this would have been the introduction of even more variation through oversowing with hybrids. This study represents an analysis of the varieties that have adapted to the conditions and survived over some two decades. It provides an insight to improvements resulting from the process of natural selection.

In order to make some quantitative assessment of the samples at the end of the study, it was necessary to classify certain characteristics that could influence performance. This has been done through two broad classifications, gross morphology and population dynamics.

GROSS MORPHOLOGY

Throughout the ten- month study, great variability in gross morphology between varieties was observed. Many are of a fine texture and high density, whilst others revert to a very coarse open habit. Some have been very aggressive colonizers, whilst others have shown a tendency to dominate small areas only.

There has also been great diversity in colour, seasonal growth, leaf width and internode length. To accurately interpret the data collected, each characteristic has been isolated. These included:

- Diameter Vigor (refer to figure 1)
- Area of Occupancy
- · Relative Growth Rates
- · Colour
- Density
- Texture
- · Internode Length
- · Rooting Habit
- · Growth Habit

POPULATION DYNAMICS

Grasses making up the ecosystem on golf greens are reliant completely on their inherent genetic adaptive qualities, rather than potentially having access to some alternative means of improving their adaptation as they would in nature. This is due to the inability to develop sexually under the management regimes of golf greens. The exception is of course Poa annua, which can produce seed at mowing heights as low as 2-3mm, explaining why it can develop a tremendous competitive advantage over bentgrass.

The ever increasing demand for superior putting surfaces results in the breeding of new superior varieties of bentgrass that claim to tolerate a wider range of stresses, or at least a particular set, exceptionally well. Whilst no-one would discredit the integrity of the breeding taking place today, it appears from the observations made in

this study that years of trials and selection can literally be taking place "under our feet". The advantage of studying bentgrass varieties sampled directly from greens in play is that there is existing evidence of the conditions that these varieties will tolerate. Therefore when superior varieties are selected from these samples, the opportunity exists to obtain a good understanding of their ability to perform as a mono-stand, or which varieties would be best suited to blending. In the case of the greens at RAGC, the genetic diversity introduced to the greens initially, plus subsequent oversowing, has resulted in the succession of varieties that must have tremendous competitive abilities.

Surprisingly, when one analyses the characteristics of these dominant species, there are strongly contrasting morphological features and growth habits. In fact, some would probably not pass the first inspection of a regulated breeding program due to their coarse texture, open habit, seasonal fluctuations in vigor and color. However, these same species have presumably been co-existing with the more impressive

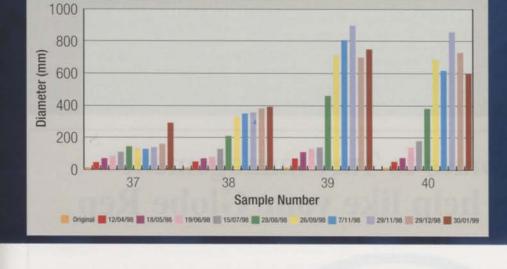
varieties for two decades or more, with no adverse effects on surface quality other than winter discoloration.

So what is the distinctive role that these varieties play within the poly-stand of the RAGC greens?

In the case of the vigorous, coarse textured, open habit varieties (e.g. samples 39 & 40 from the 18th green), it is easy to see these as "invaders of space" when available through some form of damage. It was also noted that during summer, more vigorous varieties tended to suffer some form of recession in 'area of occupancy', suggesting a possible seasonal fluctuation. This would allow for a natural "transition" of more drought and heat tolerant varieties, with the aggressive varieties left waiting for another opportunity the following winter or spring.

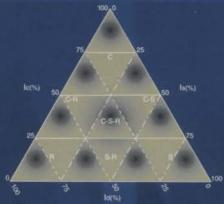
This is assumption only and further study would be required to determine if this was actually the case. This type of symbiosis would be to the advantage of the Agrostis species generally, providing a strategic approach to competition.

Figure 1: Diameter of bentgrass plugs (samples 37-40) taken from the 18th Green at RAGC.



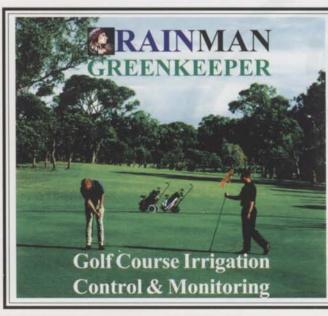
When one considers the C-S-R strategy theory spoken of by Grime et al (refer to figure 2), there are strong arguments to suggest that this system is taking place within these greens. Each existing variety aligning itself as either a competitor, stress tolerator, or ruderal (combination).

Figure 2: C-S-R Strategy Theory by Grime et al.



A model describing the various equilibria between competition, stress and disturbance in vegetation and the location of primary and secondary strategies. C competitor, S, stress-tolerator, R, ruderal, C-R, competetive-ruderal, S-R, stress-tolerant ruderal, C-S stress-tolerant competitor, C-S-R, C-S-R strategist', Ic, relative importance of competition (--); Is, relative importance of stress (+-); Id, relative importance of disturbance (--).

The vigorous varieties compete for space, but are apparently not tolerant of certain stresses, such as heat. Due to their inability to produce seed, it is not possible for bentgrass maintained within greens to strictly fit the ruderal class. However, there is the possibility that they perform a similar function by lying as a dormant understorey, waiting to exert their opportunistic qualities. The highly impressive, dense varieties exhibit slower lateral growth, meaning a mono-stand of such would be susceptible to weed invasion and would be slower to recover should turf be lost. Once established though, they occupy an area quite successfully and appear to tolerate a wide range of climatic stresses. Seeming to take some middle ground are varieties that display moderate to good vigor, are of



RAINMAN GREENKEEPER is a flexible irrigation control system that can be customised to suit your needs. GREENKEEPER can operate as stand alone field satellite controllers and from the central control computer. An optional hand held unit with digital display for testing and monitoring is also available. GREENKEEPER offers both an irrigation control and monitoring solution and an effective management tool that can be as simple or advanced in its functions as you require.

- * Accepts data direct from weather stations and other monitoring devices and be programmed to irrigate accordingly
- * Incorporates CAD drawings of the course & each holes irrigation layout
- * Comunications can be either radio, telephone or hard wire with dial out or dial in access via modem
- * Satellites continue to operate and collect data during comms failure
- * Inbuilt lightning protection of inputs and outputs at each controller
- * Standard satellites can have up to 64 stations, with customised units having the option of many more

For your free copy of a RAINMAN demonstration disc contact:



RAINMAN Irrigation Control Systems

7 Hector St, Osborne Park, 6017 Western Australia Tel:08 9242 7899 Fax:08 9242 7890 email:scada@mce.com.a



reasonable texture, are moderately stress tolerant, but appear to be more prone to disease. They give the impression that as a mono-stand, they could provide a good surface with reasonable color, but may result in some management problems at certain times of the year.

Therefore, as a poly-stand, it appears that this very broad classification sees each variety dependent on the other to some degree. Each makes its own unique contribution to the equilibrium of the ecosystem. Obviously the system is not that simple, and the relationships are undoubtedly more complex than they seem. However, it does appear that equilibrium resulting from natural and induced pressures has been reached.

This study suggests there are highly desirable varieties that could make an impressive mono-stand under similar conditions to those that prevail at RAGC. But would they perform as well without the current accompanying varieties, or would we be disrupting their current environment to the detriment of their performance? I feel this is an area that warrants further research.

GEL ELECTROPHORESIS

While the observable, morphological characteristics were being analysed, it was always the intention to explore the use of protein extraction through gel electrophoresis

as a means of positively identifying the variety composition of the samples. Electrophoresis is a process for separating electrically charged large molecules such as proteins or amino acids of proteins. The term comes from the Greek terms, "electro" (electron or electrical charge) and "phoresis" ("I carry").

Gel electrophoresis has been utilized in the agricultural and horticultural fields for some time and is a technique sensitive enough to identify differences not only between species, but also cultivar. One can see great potential for the use of electrophoresis as a quality assurance mechanism to protect consumers and breeders by ensuring trueness to type. The most informative insight to the use of gel electrophoresis for bentgrass variety identification is the work of Wilkinson and Beard (1972), and it was on the basis of this work that the research for this thesis was centered.

Although factors such as plant hydration levels and temperature regulation made the work of Wilkinson and Beard extremely hard to replicate, it was possible during the course of this research to see the potential of gel electrophoresis for bentgrass identification. One combination of procedures did produce some distinctive protein banding at the base of a gel run (Photograph 3). Whilst the quality of the entire run was not good enough for complete identification purposes, the result was encouraging.



GEL RUN SHOWING DISTINCTIVE PROTEIN BANDING

Samples 1,2 and 4 from the 18th green all display a definite band at the lower 10% point. This band was not as obvious on sample 18-3, which also had faint banding below the 10% point.

Due to the complexities involved with identification of bentgrass through electrophoresis, it is an expensive option, viable only in cases of extreme importance such as legal issues and research work such as this. Nonetheless, it is essential to develop the technique as a positive means of scientific investigation.

MORPHOLOGICAL IDENTIFICATION

Due to time constraints, it was decided to complete a morphological identification of the samples utilizing ligule features. Madison (1971) describes the genus Agrostis as difficult to separate on the basis of

When it comes to Turf management Nobody can help like your Globe Rep



Your One Stop Shop for all turf management needs.

Ask about our complete line of turf chemicals, fertilisers, seed, golf course accessories, tools and application equipment.

Globe Australia Pty Ltd ACN 001 429 714

Sydney Ph (02) 9522 0000 **Newcastle** Ph (02) 4942 3833 **Brisbane** Ph (07) 3277 3999 **Melbourne** Ph (03) 9380 8888 **Perth** Ph (08) 9452 7777

INTERSTATE AND COUNTRY ORDERS TOLL FREE: 1800 244 300

vegetative characteristics, as the ones used in most keys depend on measurement of leaves and ligules, which is obviously affected by low mowing heights. Because the samples were not mown for the duration of the study, it was decided to utilize ligules as a means of identification. The results of the identification work through the examination of ligules revealed a significant proportion of the samples in all three greens were of the Agrostis tenuis variety.

Interestingly, 52.9% of the samples from the 4th green and 57.1% of the samples from the 18th green possessed ligules characteristic of the A. tenuis group, whilst only 30% of the 11th green had similar ligules. This is significant given the difference in environment between the 11th green, which is enveloped by sand dunes and heavily shaded, and the 4th and 18th greens, which are exposed and in full sun. Whilst these results may seem surprising at first, the following was noted in the recorded minutes of the RAGC Greens Sub-Committee Meeting on 25th of May, 1953. Kooyonga bent (A. palustris) is to be eradicated from the course, and Seaton bent (A. tenuis) is to be fully propagated. The Annual Report of 1953-54 records that A. tenuis was best suited to the local conditions.

Therefore, the findings of this study reflect the observations of the Committee some 40 years ago, in that certain varieties of A. tenuis appear to have adapted extremely well to the conditions on the 4th and 18th greens. These results themselves highlight the need for further study to be carried out in the area of bentgrass identification, as within the isolated samples there may be several genotypes of A. tenuis that are particularly well adapted to alkaline, saline soils under putting green maintenance. Similarly, there may be some genotypes of A. stolonifera that are very tolerant of shaded environments under putting green maintenance regimes.

SUMMARY

When studied, the course at RAGC is a wonderful example of the benefits of biodiversity within a golf course. From the tree line to the dune plantings, the rough species

through to the fairways, and eventually the greens there is little evidence of artificial purity. You get the impression that the course has been carved out of what nature provided.

The greens at RAGC are consistent performers that, on a relative scale, require minimal input due to their successful adaptation. It is the quality and consistency of the surface throughout all seasons that are the critical factors, with the mottled coloration viewed as an integral part of the course's character.

This study has raised more questions than it has answered, but it would appear, for the time being at least, its best to let nature take it's course with the evolution of the putting surfaces at RAGC. It seems to have managed well over the past two decades.



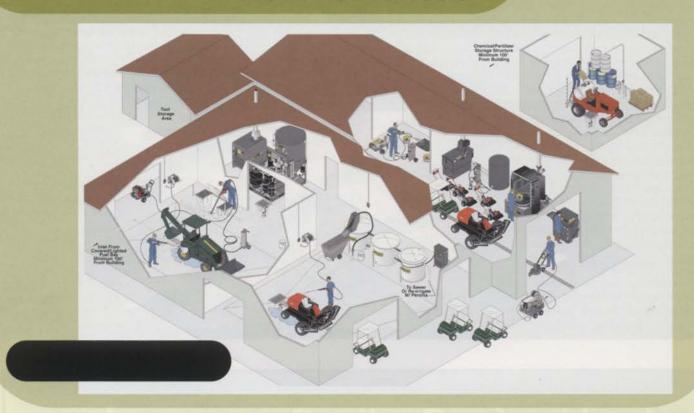
ENTGRASS SAMPLES WERE LANTED OUT INTO A PREPARED





R. Taylor, S. Appleyard and J. White, Water & Rivers Commission, W.A

Management of Washdown from Turf Areas



Turf areas are an important part of our everyday lives. Turf enhances the visual amenity of our landscape and improves our living environment. In order to maintain these turf areas at a desired quality, a variety of chemicals and equipment are used. This equipment requires regular maintenance to ensure it functions effectively. Unfortunately, the washdown of vehicles, containers and spraying equipment can impact adversely on the environment if not managed correctly.

WASHDOWN MANAGEMENT

Fortunately, washdown from turf sites can be easily managed. There are several factors to consider when designing a washdown facility:

- · The composition and volume of wastewater;
- · Characteristics of the receiving environment;
- · Legislative requirements;
- Cost (installation and ongoing costs).

Washdown from turf areas often contains a large quantity of grass clippings. These pose a high organic load and can decompose and cause nutrient and odour problems. It is important to remove as much of these clippings (either before maintenance or before treatment) as they put unnecessary loads on the treatment system. Poorly designed treatment systems will require increasing maintenance to ensure filters and soakwells are not blocked by excess grass clippings.

CHARACTERISTICS OF RECEIVING ENVIRONMENT

The nature of the receiving environment will determine the final water quality criteria (and hence treatment level required) and limit disposal options. More stringent criteria apply to environmentally sensitive areas such as public drinking water source areas, waterways or wetlands. Sewerage service providers also set criteria on the concentration and volume of waste that can be discharged to sewer. It is important to test washdown water and compare it to discharge criteria. This will help in determining the level of treatment required. For example, if the sewer limit for oil and grease is 50 mg/l and the washdown water is 28 mg/l, then you would not need to treat for oil and grease before discharge to sewer.

(LEGISLATIVE REQUIREMENTS)

Approval is usually required by local government to install a treatment system and this may be subject to local by-laws. In sensitive environments, there may be additional requirements specified by the environmental regulator.

Discharge to sewer will require approval from the sewerage service provider to ensure that treated water is of a suitable quality to be discharged to sewer.

COST CONSIDERATIONS

More complex systems will cost more to install and operate. It is important to consider ongoing maintenance and running costs including chemicals, electricity and disposal costs. Treatment capability should not be compromised in order to meet your budget. It may be possible to build a

system up over time or look at alternative options until funds become available.

DESIGN PRINCIPLES

The basic principles for designing and operating a washdown area are:

- 1. All washdown should be contained.
- 2. Stormwater run-off from the area should be minimised.
- Uncontained stormwater should be kept separate from contaminated water.
- 4. Washdown water should be collected and treated to an appropriate standard before disposal.

TREATMENT OPTIONS

The first stage of treatment is usually some form of detention basin to assist in flow regulation. This holding pit contains flows, which are subsequently pumped out to the treatment system.

Treatment options will depend on the composition of the wastewater. Normally, washdown will firstly require solids removal to remove grass clippings. This is usually achieved through a combination of a coarse screen and settling pit.

Washdown will often need to undergo biological treatment to reduce the BOD. Sources of nutrients include fertiliser applied to the turf as well as those in grass clippings. Biological filtration can take a number of forms including:

- Filter system where waste water is passed over a media containing micro-organisms which will break down the chemicals,
- Artificial wetlands that use natural processes to remove nutrients.

Oil and grease removal relies on a physical separation process because these substances are hydrophobic and hence float on water. Techniques include triple interceptor pits, coalescing plate separators or similar. Removal of other chemicals such as pesticides are generally not included in the treatment process due to the high cost of treatment.

DISPOSAL OPTIONS

The disposal options available will depend on the nature of the receiving environment. It is preferential to reuse the treated washdown water on-site if this is possible. Options for disposal of treated washdown water include:

- Recycling for future washdown. This would be appropriate where low-cost water is not readily available.
- Irrigation of turf or gardens either directly or diversion to an irrigation dam for later use.
- Discharge to sewer provided the water quality meets the requirements of the sewerage service provider.
- Local groundwater recharge by discharge to soakwell.
- Direct discharge to nearby wetlands, rivers or drains provided relevant approvals are obtained.

The washdown process will also produce a large quantity of solid wastes mainly consisting of grass clippings and soil. These solids should be collected and composted on site or dispersed over a turf area. Care should be taken with the storage and placement of this material so it is not washed into local wetlands, rivers or drains. Sometimes the solids will need to be disposed offsite and may be recycled e.g. for use in soil blends.

Oils, grease and hydrocarbons recovered by the oil separator should be collected and securely stored for recycling or disposal at an approved site.

Consideration must be given to the environmental impact of the disposal option. For example, the risk of groundwater contamination can be high when water is drained off hardstand areas into soakwells or infiltration basins. This is because water is concentrated in a small area below the root zone of many plants and water loss by



MANY COMPANIES NOW PROVIDE COMPLETE WASHDOWN BAY SOLUTIONS.



Providing the most
appropriate nutritional
products, programs and
advice, so that you can
produce the highest quality playing surface to fit
your individual situation,
budget or management
style.

- Greens and Fine Turf
- Fairways and Sports fields

FREECALL: 1800 644 753

Available from your Paton Turf Distributor

Announcing

RAIN ONE

Your new Australian distributors for



RAIN ONE Australia Pty Ltd RAIN BIRD distributors

Queensland Parkview Drive, Archerfield, Qld 4108 Ph: (07) 3276 7033 Fax: (07) 3277 1066

Ph: (08) 8296 3708 Fax: (08) 8296 3710 le: 0419 640 361

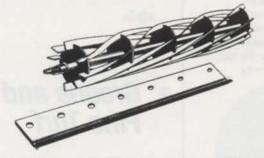
Western Australia 6/173 Planet Street, Carlisle WA 6101 Ph: (08) 9472 5444 Fax: (08) 9472 5777

NSW and Northern Territory Ph/Fax: (02) 4972 2197 Mobile: 0417 405 930

Victoria and Tasmania Ph/Fax: (08) 8576 3835 Mobile: 0408 807 711

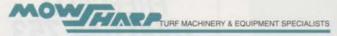


High Quality Bottom Blades and Cutting Cylinders To Suit most popular makes and models



- Scott Bonnar Parts
 Renus Hose Fittings
- · Bearings · Turf Blades · Donut Trimmers ·
 - Scarifier Blades Turf Drills •
 - Grooming Blades
 Grooming Heads
 - Back Lapping Machine Compounds •

(02) 9476 4222



Unit 3 - 31 Salisbury Road, Hornsby NSW 2077

(02) 9476 4222 Fax: (02) 9476 5985 Mobile: 0418 675 345

transpiration and evaporation is minimised. In addition, the hydraulic head imposed by a large volume of water in an infiltration basin acts as a driving force that can push water and any dissolved contaminants quickly through the soil profile and down to the watertable.

SYSTEM MAINTENANCE

A regular maintenance schedule is required to ensure a treatment facility functions in accordance with its design. This may include deaning of pits and grates, backwashing and addition of chemicals and/or microorganisms.

Regular testing of the quality of both washdown water and treated water should be undertaken to determine the effectiveness of the treatment system.

EDUCATION AND TRAINING

One of the most important aspects of washdown management is the education and training of staff. Staff should be made aware of environmental issues and the impacts that washdown may have on the environment. Only trained staff should use equipment and operate washdown facilities.

CONSEQUENCES OF POOR MANAGEMENT - CASE STUDIES

The importance of correct management cannot be understated. In November 1997, a spill of 600 litres of insecticide occurred at Belmont Park racecourse, situated on the banks of the Swan River. The spill was not immediately reported and was only discovered after over 4000 black bream fish were killed, representing approximately 30% of the rivers stock. This repeatable tragedy was due to the lack of preparedness or emergency response of racecourse staff who could have prevented the spill or at least reduced its effects. The lever to prevent the valve leaking on the 600 litre mobile tank was inadvertently left open and slowly drained into a stormwater drain near where the tank was parked. No emergency authorities were alerted and the insecticide was transported straight to the river via the drain. Similar events happen every day.

A pesticide contamination problem was detected in the Perth suburb of Dianella in 1992 when a resident reported that his garden was dying when irrigated with groundwater from his domestic bore. The groundwater was found to contain 2000 ug/L (equivalent to parts per billion) of atrazine which was killing plants in the garden (Appleyard, 1995). The groundwater contained fenamiphos at a concentration of 1000 ug/L. At this concentration, fenamiphos could be toxic on skin contact & cause health problems.

The source of contamination was found to be a pest control operator who washed down vehicles at his residence across the road from the contaminated bore. Washdown water was drained into filtration basins on the property. A groundwater remediation program was undertaken at the site, but was not successful, as indicated by further contamination being detected in domestic water more than 300 metres downgradient of the source.

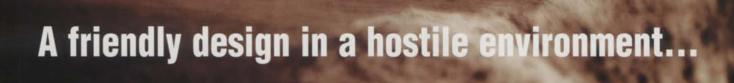
All images coutesy of Landa Industries

REFERENCES

APPELYARD, S.J., 1993, IMPACT OF STORMWATER INFILTRATION ON GROUNDWATER QUALITY, PERTH METROPOLITAN REGION, WESTERN AUSTRALIA. ENVIRONMENTAL GEOLOGY, 21 PR.227-236.

APPLEYARD, S.J., 1995, INVESTIGATION OF GROUND WATER CONTAMINATION BY FENAMIPHOS AND ATRAZINE IN A RESIDENTIAL AREA: SOURCE AND DISTRIBUTION OF CONTAMINATION. GROUND WATER MONITORING REVIEW, FALL EDITION, PR. 110-113.

APPLEYARD, S.J., MANNING, P. AND THORPE, P., 1997, PEST CONTROL DEPOTS AS SOURCES OF GROUNDWATER CONTAMINATION IN PERTH, WESTERN AUSTRALIA, LAND CONTAMINATION AND RECLAMATION, 5 (4), pp. 229-305.





Introducing the New Top-Serviceable Rock Screen EAGLE™ Rotor.



Don't let sand, silt and harsh chemicals get the best of your rotors. Get the rugged durability and low maintenance of Rain Bird's most advanced line of rotors.

• The newly redesigned EAGLE™ gear drive rotors feature the Top-Serviceable Rock Screen/Integrated Valve Seat (patent pending)

that allows you to remove debris and flush pipes without digging.

• A reinforced polypropylene case increases durability and offers resistance to 265 chemicals.



• The new performance nozzles improve water distribution. Give yourself a fighting chance. Get the new EAGLE rotors and leave the dirty work to us.



Call Rain Bird Golf at Qld. 041 966 9679, NSW. 041 845 3189, Vic. 041 817 1230, WA. 041 377 7919. or contact us at our web site—http://www.rainbird.com





Boomtimes for Construction in Sydney

Construction of new sporting facilities in Sydney is booming. This will leave a legacy of many grounds with modern construction and design. New purpose built facilities for sports such as Baseball, Softball, Equestrian, Rugby League and Athletics have been popping up throughout Sydney's suburbs. Multi-use stadiums, such as the Olympic Stadium have been used for high profile sports including the recent international soccer match between Australia and Manchester United.

The majority of the construction is to provide high standard playing surfaces for the Olympic games. New purpose built

Rugby League grounds have also been constructed, chiefly due to the National Rugby League who are reducing the number of teams from 17 to 14 in 2000. The criteria the 14 clubs need to meet include fields that are of a high quality and modern construction design. Some clubs have the Olympic Stadium as their home ground which, is a reinforced StrathAyr construction. Recently two new grounds were built; one being home to the Western Suburbs Rugby League (30km south west of Sydney). This ground is another reinforced sand system using TURF GRIDS incorporated into the top 100mm of the profile. Newcastle Knights recently reconstructed their ground using a nonreinforced sand profile. Graham Park at Gosford (100km north of Sydney) will be

Installing a system known as Prescription Athletic Turf (PAT). Basically this is a pure sand profile that possesses a vacuum drainage system capable of extracting water from the profile at rates of 400,000 L/hr.

The Olympic Baseball and Softball Stadiums are currently under construction. These are primarily sand over gravel, perched water table designs. Test events are scheduled for November this year with visiting international teams.

All surfaces are being grassed to couch, mainly improved varieties such as Windsorgreen & Legend. Santa ana has also been used.

Having a number of playing fields in different design and construction allow practical and measurable evaluations to be made on the performance of varying profiles from an agronomic and turf management point of view over the coming years.

There is a thesis in there for somebody!

David Westall, Independent Turf (Sydney)



New Motz Stabilised Turf System

The Melbourne Cricket club has installed a 200-square metre section of the new Motz stabilised turf system which will be used for the 11 Olympic Soccer matches to be played at the MCG in September 2000.

The US-developed Motz stabilised turf system has been chosen to replace the existing turf profile so that the arena can meet stringent SOCOG/FIFA specifications just four days after the AFL grand final next year. More than one-third of the MCG surface – 8,400 square metres – will be relaid, with work starting just hours after the grand final siren has sounded.

The Motz stabilised turf system utilises natural turf (CT2-couch oversown with rye) with a sub-surface polypropylene reinforcing agent. The grass, which has been cultivated at H.G. Turf, will be cut and rolled into large turf rolls measuring 1m x 10m, with a 50mm depth. The large turf rolls will be installed using big roll turf layers.

The Motz stabilised turf system was recently installed for the NFL Super Bowl XXXIII at Pro Player Stadium, Miami, Florida. The Motz Group installed the new surface - 10,000 square metres – in just under 20 hours. NFL Vice President of

Special Events, Jim Steeg, reported "The grass performed so well we could play the game again today! And it looked great." Steeg added that to him, the players and coaches overall reaction was a high compliment to the grass, and further commented, "It met, and in fact exceeded, our expectations. I would absolutely use it again." George Toma, the legendary groundskeeper who handled the playing fields for the first 32 Super Bowls said of the Motz stabilised turf system "I sincerely and truly love this concept".

For further information on the Motz stabilised turf system please contact; H.G. Turf Pty Ltd, Phone 03 5773 4372 .





Oasis Bolts Ahead

Oasis Turf is pleased to announce the appointment of Scott Bolton, as Technical Sales Advisor.



Scott, who is held in high regard by the industry will provide turf managers with technical advice and the latest in turfgrass management practices. He currently serves on the committee of the

T.G.A.A. and the Millennium Turfgrass Conference and will be responsible for accounts in both metropolitan and country Victoria.

Scott can be contacted on 0412 742 726.

SPRAYDOME 6000



The Environmental Course Leader.



IT'S STATE-OF-THE-ART IN ENGINEERED SPRAY TECHNOLOGY.

- A 6 metre coverage from 6 individually
 Fold-up sec
- monitored Controlled Droplet Applicators.

 The ability to isolate sections during operation
- Shrouded covers minimise drift contamination.
- Ultra-low volume carrying capacity means less soil compaction.
- Freecall: 1800 624 044 P.O. Box 1246, Berri, South Australia 5343
- · Fold-up sections for ease of transport.
- Strong, but light enough to be towed by ATV 4 Wheel motorbikes.
- · Standard Environist replacement parts.
- · Optional equipment available.

ENVIROMIST INDUSTRIES PTY, LTD.

EN/MP/Turfgrass/136





TY-CROP MH400 MATERIAL HANDLER/TOPDRESSER



TY-CROP QP270 GREENS TOPDRESSER



LASTEC ARTICULATOR 721X 3.1mtr CUTTING WIDTH



LASTEC ARTICULATOR 325EF 1.82mtr CUTTING WIDTH

PO Box 229 Unit 2/37 William Street NORTH RICHMOND NSW 2754 PHONE: 02 4571 1198 FAX: 02 4571 1138

AFL Sportsready Traineeships

Born from a need to provide alternative career pathways for young footballers, the AFL's Group Training Company has managed employment for over 1000 individuals in the 4 years since its inception.

The SportsReady Traineeship Program was established with the cooperation of both the Federal and State governments and now provides opportunities for young people from all sporting clubs and organisations to find employment in the sports industry.

Finding traineeships for young people in the turf management industry has been especially successful. John Coulsell,



(L TO R) LUKE SNELL, LEE AXON, JOHN COULSELL (COURSE SUPERINTEN

superintendent at Eastwood Golf Club in Victoria is a strong supporter of the program and currently employs three AFL SportsReady Trainees. John believes that the strength of the program is that he gets before he has to take him (her) on and said that the "block release" method of delivering their theoretical training suits him down to the ground.

A 12 month AFL SportsReady traineeship provides the individual with paid employment and both on and off the job training. The employer receives financial assistance from government and administrative support from the AFL in employment matters.

If you are a turf manager considering making use of this program but are still

unsure, one only needs to pick up the phone. A couple of minutes on the phone to any of the SportsReady Field Officers or to Terry Wheeler (Victorian University of Technology) who coordinates the "class room" learning to get a feel for the kind of passion and commitment that is driving this initiative.

For further details on the program call the AFL Group Training Company on (03) 9643 1949 or visit the AFL web site on www.afl.com.au







TEXTRON Scotts.



AGCSA AWARDS PROGRAM

Walter Woods, the elder statesman of golf course management and greenkeeper of St. Andrews for 23 years, was on hand in Perth, during the recent 4th National Turfgrass Seminar to present the AGCSA Awards for 1999. Walter was brought to Australia by Toro Australia to take part in the seminar. In his address Walter focussed on the theme, "Better Management" and he congratulated **Australian Golf Course** Superintendents on their high international professional standing.

Its no surprise that the AGCSA Awards program continues to grow in stature -the quality of the nominations are exceptional and the hardest job in turf would have to be that of a judge on the program. The AGCSA thanks John Parish, John Neylan, Allan Moore, Greg Clarke, and Garry Kelson for their efforts in judging this years finalists.

1999AGCSA AWARDS PROGRAM



1999 AGCSA Distinguished Service Award presented in partnership with Scotts Australia

Neil Adams, legendary Golf Course Superintendent from Western Australia was selected as the recipient of this award for 1999. Neil has excelled at representing the golf course management industry since commencing work at the Lake Karrinyup Country Club in 1974. He was appointed Golf Course Superintendent in 1983 and went on to serve as President of the GCSAWA for six years. He also was heavily involved with and became the inaugural President of the AGCSA, a position that he held for two years. Neil recalls in the formative years of the Association where he and Tim Chape had to dip into their own coffers to keep the association afloat. In 1975 he retired from Lake Karrinyup Country Club but remained active supporting younger Golf Course Superintendents. He was duly elected as a Life Member of

the GCSAWA in 1994. Throughout his

Throughout his life Neil has also been involved in the community,

Neil Adams receiving the Award from Richard James representing Scotts Australia



serving as Greens Chairman for the Scarborough and Sorrento Bowling Clubs, as well as holding coaching positions at the Scarborough junior football club. Richard James, Marketing Manager for the Scotts company, sponsor of the Award stated that Neil Adams was one of the true founders of the Australian turfgrass industry and was recognised Australia wide for his efforts.

1999 AGCSA Graduate of the Year Award presented in partnership with Textron Turfcare Group

Stephen Heskett has just about scooped the pool for graduate awards in the last eighteen months. Stephen who works at the Federal Golf Club under Golf Course Superintendent, Stephen Lording, topped off a great year when he was announced as the winner of the 1999 AGCSA Graduate of the Year Award announced in July at the 4th National Turfgrass Seminar. Stephen accepted the award from Gary Kelson, Asia Pacific Manager for Textron Turfcare Group, the sponsor of the Award. Stephen has gained the respect and admiration of his fellow work colleagues and management, becoming heavily involved in assisting the club through a turbulent summer period. He also took it upon himself to gain further expertise overseas and was involved on a project in Western Samoa constructing nine new holes- all undertaken whilst on leave without pay from Federal. Stephen attended Canberra Institute of Technology and achieved not only the highest grade in the

ACT, but also throughout NSW. He has already won the Chemturf apprentice of the Year Award in NSW, the ACT Greenkeeping Apprentice of the Year and the Highly Commended Apprentice of the Year in all trades in NSW.



PHOTO: GARY KELSON, TEXTRON TURFCARE GROUP, DANIEL STAVELEY (FINALIST), AND SCOTT GEBHARDT (FINALIST), STEPHEN HESKETT (AGCSA GRADUATE OF THE YEAR), PETER FREWIN, AGCSA PRESSIDENT WALTER WOODS.

1999 AGCSA FELLOWSHIP AWARD PRESENTED IN PARTNERSHIP WITH THE JOHN DEERE COMPANY

The AGCSA Fellowship Award recognises a Golf Course Superintendent for his/her all round contribution to the golf turf industry and their efforts in being a professional turf manager. Seldom has there been such a deserving winner as Pat Pauli, Golf Course Superintendent, Horton Park Golf Club, the winner of the 1999 AGCSA Fellowship Award. Pat began his career at the Gailes Golf Club in 1976 where he was employed

For the premier sports surface!



Ideal for use where a high quality turf is desired. Provides excellent colour, texture and density with the ability to tolerate close mowing and withstand high traffic conditions. Perfect sown in a blend with tall fescue & bluegrass or for use in oversowing situations.





CPA 0059 ATP

as a junior. In 1982 he took on the job of Superintendent at Horton Park Golf Club. During Pat's tenure at the Club the entire course has been reconstructed, and is now one of the most well manicured courses in southern Queensland. He has been instrumental in installing drainage and irrigation systems and changing the grass species from Queensland Blue Couch to Greenlees Park, and Wintergreen fairways with 328 couchgrass greens. Pat also has extensive involvement outside of turf, including Surf Lifesaving and Junior Rugby League.



PHOTO: ALLAN DEVLIN (FINALIST), RICHARD KIRKEY (FINALIST),
TREVOR SHINNERS (JOHN DEERE), PAT PAULI 1999 AGCSA
FELLOWSHIP AWARD WINNER, PETER FREWIN AGCSA PRESIDENT,),
WAITER WOODS.

1999 AGCSA CLAUDE CROCKFORD ENVIRONMENTAL AWARD PRESENTED IN PARTNERSHIP WITH CHIPCO

Michael Russell from Victoria's Werribee Park Golf Club, has been selected as the winner of the 1999 AGCSA Claude Crockford Environmental Award for his efforts in preserving and nurturing the golf course and associated landscapes at his club. Michael presented his club with a detailed Environmental Management plan, which addressed all aspects of golf course operations. As a result the club joined forces with the Werribee Open Range Zoo to work on restoring a wildlife corridor on the Werribee River. The work on the Werribee River has involved extensive weed eradication, revegetation and protection of remnant vegetation as well as erosion control. Large numbers of nesting boxes have also been introduced into the area. Michael has also been involved in trialing turfgrasses with optimum performance, minimal inputs and his course plays host to one of the national AUSTEP Trials. The course maintains a two- grass policy limiting the amount of water and inputs

required. Revegetation work has been undertaken with the assistance of local schools and Greening Australia. A negative video on golf worldwide produced by the Global Anti-Golf Course Movement was the impetus behind Michael setting out to show that golf at Werribee Park is environmentally sustainable and a pleasant natural experience.



PHOTO: KEVIN HARRIS (CHIPCO), MICHAEL NICHOLI (FINALIST), MARTYN HEDLEY (FINALIST), MICHAEL RUSSELL (1999 AGCSA CLAUDE CROCKFORD ENVIRONMENTAL AWARD WINNER), PETER FREWIN (AGCSA PRESIDENT), WALTER WOODS.







'Complete Sportsturf Solutions'

Ph: (02) 9894 7448

We now have the new Verti-Drain 7521 which has a working width of 2.1 metres and will shatter hard pan layers up to a depth of 400mm.

- This will:
 - · Improve aeration and drainage
 - Build stronger root systems and improve the effectiveness of fertilisers.

Bookings are being taken now for the upcoming season. We will not be beaten on price, quality or service.



BioVerm wins Randwick Trial hands down!

Randwick Racetrack comparison of grass growth



Richer, thicker growth without fertiliser on just 2m3 of BioVerm per hectare.



The standard practice result using 200kg of Lawn Food per hectare.

ioVerm's a certainty. • We've won at Randwick, Warwick Farm and Wyong. • We stand tall at Tyreel stud. • We hold the course record at Cyprus Lakes Golf Course. • Organic, odourless BioVerm is the greatest tonic turf can be fed. Paul Barnes, who supervised the Randwick test, says it makes a noticeable difference. As John Vincent at Tyreel Stud says, "You couldn't wish for a better

pasture than this." Merv Haywood at Cyprus Lakes goes further: "It works in every soil. Perennials hold their flowers longer. All of our grasses thrive on BioVerm. They've grown well everywhere."

or denser, more vigorous growth, more colour, better root development, a BioVerm soil enrichment program will create superior turf.

"The Viagra of Agriculture," - Robyn Williams, ABC Science Show



BioVerm soil enrichment from Vermitech - world leader in vermiculture technology

Vermitech

FREE SOIL TEST Your information request qualifies you for a free before and after microbial soil test.

Mail coupon today!

WAY.	W 2	
K16	Veri	

20 Pelican Street

DARLINGHURST NSW 2010

Yes! I'm prepared to talk to a technical consultant about how BioVerm can improve our turf.

Title: Organisation:

Tel Nbr: Fax Nbr:

To order a trial BioVerm package, call (02) 9261 4045.



TORO INTRODUCES NEW ADJUSTABLE GOLF SPRINKLER



The new Toro 720 Series provides simple adjustment for flow, arc and radius, all from the top of the sprinkler with a standard screwdriver.

On golf courses, precision coverage can be simply and easily obtained for tee boxes, approaches and other difficult-to-irrigate areas with the new 720 Series sprinkler.

Equiped with Toro's patented Trujectory adjustment system, sprinklers can be adjusted infinitely from 7 to 25 degrees,



Toro Australia has introduced a new fully adjustable sprinkler.

allowing the height of the nozzle spray to be fine-tuned to compensate for slopes, mounds and windy conditions or to spray under low-hanging trees.

The 720 is available as a complete sprinkler or as a conversion assembly to upgrade existing 1 inch sprinkler bodies, giving turf managers easy retro fit capabilities and a simple solution for trouble spots in existing installations.

Three body styles are available in the 720 Series; electric valve-in-head, normally open valve-in-head and check-o-matic. Effluent models and optional stainless steel risers are available.

Further information on the new Toro 720 Series sprinker can be obtained from Toro Australia Pty. Ltd. on (02) 9687-2366.



FOR YOUR NEXT TURF CONSTRUCTION PROJECT

Golf Courses

- Tee to Green Construction
- All shaping Requirements
- Lakes and Dams Built and Cleaned
- Laser Leveling
- Drainage

Sports Fields

(Bowling Greens, Sports Ovals, etc.)

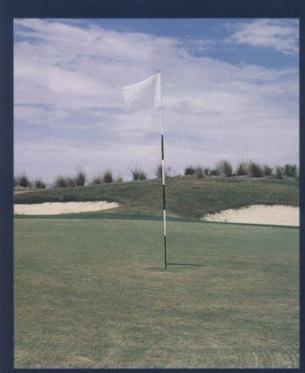
- Construction or Resurfacing
- Laser Leveling
- Drainage

(03) 9705 2988

John: 0418 543 106

Fax: (03) 9705 2958





"TOURNAMENT" FLAGPOLE

DGE has released the "Tournament" flagpole which, is now the latest in their extensive range. The flagpole is constructed of high density, colour impregnated fibreglass and is built in one piece so there are no splits or seams.

The fibreglass Tournament flagpole is tapered at the top and bottom and has extra heft in the centre for remarkable strength, visibility and wind resistance. The poles are 210cm (7 ft) long and are available in white, yellow or British stripe (shown). DGE can be contacted on 03 9568 2255 or 1800 633 424.



UTILITY VACUUM **SYSTEM**

Land Pride Australia announces the release of the GOOSSEN GS350 UTILITY VACUUM SYSTEM which is a compact and manoeuvrable self powered vacuum easy clean up in most turf situations.

The GS350 features a 20HP Honda engine, providing the power for the 19 inch vacuum fan, and combined with a hydraulically operating rubber finger deck, enable single pass pick up of most turf debris including but not limited to thatch, grass clippings.

One of the unique features of the GS350 is that it has its own power source and self-contained hydraulics.

as the towing vehicle, adding to the units' versatility and ease of use.

with a working width of 152cm (5 ft). It also features a unique dust reduction and filtration system and an optional hand held attachment.

The GS350 Utility Vacuum System is available from August 1999 and for demonstrations or further information, contact Landpride Australia on 1800 640 350.



VERTI-DRAIN MUSTANG

THE FASTEST AERATOR ON EARTH* TILL 150mm DEEP





he Verti-Drain Mustang is as fast as a horse, while at the same time it goes deeper than conventional coring machines: 150 mm's.

It can aerate an oval or fairway in the minimal amount of time. The Verti-Drain Mustangs light weight of 700 Kgs makes it suitable to be run with tractors as small as 25 HP, so the Mustang can be used with confidence on fine textured greens as well. Verti-Drain built with pride and strength, the name you've come to trust.

If spikers and slitters are not taken into account.



The tine angle lever allows easy fine adjustment to the degree of ground shatter intensity, and quick setting to the vertical position for conventional coring.



Verti-Drain's patented parallelogram design shatters the soil

VERTI-DRAIN®



E-mail Verti-drain@redexim.com

QLD:

Verti-Drain NSW, West Ryde Glemmac Sales and Service, Knoxfield J.B. Scott, Geelong G.L. Palm Equipment, Acacia Ridge Ireland Farm & Lawn, Cairns Squiers Sales & Service, Summertown McIntosh & Son, Perth Southern Turf Specialists, Cambridge

MAINTENANCE

EQUIPMENT INCLUDES

- latest model Verti-Drain 7212 x 3
- John Deer 955 Tractors x 3
- · Core Masters x 2
- Toro 2300 Top Dresser
- 12 years experience in golf course maintenance

Can do 18 holes (10,000m²) in under 6 hours

GREENS, TEES, **SURROUNDS & FAIRWAYS** OVALS PARKS & LAWNS BOWLING GREENS TENNIS COURTS

Contact Mick - All Hours - Mobile 0418 566 102



BMS LEVELAWNS



Better Methods have released two new models of the hand LEVELAWN.

The new 760mm and 920mm Greenkeeper models feature reinforced ends and stronger front and rear angles. The flexibility so essential to allow them to follow the contours of undulating greens has been retained from earlier models and the weight increase is so slight that it is barely detectable.

The result will be better resistance to damage through rough handling and a longer working life.

Contact your local supplier for more information or call (02) 9524 5366.

SAND-AIDTM

Acadian Seaplants Limited is pleased to announce its new SAND-AIDTM product. Is a new and uniquely processed soil conditioner and topdressing constituent used on USGA and championship golf course greens worldwide.

Incorporating SAND-AID™ in aerifying and topdressing programs produces healthy putting, teeing and playing surfaces that are superior in playability, maintainability, appearance and the ability to tolerate plant stress and disease.



SAND-AIDTM is an organic amendment that improves nutrient and water holding capacity, decomposes quickly, is environmentally safe and is scientifically proven and tested.

For further details contact: Organic Crop Protectants (02) 9810 4566





Sports Sand Solutions from ACI Industrial Minerals

Mixed for golf tees and greens, layered for improved wear and drainage for sports grounds and race tracks or bunkered to meet USGA specifications — ACI Industrial Minerals sands keep proving their value at some of the world's great sporting venues.

For solutions which improve your turf's performance don't forget to talk to Australia's sand specialists.

We have helped to improve the Melbourne Cricket Ground, Moonee Valley Racecourse, Parramatta Football Stadium, bowling greens and golf courses around Australia and golf courses in Guam and Hawaii.

Talk to us about: Root Zone Mix Permeable Sand Sports 40 Sand and Bunker Sand

VICTORIA

Tel: (03) 9819 6388 Fax: (03) 9819 5200

SOUTH AUSTRALIA

Tel: (08) 8345 0215 Fax: (08) 8345 0216

NSW

Tel: (02) 9754 1166 Fax: (02) 9725 6293

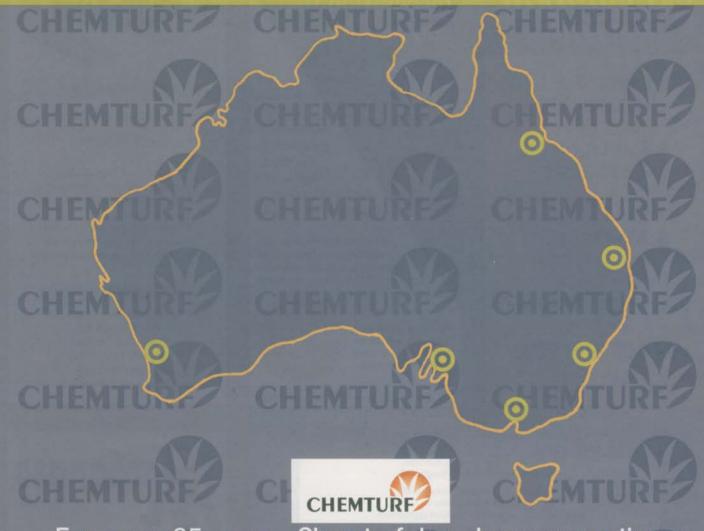


Industrial Minerals Division

ACN 004 230 326
A Division of ACI Operations Pty Ltd

ompany profile

LEADERS IN TURF INNOVATION, TECHNOLOGY AND SERVICE



For over 35 years Chemturf has been supporting the Australian Turf Manager.

THE CHEMITURE ADVANTAGE

As the modern Turf Manager has risen to meet the challenges of an ever changing world, Chemturf has always been right there working beside them. Whether in Bathurst or Brisbane, Manly or Melville, one of our 23 local representatives have worked tirelessly to provide the best in Innovation, Technology and Service to ensure the advice and products required are on hand when and where they are needed.

Supported by an organisation dedicated to providing the best, our local Territory Managers realise that Competence, Efficiency and Technical Knowledge are the critical elements of an effective support service. Chemturf has and will continue to deliver on these important issues for the modern Turf Manager.

SALES OFFICES					
Sydney	Melbourne	Brisbane	Townsville	Adelaide	Perth
1800631008	1800241011	1800631008	0747287877	0882779494	0418955127



LASERGRADE

All aspects of Civil Construction

- Sportsground Specialists
- Landscaping & Maintenance

Phone: 0418 360 580

Fax: 03 9707 5398

Have you got the recognition that you deserve?

Hortus Australia can certify your skills-and those of your workers-against National Industry Competency experience in Standards

greenkeeping, you may be eligible for a national Certificate or Diploma in Horticulture

you have

skills and

Already many greenkeepers from across Australia have had their industry skills recognised in this way - without enrolling in a course!

For further information call Hortus Australia on 1800 233 366 or email hortus@dnrgroup.com



Hortus Australia — Setting Standards



Commercial Residential Golf Courses

Authorised Toro Dealer with over 25 years experience in Supply & Installation.

We have designed and installed over 60 Golf course Systems and more than 2000 commercial projects

For your next project contact:

GSB Watertechnique Pty Ltd 68-70 Magill Rd Norwood, SA 5067 Ph (08) 8132 0794 Fax (08) 8132 0795

Email: gsbwater@microtronics.com.au

For all you turf irrigation needs, remember. Hugall & Hoile - First in Irrigation! Designers, Suppliers and Installers of

quality irrigation products for Residential, Commercial and Golf applications.

HUGALL & HOILE

"First in Irrigation"

Telephone: (08) 8268 2388 Facsimile: (08) 8445 7991

906 Port Road, Woodville, South Australia 5011

ORB Irrigation PTY LTD ACN 059 967 010 Trading as Hugall & Hoile Reticulation So

WHERE WE GO, OTHERS FO



GREENGROUP Pty Ltd Eco Turf Specialists Contact: Rob Stanic Phone: 0412 550 250 Fax: 9578 7680

Spertsgrass

Construction & Renovation **Specialists**

JIM MARCHBANK 0418 395 756

New South Wales





TURFCARE NSW

Unit 8/24 Clyde St, Rydalmere. N.S.W. 2116 Phone: 02 9684 6611 Fax: 02 9684 6633 Email: turfcare@bigpond.com.au

TURFCARE NSW FOR SAME DAY DELIVERY & UNBEATABLE PRICES ON QUALITY TURF PRODUCTS

- Best Simplot Fertiliser Chipco Bayer Nufarm Trichoprotection Range Seed Research

- Kellys granular lime Dolomite/Gypsum



- Slit drainage
- Sand grooving
- Laser levelling/grading
- Laser controlled trenching

TURF DRAIN AUSTRALIA

Bob Paddison - Phone: (02) 9652 2208 Fax: (02) 9652 2209 Mobile: 0418 261 089

NORTHSHORE

MOWERS AND IRRIGATION

For Expert **Products and Service**

CALL BOB COOK ON: 0416 115 272

BECAUSE NOT ALL AERATORS ARE CREATED EQUAL



Land Prides AERA-vator is ideal for use on a broad range of turf surfaces, including sporting arenas, parks and reserves, golf courses (fairways, roughs, tees and sur-rounds) racetracks, schools and general turf surfaces



Call now for a demonstration on your turf - Telephone 1800 640 305 Or visit our web page www.golfandturf.com.au



A - ONE TURFCARE

Specialists in golf course renovations

- CORING
- DEEP SLICING
 - SHAVING
- LASER LEVELLING

Contact Peter Thompson on 0419 205 661 or Paul Tangye on 0419 206 542

To reach over 6500

professional turf managers in this space

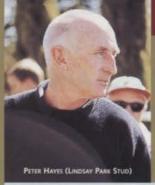
call Phil George on 03 9886 6200 or 0413 620 252

ATM

BY PHIL GEORGE

FLEMINGTON FIRST PAST THE POST WITH VISCORIDE

Thoroughbred racing in Australia is an industry that employs an estimated 100,000 people and generates 11.6 billion dollars in betting turnover. Crucial to the performance and well being of these 500kg champions of the turf and indeed the successful development of the industry is the quality of the training facilities provided.







- ← VISCORIDE SURFACE ON AN UPHILL SECTION AT LINDSAY PARK STUD, SA.
- → Installation of Geotextile Fabric

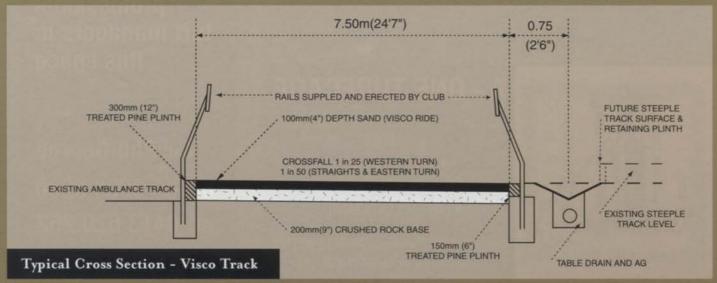
In relative terms, training facilities for horses in Australia are very good and generally speaking the industry is willing to at least be open to change born from research and development.

As a result, many different training surfaces can be found in all parts of the country including natural turf, sand, wood fibre, 'American dirt', cinders and sand / polymer mixtures. All these are good performers in

their own right but tend not to be "all weather" and can lack consistency.

The Victoria Racing Club (VRC) believe that they have found something better and in the middle of June this year they completed construction of Australia's second ViscoRide horse training track under the supervision of Flemingtons Racecourse Manager, Ross Bradfield.

The ViscoRide surface consists of carefully selected and graded sand particles, each particle of which is coated with the unique viscopolymeric binder – Viscopol. The function of the binder is to provide cohesion to the sand particles in all weather conditions. The binder is not oil based, performs independently of temperature and is not broken down by mechanical action. Water has little effect on the surface so it



tends not to become loose or "soupy". In addition, the ViscoRide surface material includes shredded elastic fibre, which has a cushioning effect on the impact of the horse's hoof.

British industrial chemist Graham Potter developed this sand / polymer system and after the installation of a handful of light exercise circuits in Europe it was installed on an uphill gallop at Newmarket in England called "Warren Hill" which copes with up to 2000 horses / day.



Shortly afterwards in 1996 the late C. S. Hays who was undoubtedly the most innovative horse trainer in Australia had a section of the track installed in-situ at the Lindsay Park Stud in South Australia. Over a 12-month period the Viscopol polymer and elastic fibres were incorporated to an existing sand track and by the time it was finished Collin Hayes believed that it was the best surface that he had come across in all his years of experimentation.

He invited Ross Bradfield and the VRC to have a look at the track. After 12 months of evaluation the club decided that it could be the answer to the recurring problem of providing a quality training surface to 800 horses, 6 days / week especially during winter when turf recovery is virtually non-existent.

Obviously time will tell if this proves to be the case but after almost 3 months of use, feed back from trainers has been positive and Ross Bradfield believes that its' reputation as a quality training surface will grow and grow.

Special thanks to Ross Bradfield and Stephen Torney (VRC) for their help in the preparation of this article.





CP-Aerator-Aust Turfgrass Man -6-99-A.C.N. 008-671-725

NOTHING RUNS LIKE A DEERE®



State HEPORT

President's Pen

Firstly, may I take the opportunity to thank all the delegates, sponsors, and exhibitors who attended the 4th National Turfgrass Seminar held in Perth. The support that the association receives from both members and trade sponsors is certainly much appreciated.

Those members who attended the information session on the proposed changes to the AGCSA Accreditation Program in Perth, will have a good understanding of how the Association proposes to align the Accreditation Program with the new National Training Packages. Other members would have received an information sheet and we would welcome comment and input with regard to these proposed changes. We would appreciate any comments/suggestions by the end of August.

The next major event will be the Environmental Workshop series presented in conjunction with the AGU, Society of Australian Golf Course Architects and the Australian and New Zealand Golf Club Secretary Managers Association. Members should note that the dates printed on the AGCSA wall planner have now been changed. The new dates for the workshops are

- · Perth, September 23rd 1999.
- Adelaide, September 24th 1999.
- · Brisbane, September 28th 1999.

- · Sydney, September 29th 1999.
- · Melbourne, September 30th 1999.

This workshop will be a great opportunity to highlight the need to include sound environmental management policy to committee members to ensure that all Golf Clubs are sustainable for not only today but many years to come.

The AGCSA will again be providing Course Quality Officials at The Holden Australian Open at Royal Sydney in November. This is a great opportunity for all golf course staff to see how an event of this calibre is run and a great way to see the worlds best golfers show their skills.

The Association's Code of Ethics states that "each member must carry out their duties in accordance with all relevant state/territory or federal laws pertaining to their vocation". The potential problems that can eventuate from the use of unregistered chemicals, for example, cannot be understated. All members, both practitioners and trade, active in the turf industry, must be aware of their legal responsibilities and their responsibility to represent the broader turf industry.

In closing I would hope all members take the opportunity to attend the

Environmental Seminar with both your Club Manager and other elected representatives from your club.

I look forward to catching up when next our paths cross.

Regards

Peter Frewin President, AGCSA

FNQGCSA

Our first meeting for the year was held at "The Links" Golf Course at Port Douglas on 26th May. Over 20 members turned out for this event. Rod Cade opened by thanking Steve Williams for opening his course to everybody. All had a great time and praised the shaping and speed of the greens. Many thanks to the day's sponsors, The Water Connection, Toro and JFB Agencies / Synetrol products. Garry Allen, Toro outlets and Peter White spoke on Toro's acquisition of Hardie Irrigation and on new products and efficiencies and cost savings through computer controllers and flow management, software programs. Low maintenance costs. Ross Sarrow also spoke on the topic of contract maintenance of golf courses and how Toro can service

For the best golfing green!



- Improved dark green colour
- Improved tolerance to summer heat and drought stress
- Persistent root system under summer stress periods



- Excellent rate of recovery from brown patch
- Requires less water and maintenance

CALL NOW 132009 Vic, SA, QLD .NSW

ĺ

customers from Brisbane and also supply parts on a 24 hr air freight basis from Melbourne. Steve Williams spoke on The Links and fitting the course to nature, his intention to manage without or with minimal use of herbicides and insecticides. Construction prior to the wet season late in 1997 resulted in revising the water table levels following that wet. Some further drainage works are required on the first five holes. Bunker drainage is completed on these holes and all new holes are drained and grassed. The Links, Port Douglas, has just been sold to Club Corp International, the biggest recreational facility operators in the world. This company employs 30,000+ people around the world. Ray Development Corp. will be constructing 300-400 condos soon. The new clubhouse is scheduled for construction in March 2000. Rod closed off the meeting and invited lots of participation at the Townsville field day in August. He added that the line up of speakers included Peter McMaugh, Steve Williams, Gary Beehag and Scott Taylor from Terrain Pty Ltd. An open forum with questions for all speakers will be held before the staging of the John Deere cup at Townsville Golf course.

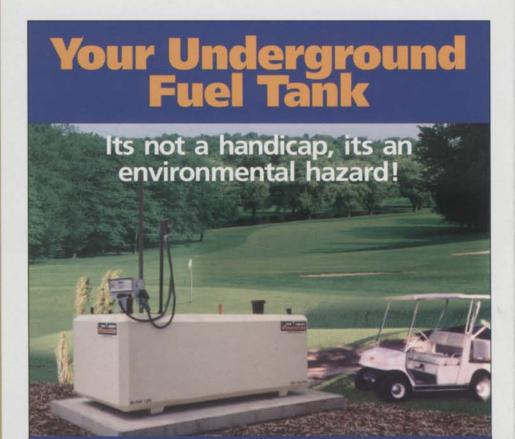
Paul Earnshaw President, FNQGCSA.

GCSAO

In Queensland the wet weather continues with most courses along the Southeast seaboard already past their annual average rainfall. In-land things have been remarkably dry. The drenching has given up for a week or two at a time but many places are experiencing cash flow problems. At Gainsborough Greens we had one fairway disappear under a foot of water for a week at a time. So far it has happened 3 times in the last 6 weeks. While the wet weather has exposed some drainage problems the extended wet has made the ground too soft to carry heavy equipment. Fungal diseases are rife and many courses are opting to let them go until there is some sign of dryer weather on the horizon.

After recent reshuffling in the job scene we welcome Peter Sawyer and Peter Longergan to the GCSAQ and hope they are faring well in these wet times. Allan Woods has left Murwillambah Golf Club to take the Superintendent job at Forster Tuncurry Golf Club further down the coast.

Our July field day at Paradise Springs involved a small but vocal gathering trying out a new meeting format. What resulted was a frank, sometimes heated and controversial round table discussion group. The concept worked well and was very rewarding if you were quick enough with notebook and pen as plenty of worthwhile information was exchanged. We finished off the day with a tour of the Maintenance Facility at the Glades



The easiest and most cost effective solution, remove the cause, don't wait until you have an expensive problem of leaking fuel. ConVault has the solution to your problems with its above ground concrete storage tank.

Out of sight out of mind, just because your underground fuel storage tank is out of sight its not out of harms way, the potential for disaster is high, the inherent cost of a leaking fuel tank is even higher. Traditional below ground storage tanks are like a time bomb sitting below the ground slowly disintegrating allowing toxic fuel to seep into underground waterways.

Above ground storage vaults such as the 'Convault' fuel storage system are in service at over 2,000 golf courses without a single system failure, out of a total 20,000 units in various applications around the globe. To claim such a record, every ConVault is manufactured with a unique method of secondary containment, eliminating the need for external compounds and bunds.

- Two hour fire rating and impact tested.
- Fully portable for short or long term use.
- Suitable for either petrol or diesel fuel.
- Dual Tanks also available

For further information on a variety of Convault systems, contact us immediately.



106 - 124 Rodier Street Ballarat, Victoria, Australia, 3350
Telephone: (03) 5331 5716 Facsimile: (03) 5333 3456
Mobile 0417 014 933

Web Address: www.convault.com.au

Proudly Manufactured in Australia by ConVault Australia, a joint venture company with Miller Bros. in Ballarat.

course Mudgereeba. Thanks go to Greg Plummer and Paul Bevan for making their facilities available and for the BBQ.

Our Association has become involved in lobbying the QGU for funds to be made available for research into various subjects concerning turf and turf management in our region. While most of our facts and figures are researched in the USA or Southern states there are certain areas that requires a more localised approach. Subjects put forward for possible research include management of acid sulphate soils, control of certain weed species in our region, guidelines for useable effluent water for turf, new turf varieties and their suitability, summer decline in couch.

I hope everyone has recovered from the conference in Perth, the hospitality in Western Australia was warmly received and was a rewarding experience for those of us lucky enough to attend. Congratulations on a job well done by Euan, Phil, Virginia, Christine and the AGCSA board, welcome to new board member Jeff Gambin who is sure to bring his many talents to the fore in this challenging position.

Jon Penberthy
President GCSAQ

GCSAWA

As the host for the National Turfgrass
Seminar this year, we hope that all delegates attended enjoyed the seminar/trade show and found time to take in the sights and enjoy some WA hospitality. It was pleasing to see so many made the trip to the west in difficult economic times. The weather got off to an ordinary start but those who stayed around for golf on the Thursday were treated with an absolute beauty. Congratulations must go to our two recent Super Series winners with Mark Claes cleaning up in round 3 at Gosnells and the king of Cottesloe, Ken Bollen taking out round 4.

On Tuesday the 1st of June the AGM for the G.C.S.A.W.A. was held at Lakelands Country Club. The new Committee is as follows:

- Robert Macdonald Joondalup Country Club President
- Allen Devlin

Secret Harbour Country Club Vice President/Golf Secretary

· Jeff Lane

Gosnells Golf Club

Treasurer/Environment Liaison Officer

Brad Sofield
 Gosnells Golf Club

Secretary

Glenn Cross

Halls Head Golf Club

Committee/Education Liaison Officer

· Geoff Kirk

Total Turf

Co-op Committee Member

A special thank you must go to Craig New (former G.C.S.A.W.A. President - 5 years) and Peter Fleming for their effort on the Committee, your help has been greatly appreciated. Following the AGM and a light lunch we played 9 holes of golf, with Craig's 2IC from Lakelands, Eric Dennis taking out the event and the Alan Barrow trophy. On Tuesday the 11th of June John Deere held the launch of several new products at the magnificent Araluen Country Club. This event was well attended with over 60 participants. Nine holes of golf followed with the unlikely team of Dion Warr from the Vines and Marc Logan from Mt Lawley winning the two man Ambrose event each scoring a night for two at Observation City. All that practice must be starting to pay off! Our next gathering will be on August the 3rd at Royal Perth Golf Club for round 5 of our Super Series. Followed by round 6 at the Peninsula Course on September the 7th.

I look forward to seeing as many of you as possible at these days.

Robert MacDonald President G.C.S.A.W.A.

NSWGCSA

The N.S.W. eastern seaboard has been plagued with above average days of rainfall, with the overcast conditions placing a strain on turfgrass quality. The rain has also hindered the progress of various construction projects, including Ryde - Parramatta Golf Club where Superintendent Geoff Phillips is overseeing the final stages of Ross Watson's redesign. The project will see the entire course revamped and should be completed near the end of this year.

day at Tuggerah Lakes Golf Club where guest speakers included Life member Vince Church, Scotts Fertiliser's, Robert Cooper, and Gary Dempsey from NSW Golf Club. Gary spoke on disasters, both natural and unnatural and as we have come to expect, produced a professional performance. Nine with a pink ball competition included in the to take a pink ball to be played in rotation amongst the group on alternate holes, with the score of the pink ball player to be recorded for each hole. If the ball was lost, your group was disqualified. No one mentioned to the crow was particularly fond of pink balls, and not one group returned with a pink ball, event over, with the crow declared the winner! Our next event is the Annual General meeting to be held at Pennant Hills Golf Club on Monday 23rd August.

Mark Parker President NSWGCSA

VGCSA

The VGCSA has been representing and supporting superintendents since 1927 and it is during demanding times such as these that we should make the most of our greatest

J.F. AGENCIES
GOLF COURSE EQUIPMENT & ACCESSORIES

John Broderick PH/FAX (07) 3351 6196 MOBILE 0418 750 668

Idlecliff Pty. Ltd.
A.C.N. 010 710 424
45 Illuta Ave.
Ferny Hills 4055
Brisbane, Australia

Manufacturers of Custom Golf Course Products Australia

- FLAG POLES
- TEE MARKERS
- RUBBISH BINS
- CUPS
- BALL WASHERS
- TOOLS
- FLAGS
- SIGNAGE
- REEL SHARPENING
- COMPOUND

"Australian Made Products"

FAMILY OWNED AND OPERATED

strength - our members. Opportunities to exchange ideas and knowledge are endless but often not fully utilized. As a member of the VGCSA for 12 years, I have gained significant knowledge through interaction and discussion with fellow members. As President, I would like to see this aspect of our association promoted and encouraged. VGCSA members should feel free to contact fellow superintendents and we should all be willing to share information with colleagues.

May and June have been busy with 3 major VGCSA events held. The first was our AGM at Yarra Yarra Golf Club in May. The highlight was the presentation of the Apprentice of the Year Award and about 100 people were on hand to see it go to Kate Harbrow (Yarra Yarra). The \$1000 award is funded by the VGA Turf Advisory Board and was presented by Chairman, Keith Wood. We thank Jeff Keast, the Yarra Yarra Golf Club and regular AGM sponsors, Toro, for making the day a success.

Next was our annual open tournament, held at Commonwealth Golf Club on June 7th. The day was again well supported with many of our regular supporters doing battle for some wonderful prizes donated by our sponsor Kubota Tractors Australia. Thanks to Kubota, Mark Prosser and the Commonwealth Golf Club.

Our combined Secretary Managers meeting was next and was held on the 28th June at Keysborough Golf Club. Bob Shearer was an excellent speaker and sponsor of the day was Scanoz Club Car. Thank you to Jim Hull and staff for presenting the course in excellent condition.

Congratulations to two former VGCSA
Presidents, Peter Sawyer and Peter
Lonergan on their appointments to
Indooroopilly and Coolangatta-Tweed Golf
Club respectively. It is great to see two
talented and professional superintendents
returning to prominent positions. All
VGCSA members wish you well and look
forward to catching up with you at the
National Conference next year.

Richard Forsyth
President, VGCSA

SAGCSA

In early May the SAGCSA went on a bus trip to the Riverlands and visited Waikerie, Loxton, Renmark, Barmara and Berri golf courses. They do remarkably well considering their low budgets and very hot temperatures in summer. We thanked their Supers for cooperation and information on our trip. Thanks also to our major sponsor Toro with help from Cooper's Turf Supplies and Globe. A special mention to Shawn Storer's father who was an excellent bus driver for the two days. We held our A.G.M. at Oakbank Golf Club in June, which was well attended. Kym McDonald took us on a course inspection showing us what some of the greens were constructed of, dirt and railway ballast.

At the A.G.M. the following were elected.

Pres. Sec. Committee Bob Dellow Bryan Cooper Shawn Standfield Shawn Sorer

Steve Lukon Steve Newell Digby Grayston

Daryl Sellar from Coopers who were sponsors for the day, gave a short talk on some of their new products they are now selling and a short talk on what he had seen in W.A. the previous week.

We all had a fantastic Conference in Perth and I was lucky enough to finish with a couple of weeks holiday.

Bob Dellow President, SAGCSA

TGAA (Vic)

All members should have now received the newsletter in the mail. It contains all the relevant information about forthcoming events. To keep our data base up to date please return your annual fee with details of change of address or phone numbers. This will ensure that you receive this

magazine and any other mail outs. The Millennium Turfgrass Conference prices have been set and the early bird rates are great value for money so budget for it to make sure you don't miss out. Speakers have been secured and I can assure you that the who's who of curators from around the country will be in attendance. The OHS week has moved from October to April by the government so the planned seminar will move to next year. The committee felt it was awkward to have a seminar in October due to renovations and wicket preparation. With spring almost

upon us, good luck with your planning and may your turf practices be sound.

Robert Savedra President, TGAA

TGAA (ACT)

Firstly I'd like to mention what a great success the recent TGAA Irrigation Seminar was. It attracted irrigation enthusiasts not only locally but also nationally. In total 211 guests attended. The seminar would not have been such a success without the enthusiasm of sponsors and guest speakers. The TGAA hopes it has set a trend for future seminars.

On a lighter note we would like to congratulate our Treasurer Wade Turner for making the NSW Turf Craftsman team to play the NSW Legend team in Bowls at Ettalong on the 4th August. For existing and potential members now is your last opportunity to join the association and reap the benefits of this very fine association. The Annual General Meeting will be held on the 17th August. A tentative booking has been made at the Southern Cross Club. Looking forward to seeing you there. Till next time, Agrostologists.

Grant King
TGAA (Act & Surrounding Region)

PACIFIC TURF EQUIPMENT PTY LTD

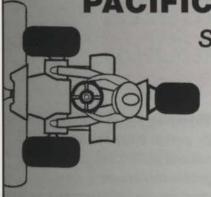
Specialists In Used Turf Care Equipment

Sales • Rental • Parts

2 Alua Close North Manly NSW 2100 PO Box 169 Brookvale NSW 2100 Call Garry Clarke

Phone: (02) 9905 7759 Fax: (02) 9905 7776

Mobile: 0418 404 423 Email: pacturf@intercoast.com.au



Advertisers Index

Advertisers Index	
Advertiser	Page Numbers
ACI	54
BHM Machinery	20
Burdetts	46
Chemturf	17
Chipco	22, 23
Convault	61
Country Club International	
Club Car	
CSS	14, 15, 16
Enviromist	47
Globe Chemicals	40
Green Horticultural Group	50
Gullf Ag	IBC
Heritage Seeds	8, 41
JFB	62
Lawn & Turf Maintenance	53
Legacy by Hunter	21
Lockwood Rollers	12
Mentay	11
M. Collins & Sons	13
Mowsharp	44
Oasis Turf	19
Pacific Turf Equipment	63
Parklands Equipment	50
Pattons Fertilisers	43
Rainbird	45
Rain Man	39
Rain One	44
Redexim	53
Scotts Fertilisers	37, OBC
Simplot	
Silvan Sprayers	26

Toro	IFC, 1
Turf & Irrigation	25, 49, 60
Turflink	48
Tycab	27
Vermitech	51

TGCSA

Course Capital works programs would now have been completed and most Course Superintendents would be gearing up ready for course renovations starting early spring. We recently had an afternoon technical session held in both the North and South of the state. Presentations were given by:

Gary Leeson
 Organic Crop Protection

• Eric Rolle

Controlling Poa using combination Fertiliser technology.

 Michael O'Day Biological control for Cockchafers.

This will be my last Presidents Report as I will not be standing for re-election this year, I would like to take this opportunity to thank the TGCSA committee and members for all their support for the last two years.

Mark Potter President

VGA

After a mild dry winter, the bowls season is well underway, with all Greenkeepers looking forward to a wet Spring. Hopefully this will avoid any need for water restrictions over Summer, unlike some of the country areas which have been and still are on water restrictions. Our thoughts go out to them.

At the time of writing this, prior to our A.G.M., President Peter Barron looks as though he will remain President, and all other positions will be filled. On behalf of the V.G.A. committee, we thank Peter for all his hard work and input, and look forward to another exciting year. With the Millennium Conference on the 5-8th June next year, the V.G.A. continue with the other turf bodies to set and organize an informative and exciting program for all people interested in turf.

This season will see the initiation of two awards for V.G.A. members. The Greenkeeper of the Year and the Distinguished Service Award, which is all going well with sponsorship.

A reminder that this years fees are now due, so if you don't pay up, you will no longer receive this magazine.

Toby Lumsden Vice President.

R&R PRODUCTS, INC QUALITY GOLF & TURF PARTS MANUFACTURER R&R R*R Since 1971

Distributed by

Roy Gripske & Sons Pty Ltd

44 Beach Street Kippa-Rong Qld 4021



Over 10,000 Quality Replacement Parts all major brands



ALL ORDERS OVER \$200 AND UNDER 20KG ARE DELIVERED FRIEGHT FREE



Phone: 1300 363 004
Free Fax: 1800 636 973
email: pgripske@rgs.com.au
Web: www.rgs.com.au

Visa and Master Cards Accepted

"Natural Born Killers"

Beneficial Nematodes
-Under license from the CSIRO

Totally Safe to use and long lasting control of:

- African Black Beetle
- Scarab & Weevil Larvae
- Trials prove efficacy on 2nd and 3rd instars & pupae



Greennem Biological Control

03 9756 6997 mobile 0409 415 872 email greennem@netlink.com.au www.greennem.com.au

Break-Thru® Makes The Best Courses Even Better



"Break-Thru helps us to minimise the effects of dry spotting and also disperse morning dew quicker, providing better quality turf and playing conditions. In addition, the effectiveness of Break-Thru over other wetting agents has enabled us to make substantial savings".

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

- Cuts irrigation costs
- Reduces run off
- Prevents dry spots
- Reduces wetting agent costs

Break-Thru® is a leading edge soil wetting agent capable of spreading water up to

25 times more than conventional wetting agents.

With its unique non-ionic silicone chemistry, Break-Thru® enables the water to penetrate even hydrophobic soil and spreads for more efficient use of irrigation, preventing localised dry spots.

GULLF AG



STA2157



KILLS WEEDS. FEEDS GRASS. KIND TO PEOPLE.

At last. You can hang up the plastic suits and respirators and breathe easy, because Scotts Fertiliser 21-1-16 with Dicot Weed Control III is here.

It's easy and safe to apply, transport, handle and store, but deadly to some 17 common broadleaf weeds which inhabit turf grass and lawns. These include the problematic and unsightly Bindii, Clover and Dandelions.

Fertiliser 21-1-16 with Dicot Weed Control III's unique granular composition combines Scotts slow release fertiliser technology with the weed-controlling activity of a triple active herbicide. This advanced

formula means less wastage and because the granules sink to the soil, it's much safer and more user friendly than the labour-intensive, high-risk, liquid products.

After three years in development, and extensive nationwide trials Fertiliser 21-1-16 with Dicot Weed Control III has proven safe and efficacious. Talk to a Scotts Agronomic professional about the value of a total turfgrass plan to suit your needs.

For the safest and most effective method of weed control & fertiliser on the market don't hold your breath, call Scotts soon.

WE'RE HERE TO HELP YOU FIND A BETTER WAY

CALL THE SCOTTS REGIONAL MANAGER OR DISTRIBUTOR IN YOUR STATE:
QLD/NT/NSW/VIC/TAS RICHARD JAMES 0418 735 538 WA/SA PETER
HISCOCK 0418 918 919 NEW ZEALAND NICOLA ROCHESTER 025 908 438

