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vol/ 1.3

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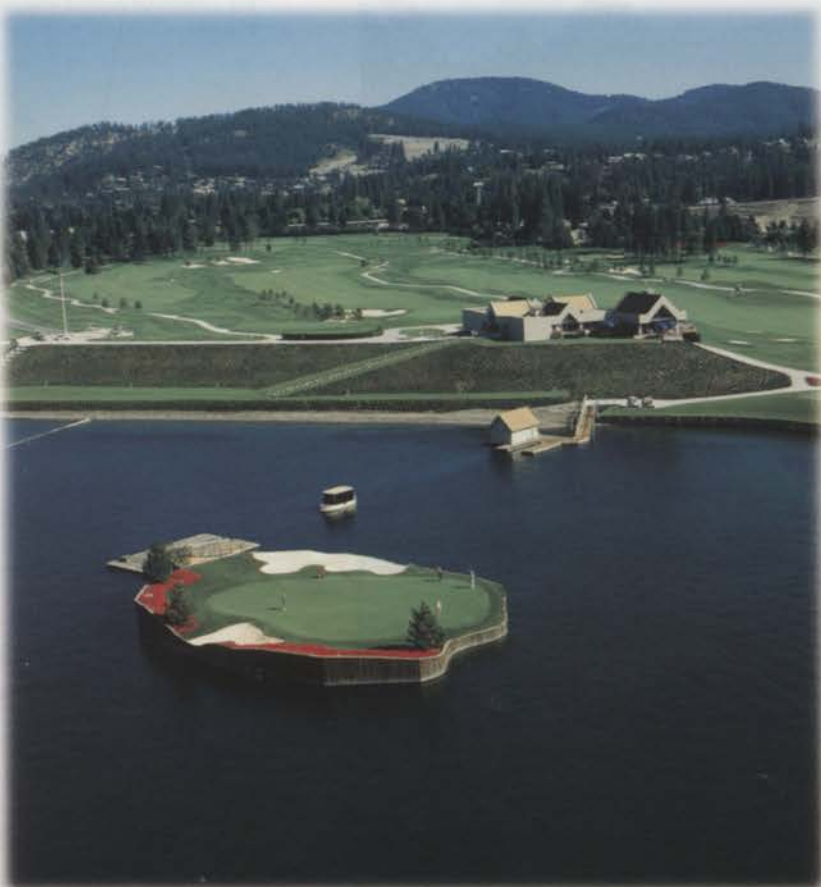
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Level 1, 19 Railway Parade North
Glen Waverley, 3150

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. Craig New

Chief Executive Officer:
Euan Laird

Editorial / Advertising:
Phil George

Sub Editing:
Joanne Shiells

Administration Manager:
Virginia Thompson

Design & Production:
Publicity Press
Art Direction: David Fry
Design: Duncan Grant &
Joanna Rutherford

Accounts/Subscriptions
AGCSA
Level 1,
19 Railway Parade North
Glen Waverley, 3150
(03) 9886-6200 (03) 9886-6400

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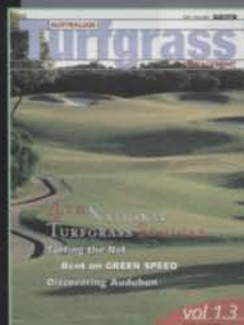
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The sometimes forgotten Fine Fescues seem to have gone full circle in the eyes of professional turf managers. Bruce Stephens discusses why and outlines their usefulness and versatility.

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An Important Tool in Sustainable Soil and Turf Management
Andrew Gulliver discusses how compost can be used as a soil amendment and add value to green waste.



research

The Effect of Maintenance on the Speed of Bentgrass (*agrostis. sp*) Putting Greens

John Neylan and Michael Robinson from Turfgrass Technology analyse the impact that different management techniques can have on different bentgrass species.

Oat Take – All Fungus on Tifdwarf Couch

Gary Beehag is the principal author of research resulting in the first ever record of Oat-Take-All Fungus on Tifdwarf Couch.

Australian Turf Industry Study – Key Highlights

The Turf Industry is one of some significance. In this article, Brenden Fox from Solutions Research summarises the results of an extensive national survey investigating maintenance budgets, education levels, association membership and employment.

in every edition

Review – In Search for a Game

"It's just not golf!" says golf course architect Don Knott who in this month's Review questions the "standards" of golf that are readily accepted and seldom questioned.

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full steam ahead!

Welcome readers to the seminar edition of Australian Turfgrass Management. For those of you fortunate enough to attend the 4th National Turfgrass Seminar at the Burswood Complex in Perth, I wish you all a great week will look forward to seeing you in booth # 37. Attendance looks very strong and the program comprehensive.

ATM continues to grow stronger and evolve thanks to strong industry support.

The diversity of articles continues to be a feature of ATM. In this edition Nick Bell profiles the venue of the 4th National Turfgrass Seminar, Bruce Stephens discovers an old friend in fine fescue and Darren Moore from the Manila Southwoods Golf and Country Club leads us through his experience with the Audubon program. Scott Bolton 'suits up' for some net surfing, Rob McDonald from Joondalup Country Club does it tough at the GCSAA Conference in Orlando and we take a look at compost as a useful soil amendment.

In our research section, we analyse the impact different management techniques can have on green speed, Gary Beehag discovers Oat Take-All fungus on Tifdwarf Couch and we learn more about the size and composition of our industry.

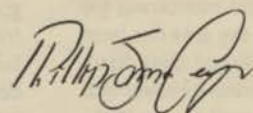
This month in 'Review' Golf Course Architect Don Knott questions the "standards" of golf.

Just how do hail stones get as big as cricket balls? – Rob Webb tells us in 'News'.

As part of a regular program of rotation to ensure that the magazine's freshness and diversity is maintained I sincerely thank David Aldous and Craig New for their efforts, and welcome, Scott Bolton and Les Burdett to the Editorial Committee.

Until next time....

Best Regards,



Phil George
Editor

Editorial committee



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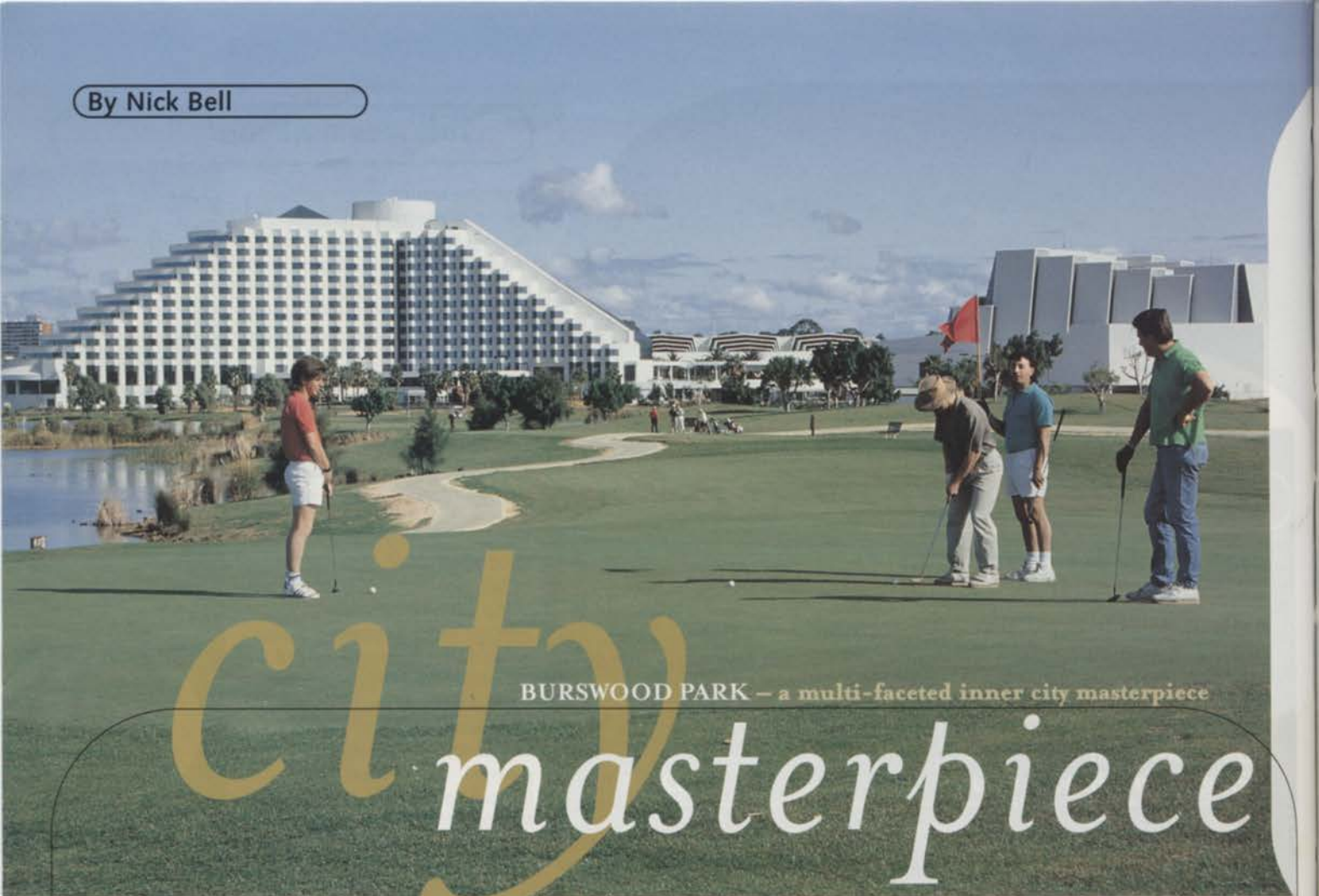
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BURSWOOD PARK — a multi-faceted inner city masterpiece

city masterpiece

Just minutes from Gloucester Park, the WACA and Perth's inner city sits the Burswood Resort, venue of the 4th National Turfgrass Seminar.

Housing the State Tennis Center, the Burswood complex is the hub of what is fast becoming a sporting 'hot spot'. Its crowning glory is a superb 18-hole golf course tended by Park superintendent Bruce Hawkins and his assistant Peter Fleming.

The site of the Burswood Park Golf Course was also the home of Western Australia's first golf club. The Perth Golf Club was located in the north-east corner of Burswood Island from 1895-1900.

In the mid 1980s a decision was taken to develop a casino on the Burswood site. As part of the agreement provision was made for the casino developers to fund a government statutory body called the Burswood Park Board who would be responsible for developing and maintaining the degraded land. Since 1986 the area has been totally rehabilitated by the Board using funds provided from a levy on casino turnover and revenue from the 18-hole golf course that caters for some 85,000 rounds of golf per year.

Burswood Park features an outstanding 18-hole public golf course complete with lakes, wetlands, native grass features, and landscaped flowerbeds over 55 hectares. The remaining 58 hectares include sweeping lawns, attractive gardens, quiet picnic areas, children's playgrounds, re-vegetated foreshores and the State Tennis Centre.

With nine lakes and two creeks coming into play on fifteen holes, the course is challenging for golfers of all levels. There is a day/night driving range, practice putting and chipping greens and superb clubhouse facilities.

The Burswood Park Golf Course is built on low-lying riverside land that had previously been used as a tip site. As a result the course was constantly battling against subsidence, irrigation mainline breakages, turf damage caused by methane gas emissions, pH variations and poor drainage.

The realignment of the nearby railway and freeway allowed for the complete reconstruction of the northern section of the course, alleviating the aforementioned problems. The original course design by golf course architects Nelson & Wright (now Nelson & Hayworth, Hawaii) provided for these extensive changes. To maintain design integrity the golf course architects were consulted whenever changes were contemplated. Ideas and photographs were presented to the architects who liaised

with surveyors, earthmoving contractors, aquaculturists and irrigation specialists to ensure that all elements of the golf course master plan were satisfied. The golf course architect coordinated and supervised the work, maintaining close contact with the golf course management team.

The greens and tees were constructed using a sand-growing medium amended to improve moisture and nutrient holding capacity. Natural coloured sand with a uniform holding consistency was used for the extensive bunkering of the course. The slow growing Zoysia grass has been used on some bunker walk-ins and along heavily trafficked pathways. It has proven to be extremely hardy and is easily maintained with minimal mowing, edging and fertiliser.

Originally seeded with Penncross bentgrass, the greens have been oversown with SR 1019 to increase genetic diversity and produce a smooth, even paced surface. Once per year, greens are cored with 3/4 inch tynes, verti-cut in two directions then top-dressed with specified greens sand. Greens are lightly scarified with triplex mounted verti-reels then lightly dusted at regular intervals to help maintain a smooth and firm surface.

Small prill slow release fertilisers form the basis of the greens nutritional program with supplementary use of foliar fertilisers and iron sulphate. Nutrient levels of all greens



↑ COLOURFUL GARDENS PRESENT A FRESH MASSES DISPLAY OF ANNUALS EVERY SEASON AND IS ADMIRER BY A HOST OF VISITORS TO BURSWOOD.

← "SWANS ON PARADE" LEAVING THE CITIZEN OF THE YEAR LAKE

↓ IMMACULATELY GROOMED GOLF COURSE WITH AQUATIC FEATURE BEING DEVELOPED IN THE FOREGROUND.



are analyzed twice per year and adjustments to the nutrient program are made if required.

The tees are grassed with 'Wintergreen' couch and are cored, scarified and topdressed twice per year. Slow release fertilisers are used to prevent growth surges whilst allowing maximum recovery from damage.

Manicured fairways are a feature of Burswood and they are kept in this condition with applications of phosphate free fertiliser every eight weeks. Additional potassium is applied in autumn to improve winter hardiness and spring green-up. A urea/iron sulphate 'turf tonic' is applied before major tournaments in December and late February.

Originally sown with Falcon and Houndog turf type tall fescue, the broad undulating primary roughs have been improved with the incorporation of Mustang, Monarch and other elite cultivars of turf type tall fescues. The roughs are fertilised four times per year with slow release fertiliser which, has produced uniform, vigorous turf and helped control the leaching of nutrients into the nearby Swan River.

Burswood Park has been commended by the Swan River Trust for their nutrient and irrigation management strategies and is rightly proud of their environmentally responsible management.

Development and maintenance of Burswood Park has been carefully planned and

implemented by the Board under the jurisdiction of its manager Brian Wishart. Turf management, greenkeeping and landscape maintenance is performed by Australian Turf Industries under the supervision assistant Superintendents, Peter Fleming and Sam Franco.

The golf course ornamental lake and wetland aquatic redevelopment is currently under construction and epitomises the Board's policy of continual landscape improvement for the benefit of golfers and park visitors. The aquatic feature is designed to become a sustainable, manageable and bio-diverse wildlife habitat. For greater visual appeal the design will incorporate peninsulas, islands, deeper lakes and flowing water.

The lakes will be aerated at night and will support a biologically diverse, self re-generating Eco-system. The lakes will

be stocked with fish and other marine life, and planted with aquatic vegetation to encourage ducks and birds. Surface run off traps will be built to harvest phosphate rich faeces (guano) which will be used to fertilise the carefully selected wetland vegetation.

The Burswood Park Board has achieved more than its objective of transforming a degraded former rubbish tip into a beautifully landscaped park. They have developed a vibrant, useful riverside facility that complements the beauty of the river and city skyline and enhances the quality of outdoor recreation for thousands of people every day.

As hosts of the 4th National Turfgrass Seminar in July, Bruce Hawkins and Peter Fleming are looking forward to meeting turf managers from all over the country and encourage all delegates to visit, inspect and enjoy the course.



← SKYLINE, CITY OF PERTH

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Dr Alister MacKenzie, (1935) The Spirit of St Andrews

Of the seeded cool season grasses, only two are capable of entirely satisfying MacKenzie's requirements. They are the bentgrasses and the fine fescues. If you're seeking the ultimate in fineness of leaf, then the fine fescues are your answer.

There are four main forms of fine fescue widely used by the turf industry. These are Sheep Fescue (*Festuca ovina* L.),

Hard Fescue (*Festuca longifolia* Thuill), Creeping Red Fescue (*Festuca rubra* L. subsp. *rubra*), and Chewings Fescue (*Festuca rubra* L. Subsp. *commutata* Gaud.) named after a New Zealand seed merchant who first exported seed of this species to the British Isles.

Although similar in appearance, a great variation in turf management practices between each species is necessary to achieve longevity of the sward.

Generally, fine fescues are shade tolerant, and persist under poor soil conditions. They are intolerant of wet soils and are at their best in dry, cool, low fertility environments. Fine fescues are the ideal low maintenance grass group, especially when compared with other seeded cool season grasses.

The Creeping Red Fescues are rhizomatous as opposed to Sheep, Hard and Chewings Fescues which are bunch types.

USES

Sheep and Hard Fescue are more drought tolerant and require less fertility than both Chewings and Creeping Red types. They are slow growing and suited to low maintenance situations such as golf course roughs, revegetation works, passive recreational areas and sites that are difficult to mow. Sheep and Hard Fescues are often used to reduce mowing frequencies. Sheep and Hard Fescue make an ideal base grass for reclamation projects when used in conjunction with Australian native grasses such as *Danthonia* spp. Their slow growth rate provides a compatible, economic mixer that will not smother native species, which are usually slow to establish.

Sowing rates should be varied according to the desired end result (refer table 1). A clumpy wispy effect will be produced at the lower rate. These rates will also increase the drought tolerance of the plant through



JOONDALUP GOLF COURSE

improved root growth and reduced competition for available moisture.

Sheep Fescue has a more blue/green leaf compared to Hard Fescue although the tetraploid cultivar, Quatro is dark green and more suited to mixing with Hard Fescue when a uniform colour is required within the sward.

Table 1: Sward Characteristic and Sowing Rates

SPECIES	DENSE TURF	CLUMPY TURF	NATIVE COMBINATION
Creeping Red Fescue	2.5 – 4.0	1.0	N.R.
Chewing Fescue	2.5 – 4.0	N.R.	N.R.
Sheep Fescue	2.0 – 3.5	0.5 – 1.0	0.5 – 1.0
Hard Fescue	2.0 – 2.5	0.5 – 1.0	0.5 – 1.0

Sowing Rates (kg/100m²) N.R. = Not Recommended for this situation

Table 2: Minimum Recommended Cutting Heights (mm)

SPECIES	LOW FERTILITY	MODERATE – HIGH FERTILITY	MINIMUM HEIGHT
Creeping Red Fescue	35mm	10 – 12mm	7 – 8mm
Chewing Fescue	N.R.	5 – 6mm	4mm
Sheep Fescue	40mm	N.R.	10 – 15mm
Hard Fescue	40mm	20 – 25mm	10 – 15mm

Disease incidence in Hard, Red and Chewings Fescues generally increases in high fertility environments. Regular low doses of fertiliser in low cut, high maintenance situations will result in healthier turf swards. Prolonged periods of low cutting heights (refer to table 2) will lead to thinning of the sward.

MIXTURES

Fine fescues combine well with several others species and have been used in mixtures containing ryegrass, bluegrass, bentgrass and more recently tall fescue. Tall Fescue/Hard Fescue mixes have become popular for situations requiring a seeded grass with both shade and wear tolerance.

The large nature of fine fescue seed requires it to be a major component of a seed mix containing the smaller seeded bentgrass and bluegrass. Sowing rates of 75% fine fescue, 25% bentgrass have been used successfully under Australian conditions in golf course surrounds and fine turf areas at 4kg per 100m². This equates to 3kg of fine fescue and 1kg of Colonial Bentgrass per 100m². These rates are commonly used.

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Table 3: Preferred Soil Types, Wear Tolerance and Colour

SPECIES	LOW FERTILITY	MODERATE - HIGH FERTILITY	MINIMUM HEIGHT
Creeping Red Fescue	Acidic	Good	Medium - Dark Green
Chewing Fescue	Acidic / Sand	Good	Medium - Green
Sheep Fescue	Acidic/Coarse/Gravel/Sand	Poor	Blue Green
Hard Fescue	Acidic	Moderate	Grey/ Green

The degree of wear, shade, moisture and fertility will change the survival percentage of each species within the sown sward as the turf matures. Further changes to the percentage of surviving species, normally occurs in the ensuing years due to the same factors.

CULTIVAR IMPROVEMENT

Since the release of cultivars such as Golfrood Chewings Fescue in 1940 and Olds Creeping Red Fescue in 1931 breeders have been improving the characteristics, adaptation, and disease resistance of the fine fescues.

Many failures with fine fescue sowings can be traced back to the use of "common" types which, under most Australian conditions are highly susceptible to disease.

Plant breeders have since improved a host of characteristics including shoot density, colour, texture, growth rates, root growth, rhizome vigour (Red Creeping types), seedling vigour, drought tolerance, soil adaptation, close mowing tolerances, high temperature hardiness and shade tolerance. Increased disease resistance has been a major source of improvement with the species.

OVERSOWING

Fine fescues make a perfect companion grass when oversown into couchgrass tees and surrounds. Fine fescue will not become clumpy in closely mown situations and can be "transitioned out". The symbiotic mix of oversown couchgrass/fine fescue is not fraught with the problems that some superintendents experience with couchgrass decline in oversown turf. When over sown with fine fescue, stands of couchgrass are less likely to thin out through shading and

competition than if they had been oversown with ryegrass.

In The Landscape Architect and Specifier News (October 1990), Craig Edminster, Director of Research, International Seeds, Oregon USA reported that "shade tolerance, reduced mowing, low nitrogen input, drought tolerance, endophyte enhanced performance and reduced input maintenance are all attributes synonymous to the versatile family of Fine Fescues in the 1990s.

From MacKenzie in the 1930s with his requirements for golf course grasses, to Edminster in the 1990s, it seems that the turfgrass industry has gone full circle.

In accepting that fine fescues have a large place in our industry, it seems we are just starting to reacquire ourselves with old friends that have matured with age.

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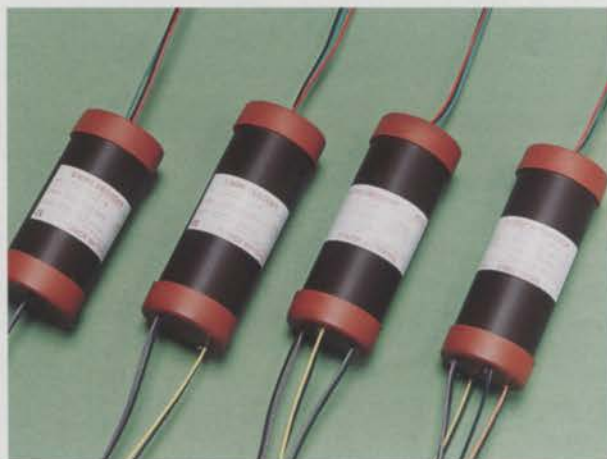
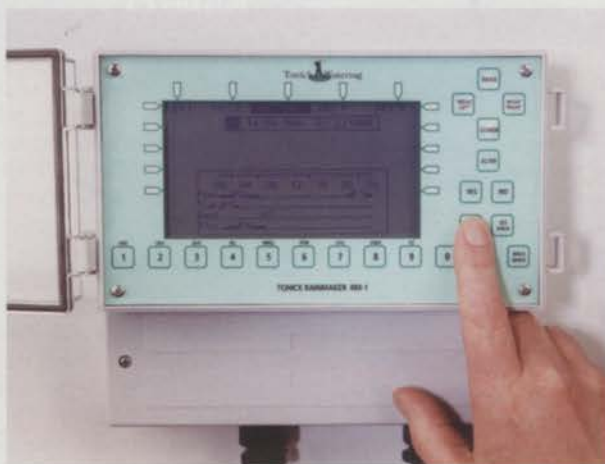
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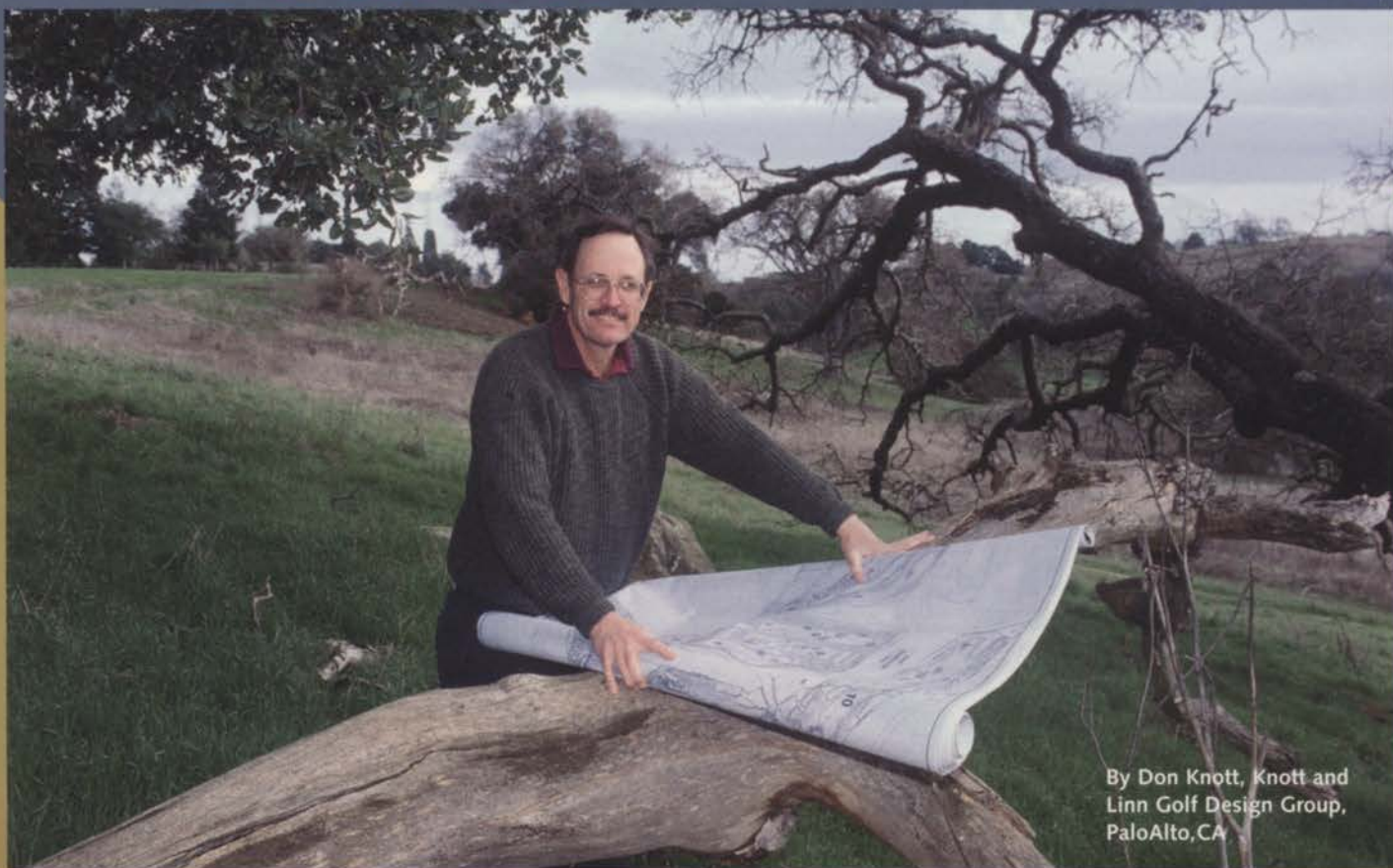
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In Search For A Game



By Don Knott, Knott and Linn Golf Design Group, Palo Alto, CA

How about a game? Of course! We'll play the championship course near by, the one that's 7100 yards, par 72, and ranked the toughest in the area. Why not? From the back no doubt. Sure such a course can be great fun, but are Americans becoming too narrowly focused on what they consider an acceptable venue for the game?

There are many well discussed issues in golf today, not the least of which is accessibility and affordability. But perhaps larger than any of the day to day issues is what I perceive to be a narrowing myopic view of the game and particularly the golf course. The parameters of an "acceptable" golf course continue to become more rigid and narrowly focused. It is time for all of us, and particularly golf course architects to resist this myopic vision of the course and expand the envelope of acceptance standards.

Why is it that the standards of a great course must be a (a) 7,000 plus yards in

length, (b) must be a par of 72 with two par 3s and two par 5s, (c) must have returning nines, (d) must have fairways that provide perfect lies, (e) must have fairways that are clearly visible and well "defined", (f) must have greens that are puttible and "fair" at some arbitrary reading on a stimp meter, (g) must have small greens for short holes and large greens for long holes, (h) must have trees on all sides of each hole, (i) must have greens that are visible from the fairway, (j) must be considered "fair" by the score oriented professional, (k) etc., etc., etc., ... in a continuously growing list of arbitrary standards that push us further from the origins and the very essence of the game?

What happened to the original concept of the game? The game started as an obstacle course, played over natural terrain. It was the player's option to choose a route and strategy to get from point A to point B. There were random obstacles and no "defined path". Even today there is no such thing as "fairway" in the rules of the game. Our modern day courses are looking much more like a bowling alley, with narrow strips of "fairway" flanked by the occasional hazard near the "defined" landing area.

One only need play several of the ancient links courses to realize how exciting and fun this game can be, and what the origins of the game were intended to be. These ancient links courses have withstood the test of time because they continue to emulate life itself.

These courses, like life, present obstacles and hazards. Some are visible and allow one to formulate a strategy in an attempt to avoid them. Some obstacles are not visible and present themselves at random. What often appears as then most direct route to your objective is often not as easy as envisioned. Such unexpected events are dealt with to the best of our ability at the time they present themselves. Some routes appear safe from a distance but later present such subtle complications that one doesn't fully understand until completely entangled. Some hazards appear difficult, but prove to be playable. Others that look safe prove to be disaster. Some hazards, as in life, are inescapable.

Random luck is always a factor. A golf course should not be "totally defined" with a clear path to one's goal. Such is not real life or real golf. Some shots must be played on intuition and faith. Without some mystery and without significant obstacles,

the golf course would have no appeal. The concept of a defined "fairway" to one's destination may sound appealing, but in the long run will never hold the fascination, excitement, mystery and enjoyment of the game played as an obstacle course through nature.

We cannot reduce the golf course to a standard predictable venue. A great course must always call for courage, skill, strategy, self-control, a test of temper and a revealer of character. Let us not reduce the game to simply a test of swing execution. If swing execution is the ultimate examination, we need only construct high tech driving ranges. Golf and golf courses must be far more than theatres to perfect execution. A golf course must, like life, offer problem solving, intrigue, mystery, the ability to be creative, the opportunity to experiment, challenge your limits and test your character.

I realize there are numerous combined forces and trends that seem to constantly narrow the concept of the golf course: The concept of par itself (which was not part of the game's origin); the real estate dominated economics which create forces to minimize space and maximize frontage; the score orientated professional players that dominate the golf press and public opinion; the USGA setup of the Open; the modern day course rating systems with consensus building structures and more. All of these contribute directly to a narrower definition of the "acceptable" golf course. These are strong forces and are difficult to alter.

Nevertheless, I believe it is time to push for an expanded concept of what golf should and could be. Why, for example must a course be 18 holes? The game did not start that way. Any number of holes was acceptable for hundreds of years. Just imagine the number of new facilities available if golfers accepted the concept of a 6, 11 or 15 hole course. If availability and speed of play are real issues, then let's reconsider our myopic view of the golf course and of the game.

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the audubon experience

In light of today's increased public scrutiny and the need to improve the quality and sustainability of our own environment, every Turf Manager should consider getting involved in the Audubon Cooperative Sanctuary Program for golf courses.

The Manila Southwoods Golf & Country Club - a 36-hole, Jack Nicklaus signature design course is located just south of the capital Manila in the Philippines. In April 1999, Southwoods achieved designation as a fully certified Audubon Cooperative Sanctuary by Audubon International. Southwoods is the 175th golf course in the world and the first course in the Asia/Pacific region to achieve this honor.

In 1997, my Assistant Superintendent came charging into my office proudly holding onto a large Monitor Lizard (Bayawak), which several workers had chased down a fairway and clubbed to death. He was

hanging tightly onto his fresh catch and with a polite Filipino smile he invited me to help eat this delicacy in the evening. Cultural differences aside, I knew my staff needed some serious educating as another wildlife species had succumbed to my maintenance crew's desire to feed themselves.

At this time, the developer of The Manila Southwoods Golf & Country Club, Fil-Estate Golf and Development Inc., had just initiated an information, education and communication campaign that focused on 'Golf and the Environment'. As a result they were looking into registering all their courses with Audubon to ensure they would further improve the environmental quality in all aspects.

The first time I heard about the Audubon Cooperative Sanctuary Program for Golf Courses, was years ago whilst working in Florida, USA. I had seen Audubon wildlife books and glossy bird pictures, and perceived the Audubon Society to be just a large bird club. Upon further research and discussion with fellow superintendents I

couldn't have been more mistaken. Audubon International, established in 1897, is actually a non-profit entity, which aims to improve the quality of life and the environment through research, education and conservation.

One of the largest and most successful programs that Audubon International runs is the Audubon Cooperative Sanctuary System (ACSS). The focus of this division is to promote ecologically sound land management and conservation of our natural resources. The ACSS is comprised of four programs: business and corporate properties, individual backyards, schools and golf courses. To date, the golf course program has been the most successful with more than 2,500 members worldwide. Certification with the ACSS demonstrates a course's leadership, commitment and high standards of environmental management.

Certification can generally be achieved within one to three years, depending on how quickly a course can plan, organize, implement and





RUFIOUS NIGHT HERON "RUPERT" HUNTS FOR TILAPIA IN ONE OF THE MANY FRESH WATER LAKES AT SOUTHWOODS

document projects in the six categories. The annual registration cost is US\$125, which covers monthly newsletters and assistance in working on the certification categories.

To achieve designation as a fully Certified Audubon Cooperative Sanctuary, it is necessary to obtain a certificate of recognition in all six categories mentioned below, through implementing certain projects and documenting all efforts.

ENVIRONMENTAL PLANNING

This category is designed to help courses evaluate their current management strategies, define their goals and priorities and outline their objectives to achieve environmental quality in all areas.

It is a valuable educational tool and highlights areas within the golf course ecosystem that need improvement. In order to present updates and make quick decisions on proposals we formed an environmental committee consisting of the Board of Directors, the General Manager and the Superintendent.

WILDLIFE & HABITAT MANAGEMENT

'This category encompasses the management of non-play areas to provide habitat for wildlife on the golf course. The intent of Wildlife & Habitat Management' is for Cooperative Sanctuary members to maximize the use of space and provide the best possible habitat given their location, size, layout and type of property'.

This involved examining both courses closely and identifying existing habitats and out-of-play areas. Wildlife habitat has been significantly increased by planting more indigenous trees and grasses and extending shoreline vegetation in out-of-play areas. This has not only reduced our labor, water, pesticide and fertiliser usage, but has also attracted a wide variety of new wildlife

species. Initially, we identified approximately 50 bird species living in aquatic, forest, ornamental and grassy habitats. This number has increased to over 60 as habitats are maturing.

INTEGRATED PEST MANAGEMENT

'A comprehensive integrated pest management (IPM) program will help you achieve a healthy environment for both people and wildlife. This includes managing turf areas with environmental sensitivity, maintaining healthy turf, educating workers and members about responsible plant management and safety, and keeping a clean and professional maintenance complex.'

As the climate in the Philippines is very hot and humid, the timing of our cultural programs is critical if we are to avoid disease, weed and insect infestations which may result in severe turfgrass damage.

This category involves the identification and establishment of threshold levels for all pests on site. As suggested by Audubon, we have drawn up a 'hot spot map', which acts as an indicator of high pest pressure.

We were required to document the trend of our pesticide and fertiliser usage and discovered that the increase in native vegetation and turf quality had reduced the use of pesticides and fertilisers.

IPM is one of the most important categories in the Audubon program. By establishing and maintaining healthy turfgrass and landscape areas, operating costs can be controlled without being detrimental to the environment.

WATER CONSERVATION

'Having a comprehensive water conservation program in place demonstrates your course's commitment to judicious water use and environmental stewardship'.

This category demonstrates that the introduction of drought tolerant plant species and the creation of wildlife habitats can greatly reduce your water usage. An estimated 15% of the 'Masters' course and 11% of the 'Legends' course is currently not irrigated and we believe that this will increase to 25% and 18% respectively over the next year, as native areas are established and irrigation heads reduced.

This category includes: maximising efficiency, ensuring proper distribution, detecting and repairing leaks and determining proper irrigation. These topics encourage consideration of current practices and stimulate ideas for improvement.

We developed a "leak record sheet" to determine whether Asiatic snails were causing stuck heads in the irrigation lines. After monitoring our records and observations in the field, we decided to raise our pump station intake line off the area of silt and snail build-up, instead of procuring a filtration system for the pump station.

WATER QUALITY MANAGEMENT

Concerns are often raised about the impact of golf course chemical use on the water quality of lakes, ponds, streams, wetlands and ground water. In order to feel confident that your course is maintaining good water quality, it is important to have a strategy in place to monitor quality, improve conditions if warranted, and deal with problems should they arise'.

The Manila Southwoods Golf & Country Club was developed on a low lying sugar cane field with creeks meandering through the site. Unfortunately water from these creeks is not used for irrigation purposes due to inconsistent water levels and poor water quality as the upstream communities use the creeks as trash dumping sites. A total of ten man-made, lined lakes were therefore constructed, covering approximately 22 acres of surface area. They act as reservoirs for surface and sub-surface drainage systems and hold water from deep well pumping.

Prior to our registration with Audubon, we used to conduct water testing only once every 18 months due to the high costs involved. However, as Audubon requires regular water testing to determine whether water quality is improving or if there is any nutrient loading, we decided to get universities involved in the testing process. Surface water was tested for pH, biological oxygen demand (BOD), total suspended solids (TSS), total dissolved solids (TDS), oils and grease. Groundwater was tested for: total dissolved solids, turbidity, nitrates, mercury, arsenic, total coliform and Escherichia coli. Not only was a great deal of valuable information collected but our costs were reduced and it helped students in their education.

To further improve water conditions, we have created no-spray zones around lake systems and established native vegetation around out-of-play shoreline areas to act as buffer zones. Nutrient loading into the water system is greatly reduced and wildlife habitats are created. Planting native aquatic plants, such as lotus and cattails, can assist in purifying and cleansing the water once they have matured and the use of slow release fertilisers on the course will contribute to improved water quality.

OUTREACH & EDUCATION

'The intention of this category is to help you gain recognition and support for your environmental program and increase golfer understanding of wildlife and environmental quality on the golf course. Member and public awareness, education, and involvement in environmental projects is often the key to their success'.

Participating in this category was an enjoyable and rewarding experience. It enabled us to communicate to 2,000 members, management, staff, school children, media and the public the positive effects golf courses can have on the environment, providing they are managed properly.

Getting people involved in environmentally friendly projects at the club improves their awareness and provides a sense of community fulfillment. We allowed local school children to visit the site to learn about wildlife habitats, indigenous trees, water conservation and waste management.

Abraham Lincoln once said - "the philosophy of the classroom in one generation will be the philosophy of the government in the next generation." This is something worth remembering.

CUBS AND BROWNIES INVOLVED IN A BIRD RELEASE PROGRAM AND ECO-FIELD TRIP



CONCLUSION

The primary objective of the Audubon program is to provide guidelines on further naturalising your course, systemising and organising maintenance practices and hence reducing operating costs. Any golf course can achieve full certification with the ACSP, regardless of budget, property size or existing wildlife habitats.

Certification involves demonstrating a commitment to the environment with whatever means available.

With minimal turf irrigation, diverse flora and fauna, increased public access and low operating costs, Australian golf courses regularly perform well.

Three Australian golf courses have already registered with the Audubon program. Hopefully this number will increase, meaning that environmental quality standards look set to improve even further.

The Audubon program is a rewarding experience and offers a great range of benefits. Please consider, it is well worth becoming involved with.

For more information on the Audubon program and registration details you can contact either Mrs Joellen Zeh, staff ecologist at Audubon International: jzeh@audubonintl.org or myself at: kanga@vasia.com

Audubon Cooperative Sanctuary System

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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.

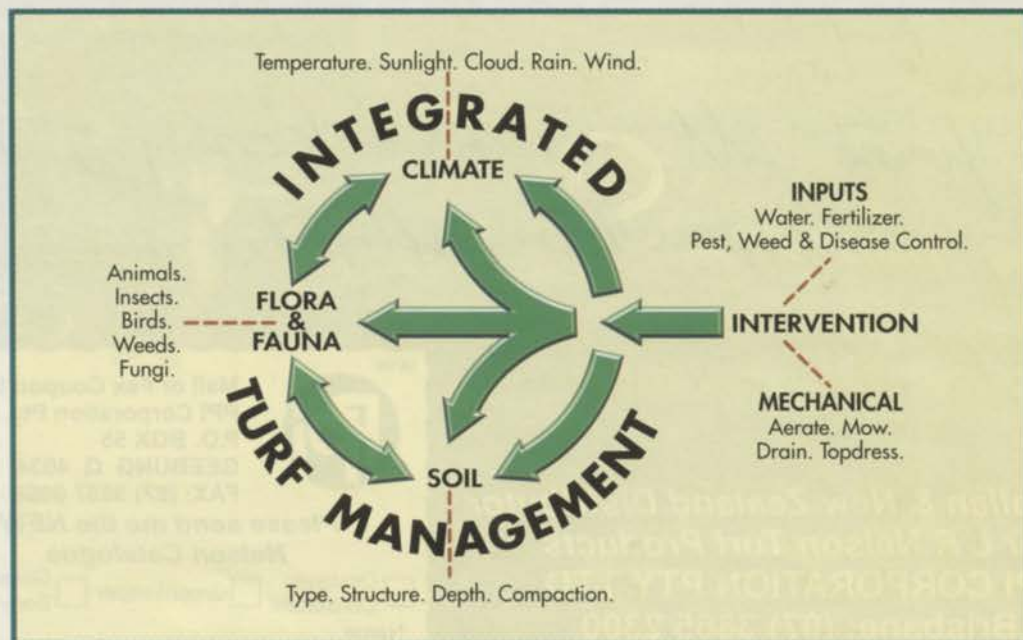
One thing leads to another.

Professional turf management describes the techniques of intervention that maximise turf health and minimise pest, weed and disease attack.

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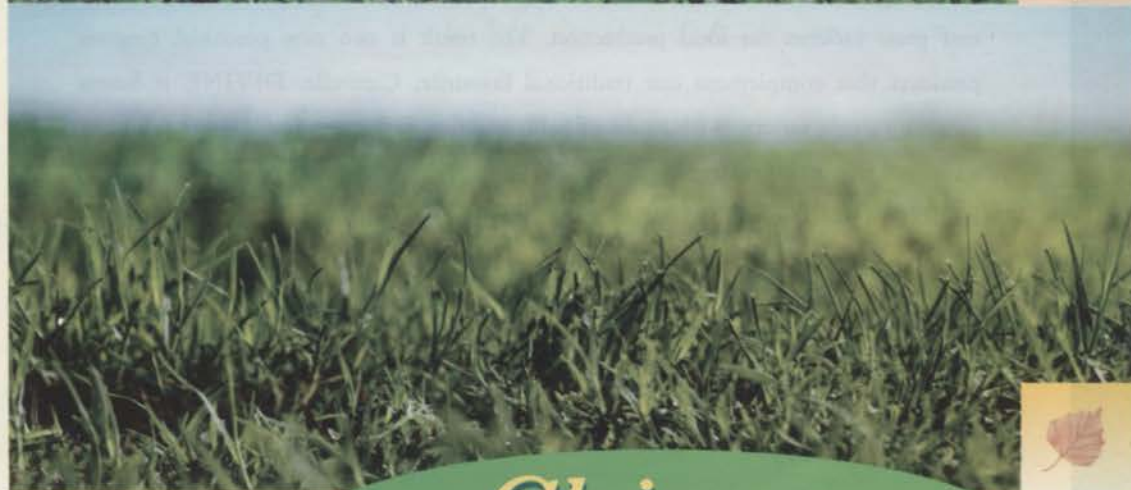
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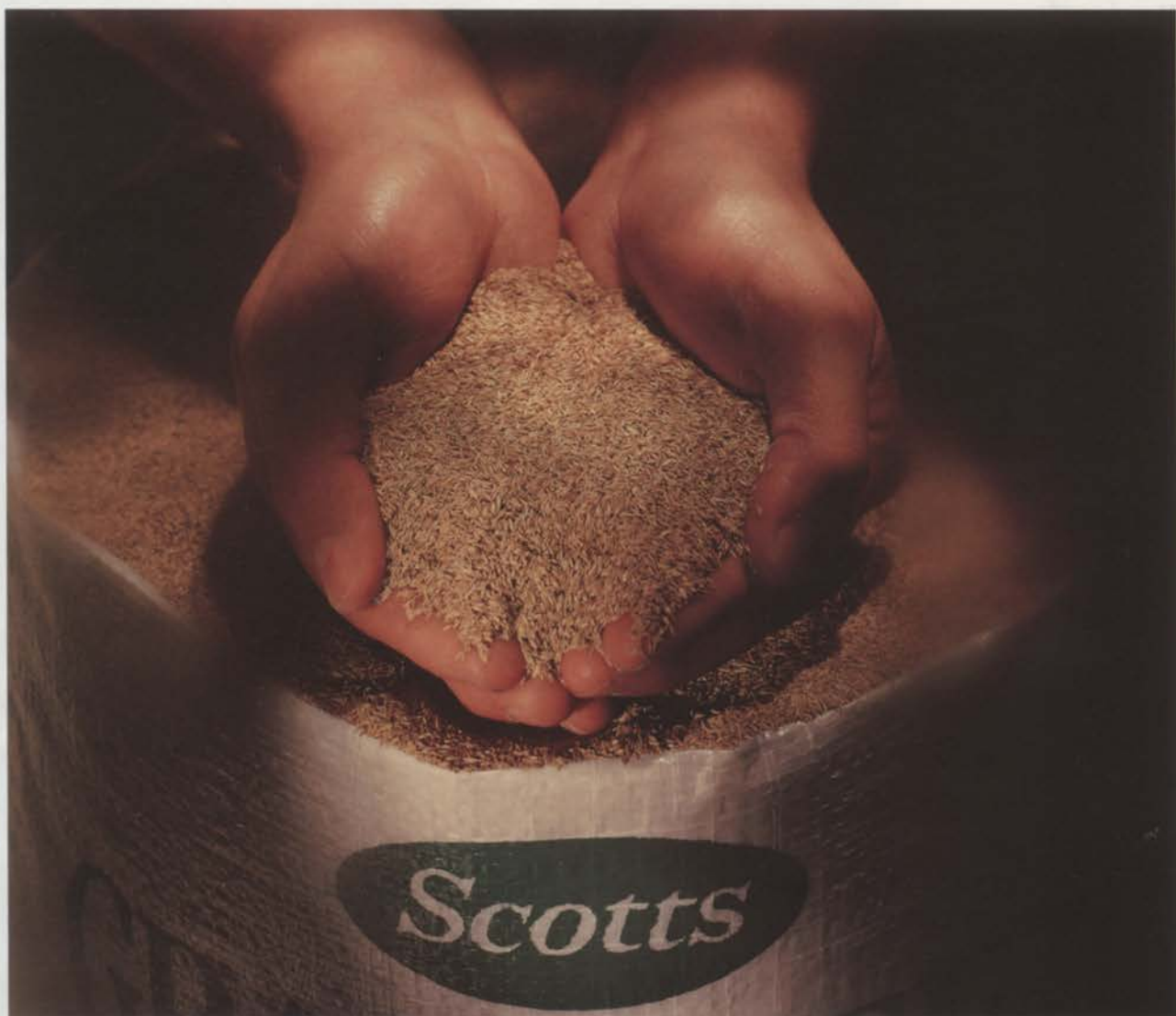
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THE EFFECTS OF MAINTENANCE ON THE SPEED OF BENTGRASS
(*AGROSTIS* SP.) PUTTING GREENS

SUTTONS Mix At 2mm

Putting greens are the focal point of play on all golf courses with the golfer hitting onto and then putting on the green. Assuming that a par round is played, two shots per hole are allocated to the putting green which, constitutes 50 percent of the play on a par 72 course. The greens on a golf course make up about two percent of the turf area but in many instances provide most of the discussion amongst golfers. There is little wonder that so much effort is put into improving the consistency, smoothness and speed of the putting surface.

There are a number of factors that affect the quality of the putting surface including uniformity, smoothness, firmness, resiliency, close mowing, spiking and absence of grain. Ball roll and speed are affected by management practices such as the height of cut, mowing frequency, rolling, fertility, dethatching, regular light topdressings and renovation practices.

As putting is a major factor in the game of golf, the speed and quality of the green is of great concern to the game. More than any other characteristic, mowing practices are the focus of attention when considering why a green putts poorly or well. Close and frequent mowing results in a very high shoot density and vertical leaf orientation, producing a smooth and uniform surface. However, with some varieties it may be at the expense of turf quality. The extremely close mowing required on greens is a costly cultural practice that places severe physiological stress on the turf. Rooting depth, carbohydrate reserves, recuperative potential and tolerance to environmental stresses are all adversely affected by low cutting heights and the

optimum height of cut is generally specific to the particular turf variety. Rolling is often used as a finishing technique to ensure the surface is as smooth as possible giving true ball roll and maximum green speed.

Bentgrass (*Agrostis* sp.) is the most desirable grass species on putting greens in the temperate zone and over the past few years there have been a number of new varieties introduced to golf courses. Pennncross creeping bentgrass (*A. stolonifera* var. Pennncross) has been the dominant variety for many years although in recent years several newer creeping bentgrass varieties such as Cobra, SR-1020, Providence and Pennlinks, as well as a non-creeping, browntop bentgrass (*A. capillaris* var. Egmont) have been introduced to putting greens. More recently, "super-fine" bentgrasses (eg. A-4, L93) have been established in putting greens. These new varieties have resulted in a need to alter management strategies in order to achieve a quality putting surface while also maintaining a turf cover of uniform density and health.

A trial was established by Turfgrass Technology to assess several bentgrass varieties and the influence of mowing height, rolling and wear on surface quality and green speed.

METHODOLOGY



STIMPMETER IN USE

The trial was carried out on a level, practice putting green at Royal Melbourne Golf Club. The trial area was 30m x 25m and consisted of five bentgrass varieties; a colonial bentgrass (*Agrostis capillaris* var. Egmont); three creeping bentgrasses (*Agrostis stolonifera* var. Cobra, Pennncross and SR-1020) and "Suttons mix" which is an old greens mix used on many of Melbourne's older golf

courses and consists of colonial and creeping bentgrasses. The colonial bentgrasses form an upright, dense turf with stems that are fine in texture and low growing thus tolerant of close mowing. The creeping tendency is minimal since the rhizome and stolon growth is either lacking or quite short.

The three treatments imposed on the bentgrasses included;

- Three mowing heights, low (2mm), medium (3-3.5mm) and high (4-5mm)
- Rolling using a greens "Smooth Roll"
- Wear using a spiked roller to simulate foot traffic (equivalent to 135 rounds of golf).

The three treatments were applied in such a way that the effect of each treatment and their interactions could be assessed. The assessment included;

- Measuring green speed monthly over a two year period using the Stimpmeter (Radko, 1977). On five occasions it was measured several times over a 7-8 hour period.
- Turf quality and density
- Spiking

RESULTS

Effects of variety and cultural practices on green speed

VARIETY

SR1020 and Pennncross had the greatest green speed compared to all other varieties while Cobra had greater green speed than Suttons and Egmont. There was no difference in green speed between Suttons and Egmont. These trends were consistent over the long term average and at each test period and in general, the stoloniferous

varieties had greater green speed than the capillaris types. This is most probably due to the greater vertical growth associated with the capillaris varieties which increases the amount of friction on ball roll.

MOWING HEIGHT

Green speed increased as the mowing height was lowered with about a 0.5m increase in green speed from a high to medium cutting height and a 0.3m increase from a medium to low cutting height. These trends were consistent over the long term average and at each test period. By lowering the mowing height there is a reduction in turf biomass resulting in less resistance to ball roll. At higher mowing heights the surface is softer, often deforming as the ball rolls through the grass rather than on top of it.

ROLLING

Rolling increased green speed by about 0.4m and this increase was consistent over the long term average and at all test periods. Rolling causes a compaction of the surface and a flattening of the leaf blade, resulting in less friction to ball roll. The use of rollers on putting greens has increased in recent years (particularly for tournaments) and continues to gain acceptance as a useful maintenance tool, especially for providing consistency between greens.

Research at North Carolina State University (DiPaola et al. 1994) showed that light weight rolling at moderate levels (< 3 times/week) resulted in no additional increase in soil compaction on USGA constructed profiles. It increased green speeds with no change in turf quality. However, higher rolling frequencies (> 3 times/week) resulted in lower turf quality. Hamilton et al. (1994) at Penn State University, found that bulk density in the surface 25mm of soil and saturated infiltration rate were not affected by rolling.

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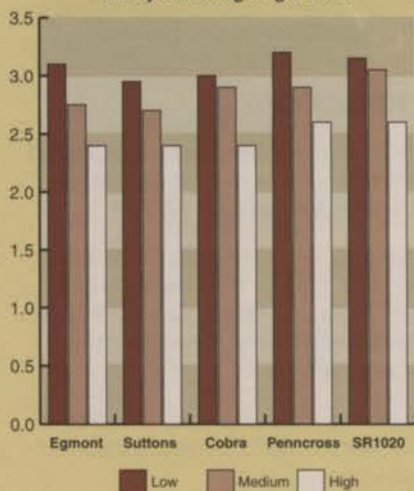
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Numerous interactions were measured and some are summarised below:

- Variety x height (figure 1): The green speed of all varieties increased as the height of cut was lowered. The largest change occurred when going from a high to medium height of cut. From this data, the optimum height of cut was about 3-3.5mm, particularly when considering other agronomic factors such as turf density.

Fig.1. Average Green Speed (m)
Variety x mowing height effect

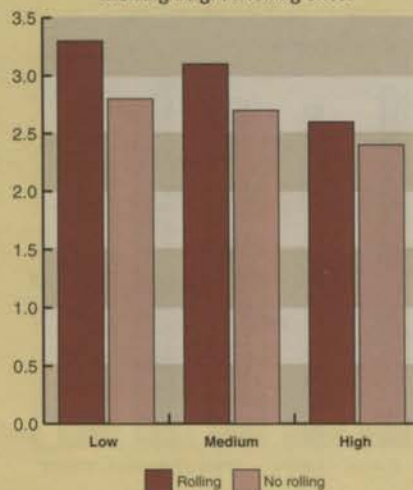


- Mowing height x rolling (figure 2): The combined treatment had a greater effect on green speed than the treatments individually. By cutting higher and rolling, a green speed similar to that obtained at a lower height of cut can be achieved.

Increasing the cutting height places less stress on the turf, improves the turf density and reduces weed invasion while maintaining acceptable green speed. This is an important consideration during the winter months when turf recovery is slow, particularly on small or heavily trafficked greens.

- Variety x rolling: There was no varietal difference in response to rolling.

Fig.2. Average Green Speed (m)
Mowing height x rolling effect



DAILY CHANGES IN GREEN SPEED

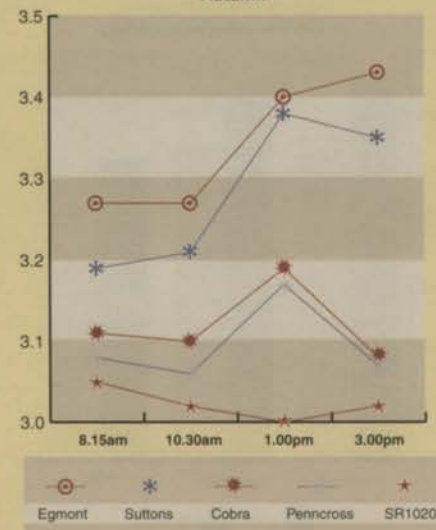
There were few consistent trends in the changes in green speed over a 7-8 hour period. However, the stoloniferous types exhibited the greatest green speed mid to late in the day whereas the capillaris types peaked in the middle of the day (figure 3).

The increase in green speed during a day is related to the surface becoming drier. The turf has a lower moisture content, the leaf less turgid and therefore offering less surface resistance. In Summer and Autumn, the green speed was greater than in Winter although the change in green speed over a day remained fairly constant.

The effects of rolling persisted throughout the day suggesting that rolling has more than a temporary effect on ball roll. Although differences reduced over the course of a day there was still a significant

difference between the rolled and unrolled treatments. These results show a similar trend to those observed by Hamilton et al. (1994) who found that light weight rolling increased green speed by an average of 0.38m, lasting up to 48 hours.

Fig.3. Change in green speed over a day
Autumn



AGRONOMIC CHARACTERISTICS

Egmont and Suttons provided a high quality surface at the three mowing heights. Under the low height of cut, Penncross and SR1020 suffered severe thinning of the turf sward with Cobra being of intermediate turf quality (figure 4). On this basis, Penncross and SR1020 should be kept at a medium height of cut (ie. 3-3.5mm) to achieve a good quality surface over the long term.

Egmont and Suttons had greater turf density than the stoloniferous varieties. There was a dramatic increase in turf density as cutting was raised from low to medium and there

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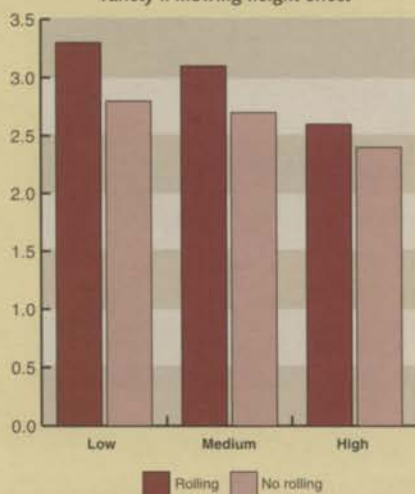
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was only a moderate increase in density from the medium to high cutting height. Excessively low turf density results in poor ball roll with the ball deviating and failing to hold a true line when putt. Pennncross was most affected by height of cut and had the lowest density.

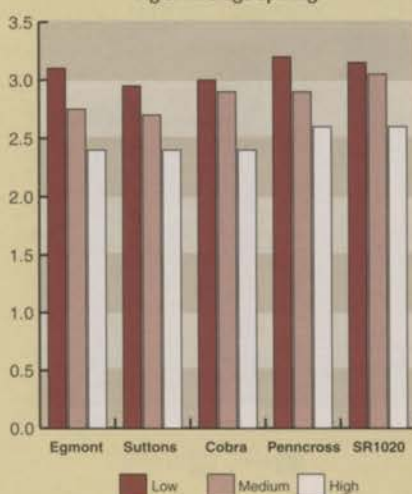
Fig.4. Average turf quality
Variety x mowing height effect



Spiking is a problem on heavily trafficked greens and reduces the smoothness and uniformity of the turf. As a result of spiking, the roll of the ball is interrupted and can cause the ball to move off line. The stoloniferous varieties showed the greatest level of spiking with Pennncross the highest.

Both Egmont and Suttons had considerably less spiking with Suttons exhibiting the least spiking (figure 5).

Fig.5. Average spiking



The results of this trial demonstrate that green speed is higher at lower mowing heights on all bentgrass varieties. With stoloniferous bentgrasses green speed can be increased at the expense of turf quality and density. The use of greens rollers can significantly increase the green speed and maintain a higher height of cut without reducing turf density or quality on greens subjected to heavy traffic or poor growing conditions.

Wear has little effect on green speed although spiking resulted in deviation of the ball. The stoloniferous varieties exhibited the greatest level of spiking with Pennncross being the worst effected. Spiking increased for all varieties as the mowing height increased.

Green speed can be manipulated through bentgrass variety selection and maintenance practices. All factors, including variety, mowing height, rolling and wear must be taken into account before implementing a program of increasing green speed.

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ACKNOWLEDGMENTS

We would like to express our sincere thanks to the Victorian Golf Association, the Victorian Golf Course Superintendents Association and the Horticultural Research and Development Corporation for generously providing funds for this research project. We would also like to express our gratitude to the Royal Melbourne Golf Club for allowing us the use of their practice putting green. Special thanks to Mr Jim Porter (Golf Course Superintendent) and Mr Doug Chalmers for the maintenance of the trial site.

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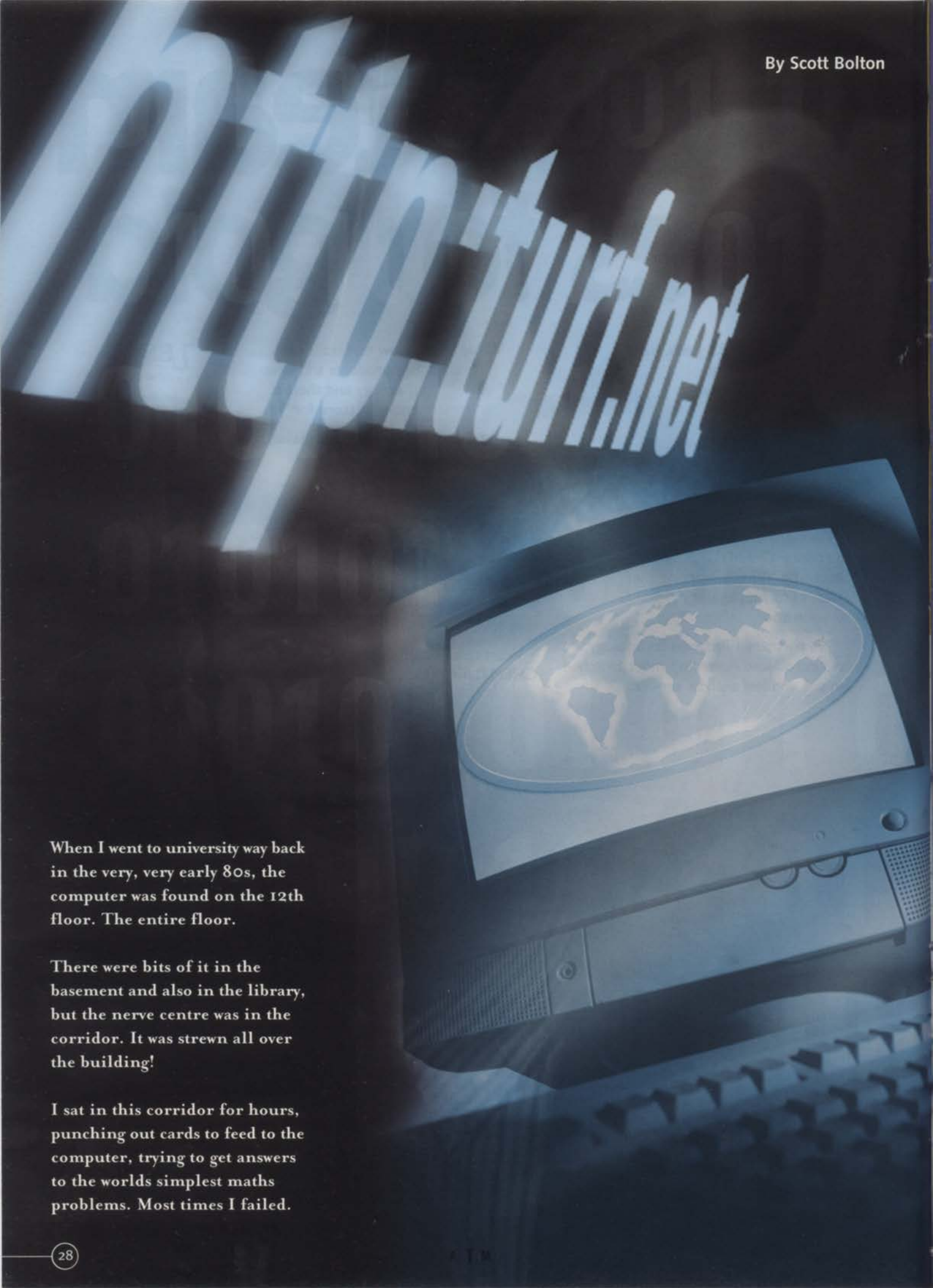


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When I went to university way back in the very, very early 80s, the computer was found on the 12th floor. The entire floor.

There were bits of it in the basement and also in the library, but the nerve centre was in the corridor. It was strewn all over the building!

I sat in this corridor for hours, punching out cards to feed to the computer, trying to get answers to the worlds simplest maths problems. Most times I failed.

Thankfully this type of computer has gone the way of the dinosaurs and is now found only in museums.

These days, computer technology enables us to access some of the world's finest turf minds via the Internet and electronic mail (e-mail).

WHAT IS THE INTERNET?

The Internet is an international collection of networks. Networks are banks of two or more computers set up in universities, schools, labs and businesses. The Internet connects these networks using high speed phone lines, fibre optics or even satellites.

Think of the Internet as a page from the street directory, with interconnecting streets, roads, highways and freeways. They all lead somewhere and the choice of travelling routes is infinite.

The Internet is a stand-alone community, a means of communication and an information resource, a warehouse containing tonnes of data.

The World Wide Web is probably the most popular way of surfing the net. The WWW is a system of documents containing text, graphics and other multimedia phenomena.

Each web document serves two purposes - it contains information that is useful in itself, and it contains specially marked words or phrases that serve as links to other web documents. If a link gets selected, the Web will automatically load the document, making the whole experience nice and easy.

LET'S GO SURFING!

To go surfing you will need some basic equipment including a computer, modem and phone socket.

You can surf the net using any old equipment but the more powerful your computer and the faster your modem the more enjoyable the experience becomes. Slow equipment and slow Internet Service Providers (ISP) mean slow download times. If you pay your ISP by the hour you could be up for a small fortune by the time you download what you need.

I recently downloaded the 1998 Turf Research journal from the University of Kentucky. This 70 page document took ten minutes to download and 20 minutes to print. That's half an hour for one document using an extremely fast modem (56kbps) and a laser printer.

If a document takes too long to download, quit and go back at a time when less people are surfing. Australian peak hours are from 4.00 p.m. to 10.00 p.m. I find the best time to go surfing is around about 8.00 am, when everyone's going to work or school.

GETTING THE INFORMATION YOU NEED

I'm not going to tell you how to find things on the net. The excitement of using the net is discovering sites yourself. The best way to do this is to use links from a site that you know or by using search engines.

A search engine is just like the "Yellow Pages" or a massive street directory in that it contains thousands of web sites. You can search for these by entering key words. Popular search engines include: Yahoo, Alta Vista, Lycos and Excite.

Whilst completing an assignment on Plant Growth Regulators, I searched the net and found that by putting in the words, "turfgrass", "research", and "PGR" I picked up over a thousand hits. Only 10 were useful!

Although this may seem a tedious task, the information found was brand new, extremely relevant and worthwhile. It just takes time to sort the wheat from the chaff!

The web will often give you a percentage of the number of keywords that appear in an article or document. 100% is good, 47% is not so good. Remember that the more keywords you use, the more "refined" your search will be.

Be careful about using ambiguous words, such as "turf". I picked up a whole lot of American Horse Racing guides using that one. "Grass" is also likely to give you a list of references that you may or may not find useful so is probably one to avoid.

WHAT SITES ARE RELEVANT TO ME?

It depends on what you're after. Remember that the Internet is a big warehouse. If the contents of a warehouse aren't filed well, different search engines or links will be needed to access the information you require.



There are hundreds of sites of special interest to turf managers. These range from turf equipment, chemical data and fertiliser technology, through to research and development and obscure sites such as the Irish Greenkeepers Association and the Tunisian Golf Course Association.

The great thing about the web is that nearly every page has contact details. This means that you can e-mail most organisations and get a reply within 24 hours. I have e-mailed companies and research scientists from overseas who are interested in what we do in Australia.

The web can broaden your horizons and vastly increase your database of knowledge and contacts. As an aside, and perhaps an incentive, 30% of my business comes from the web, and that percentage is increasing daily.

FAVOURITES

The sites I like the most are ones that are updated regularly and contain fresh information and links. On most of the home pages (that's the first page you see) a sentence at the bottom of the page will tell you when the page was last updated. It is not uncommon to go to a site and find that it hasn't been updated for two or three years.

In this case, print off the information you want and revisit once a year!

Most of the best sites on the net, and I'm talking about best from an information perspective, aren't very pretty. This is because the 'bells and whistles' approach of web design only works when you have the very best equipment.

I have just finished constructing the Turfgrass Association website. My main design criteria was to not include too many pictures and to download quickly using older modems.

Most turf managers do not have access to the newest equipment and those connected to the net are usually connected at home or in the main office, so quick downloads are important. The TGAA site isn't pretty, but has a heap of information that can be quickly accessed. The web site also has loads of categorised links that makes it easier to surf to different turf areas.

I have included a list of useful web sites for turf managers. The turf sites I visit the most are the USGA Green Section (although they don't update often), The GCSAA, the AGCSA, the University of Guelph Links Page & Greenkeeper Information (a German site, in English).

Don't be scared to surf the net. You can't drown; but watch out, there are plenty of sharks out there! Try to keep your surfing to about an hour in a day and three hours a week. Remember that the net is a tool, just like your favourite mower! Don't abuse it!

If you know of a good turf related site that you think would be of interest to other turf managers, e-mail me on sabolt@sub.net.au and I'll link them onto the TGAA website and also publish a list of favourites in future issues of ATM.

Until next time, pursue the perfect wave!

Useful Turf Related Web Sites Internet addresses & Internet sites

www.tgaa.asn.au

Turfgrass Association of Australia

www.agcsa.com.au

**Australian Golf Course
Superintendents Association**

www.gcsaa.org

**Golf Course Superintendents
Association of America**

www.usga.org/green/index.html

USGA-Green Section

www.turfgrassod.org

Turf Producers International

www.turftec.com

Turf Equipment Technicians

www.atinet.org/cati/

Center for Irrigation Technology

www.weather.yahoo.com/forecast/Melbourne_AU_c.html

Weather Reports
(replace 'Melbourne' with the city you live in)

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TIFDWARF
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Take-All diseases are a major problem of cereal crops. Taxonomy and pathogenicity studies have clarified the identity and pathogen potential of the varieties. Previously recognised as a turfgrass pathogen of bentgrass, a Take-All variety *Gaeumannomyces graminis* var *avenae* has recently been isolated in Australia and its pathogenicity confirmed on Tifdwarf. This represents the first world-wide record of this Take-All variety on a couchgrass cultivar.

TAXONOMY OF TAKE-ALL DISEASES

Despite being acknowledged by turfgrass pathologists as a disease from the early part of this century, take-all was known from the cereal grain crops much earlier. In Australia, the name "Take-All" was used by South Australian farmers last century. First described in 1875, the fungal name was later changed to *Ophiobolus graminis*. *Ophiobolus graminis* was isolated from bentgrass (*Agrostis* spp.) initially in Holland in the 1930's, in Britain in the 1950's and the United States in the 1960's (Smith, 1959; Clarke and Gould, 1993).

Work initiated in Britain in the 1940's resulted in the reclassification in 1972 by John Walker, a fungal taxonomist with NSW Agriculture, into three fungal varieties in the genus, *Gaeumannomyces* (Walker, 1972). These being *G. graminis* var *graminis*, (so far non-pathogenic on turfgrass in Australia), *G. graminis* var *tritici* which causes Take-All of Wheat and *G. graminis* var *avenae* the cause of Take-All of Oats (Beehag and Wong, 1987).

G. graminis var *avenae* is currently recognised as the principal turfgrass pathogen on cool season species. Called *Ophiobolus* Patch since 1956 the current disease name Take-All Patch of Turf was adopted by the American Phytopathological Society in 1981 (Clarke and Gould, 1993).

TAKE-ALL DISEASES IN AUSTRALIA

Take-all occurs in all cereal grain crop regions of Australia. The Oat Take-All fungus *G. graminis* var *avenae* has only been known relatively recently. Diagnoses conducted on diseased bentgrass collected from southern New South Wales in 1966 later revealed *G. graminis* var *avenae* as the causal agent (Smith, 1969). This was the first record of the variety in New South Wales.

Numerous scientific papers have been published in relation to work conducted on cereal crops about the ecology and management of the pathogenic varieties, *G. graminis* var *tritici* and *G. graminis* var *avenae* (Walker, 1975; Wong, 1981). The turfgrass studies conducted in Australia on Take-All disease have been limited to bentgrass the principal host (Wong and Siviour, 1979; Wong and Baker, 1986; Wong and Worrall, 1989).

IDENTIFICATION AND PATHOGENICITY OF TAKE-ALL ON TIFDWARF

During early 1994 the senior author inspected the putting greens at Ocean Shores Country Club on the north coast of New South Wales during a visit by the now defunct ATRI. An opinion was sought by Course Superintendent Barry Cox as the possible cause of damage. Despite several bowling clubs having reported unexplained symptoms since the early 1980's the disease symptoms observed at Ocean Shores were dissimilar and more severe. The symptoms were near complete, circular "rings" ranging in size from 20-30cm diameter and randomly scattered throughout the Tifdwarf putting surface. Characteristically, the symptoms coalesced as they enlarged and the centres of the "rings" were relatively green in sharp contrast to the chlorotic and necrotic edges. Throughout the greens, unaffected patches of Tifdwarf existed which suggested variability to disease infection within the cultivar.

Initial microscopic examinations conducted in Sydney only revealed spores of *Curvularia* spp. from leaf tissue. The symptoms were not consistent with *Curvularia* spp. and because of the potential significance of the unique symptoms further Tifdwarf samples were initially examined at the now defunct Biological & Chemical Research Institute

(BCRI, Sydney) and later at the Agricultural Institute's at Menangle and Wagga Wagga (NSW). Using laboratory techniques to induce fungal perithecia and mycelium production on agar from diseased Tifdwarf root samples for identification by morphological and complex DNA techniques, the Oat Take-All fungus *G. graminis* var *avenae* was positively identified. A related species *G. incurstans* was also identified from the diseased samples. Based on recognised methodology to prove Koch's Postulates, pathogenicity was demonstrated on Tifdwarf by the fungus *G. graminis* var *avenae*. The causal fungus was not pathogenic on three of the *Cynodon* spp. selections, Wintergreen, Greenlees Park and Common Couch. *G. incurstans* was not pathogenic to any *Cynodon* spp. (Wong, et al, unpublished).

DISCUSSION AND FUTURE SIGNIFICANCE

This work demonstrated that the Oat Take-All fungus *G. graminis* var *avenae* was the causal agent of the disease observed on Tifdwarf couchgrass at Ocean Shores Country Club. DNA analysis proved to be the quicker and more reliable procedure to determine the true identity of the fungus.

Numerous studies conducted on cereal crops and turfgrass have demonstrated the effects of soil physico-chemical properties such as temperature, pH and nutrition (Walker, 1975). Field observations have consistently shown that the severity of the Take-All symptom reduces over time following soil fumigation (Wong and Baker, 1986). This phenomena of Take-All decline is attributed to the activity of microorganisms antagonistic to the Take-All fungi in the presence of soil organic matter. Microorganisms responsible for inducing Take-All suppressive soil includes antagonistic avirulent fungi and fluorescent pseudomonads (Wong, 1997). There are no effective procedures for consistent control against Take-All. Bayfidan is the only fungicide registered in Australia for use on cool season turfgrass species.



Confirmation of *G. graminis* var *avenae* at Ocean Shores Country Club poses an intriguing question, "What environmental factors or cultural practices have altered to predispose the Oat Take-All fungi being present?" The Tifdwarf greens at Ocean Shores are among the first to be established in this country, around 1970 (Beehag, 1990). The greens were constructed from a fine sandy loam soil sourced on site. The phenomenon of morphological variation or off-types as described in American literature (Hanna, 1989) does exist in the greens at Ocean Shores. According to Barry Cox the appearance of the disease symptoms in the autumn of 1994 coincided with not using normal soil applications of a combination organic fertiliser and quitozene fungicide product during the previous summer renovation (Cox, personal communication).

The cultivation of the related hybrid couchgrass cultivar Tifgreen (328) throughout northern Australia makes the degree of pathogenicity of *G. graminis* var *avenae* toward Tifgreen pertinent to discover given the problems clubs in the region have experienced. Investigations into the pathogenicity of *G. incrustans* on Tifgreen also need to be elucidated following its recent identification in Florida (Elliott, 1991).

Plant pathology is not an exact science with relatively few persons in Australia possessing the pathology expertise and technology required for an accurate disease diagnosis. Combined with the fact that classical textbook symptoms are not always expressed for many diseases the precise identification down to species and variety level does require additional skills. In providing a diagnostic service the few commercial pathology laboratories are unfortunately constrained by time, unlike a scientific research facility. Funding from the turf industry is required for further investigation about Take-All disease on *Cynodon* spp. cultivars and its control given this new finding.



A TECHNICAL SERVICES OFFICER (GLOBE AUSTRALIA, SYDNEY)

B WAGGA WAGGA AGRICULTURAL INSTITUTE (WAGGA WAGGA, NSW)

C ELIZABETH MACARTHUR AGRICULTURAL INSTITUTE (MENANGLE, NSW)

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PROGRAM- 4th NATIONAL TURFGRASS SEMINAR

Awards Judging

3.00pm State Presidents Meeting, Stirling Range Room, Burswood Resort Hotel

Golf Championship, Trade Show Set-up

6.00pm-8.00pm Welcoming Cocktail Reception

3.00pm-6.00pm Registration

DAY	TIME	STREAM A	STREAM B	STREAM C
MONDAY JULY 19th	8.00AM-9.00AM	OPENING SESSION and presentation of AGCSA Awards Showroom, Burswood Convention Centre Guest Speaker: Walter Woods		
	9.00AM-11.00AM 11.00AM-1.00PM	TRADE SHOW WORKSHOP 1A (Eagle Room, Level 2) "WA Water Use Study" - Digby Short, Univ. of WA "VGA Low Input Fairway Grass Trial" - Phil Ford, NMCOT "Austep Trials" John Neylan, Turfgrass Technology	TRADE SHOW WORKSHOP 1B (Kestrel Room, Level 2) Thinking Superintendents: Jeff Lake: "Poa control through better management techniques" Trevor Strachan - "Construction of Port Kennedy Resort" Dion Warr - "The use of Global Positioning Systems in Golf Course Management"	TRADE SHOW WORKSHOP 1C (Ibis Room, Level 2) "Challenges in restoring native flora and fauna on golf courses" David Aldous, Burnley College
	1.00PM-3.00PM 3.00PM	LUNCH/TRADE SHOW TRADE SHOW CLOSE	LUNCH/TRADE SHOW TRADE SHOW CLOSE	LUNCH/TRADE SHOW TRADE SHOW CLOSE
	3.00PM-5.00PM	WORKSHOP 2A (Kestrel Room, Level 2) "Developing Integrated Nematode Management Programs for Turf" Professor Bruce Martin, Clemson University, South Carolina	WORKSHOP 2B (Eagle Room, Level 2) Thinking Superintendents - Robert Macdonald - "Water Management in Lakes at the Joondalup Country Club" Allan Devlin - "Construction of the Secret Harbour Golf Club."	WORKSHOP 2C (Ibis Room, Level 2) "Natural Turfgrass Management" David Aldous & Robin Watson, Burnley College
	7.00PM-9.00PM	WORKSHOP 3 (Kestrel Room, Level 2) Public Speaking- Session 1: Presented by Norman Venus, the AIM Pre-registered delegates only		
TUESDAY 20TH JULY	8.00AM-10.00AM	WORKSHOP 4A (Eagle Room, Level 2) "Optimum Disease Control for Bentgrass Greens" - Bruce Martin, Clemson University, South Carolina	WORKSHOP 4B (Kestrel Room, Level 2) Thinking Superintendents: Trevor Strachan: "Tournament Preparation" Wayne Millar: "Installation of New Irrigation System at Lake Karrinyup"	WORKSHOP 4C (Ibis Room, Level 2) "A look at biological products in turf management" John Neylan, Turfgrass Technology
	10.00AM 11.00AM 1.00PM-3.00PM	TRADE SHOW AGCSA AAP Information Session (Kestrel Room, Level 2) WORKSHOP 5A (Kestrel Room, Level 2) "Staff Counselling and dispute resolution procedures" - Australian Institute of Management	TRADE SHOW WORKSHOP 5B (Ibis Room, Level 2) AGCSA Award Winners	TRADE SHOW WORKSHOP 5C (Eagle Room, Level 2) "Washdown Bays, and Water/Pesticide Management", Steven Appleyard & Reuben Taylor, WA Water & Rivers Commission
	3.00PM-4.30PM 4.30PM 5.00PM	TRADE SHOW TRADE SHOW CLOSES AGM (Kestrel Room, Level 2)	TRADE SHOW TRADE SHOW CLOSES	TRADE SHOW TRADE SHOW CLOSES
	7.00PM-9.00PM	WORKSHOP 3 continued - Public Speaking, Session 2		
	8.00AM-11.00AM	KEYNOTE ADDRESSES "Disease Management in Turf - Strategic Planning to Stay on Course" Bruce Martin, Clemson University, South Carolina "Managing St Andrews", Walter Woods		
WEDNESDAY JULY 21ST	11.00AM-12.00 12.00-5.00PM 7.00PM-11.00PM	LUNCH TOUR (Lake Karrinyup Country Club, Cottesloe Golf Club, WA Water Use Trials) DINNER, Ballroom Burswood Resort Convention Centre		

SECRET HARBOUR GOLF CLUB



Exhibitor Listing

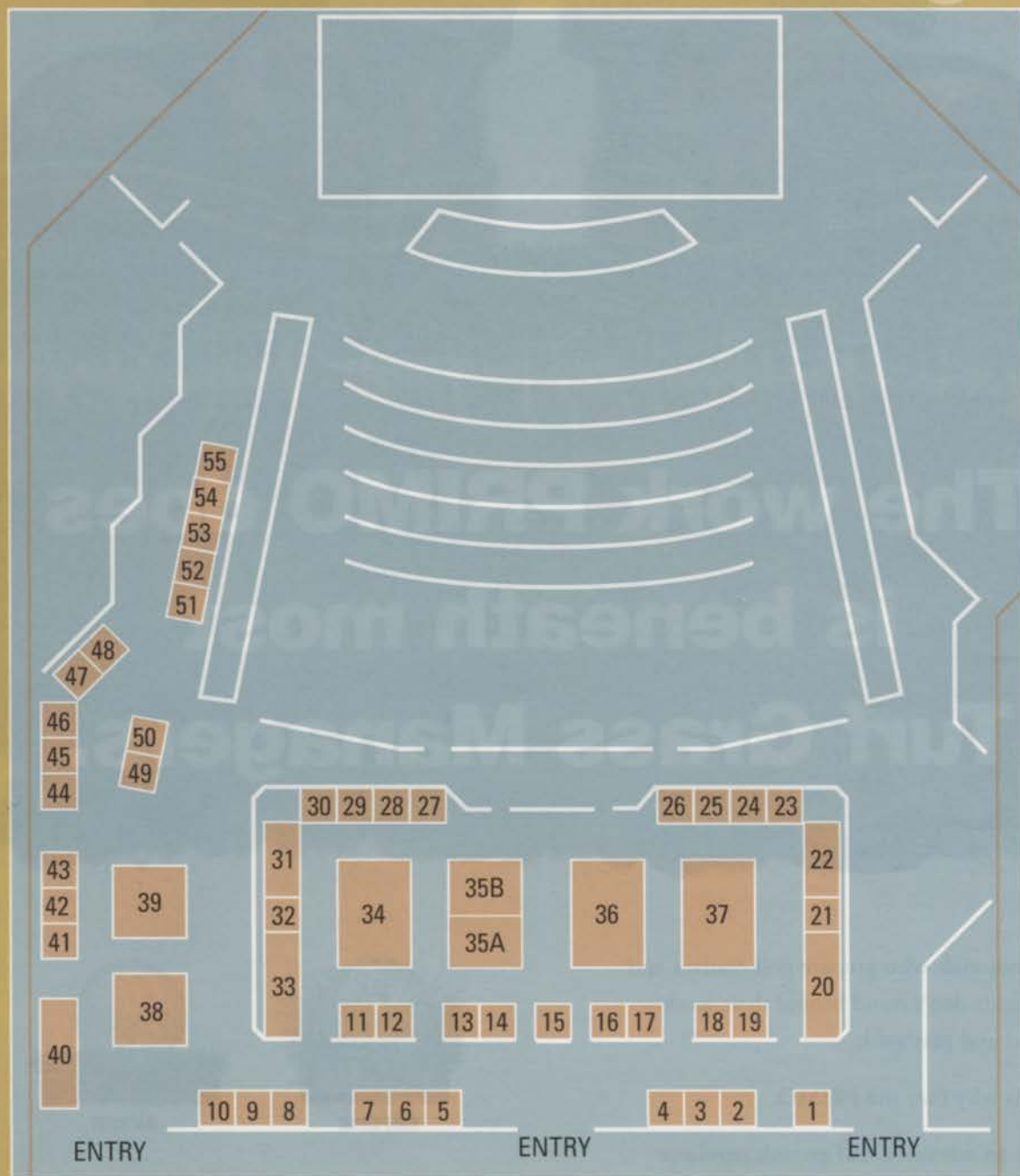
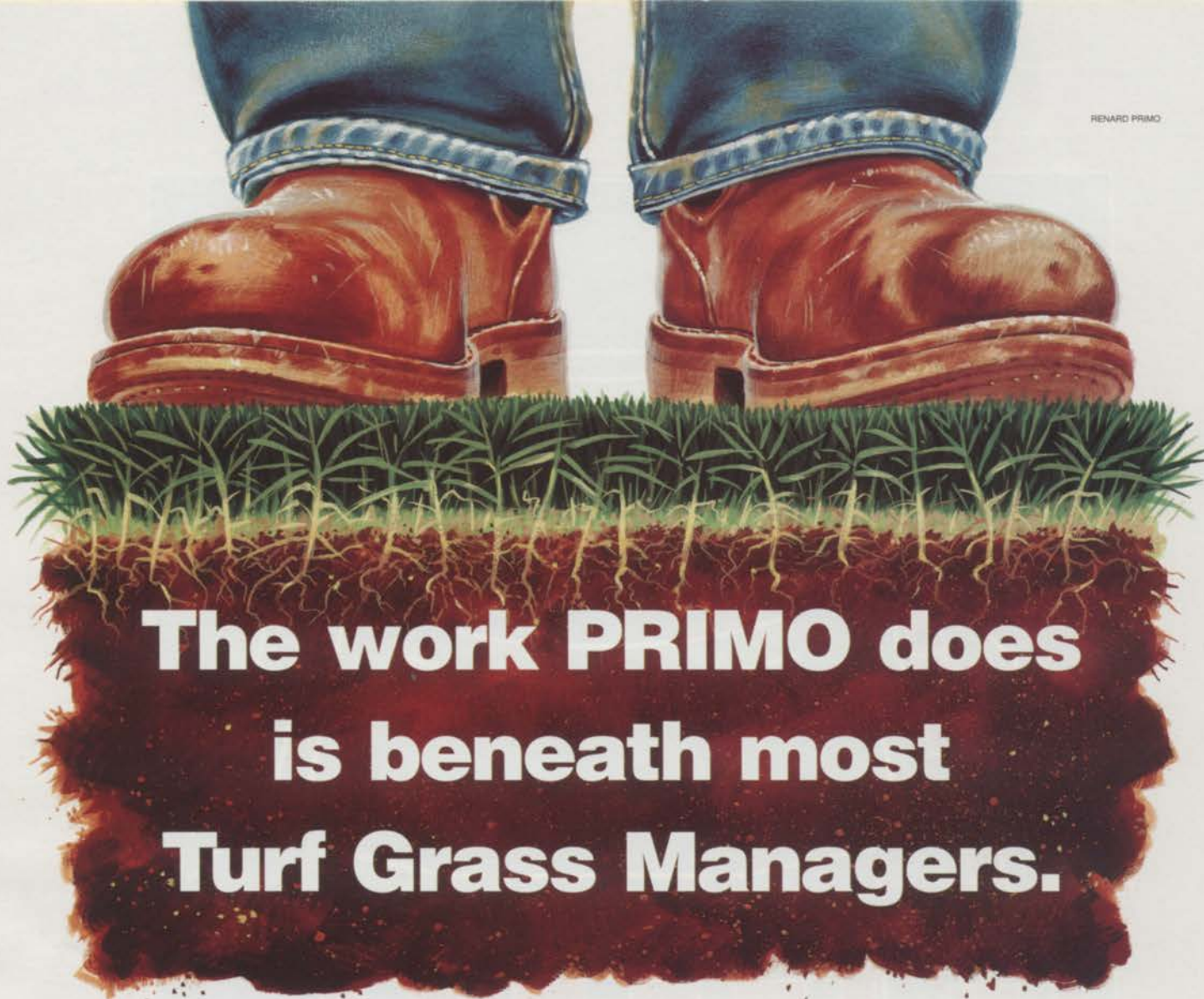


Exhibit Number	Company	Exhibit Number	Company	Exhibit Number	Company
1-4	Exhibitor Lounge	25,26	Turf & Irrigation	37	AGCSA & Australian
5	Turf Tec Australia	27	Tru Turf Equipment		Turfgrass Management
6,7	Plasticisers/Loksand	28	Controlled Sprinkler	38,39	Toro
8,9,10	Scotts		Supplies	40	Hardi Spraying
11	Novartis	29	Wesfarmers Dalgety	41	Graden Turf Machinery
12	TurfCraft	30	Barmac Industries	42	M.E.Y. Equipment
13,14	Chipco	31	Rainbird	43	Heritage Seeds
15	DGE	32	H-R Products	44	Rainman Irrigation
16,17	Legacy by Hunter	33	Redexim		Control Systems
18	David Gray and Co.	34	John Deere	45	Symonds Seeds
19	Dwyer and Felton	35A	Chemturf	46	Simplot Turf & Horticulture
20	Club Car	35B	Greencare Industries	47	Turfcare Supplies
21	Baileys Fertiliser	36	Textron Turfcare Group	49,50	Australian Turf Industries
22	BHM Machinery			51	Roy Gripske & Sons
23,24	Foley United			53-55	Speakers Preparation Room



The work PRIMO does is beneath most Turf Grass Managers.

Turf Professionals who prepare golf courses and sporting fields don't stand behind their work. They stand and play on it.

And that is why they use PRIMO.

PRIMO is an advanced turf growth regulator which slows growth by 50% or more. That means less mowing and less clippings to dispose of, freeing up your valuable labour to spend more time on other projects.

PRIMO is proven to increase turf density, colour and quality and will reduce thatch and scalping so your turf will look and play better all year round.

PRIMO, when used in a program, will enable your turf to maintain its quality longer when put under stress.



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SPEAKER PROFILES

Professor Bruce Martin,
ASSOCIATE PROFESSOR, PLANT PATHOLOGY AND
PHYSIOLOGY, PEE DEE RESEARCH AND EDUCATION
CENTRE, CLEMSON UNIVERSITY, USA

Professor Martin's present research emphasis is on the ecology, epidemiology and control of Rhizoctonia-induced diseases of turfgrasses. One project involves studying temporal shifts of Rhizoctonia species on subspecific groups among *R. solani*. Another objective is to determine diseases of importance of *Poa trivialis*. A major project is to characterize the components of an interaction between pre-emergence herbicides that inhibit recovery of nematode infested couchgrass golf fairways.

John Neylan,
B.A.G. SCI. (HONS), DIRECTOR,
TURFGRASS TECHNOLOGY

John has over 14 years experience in turf consultancy and research with a strong emphasis on major project management. His areas of expertise include soils, drainage, construction, irrigation management and the use of recycled water. He consults to many high profile golf clubs and sporting venues around Australia such as the Australian football League, South Australian Jockey Club, Royal Melbourne Golf Club, and Moonee Valley Racing Club. Recent major research projects have included "A sand based turf profile reinforced with mesh elements to provide an all weather surface for horse racing" and "Assessment of turf species composition and management of grass racetracks in Australia."

Dr. David Aldous,
PRINCIPAL LECTURER IN THE DEPARTMENT OF
RESOURCE MANAGEMENT AND HORTICULTURE,
INSTITUTE OF LAND AND FOOD RESOURCES, THE
UNIVERSITY OF MELBOURNE

David has many years experience teaching horticulture, particularly turf and amenity grassland management. David is a Fellow of Parks and Leisure Australia, and in 1998 was installed as the World President of the International Federation of Park and Recreation Administration. He has recently edited and contributed to a book entitled the International Turf Management Handbook, published by Butterworth Heinemann.

Mr. Digby Short

Digby Charles Short was born on 27 April 1974 in the agricultural district of Esperance, Western Australia. In 1991 he finished secondary school in Perth (Hale School) and commenced his undergraduate degree in the Faculty of Agriculture at The University

of Western Australia. In 1996 he completed a Bachelor of Science (Natural Resource Management) with honours, majoring in Environmental Plant Physiology. In January 1997 he commenced studies towards his Ph.D. by research on "Water use and drought tolerance in diverse genotypes of turf grass", at The University of Western Australia. The project is supported by HRDC and industry partners, and is supervised by Dr. Tim Colmer. His research and dissertation should be completed by spring 2000, after which Digby hopes to continue working within the Australian Turf industry.

GENERAL INFORMATION FOR DELEGATES

Registration desk & Secretariat

A registration desk will be set up in the Galleria of the Burswood Resort Hotel from 3.00pm on Sunday July 18th for pre-registration. On all other days a registration desk will be set up in the foyer of the Burswood Resort Convention Centre and will operate between the hours of 7.30am and 5.00pm

For assistance outside of these hours, or if the registration desk is unattended, please contact an AGCSA representative at the AGCSA Exhibit on the Trade Show floor or call Euan Laird on 0413620253.

AGCSA Members seeking Accreditation Points

All financial non trade members of the AGCSA will receive a Bar Coded Card upon registration. For members to gain Continuing Education Points for accreditation purposes the cards must be swiped through the recording devices located adjacent to the entrance to the workshop areas, each time they pass the access control point. The card is computer linked and will total the number of hours each delegate spends in sessions during the seminar. Delegates can come and go from sessions as they please but will only receive accreditation points for the total time spent within the AGCSA sessions. The onus is on the member to swipe his /her card. The AGCSA is unable to award CEP's to members who do not utilise the recording devices on site correctly or who fail to swipe their cards both on entry and exit. The bar coded name cards will be collected after the final session of the seminar and are non transferable.

Delegate Entitlements

Fully registered delegates are entitled to:

- Opening Session and pre-registered workshops
- Welcoming Cocktail Reception to be held in the Galleria, Burswood Resort Hotel
- Lunches and Morning / Afternoon teas provided on Monday July 19th-Wednesday July 21st
- Seminar Compendiums
- Free copy Australian Turfgrass Management Magazine, including the complete exhibitors listing, and trade show floorplan
- Workshop Notes (to be handed out

at each workshop)
Optional Extras, which are not included and must be purchased in advance include:
Turfgrass Tour \$20
Golf Championship \$40
Final Night Dinner \$70
Social Golf at Joondalup or Gosnells Golf Club: \$30

Buses for Turfgrass Tours

Buses for those registered on the Turfgrass Tour will depart from in front of the Burswood Resort Convention Centre at 12.00 midday and will return around 5.00pm. The Turfgrass Tour will visit Cottesloe Golf Club, Lake Kariyup Country Club and the University of WA Turfgrass Water Use Trial Sites.

Dress Regulations

Social Functions: Jacket and tie required for all social functions. Seminar and Workshop Sessions: Smart neat casual, no denim jeans. Please note that entry will be denied to delegates not meeting the minimum dress requirements.

Catering

Please note that all catering will be served in the Trade Show area. Catering will only be provided to persons wearing their official name badges and registered exhibitors.

Enquiries

All enquiries should be directed to the AGCSA Staff at the Registration Desk or at the AGCSA Exhibit in the Trade Show area.

Name Badges

Name badges must be worn at all times. Access will be denied to sessions, catering, tours and trade show to those persons not wearing a name badge.

Seminar Dinner

Persons who have pre-registered for this event will receive their tickets to this function upon registration. For those delegates who have not pre-registered for this event and who wish to attend, please contact an AGCSA staff member at the registration desk. Registered exhibitor staff are asked to pick up their seminar dinner tickets by the afternoon of Monday July 19th, from the registration desk.

Venue

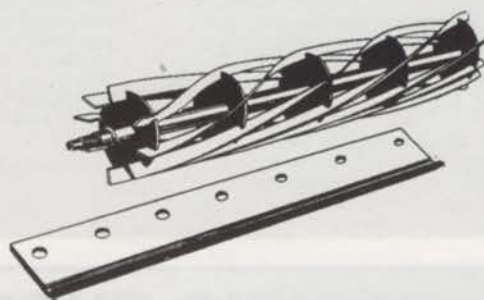
The Opening Session will be presented in the Burswood Convention and Exhibition Centre. All workshops will be presented in the Ibis, Eagle or Kestrel rooms on the second level of the Convention Centre. The Keynote addresses on the Wednesday morning, and the seminar dinner will be held in the Convention Centre Ballroom. Evening workshops will be presented in the Kestrel room on level two of the Convention Centre.

AGCSA AGM

AGCSA members are invited to take part in the AGM, which will be held in the Kestrel Room on Level Two of the Burswood Resort Convention Centre on Tuesday July 20th at 5pm. Drinks will be provided immediately after the AGM for AGCSA Members in attendance.

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BOOTH #5 - TURF TEC AUSTRALIA

Turf Tec manufacture and distribute a broad range of specialty turf maintenance equipment and parts, custom build, modify and refurbish, undertake repairs and offer a comprehensive mower sharpening service. Products include an extensive range of renovation equipment such as vertimowers and scarifiers with various blade configurations for light to heavy work. Tractor mounted and pedestrian models are available. Debris collection systems such as the Tractor Mounted Power Broom has been successful due to its efficiency, fast ground speed, simplicity, versatility and cost. Renovation equipment needs to be simple in principle, yet strong and robust. Including top quality case hardened tungsten tipped blades. Product is distributed nationally and overseas. South Australia is serviced through Alcast Equipment by Adrian Grace on 08 8371 0877. The Landpride distributorship for Western Australian includes Utility Vehicles, Bunker rakes, Aeravators, Top Dressers, Vacuum Units, Gang Mowers, Spray Units, Debris Blowers and Seeders. Brand names include Landpride, Goossen, CheTech, First Products and Bush Hog. Turf Tec Australia considers innovation from close liaison with turf managers as the key to success. Ph. 08 9249 4777 Fax. 08 9248 9474 12 Beringarra Avenue, Cnr Milrose Drive Malaga, Perth. Western Australia 6090.

BOOTH #6 & #7 - LOKSAND FIBRE

Is wear and tear knocking the stuffing out of your course? It's time to toughen up your act with the new product called "LOKSAND". Manufactured by Plasticisers Ltd, world leaders in rootzone stabilisation, LOKSAND fibre, with its uniquely designed "crimp" into every fibre strand, permits far superior interlock between fibres and sand. No other product has the performance characteristics of LOKSAND fibre. The benefits a LOKSAND installation will bring to YOUR course are:

1. Prevent excessive wear and tear on problem areas.
 2. Reduces waterlogging by aiding drainage.
 3. Spreads load weights and prevents indentations of buggies. No unsightly asphalt roadways.
 4. Permits MORE of your course to remain IN play.
 5. Proven reduction in divot depth.
 6. 1 metre of LOKSAND fibre surrounding each bunker will prevent edge deformation, retain steep sides and be a more stable access when climbing in and out.
- As the worlds leading supplier of polypropylene stabilising fibres, we have the technical backup needed for a worry free installation. LOKSAND is available from:
- | | |
|------------------------|-----------------|
| Burdett's of Melbourne | Ph 03 9789 8266 |
| M. Collins of Sydney | Ph 02 9774 1544 |
| Riversands of Brisbane | Ph 07 3287 6444 |
| Peat Soils of Adelaide | Ph 08 8556 5295 |

BOOTH #8,9,10 - SCOTTS AUSTRALIA

The Scotts Company is the worlds leading producer of turf and horticultural fertiliser products offering over 500 different products including, controlled release fertilisers, proprietary seed varieties, plant protection products, organic products and applicators throughout the world. Scotts Australia welcomes golf superintendents and turf managers to their stand.

- NEW SEED VARIETIES - The best for less!

Local production has commenced for two new perennial ryegrass products, BLEND 101 and DIVINE which complement Scotts traditional favorite CARAVELLE.

- CONTEC - the best of both worlds!

For fast initial response and a lasting supply of Nitrogen and other essential elements Contec synthetic organic fertilisers provide continuous and healthy plant growth.

- WEED AND FEED - The latest news!

Scotts Fertiliser plus Pendimethalin is the low cost way to fertilise your turfgrass and gain pre-emergent control of a broad spectrum of hard to kill weeds in just one seasonal application. And see our latest, just released, post-emergent combination for dicot weeds.

- POA RESTRICTOR

Scotts new Fertiliser with TGR (Turf Growth Regulator) is the ultimate Poa constrictor. It promotes growth of desirable cool season turf whilst simultaneously suppressing the growth of Poa Annua without compromising the quality of playing surfaces. See us on our stand or call your distributor for further information.

BOOTH #11 - NOVARTIS

Welcome to the 4th National Turfgrass Seminar! We hope you enjoy your stay in Perth and look forward to catching up with you during the Seminar. Please feel free to drop in at the NOVARTIS Display Stand to find out about the recent label registrations for PRIMO plus the new and exciting turf products Novartis has in the pipeline. PRIMO is our turfgrass growth regulator, which slows turfgrass growth. The result is healthier, greener, more compact turfgrass that requires less mowing and has reduced clippings. PRIMO is used in many areas including golf courses, sporting fields, parks, lawns, turf farms and race tracks and is effective on a number of warm and cool season turfgrasses.

Professional turfgrass managers use PRIMO because it:

- Reduces the need for mowing by up to 50%;
- Helps to prepare their turf ahead of time to cope with the extreme conditions that make up a typical season;
- Improves the appearance of their turf; and
- It allows them to better plan their resources to suit times of heavy workload, peak turf grass growth and interruptions due to rain.

Looking forward to seeing you at the 4th National Turfgrass Seminar!

BOOTH #12 - TURF CRAFT MAGAZINE

Turfgrass maintenance and construction within the areas of sport, parks and recreation and turf growing is Turf Craft magazines charter. Turf Craft in its 13th year of publication, supplies its readers with industry news and technical information and also keeps readers informed about new appointments, products and new services. Turf Craft identifies that while each sector of the industry has some special requirements, as a whole it also has many common requirements. Turf Craft is committed to giving its advertisers professional and friendly service. This is evident in advertisement reproduction and placement and response to advertiser queries. Turf Craft exists as a vehicle for industry members to present their views and facilitate discussion. Turf Craft presents information under headings such as education, pests and diseases, research, irrigation and new turf varieties as well as including monthly features. Regular columns include Ask The Experts, Greenkeeper's Planner and Association News. For further inquiries phone (03) 9287 0900.

BOOTH #13, #14 - CHIPCO

Chipco is the wholly owned turf care division of Rhone-Poulenc - one of the worlds largest crop protection transnationals. Much has been achieved since Chipco's Australian launch in late 1994:

- Developing a high quality service network to provide national coverage of Australia's turf care markets;
- Forging a strategic alliance to include Bayer Australia's turf care brands in our portfolio of products such as the Rohm and Haas and Dow AgroSciences range;
- Launching major new brands such as Bayer's Merit Turf, Chipco Choice, Chipco Fore Flo and Chipco Alette Signature;
- Sponsoring the AGCSA Claude Crockford Environmental Award;
- Building a strong commitment to R&D, stewardship, safety, and to the use of low-dose and infrequently-applied chemicals within an 'Integrated Turf Management' regime.

These developments aid Chipco's collaborative relationships with customers where our focus is on the discovery, development and delivery of practical turf care solutions that capture extra value. Chipco wishes the 4th National Turfgrass Seminar every success, and our team looks forward to welcoming delegates to our stand (number 13 & 14). See you there...

BOOTH #15 - DGE

DGE - David Golf and Engineering are pleased to be once again involved in the 4th National Turfgrass Seminar. DGE have been supporters of the Turfgrass Seminar from its inception and look forward to continued growth for many to come. This association culminates in DGE being appointed the exclusive supplier for the AGCSA Golf Championship for the next three years. At DGE we pride ourselves in providing premium quality product and excellent service which is shown in the increased sales team during this period.

DGE Representatives are:

Vic	John Mansfield, Casey Johnson
NSW	Andrew Whatson
Qld	Brian Chandler

Official Distributors:

WA	Geoff Kirk - Total Turf
SA	Coopers Turf Supplies
NT	Alan Nicholls - Darwin Golf Centre
TAS	Southern Turf Specialists

The DGE Millennium Catalogue has just been released which all golf clubs throughout Australia will receive prior to the National Seminar. The catalogue features many upgraded and new products from - Flagpoles, Flags, Signage, Tee Markers, Litter Bins, Benches and the most comprehensive range of Holecutters available plus many more products. Looking forward to seeing you at the 4th National Turfgrass Seminar and when you visit the Trade Show you will find us at booth 15. Call past for prizes and giveaways.

BOOTH #16, #17 - LEGACY BY HUNTER

Hunter announces our new line, Legacy by Hunter, which will be officially released at the AGCSA exhibition. Our acquisition of Legacy Golf Irrigation signals and confirms Hunter Industries' absolute commitment to the golf course irrigation market.

- Genesis Field Controllers are available as Stand alone, Hardwire and Radio Configurations. Key features are up to 60 station capacity, 20 program capability and non volatile Field resident memory.
- The Genesis Viking Two Wire Decoder Control can

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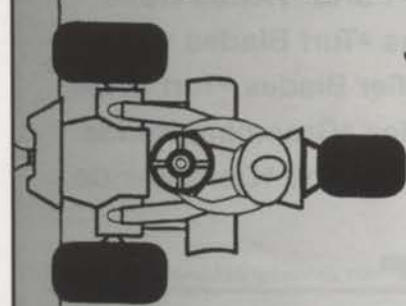
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Mobile: 0418 404 423 Email: pacturf@intercoast.com.au



also be operated as a stand alone unit, or with Hardwire or Radio connections to the Genesis Central.

- The Genesis Central control system links these field units. The Windows' based program manages up to 999 field controllers, including data retrieval units and weather stations with ease. Features like automatic ET adjustments, Two-way command verification communications and optional Flow Optimiser make programming and operation simple.
- To complete your management package, Legacy by Hunter has the Genesis Data retrieval unit, which allows up to six sensors to input data, such as wind, flow and rainfall.

We look forward to seeing you at booth No's 16 and 17.

BOOTH #18 - DAVID GRAY AND CO.

David Gray & Co. Pty. Limited have serviced the Western Australian market place for sixty years commencing business in Perth in 1939. Throughout these years the family company has prided itself on their understanding of local needs. The closure of Robert Linton Pty. Ltd. has highlighted once again that there is a need for a local West Australian company to fill the void and service the turfgrass industry with both quality products and high level technical support. David Gray can offer the full range of specialised turf chemicals with products from Chipco, Scotts Fertilisers, Barmac, AgrEvo and Chemturf to ensure the right product is available to meet every situation. Lindsay Hollingsworth a former Robert Linton turf representative has joined the team at David Gray to call on Golf Course Superintendents to assist them in their management decisions. Jade Chemicals (SA), a specialised chemical supply company in South Australia is owned by David Gray. Jade can offer a full range of turfgrass chemicals and fertilisers. Jade can offer fast delivery and quality customer service to help you reduce your work load. David Lavender can be contacted by telephone on (08) 8346 1966 or Mobile 0408 816 690 to order Chipco, Barmac, AgrEvo, Scotts or Chemturf products.

BOOTH #19 - DWYER AND FELTON

MowMaster Turf Equipment, manufactured and designed by Dwyer & Felton has specialised in "Walk Behind" technology since 1950. Highly regarded by

Professional Turf Managers and Contractors alike, as being second to none. The equipment we manufacture is of heavy duty commercial construction and extreme simplicity in design and maintenance. We offer in all our product, superior blade steel technology, low maintenance design, high power output transmissions, versatility and unique cutting systems which will impress any professional. Machinery we manufacture are Golf Green Mowers, 22" Scarifiers, Vertimowers-Groomers, Edgers, General Purpose Mowers from 22" Cut - 36" Cut and specified Tennis, Cricket and Bowling Green Mowers and equipment. We have available for viewing at the 4th National Turfgrass Seminar, all related Turf Equipment, with many options and features to present to you, for your ultimate playing surfaces. MowMaster is available in all states and is backed by professional companies, which can service all your requirements after purchase. Spare parts are simply off the shelf. Dwyer & Felton also offer advanced servicing facilities suitable for any brand of TurfCare Equipment.

Our on-going commitment to all aspects of the Turf Industry

**SERVICE - QUALITY EQUIPMENT - TECHNOLOGY
AUSTRALIA MADE / AUSTRALIAN OWNED**

BOOTH #20 - CLUB CAR

Club Car Pty. Ltd. will be displaying a range of turf Utility Vehicles, two of which have not been seen at a National Turfgrass Seminar previously. Club Car are a proud to announce that probably the most significant entrant into the Utility Vehicle market in Australia will be launched in Perth. The product, XRT272, was first seen in the G.C.S.A.A. Turfshow in Orlando, Florida and received rave reviews from the Superintendents. The influence of Ingersoll Rand in the design and production of the XRT272 is evident and shows the commitment Club Car have to further develop products suited to the Turf market. This product has been extensively tested and refined with the input of Golf Course Superintendents. A test drive will clearly demonstrate how the combination of features have been combined to create:-

- Confidence Inspiring Extra Traction on Demand
- Unsurpassed Long Pulling, Hill Climbing Power
- Serious Stopping Power for Peace of Mind
- Superior Suspension and Steering unheard of from

a Utility Vehicle

We at Club Car look forward to enjoying a great seminar at Burswood Resort Hotel with you, so drop in at Stand 20 and talk to Geoff or Gary from Club Car Australia, or Kevin from Club Car Augusta.

BOOTH #21 - BAILEYS FERTILISER

Baileys Fertiliser have been in the Turf industry for the last 35 years. Over these years the company has based itself on providing quality products and service to the turf industry.

The company has been at the forefront of developing new product and ranges specifically for the turf industry - not only in the area of golf courses but with government authorities, sporting venues and landscaping projects. The last 2 years has seen Baileys grow from making blended fertilisers for the market to producing Granulated fertilisers as well in this time the company has become a distributor of the Best range of Controlled Release fertilisers. The Granulated products have been of great benefit to the industry with the more evenness of spreading, minimal dust and a product that has a better longevity compared to blended fertilisers. At present the company is in the process of developing other granulated products such as Granulated Lime. Baileys provide back-up service with "Turf Representatives" in the field. Over the next few years the company will be expanding with new products specifically suited for the ever growing turf industry. For more information: Ph (08) 9439 1688 Fax (08) 9439 1068 Paul Canny 0417 093 408

BOOTH #23, #24 - FOLEY UNITED

Foley United has become the world leader in grinder technology, and courses worldwide are turning to them for grinding solutions! WHY? Manufacturers conduct extensive high tech tests when designing reel type cutting units, and Foley United assumes that the engineers original configuration of reel design provides the optimum cut, and optimum performance of the overall cutting machine. Thus, Foley United has always designed their equipment to enable the golf course to maintain cutting units to specs. Foley United's most recent AccuPro series have



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Seminar Series

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combined two key elements a golf course is looking for in grinders:

- A Mounting system on both the reel and bedknife grinder that combines a "fast & easy set-up", AND control features that allow for factory specs.
 - A hands-free "auto-indexing" relief system on the reel grinder that provides the ability to complete the final process of returning the reel to specs.
- These machines not only minimize "labor" time, but provide an OEM finish each and every time. Foley United offers a range of grinders that will meet any budget requirement desired at an unequalled value. See why courses worldwide are turning to Foley United: The NEW "Fast & Easy" Choice For Grinding Solutions.

BOOTH #25, #26 - TURF & IRRIGATION

Turf & Irrigation Pty. Ltd. is an Australian owned and operated company which has been trading for over 25 years. The business was conceived with one main objective. That is to service the commercial turf industry with a range of quality products and services designed to meet the needs of turf care professionals. The company manufactures imports and distributes a large range of goods. The product range encompasses turf seeds, specialist fertilizers, chemicals, analytical services, Rain Bird irrigation equipment, general irrigation equipment, golf course accessories and our own unique range of turf maintenance machinery. As an organisation we are committed to a practical research and development program which in the past has seen the introduction of many successful fertilizer and seed products together with the widely acclaimed range of ongoing consultation with key turf professionals around Australia. Our customers are serviced directly by Turf & Irrigation's trained Technical Sales Consultants all of whom are industry orientated and are committed to a high level of customer satisfaction. The sales force is strategically located across Australia to effectively service our diverse customer base.

BOOTH #27 - TRU-TURF EQUIPMENT

Australia's largest manufacturer of golf green rollers will be launching a new product on to the market at the 4th National Turfgrass Seminar. Tru-Turf Equipment, already the world leader in golf green rolling has developed the technology of greens rolling even further and plan to introduce their new

product to the industry at the July Expo. Designed to complement their present range of dedicated "ride-on" rollers, Tru-Turf engineers will be releasing details of their latest innovation created to expand the use of their present rolling technology. Tru-Turf Equipment originally designed and patented their unique style of smoothing head roller configuration that trues and rolls grass and turf surfaces, increasing the standard of the surface of all greens on which the equipment is used. Stimp meter readings can be increased up to 28% by use of their current "Roll'n Slice" machines, which will also be on display in Perth. Regular rolling by Tru-Turf machines produces a faster, higher quality green, with a truer surface which greatly enhances player's games. Tru-Turf rollers are exported around the world. Tru-Turf have their manufacturing facilities located in Queensland and have recently set up an information and customer care division to assist with their expansion program

BOOTH #28 - CONTROLLED SPRINKLER SUPPLIES

Controlled Sprinkler Supplies was established by Hal and Pamela Collins in September 1978. Since that time the company has developed into a national operation with the establishment of sales offices and warehouse facilities in Perth, Adelaide, Melbourne, Sydney and Brisbane. To gain an idea of the size of the company, the Melbourne office includes a warehouse area of 60,000 sq. feet. Today, CSS maintains an extensive portfolio of quality products representing world recognised companies, these include:

Hunter (USA)	Sprinklers, valves & controllers
Rainbird (USA)	Sprinklers, valves & controllers
Spears (USA)	PVC pressure fittings
Naan (Israel)	Agriculture sprinklers
Weathermatic (USA)	Control systems
Tonick Watering (UK)	Control systems
Baccara (Israel)	Solenoid valves
Alprene (Italy)	Compression fittings for poly pipe
Flo (USA)	PVC repair fittings
Carson (USA)	Structural foam valve boxes
Tavit (Israel)	Threaded poly fittings & micro products
Irrimeter (USA)	Moisture measuring instruments
Heliotope (USA)	Solar powered controllers

The company has primarily been a supplier into the commercial turf and landscape irrigation market, however with appointments of key personnel and specialised equipment this will enable a greater focus to be given to the golf and agricultural areas through the irrigation professional.

BOOTH #29 - WESFARMERS DALGETY

The expanding horticultural market and rapid growth of the industry has seen Wesfarmers Dalgety emerge as a leading supplier to the horticulture and turf industry in Western Australia. 18 months ago, Wesfarmers Dalgety purchased Robert Linton Pty. Ltd. from owner operator, Mr. Robert Linton. To consolidate Wesfarmers Dalgety's expansion into the horticultural industry, the company has recently combined Robert Linton, into their merchandise operation to form a dedicated horticultural division. From 30th June 1999, the Robert Linton name will no longer be traded, officially being replaced with the strong Wesfarmers Dalgety's name. Western Australia's State Merchandise Manager, Mr. Bob Lynn said: "When we purchased the Robert Linton business in 1997, we demonstrated our commitment to the horticultural industry. Our rapid expansion into the industry has resulted in the consolidation of our Robert Linton business with the formation of our new division, Wesfarmers Dalgety Horticulture". Mr. Lynn said. Wesfarmers Dalgety's horticulture operations will now be managed by Horticulture Manager, Mr. Alf Kalmund, former sales manager for Robert Linton. Justin Sambell has been appointed as product manager for the turf business. The new extensive range of Wesfarmers Dalgety's turf products will be exhibited at the AGCSA Turfgrass Seminar.

BOOTH #30 - BARMAC INDUSTRIES PTY. LTD

Barmac Industries is pleased to support the AGCSA conference again this year. Be sure to find time in your busy conference activities to visit our stand and update yourself on the latest developments in one of the widest ranges of turf fertilisers and chemicals on the market. One of the latest products on the market is the Nucleate Range of combination Biofertilisers. Discuss with our technical people how these biologically enhanced, Methylen Urea based Biofertilisers can provide balanced plant nutrition while reducing

"Natural Born Killers"

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Totally Safe to use and long lasting control of:

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enhanced. Methylene Urea based Biofertilisers can provide balanced plant nutrition while reducing sodium levels, free up unavailable phosphorus, produce Auxins and Cytokinins to stimulate the root system and reduce dry patch. Remember Neotrol, the sesame stalk product with unique soil conditioning and insecticidal properties. This product is now available as an emulsifiable liquid concentrate called Neotrol Liquid and can also be used in place of spray oil products in your mixing tank. See these and many more products at the Barmac Industries Stand!

BOOTH #31 - RAIN BIRD

Founded in 1933, Rain Bird has established an enviable reputation as an innovative and dependable manufacturer of a diverse range of irrigation products. In the realm of the golf market, Rain Bird is ahead of the pack with the Maxi central control systems, offering a range of graphics based Windows programs that can control satellite or decoder valve actuators. Rain Bird allows the simplicity of point and click PC programming, with state of the art features like flow management, ET or weather station automation, cycle and soak, and a high level of sensor monitoring and interaction. The flagship golf rotors are the Eagle range which are used on many of Australia's top ranked courses. Launched some 8 years ago, the Eagles quickly established their reputation for high performance (uniformity and durability). Available as valve-in-head or as block sprinklers, and in three range models (each with full and part circle versions), they provide a flexible array to suit all applications. In valves, Rain Bird offers two proven ranges that satisfy most needs, from simple economy valves to a high pressure dirty water valve. Please visit our booth to discuss your needs and collect our golf literature catalogue.

BOOTH #32 - H-R PRODUCTS

H-R Products began on the 24th of March, 1979, with 4 staff and rented premises in Perth and Adelaide suburbs. From these small beginnings H-R Products has grown into one of the largest wholesale and manufacturing suppliers of irrigation equipment. Our company distributes the widest range of sprinklers, valves, controllers, filtration units, fittings, agricultural irrigation products, industrial valves and hose-end products for all markets. Our company has a reputation of buying the best irrigation equipment from around the world and combining these with over 200 products that H-R Products manufactures here in Australia. Australian manufactured items include poly risers, valve boxes, and poly fittings that suit all of the irrigation sectors. H-R Products has won numerous "Supplier of the Year" industry awards and we remain focused on specification work, fast and complete supply and distributor support. Our company is partnering with both its suppliers and customers in the belief that our customer and suppliers strength make our strength. Ensuring all products are supported by trained staff allows H-R Products to earn our customers business every day. By keeping abreast of world trends and practices we are able to maintain and strengthen relationships in our fast growing industry sector which we call irrigation.

BOOTH #33 - REDEXIM CHARTERHOUSE

Redexim-Charterhouse introduces in Perth the aerodynamic 75. series of Verti-Drain. They are the successors of the biggest size, heavy duty, Verti-Drain models and offer increased speed, minimal maintenance required, easy adjustment features, while several extras are included like rear rollers and a standard tool kit. An upgraded configuration ensures that wear is kept at a minimum, even in rocky soils. The tractor mounted Verti-Drain Mustang is the fastest aerator on the globe, and will also be shown for the first time at the AGCSA seminar. Australia will see the world-premiere of a new self propelled Verti-Drain. Both the Verti-Drain Mustang and the self propelled Verti-Drain core and verti-drain soils to a depth of 150mm. The Verti-Drains patented parallelogram motion is unique in the way that it ensures a totally uniform decompaction of the soil and minimal damage to the turf surface. The Turf Tidy sweeps and scarifies fairways, while it is the only such machine on the market following exactly the surface undulations in order to prevent scalping.

BOOTH #34 - JOHN DEERE GOLF & TURF

As the new millennium approaches, John Deere Golf & Turf is more than prepared. Make your way to our stand at the AGCSA seminar where the greens mower of the future, the new 2500 Tri-plex awaits. This new greens mower enhances John Deere's range of Golf & Turf maintenance equipment, offering the

latest in modern technology, operator comfort, and ease of serviceability for which the John Deere name has become renowned, and all is supported by a strategically located dealer network. The John Deere product range has increased dramatically in the last year, offering product that includes Handheld equipment (brushcutters, chainsaws, blowers etc.), residential and commercial rotary mowing equipment, and a range of dedicated reel mowers. John Deere also offers specialty turf utility vehicles including a petrol turf gator, and the soon to be released electric turf gator. Aeration equipment from walk-behinds to linkage aeration units are also available as well as a range of newly released compact utility tractors. For further information please stop by our stand at the AGCSA conference or speak to your local John Deere Golf & Turf Dealer.

BOOTH #35A - CHEMTURF

Café Chemturf is "the place to be" during the 4th National Turfgrass Seminar in Perth. Make sure you drop in for a cappuccino and chat. We are located at Booth 35A. While you are there, you're sure to hear of the latest in Turf Management products from the company that has been around for more than 35 years, totally committed to the people responsible for making Australia's green greener. Receive first hand information on the latest in combination products from Lesco. Become aware of how combining herbicides and controlled release fertilisers delivers weed control like no other product available. Discuss with our staff the advantages of the Chemturf Striker range of seed blends, specially formulated to give the right result no matter what the situation. Hear how the Aquatrols range of soil wetting agents have reduced the water management worries of so many Australian and International Golf Course Superintendents. Bear Irrigation Heads are delivering high quality irrigation to many turf managers right across the country. Look out for prizes from our competitions run over the 2 days. You will hear about this and much more when you drop into Café Chemturf.

BOOTH #35B - GREENCARE INDUSTRIES

The Greencare story began back in 1984 when through the need of its founder and managing director to possess a reliable and efficient coring machine for his contract coring business. From this necessity, the concept of the tractor mounted Coremaster 12 evolved. Word spread rapidly about this revolutionary machine within the golf/bowling greenkeeping circles and Greencare set about manufacturing machines as well as operating the contracting division, which is very prominent in the Australian turf industry. The very first Coremasters were displayed at the G.C.S.A.A. exhibition in the U.S.A. where, from the overwhelming response, the product was made available to the world by distributors in Japan, United Kingdom/Europe, U.S.A./Canada and Asia. Greencare today is a world leader in turf aeration technology and equipment. The product range today includes tractor and walk-behind aerators. The original contracting division has since expanded to provide services such as: Coring, Slicing, Shaving (bowling greens), Top Dressing, Scarifying for bowling and golf greens, parks, ovals, cricket wickets, tennis courts, etc. The management and staff of Greencare congratulates the Australian Golf Course Superintendents Association on the promotion of this seminar and wishes all delegates an informative and enjoyable few days.

BOOTH #36 - TEXTRON TURFCARE GROUP

The Textron Turfcare Group in conjunction with our West Australian Distributors, McIntosh & Son of Great Eastern Highway, Redcliffe will be major exhibitors at the AGCSA 4th National Turfgrass Seminar in Perth. Jacobsen, Ransomes, Cushman, Ryan and E-Z-Go all form part of the Textron Group and ensures we have equipment available to cover every aspect of a professional Turf Managers needs. Units featured at this show will include the Australian release of the all new Cushman Truckster range, world renowned as the leading Turf Industry utility vehicles. This latest range includes features like new engines and transmissions, revamped ergonomics and increased performance all round. Available in Petrol, Diesel, 3 wheel or 4 wheel, there surely is a unit to meet every application. Another exciting new product from the Textron Turf Care Group is the Jacobsen LF3800 Mid Weight Fairway Mower. The 28KW Kubota Diesel engine ensures there is oodles of power for the 2.54m of cut through five flash attach® quick change reels, whilst the single lever one-touch lift/lower control is an operators delight. The latest release from E-Z-Go is the ST350 Workhorse run-about. The obvious replacement for a motorbike, this two passenger unit has an 11 h.p.,

BOOTH #37 - AGCSA AND AUSTRALIAN TURFGRASS MANAGEMENT MAGAZINE

Browse the AGCSA's Web site, try on a new AGCSA embroidered shirt, or select a book from one of our huge selection of turfgrass management books. These are just some of the things you can do on the AGCSA exhibit in Perth. And don't forget to speak to one of the AGCSA staff or Board who will be available at all times to answer your questions on anything and everything related to the business that is turf management. The AGCSA exhibit will also feature a display from your own magazine, Australian Turfgrass Management. Phil George, ATM's editor will be on hand to field your suggestions on what you want to see in the magazine and he is always on the look out for news and interesting stories. Australia's largest turfgrass management association, the AGCSA aims to promote the profession of turfgrass management and provide support, education and networking opportunities for turfgrass managers. Membership is available to anyone in the industry. Come into the AGCSA booth and see the benefits of membership for yourself.

BOOTH #38, #39 - TORO AUSTRALIA PTY. LTD.

Toro is one of the world's leading producers of total solutions for outdoor landscapes and is the only brand worldwide to offer both turf maintenance equipment and automated irrigation systems designed specifically for today's sophisticated turfgrass industry. The Toro commercial range covers a broad selection of technologically advanced, walk-behind and ride-on mowers to suit virtually all turf applications. Each unit is designed for high quality cutting and unrivalled productivity and is fully complemented by a comprehensive array of utility vehicles, fertilisers spreaders, spray units and other maintenance equipment to meet every turfcare need. Toro's state-of-the-art irrigation equipment enables precise control of application for greater watering efficiency and lower running costs. Its extensive range includes computerised controllers with sophisticated software,

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radio-controlled and hard-wired satellites, sprinklers and ancillary equipment. All Toro turfcare equipment is now available direct from Toro in Australia and is fully supported by a national network of factory service centres, featuring the most advanced state of the art workshops in Australia. Customers will also have access to online assistance through Toro's National Support Network System.
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Fax: (02) 9687 2313
Website: <http://www.toro.com>

BOOTH #40 - HARDI SPRAYING

The importance of the correct choice of spraying equipment is becoming more evident in the turf industry. Hardi Spraying Equipment, Australia wide is aware of the changes and the varied demands on sprayers. An example of a turf sprayer that has exceeded expectations in the industry is Hardi's "Turf Eagle", designed to suit all makes of Trucksters. As larger tank volumes have been required, the 2000 litre sprayer with 6-10 metre booms was developed incorporating Hardi's large 240 lb/min diaphragm pump to deliver the pressure. Many of these fitted with the "Industry First" on board granular chemical and fertilizer mixing hopper and foam marker. Hardi's specialised nozzles have found favor with its 3 stream nozzle for "Wetta-soil" application. Hardi/Rogers Windfoil sprayers offer unique fully shrouded spraying, incorporating an airflow to control drift. In other words Hardi have a sprayer to meet all turf spraying demands.

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Hardi Spraying Equipment VIC	(03) 9360 4844
Hardi Spraying Equipment SA	(08) 8260 5499
Hardi Spraying Equipment TAS	(03) 6424 1511

BOOTH #41 - GRADEN TURF MACHINERY

Graden Turf Machinery have been in the business of building scarifiers now for ten years and we have learnt much about scarifying and the turf industry.

Graden have worked closely with superintendents and contractors and asked them what they wanted out of a scarifier. The result of our on going R&D is the GS04 Scarifier, which is exported all over the globe. Sales of the GS04 have been particularly strong in the tough American market with sales all over the country, including Pinehurst Country Club, venue for the 1999 U.S. Open. Along with the GS04 Scarifier we will be displaying the Graden Swing-Wing Scarifier which is a tractor mounted unit allowing you to scarify fairways much faster than the walk behind unit, but still with the same quality of cut. It is this quality of cut which puts our scarifiers ahead of the pack as the clean cut you get from a Graden causes minimal disturbance, thereby providing quicker recovery, even when cross-cutting. We believe they're the best scarifiers on the market, visit Graham and Clare on our stand and decide for yourself.

Contact Details;
Graden Turf Machinery,
P.O. Box 29, Somerton VIC 3062
Phone: (03) 9305 3400 Facsimile: (03) 9304 3995

BOOTH #42 - M.E.Y. EQUIPMENT

M.E.Y. Equipment is a WA company that manufactures and services commercial turf machinery, with a focus on reliability and quality workmanship.
Mowers - self propelled cylinder mowers from 20" to 36" cutting width, including customised models for cricket wickets, tennis courts, golf greens and bowling green surrounds.

Vertimowers - self propelled with twin clutch and catcher.
Stolon Planter - self propelled stolon planters for new lawn propagation - for sale or hire.
Edgers - robust lawn edgers for lawns, verges, paths, paving, golf bunkers etc.
Bottom blades - for all cylinder mowers from the fine 1mm shavers required by the Scott Bonnar Queen bowling green mower to the robust service of gang mowers. We hold over 4000 blades in stock to be drilled to your requirements.
Cylinders - MEY are locally manufactured from the best quality Sheffield steel for all brands of mowers.
From 14" to 36", greens to gangs, six to sixteen blades - we make to your sample or requirements.

BOOTH #43 - HERITAGE SEEDS

As a research and development company, Heritage Seeds' focus is on breeding and selecting varieties to meet turf manager's needs. To help achieve this, Heritage Seeds draws upon its relationships with overseas breeding companies to obtain the world's plant genetics. Heritage Seeds do not rely on this alone and has a large involvement in the Australian Turfgrass Evaluation Program (AUSTEP). Heritage Seeds is the leading Seed Company in Australia and prides itself on providing quality products to the market place. To help achieve this Heritage Seeds are providing the strategic supply, technical back up and marketing whilst Chemturf are providing expertise in sales, distribution and logistics. Products like the top of the range bentgrass, L-93, the top of the rating elite turf ryegrasses, Premier II and Barlennium, Barlexas Tall Fescue, Bridgeport Cheving Fescue and Mirage couchgrass ... suit a wide range of other varieties and blends to suit your requirements can be supplied through your local Chemturf representative. You will be able to obtain information on these varieties and gain quality advice at the Chemturf stand during the conference

BOOTH #44 - RAINMAN IRRIGATION CONTROL SYSTEMS

RAINMAN Irrigation Control Systems will be displaying their GREENKEEPER Irrigation Controller and Central Irrigation Control and Management System. GREENKEEPER was designed and manufactured in Australia with input from the industry and has all the features you have come to expect from a Golf Course Irrigation Control System, but provides the flexibility to be customised to your specific needs. If you require further changes after operating the system for some time then it is simply a matter of us changing the program code. Realtime monitoring of events that are happening around your course can be displayed at the GREENKEEPER satellite controller, pump controller and Central Control Computer and all information can be stored for future reference. Events that occur outside of present guidelines can be acted upon automatically and alerts generated so remedial action can be taken. GREENKEEPER controllers can be given multi-level security passwords so that no unauthorised access can be made. Full programming functions and manual operation is available at the GREENKEEPER satellite and if communications with the Central Control Computer should fail then the satellite remains in control and continues to collect and store data.

BOOTH #45 - SYMONDS SEEDS

Symonds Seed Company is based in Perth West Australia, conveniently located to service Australia and the South East Asia with quality turfgrass seed and special agronomic turf management products. The company has been servicing the industry for over 30 years and Mark Rodoreda, who owns the company with his two brothers Gary and Rick, is the company's turfgrass specialist with over 25 years personal experience. The group now employs around 100 personnel and is actively involved in most functions of the turf industry. In 1994, well known USA turf seed production and development company, Jacklin Seed appointed Symonds as regional representative for their elite cultivar turfgrass seed products in South Asia and Western Australia and later, Australia. In addition to turfseeds, our exhibit at the AGCSA Turfgrass Conference at Burswood Resort in July will feature two totally new innovative products recently endorsed and exclusively marketed by Symonds. They are Soil-Zyme and ST8 SoilTac. Soil-Zyme is potentially the single most significant development in practical biological turfgrass management for the current decade. ST8 SoilTac is an organic polymer tackifier designed to prevent erosion in bunkers and other exposed areas and also reduce evaporation by over 40%. It is used to stabilise areas such as greens after sowing seed.

BOOTH #46 - SIMPLOT TURF & HORTICULTURE

The recently formed Simplot Turf & Horticulture Group is a division of the J.R. Simplot Company, a privately held agribusiness corporation with sales in excess of US\$2 Billion. Through our network of distributors in Australia, Simplot Turf & Horticulture is proud to offer BEST Brand Fertilizers and Jacklin Seed. BEST Brand Fertilizers are specially blended for use in professional turf management. Our unique blends, featuring POLYON & TRIKOTE controlled release technologies, provide turf professionals with the tools

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technologies, provide turf professionals with the tools to produce quality turf surfaces. Jacklin Seed have been developing and marketing its own seed varieties for over fifty years. Jacklin's Research Centre is unique in the industry with over 1 million dollars per year spent developing and improving varieties.

BOOTH #47 - TURFCARE SUPPLIES

Turfcare Supplies, trading since 1992, is a wholly Australian owned and operated company. Our mission is: "To provide a range of quality products and services designed to meet the needs of turf care professionals." Turfcare manufactures and exclusively imports and distributes a wide range of quality turf products. In addition, a research and development program has led to the introduction of many other successful products. Turfcare's unique Green Section is committed to providing environmentally sound products such as biological insecticides and fungicides, to today's environmentally aware managers. Turfcare is proud to offer its products and services through a team of Territory Managers who are all qualified.

BOOTH #48 - J.F.B. AGENCIES

Custom Golf Course Products Aust

J.F.B. AGENCIES have been operating since 1986, initially concentrating on the blade/spare parts market. Since that time we have transferred our expertise into the Golf Course Accessories division. Having already established a fair share of the Flagpole-Flag-Cup section of the market, we are forever moving forward with new and improved products, relating to Course maintenance as well as other Superintendent needs. "Custom Golf Products Australia" is fully Australian owned and operated, with Agents in each State, with the exception of Tasmania. We are pleased to have established outlets in New Zealand and we would welcome interest in the distribution of our lines by a Tasmanian based firm. Custom Golf Products are all Australian made, including the new products listed below which will be displayed on our Stand No.48.

- New Tee Markers
 - Improved Classic Holecutter
 - Improved check flags
- See you at the Show!

BOOTH #49, #50 - AUSTRALIAN TURF INDUSTRIES PTY LTD

Australian Turf Industries has been a major contributor in the Western Australian turf industry since 1980, and its activities are concentrated on Turf and Landscape contract maintenance, and the provision of products, machinery hire, and consulting services to the Turf Industry. Current contracts include the Burswood Park Board, Parks & Gardens and Golf Course, The Burswood Resort Hotel Lawns & Gardens. We are experienced lawn, garden, and irrigation system management contractors and have specialised in these activities since 1981, and were honored this year to receive the Award of Excellence from the Nursery Industry and the Carramar Golf Course & Gardens for the City of Wanneroo. In addition to contract turf and landscape maintenance, we supply market-leading products and specialised services to all facets of the Turf Industry. We have a skilled work force in excess of 70 people including, Golf Course Superintendents, horticulturists, mechanics, and irrigation specialists, Sales Representatives, and an office administrator. Our manager Mr. Frank Griffin, formerly Manager of Parks and Gardens for the City of Wanneroo manages all contracts and liaises with our client principals, and sales and marketing of the company's products and services is managed by Nick Bell.

BOOTH #51 - ROY GRIPSK & SONS

Australian Distributors of R & R Products, Inc. USA Quality Golf and Turf Parts Manufacturers since 1988. R & R Products, Inc. USA are the major manufacturers and suppliers of components to the golf and turf industry in the USA, with inventory consisting of over 12,000 part numbers for most makes and models of fairways and greens mowers. All components are manufactured from the highest grade material for maximum life and reliability. Reels are produced from high carbon steel and hardened to RC40-47. They are cylindrically ground then precision computer balanced for extended bearing and reel life. All bed knives are surface ground top and front end edge and are matched to the same cylinder hardness to ensure maximum life of both components. Roy Gripske & Sons Pty Ltd are suppliers of R & R Products in Queensland, New South Wales, and Northern Territory, with distributors in Victoria, South Australia and Western Australia. For your R & R Catalogue and your nearest supplier, come and see us at Booth 51.



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A diverse, economical range of liquid fertilizers including organic and mineral blends. Ideal for use on all soil profiles.

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Quality low phosphorous granular fertilizers with a mixture of quick and slow release nitrogen sources.

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Club Car

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A typical example of Club Car's commitment to clients is shown in the securing of a new utility fleet at the Ayers

● Stadium Australia - a fleet of vehicles including people transport, grounds maintenance, utilities and medical ambulance.

● Hamilton Island - a fleet of 60 4-seat passenger vehicles to Harbourside Buggy Hire.

● Cypress Lakes Resort - replacement of a tired fleet with new Club Cars.

Furthermore, Club Car have realised the value in working with industry associations in all aspects of their business.

Sydney Warehouse



Club Car Head Quarters in Sydney



"We want to be involved with professional industry organisations like the AGSCA, PGA and other associations affiliated with our industry," said Geoff Jackson, National Sales Manager - Utility & Transport Vehicles.

"It's in everyone's interest to work together to create a stronger and more vibrant industry. If that means being involved with events organised by those associations, then that's where we'll be. We believe in investing in our industry because that's your future."

Rock Resort. These vehicles are to be delivered across the desert in a shipping container to the resort, where they will meet up with the organisation's senior mechanic and an account manager who will arrange to unpack, fit accessories and commission the fleet. By delivering the vehicles in this manner, Club Car are ensuring the fleet arrives in tiptop condition for this prestigious client.

A similar commitment has secured other large and important contracts including:

● Sanctuary Lakes Resort - a Greg Norman designed course with residential development in Victoria.

● Noosa Springs Country Club - a newly opened development in sought after Noosa where 60 new Club Cars were recently delivered.



Club Car Passenger Vehicle - Ansett Airlines Brisbane

Solutions Marketing & Research Group

Australian Turf Industry Study – Key Highlights June, 1999

The results of a national study of the Turf industry have shown it to be a market of significance in terms of size, professionalism and consumption of inputs. The golf course segment alone was found to have budgeted maintenance expenditure of well over half a billion dollars nationally.

Conducted by the Solutions Marketing and Research Group, the study is the first survey in ten years to benchmark the size and value of Australia's highly diversified and dynamic Turf industry. The survey encompassed the key turf sectors of Golf Courses, Bowling Clubs, Municipal Councils, Racing Clubs and Turf Producers. These in turn were further segmented by state and split between urban and rural locations.

While the detailed results of the study are approaching finalisation, the preliminary highlights include;

Turf Maintenance Expenditure

With around 1500 Golf Courses in Australia this segment leads the Turf Industry in terms of average maintenance budgets. Whilst \$380,000 was the segment average, the budgets were found to range from less than \$50,000 through to \$1 million. The largest concentration of golf courses is to be found in the three east coast states and of these, Queensland has the highest average maintenance budget at around \$482,000.

Of the key inputs, the turf machinery market represented sales of around \$69 million in 1998. The golf course market accounted for 85% of these purchases followed by local councils (10%) and bowling clubs and Turf producers with 2% each.

Industry Employees

Again using the golf course segment as an example, 15% of golf courses were found to have an average of 10 – 14 employees. Smaller courses accounting for 11% of those surveyed, employ around 2 to 3 turf maintenance practitioners. On a state basis, New South Wales contained the greatest number of clubs with 10 – 14 employees, while Queensland contained the most courses with 15 or more employees.

Educational Qualifications

An example of the increasing professionalism of turf management is the education levels of Golf Course Superintendents. Nearly 80% of those superintendents surveyed held specialised qualifications. These ranged from trade certificate level through to degree qualifications. Of the east coast states, the superintendents in NSW had the highest incidence (28%) of advanced certificate level education or higher.

Role of Turf Managers

The education level among turf managers is reflected in the decision making process for the purchase of key turf inputs. The purchase process for chemicals, fertilisers and machinery/equipment were explored within the five industry segments. It was found that in 84% of cases, the superintendent or turf manager was the person who decided upon the purchase of the key consumable inputs of fertiliser and chemicals. This figure was somewhat lower (67%) in local councils with a further 12% of such decisions being made by the

council's general manager. In the case of capital items such as maintenance equipment, final purchase decisions were more likely to be made at a higher level such as a committee or board of directors on the greenkeepers / superintendents recommendation. This was particularly the case for golf and bowling clubs with 52% and 61% of respondents respectively indicating this procedure.

Association Membership

The membership of industry associations was highest among Golf Course Superintendents with 79% of respondents indicating that they belonged to one of the state or national associations. Around 73% of these superintendents belong to the Australian Golf Course Superintendents Association (AGCSA). On a state basis the membership of the AGCSA was highest in NSW.

Of the other main turf industry segments, 66% of bowling club greenkeepers belonged to an association but these tended to favour their state Greenkeeper's Associations over national bodies. Local council grounds managers were not inclined to be members of industry associations, but of the 37% who were members, tended to favour 'Parks and Leisure Australia' as their association of choice.

The support levels for industry associations were also gauged in the survey. For example, Golf Course Superintendents (who were members of an industry association) were asked to describe how well they believe their association is servicing their needs. Over 83% of respondents agreed or strongly agreed with the statement "The association gets my total support". Similarly, the statement "Industry associations can only do so much

- mine does a good job" was agreed to by 72% of the above respondents.

The survey found that most turf practitioners would join a national turfgrass manager's association if one existed. The bowling club greenkeepers who were surveyed showed the highest interest in this initiative, with 76% indicating willingness to join. The exception was the surveyed group of turf managers working within local councils, of whom only around half would be interested in joining such an organisation.

Environmental Considerations

The current move in the majority of key industries towards becoming more environmentally aware was reflected in the study. Well over 80% of respondents from each of the industry segments surveyed agreed or strongly agreed with the statement "Environmental concerns are becoming more important in my management decisions". The majority of local council turf managers and Golf Course Superintendents agreed with this statement.

Other Issues Covered

The study (soon to be published) covers the key input categories of the Turf industry and includes:

- Market share by product
- Product performance ratings
- Purchase decision criteria
- Key insect pests
- Manufacturer ratings
- Preferred suppliers / distributors
- Supplier / distributor ratings.

For further information please contact:

Brendan Fox, Solutions Marketing and Research Group

Tel: (02) 9448 8700

Fax: (02) 9953 6544

E-mail: research@solutionsgroup.com.au

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PEACH TREE GOLF COURSE, 2ND HOLE.

After waiting for what seemed like an eternity, we were finally on our way to attend the 1999, G.C.S.A.A Conference in Orlando, Florida U.S.A. This was going to be a trip to remember...

I was in good company with Mark Logan from Mount Lawley Golf Club WA, Dion Warr from the Vines and David Warwick from Avondale in Sydney. After nineteen hours of flying we arrived in Orlando.

Orlando is a favourite holiday destination for Americans with over 47 million visitors each year. Like everything in America they do it bigger and better than anywhere else. This was certainly the case in Orlando with theme parks such as Disneyworld, Universal Studios, SeaWorld, Wet n Wild and the Tampa rollercoaster ride. The Kennedy Space Centre and Daytona Raceway were also nearby.

The GCSAA conference was held at the new conference centre in Orlando. This is apparently the biggest conference centre in the world and cost approximately 600 hundred million dollars to build. We attended a seminar on maximising turfgrass disease control with Dr Houston Couch. Dr Couch was very informative and covered topics such as synergism and antagonism among fungicide combinations and the comparative effectiveness of granular and spray formulations.

Although Dr Couch, at 76 years of age, is referred to by his colleagues as "the dinosaur" he was quick to point out that he

was not a dinosaur – although when he was young he had one for a pet. I also attended an interesting seminar on lake and aquatic plant management. This focused on the biology of a lake system controlling algae and other aquatic weeds and discussed the effects of a whole range of new aquatic herbicides.

The trade show was spectacular with over eight hundred exhibitions covering a floor area of approximately 45,000 m². It took two days just to walk through the displays although entertainment from magicians, comedians and a rock band did provide some distraction.

After a week at the conference and trade show, David Warwick and myself headed to Atlanta Georgia, site of the 1996 Olympic Games. We hired a car (nightmare) to get to Peach Tree Golf Course (only causing one minor accident on the way). Peach Tree was a very impressive course with a magnificent clubhouse dating back one hundred and fifty years.

Peach Tree had oversown rectangular tees and Myer Zoysia grass fairways. A couch encroachment barrier was used around the greens with very successful results.

Golf course superintendent William Shirley was very hospitable, showing us around and giving us directions on how to find a number of nearby courses.

The Capital Golf Course was our next destination, then onto Atlanta Athletic Club to visit Ken Magnum. This impressive thirty-six hole sporting complex, founded in

1898, often hosts international tennis and golf events. Ken is currently conducting an exhaustive trial of Bentgrass cultivars with the University of Georgia. With twenty-seven selections and six cultivar blends, G2 and A1 are consistently good performers. The Atlanta Athletic Club hosted the US Open in 1976 on the Riverside course, designed by Robert Trent Jones Junior. The Riverside course and the Highlands course (rebuilt in 1995) were immaculately presented with dormant 419 Bermuda grass roughs, contrasting well with fairways and tees oversown with A7 Ryegrass.

We met Fred Yelverton, Turfgrass Professor from North Carolina University at a new course in North Carolina called Preston Wood. Merv Haywood from Cyprus Lakes in Sydney and Darren Cribbs from Hong Kong also joined us. This 54 hole course boasts an amazing maintenance facility building with a huge undercover wash down area, heated machinery storage area and climate controlled chemical storage. The golf course superintendent was Ron Gilmore. All the machinery was on a John Deere lease agreement with small machines traded up after three years and larger items traded every five years. They had two mobile drink carts just for the ground staff.

Landfall Golf Club in Willemington has 36 holes, with another nine holes still under construction. Pine forests border many of the holes and an estimated six to eight hundred deer wreak havoc with the ornamental plants. Hurricane Fran recently destroyed over 2500 trees on the course, taking months to clean up.

The Donald Ross designed Cape Fear Golf Club was next on our agenda. This 18 hole course had oversown tees and dormant 419 fairways and roughs. Course Superintendent Michael Claffey's major problems include mole crickets and ground pearls with extensive turfgrass damage evident at certain times of the year. Michael conceded that hurricanes are also a problem with 500 to 600 trees being lost each year.

Our last day in America started with a trip down to Pinehurst – the largest single golf complex in the world with eight 18 hole golf courses winding their way through the Pinehurst residential community. Here we met Bob Farren the assistant director of golf course maintenance. He was very obliging, answering many questions and organising a tour of the complex. The Pinehurst development was very impressive with a magnificent hotel situated in the middle of the development. The day we visited the number two course it was closed to play as all greens were being verticut, rolled and lightly sanded. The course itself consisted of G2 bentgrass greens, 419 fairways and roughs with the rear tees being Myer Zoysia grass. The forward tees had been oversown to handle additional wear.

The number two course is known as a Donald Ross masterpiece, which may explain the \$US225 green fee. This course is golfing in its purest form. There are no gimmicks and no artificial hazards and each hole presents itself openly from the tee box. The fairways are generous and most putting surfaces fall off around the edges. The course will be host to the 1999 US Open in June this year and a crowd of 30,000 are expected.

During the tournament approximately one hundred staff will be employed on the course, including staff from neighbouring courses.

It is a truly informative and worthwhile trip and I hope to see you there in the future.

Special thanks to Debbie Ashes from Harvey World Travel in Lane Cove for organising all of our travel and accommodation needs.

Upcoming conference dates are as follows:
February 14 – 20th, 2000, Louisiana, New Orleans
February 2001, Dallas Texas
February 2002, Orlando Florida
February 2003, Atlanta Georgia

DAVE WARWICK(LEFT) WITH BOB FARREN FROM PINEHURST



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All storms should be treated with caution to reduce potential damage to life and property.

Supercell Thunders into Town

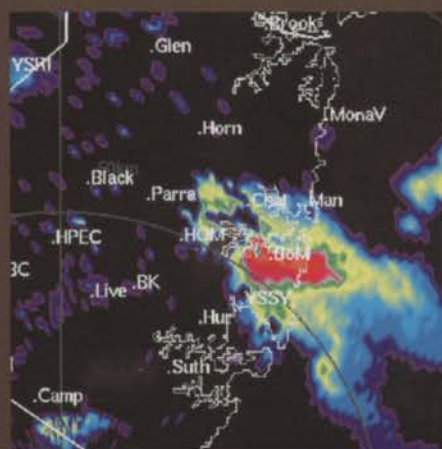
Hail the size of golf balls, destructive winds and torrential rain are not uncommon occurrences in some parts of Australia and are an accepted feature of our climate.

A combination of meteorological conditions can mean even more severe storms, with huge hailstones, flash flooding and tornadoes. Such havoc can bring devastation to communities.

April 14 1999 was one such thunderstorm. Hail larger than cricket balls peppered the eastern suburbs of Sydney. The damage bill was financially unprecedented.

Normally thunderstorms last from about 30 minutes to one hour, but this storm raged on for more than five hours.

Storms are grouped into different categories depending on their structure. The Sydney storm became what meteorologists call a supercell thunderstorm, although rare,



Meteorologists use sophisticated radar systems to view thunderstorms. This picture is of the Sydney hailstorm, shortly after 8pm on April 14, 1999. The large area of pink or red shows the most intense part of the storm and the blue areas indicate lighter rain.

ROB WEBB, Beaura of Meteorology, NSW.

PPI Makes Push Into Filtration

PPI Corporation P/L has been appointed by Azud to distribute in Australia and NZ its range of manual and automatic Disc and Screen Filters. The Azud Spin Disc Clean Filter model is one of the most technically advanced models in the world.

To further expand its range of filtration products, PPI has also added the quality range of Dix Stainless Steel Screen Filters to its distribution network. G J Dix & Sons P/L, manufactures the Dix filtration range at its factory in Renmark SA. Dix is a wholly owned subsidiary of PPI.

The range of PPI Filtration products together with the range of dripline products, including PPI's unique patented "TrellDrip" and "TrellTube" make PPI a leading company in Australia and NZ for dripline and filtration systems.

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Legacy by Hunter Distributors Announced for Australia

Controlled Sprinkler Supplies and HR Products have been announced as Australian regional distributors for the Legacy by Hunter range of products in the Hunter golf division.

Based in Balcatta, WA, Controlled Sprinkler Supplies will cover New South Wales, ACT, South Australia, Tasmania and Victoria. HR Products, based in Canning Vale, WA, will service the line in the Far North Coast-NSW, Northern Territory, Queensland and Western Australia.

These local companies will handle the sales and service of Legacy by Hunter irrigation systems throughout their territories.

New Faces at Globe



In line with continued expansion, Globe Chemicals P/L has appointed Danny Hambleton as State Manager to lead an aggressive push into Western Australia. Danny, who is based in Perth, was previously Turf

Products Manager with Robert Linton (now Wesfarmers Dalgety). Danny has a wealth of industry knowledge and technical sales experience gained over the last ten years.

Other appointments at Globe include Bruce Stranger who will service turf managers in northern Victoria and south western NSW and Greg Mickelborough who joins the company as Globes' new Sales Representative for south east Queensland.

Kubota Tractor Australia Goes on Line

As the first major tractor and farm machinery distributor in Australia to have its own website, Kubota has been surprised by an overwhelming response in its first few weeks since being updated.

Division Sales Manager, Mr. Blair Batemen said "hits" were in the "thousands" almost immediately the website was launched. He said, "With over 74,000 'hits' during March, the response has been staggering".

Kubota views the internet as an indispensable link in the communication chain to customers. Mr. Bateman said the new website gave customers access to product information and dealer locations as well as the ability to directly communicate via e-mail.

You can visit Kubota's website at: <http://www.kubota.com.au> or e-mail direct on sales@kubota.com.au.

Port Douglas Seals Deals

Port Douglas Reef Resorts Ltd has signed two crucial deals to fulfil its ambitions to secure Port Douglas as a major tourism centre in Australia's Tropical North. The company has reached agreement with a subsidiary of the world's largest golf course owner and operator, ClubCorp USA Inc, to lease and subsequently purchase its new championship golf course "The Links, Port Douglas".

Founded in 1957 in Dallas, Texas, ClubCorp operates over 260 premier golf courses in 15 countries throughout the world, with annual group revenue of more than \$US1.2 billion.

Port Douglas Reef Resorts has also signed a joint venture agreement with the Ray Group to undertake development of up to 250 golf course villas, apartments and an apartment hotel, featuring direct frontage to the course.

Designed by the internationally acclaimed Thomson, Wolveridge & Perrett, The Links is expected to rank among Australia's best resort courses.

Construction of the first five holes of The Links, together with the practice driving range, has been completed and work has commenced to complete the remaining holes, the pro shop, clubhouse and a central recreation club, due for completion in early 2000.

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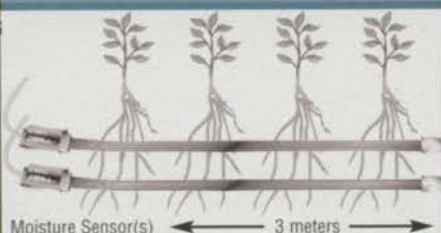
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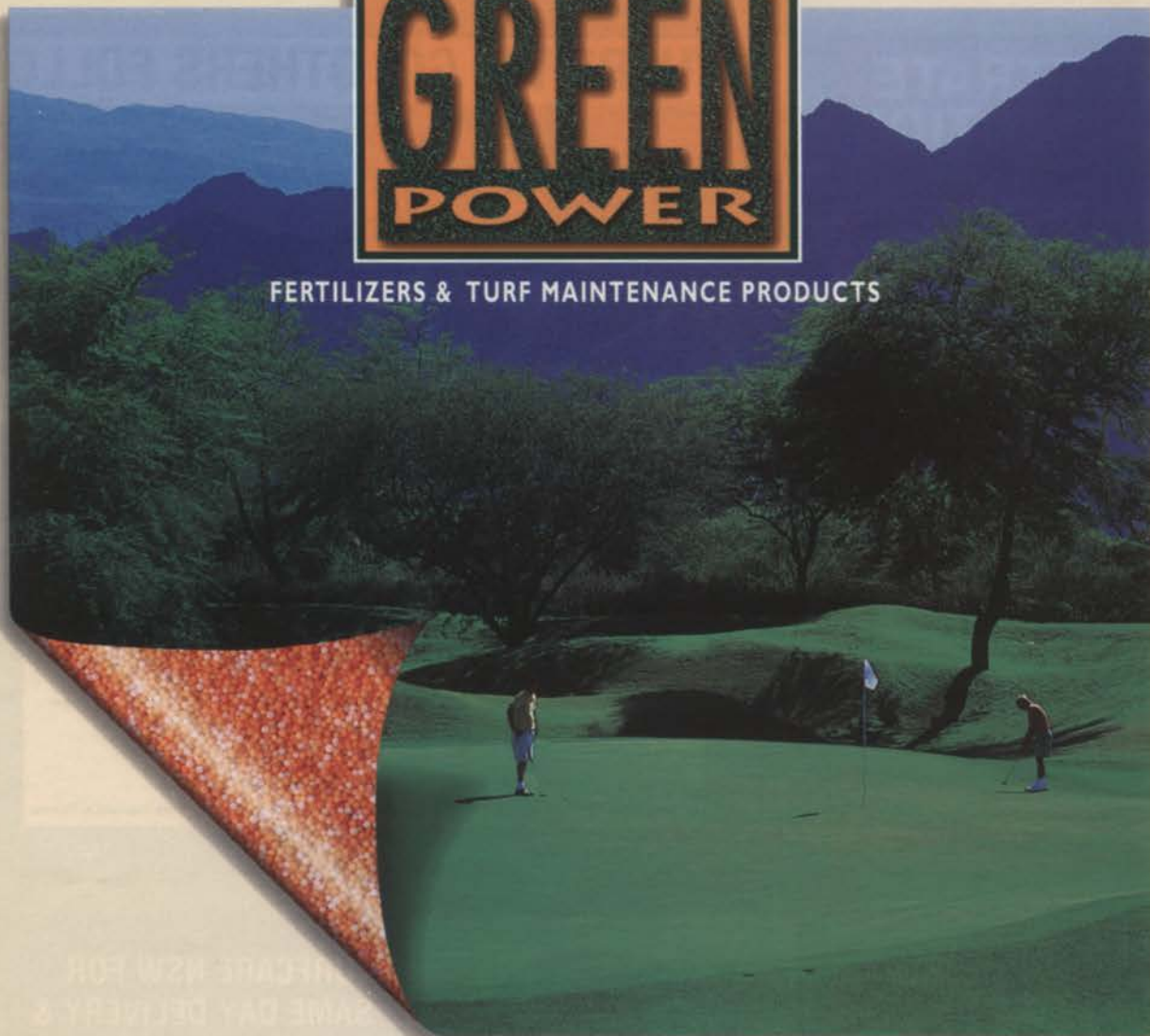
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COMPOST

An Important Tool in Sustainable Soil and Turf Management

Horticulture is a multi-million dollar industry providing much needed food, amenity, employment and export income. Amenity turf management is an important part of the industry. The industry recognises the need to manage its most valuable asset, the land, in a sustainable way. Compost is an important tool in sustainable soil fertility programs.

Establishment of new horticultural enterprises is increasingly difficult (simply consider the number of government departments that have to approve a new market garden, golf course or turf farm). Existing enterprises are coming under closer scrutiny. Land resource allocation and security are increasingly doubtful. Whilst every citizen with a garden, or council with amenity areas, has a similar potential for pollution it is the professional horticulturists who will experience regulatory and community pressure first. Sustainable management practices are not a fashion – they have become an expectation.

Using compost in soil fertility programs improves efficiency of fertiliser use, provides 'cleaner & greener' produce and reduces odour and environmental pressure. Compost used as a soil amendment and nutrient source creates a marketing advantage and improves company and industry image.

Additional factors that encourage the use of compost in soil management include the following:

- The push towards more environmentally responsible management of our natural resources.
- A growing need to address ground water and river pollution caused by nutrient run off, (75 – 90% of some nutrients) particularly from sandy soils. This often results in seasonal algal blooms.
- Sensitive social amenity issues created by large numbers of stable flies breeding (in WA) and odour where raw manures are used in horticulture close to urban expansion.

WHY USE COMPOST?

In Western Australia the majority of the State's turf production and golf courses are on the Swan Coastal Plain. This area is made up of sandy soils with low nutrient holding capacity. Turf is irrigated with large amounts of water, particularly in summer and during winter when rainfall is high.

The incorporation of poultry manure is common practice in horticulture. The differences between poultry manure and compost are not well understood in the industry.

The composting process stabilises organic material by converting the soluble components (e.g. nitrogen) into forms that are not readily leached, compared to direct application of manure where the nitrogen leaches within 4-6 weeks. Only 20% of the nitrogen in chicken manure applied to irrigated sandy soils is actually used by the plant. Most of the balance is leached with obvious consequences.

By comparison, plants use over 80% of the nitrogen in compost. Compost is also non-odorous and will not breed stable fly – two important social amenity issues where the

industry exists close to expanding urban areas. More importantly, compost makers focus on converting organic matter into active humus which increases the water holding and cation exchange capacity, especially when compared to other organic soil amendments.

Adding compost to soil, provides nutrients and a "moisture sponge" for turf plants. Nutrients are released slowly as the compost organisms break down and are themselves recycled into living soil. The "sponge" then absorbs inorganic fertilisers so they are not leached by rainfall or irrigation.

Other benefits include the creation of a 'living soil' where microbial, fungal and pest problems are reduced hence lowering pesticide costs and other risks associated with pesticide applications. Compost can be modified to address particular applications such as soil stabilisation or disease control. Composts can be made to suit particular applications (e.g. wind erosion and seedling loss in carrot crops). Composted mulches are also being developed for viticulture, fruit and tree crops.

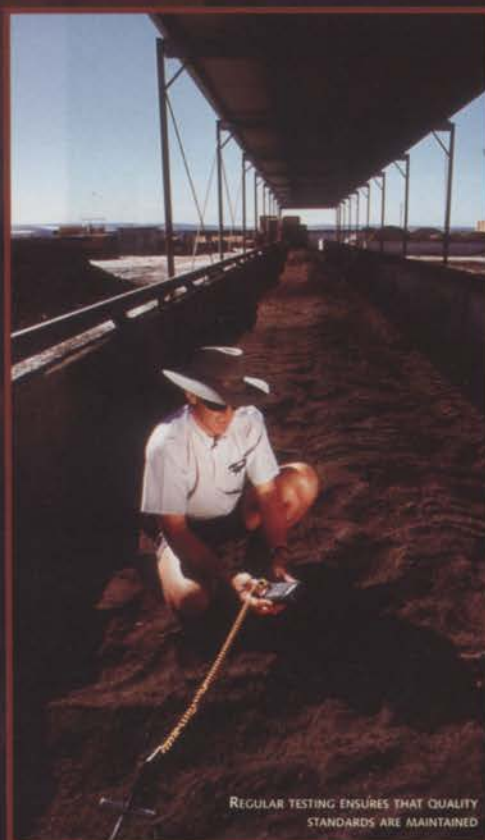
It is quite feasible now to develop compost for the turf management industry. There is enough evidence around to clearly demonstrate that using compost in soil fertility program is no more expensive than using synthetic fertilisers alone. Compost is also suitable for all soil types.

COMMUNITY ISSUES

New developments must now become ecologically sustainable. Following the Rio Summit increasing numbers of councils are committing to a program known as 'Local Agenda 21'. This means they will adopt and apply sound environmental principles, creating an opportunity for industry to demonstrate a role in closing the 'recycling loop'.

There will be a large growth in the recycling of organic materials, through composting, as Federal government initiatives including banning green waste and other organics from landfill, take effect.

Industry adoption of compost in nutrient management plans demonstrates a commitment to sound environmental management and contributes to community recycling targets. In WA, government grants are available to aid in the process.



REGULAR TESTING ENSURES THAT QUALITY STANDARDS ARE MAINTAINED



THE INTRICATE PROCESSES OF COMPOSTING

SPECIFIC APPLICATIONS IN TURF MANAGEMENT

The Penn State University publication *Using Compost to Improve Turf Performance* begins with this proposition: "If you have been searching for ways to improve turf performance in marginal or poor soils, consider using compost as a soil amendment."

In Australia compost should meet the Australian Standard for Compost – AS 4454. Compost from some companies actually passes the NASAA (National Association for Sustainable Agriculture in Australia) standards for organic farming.

In the USA there are two main methods for using compost. These are:

- Soil incorporation prior to turf establishment
- Surface application on established turf

In the first case, a typical 25-mm layer of compost is incorporated into the top 100 to 150 mm of soil as the only soil amendment. For top dressing, only a thin layer of screened material is added.

The aforementioned publication states: "A good method is to apply compost first, followed by several passes with an aerator equipped with hollow tines and a heavy drag mat. The drag mat will break

up the cores and mix the compost with the soil, dragging some of the mix back into the holes."

Interestingly, a quick review of American literature revealed that one compost maker in New Hampshire supplies 50 golf courses, compost has been used successfully for disease suppression and some turf managers apply a compost "tea" to their courses.

In an environment where being pro-active is rewarded by opportunity and success, significant potential exists for responsible "land managers" to forge relationships with the composting industry as the first step towards improving soil quality and adding value to green waste.



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President's Pen

Having just returned from a breakfast briefing on the new hazardous substance legislation, which will come into effect in Victoria in September, it is certainly evident that the role of the golf course superintendent is continuing to evolve. Gone are the days when a superintendent's role was solely turf management and approaching the days when more of our time will be dedicated to the documentation and implementation of impractical acts of Government. Now that I have that off my chest, let's have some positives.

The third edition of Australian Turfgrass Management is here and the feedback from readers and advertisers has been remarkable. As most readers would have noticed, the magazine has continued to evolve – thanks largely to the tireless efforts of your editor Phil George. This evolution process will be ongoing as reader feedback continues and we welcome new advertisers.

With the 4th National Seminar fast approaching support from both members and exhibitors has been excellent, with the Trade Show sold out and registration at very high levels. The workshop format for this seminar is new to the Association, and one would assume that from the response from delegate registrations this format will be included in all upcoming conferences and seminars.

Speaking of workshops, we are pleased to announce that the AGCSA in conjunction with the AGU, Golf Club Secretary Managers Association and Society of Golf Course Architects will present a workshop in September. This workshop will be based on the document produced by the AGU and ATRI, regarding Environment Management Strategies for Golf Courses. It is encouraging to see the major players in the industry unite to present this important workshop.

As this is the last Presidents Pen I will write prior to the AGM I would like to take this opportunity to thank the membership for their support, encouragement and constructive criticism over the past twelve months. I would also like to thank Craig New for his effort over the past two years as he decided not to seek re-election. Thanks also to the Barwon Heads Golf Club Committee and Staff for their continued support. Last but certainly not least thanks to my wonderful wife and family for their patience over the last year.

I look forward to seeing those members attending the Seminar in July, or catching up when next our paths cross.

Peter Frewin
President, AGCSA

FNQGCSEA

Now that the wet season is finally behind us and the good weather is starting, it's time to think ahead to August and Townsville for the 1999 Tropical Horticultural Trade Day at Cluden Park Racecourse on 23 & 24 August 1999.

This year promises to be bigger and better than ever before and though not on the grand scale of the National Turfgrass Seminar, The Tropical Horticultural Show will host a wide range of interesting speakers and seminars including Peter McMaugh, Scott Taylor, Gary Beehag and Steve Williams. For further details on this great event please refer to the ad on page 65 of this magazine.

Paul Earnshaw
President, FNQGCSEA

GCSAQ

Things have been very wet up here until May when we suddenly went from wet to cold, at least in the early mornings. In the South East of the state overnight temperatures were the lowest on record. For you southerners don't worry - the mercury is still up around 26 degrees so there's still plenty of sun in the Sunshine State. Our most recent field day was held at Gainsborough Greens Golf Club with fine weather for a change. There were still a few wet spots around the course from the rain the previous week but everyone seemed to enjoy the day's outing. Bill Heraghty Machinery sponsored the day with over 60 people attending to see the latest John Deere Greensmower that has been improved with input from their regular feedback sessions. Plenty of interest was shown in the new machine. Graham Stirling, one of the country's top nematologists was our guest speaker and he discussed factors that may be involved in the problems of summer decline in 328. Upcoming events for the GCSAQ are the Royal Pines Secretary Managers/ Superintendents golf day and dinner, jacket and tie required, and the two day down South tour to Coffs Harbour and Bonville golf courses sponsored by Primac Elders, Toro, Best Fertilisers and Vertidrain. Highlights will include the bus trip and guest speakers.

Alfie Langer is an unconfirmed guest speaker.

Hope to see everyone in Perth in July.

John Penberthy
President, GCSAQ

GCSAWA

The Management Challenge was held at the Vines Resort on Monday 10th May with a field of 15 teams playing a 4 man ambrose event. This event was set up some 9 years ago by the state executive committee of the time with a view to fostering relationships between the Superintendents and club officials.

Club President, Captain & Managing Secretaries were invited to play in a 4 man ambrose event with their Superintendents. The winning team received the right to host the following years event. Having the decision-makers of the club play together in a social atmosphere, was an initiative that has proven very successful.

The association has been actively involved in environmental projects with Course Superintendents on the Swan Coastal Plain taking part in a water usage, nutrient and chemical leaching trials in conjunction with

the WAWRC. Members will be kept up to date with findings through the pages of Australian Turfgrass Management.

Congratulations to the new President, Joondalup's Rob Macdonald and the new Executive Committee. I wish you all the best.

Craig New
Past President, GCSAWA

NSWGCSEA

Massive hailstones damaged several courses along the eastern parts of city as a fierce storm lashed Sydney. Worst hit courses include The Australian Golf Club, The Lakes Golf Club and Bonnie Doon Golf Club, some closed for several weeks. The sudden drop in temperature, which arrived with the thunderstorm, resulted in snowfalls in the mountain regions and a quick stock take of winter woollies. Our commiseration's go out to those unfortunate Superintendents who were affected by the storm. May Mother Nature and your hard work result in a quick recovery for your members?

Our field days commenced with the NSW Superintendents Championships at Concord Golf Club on April 12th. A good field was on hand to enjoy delightful weather, good food and fine evening entertainment. Peter Schumacher took the honours for the best scratch score, with Graham Bradshaw taking out the Rube Walkerdon Cup (single stableford), Graham Bradshaw and Anthony Dinte the Patons Cup (fourball Stableford), and Chris Blagg winning the Peter Ingram Trophy (trade stableford). Patons Australian Fertilisers were the major sponsors of the day to whom we are indebted for a great day, thanks Patons. The recent educational day at Tuggerah Lakes covered topics such as Poa control and tree management.

Richard Kirkby has once again been busy organising the applicants for the Chemturf - NSW Golf Course Superintendents Apprentice of the year award. The winner of this Award is Justin Haslam from Queenbeyan Golf Club. He will now travel to Perth for the AGCSA seminar courtesy of Chemturf.

Many NSW superintendents are travelling to Perth for the seminar and we look forward to catching up with our interstate colleagues.

Mark Parker
President, NSWGCSEA

VGCSA

Organisation for this year's Turfgrass Trade Fair, to be held at Sandown Racecourse on 4 and 5 August 1999, is progressing well. The new, fully enclosed facilities at Sandown and an expanded seminar program will make this the best trade fair held to date. The seminar program will run over 2 days, with keynote speaker Jeff Krans from Mississippi State University delivering a number of presentations on the latest turf information from the US. Topics will cover golf, bowls, racetracks, tennis, wickets and sportsgrounds. We are delighted to be involved with the Turfgrass Association in the organisation of the event and thank them for their expertise and time in putting the event together. The seminar will be run at a low cost and entry to the trade fair will be free. Keep the dates in mind and think about bringing along some of your staff. We wish Lance Holly and his family best wishes for the future, with the news that Croydon Golf Club will not be continuing with their current employment arrangement with Lance. Lance has been a great supporter of our Association over his ten years at Croydon and we hope that Lance's experience and expertise will not be lost to the industry. There is a surge in construction of new golf courses in Victoria, which is exciting for our industry. The

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Tuesday's afternoon golf game should once again prove very popular.

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project at the National Golf Club Cape Schank, is particularly interesting with the development of a further 36 holes making it a 54 hole complex. Construction is well underway, with grassing of some greens and bunker edges complete. The potential result on this fantastic piece of land will be worth seeing. We hope these new projects open up career opportunities for young people in our industry. The recent announcement of the World Matchplay Championship at Metropolitan Golf Club in January 2001 has been exciting. This event will see the top 64 players in world rankings competing for US\$5 million in prize money. The infrastructure planning is well underway with television production crews, corporate areas, golf carts, officials and volunteers requiring large areas to accommodate their requirements. The challenge of producing the best possible turf surfaces for this event will be exciting for all of us at Metropolitan.

Richard Forsyth
President, VGCSA

SAGCSA

After the rains in March and a dry April we were fortunate enough to get good rains in May. Autumn renovations are now over and winter is here with the regular list of jobs to do. In Early April we had the environmental seminar at Glenelg Golf Club, which was a very successful day, organised by Coopers Turf Supplies. Michael Nicholls of Echunga Golf Club gave a talk on issues at his course and the benefits of frogs. On the 29th April the Toro Cup and Cooper Cup were played at Belair Park. Thanks to Shaun Standfield and his team for having the course in such good order for the day. Andrew Manthorp from Mt Lofty won the Toro Cup and the Mt Lofty team won the Cooper Cup. Our thanks to Brain Goodridge from Toro and John Cooper for their sponsorship of another successful day.

In early May we have organised a bus trip to the Riverland to visit Waikerie, Barmera, Berri, Renmark and Loxton Golf clubs. It should be a very entertaining & enjoyable trip. The AGM this year will be held at Oakbank Golf Club in June and we hope to see many there.

Bob Dellow
President, SAGCSA

TGCSA

Cool temperatures and early frosts in some areas put our common couchgrass into dormancy early this year.

Our most recent Field Day was held at Kingston Beach Golf Club. Representing clubs from all over the state 28 turf managers attended. Included in the delegates were Course Managers and Committee Members who later stated that the day was a valuable educational day for their members.

John Neylan from Turfgrass Technology spoke on the following:

1. Methods of Greens Construction
2. Identifying Turf Problems
3. Effects of Management on Green Speed.

Thank to Kingston Beach Golf Club and Chris Hay for the very interesting Course Inspection.

The TGCSA congratulates Clinton Southern formerly Kingston Beach Golf Club, for his appointment as Course Superintendent at Pasmenco Golf Club in Hobart.

Upcoming Field Days :

1. Combined Day with Tasmanian Turfgrass Association and T.G.C.S.A. South of the



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state at North Hobart Oval on the 23/6/99. North of the state at Launceston Golf Club on the 24/6/99.

2.Toro AGM at Launceston Casino on the 19/8/99.

Mark Potter
President, TGCSA

TGAA (Vic)

Welcome to another edition of T.G.A.A. news in Australian Turfgrass Management (ATM). I trust you are enjoying the content of this publication and the information is helping you keep in touch with all the exciting things going on in our industry.

All of us here at the T.G.A.A. are busily preparing for the TURF TRADE FAIR to be held at the Sandown Racecourse on the 4th and 5th of August.

Jeff Krans, Mississippi State University Plant and Soil Unit will head an impressive list of guest speakers and the Trade Exhibition (free) will put you in touch with all the latest developments in turf machinery, products and services. For an application form and further details about this event please see the ad on Page 41 of this magazine.

T.G.A.A. AGM is to be held at the completion of the Trade Fair, 2.00pm on Thursday August 5th. Come and have a say in your association's future direction.

By now you should have all received your membership renewal. Please reply as early as possible so as you continue to receive all the benefits of financial membership. The bonus early bird rates for next years Millennium Conference and Turf Wicket Seminar will be available for members during 1999/2000 so be passionate and paid up (no bumper stickers with this campaign).

To keep up with all the world turf news, visit our website at www.tgaa.asn.au.

You can catch up on more of our news and discover what is happening in world turf by linking into the various sites available. Contact our 'Web Master' Scott Bolton if you would like to add anything to enhance our site.

Thank-you to our sponsors who support the TGAA. I hope you have a successful Trade Fair and look forward to continued affiliation with you over the exciting progressive times ahead.

See you at Sandown.

Robert Saverdra
President, TGAA

TGAA(ACT)

Apart from refreshing rain falling in the last few weeks and the success of the Irrigation Seminar, Justin Haslim (apprentice with Queenbeyan Golf Club) has been awarded Apprentice of the Year. This is a prestigious award to win and I suggest that Justin has a bright future in any area of Horticulture or Turf Management. This award is kindly sponsored by Chemturf P/L and in recognition of his achievement Justin will travel to Perth to attend the 4th National Turfgrass Seminar.

Grant King
TGAA (Act)

VGA

The V.G.A. have just finished the 13th Triennial Australian Bowling Greenkeepers Federation Conference and Championship Week in Adelaide.

Held over a week from the 2nd to 7th of May 1999. Greenkeepers from QLD, NSW, VIC and SA all converged on Adelaide to compete, talk and exchange ideas on turf management.

The V.G.A. looked the goods on the greens in their uniform, all due to our sponsors

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Scotts, Chipco and Golf & Bowls Machinery. Without this support the V.G.A. would struggle to be competitive, in a very strong field including some state representatives.

All Victorians should be proud of the way we presented ourselves and fought out each match on very slick greens. Although the results didn't go our way, the final result wasn't known until Ray Thorne's final bowl was delivered. Congratulations to QLD, eventual winners of the Australian Bowling Greenkeepers Federation Chipco Test Match Series for 1999.

The week began at Holdfast Bowling Club, with our registration and trade display in the morning. All major companies were represented, giving all greenkeepers an informative display on their products. The afternoon consisted of a seminar and open forum. Topics discussed included, fertiliser and soil conditioning programs by Darryl Sellar from Coopers Turf Supplies and compaction relief and aeration by Peter Ruscoe from Chemturf. David Mahony from QLD spoke on machinery and bowling green construction and Gary Beehag from Globe delivered a presentation on disease pests and weeds. To end the day Jonathan Lilliecrapp from Chipco enlightened us on some of the latest turf pesticides.

Day two started at Salisbury Bowling Club, where the first round of the fours, pairs and singles commenced. Unfortunately only one Victorian team was to go on to the second round. That afternoon, the first of the six test match series was played in competitive spirit amongst all states.

The test matches concluded at Sumerton Bowling Club on the 7th May, where all results were decided and presentations made to all winners.

We are now in the planing stages of the next Federation Week, which will be in Coffs Harbour in 2002.

The VGA are working towards setting the final itinerary along with the other turf bodies in planing for the Millennium Turfgrass Conference to be held in Melbourne from June 3rd - 9th ,2000.

The VGA's Greenkeeper of the Year Award and the Distinguished Service Award, are still being structured in relation to the criteria that will decide the winners. We are hoping to receive sponsorship and endorsement to make it a prestigious and continuing award.

Our 88th AGM will be held in August at the MCC Bowling Club. A BBQ and refreshments will be supplied by the VGA in appreciation of support by members and sponsors.

Toby Lumsden
Vice-President, VGA

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