

AUSTRALIAN

www.agcsa.com.au

Turfgrass

VOLUME 12.2 MAR-APR 2010

MANAGEMENT JOURNAL

Black Saturday One Year On

The long road back for
Marysville and Horsham



The Greensmaster 3150Q™

A model of quiet efficiency.



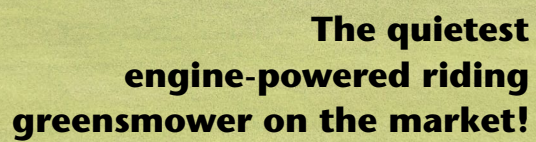
A good superintendant knows that what happens on the green could make or break their round. It must be quiet and run smooth and even. That's why those who know, recommend the Greensmaster 3150Q. Without sacrificing performance for innovation, Toro have produced the quietest riding mower yet.

Still with the industry's best quality cut, the GR3150Q with its Dual Precision Adjustment (DPA) cutting units and innovative new muffler system, now gives operators, golfers and neighbours peace and quiet when it really counts.

Buying, leasing or renting. You can count on Toro to deliver the right solutions for your budget.

For more information
call 1800 356 372 www.toro.com.au





@ full throttle

A horizontal number line with tick marks at 50, 55, 60, 65, and 70. Below the 50 mark is the word "Quiet". Below the 70 mark is the word "Loud".

Sound Pressure*Level (Decibels) @ 75 feet (22.9 meters) from Mower.

*An increase of 3 decibels represents an approximate doubling of the sound pressure level.

Count on it.



PARTNER RECOGNITION PROGRAMME

Powered by the Industry

Thank you to all the partners who help the AGCSA provide members with the greatest programmes and services the industry has to offer.



I wish to apply for:
**One year's subscription
to Australian Turfgrass
Management**
(Six editions per year)

PLEASE TICK BOX

ONE COPY PER EDITION

☐ \$55.00

O/S ONE COPY PER EDITION

☐ \$110.00

TWO COPIES PER EDITION

☐ \$86.00

THREE COPIES PER EDITION

☐ \$130.00

Prices include GST.



Winner of 23 awards at the TOCA International Communicators Contest 2006 - 2009

ORDERS CAN BE MADE SECURELY ONLINE THROUGH www.agcsa.com.au

Name:

Company:

Postal Address:

Town/Suburb: State: Postcode:

I enclose cheque for (amount):

Please charge my credit card: ☐ MasterCard

☐ Visa

Card Number: _____ Expiry Date: ____/____

Cardholder Name:

Address:

..... Signature:

☐ Please send me more information about becoming an AGCSA member

Forward to: Australian Turfgrass Management
Suite 1, Monash Corporate Centre
752 Blackburn Road
Clayton, VIC 3168
FAX: (03) 9548 8622

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

Production:
Editor:
Brett Robinson Ph: (03) 9548 8600
brett@agcsa.com.au

Art Direction & Design:
Jo Corne Ph: (03) 9548 8600
jo@agcsa.com.au

Advertising:
Melissa Wallace Ph: (03) 9548 8600
melissa@agcsa.com.au

Business Relationship Manager
Melissa Wallace
melissa@agcsa.com.au

Administration and Membership
Lyndel Conway
info@agcsa.com.au

Accounts
Philip Horsburgh
philip@agcsa.com.au

AGCSATech
Andrew Peart and John Geary
andrew@agcsa.com.au
jgeary@agcsa.com.au

HR & Best Practice Manager
Daryl Sellar
daryl@agcsa.com.au



AGCSA
Suite 1, Monash Corporate Centre
752 Blackburn Road, Clayton, VIC 3168
P: (03) 9548 8600
F: (03) 9548 8622
E: info@agcsa.com.au
W: www.agcsa.com.au
AGCSA Board
President: Allan Devlin
Directors: John Odell
Pat Pauli
Bryce Strachan

General Manager
John Neylan
john@agcsa.com.au

Events Manager
Simone Staples
simone@agcsa.com.au

Printed By
Impact Printing
69-79 Fallon Street
Brunswick, VIC 3056

Proudly supported by

Copyright © 2010
The AGCSA believes that material sourced and produced for Australian Turfgrass Management is accurate, but gives no warranty in relation thereto, and disclaims liability for all claims against the AGCSA, its subsidiary companies, its employees, agents or any other person which may arise from any person acting on the materials contained within. No portion, in whole or part, may be reproduced without the written permission of the AGCSA.



Know-how for Horticulture™



COVER: MARYSVILLE COMMUNITY GOLF AND BOWLS CLUB:

One year on from Black Saturday and the Marysville Community Golf and Bowls Club is slowly returning to normal thanks to the resilient course maintenance staff and assistance of the wider turf community. Pictured is the 12th.

Inset photos: Left - the 12th green one month after Black Saturday; Centre and right - the 13th green then and now.

Photos: Brett Robinson



From the fridge to the freezer

8

Complaining about the vagaries of the weather is almost considered a professional rite of passage for Australian turfies. However, after his first season working as assistant superintendent at a new golf course development on the outskirts of Moscow, Russia, former AGCSA Graduate of the Year winner Sean Kinsley has a new appreciation for extreme weather. In an insightful two part examination of golf and turf management in Russia, Kinsley looks at some of the unique challenges the country, its turbulent past and extreme climate can present when constructing and growing in a championship course.

Agalarov aims to be a cut above

12

In the second part of his Russian exposé, Sean Kinsley outlines the development of Agalarov Golf and Country Club, a new 18-hole facility located about 25km west of the Moscow city centre which is set to open later this year.

The long road back from Black Saturday – Marysville and Horsham GCs one year on

18

One year on from the destructive Black Saturday fires, ATM editor Brett Robinson catches up with Rob Christie (Marysville Community Golf and Bowls Club) and Tim Warren (Horsham Golf Club) to reflect on the past 12 months and see where both courses are at as they slowly return to normal.



A Point to prove

24

Designed by NZ-based course architect John Darby and opened in November 2008, Jack's Point in Queenstown, New Zealand has the overriding philosophy of honouring the land and working with the contours and natural features of the topography. Course superintendent Simon Forshaw gives ATM an insight into the development and maintenance of this stunning facility.

A helping hand

48

beyondblue representatives Jane Gardner and Therese Fitzpatrick provide some advice on how managers can deal with a staff member who may be suffering from depression.

OPINION

30

USGA course rating system

The Pulse quizzes superintendents on the new USGA handicapping and course rating system currently being rolled out by Golf Australia.

AGCSATECH UPDATE

Making the most of your H₂O

32

John Neylan looks at the issue of improving water efficiency, examines the outcomes of the recent APVMA review on the fungicide carbendazim and reflects on another challenging summer.

RESEARCH

UWA embarks on new turf trials

38

University of Western Australian researchers outline two new trials recently started, one looking at best management practices for renovating buffalograss surfaces and another which aims to define water use of four warm-season turfgrass species under contrasting mowing heights.

Grass roots wear and tear

40

To assist in the management of community sporting fields, Queensland DEEDI researchers are working together with the Redland City Council on testing and evaluating a series of warm-season turfgrasses under simulated and actual wear conditions.

TIME FOR WATER QUALITY TESTING!

Let us provide you with a **truly** independent water quality report

Send samples to



Ph. 03 9548 8600 Fax. 03 9548 8622 Email. john@agcsa.com.au Email. andrew@agcsa.com.au Email. jgeary@agcsa.com.au
Suite 1, Monash Corporate Centre, 752 Blackburn Road, Clayton 3168 Vic

COUNTRY PROFILE

Murray Bridge Golf Club, South Australia 44

After visiting Tocumwal Golf Club on the Murray River in the last edition, ATM heads downstream to Murray Bridge Golf Club, home for the past 28 years to superintendent Mal Grundy.



ENVIRONMENT MANAGEMENT

Sea Temple a green sanctuary 50

Described by its designer as the world's first tropical links, Sea Temple Golf Club in Port Douglas was recently honoured at the GCSAA/ Golf Digest Environmental Leaders in Golf Awards, winning the international category for environmental excellence.

WATER MANAGEMENT

Eastwood eases water worries 54

A concerted effort to harness all stormwater runoff and the installation of a desalination unit has provided Melbourne's Eastwood Golf Club with a much more positive outlook.

Also in this edition...

Foreword Thinking	6
Tech Talk – Plant tissue testing	36
News	56
Around the Trade	57
Book Review - Planet Golf USA	59
State Reports	60

Contributors to Australian Turfgrass Management Volume 12.2 (March-April 2010)

Louise Barton (University of Western Australia); Martyn Black (Castle Hill GC); Sharyn Burgess (University of Western Australia); Mal Caddies (STA QLD); Rob Christie (Marysville CG&BC); Tim Colmer (University of Western Australia); Robin Doodson (Sanctuary Cove GC); Therese Fitzpatrick (beyondblue); Simon Forshaw (Jack's Point, NZ); Jane Gardner (beyondblue); Charlie Giffard (Indooroopilly GC); Mal Grundy (Murray Bridge GC); Scott Harris (Gold Creek CC); Steve Jacobsen (Carnarvon GC); Sean Kinsley (Agalarov G&CC); Steve Lewis (TGCSA); Graeme Logan (STA NSW); Peter Lonergan (GCSAQ); Kane McDonald (Devonport GC); Brett Morris (Sea Temple GC); John Neylan (AGCSA); Mark Parker (Concord GC); Andrew Peart (AGCSATech); Matt Roche (DEEDI); Eddy Ruis (Portland GC); Phil Soegaard (Lakelands); Nathan Tovey (TGAA VIC); Trevor U'Ren (VGCSA); Michael Vozzo (Eastwood GC); Tim Warren (Horsham GC); David Warwick (Avondale GC); Brock Weston (TGAA ACT); Darren Wilson (GCSAWA); Craig Wright (NSWGCSA).

Getting back on track

You really can't begin to imagine what Rob Christie, Tim Warren and their respective course maintenance crews have had to endure in the aftermath of the Black Saturday bushfires. Experiencing such loss, both in a personal sense as well as professional, has truly tested the resolve of these gents and while the scars are still taking their time to heal, there are signs, 12 months on, that things are slowly returning to normal.

Having caught up with both Rob and Tim in preparation for this edition, the one thing that both have marvelled at over the past 12 months has been the way in which their crews have gone above and beyond the call of duty in their efforts to get their patch of turf back up and playable. While the outpouring of volunteer help was enormous and extremely gratifying, both Rob and Tim say it has taken something extra special for their teams to turn up day in, day out. Comments Tim: "I am hugely indebted to their efforts. They have done whatever I have asked of them and pulled long hours in some very ordinary conditions. They don't say much, but I know it must have been hard on them."

Having the focus of getting their courses back has given both crews a sense of purpose and while there have been moments where it has all got a bit too much, seeing the slow and steady progress daily, weekly and monthly has ultimately kept spirits upbeat. For the likes of young Marysville apprentice Kellan Fiske, even something as simple as returning to his turf management studies at TAFE has been an important step along the road to recovery.

The rebuilding process certainly hasn't been without its setbacks, yet in true country fashion each crew has got on with the job at hand and fixed any issues that have arisen. For instance, Tim was forced to oversow all 18 greens in December after nematodes went to town on his greens. For Rob, no sooner had they got all 18 holes ready for opening last October, the river which flows through the property broke its banks and flooded sections of the course!

In this edition of ATM we revisit Marysville and Horsham and see how Rob, Kellan, Bob and Wayne (Marysville) and Tim, David, Mick, Nathan and Brad (Horsham) have managed to get themselves through what has without a doubt been one of the most challenging periods of their turf management careers. While there is still a lot of work left, the amount that has already been achieved is nothing short of impressive.

Elsewhere in this edition, former AGCSA Graduate of the Year Award winner Sean Kinsley provides an intriguing insight into his time working in Russia, while a little closer to home, we head across the 'Ditch' to Queenstown where Simon Forshaw recounts the development of Jacks Point. We also stop by Murray Bridge and fire some questions at genial South Australian superintendent Mal Grundy for this edition's country course profile.

Finally, I would like to thank all those people who either called or sent emails of congratulations after I picked up the inaugural Tom Ramsey Award late last year at the annual Australian Golf Writers Association dinner. It was certainly a shock to receive the honour, but humbling nonetheless. The article which was recognised was last year's Volume 11.3 feature "Marysville rises from the ashes" and I thank Rob and his crew for allowing me to tell their story. Hopefully this edition's follow up further highlights to the wider golf community the impressive results that those employed in golf course maintenance continually go out of their way to produce. Enjoy the read.



Brett Robinson,
Editor

2SPEC

...the way you think about turf
nutrition is about to change

Behind the scenes efforts a key to moving forward



At the time of writing we are already a month into the New Year and even in this short period there has been a flurry of activity in the AGCSA office. We have completed our planning and budgeting for the year ahead as well as dealing with member's queries, planning for the Gold Coast conference, undertaking consultancy and research projects and putting together this journal.

As we plan for 2010 it doesn't seem like 12 months ago that we were facing the uncertain prospect of the global financial crises and the impacts that this may have on the AGCSA. While there has been belt tightening within the turf industry which has impacted on revenue, we have come through very well due to the support of our members and trade partners. The year ahead is going to be a busy one as we continue to strive to provide our members with good value for their membership.

The conference at the Gold Coast Convention and Exhibition Centre in June is our major event for the year and being a large trade show there is plenty to organise. In discussions with several trade members they are looking towards the week to launch new products for the year. We are making a few changes around the trade show and it is going to provide a great opportunity to benefit from the expertise and experience that exists within the trade.

As with every conference, considerable effort has gone into the education programme and we have built this year's timetable around the response received from member feedback. We have several featured speakers, both international and local, that will discuss all manner of topics including new turfgrass diseases, green speed, course renovation and construction and the new course rating system.

Research has been a focus for the AGCSA since 2000 and during this time there have been

numerous projects investigating new turfgrass species and cultivars, the biology of *Poa annua*, use of reclaimed water and environmental management. We currently have a new bentgrass trial underway in three states, the water management initiative and completed an extensive environmental literature review (now available through the AGCSA website).

The research being undertaken by the AGCSATech team is funded in part by revenue generated through AGCSATech activities (e.g.: soil testing, disease diagnosis, water analysis, education and consultancy). Since the inception of AGCSATech it has provided a wide range of services to members of the AGCSA that are independent and provided by a team of very experienced agronomists. By supporting AGCSATech ensures on-going research is undertaken.

Over the past 12 months the AGCSA has been involved in the Federal Government's Awards Modernisation programme with Daryl Sellar making several submissions on our behalf. In 2009, the AGCSA put forward a submission to the Australian Industrial Relations Commission (AIRC) regarding the draft awards, outlining the inclusions thought necessary to bring greenkeepers awards up to date and be more reflective of the skills and knowledge required and existing within our industry. It has been interesting to reflect on the amount of time committed to this process and the outcomes can now be viewed in the HR section in the members area of the AGCSA website.

Given that the new FairWork legislation came into effect on 1 January 2010, the AGCSA has had its legal firm draft a new sample employment agreement for golf course superintendents. This is currently being reviewed and the final document will be available on the website in March. As was noted



The leaders in sports field drainage & sports field construction using the latest machinery & technology.

Staff with over 60 years combined golf course and sports field drainage, sports field construction & horticultural experience. Choose the specialists – 100% of our projects are either the drainage or construction of sports grass surfaces.

Our Services include:

- Slit drainage • Laser controlled trenching • Sand grooving • Turf wicket construction to international level
- Sports field design & construction • Bowling green construction • GPS guided and two-way laser controlled grading

Proven methods. Proven results.

65 Hume Street, Crows Nest NSW 2065 | Phone: (02) 8117 8100 Fax: (02) 8117 8101 | Email: info@turfdrain.com.au www.turfdrain.com.au



under the previous laws, golf course employees were vulnerable to dismissal with little explanation and having an employment agreement is critical in providing a fairer arrangement for staff.

The issue of retaining good groundstaff because of wages continues to be an on-going challenge for golf clubs and it is one that is often discussed at AGCSA Board level. We are planning to undertake an awareness campaign related to greenkeeping as a career as a means of providing an insight into what jobs and career routes are available in the golf/turf industry. Information sessions were held several years ago and it is planned to run a similar programme later in the year.

An issue that the AGCSA has had to deal with over the past few months and will continue to have to into the future is the review of various pesticides used in the turf industry by the Australian Pesticides and Veterinary Medicines Authority. We have already provided feedback on the use of carbendazim and quintozone and we are very appreciative of the feedback received from our members which has enabled us to accurately reflect our position to the APVMA.

Education is still a significant undertaking of the AGCSA and finally after two years of consultation and submissions by the National Turf Education Working Group, which the AGCSA acts as the coordinator, the training packages for turf training have been finalised and are now on the AgriFood Skills Australia website. On reflection of the many hours committed to this project, the outcome has been that there is little or no change but it did achieve what the turf industry wants. It does highlight to me as General Manager that a lot of time can be committed to maintaining the status quo and outwardly there can be an appearance that nothing was achieved.

As we move through 2010 I look forward to attending state association meetings and meeting many of you in the process. 🌱

MEMBERSHIP UPDATE

Sign up your apprentice for free membership. All Australian golf course superintendents are encouraged to get their apprentice to register for free AGCSA membership for the duration of their apprenticeship. All they need to do is complete the form online at www.agcsa.com.au or fax/post the Membership Application Form opposite to receive benefits including member discounts on books and merchandise, a copy of ATM journal, the weekly e-newsletter The Cut and attend twice yearly national roving AGCSA workshop series. Contact Lyndel Conway on (03) 9548 8600 or info@agcsa.com.au for contact updates or if you have any queries.

LYNDEL CONWAY,
AGCSA MEMBERSHIP COORDINATOR



AUSTRALIAN GOLF COURSE SUPERINTENDENTS' ASSOCIATION

MEMBERSHIP APPLICATION FORM

Helping superintendents and their staff to achieve the best possible playing surfaces and adjacent environment within the limitations of the available resources

Surname: First Name:

Preferred Mailing Address:

City/Suburb: State: Postcode:

Position:

Club/Organisation:

Phone: Landline: Fax:

Mobile: Fax:

Email:

Member Category:

State Membership:

PAYMENT

☐ Please send me a tax invoice

☐ Please charge this purchase to my credit card account

☐ MasterCard ☐ Visa

Card Number: Expiry Date: ____/____

Cardholder Name:

Signature:

Send completed application form and payment to:

Suite 1, Monash Corporate Centre, 752 Blackburn Rd, Clayton, 3168, Vic

Phone: 03 9548 8600 Fax: 03 9548 8622 Email: info@agcsa.com.au

AGCSA MEMBERSHIP CATEGORIES

GOLF MEMBERSHIP

Golf Course Superintendent.....	\$339
International Golf Course Superintendent.....	\$195
Assistant Golf Course Superintendent.....	\$292
Foreman/Ground Staff.....	\$145
Golf Course Maintenance Company.....	\$339
Consultant/Contractor.....	\$339

ASSOCIATE MEMBERSHIP

Sports Turf Manager.....	\$292
Trade.....	\$292
Retired.....	\$130
Ground Staff – Non Golf.....	\$145

STATE MEMBERSHIP

NSW - New South Wales Golf Course Superintendents Association	\$88
QLD - Golf Course Superintendents Association of Queensland	\$88
SA - South Australian Golf Course Superintendents Association	\$75
TAS - Tasmania Golf Course Superintendents Association.....	\$60
WA - Golf Course Superintendents Association of Western Australia	\$110
VIC - Victorian Golf Course Superintendents Association.....	Please call 9645 4394

THE NEXT GENERATION (STUDENT MEMBERSHIP)

Australian Turf Industry Apprentice/Student	FREE
---------------------------------------------------	------

Discount AGCSA membership available for superintendents and staff totalling +3 members. For further information send your list of names and positions to info@agcsa.com.au



After winning the AGCSA Graduate of the Year Award in 2006, Sean Kinsley has travelled far and wide from Yamba Golf Club where he first got his break in turf management. After a period in the US and then in Melbourne at Settlers Run, Kinsley now finds himself as an assistant at the newly constructed Agalarov Estate Golf and Country Club located in the outskirts of Moscow, Russia. Here he provides a fascinating insight into this emerging golf market and some of the unique turf management challenges the country, its tumultuous past and extreme climate can present.

All of us can tend to whine and moan about the weather in our corner of the world. It's almost considered a professional rite of passage. But comrades be warned! If you should spend more than a year commenting upon the inconsistencies of the Melbourne weather, as I did for most of 2008, you just might find that your next career move is to something altogether more exotic.

In May of 2009 I was approaching my second winter on the Troon Golf-managed Settlers Run Golf and Country Club in south east Melbourne. Working under superintendent John O'Neill and assistant Stuart Graham, the crew was preparing to take the course into only its second winter since opening in November 2007.

Hailing from Yamba on the north coast of NSW, I wasn't exactly looking forward to the cold and grey days ahead. No one in that part of the world does very much, except perhaps for John who looks forward to some better surf. As one of only two New South Welshmen on the team it was my duty to inform my colleagues of the daily weather forecast back home as well as extolling the virtues of other north of the border 'products'. Sometimes I got the feeling that my efforts were not all that much appreciated...

It was as winter was about to descend that I was first approached by US superintendent Brad Hines about a possible move to another Troon project – Agalarov Estate Golf and Country Club in Moscow, Russia. Brad had been involved on the project since the middle of 2008 and was looking for an assistant.

From the 'fridge to the freezer' I thought, but an overseas posting was something I had very much wanted since first joining Troon in February 2008. And how often do you get the opportunity in your first stint as an assistant to work with someone of Brad's experience (his CV includes the grow-in of four courses at the Mission Hills development in China and three years as Pebble Beach superintendent).

After several phone calls and hours of online research (there are some very interesting Russian websites it must be said) I accepted the position, making the move there in early July 2009 to what was sure to be a new, very challenging but exciting adventure. I am a big believer in taking yourself outside of your comfort zone and forcing yourself to extend your skills and experience. But having finished my first season there, perhaps I should have remembered the old proverb: "When the gods wish to punish us they answer our prayers".

THE RUSSIAN WAY

After employment in both Australia and the United States, greenkeeping in Russia has been my first taste of golf in an emerging market. It is fair to say that the game here is still very much in an embryonic state. Golfers, the public at large and clients too have only a limited knowledge of the game and the complexities of the industry that surrounds the construction and management of such facilities.



Education, as it is everywhere, is the key, but especially paramount here in Russia. The challenge is in getting the client to understand why the commitment to certain standards and associated expenses is not just necessary but essential to success.

At present there seems to be a real imbalance in the development of Russian golf with a surplus of exclusive private clubs, aimed at the social and economic elite, over publicly available facilities open and affordable to the ordinary Russian people. This, and the fact that Russia has so far lacked a star player on any of the world's major Tours, has left the game with an image problem.

It is seen by the public at large as an amusement for the rich and powerful, more as a game or pastime than as a real sport. If growth of the game is to occur on the scale envisaged by some of the developers currently involved in the industry, much more will need to be done to address these issues.

Facilities that can be accessed by families and/or individuals working for the average wage would be an important and much needed start for the game. These will, by necessity, need to be small and modest affairs, but they will serve to introduce a whole new generation of Russians to the game, increasing the scope for greater scale developments at a later date.

Russia and its people are a fascination. Although friendly and generous in spirit (and with their spirits!), the hangover from the communist era is still evident. It might be said that Russia and its people have adopted consumerism with a relish, but the inherent logic of capitalism still has a long way to go.



From the fridge to the freezer

Few societies have seen both the scale and scope of change, both social and economic, that Russia has experienced in recent times. The switch to capitalism and democracy is still so new and not entirely uncontested with older Russians still unconvinced as to the true benefits of reform.

Past legacies abound. An enormous, sometimes dysfunctional bureaucracy creates roadblocks to productivity and tends to undermine people's trust in both the system and each other. The best advice given in good faith can still be met with disbelief as people are in constant suspicion of secret agendas, both real and imagined.

Administrative demands from government and within organisations can feel excessive when compared to those from home. The records required for a simple purchase of oil are a case in point. It is not enough to simply place an invoice for the purchase. The amount of oil in total, the individual machines in which that oil will be placed, how much oil each machine will use, who will be using the machine and in what exact type of operation, all of this must be placed on record in memo form before purchase is approved, and exhaustive records maintained thereafter.

Russian customs controls are another case in point and one of the bigger challenges for turf management in this part of the world. Every part of every product above a certain value and weight must carry its own individual certification and customs officials will often take apart particular pieces of equipment for inspection. Whether this is for security purposes or for their own amusement is not always clear.

An A.D. Williams spray tank had been ordered as part of our initial purchase of equipment and delivery to the Russian docks had occurred in due course. Unfortunately, however, local customs then proceeded to take apart a ball valve for inspection. Even more unfortunately the valve was not put back together properly and therefore did not arrive to us in working order.

It also seems that not all the proper documentation was in order. Customs requested from the supplier a technical blueprint for the manufacture of four particular bolts, specifying their exact dimensions (cue Twilight Zone music). It seems that they did not

Since July 2009 Agalarov Golf and Country Club in Moscow has been home to 2006 AGCSA Graduate of the Year Award winner Sean Kinsley. The move from Australia is Kinsley's first experience of golf in an emerging market and has provided more than its fair share of challenges, including combating the extreme arctic climate which has a significant impact on turf management practices

The game of golf is very much a new proposition in Russia. Golfers, the public at large and clients too have only a limited knowledge of the game and the complexities of the industry that surrounds the construction and management of such facilities. Pictured is the 18th hole at Agalarov





◀ **Aside from the weather, the general lack of product availability in what is still a very small turf industry can be problematic. Some turf-labelled products are available in Russia, but soluble fertiliser and herbicide supplies are a much more difficult proposition**

Russia boasts five seasons – spring, summer, autumn, ‘green’ winter and ‘Russian’ winter. During the latter temperatures rarely get above -10 during the day. Most Russian golf facilities will close in October just ahead of the start of ‘green’ winter where daily maximums are a frigid 0°C

conform to Russian standards and therefore they had to be specially registered through certification. This is one example of the 2-3-4 rule in operation – count on everything costing twice as much and taking three times as long to be delivered. The end result being that things end up four times as difficult!

LABOUR PAINS

Bureaucratic demands are not limited to record keeping and import procedures alone. Communism created an enormous system of worker protections, many of which have survived the move to capitalism. Russian labour laws are governed in a centralised system that does not always accommodate the specific needs of individual organisations. Rules and regulations are everywhere, but can be selectively interpreted.

I had also thought that in the current environment we would have people lining up to find work, but it was not the case. Interviewing potential recruits would often descend into them making a long list of demands and refusals, most of which were unrealistic in a golf course environment. Russian law proscribes a 40-hour working week, with weekend duties strictly monitored. Regardless of the total hours worked in a week, there is an expectation that weekend work will be given as time off in lieu.

There can be less interest in what the role and

responsibilities of a new employee will be, and more in how soon they will be given a supervisory position or as one staff member put it “when do I get to sit on a big red mower”. The reality, in Moscow at least, is that the overwhelming majority of labouring work is carried out by Tajiks, citizens of Tajikistan, one of the former Soviet Union states. Locals seem to expect that they will automatically assume a management role over such ‘outsiders’.

All equipment operators must be licensed, regardless of whether their machinery is only to be used on private property. The training course involved is that used to certify tractor operators and takes a couple of hours per day over several weeks to complete. Each piece of equipment must also be registered and insured in the same way that a road going vehicle in Australia must be. More regulation, more time and more expense.

It was no surprise, of course, to arrive and find that very few employees with any level of golf course experience were available for hire. In fact, we had only one such staff member on the team during the 2009 season. It was a good thing to have several weeks at least to orientate the crew with the basics of a golf course (this is a tee, this is a green, this is a bunker) before opening the back nine to play.

The challenge then became to get staff familiar with how golf is played and the fundamentals of interacting with golfers on the course while still carrying out their duties. It was not uncommon to see some of our members playing in front of a fascinated gallery of 20-30 estate staff.

And the education of employees is not limited to our golf course crew only. There are hundreds of labourers on site in total, many construction teams working on the several different facilities of the estate and they all require direction in terms of relating to our members.

Security staff have been a particular challenge. I one day had security shut down a team of trimmers working on the 18th hole due to the presence of a single golfer playing from the 11th tee! If your interpreter is not immediately on hand, it can be impossible to explain the situation and have your crew allowed to return to work.

THE BIG FREEZE

First and foremost in any discussion of golf course cultural practices in Russia are, of course, the climatic conditions in which you are forced to operate. To say that they are challenging would be an extreme understatement. With the exception of the Scandinavian and Canadian courses, and perhaps others located at extreme altitudes, there really are no other turf facilities operating in such an arctic climate. If you ask a local they will tell you that there are not four but five seasons in Russia – spring, summer, autumn, ‘green’ winter and ‘Russian’ winter.

The golf and growing season in Moscow is, of course, very brief. Golfers do not really begin play



until sometime in mid May. The springs are short, wet and muddy as the winter snow melts away. Summers are mild. It is rare for the maximum to reach 30°C and night time temperatures usually bottom out at around 10-12°C. They are surprisingly humid, but at no point was it necessary to hand water greens and disease pressure throughout July and August was minimal to non-existent.

It is not unusual to experience cool snaps in August where the daily maximum can drop to the mid-teens and the first frosts, though light, usually occur in September where the days shorten dramatically. Sunrise is on average two minutes later each day and sunset two minutes earlier each night. That equates to 28 minutes less of sunlight per day after a week, and two hours per day less by the end of the month. The quality of light also deteriorates as the sun slips unbelievably low in the southern sky.

As soil temperatures drop, the turf loses its vigour over the month but it does not approach a properly dormant state until much later, probably around late October or November, closer to the first snowfall and/or permanent cover of snow. Little golf is played from October on and most facilities will close to play.

The 'green' winter (late October to December) is remarkably consistent in temperatures. Nearly every day is around 0°C degrees, perhaps a few below or a few above but never varying more than one or two degrees over a 24 hour period. This can be

a time of light snow and showers. The golf course becomes incredibly soft after the first couple of snow melts and it is no longer possible to move any kind of equipment out over the ground. It is necessary to have completed all maintenance activities and preventative snow mould applications by this time and attention turns to winter preparation of the golf course.

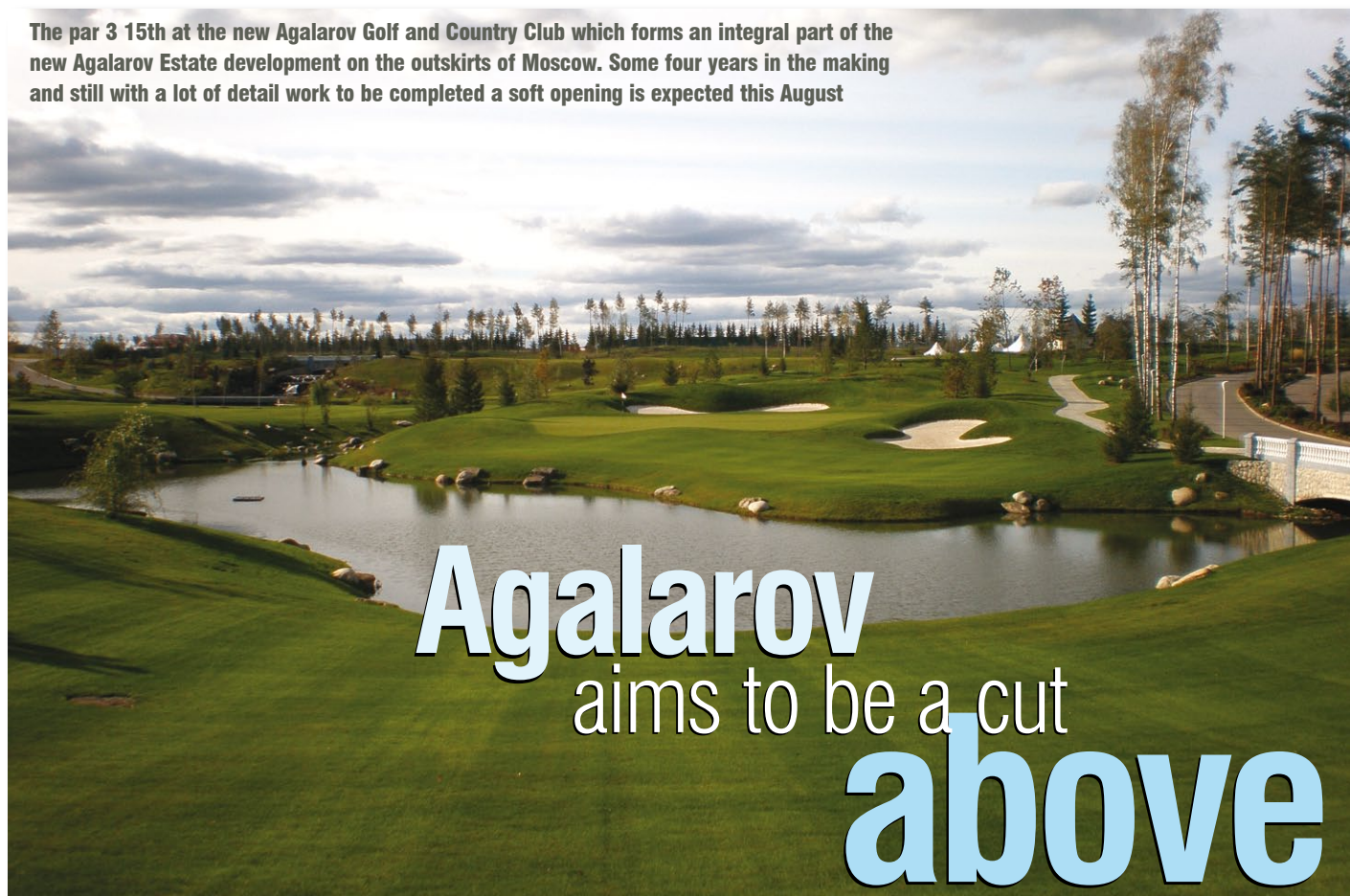
'Russian' winter is thankfully that time of year where I get to head home and enjoy some of the product that I used to spend so much time talking about at Settlers Run! A skeleton crew of around 10 employees (golf course and landscape) is retained to assist in tree planting, general cleaning and snow removal from the public areas of the Estate which still remain open to members and the public over the winter.

They work through conditions that would be unknown and unknowable in Australia. The daily maximum in January and February averages about -10°C with the mercury falling to 20 or 30 below at night. Heavy snow falls are interspersed with occasional outbursts of pale sunshine. Sometimes a southerly wind will bring some relief and a relatively balmy zero degree day. It is perhaps one place on earth that might welcome global warming. All in all a very good time to return to the NSW north coast, play some golf at last and see family and friends.

CONTINUED ON PAGE 16



The par 3 15th at the new Agalarov Golf and Country Club which forms an integral part of the new Agalarov Estate development on the outskirts of Moscow. Some four years in the making and still with a lot of detail work to be completed a soft opening is expected this August



Agalarov Golf and Country Club is a new 18-hole facility located about 25km west of the Moscow city centre and joins a small number of other golf facilities in Moscow and greater Russia. Sean Kinsley, who started as assistant there in July 2009, outlines the project to date and the challenges faced during construction and grow-in.

Designed by American architect Cal Olson, Agalarov Golf and Country Club is an integral part of the wider Agalarov Estate development, a private residential golf community currently under construction in the Moscow localities of Obuchkovo, Chesnokovo and Voronino.

Due for completion this year, the estate is based on a 344 hectare site incorporating a 65,000ft² Mediterranean style clubhouse, a 41-room boutique hotel with luxury spa and wellness centre, 'The Beach Club' set on the shore of a manmade fresh water lake with swimming pools and associated water activities, and a sports centre. Housing in the residential estates is aimed at the luxury end of the market, with asking prices beginning at around US\$10 million.

The timeline of construction on the Agalarov Estate development stretches back a considerable way with preliminary earthworks and engineering beginning some four-and-a-half years ago. The golf course itself has been through two separate incarnations, with an initial six holes of the front nine looping around a large system of lakes having been completed up to the point of seeding some three or so years ago.

Just prior to grassing a local authority realised that a dairy farm bordering the development would be within 300m of some of the property's planned feature golf course lots. Ruling that this was not consistent with local planning regulations all work on the project was stopped, and the course architect

forced to completely rework the entire land use plan. Eventually, all earthworks were bulldozed back into the lake beds, and the entire process of construction, civil engineering included, begun all over again.

It was not until May of 2009 that seeding of the back nine, beginning with those holes lining the main entry road, was underway. This was completed at the end of the following month, just before my arrival on site in early July. While grow-in of these holes continued, the construction crew - mainly Mexican - moved over to complete the rough grading of holes six through nine, with the installation of irrigation, cart paths and bunker shaping following close behind. Final clean up and seeding would immediately follow.



Throughout July and into August the work proceeded smoothly with about one hole per week being completed and put under seed. At that point, however, the inevitable gremlin got into the mix with a hydraulic pump on the articulated knuckle bucket of the bunker shaper's excavator going down. It transpired that no replacement part was available in all of Russia and would take months to arrive and clear customs. The only other articulated attachment available was 800km east in Kazan and on an excavator so big that the shaper could not work from the base of the bunker.

After some discussion between the client and construction superintendent it was agreed that to proceed with this machine would result in a style of bunkering not consistent with that already shaped. So another unit was substituted in its place, but one that would only advance the work at a much reduced pace. We slowed to the completion of one hole every three weeks, and the weather closed in.

By the end of September holes 1 and 2 were finished but germination was patchy at best. Daytime maximums fell into the low teens, with nightly lows not much above zero. Soil temperatures dropped and more and more days were lost to rain. The cloudy skies meant it took days for the surface to dry out sufficiently enough to allow machinery back out onto the ground.

October saw the seeding of tees and greens on holes 3 through 5, irrigation and cart paths installed and bunkers finally shaped (though not all lined and filled). Our first snow fell on 30 October, the ground froze and then later turned to soup after the first melt. The Mexicans were done and headed home to the sun and their families.

Greens (total area approximately 1.2ha) have been seeded to A1 bentgrass using a Scotts drop spreader at 0.7kg/100m². Tees (1.3ha) are a four-way blend of different Kentucky bluegrass varieties (Impact, Award, Nu Glade, Everest), again using the drop spreader at 1.45kg/100m². Fairways (approximately 18ha) are a colonial bentgrass and fescue blend (Chewings and Audubon Creeping Red) and were hydroseeded at 300kg/ha.

Primary roughs are a bluegrass, perennial ryegrass and fescue mix, hydroseeded at 150kg/



ha. Secondary roughs have been hydroseeded to a fine fescue and bluegrass blend at 250kg/ha. Out of play native areas, mostly situated along lake and stream edges have had a wildflower seed mix incorporated into the roughs mix in order to increase their distinction from the golf course proper.

All hydroseed mixes included FlexTerra, a biodegradable mulch material incorporated at a rate of 1800kg/ha. It was added to give some erosion control. The manufacturer also claims that it can hold up to 15 times its weight in water.

Greens and tee profiles have been constructed using a native sand mix. In the case of the greens this was combined with Profile, a ceramic topdressing material designed to improve the balance of macro and capillary pore space, as well as water and nutrient retention. As yet no formal soil tests have been conducted. Facilities for such tests have been difficult to locate, the sieves needed for doing the tests in house are not available locally and export of such materials for testing in an overseas laboratory is a bureaucratic labyrinth best not entered into.

Throughout the first season the materials seem to have been working well with fertility response, water holding and drainage performance all acceptable so far. By observation, the particle size certainly appears to be on the coarser side, but the next few seasons should show what amendments, if any, will be necessary. And hopefully appropriate testing facilities for soil and disease analysis can soon be identified.

This is a good example of how little use the textbook can be at times. Knowledge is always power, to be sure. But there are plenty of situations in a construction and grow-in, and during conventional course maintenance as well, where you are forced to adapt and come up with practical solutions, which are perhaps not technically or theoretically 'ideal', but that serve to meet the practicalities of the circumstances you face.

Despite the opportunity to do so, with a more than adequate supply existing on site, fairway and rough profiles were not sand capped but instead constructed with a native topsoil, far heavier in texture than that which would usually be considered

Fairways (about 18ha) are a colonial bentgrass and fescue blend (Chewings and Audubon Creeping Red) and were hydroseeded at 300kg/ha



Left: The stunning 'Beach Club' which forms part of the Agalarov Estate



◀ Bunker construction at Agalarov

for use on a golf course. This has made germination in certain areas difficult (particularly along haul road sites) and creates delays following rainfall where machinery cannot quickly proceed back out onto the golf course for fear of damaging a still immature surface.

PRODUCT PROBLEMS

If the weather can be considered the biggest challenge, then the general lack of product availability in what is still a very small turf industry is certainly the next greatest difficulty. Some turf-labelled products are available, but soluble fertiliser and herbicide supplies are a much more difficult proposition.

A topdressing sand consistent enough with that from which the greens were constructed was so late in arriving that we did not have the opportunity to apply more than one application with the Profile over the course of the summer. Thankfully, a good surface was still achieved, and although already present in the fairways and rough, *Poa annua* invasion of greens and tees did not occur.

We are currently attempting to source a wider range of herbicide options for 2010. In 2009 only two applications of 2-4-D were made to tee tops and fairways, with small applications of glyphosate made to cart paths and bunker bases. Pre-emergent applications were always going to be an unrealistic option with so much overseeding of surfaces occurring, but surely such a limited use of herbicide control is highly unorthodox during a typical grow-in.

Weed control was more significantly achieved through simple mowing of the surfaces on a daily basis. It was amazing to see how so much broadleaf activity was reduced by incremental drops in our heights of cut as mowing advanced.

Pre-plant fertilisation of fairways and roughs occurred with the application of a locally sourced agricultural grade 14-14-14 product, applied by the construction crew at an approximate rate of 0.2kg of actual N/100m². This basically equated to one pass with walk spreaders set wide open. The hydroseed mix contained no supplementary nutrition. Pre-plant nutrition of greens and tees was delivered with two Nutrite products – a 12-30-8 Mini (0.5 N/100m²) and an 18-2-18 Micro granular (0.75 N/100m²).

Broad acre fertilisation following seeding and the first three mowings was conducted with the use of the same fertiliser but as already noted the consistency of both product quality and supply was a problem. Applied through a Lely spreader at approximately 0.35kg of actual N/100m², this was conducted as and when product became available. We could have easily made this application on a fortnightly or even weekly basis, but it was not to be. Sometimes, I guess, you just have to be satisfied with what is possible.

We attempted to find a potash product for an autumn application. And again, after several weeks of searching, we were unable to do so. A 16-16-16 imported fertiliser, of a superior grade to the Russian product, was the best we could find and despite misgivings of such a high nitrogen hit at that time of year we made a final broad acre application in mid-September at a similar rate.

Greens fertilisation post planting occurred through the combination of a granular and foliar sprayhawk program. The walk spreaders supplied were not of the best quality, and did not deliver an even coverage, but we persevered making applications as determined by visual inspection at rates equivalent to the pre-plant programme. Foliar fertilisation occurred every two to three weeks, again according to visual inspection. A ferric sodium product (13 per cent Fe at 0.02kg Fe/100m²) and calcium nitrate (0.02kg N/100m² and 0.04kg Ca/100m²) were applied on each occasion.

The aeration programme scheduled for 2010 will be as follows;

- Two mini-tine events with very light verticut and topdressing in mid-May and mid-June. Light dustings every two weeks over this period;
- Main aeration will be scheduled in July dependent on the weather. A deeper verticutting and coring with ½" side eject tines and topdressing will probably be the approach taken. The timing reflects our desire to both avoid the intermittent cool weather that can still be experienced in June and to allow members, champing at the bit after a long winter, to enjoy close to two months of play before disrupting the greens.
- Resumption of regular dusting throughout August and early September; and
- Final solid tine application (1/2" or 5/8") and heavy topdress immediately prior to the first snow in autumn (mid-October). This is done in concert with our snow-mould and winterisation programme.

Heading into 2010 the golf course is nearing completion of the main construction phase. Holes 3 through 5 will be revisited in the spring as soon as the weather will allow. There is still a lot of detail work to be completed, but we hope to have seeding completed by the end of June. And with a good season, a soft opening of the full 18 holes should be possible by August. 🌱

Greens and tee profiles were constructed using a native sand mix. Tees (1.3ha) are a four-way blend of different Kentucky bluegrass varieties





◀ The golf and growing season in Moscow is very brief. Golfers do not really begin play until some time in mid-May. The springs are short, wet and muddy as the winter snow melts away, while summers are mild

CONTINUED FROM PAGE 11

WINTER PREPARATIONS

There are few golf courses in Australia that experience any significant level of snowfall, and virtually none that face a prolonged period of turf under snow and ice cover, but one of the primary disease pathogens encountered here in Moscow will be familiar enough – *microdochium nivale* (formerly *fusarium nivale*) – or pink snow mould. For an Australian greenkeeper the preventative programme of fungicide applications, the general 'winterisation' of the golf course and the issues faced in bringing the golf course back into play during the spring and early summer, are a definite departure from home.

In the case of Agalarov, we first observed some disease activity on the greens in mid-September. Without any diagnostic service available, some quick research became necessary, following which we were confident that we were facing an outbreak of *microdochium*. The disease is commonly referred to as pink snow mould, but it does not require any actual snow cover to become active.

An application of Quadris (azoxystrobin) at 2.3l/ha was made but had no visible effect on the spread of the disease. A subsequent application of Bravo (chlorothalonil) at 10l/ha had much better success. The pathogen's spread was immediately halted and with a week's growth and mowing all visible signs of the disease had disappeared. A second application of Bravo in the third week of October followed another outbreak of *microdochium* at that time. Again the disease's growth was stopped, but with the plant approaching dormancy by this time only a limited recovery occurred.

Two preventative applications of fungicide were made, one in late October and another in early November. First was a Bayleton (triadimefon) application at 8kg/ha to greens, tees and fairways. This is a bit below the appropriate rate, but reflected our limited supplies and availability of product and the desire to get some level of protection out over as much turf as possible. A final application of Nutri-Q, a combination fertiliser/fungicide (0-0-5 plus 5 per cent Quintozene) was made in the first week of November at a rate of 4.5kg/100m².

An application of Tilt (propiconazole) to tees and fairways was considered, but research suggests that propiconazole offers only poor to average control of snow mould. In the end the first few snowmelts rendered the course far too soft for such a broad acre application anyway.

Typhula spp. or grey snow mould is the other main disease complex encountered in Moscow. It is only seen following an extended period of ice and snow cover, its symptoms becoming apparent in the spring as the snow melts with the warmer temperatures. It is also targeted by the same preventative programme of fungicide controls. Whereas *microdochium* usually only affects leaf tissue (so that damage can usually be repaired with normal spring fertilisation and mowing), *Typhula* can be a more serious challenge as severe infections will attack the crown of the plant resulting in complete turf loss.

This highlights one curious phenomena of managing turf in an arctic climate. It is not the approach into winter, or even the winter itself, that represents the greatest period of danger to the grass. Spring is by far the more hazardous season. In addition to the greatest loss of turf from snow mould damage being apparent at this time, the related potential invasion of *Poa annua* into areas damaged by disease, and the concurrent but unrelated phenomena of winter kill are additional challenges.

Winter kill is a term used to describe both the desiccation of unfrozen plants in frozen soil where there is no insulating cover of snow, mulch or protective covering and the more direct destruction of plant tissue through crown hydration injury. This latter form of winter kill occurs when plants, emerging from under a snow and ice cover during an early spring, thaw quickly, rehydrate and break dormancy only to be subjected to another frost or cold snap.

With little or no plant hardiness at this time the water in the cell walls of the grass can be subjected to freezing and severe damage will occur as soon as a subsequent thaw occurs, with large areas of turf completely destroyed.

An anaerobic environment can also develop in soil profiles that sit under ice for months at a time. While it certainly slows, respiration by the turf still continues to some extent and soil microbes also deplete oxygen levels to a point where the situation becomes toxic to the grass. Some superintendents will schedule a heavy verti-drain aerification and topdressing of greens in late autumn, as close as possible to the first permanent cover of snow, in an attempt to reduce the severity of some of these problems.

The use of semi-permeable covers on greens is also sometimes employed, but the consensus on this seems to be that they worsen the extent of snow mould damage, and that while they can help to raise soil temperatures over the winter and result

in a lush, greener growth in the spring, that lush growth is far more susceptible to hydration injury from any spring frosts. Both the late aerification and covering options were not pursued at Agalarov Estates this past winter. With a proper sand supply next year, however, we will consider scheduling a solid tine aerification and topdressing for mid-October 2010.

The final few months of the year are also that time when the golf course is 'put to bed' for the winter. Heights of cut are raised, significant nitrogen application is avoided, the irrigation system blown out to remove as much water as possible, and all greens, tees and bunkers staked out to obstruct unwanted winter traffic over such areas.

It is also important to ensure that both the pump house and all machinery, fertiliser and chemical storage areas are heated throughout the winter in order to avoid low temperature damage to capital and equipment.

It is also a perfect time to engage the crew in some much needed training. No small task in a country beset by a maze of labour regulation, licensing and registration law, and a level of workforce skills and experience that can make the average first year Australian apprentice seem like a turf expert.

These are, of course, just some of the adventures that you sign up for when taking on a position in a country so different from home. And there are far too many stories I do not have the space to tell (or am at liberty to say!). There are frustrations certainly. There are times when you are uncertain of exactly how to proceed simply because you know that you lack all the relevant information.

But the experience overall is one you will never forget. Every day brings unexpected events; some are unwelcome, some exciting, most unforgettable. But one single fact is sure and certain – it never is boring.

RUSSIAN COURSES

The Agalarov G&CC is one of a small number of other golf facilities in Moscow and greater Russia. The Russian Golf Federation, responsible for the stroke rating of Russian golf courses, estimates (somewhat optimistically) that there are presently between 40-50 projects in varying stages of development across the country. The real number is likely to be closer to half that, with most of those in the conceptual and planning stages. At this moment in time, the Agalarov Estate project is one of a small few where dirt is actually being turned. Other golf facilities include:

Moscow City Golf Club: A 9-hole pitch and putt course located in the city centre, it was the first golf course constructed in Russia, built by the former Communist regime and opened in 1980.

Moscow Country Club: An 18-hole Robert Trent Jones Jr. semi-private course with Le Meridien hotel, opened in 1994. Located about 20km north west of the city

Pestovo Golf and Yacht Club: 18 holes,

private, opened in 2006. About 30km northwest of Moscow.

Tselevo (aka The Alps): 18 holes, private, designed by Jack Nicklaus and opened in 2007, located approximately 50km north west of the city.

Forest Hills: Construction started in 2008 but is currently on hold due to the current economic climate.

Skolkova: A second Nicklaus design in the Moscow region, currently under development with construction set to resume in 2010. 18 holes, private, 50km south west of the city centre.

The Dunes: Situated in St Petersburg (700km north of Moscow).

Kazan Golf Club: Situated 800km east of Moscow. Nine holes open with plans for 18 more, but further construction is on hold.

The Don Golf and Country Club: The second Troon-managed property in Russia, currently under development in Rostov on Don, 800km south of Moscow and situated on the Don River (200km from the Black Sea).

ACKNOWLEDGEMENTS

All opinions expressed here are individual and should in no way be taken as representing the views or opinions of Troon Golf. I would like to acknowledge Brad Hines, Marc Dressler and Robin Evans in the production of this article, and to Brian Piper and Graham Scobie for at Wollongbar TAFE.

NB: With few turf-labelled products available in Russia all fungicide rates given above were determined by adjusting for the concentration of active ingredient to give the same AI/ha as for similar turf formulations available in the US and Australia. 🌱



The Agalarov G&CC clubhouse and practice putter

Faster effect, longer results

Greenmaster Liquid® Effect with TMax – the future in liquid feeding

Scotts introduces the next generation in liquid nutrition with TMax nutrient uptake activation with our new and unique Greenmaster Liquid Effect Fe. Provides genuine plant-derived greenup that remains active long after application.

Effect Fe Maximum green-up
Maximum resilience

Green up within 3 hours

Lasts up to 6 weeks



With patented TMax
A nutrient uptake
activator that ensures
quick uptake and
longer lasting effects.

Scotts

Growing success

Contact Scotts or your local Scotts Distributor –
Freecall 1800 789 338 or visit www.scottsaustralia.com.

The long road back and ahead

It was Australia's worst natural disaster and for the course maintenance crews at Marysville and Horsham golf clubs it forever changed their patch of turf. One year on from the Black Saturday bushfires, ATM editor Brett Robinson talks to superintendents Rob Christie and Tim Warren to see how far along their courses have come and some of the challenges that still remain.

The signs are everywhere. Whether it's the epicormic growth blanketing the trees along the C512 into Marysville, the timber frames of the new homes being reconstructed by those brave souls who lost so much on 7 February 2009, or the yellow wrist band worn by many residents which bears the phrase 'We will rebuild', in many ways, slowly but surely, the bushfire ravaged community of Marysville is progressing down the long road to recovery.

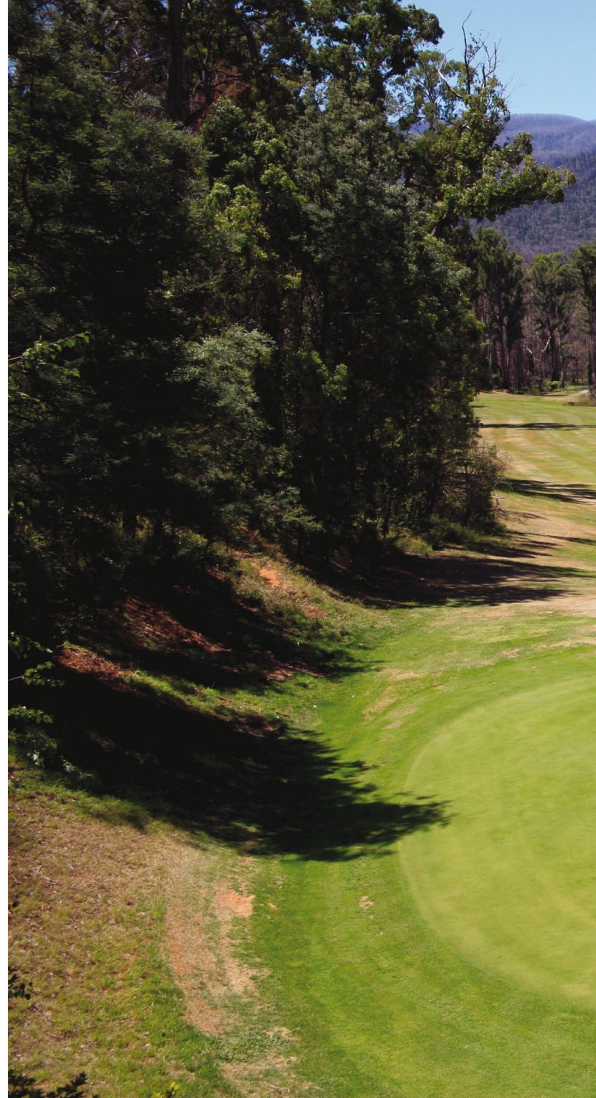
It's much the same a few clicks out of town at the Marysville Community Golf and Bowls Club. Nine days out from the one year anniversary of Black Saturday and for the most part it seems just like any other Friday for superintendent Rob Christie and his team – apprentice Kellan Fiske, groundsman Wayne Bisset and stalwart volunteer Bob Emblin – as they go about their preparations for the weekend.

Christie, in his trademark blue overalls, and Fiske, wearing a hi-vis shirt emblazoned with the logo of The National Golf Club, strip turf from the 11th green surrounds and load up the flatbed ute before relaying the slabs on the surrounds of the 6th.

Although out of sight, you can hear Bisset a few holes away cutting greens. It's not just the noise of the triplex that you can hear, but also Bisset's booming singing voice as he belts out a Doobie Brothers track that is being blasted equally as loud through his headphones.

Bisset, who stayed right to end fighting to save his home in nearby Narbethong before making a last ditch escape in his ute (the one possession the fires didn't claim), has been working at the club for the past 12 months helping out with the recovery. Not only has he brought an experienced pair of hands and a 'can do anything' attitude, more importantly his infectious and upbeat personality has no doubt raised spirits and helped to lighten the mood when times have got tough.

From the moment you drive into the Marysville club car park you can notice the changes. The first thing that hits you is the deep green hue of the bowling green. It takes a few seconds to click that it's a new synthetic surface, replacing the old turf green which was ripped up thanks to a government grant. (Sadly, after all their efforts to get the new Tifdwarf rink up and ready for play last summer, the



green saw just a few hours of competition play – ironically on the morning of Black Saturday).

Through the gate, past the practice putter and down the metal road to the maintenance compound, a new pump shed resides on the site of Christie's old office, which along with the rest of the old sheds was reduced to rubble by the fires. Next to that two portables, which once housed Telstra exchanges, have been transformed into an office/lunchroom and chemical storage shed.

Next to them is the new machinery storage shed, twice as big as the old one. Thanks to donations and a deal too good to knock back from Toro, the shed now houses an array of brand new and second-hand machinery, assorted hand tools, electrical items and mechanics tools which any country superintendent would be envious of.

Aside from the scars still evident on the vegetation and some out of play areas left untouched simply because there hasn't been the time to clean them up, walking the course reveals that it is in surprisingly good nick.

The 15 greens which were returfed by an army of 45-plus turf industry volunteers have survived their first summer well and aside from a few issues with winter fusarium, which caught Christie unawares early on, the G2 is providing a wonderful tight surface and is responding to a regular dusting programme. As part of the machinery deal, Christie



Twelve months on and aside from a few areas left to clean up and sorting out teething problems with the irrigation system, some sense of normality is gradually returning for Rob Christie and his crew at Marysville Community Golf and Bowls Club



took delivery of a topdressing unit and has started a fortnightly dusting programme, something he had always wanted to do pre-fires but couldn't because of a lack of resources.

The fairways, while a little dry thanks to teething problems with the irrigation system, are coming back satisfactorily. Some areas still show the signs of damage from fallen trees and heavy machinery, but given that they have been pretty much left to fend for themselves for the past 12 months, the native couch, particularly on the back nine, has held its own.

More importantly, though, the golfers are starting to come back. Numbers are gradually on the increase and a smattering of golfers are out and about including a group of five 20-somethings who have made the trip up from Melbourne (one of them kindly leaves a dent in the side of the new machinery shed after a wayward second shot on the 10th).

"Certainly there is a sense that things are slowly returning to normal," reflects Christie over a cup

of coffee in his new office/lunchroom portable. "Now that we've got sheds to operate out of, new machinery and a full 18 holes of golf open, the foundations have been laid and we are pretty much on track to getting back to where we were pre-fires. It's just the visual scars which you can see all around which are the constant reminder of what happened.

"When I think back to when I first saw the course, still shrouded in smoke with fallen trees and debris everywhere, there was no way I would have thought we would be in the position we are now. It was hard to imagine that we would get as far as we have within a 12 month period, but to have done so is extremely gratifying.

"To get all 18 holes back open by October was a huge milestone for us and the only way we were able to manage that was with the help of so many wonderful volunteers who got us up on our feet a lot quicker than we could have ever imagined. As well as all the guys who came up to help with

ATMs coverage of the bushfires back in Volume 11.3 (May-June 2009)



LAKE MANAGEMENT. IT'S ALL WE DO.

IF YOU NEED HELP WITH YOUR LAKES, PONDS OR DAMS; SPEAK TO THE EXPERTS - CLEARWATER LAKES AND PONDS.

Contact: Scott Tucker 0407 550 721 scott@clearwaterlakesandponds.com.au



◀ **Regeneration of vegetation on the course, such as down the right hand side of 13, has in parts been strong but there is still a long way to go**

the returfing of the greens, one of the best things to happen was the group of locals who came in immediately after the fires and removed all the fallen and dangerous trees. Within the space of two weeks they had the bulk of the tree work done and if it hadn't been for them the recovery work on the rest of the course would have been held up for months.

"So many people were generous and giving of their time and resources. Such a response, especially from the turf industry, was very humbling and you actually start to feel a bit guilty because we have ended up better off in many respects – machinery wise and turf wise – than we were before the fires."

While in some areas the club is better off, the one aspect that Christie and the members are still coming to terms with is the loss of the course's scenic value. As the scorecard proudly proclaims, the Marysville course is "Rural Victoria's best kept secret" and the accompanying photo, looking down the long par 5 1st, shows why. The beautifully tree-lined fairway channels your view up to the spectacular tree-covered ranges in the distance, ranges which would turn different colours depending on the time of day or year.

Today those ranges are grey and black, the scorched trees resembling charred matchsticks. Standing on the back tee of the 13th and looking back down across the 12th hole and up to the ranges beyond, it is hard not to imagine how spectacular it once must have been.

As well as the change in aesthetics, the loss of significant stands of trees and vegetation on many holes has had a dramatic affect on the playability of the course. The blackened stumps of once huge eucalypts scattered around the course serve as a reminder of how tight and strategic some of the holes once played, such as 15 and 17, which were rated 1 and 2 on the index pre-fires. With the trees gone, both holes are now significantly easier to negotiate and as such Christie reckons the course will need to be re-rated.



The surrounding ranges bear a constant reminder of what happened last February

As for what is left to do, well, there is still plenty on the list which Christie has to schedule in and around maintaining 18 holes. As this edition was going to print construction of the tractor shed was nearing a start, underground power was about to be connected to the sheds and windows installed in the portables. (Bisset jokes that some new coffee cups could also come in handy given their current state). On the course the problematic 11th green, already earmarked for a makeover prior to the fires, will be totally reconstructed, while contractors will need to come in and clear five large trees which have failed to regenerate.

Perhaps the biggest item on the to-do agenda, however, is sorting out a number of teething problems with the irrigation system. Despite reconnecting to Goulburn Valley Water's (GVW) Marysville treatment plant early in the New Year, just two days later the top blew off one of the filters and flooded the pump shed. There have also been some issues with supply line leaks and the dosing system from GVWs end and until these are rectified Christie will continue to pull from the river which flows through the course (the club has a temporary transfer licence of about 16ML).

"If there is one thing that I have had to learn over the past 12 months it's patience," reflects Christie. "It's also been the hardest thing, but you just keep telling yourself that you have to keep plugging away a little bit at a time and tick things off in order of importance. We still have plenty to do and once we get these irrigation issues sorted that will be a big relief. The biggest challenge we will probably have then is just the lack of hours in the day to do everything, which is just how it was before the fires."

CHALLENGING TIMES

While Christie can foresee a return to some semblence of normality in 2010, some 400 kilometres west at Horsham Golf Club and uncertainty weighs on the mind of his industry colleague Tim Warren. While the turf surfaces and infrastructure are for the most part back to normal – all except a new maintenance facility – it's off the course where things are more pressing.

As well as irrevocably altering the character of the highly regarded country course – more than 90 per cent of vegetation was wiped out – the fires also claimed the club's pride and joy, its near-new clubhouse. Unable to host the many weddings and small conferences it once did, the club has seen a significant chunk of its income stream vanish, and although grants for clean up works and insurance money (approximately \$2.5 million) have been forthcoming, the cost of works that still need to be carried out far exceeds what the club currently has at its disposal.

Concept designs for a new clubhouse have been welcomed by the members, but it will come with a hefty price tag. Then there's the course Master Plan, due to go before the members in March, which

will require a significant outlay as well as other items ranging from ongoing tree removal costs (Warren estimates there's still \$50-60,000 worth to do) and the new maintenance facility. (The crew is currently operating out of shipping containers and Warren concedes that will likely be the situation for the next 3-5 years).

"To be honest the club is walking a bit of a tightrope at the moment in regards to the finances," reflects Warren. "Our business continuity insurance has just finished so we are on our own now. We've lost a lot of business as a result of the clubhouse being burnt down and we can't get that back because we don't have the facilities at present.

"Twelve months on and although it sounds like a long time and we have achieved a lot, we have really only just started. 2010 is probably going to be more challenging than 2009 was because the club has to make a decision where it wants to go. We've got all this work left to do, but where the money is going to come from is not certain at this stage.

"All we (the course staff) can do is remain positive and keep telling ourselves that the fires have presented a great opportunity for the club to move ahead. I suppose too we are starting to see some positive results out on the course with our turf management practices which keeps us upbeat.

"Certainly in a lot of respects we are better off than we were before the fires. The new fleet of equipment is tremendous and we don't have



downtime on machinery any more. We have also been given some insurance money to start work on a new chemical storage facility and washdown bay, so there are certainly some positive signs."

PLAN FOCUS

Despite the financial uncertainties, Warren is using the prospect of the new course Master Plan being approved as a key motivation. Devised by Adelaide-based architects Neil Crafter and Paul Mogford, the plan doesn't propose any drastic changes to the course, but rather addresses issues of sustainability, strategy and safety.

One of the key briefs from the course development committee, of which Warren is a part of, was the desire to have a more sustainable course and as a result Crafter and Mogford have looked at the rationalisation of bunkers and their placement. From a strategic point of view, they are looking to

The fires have irrevocably altered the playability of the Marysville course with the loss of many trees affecting the strategic element of a number of holes, including the 1st pictured here



Aqua Control Aerators and Fountains



Aqua Control Aerators and Fountains can improve the quality of standing water reservoirs and bring an aesthetic feature to your landscape.

Features Include:

- Anti clogging 316 Stainless Steel suction screen
- Operational in water depths from 94cm to 145cm
- ½ to 40HP
- Over 30 spray patterns
- Pumps, Lights and Controls available
- 3 Year Warranty

Contact your local Toro dealer or representative for further information.

**1300 130 898
www.toro.com.au**



Distributed by
Toro Australia



◀ **While in some areas the Marysville golf club is better off than it was pre-fires, the one aspect that members are still coming to terms with is the loss of the course's scenic value**

introduce more difficulty from the tees, something which Horsham has always lacked, and as part of that process have reassessed widths and lines of fairways as well as greens placement.

The back nine has presented the biggest opportunity for change given that it was most affected by the fires. Crafter and Mogford have looked at the length and par of each hole, the order of holes, as well as the balance of holes (the back nine currently contains two par fives back to back – 14 and 15). The architects have also taken the opportunity to review some of the safety aspects of the current layout.

"We look at what Neil and Paul have come up with and we all just want to get out and play it," says Warren. "They have looked at all of the issues and our desire to be more sustainable and what they have come up with is a testament to their skill. It's a fantastic result and I'm sure the members will move forward with it."

As well as subtle changes in design and strategy, the Master Plan also calls for the conversion of fairways and reconstruction of greens. A monostand of Santa ana couch is the desired option on fairways, replacing the current three-way mix of two common couches and Santa ana.

The Pennncross greens, which vary in age from eight to 30 years, will also be reconstructed. Warren says that over the years many have become very degraded and the mix of high organic matter content and high salinity irrigation water has meant they have become increasingly difficult to manage. The reconstruction will see a gradual change to new native sand push-up profiles and surface seeded with a yet to be determined bentgrass.

Warren currently has a trial on the club's practice fairway green with Pennncross, G2, A1, Mackenzie, 007, Dominant Xtreme and Authority all being put through their paces. Given the conditions and resources at Horsham, Warren says it appears to be a race between G2 and Pennncross, with the latter surprisingly ticking more boxes at present.

In conjunction with the Master Plan, Warren is

also in negotiations with local revegetation experts and Greening Australia to see if they can come on board. Warren says the regeneration that has taken place naturally in the roughs since the fires has been remarkable but moving forward will need to be managed properly. Warren is hoping these experts will be able to assist with a botanical survey to ascertain what has regenerated as a result of the fires, what needs to be retained and highlight any significant areas which require specialised work. From that he is hopeful that a planting strategy can be formulated which would then be incorporated into the Master Plan.

Warren's extensive work on the course development committee is just one example of how the nature of his job has changed considerably over the past 12 months. From being a typical hands-on country superintendent (Warren estimates pre-fires it was a 75/25 split between course and office), the fires have seen him office bound a lot more as a result of endless club meetings, insurance reports, grant applications, master planning and sorting through various deals and negotiations. Fortunately he has been able to secure the services of another staff member – Brad McKinnon – who has essentially taken on the jobs that Warren would normally do out on the course.

Despite the change, Warren has still had to be just as focused on the agronomic side of his operations and last spring the greens conspired to make sure that he was still on top of his game. Thinking they were becoming severely hydrophobic, Warren started an intensive treatment programme but nothing seemed to work. It got to the stage where 16 greens were exhibiting quite severe signs of ill health and it was only after a call to AGCSATech that it was suggested that a nematode test might shed some more light.

Sure enough the test results came back with numbers through the roof (stubby root numbers on some greens were nine times above the treatable threshold limits) and Warren, together with assistant David Gove, made the rather "ballsy" decision to oversow all 18 greens. As Warren says "it was either that or have no surfaces", so in the first week of December they went out with ½" solid tines to a depth of 10mm, sowed some pre-germinated Pennncross seed, topdressed, then prayed.

"We were treating the symptoms rather than the cause and nematodes were the last thing I was thinking of," says Warren. "In the end we just had to bite the bullet. I must admit it was a pretty nervous time and if it had all gone pear shaped there would have been a 'please explain' letter on my desk."

"But after all the bad luck in 2009, we were due some good luck and as it happened we got some timely rains immediately after oversowing and a mild December which meant the strike rate was excellent. Now the greens are bouncing out of the ground and the members are saying they haven't seen them in better condition for this time of year in 20 years!" 🙌



Sorting out a number of irrigation system teething problems is still an ongoing issue. Despite reconnecting to the local treatment plant early in the New Year, just two days later the top blew off one of the filters and flooded the pump shed

Stop pythium becoming a problem. Attack it with the No.1



Subdue MAXX with micro-emulsion technology

During the humid summer months, pythium pressure can drive you mad. That's why Syngenta has developed SUBDUE MAXX® with micro-emulsion formulation technology, designed specifically for turf. It's a systemic fungicide that hits pythium hard, and because it is the only Group D, SUBDUE MAXX is ideal for rotations and resistance management. It provides all the unique benefits of MAXX technology – including no odour, reduced poison schedule and greater tank-mix compatibility – making it easy to handle and use. With its long residual of up to 21 days, MAXX technology and turfgrass tolerance, SUBDUE MAXX is the No.1 choice for pythium control. For more information visit www.greencast.com.au or call the Syngenta Technical Product Advice line on 1800 067 108.



The latest technology
designed specifically for turf.

 **Subdue MAXX®**
Turf Fungicide

Designed by NZ-based course architect John Darby and opened in November 2008, the overriding philosophy of the stunning Jack's Point development was to 'honour the land' and to work with the contours and natural features of the topography rather than against them. Pictured is the downhill par 3 7th



Over the past decade Queenstown has developed a reputation as New Zealand's premier golfing destination. In late 2008 the much talked about Jack's Point development opened, becoming one of the first golf courses in the region to use pure fine fescue on the fairways. Course superintendent and AGCSA member Simon Forshaw, who has been at Jack's Point since 2005, traces the course's development and looks at the management of this stunning facility.

Jack's Point is located just outside of Queenstown in the South Island of New Zealand. It's set on the shores of Lake Wakatipu with The Remarkables mountain range behind, and the lake and Southern Alps stretching out to the west.

The first time I saw it I was blown away. I knew this was something special – utterly spectacular – the kind of the land and views that are usually only locked up for real estate. And here were the beginnings of one of the most amazing championship golf courses I have seen in my 26-year career. Of course when the job of golf course superintendent was offered I took it.

This would be a course like no other I'd ever worked on, either here in New Zealand or overseas. Course architect John Darby and design manager Brett Thomson's vision for Jack's Point would set some pretty tough challenges. Originally part of a high country station, Darby wanted to retain that feel of being within the environment. The whole idea is to 'honour the land' as much as possible; to work with the contours and the natural features of the topography rather than against them.

And Jack's Point is not just a golf course. It also has residential estates and plans are underway for a village centre, a housing community and an exclusive lodge. That said, however, the overriding hallmark of Jack's Point is open space – the building footprint over the 1200 hectares is only 5 per cent.

And then there's the climate, which is extreme. Summer temperatures can reach 35 degrees, with winter lows of -12 and long periods of perma-frost (growth stops from around the middle of May until the end of August). The land is also exposed to the prevailing westerly winds.

This was a course that required some pretty clever thinking, hard work and the best in technology. We were also on a very tight deadline. Arriving in autumn 2005 I had until October that year (across a tough winter with low soil temperatures) to prepare for the first seeding of the greens and course and until the following April (with soil temperatures dropping rapidly yet again) to complete the job. It was a tough summer, often working 6-7 days a week for well over 10-hour days. Fortunately I had a great crew.

The first job was to understand the course. I had the utmost respect for Darby's vision. True to the overlying philosophy of the use of this land, the course doesn't return to the clubhouse after nine holes. Instead the land itself determines how the course would play.

The feel of it is still very much like a high country station with sheep still grazing beside many of the fairways. Stone walls, all built from the schist stone quarried on site, run throughout the course giving it a feel much like Scotland or Ireland. Stone walls are also used for retaining teeing blocks and for stock fencing. On the 15th hole you have to carry over grazing sheep and a rock retaining wall in order to find the fairway, something I've seldom seen.

The location for the site of the maintenance shed needed to be central to the course to reduce travel time and fuel expenditure, but it also needed to be very low profile so as to be 'invisible' in the landscape and in keeping with the look of the place. We dug the building down into the land and constructed large mounds around it so the final building design was very much like a bunker, but yet still with easy access.

GREENS CONSTRUCTION

The science and methodology for the greens construction was devised by Dr Richard Gibbs who came up with a hybrid USGA/Californian specification. The principal reason for this design was because of the costs of transportation of sand, lower than normal rainfall (average 750-800mm/year), the tight time frame to get all the greens completed and the need for greater water retention of the sand used.

By the time I'd arrived, construction manager Phil Vautier had completed nearly 55 per cent of the course. 270,000 cubic metres of earth was moved during initial construction. The small amount of material moved was indicative of the 'surgical' approach to the construction process.

The ring main for the irrigation system had just been completed. Laying the irrigation main required a 20 tonne excavator with a rock breaker attachment, as in many places the digging was through solid glacial rock. There were generally three irrigation lines down each fairway, with the two outside lines throwing back onto the fairways in a part circle and the central line throwing 360 degrees (so roughs don't get irrigated).

A tractor with a mole plough attachment was used to lay the pipe and wire into the sub-grade. This was the most efficient way to install the pipe with the time constraints we had. Trenching was necessary where rock prohibited the use of the



mole plough. Irrigation heads, decoders and final wiring were all completed after the topsoil was reintroduced.

After final trim of the green sub-grade shape, flat pipe drainage was installed at around 3 metre spacings. We managed to complete all the drainage on each green in 3-4 hours. The flat drainage pipe was wrapped in a geotextile fabric to prevent fines from the sand entering the pipe.

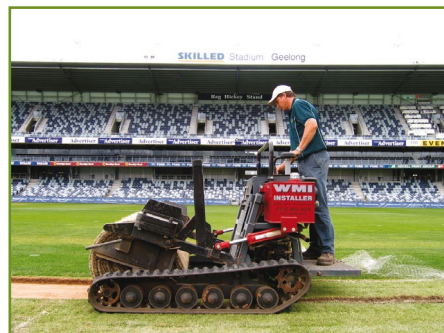
All greens had a 'smile drain' at the main runoff point of the green. These were trenched and had

Jack's Point is set on the shores of Lake Wakatipu with The Remarkables mountain range behind and the Southern Alps stretching out to the west

anco Transforma

STABILISED TURF REPLACEMENT SYSTEM

- Stability
- Agronomic qualities
- Rapid replacement
- Compatible profiles
- Proven performance
- Instant play
- 40mm profile
- Football, Golf and Racing



AVAILABLE FROM:

Victoria: Anco
Queensland: Caboolture Turf
South Australia: Marne Valley Turf

(03)9782 2711
1800 685 296
08 8564 5115

Email: bruce@ancoturf.com.au



◀ **The Jack's Point greens are a hybrid USGA/Californian specification with flat pipe drainage. The principal reason for such a design was because of sand transportation costs, lower than normal rainfall and the need for greater water retention of the sand used**

the more conventional Novaflow drain pipe and drainage aggregate installed. The flat pipe system connected to the 'smile drain' and then discharged to outflow into natural runoff collection points on the land. All trenched drain lines on greens also had coarser 'blinding sand' installed over the drainage aggregate to prevent the fines from the greens sand from entering into the drain lines.

Once all sub-grade shaping was completed and irrigation pipe laid, we installed the rootzone sand at a depth of 255mm compact. Dump trucks were used to cart the sand onto the edge of the green, then a helitrax was used to level out the sand to mirror the sub-grade shape below. While working on the sand we needed to constantly water the sand with a 32mm hose to keep it wet and compact. A plastic moisture barrier was installed between the green sand and the surrounding topsoil to help stop loss of moisture from the sand.

Once the bulk green sand shaping was completed, the surrounding top soil was placed and shaped at a depth of around 200mm. All top soil for the in-play areas around greens, tees, approaches, fairways and bunkers was carefully screened. In the roughs and elsewhere, rocks and

stones were painstakingly hand picked out. All soils were sourced from the original farm site which consist of four different types - Frankton, Pigburn, Wanaka and Kingston.

These are all glacier soils, ground down from the various surrounding mountains over thousands of years, and deposited on the lower lying land beside the lake. This type of soil compacts very quickly and during construction we discovered that if the soil got over-worked (to achieve the desired finish) it would quickly become rock hard. On the 6th fairway we remedied this by making three different directional passes while seeding.

The final trim of the green shaping was completed with a Sand Pro and hand tools, then signed off by the design and construction managers. Many long hours were then spent migrating in the edge of the green and surrounds with a hand rake. What then followed was the delicate process of incorporating the base fertilisers into the rootzone. No amendments were added, only straight sand and base fertilisers. A small amount of natural zeolite was amended to the top 70mm of the sand surface.

Using the sand and sub-grade that we did (the sand profile being far less uniform than dune sand), moisture retention would not be a problem. This also allowed us to create a far shallower profile than most greens. (With the flat pipe laying only 200mm below the surface, a little more caution is now required when changing holes!)

Green seeding was achieved by first drop-seeding 6 grams/m², then hydroseeding 4g/m². Why? Because on the first couple of greens we hydroseeded all, but discovered a tendency towards streaking. Perhaps this was because of the larger particles of sand used, but to be honest I'm not sure. Certainly it was remedied by using both seeding processes.

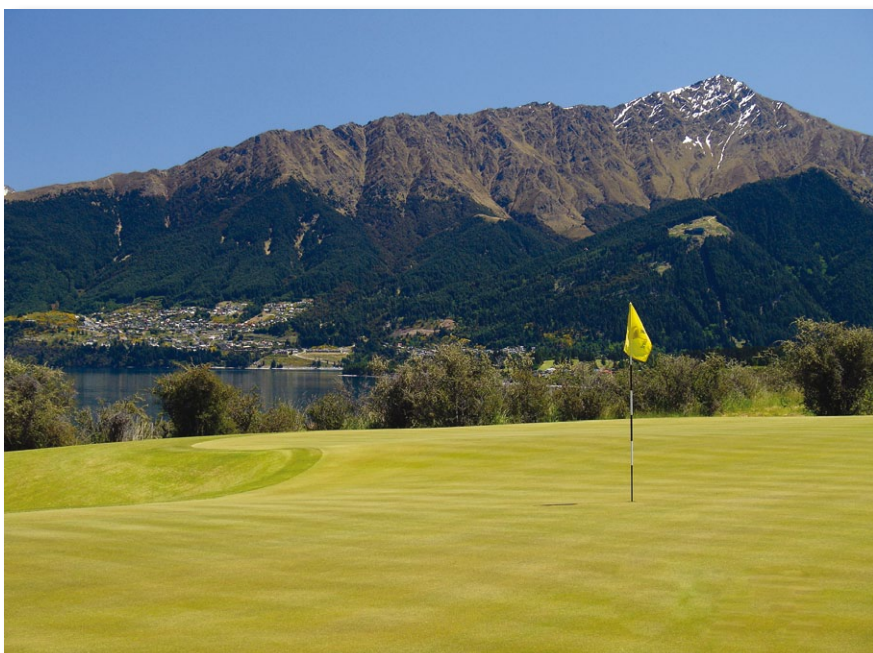
Again, the best in technology was identified for the job at hand. When seeding finally began, we chose a Blec Multi-seeder for all the fairways and roughs, placing the seed carefully 10mm below the surface.

With low humidity and in the path of the dry westerly wind, erosion control, particularly during establishment of the turf, was crucial. For this reason we fully hydroseeded all green surrounds, approaches and bunker faces.

What was extraordinary during this entire process was the time frame. What might have normally taken a year, maybe two, we achieved in six months. Certainly state-of-the-art technology helped, but it was mainly down to a committed team working around the clock.

The last area to be sown was the 1st fairway on 31 April 2006, the 1st green seeded just the day before. Soil temperatures were dropping rapidly so to have a reasonable strike looked unlikely. But after three weeks the seed did in fact germinate and the plants sat there for the remaining winter months under full dormancy.

Greens were seeded with Egmont browntop bentgrass first by drop-seeding at 6g/m² then hydroseeding at 4g/m²



BLENDING IN

Every aspect of the Jack's Point course development had to be checked back against the design brief and the central philosophy of working within the natural environment. But it was also required under the Resource Consent for the course development. In order for the golf course to blend into surrounding areas of tussock, matagouri scrub and other natural vegetation, it could not stand out with lush, green fairways and Augusta-white bunker sand.

We experimented a little with the choice of bunker sand by placing it in one newly formed bunker very early on in the project. We let the sand sit there, unmaintained, for up to seven months to see how it would do under the climatic conditions – heavy rain and wind. We ended up using the same sand as used in the green construction.

The findings of our sand trial showed:

- The sand would give good contrast when it was wet or dry;
- The sand stayed well inside the bunker cavity after high wind;
- It did not produce soft sand conditions leading to a 'poached egg' lie;
- The sand was good for raking, keeping smooth and not lumpy; and
- Had a good appearance from as far out as the teeing area, but still blended in.

Darby's vision was to have bunkers which would look natural to the site, rugged and weathered to



the elements. This used to be common many years ago, a design that I believe that we have lost over the years striving to create every area to perfection. At Jack's Point we give our bunkers less attention to maintenance than most. We don't edge the side of the traps and encourage the sand and grass to meet as nature intended, that way our labour pool can concentrate more on the fine turf.

Jack's Point was the first course in the region to use pure fine fescue in the fairways. A blend of Chewings and Creeping Red fescue was used

GET READY FOR RENO

Simplot
PRO · LINE

FERTILISER • SEED • CHEMICAL • IRRIGATION

WWW.SIMPLOTPROLINE.COM.AU



◀ **Darby's vision was to have bunkers which would look natural to the site, rugged and weathered to the elements**

TURF FIRST

The turf varieties used at Jack's Point are:

- **Greens:** Egmont browntop bentgrass (*Agrostis Capillirs* syn. *A. tenuis*);
- **Tees:** Egmont browntop bentgrass (*Agrostis Capillirs* syn. *A. tenuis*);
- **Fairways and roughs:** Creeping Red and Chewing's fescue (*Festuca rubra* var. *rubra* and *Commutate gaud*); and
- **Uncontrolled areas:** Browntop, sweet vernal, dogstail.

At Jack's Point we were among the first to use pure fine fescue in our fairways. This has enabled us to clear out all the undesirable grasses commonly found in pasture grasslands. It also means far less water and fertiliser is required than other courses, simply because it's more drought resistant and doesn't require as many nutrients on which to thrive.

Generally we are more fortunate than our northern colleagues and don't experience high amounts of disease activity. During the months of December through to March, however, we are prone to attacks from melting out, pythium blight, brown patch, take-all and thatch collapse. To avoid these we try and irrigate throughout that time all greens/tees early in the night or before dawn.

Dollar spot has never been seen in these parts, and although fusarium does occur in the winter we do not get the pink snow mould (unlike northern

United States and Canada), so covers are not necessary.

Over the winter months when the turf becomes fully dormant, there is no mowing required for 10-13 weeks. We find that the fescue grasses tend to go into dormancy first, and that the bentgrass takes longer to come out of dormancy towards the end of winter. Permafrost is a significant problem.

We renovate greens and tees twice a year around late September with a lighter renovation at the start of April. In September we core with 13mm hollow tines and use a Graden walk-behind with 2mm blades. In April our renovations are determined by bookings. If we are busy I'm only able to de-thatch the greens but we still undertake the same renovations to the tees as we do in September. During summer we put the Toro Procore 648 over the greens using solid 8mm tines.

For the first time last we hollow cored all our fairways with the Toro Procore Processor. We had a couple of issues and it took over three weeks and along with this we verticut them crossways using a Toro 5410 fairway mower and then cleaned them up.

We liquid fertilise our fairways during the growing season and a big part of our daily set up involves rope and hoop management when turf starts to stress from carts, but all in all our requirements are less than other places. The fescue does tend to flush a bit and we have tried PGRs such as trinexapac at high rates with little result (we can only but it down to its waxy leaf). We find we get better results from using paclobutrazol. We also verti-drain our fairways as much as possible.

Over the summer months we run a full crew of around 13-14, including mechanic. Over the winter the number drops to around seven, when many of us take our annual leave. Others carry out work within the landscape and native areas such as brush cutting, pruning and mowing down of uncontrolled areas.

WONDERFUL SIGHT

It was a proud moment when The Jack's Point Championship Golf Course first opened for play in November 2008. I was exceedingly proud of the team and the job done. But I also had the utmost admiration for John Darby in succeeding in the creation of something true to his vision. Jack's Point is an outstanding golf course and the feedback from all quarters has been nothing but high praise.

And playing the course? It's a stunner. Not only the turf quality (of course), but scenically Jack's Point is mind-blowing. From time to time we have red and fallow deer running over the course. Sure, they can leave some damage to the greens and fairways, but it's a wonderful sight and in keeping with the true nature of this high country.

Editors Note: Simon Forshaw welcomes any additional queries about Jack's Point and can be contacted by email simon@jackspoint.com. 🌿

AUST SUPERS TO HEADLINE NZ SEMINAR

Leading Melbourne-based course superintendents Martin Greenwood and Glenn Stuart will be among the keynote presenters at the South Island Fine Turf Seminar to be held in Queenstown, New Zealand in early May. Greenwood (Kingston Heath Golf Club) and Glenn Stuart (Metropolitan Golf Club) will talk about their respective courses at the three-day seminar which runs from 3-5 May. As well as two of Australia's finest, the seminar also boasts a number of New Zealand's leading superintendents and turf managers with the conference scheduled to conclude with a tour of Jack's Point.

For more information about the South Island Fine Turf Seminar, visit the events page on the AGCSA website to download an information flyer and registration form. The North Island Fine Turf Seminar will also be held from 23-25 May at Cape Kidnappers (host superintendent Steve Marsden).

On a golf course, a bad score is the only thing that should stink

Otterbine aeration systems provide the industry's highest independently tested oxygen transfer and pumping rates, to maximize the consumption of excess nutrients that drain into your ponds, such as phosphorus and nitrogen. A natural solution to treating poor water quality, Otterbine surface and sub-surface systems effectively manage effluent water and will control algae, aquatic weeds, and foul odours in ponds and lakes to create healthy, clean aquatic environments.

Innovative technology, superior craftsmanship and a dedication to providing the highest quality products and services has made the family owned and operated Otterbine the #1 choice in pond and lake management for over 60 years.

Otterbine aerators are distributed in Australia by Rain Bird Australia.



Proudly distributed by Rain Bird Australia

Visit our website to fill in the *Troubled Waters* survey: www.rainbird.com/au/twsurvey.htm

Rain Bird Australia

10 Mareno Rd, Tullamarine, Vic, 3043. Freecall: 1800 424 044 Freefax: 1800 424 050
www.rainbird.com.au Email: info@rainbird.com.au



Mid-way through 2009 Golf Australia announced that it had committed to adopting the USGA's handicapping and course rating system. The ratings process started last September and it is Golf Australia's desire to have all metropolitan courses re-rated by the end of 2010 and all courses in Australia by the following year. The Pulse quizzed superintendents about what they thought of the new system being rolled out and asked whether it would have any impact on their course preparations.

"I think that there will definitely be issues for my course set up, particularly with the course to play within 100 metres of its rated length and markers not to be set more than 20 metres in front or behind the rated point. Most of my back tees are 'hanging off' the back of the tees in the usual member quest for length. Even with the rated point five metres from the back edge of the tee, there is little available teeing space on a very busy golf course.

It may be achievable in summer with strong growth but in winter with shaded tees and next to no growth, it will prove nigh impossible. Added to the winter growth problems is the possibility of virtually no 'social' rounds, with all verified scores allowed to count for handicapping meaning that the course will need to be set up this way every day.

On a lighter note and with respect to the slope handicap system, the idea is that you will be able to pick the set of tees that suit your ability on any given day. I want to be in the club bar at trophy presentation time where a 24 handicapper plays off the reds in the Monthly Medal (which is one of the principles of the system) and wins with a 62 nett! **Peter Lonergan, Coolangatta & Tweed Heads GC, QLD**

"I think the system may be a little fairer. All courses will have a slope rating coming into play which will change the ACR for each course every day. I think it will take at least two years before we see the full impact of the new system, but overall all golf handicaps will go down by a couple of shots. The new system will not change the management of our golf course." **Scott Harris, Gold Creek CC, ACT**

"My chairman of greens is on the NSWGCSA Course Rating Co-ordination Committee so we have had some discussion on this topic and it would seem that it will have very little impact on our course operations. We may have to place one or two extra plates out on some of the tees and there is a good chance that in order to help the captain of the club with setting ratings for the day, course staff may have to fill out a sheet nominating tee positions in relation to the distance markers on the tees.

The early indications are that most courses will not have lower ratings and some clubs will have a higher rating due to taking hazards and fairway widths into account a little more than previously. Overall though, I would say negligible impact but a system that is more flexible and will reflect the daily conditions more accurately than the present system." **Steven Jacobsen, Carnarvon GC, NSW**

"Having skimmed over the USGA system, handicaps should not change to a huge extent. If all courses are rated in the same manner and we are handicapped off a course rating it should be a fair system. Having said this, as superintendents we should not get involved in the internal workings of match committees but deal with our core responsibility of maintaining the best possible playing surfaces that we can." **Eddy Ruis, Portland GC, VIC**

"The issue of the new USGA slope rating has really yet to impact us. There are some implementation issues to resolve and I wouldn't expect it to be up and running before mid-next year! In early preparation, I have implemented the five coloured tee positions, mainly to coincide with a new tee sign system. It seemed a good idea to be ready for compliance when it comes.

As for the method to rate the holes using a wide range of factors (the slope system), the new work we've done here over the last four years will probably ensure an average to difficult score. As I see it, the main difference from the existing system is a player can nominate the course he/she plays before hand and know immediately how that will affect their handicap. I don't think it will greatly influence course design or set-up any more than the current system." **Charlie Giffard, Indooroopilly GC, QLD**

"I think potentially the new system could work well, providing the people who are being trained to do the ratings of each course are totally unbiased in their summations. I have always believed that far too much emphasis has been placed on length as a criterion for difficulty. Inevitably some courses will



Providing expert advice for
to improve

Contact AGCSA HR and Best Practice Manager
Daryl Sellar 0408 322 397 daryl@agcsa.com.au



feel hard done by should their rating fall and looking at Castle Hill's current rating I don't think that it will change.

What I'm not looking forward to is having to provide five different sets of tee markers which will obviously impact on our time management and initial outlay on budgets, as at the moment I only have two sets of markers which has been easy to deal with when the crew are cutting tee tops."

Martyn Black, Castle Hill CC, NSW

"The new course rating system is a hot topic at our club at the moment. We are going to have a few issues in becoming compliant and are even looking at dropping a set of our tees to make things simpler.

I think that the new system can only be a positive thing as it will give golfers the choice of the golf course that they want to play dependent on their ability. We have a varied membership from low handicap players who don't like playing competitions from the forward tees and the older statesmen who can't reach the fairways from the back tees. Hopefully the new system will help to appease these issues." **Robin Doodson, Sanctuary Lakes GC, QLD**

"I quite like the new system. I can only see it as a positive for us. We get a lot of wear and tear on our tees due to them not being overly big so with the opportunity to have 'four courses' as such, it means we can build new strategically placed tees to make the course more challenging and reduce wear and tear, and make some of the current ones bigger. If it wasn't for this new system coming into place I don't think our committee would have allowed us to do this." **Kane McDonald, Devonport GC, TAS**

"Our course went through the rating process late in 2009. One requirement was that we had to move nearly all 72 tee discs on our black, blue, white and red tees to accommodate the new system. This was a little tedious and time consuming, but nevertheless it had to be done.

What was apparent when rating the course was Jack Nicklaus's design obviously took the course



rating system into account back in 1996. On many holes the scratch golfer (who averages 250 yards) and the bogey golfer (who averages 200 yards) when teeing off the blue and white tees, would nearly always have to negotiate a strategically placed bunker, dogleg, lake or mound. One positive we have found after moving the tee discs (most of them forward), is that we have been able to utilise more of the teeing ground and the course plays at a more consistent length day to day." **Phil Soegaard, Lakelands GC, QLD**

"From my knowledge of the new system I don't think it will have a major impact on the golf course manager, apart from the club investing in new permanent plates for the extra courses requiring ratings. In an ideal world the new system should be much fairer for golfers, particularly extra enjoyment in being more in contention at your home course, or on a more difficult course with a more accurate handicap, and hence reflection of golfing ability.

My only concern is that Australia plays far more competition golf than any other country and as such handicaps are more prone to cause arguments. The ability of the 'suspect' handicap golfer being able to more readily change their handicap will essentially result in the 'burglars' in the golfing world having even more opportunity to shot amazing scores with a readily adjustable handicap. Look out for more arguments at your local club in the near future!" **Mark Parker, Concord GC, NSW**

The new USGA handicapping and course rating system is now being rolled out Australia wide and it is expected all courses will be re-rated by the end of 2011



GA says many clubs already operate within the framework of the new system with most others requiring just small changes

superintendents and golf clubs course maintenance practices



Each summer reminds us that water is a valuable and often scarce resource that must be managed responsibly and used efficiently

In the first of a two part look at water management issues, John Neylan examines factors affecting water use efficiency and also highlights the outcomes for the recent APVMA review on the fungicide carbendazim.

As we get to the end of another summer the talk often turns to water and the inevitable questions – how much did you have, did you run short and how did you cope? Once again Australia's fickle weather sees the southern states remaining dry and heavy rainfall in the north.

Each summer reminds us that water is a valuable and often scarce resource that must be managed responsibly and used efficiently and is a considerable cost for all golf courses, whether it is the direct cost of the water supply or the cost of pumping it. In recent times many golf clubs have invested heavily in water storages, storm water harvesting schemes and desalination plants.

Consequently we are putting greater value on the water that is available and we have an increased obligation to ensure that we have a high degree of irrigation efficiency. Making the most of the available water is a function of good system design, flexible control, maintenance of the irrigation system, understanding plant water use requirements and good turf management. Over the next two instalments of AGCSATech Update we will discuss the factors affecting water use efficiency.

IRRIGATION DESIGN

Good design, installation and maintenance of irrigation systems ensure uniform and efficient distribution of water, thereby conserving water and protecting water resources. There are numerous technologies available that can be incorporated into design to assist in achieving high water use efficiency. These technologies can be grouped

broadly into the following categories – water application and irrigation scheduling. Connellan (2007) detailed several key criteria for irrigation system design that allows for optimising water use efficiency:

Valve in head sprinklers: The ability to deliver water effectively to each area of the golf course, which has its own water requirements (due to shade, aspect, soil type etc.), is possible using valve in head sprinklers. The combination of valve in head sprinklers and sophisticated controllers can deliver a high degree of application efficiency.

Improved sprinkler uniformity: A fundamental requirement of any sprinkler irrigation system is that it be designed to apply water uniformly and that the system be maintained to ensure ongoing high standard performance. Technological developments that have improved uniformity include sprinklers with distribution profiles that achieve higher Distribution Uniformity (DU) values and nozzle designs that reduce wind distortion.

Data on uniformity testing: New irrigation systems can be designed to high uniformity standards and replacement sprinkler heads can be selected on the basis of detailed uniformity results. As a guide, uniformity values of not less than DU 85 per cent should be selected.

Nozzle replacement: The wearing of metal nozzles can significantly affect the system performance and the consequences include higher flows, lower uniformity, less than optimum operating pressure, excessive pipeline friction and increased pumping costs. In a study conducted by the Center for

Irrigation Technology, Fresno (Zoldoske, 2003) it was reported that golf courses replacing nozzles improved uniformity and reduced water consumption by an average of 6 per cent.

Watering zones – dual sprinkler design: There is a move towards more defined targeted watering of areas that have unique watering requirements such as the use of dual sets of sprinklers around golf greens to water the putting surface and the surrounds independently.

IMPROVED SCHEDULING EFFICIENCY

Weather stations and ET-based Irrigation scheduling: Irrigating according to plant water requirements is critical in achieving efficient water use. The irrigation decision making process should be based on the ET (evapotranspiration) rate of the turfgrass species. A weather station that measures all relevant climate factors (such as solar radiation, air temperature, wind speed and relative humidity) is an excellent means of fine tuning irrigation scheduling.

Soil moisture sensors: Soil moisture sensor technology has the potential to provide turf and landscape managers with up to date, accurate readings of the moisture level within the soil profile. Trials carried out on turf at University of Western Australia demonstrated savings in the range of 25 per cent compared to current industry best practice (Pathan et al, 2003).

For the golf course manager the soil moisture sensor can provide valuable information not only to directly assist with control decisions (timing of irrigation) but also on rates of turf water use, turf stress due to low moisture or water logging, effectiveness of irrigation application and rainfall and drainage rates.

Salinity and temperature sensors: As a consequence of using treated effluent water and other high salinity water sources, there is a greater need to monitor the water, soil and vegetation. Sensors that measure the salinity are now in more common use, particularly with the availability of wireless communication.

Controller developments (central control): Irrigation controllers continue to develop in terms of programming capacity, flexibility, output function and communication capability. Central control has become the industry standard and some of the key functional developments in recent years include:

- Cycle and soak to ensure effective water penetration;
- Pump station monitoring and the ability to react to pump or station failure;
- Switching programmes for multiple water supplies where slightly more saline water, or less desirable water, can irrigate fairways and the better quality placed on the greens;
- Chemical dosing such as fertilisers, wetting agents and acids for balancing pH levels;
- For multiple site systems, global programming

for things such as quick shut down that saves not only water resources but energy and manpower resources.

The modern irrigation controller allows the integration of all of the factors and systems that may impact on irrigation decision making. Features offered by manufacturers include ET calculation, rainfall measurement (totals and instantaneous rates), pumping system optimisation, flow control optimisation, graphics with integrated site, vegetation and irrigation, GPS-based mapping data incorporated, on screen operation, single head operation, individual valve and head status report and compatibility with latest Microsoft operating environments.

Monitoring, alarms and reporting: The capacity to monitor and record the environmental conditions and the system operation is becoming increasingly important in golf course water management. Alarms that indicate malfunction assist with both equipment safety, prevention of waste and fault finding. Irrigation systems, which consist of many functioning components, require ongoing monitoring and regular maintenance.

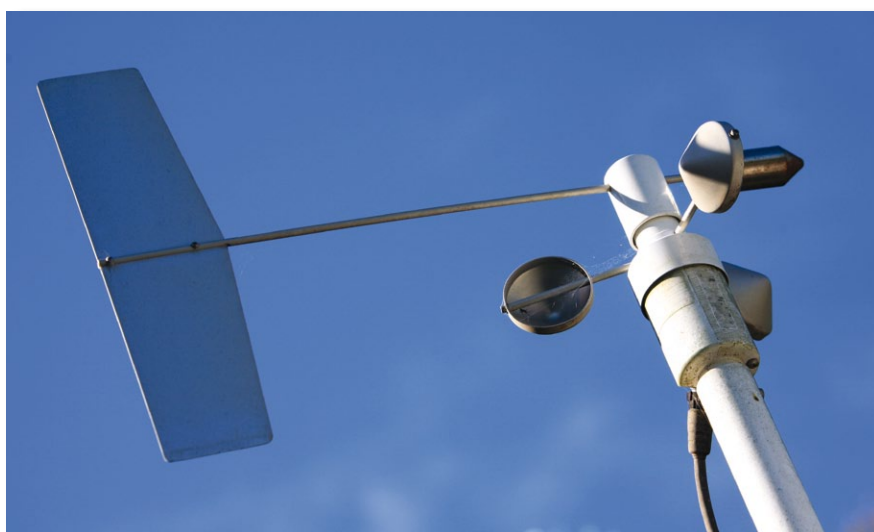
The correct functioning of sprinklers, sprays and valves also needs to be constantly monitored to ensure that flow and pressure is correct. Flow and pressure sensors, strategically positioned throughout the system, allow it to be monitored and action taken to alleviate problems. Monitoring of the system also provides valuable information (e.g. water volumes) that can be used to evaluate the performance of the irrigation. Reports that include water consumption and are linked to historical weather data are invaluable in assessing the performance of the irrigation system.

Pump stations: With the introduction of Variable Frequency Drive (VFD) technology over the last 10 years there has been constant improvement in the configuration, the components and the way they are controlled. Pump station output can be accurately matched to the hydraulic demand in the field and thereby savings in energy use, wear and tear on pumps and most significantly 'softening' the impact



Technological developments that have improved uniformity include sprinklers with distribution profiles that achieve higher Distribution Uniformity (DU) values and nozzle designs that reduce wind distortion

A weather station that measures all relevant climate factors is an excellent means of fine tuning irrigation scheduling





The ability to deliver water effectively to each area of the golf course is possible using valve in head sprinklers

on irrigation systems due to ramp up and ramp down capability when starting and stopping.

Controls can now have advanced graphical interfaces for better visual understanding of the operation of the station but of more significance the protection, remote monitoring, reporting and notification of problems is easily achieved.

There is little doubt that a well performing irrigation system will optimise water use efficiency. It is important to understand your system and to check its performance regularly. In the next AGCSATech Update we will discuss improving irrigation efficiency. If you want to review your irrigation practices go to the AGCSA's water management website at <http://water.agcsa.com.au>.

APVMA CARBENDAZIM REVIEW

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has been reviewing the registration of the fungicide carbendazim since 2007 and the AGCSA was asked in December 2009 to comment on its use and relevance in the maintenance of golf course turf.

The APVMA has been working on a review of toxicology and occupational health for carbendazim and as part of the review was considering concerns that have been raised about public exposure to turf treated with carbendazim. The health risks assessed were regarding dermal exposure of the public to treated turf, especially small children. It appeared to be unlikely that these health issues could be managed for turf applications where the public may have access soon after spraying, even if there was additional data available regarding the effect of watering in.

Carbendazim (methyl benzimidazol-2-ylcarbamate) is a systemic benzimidazole fungicide used to control a broad range of diseases on pulses, fruits, macadamias, turf, ornamentals and vegetables. It is also used in post-harvest food storage, as a pre-planting ginger and sugar cane treatment and as a timber treatment fungicide. In addition to being a fungicide in its own right, carbendazim is a major plant metabolite of thiophanate-methyl. The APVMA has been conducting reviews of both carbendazim and thiophanate-methyl.

In February 2007 the APVMA began a review of carbendazim because of occupational health and safety, residue and public health concerns. This action was based on advice from the Office of Chemical Safety and Environmental Health (OCSEH) that exposure to carbendazim and compounds that can form it (namely, benomyl) could cause developmental abnormalities in experimental animals and hence might pose a potential public and occupational health and safety risk to people.

In May 2007 the APVMA acted to address

identified human health concerns by suspending the label approvals of carbendazim products and issuing new instructions for use. These new instructions provided revised safety directions for use of the product and a birth defects warning statement to be attached to the container. This suspension was discontinued for those products for which an updated label was approved and was renewed for all other products in June 2009.

In January 2010, following consideration of advice in relation to both the human health and residues components of the review, the APVMA revoked the previous suspension and applied a new suspension that extended the warnings and amended the instructions of use as follows:

- Amend the signal heading from Schedule 6 to Schedule 7 (in accordance with the NDPSC decision to reschedule carbendazim announced in December 2009);
- Removal of uses of carbendazim on turf, grapes, cucurbits, citrus fruit, custard apples, mangoes, all pome fruit and stone fruit;
- Extension of the existing warning statement to include the observed occurrence of male infertility in laboratory animals; and
- Continue the safety directions established in the May 2007 suspension.

These new instructions will effectively discontinue use of carbendazim on turf, although a six month phase-out period will be allowed for any product in the supply chain at the time of the new suspension. The new suspension instructions will also have the effect of restricting access to carbendazim products to suitably trained and competent people authorised to purchase and use Schedule 7 products. The decision to remove these uses is an interim action based on the finding that these uses of carbendazim do not meet the new safety standards established during the review of carbendazim.

As part of the consultative process, the AGCSA surveyed superintendent members on the use of carbendazim and found the following;

- 63 per cent of respondents used carbendazim;
- The majority of the use was restricted to 1-2 applications per year;
- 74 per cent of respondents indicated that it was not critical to their fungicide programme;
- Most use of carbendazim was in a tank mix with other fungicides; and
- It was a low cost fungicide.

Following the feedback from the survey and consulting with the chemical industry experts, it was decided that the AGCSA would not support the continued use of carbendazim in the turf industry on the grounds of occupational hazard and direct or associated damage to industry reputation. Given that carbendazim is reclassified as a Schedule 7 poison it cannot be justified to expose workers and the public to a product that has potential to cause reproductive and fertility defects. The AGCSA has a strong commitment to environmental

management and stewardship and for this reason alone a chemical such as carbendazim cannot be supported.

Carbendazim is a Group A systemic fungicide and is registered for dollar spot and is sometimes used for the control of other diseases and turf managers have several registered options to consider including, but not restricted to, propiconazole, chlorothalonil, thiabendazole and iprodione. Turf managers that have any queries can contact Andrew Peart or John Geary at the AGCSA, or their chemical supplier.

The APVMA also requested that the AGCSA

remind members that using carbendazim for earthworms is not on any of the approved labels and they could be liable to be prosecuted under their State Control of Use laws for using or recommending use of carbendazim in this way. For any enquiries or further information about the review matter, please contact the APVMA on (02) 6210 4773 or email chemrev@apvma.gov.au.

REFERENCES

APVMA (2010). *Commonwealth of Australia Gazette, No. APVMA 2, Tuesday, 2 February 2010 Agricultural and Veterinary Chemicals Code Act 1994 44.* 🌱

SUMMER STRESS, NEMATODES AND DISEASE

During the summer months there are numerous stresses that can affect turfgrasses on putting greens. Heat and moisture stress, high humidity and water salinity are a few of the factors that can result in a lack of vigour, the loss of turf density and discoloured turf. These stresses are often the precursors of disease outbreaks and increase the impact of other turfgrass pests such as nematodes.

During the past summer AGCSATech has seen the normal array of samples associated with summer stress and the associated turf damage. There has been a common theme throughout in that the root systems were in very poor condition. The root system was short, there was a lack of white healthy roots and what roots were present tended to be stunted and brown. The root diseases *Rhizoctonia* sp. and *Pythium* sp. were typically represented as was the presence of parasitic nematodes.

In some situations the disease symptoms were secondary to the effects of the nematodes and it wasn't until the nematodes were controlled that the fungicides were effective. It is important to note that with root diseases such as *Rhizoctonia* sp. a systemic fungicide is required to achieve satisfactory control and for the systemic fungicide to move through the plant it needs to be actively growing and have a reasonably functioning root system.

As the autumn approaches it is time to consider what can be done to improve turfgrass health and assist in the recovery of any affected turf. The principal factor is to stimulate root recovery through hollow coring and spiking to relieve compaction, improve aeration and therefore stimulate new root initiation.

Cytokinin applications may be beneficial when the root system is absent or not viable and early autumn is an appropriate application time as re-growth commences. Seaweed extracts appear to provide more consistent responses than synthetic cytokinins, possibly due to the presence of other hormones and nutrients.

Raising the mowing height of bentgrass during the summer can have beneficial effects. Studies have shown that by raising the mowing height by 0.8mm, from 3.2mm to 4.0mm, during the summer can have positive results on the plant's physiology and quality.

At 4.0mm plants maintained a photosynthesis rate greater than the respiration that resulted in production and retention of carbohydrates allowing for maintenance of root and shoot growth. Where turf has been severely affected during the summer, lifting the height during the autumn may assist in recovery of the surface and the root system.

Controlling nematodes continues to be a challenge particularly as Nematicur is phased out. There is little doubt that plant health is a critical factor in minimising nematode damage and it is important that factors such as good nutrition, appropriate cutting heights, compaction control and shade and irrigation management are all considered as part of any control strategy.

Any material that promotes root growth will enhance tolerance to nematodes. Organic materials are particularly useful as they improve the biological buffering capacity of soil. Organic material added to soil is decomposed by bacteria and fungi and these micro-organisms are then consumed by bacterial and fungal-feeding nematodes. These beneficial nematodes, together with plant-feeding nematodes, are then destroyed by various parasites and predators.

As Nematicur is phased out there has been an increase in the development of less toxic products for nematode control. Products in this category include entomogenous nematodes, extracts from plants (e.g. sesame, citrus oils, neem, brassica meal and mustard bran), derivatives from micro-organisms, products containing molasses and other organic materials, fungal products such as those based on *Trichoderma*, *Paecilomyces* and various nematode-trapping fungi. While there is not a lot of scientific data available on these products the anecdotal evidence suggests that they are well worth trying.



Damage caused by parasitic nematodes can be magnified when turf is subjected to various summer stresses



Often it isn't until nematodes are controlled that fungicides which target other diseases become effective and surface recovery accelerates



Plant tissue tests can quantitatively define what is actually occurring to the nutritional status of the plant. When taking a sample for leaf tissue analysis it is critical to avoid contaminated clippings and the best way is to ensure there has been at least seven days elapse since anything was applied to the turf being analysed

Tale of the tissue

In this instalment of Tech Talk Andrew Peart looks at how plant tissue testing can provide superintendents and turf managers with a much clearer understanding of the interaction taking place between the soil and turf.

Soil testing has long been regarded as the preferred method for assessing turfgrass nutritional needs and timing of fertiliser applications. However, plant tissue testing is an excellent and seldom used method of quantitatively assessing the success of a fertiliser programme.

A soil test is paramount in determining pH and salinity levels within the soil, as well as determining the levels of phosphorus, calcium, magnesium, sodium and potassium. A soil test, however, cannot provide, or not to the same level of accuracy, levels of nitrogen, sulphur or micronutrients.

One of a superintendent's or curator's greatest skills is the ability to visually assess the health and vigour of turf but the use of plant tissue tests can quantitatively define what is actually occurring to the nutritional status of the plant. A visual symptom caused by a nutrient deficiency is usually only observed once that element becomes the limiting factor for plant health, whereas tissue analysis is able to assess a low level of a particular nutrient before a deficiency or visual symptom is observed.

Another valuable use of a plant tissue test is determining what actual nutrient is deficient between

an area of healthy turf and an area that maybe far weaker, especially if it has not been caused by a micro-climatic difference such as shading.

All nutrient deficiencies can be difficult to visually assess, except for the possible exceptions of nitrogen and phosphorus, particularly for turfgrasses as the leaves are quite small. However, by taking a representative tissue sample from each distinct area can provide an excellent method of determining a deficiency or toxicity within the plant.

Another benefit of a tissue test is to ascertain whether nutrients in sufficient amounts in the soil are being reflected in the plant. While it may be a common belief that if you supply nutrients in adequate quantities they must be taken up, plants have internal mechanisms that allow them to control nutrient uptake to meet their needs when concentrations in the rootzone are plentiful (Happ, 1994).

The most common barrier between relative plant nutrient uptake and nutrient levels in the soil is pH. This particularly affects the uptake of micronutrients (Fe, Mn and B) in alkaline soils, or the major nutrients (N, P, K, Ca, Mg and S) in very acidic soils.

TABLE 1: TURFGRASS SUFFICIENCY RANGES

Nutrient	Bentgrass Ideal Range ¹	Couchgrass Ideal Range ²	Ryegrass Ideal Range ³	General Turf Ideal Range ⁴
Total Nitrogen (%w/w)	4.0 - 5.0	3.0 - 4.0	3.34 - 5.1	2.75 - 3.5
Total Phosphorus (%w/w)	0.3 - 0.6	0.2 - 0.4	0.35 - 0.55	0.3 - 0.55
Total Potassium (%w/w)	2.2 - 3.5	1.8 - 2.25	2.0 - 3.42	1.0 - 2.5
Total Sulphur (%w/w)	0.2 - 1.0	0.15 - 0.65	0.27 - 0.56	0.2 - 0.45
Total Calcium (%w/w)	0.25 - 0.75	0.25 - 0.50	0.25 - 0.51	0.5 - 1.25
Total Magnesium (%w/w)	0.2 - 0.4	0.15 - 0.3	0.16 - 0.32	0.2 - 0.6
Total Copper (mg/kg)	5 - 15	5 - 20	6 - 38	5 - 20
Total Zinc (mg/kg)	20 - 70	15 - 70	14 - 64	20 - 55
Total Manganese (mg/kg)	25 - 300	20 - 300	30 - 73	25 - 150
Total Iron (mg/kg)	50 - 300	50 - 250	97 - 934	35 - 100
Total Boron (mg/kg)	3 - 20	5 - 60	5 - 17	10 - 60

Important Ratios: The N:S ratio should be 10 to 15. Ratios over 18 indicate a sulphur deficiency. The N:K ratio should be 1.2 to 2.2. ^{1,2} Modified from Campbell and Plank, 2000 ^{3,4} Modified from Carrow et. al, 2001

TAKING A TISSUE SAMPLE

When taking a sample for leaf tissue analysis (the collection of leaf clippings) the most important requirement is to avoid contamination. This includes easily seen contaminants such as foreign leaf matter, pine needles, duck droppings and or insects. It also includes those contaminants that are less easily seen such as remnant topdressing sand, fertiliser and pesticide residues, which may contain elements such as zinc or copper. The best way to avoid these types of contamination is to ensure there has been at least seven days elapse since anything was applied to the turfgrass being analysed.

Apart from contamination of the grass, it is vitally important that mower catchers have been well cleaned prior to the collection of plant material. Cutting grasses with catchers is a very effective method of obtaining leaf material for testing. If a representative sample is required for the monitoring of a whole green or sportsfield, taking a grab sample at random times will be sufficient. However, if sampling to analyse individual areas of concern, more care will need to be taken to avoid contamination of leaf material.

Tissue sampling provides a snapshot of what is occurring at that particular time of sampling and the results will alter from season to season, week to week and day to day. If regular samples are to be taken it is best to try and collect the samples at a similar time of day to at least provide some consistency. If samples are only being taken once or twice a year they should be taken in similar months to also avoid seasonal fluctuations.

ANALYSIS OF RESULTS

One of the perceived limitations of plant tissue testing is that generally we may not be dealing with monostands of a singular turfgrass species. This will obviously be most apparent on bentgrass greens where generally there is some percentage of *Poa annua* present. As well as golf greens, many sportsfields do not contain a single grass species, especially where grounds are oversown, although at certain times of the year the growth of one species will be more favourable than the other.

There are differing thoughts regarding the actual sufficiency ranges of turfgrass species for each element. Table 1 lists the sufficiency ranges for three types of grasses as well as a general turf category. The sufficiency range represents the nutrient concentration that is adequate for optimum plant growth and health.

A concentration below the sufficiency may indicate an insufficient quantity in the soil or that the plant is unable to extract that nutrient from the soil through either a physical barrier, poor root system or a chemical barrier, possibly soil pH. Higher values may indicate excessive use of fertiliser, inputs from other sources such as irrigation water as well as causes of a nutrient imbalance).

The use of plant tissue testing can be particularly useful where poor quality water is being used and elements such as sodium and chloride are being constantly applied to the foliage and soil via overhead irrigation. The levels of sodium in the soil can be evaluated as defined by a soil nutrient test, however, the levels that are actually being absorbed by the plant are generally unknown.

Although Table 1 does not state the sufficiency levels of either sodium or chloride, Carrow and Duncan (1998) state that an accumulation of chloride ions in leaf tissue can lead to leaf burn and desiccation at 0.30 to 0.50 per cent by dry weight in sensitive plants. The level of chloride in turfgrass tissue can be reported higher than this due to chloride accumulating in the leaf tips where it is removed during the mowing process.

CONCLUSION

Plant tissue analysis should form part of any thorough analytical appraisal of the growth and health of your turfgrass environment. Plant tissue analysis should not replace soil testing but can provide a much clearer understanding of the interaction taking place between the soil and turf and the influence of things such as soil pH and applied irrigation water.

REFERENCES

For a full list of references for this article, contact the AGCSA on (03) 9548 8600. 📞



Cutting grasses with catchers is an effective method of obtaining leaf material for testing



ANZ Stadium -NSW, Skilled Stadium -QLD, MCG -VIC

Some of the countries landmark stadiums use it! And now you can too...

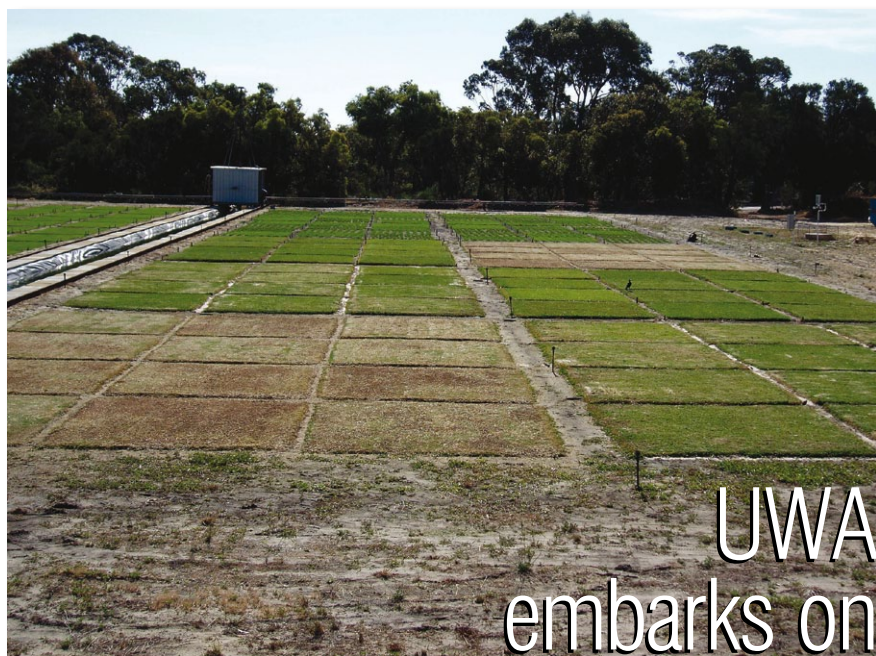
Pennant II & now available Pennant III*

*Tested No.1 for colour in current Australian ANTEP ryegrass trials.(Published ATM Vol: 11.4 2009)

**etpturf**.com.au
Endeavour Turf Products Pty Ltd

Available from: **ETP Turf**
Ph 03 8555 0641
www.etpturf.com.au





UWA embarks on new turf trials

An overview of plots being used for HAL Project TU09005 at the University of Western Australia's Turf Research Facility. The six main blocks (each block containing 12 genotypes) used in the renovation trials are shown in the foreground and the blocks planted for the mowing height and water use experiments are further away (nearest to the travelling irrigator at the far end)

A new project, funded by voluntary contributions from the Western Australian turf industry and Horticulture Australia Ltd (Project TU09005), started at the University of Western Australia's Turf Research Facility towards the end of 2009. The field experiments will run until mid-2011 which will enable two summers of research.

Two priority research topics, identified by the WA turf industry, will be addressed. These are:

- Renovation techniques for thatch removal on a diverse set of soft-leaf buffalograss cultivars; and
- The influence of mowing height on water use by four species (soft-leaf buffalo, couch, kikuyu and zoysia).

Such research will benefit the Australian turfgrass industry and its customers via provision of quantitative data on turf responses to mowing heights (four species) and renovation methods (12 soft-leaf buffalograss cultivars). The knowledge gained will assist further development of best management practices for soft-leaf buffalograss surfaces and will define water use of four warm-season turfgrass species under contrasting mowing heights.

RENOVATION OF SOFT-LEAF BUFFALOGRASS

Thatch accumulation can be detrimental to turfgrass management (e.g. increases susceptibility to disease, increased water use) and ultimately turfgrass quality (e.g. increased surface softness).



Know-how for Horticulture™

Turf researchers Tim Colmer, Sharyn Burgess and Louise Barton outline two new trials being undertaken at the University of Western Australia, one which examines the impact of renovations on soft-leaf buffalograss surfaces and the other which aims to determine the influence mowing height has on the water use of four turf varieties.

Many of the areas planted to soft-leaf buffalograss in recent years are approaching the time when renovation will be required, so knowledge is required on how soft-leaf buffalograss responds to renovation.

Six complete blocks of 12 field plots in each are being used in the study. Each block contains 12 buffalograss (*Stenotaphrum secundatum*) cultivars:

Sapphire (B12)	King's Pride (GP22)
Matilda	Palmetto
Sir James	Sir Walter
ST26	ST91
Shademaster	TF01
Velvet	WA common

The plots are four years old and most genotypes displayed considerable thatch build-up before starting the study. Plots receive 15kg/ha of N in the form of Turf Special fertiliser once a month and are irrigated at 70 per cent replacement of net evaporation, summed and applied three times per week.

Three renovation treatments were imposed on 20 November 2009 with two replicate plots of each treatment for each of the 12 cultivars. The three treatments were:

- No renovation (used as a control);
- Vertical mowing; and
- Hard rotary.

Plots subjected to vertical mowing were cut in one direction at 40mm spacings and a depth of



Members of the Western Australia turf industry provided in-kind support of time and equipment to impose renovation treatments on the soft-leaf buffalograss plots

20mm using a Blue Bird Comber. Plots were then topdressed with 5mm of sand. Hard rotary plots were cut down hard, but gradually, using a rotary mower.

Shoot density was measured prior to and immediately following renovation to document biomass removed. Fortnightly collections of turf clippings to measure turf growth commenced on 1 December 2009. Colour and turf hardness was measured prior to renovation and will continue to be measured fortnightly and monthly, respectively, and for up to two years to document recovery of turf quality post-renovation.

MOWING HEIGHTS AND WATER USE

The influence of mowing height on water use and drought tolerance continues to be debated. An experiment to assess how water use changes in four warm-season species under a range of mowing heights has also started at the UWA research facility.

This experiment will evaluate water use at three contrasting mowing heights, for soft-leaf buffalograss (*Stenotaphrum secundatum* cv. Sir Walter), couch (*Cynodon dactylon* cv. Wintergreen), kikuyu (*Pennisetum clandestinum* cv. Village Green) and zoysia (*Zoysia japonica* cv. Empire).

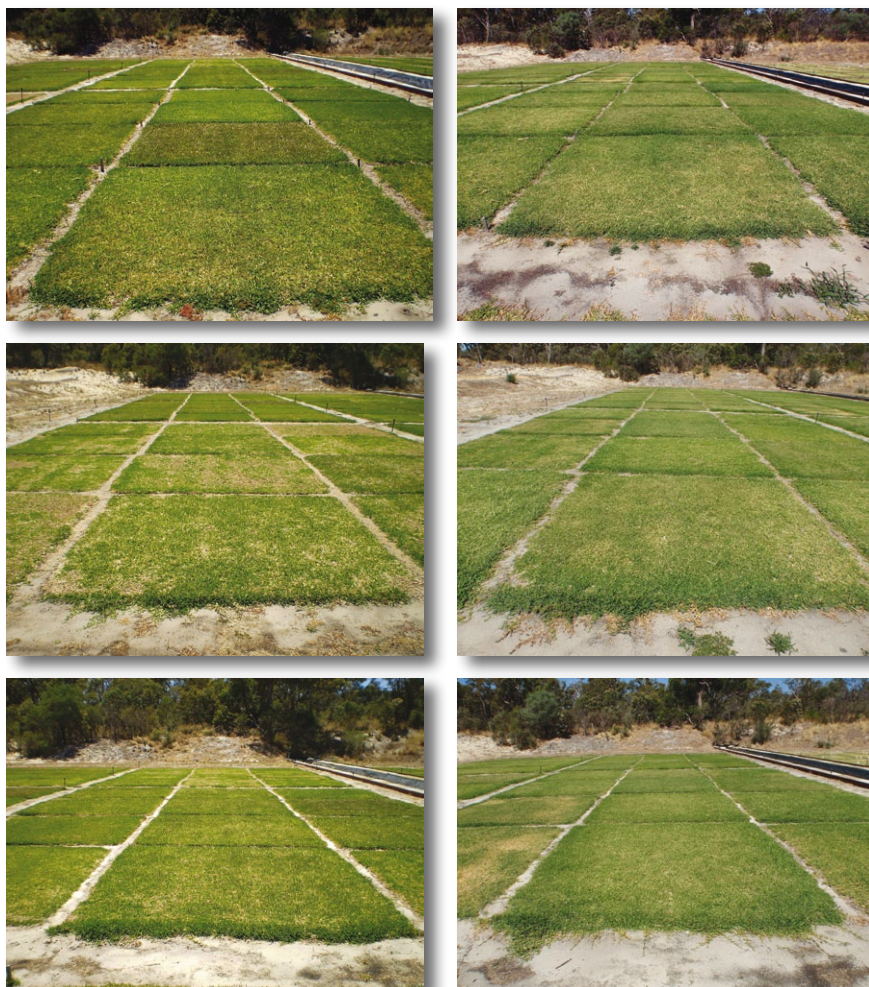
The new plots and lysimeters were planted towards the end of September 2009 as three complete replicate blocks. Each replicate block contains three plots (each plot is 9m²) of each of the four species. Following establishment, three different mowing heights commenced in late December (10mm, 25mm and 50mm). Plots receive 15kg/ha of N in the form of Turf Special fertiliser once a month and are irrigated at 70 per cent replacement of net evaporation, summed and applied three times per week.

Each plot contains a weighing lysimeter to be used to measure turf water use (evapotranspiration). Weekly collection of turf clippings to measure turf growth commenced on 11 January 2010, with water use measurements starting on 3 February 2010. The study will also measure shoot density, thatch biomass, turfgrass colour, rooting depths and root biomass.

ACKNOWLEDGEMENTS

HAL project TU09005 is facilitated by Horticulture Australia Ltd in partnership with Turf Growers Association of WA, Water Corporation, Sir Walter WA Growers, Future Turf Pty Ltd (Village Green), WA Group Pty Ltd (Empire Zoysia). In-kind support from Greenacres Turf Farm, Betta Turf, Turf Developments WA, Alwest Turfing, CSBP and Nick Bell. Plots used in the renovation experiment were established as part of HAL project TU04013, in partnership with QPIF. We thank the UWA Turf Industries Research Steering Committee for advice and support of our turf research. 🙏

Below: Soft-leaf buffalo plots two weeks (left-side column of three photos) and two months (right-side column of three photos) after renovation treatments. No renovation (top row of two photos), hard rotary (middle row of two photos) and vertical mowing with top dressing (bottom row of two photos). The photographs show good recovery, even of the hard rotary-mown plots, within two months of treatments



For healthy, sparkling lakes – just add Oase

Oase is the undisputed world leader in commercial fountain, filtration and pump technology. Ideal for golf course lakes of all sizes, their range of floating fountains and floating aerators will pump them full of oxygen to aid natural bioremediation.

So now you can make algae, unpleasant odours, sludge and poor water quality a thing of the past, without the need for labour-intensive dredging.

For the location of your nearest OASE dealer call their national distributor Clearpond on 1800 222 010 or logon to www.clearpond.com.au

Ask about Clearpond's range of water treatments like Pondzyme Plus Concentrate to treat sludge and dead algae



CLEARPOND
TM



Grass roots **Wear** and **tear**

The Queensland Department of Employment, Education, Development and Innovation (DEEDI) is working together with Redland City Council on testing and evaluating a series of warm-season turfgrasses under simulated and actual wear conditions on community sporting fields. Pictured is the planting of phase two of the trials (foreground) and the surrounding turf (background) at the Redlands Touch Association in late November 2009

Winter is arguably one of the toughest times of the year for turf managers when sportfield usage is high and the recoverability of the turfgrass is low. It goes without saying that in order to provide the best opportunity to get through to spring, turf managers need to ensure they have the best quality turfgrass.

Choosing the appropriate species or cultivar is half the battle. However, neither the right grass nor a finely tuned management programme will overcome unrealistic expectations, poor growing environments or limitations due to improper construction techniques (Bevard et al., 2005)

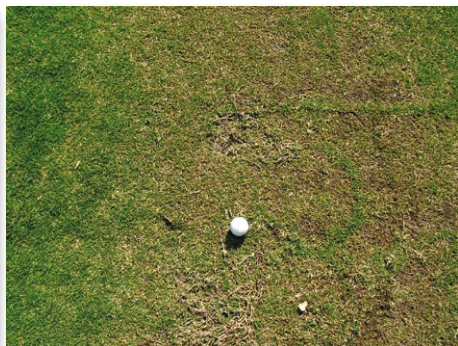
Persons involved in the design and construction of sports fields need to place greater emphasis on what variety of turfgrass should be planted. This decision should be influenced by research findings and not driven by cost, which can often be the case.

To assist those people involved in the development, funding (e.g. government agencies offering grant money) and management of

DEEDI senior research scientist Matt Roche outlines how a new research project being carried out in conjunction with Redland City Council in Queensland will help provide community sporting clubs and local councils with additional information in choosing suitable turfgrass varieties for facilities which experience high usage.

the playing surface, including the end users (e.g. community groups or sporting clubs), the Queensland Department of Employment, Education, Development and Innovation (DEEDI) is working together with the Redland City Council in Queensland on testing and evaluating a series of warm-season turfgrasses under simulated and actual wear conditions on community sporting fields.

The aim of this work is to rank the turfgrass cultivars in relation to wear tolerance and recoverability. A higher ranking will provide



community sporting clubs with additional information in choosing a suitable turfgrass for their facility, particularly if they experience high and/or frequent usage of their fields.

Phase one of the two-phase study involved construction and setup of trial sites at Redlands Research Station (RRS) and the Redlands Touch Association (RTA) between 7 and 12 January 2009. Eleven months later phase two of the trial began with construction of two additional fields at the RTA taking the number of fields under actual wear and assessment to four.

The turfgrasses being trialled at the RTA and/or RRS sites are made up of:

- Seven green couch (*Cynodon dactylon*) – TifSport, OZTUFF, Wintergreen, Hatfield, Conquest, Legend and Grand Prix);
- Kikuyu (*Pennisetum clandestinum* (Whittet))

- Two blue couch (*Digitaria didactyla*) – Tropika and Aussibblue

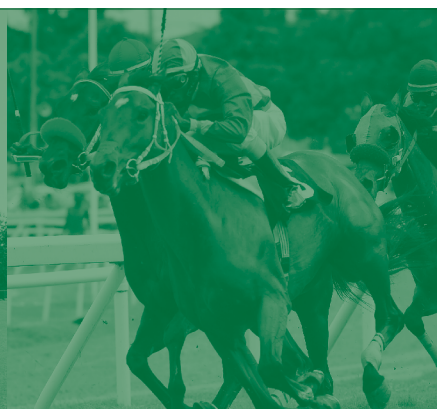
WEAR TOLERANCE AND RECOVERY

In earlier simulated wear studies (Roche et al., 2009) conducted between 2006 and 2008 at RRS on eight *Cynodon* cultivars, the turfgrasses incurred higher levels of wear, damage and compaction to best simulate elite sportsfield conditions. Given that the current trial conditions are different, inputs such as fertiliser are reduced and a sandy loam/clay soil type is being used instead of a USGA type sand.

The wear being imposed by the DEEDI wear machine (based on the design of the GA-SCW Simulator (Carrow et al., 2001) developed in Georgia, USA) had to be finely tuned over time to replicate the damage being imposed by players at the RTA ground.

Variation in wear tolerance and recovery of (from left) blue couch, green couch and kikuyu at Redlands Research Station (20 October 2009)

Evergreen Turf Services



Since its inception in 1982, Evergreen Turf has become one of Australia's leading natural and synthetic turf providers to Golf Courses, Major Sports Stadiums and Municipal Councils. Evergreen Turf is also provides products and services to the Racing Industry.

Services include:

- **Warm Season Conversion** – Converting sporting surfaces to warm season drought tolerant turf.
- **Instant Lawn** – Extensive range of turf varieties supplied and installed.
- **Design & Construction** – A full turn key solution.
- **Contract Growing** – For emergency replacement or future expansions/projects.

- **Reinforcing Products** – To enhance turfs performance. Improving load bearing capacity through stability of profile.
- **Consulting** – Cost effective turf and design advice, from trouble shooting to preventative maintenance.
- **Synthetic Turf** – Whether it be turf for high wear areas or a full playing field, we offer synthetic products to suit any sporting requirement.
- **Total Maintenance Solution** – Turf maintenance package to ensure the best performance of any turf surface.

**Evergreen
TURF**

MORE THAN JUST TURF

Evergreen Turf VIC
Phone: 03 5945 2100
www.evergreen.com.au

Evergreen Turf NSW
Phone: 0488 958 108

BCI_J5140



Variation in green couch cultivars being tested at the Redlands Touch Association grounds (12 November 2009)

Significant variation in wear tolerance and recovery has been observed to date at the RRS and RTA trial sites during phase one of the study. The RRS site is showing that usage of this magnitude, under routine council turfgrass management practices, does not favour kikuyu and blue couch (see photos previous page). A similar situation is emerging for some green couch cultivars being trialled at the

RTA and both sites are showing variation in wear tolerance and especially wear recoverability in the green couches (see photos above).

Decompaction treatments are also being applied at both the RRS and RTA trial sites. Treatments are being applied at six-week intervals, twice a year, yearly and a control plot at the RRS site is also being assessed to determine what level of difference the effect decompaction has on the playing surface.

Throughout phase one of the trial at both the RTA and RRS sites, two-spotted mite (*Tetranychus urticae* Koch) damage has been observed. Mites possess the ability to inhibit the lateral development of the turf plant by feeding on plant tissue following the puncturing of the surface cells with their fangs or stylets.

The damage caused following an infestation of mites can often be seen following a close inspection of the turf (see photo opposite) and is best described as 'the witches broom effect'. The arachnids, which are between 0.2 and 0.5mm in size, are commonly very hard to find and accurately identify. The result, if not detected, poses a threat to new leaf and stolon tissue that become severely distorted effecting lateral growth and turf vigour which is not desirable when turf recovery of a sportsfield is essential.

Further research into the lifecycle (including feeding habits) and safe, effective control of the mites is warranted. From observations made in the field, it seems that particular cultivars are resistant to the effects of two-spotted mites and cultivars with high total cell wall content (TCW), lignin and neutral detergent fiber (which are associated with wear tolerance, Roche et al., 2009) are not excluded from being attacked.

Phase two of the trial commenced wear applications in February 2010 to coincide with the Redlands Touch Association's playing schedule. It is anticipated that results from phase one of the study will be published in time for distribution at the forthcoming Australian Turfgrass Conference and Trade Exhibition on the Gold Coast (21-25 June 2010).

ACKNOWLEDGEMENTS

Matt Roche is senior research scientist with the Department of Employment, Education, Development and Innovation (DEEDI). DEEDI gratefully acknowledge the management and facilitation of

QUEENSLAND DEEDI CALLS FOR CHEMICAL PHYTOTOXICITY TESTING EXPRESSIONS OF INTEREST

Over the last nine years Horticulture Australia Ltd (HAL), together with voluntary contributions (VCs) from the turf industry, has funded three consecutive research projects (HAL Projects TU00011, TU04006 and TU06008) in the Chemical Phytotoxicity Testing Facility for Warm-Season Turfgrasses at the Queensland Department of Employment, Economic Development and Innovation's Redlands Research Station in Cleveland.

The phytotoxicity testing facility has provided chemical companies and the Australian turf industry with an invaluable testing site to evaluate the phytotoxic effects of selective turf pesticides on 28 warm-season turfgrass cultivars from 16 different turf species.

From commencement in 2001, a total of 76 products consisting of 187 different treatments have been tested at Redlands. During the first three years, 39 products were comprehensively examined, resulting in the registration of 12 new products for the turf industry.

Following the success of this research and consequently the availability of new pesticides, and to develop additional options for a range of host grass/weed combinations, DEEDI is seeking to continue this work on a newly developed evaluation site at Redlands Research Station.

Chemical phytotoxicity testing of varied turfgrass species and cultivars can be undertaken cost effectively at the Redlands testing facility. Additionally, the registration of generic or selective pesticides can be fast-tracked for the mutual benefit of turf producers and the chemical companies. This work is extremely valuable as very few chemicals are registered for use on turf within Australia. The availability of a wider range of effective chemicals for the control of weeds, pests and diseases will reduce chemical misuse within the turf industry.

The current HAL Project TU06008, led by DEEDI senior research scientist Matt Roche, will be completed in May 2010. As such DEEDI is seeking expressions of interest from the turf industry in the form of voluntary contributions (VCs) to continue providing the industry with this resource from late 2010 and beyond.

The new 0.5 hectare phytotoxicity testing facility will be constructed to meet industry needs with DEEDI providing dedicated labour to maintain and if requested, apply and assess experiments. To obtain further information regarding the phytotoxicity testing facility, or to discuss the opportunity of becoming a voluntary contributor to the project, contact Bartley Bauer of DEEDI on (07) 3286 1488 or email Bartley.Bauer@deedi.qld.gov.au.

the RTA trial site by Darryl Hoffman, Redlands Touch Association and Laurence Blacka, Redlands City Council.

DEEDI would also like to thank the support from the following organisations, clubs and business groups in funding or contributing to this trial; Horticulture Australia, Redland City Council, Redlands Touch Association, Q Turf Machinery, Oz Tuff Turf, Turf Force, Turf Solutions, Turfworld, Twin View Turf, Caboolture Turf and Jimboomba Turf.

Further information on the Horticulture Australia project Traffic Tolerance of Warm-Season Turfgrasses under Community Sports Field Conditions (TUO8018) can be found at www.deedi.qld.gov.au.

REFERENCES

Bevard, D., Foy, J., Lowe, T. and White, B. 2005. Alternative Grasses: Panacea or Problem?: Breeders and Superintendents are still searching for the perfect turfgrass. *USGA Green Section Record* 43:26-28.

Carrow, R.N., Duncan, R.R., Worley, J.E., and Shearman, R.C. (2001). Turfgrass traffic (soil compaction plus wear) simulator: response of *Paspalum vaginatum* and *Cynodon* spp. *International Turfgrass Society Journal* 9:253-258.

Roche, M.B., Loch, D.S., Penberthy, J.D.L., Durant, C.R. & Troughton, A.D. (2009). Factors Contributing to Wear Tolerance of Bermudagrass



[*Cynodon dactylon* (L.) Pers., *C. dactylon* X *transvaalensis* Burt-Davey] on a Sand-Based Profile under Simulated Sportsfield Conditions. *International Turfgrass Society Research Journal* 11:449-459. 🌱



Know-how for Horticulture™

Damage of plant growth following two-spotted mites (*Tetranychus urticae* Koch) damage in early January 2010. Mites possess the ability to inhibit the lateral development of the turf plant by feeding on plant tissue following the puncturing of the surface cells with their fangs or stylets



New HEADWAY® MAXX

The only fungicide that controls and prevents all major turf diseases† in one.

New HEADWAY MAXX works faster, harder and smarter than any other fungicide. Be the first to experience HEADWAY MAXX, call your Syngenta agent or contact the **Syngenta Technical Product Advice Line on freecall 1800 067 108** or visit www.greencast.com.au



† Pythium, Dollar Spot, Winter Fusarium, Brown Patch. ® Registered trademark of a Syngenta Group Company. ABN 33 002 933 717. All products in uppercase are registered trademarks of a Syngenta Group Company. Syngenta Crop Protection Pty Limited, Level 1, 2-4 Lyonpark Road, Macquarie Park NSW 2113 AD10/025

Murray Bridge Golf Club is about an hour's drive from Adelaide. The course is quite flat with narrow tree-lined fairways and subtle, rolling push-up greens some of which are over 40 years old



Murray Bridge Golf Club SA

For the past 28 years Mal Grundy has only known one patch of turf – Murray Bridge Golf Club. One hour east of Adelaide – or seven hours west of Kardinia Park, home of Grundy's beloved Cats – Murray Bridge GC has faced its fair share of challenges in recent times, whether it be drought, water restrictions or reduction in staff. However, together with one other full-timer and the assistance of a dedicated group of volunteers, this delightful country course is more than holding its own.

Superintendent: Mal Grundy.

Nickname: Hairy Dog.

Age: 45.

Years as a superintendent: 15 years.

Years as an AGCSA member: 15 years.

Other association involvement: SAGCSA committee member (5 years).

Previous/current club: All 28 years at MBGC – the past 15 years as superintendent, 13 years as groundsman (adult apprentice for three years).

Turf management qualifications: Cert III and IV from Brookway TAFE, Adelaide.

Give us a bit about your background in turf management and how you ended up at Murray Bridge? I've always worked outdoors as I grew up in Mypolonga a horticultural area of citrus, stone fruit orchards and dairy farms just out of Murray Bridge. I've picked, cut, dried and packed many a fruit and 'pulled tits' as a relief milker during school holidays.

During secondary school I did work experience at 'Woods and Forest', a government-backed native vegetation nursery which I loved. Jobs weren't coming up but the boss there put in a recommendation for me at Murray Bridge Golf Club, unbeknown to me. The job was advertised and I applied and won it.

I worked under Bill Roberts for eight years and then under Bob Vogt for about six years during which time I became 2IC. I did my certificate as a mature age student (I was 29-years-old as a first year) which was great as I had a purpose to learn and became very involved in lectures.

Give us an overview of Murray Bridge Golf Club and some of its unique characteristics? Both town and club are situated on the Murray River about an hour's drive from Adelaide on the M1 towards Melbourne (this is where many of our visiting green fee income is generated). The course is quite flat with narrow tree-lined fairways and subtle, rolling push-up greens (average size 350m²), some of which are over 40 years old.

Take us through your turf management operations there and how have you finetuned them? Very simple – irrigation is of the utmost importance through summer with regular wetta applications. Budget restraints do not allow for dusting and tining programmes, but the aggressive spring and autumn renovations seem to keep the 'old girls' going. Round up spraying around trees and obstacles keeps the place tidy while regular Primo spraying of bunker edges keeps them neat.

What are some of the unique features about Murray Bridge Golf Club from a turf management perspective? Being a small course, maintenance is generally simple as greens are small and fairways short and tight. However, the excessive heat, water restrictions and small budget present obvious problems. Broad acre renovations are skipped and the regularity of broad acre fertiliser applications is compromised. We have, it seems, an endless list of urgent jobs to do and the before-mentioned tree invasion and debris is an ongoing daily chore which eats significantly into a week's work load.

What are some of the major challenges facing Murray Bridge Golf Club both from a turf management and club perspective? The drought would be our biggest obstacle at the moment. Three years ago we had four full-time staff. With the drought came the extra expense of leasing water which would equal wages annually for a full-time staff member.

As for the club's perspective, our management team has done a great job in promoting junior golf and gained some 50-60 juniors in the past year. Senior membership is increasing slowly through the introduction of various categories to suit the players and the continuing support of casual golfers from Adelaide.

Water is obviously a critical issue around the country. How is Murray Bridge faring in the water management stakes? We are spending in excess of \$30,000 p.a. to secure water and this is not going to end in the near future it seems. Our local council has started funding an ASR project on the course. The course has stormwater mitigation retention ponds which handle part of the town stormwater before any excess flows to a saline aquifer (in excess of 20,000ppm).

Initial findings are very positive to produce a lens of fresh water in a saline mass. It seems we might be able to retrieve up to 120 per cent of water stored as the fringe of the lens has a shandy effect. This project still requires a lot more funding and testing before we put the cheque book away.

Outline any major course improvement works recently completed and highlight any future works planned. In 2000 we engaged the services of Adelaide-based course architect Neil Crafter. Neil produced a Master Plan which the club has moved forward with five new greens/surrounds and the rebuilding and shaping of all bunkers. The flood detention ponds in partnership with local council were built and work well when we get rain. Due to the drought and budget restraints, the Master Plan works are on hold.

What are some pros and cons of being a country-based superintendent? One hour and I can be in 'the village' (Adelaide) if I get a good run with the lights! Forty-five minutes and one of the world's top wine producing areas – the Barossa Valley – is at your doorstep (just need to find a designated driver!). One hour south and you're in Victor Harbour (Elephant Valley), a very popular summer holiday spot. And seven hours east you're at Kardinia Park; what more could a bloke want!

What sets country supers apart from their metropolitan cousins? Tough question! We all aim higher than our resources. Every super, city or country based, is always looking to the horizon for higher standards and providing the best they



can with what they've got. With just two on staff you are more hands on and can go from being superintendent to apprentice greenkeeper in a matter of hours. For instance this morning I was out brush cutting, then applying Round Up and finished up by writing up a report.

Are expectations of course presentation and conditioning any less than that placed on your metropolitan counterparts? No! Golfers travel a lot. I try to keep the course condition value for money.

Do you have to be more resourceful as a country-based superintendent? Couriers, dedicated reps and occasional good planning keep things flowing along. A well stocked chemical shed with a seasonal buy up of must-have products such as wetting agents, fungicides and specific herbicides is imperative. In some ways rural supers have the bonus of large irrigation stores, rural merchandise and the help of handy retired farmers who can invent/fix anything.

If you could change one thing about your job as a country superintendent what would it be and why? Nothing. This is home. My family and friends are here and I am only too glad to help in the community. Countless times I'm down at the shops, in the pub or walking Oscar (the dog) and I

Murray Bridge superintendent Mal Grundy (left), assistant Mal McDonald and Oscar the blue heeler. With just two paid staff Murray Bridge GC relies on the tireless work of volunteers to keep the course up to par

Being a small country course maintenance is generally simple, but climatic conditions (wind and excessive heat), water restrictions and a small course maintenance budget present obvious problems





◀ **The Murray Bridge GC greens are renovated twice a year – October and March**

get stopped and asked, "Hey Mal, what's the best fertiliser for my lawn", "Why is.....?", "What if...?" The town has various small private turf facilities (tennis, croquet) which I have given time gladly to help over the years.

How important are the relationships you have with other nearby country course supers/trade reps? I rely on Globe reps Andrew Manthorpe and Luke Clohesy who continually go beyond the call of duty (I have a well stocked chemical storage shed). Prior to them John Cooper was instrumental in building relationships in this state. John not only set up a great business, he also introduced me to people like John Neylan and Peter Martin.

Being on the SAGCSA committee I have regular contact with the other members who are a bunch of great blokes and all willing to help in anyway, as I would, and do – Ivan Swinstead (Tea Tree Gully), Steven Newell (Kooyonga), Andrew Blacker (Adelaide Shores), Mick Bohnsak (Victor Harbour) and Sam Sheriff (Mt Barker), who recently helped with a supply of bentgrass turf to help repair our heavily vandalised 5th green, are just a few to mention.

The lads at Mt Osmond (Barry Bryant, Sam Frazer and 'Hobbo') are a big help as we lend equipment and Hobbo is a great mechanic. In winter we go up there to look at the rain because it just pours down!

In recent times our course would not be anywhere near its current condition without the tireless work of our volunteers. Max, a 70-something retired farmer, mows greens Tuesday and Friday mornings come rain, frost or shine; Glenn, another 70-something volunteer, is a retired welder, merchandise/retail store owner, general dog's body and damn good mate who mows fairways as needed and helps with machinery breakdowns. And yet another Mal (very close to 70) is a retired engineer and bush mechanic; if he can't fix it, it can't be fixed. Best of all, I can out-fish the lot!

AT A GLANCE - MURRAY BRIDGE GC

Members: 430 (all categories).

Rounds: 350-370 per week.

Major tournaments: Golf Week (October long weekend and following week) and regional open tournaments, both men's and ladies.

Course specs: 18 holes, par 68, 5200m, six par 3s, two par 5s. MBGC is a short tight course built on 34 hectares surrounded by suburbia on three sides and racecourse on the other. Mainly kikuyu fairways with bent/Poa or Poa/bent greens. Half the tees are planted to Santa ana and a trial of half a fairway row planted to Santa ana has proved very successful during the drought.

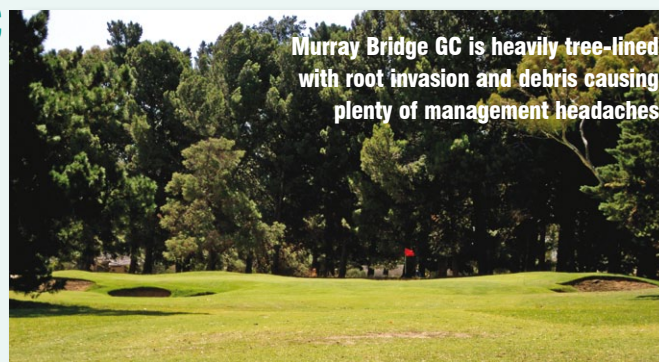
Climate: Winters are short and frosty with most of our average 250mm rain falling from late April to hopefully the end of October. Spring is short lived and windy and by early November temperatures are well into the 30s with the occasional 40+ which helps prepare you for what's to come. Summer is generally very bloody hot and very bloody dry with the odd thunderstorm providing some relief. Average daily ET rate is around 10-12mm per day, therefore a lot of wettas and a lot of irrigation. Autumn is our best time of year – warm-hot days and cool nights and the relief of rains on the horizon.

Annual course maintenance budget: \$100,000 salaries; \$120,000 course and machinery maintenance.

Staff structure: Myself and one other full-time staff member Mal McDonald. The two of us have been running the course for two years now. We have regular help from volunteers who mow fairways and greens (twice a week) and a small team who do odd jobs every Thursday morning.

Water sources: Murray River. Full allocation of 216ML; with water restrictions 103ML (48 per cent of full allocation). The club has leased a further 100ML at \$220/ML to meet this year's needs. River water currently reading about 800ppm.

Irrigation system: Toro touch net controller. Hydraulic valves



Murray Bridge GC is heavily tree-lined with root invasion and debris causing plenty of management headaches

throughout the course with electric valve-in-head (Toro) installed at all new greens. A bit of a hybrid system which has evolved.

Cutting heights: Greens 3-3.5mm depending on competition preparation and weather. Tees 10mm (tops), green surrounds 14mm, fairways 14mm. Rough and amenity areas around tees etc 25-30mm.

Renovations: We renovate two times per year (October and March). We hollow tine (5/8") with a tight pattern, heavy topdress, add the secret herbs and spices (gypsum and any other amendments that the annual soil report recommends), then vertidrain with 12mm tines to 6" deep then rub in sand and finally fertilise. From September to end of April monthly (as weather permits) two-way diamond pattern grooming of greens.

Major disease pressures: Pythium would be our biggest 'pest' as it often attacks under disguise of dry patch and can be overlooked. Monthly programme of Signature to combat pythium and a Headway application around the week of Christmas ensures a merry Christmas and Happy New Year.

The greatest 'disease' we have is tree root invasion and debris. Most greens and tees have large trees within 3-4 metres of the surface – nice and shady for the players, but a nightmare for dry patch and endless debris due to our windy climate.

How do you make sure you keep abreast of the latest turf management techniques and methods? Going to the SAGCSA meetings as my role on committee is meeting co-ordinator. I try to find speakers and subjects of interest and always look for ideas from our members (I have threatened them if all else fails I'll do my Joe Cocker imitation!) The reps are a fantastic resource as they see turf all over the state everyday, with access to tech staff just a phone call away.

Which piece of Murray Bridge GC machinery gets trashed the most and if you had a wishlist what would be the next major ticket item? Given the amount of debris we have to clean up, the Buffalo turbine blower, which fits to the John Deere 1445, is my prize machine. I'm keeping my ear to the ground for a smaller purpose spraying unit to drive on greens – much safer and quicker than current practices.

What are some of the more unusual requests/things you have had to do as a country? For some reason, unknown to me, we have got the Adelaide Symphony Orchestra doing a full blown two-hour concert on our 8th fairway on the evening of 20 March. This promotion is an initiative of Country Arts SA and organisers estimate up to 9000 people will flock to the course.

The stage will seat 120 musicians and there is also a special guest performer, but mum's the word. The club will run the bars, while local produce growers will be selling everything from cheese, nuts and fruit which will go nicely with a drop from the lakes district. It's going to be all hands on deck, but should be a great night. Nothing like a bit of culture...better dust off the tux!

Favourite spot on your course? Anywhere as long as the pumps, pipes and sprinklers are all okay.

Most pleasing/rewarding moment during your time as Murray Bridge superintendent? Acceptance by the members of the Master Plan was huge.

Complete the following sentence: The most important lesson I have learnt about turf management and/or life in my time at Murray Bridge has been... Daryl Cahill (ex-Glenelg GC superintendent) once said to me, "If they are complaining the ball washer towel is dirty or missing, consider that you are doing a fantastic job". How true. I appreciate good feedback, but have learnt over the years that a complaint is always around the corner! Some members enjoy a joke and try to get me to bite, but my reply is always "You all bring me joy, some when you come, some when you go!" 🌱

IN THE SHED - MURRAY BRIDGE GC

John Deere fairway 3235B
John Deere surrounds 2653A
John Deere rough 1445
John Deere tractor/front end loader
Massey Ferguson 135 with 600-litre Hardi boom and hand trigger
Smooth roll (ex-Kooyonga GC)
Toro Workman (ex Royal Adelaide GC)
2 x Toro Greensmaster 3150s
Cushman truckster with core harvester (we share this with Mt Osmond GC and borrow their Weidenmann)



Your winning pair in the management of Pythium and summer turf decline.

This summer, Pythium will again cause problems in your turf. But with Banol and Chipco Signature from Bayer, you can be confident you'll have healthy, great-looking turf right through summer. Banol is not only an effective curative treatment for Pythium outbreaks, it can also be used preventively; while Chipco Signature protects turf from Pythium and summer stresses, and helps preserve overall turf health. Banol and Chipco Signature — the pair of summer aces too good to keep up your sleeve. www.bayeres.com.au Banol® and Chipco Signature® are Registered Trademarks of Bayer.

 Bayer Environmental Science

Banol® *Chipco Signature*

A helping hand



At the Australian Turfgrass Conference in Hobart last year, the beyondblue workshop provided an insight into mental health issues in the workplace. Depression affects more than one million adults in Australia each year and research suggests that untreated depression costs workplaces \$4.3 billion in lost productivity each year. Here Therese Fitzpatrick and Jane Gardner, from beyondblue: the national depression initiative, provide ATM readers with some simple strategies to address mental health issues in their workplace.



It's not always easy to identify depression in a member of staff, however, managers need to remember first and foremost that it's not their job to diagnose. What they can do is play a crucial role in helping a person on the road to recovery and simply starting a conversation at the right time can make all the difference.

Starting a personal conversation in the workplace can be daunting, but you can make it easier on yourself by picking the right time. Consider waiting until the end of the work day or during the lunch break and ensure that the meeting location is private. Some people can become defensive if these types of conversations are handled insensitively or come across in an accusatory tone.

"When you notice a change in someone's behaviour, it's really important not to think immediately about performance management, but rather show concern about that person's health," says beyondblue programme manager – national workplace and social enterprise Therese Fitzpatrick. "If someone has changed and you think they might have a mental health problem, the first step is to ask if they're OK.

"You need to give that person time to talk – don't expect an answer straight away. You may find that you need to approach them a few times. It's about opening the door and letting that person know you're available to talk. You can start casually with something like 'I've noticed you're not quite yourself lately and I'm concerned about you' to let the person know your concern is genuine.

"Sometimes, it can help to talk about someone else you know who has been through a difficult time and how that person got help and what a difference it made for them. Also, try to find out if the workplace itself is playing a role in making the person feel worse and think about ways you can address those issues."

HOW TO HELP A PERSON WITH DEPRESSION

If it becomes clear that the staff member may need some extra help, a good starting point is to refer the person to the beyondblue website www.beyondblue.org.au or information line 1300 22 46 36. beyondblue provides comprehensive factual information about the signs, symptoms and types of depression, treatments, where to go for help, recovery and much more. All resources are free and can be ordered online or via the info line, and will be sent to you in a plain envelope.

It is also a good idea to check with the Human Resources department or management at work to find out about the resources available in your own organisation. A lot of bigger organisations have employee assistance programmes, which may provide free counselling for staff.

If a staff member tells you he or she has been diagnosed with depression, the first logical step is to ask if he/she is receiving support and having treatment. If the person has sought treatment, great, but it doesn't end there. It's a manager's responsibility to ensure the work environment is not going to have an adverse effect on that person's recovery.

"Think of it as you would a physical health problem," Fitzpatrick says. "If an employee returns to work with a broken arm, changes will need to be made to make their job easier to manage until that person recovers. Don't automatically assume they are going to need time off because the workplace can play a big role in recovery. Research shows that workplaces that actively become involved in the rehabilitation process of someone with depression have half the number of worker's compensation claims. If you have permission to talk to the person's doctor this can be immensely helpful as they can advise you about what's best."

EASING THE BURDEN

There are many things managers need to think about when a member of staff has depression. You may need to adjust the person's working hours or work environment (e.g. if the person is having difficulty concentrating, move him/her to a quieter area). Individuals vary, so the important question to keep in mind is what's best for him/her?

"It's so important to continue to talk about it," Therese says. "It can also be a good idea to put a formal written plan in place so that everybody's clear about the expectations, similar to what you'd do if someone had a worker's comp plan."

If people need time off work, it's important to stay in touch and it can be nice to keep them up to date about social occasions so they don't feel too isolated. Once the person begins to recover, the next step is to develop a return-to-work plan.

It's also important to think about what you're going to say to the rest of the team. Obviously, you need to maintain confidentiality, but check with the person who has depression to find out what he/she would like to say to their colleagues.

Depression is a recognised disability under the Disability Discrimination Act 1998, which means employers can't discriminate on the basis of someone having depression – at the recruitment stage and during employment – so long as that person can meet the inherent requirements of the job.

OBLIGATIONS TO THE EMPLOYER

One in six Australians will experience depression at some stage of their life. This means that it is likely that someone within your workplace has or will be affected in some way at some stage. Not everyone who experiences depression will find that their work is affected as a result.

Therefore, it's not mandatory for people to disclose an illness if it does not affect the quality of their work. If it does, employees may choose to tell their manager, so that this allows the employer to make reasonable adjustments to create a workplace environment that is suitable.

"If an employee chooses not to tell you and their performance is impacted, managers should give them the opportunity to talk about it. Obviously, if they say there is nothing wrong, then at some point you may need to think about managing their performance," Fitzpatrick explains.

"Finally, throughout this process, it's important that you look after yourself because it can be quite stressful managing these situations. You need to make sure you have someone to talk to about it."

EFFECTS ON WORK PERFORMANCE

There are many treatments that are effective for depression ranging from psychological 'talking therapies', medication and lifestyle changes. Many people with depression use a combination of the three. In some people, antidepressant medications

may have side-effects, so it's important for the person to discuss this with their doctor. Common signs of depression in the workplace include:

- Finding it difficult to concentrate on tasks;
- Turning up to work late;
- Feeling tired or fatigued;
- Getting angry easily or frustrated with tasks or people;
- Avoiding being around work colleagues e.g. sitting alone at lunchtime;
- Finding it difficult to reach reasonable deadlines;
- Finding it hard to accept constructive and well-delivered feedback;
- Difficulty managing multiple tasks; and
- Drinking more alcohol to try to cope with other symptoms.

SEEKING HELP

beyondblue: the national depression initiative has a National Workplace Program (NWP) designed to raise awareness and address issues related to depression and anxiety in the workplace. More than 400 organisations and 40,000 participants nationwide have taken part in beyondblue workshops (such as the one ran at the Australian Turfgrass Conference in Hobart last year).

This programme includes workshops for senior executives, managers and other employees, delivered by a qualified mental health professional. Participants learn about depression, anxiety and other common mental health problems in the workplace. They also gain a greater understanding of the impact these problems can have on the people affected – including their work performance.

The workshops teach participants ways to approach a colleague about whom they're concerned and how to assist that person to get appropriate help if necessary. Workplace sessions have also been successful in reducing the stigma and misconceptions surrounding depression and anxiety disorders. The workshops for managers provide specific information on more complex issues, such as formulating return to work strategies.

Participants who attend beyondblue NWP sessions are given free resources including fact sheets with advice for employees experiencing depression, advice for managers and supervisors, legal obligations for managers, how to help a colleague with depression and returning to work after absence. To find out more about how beyondblue's NWP workshops may benefit your workplace, call the beyondblue National Workplace Team on (03) 9810 6100 or email workplace@beyondblue.org.au

Editor's Note: Contained with this edition of ATM is a flyer about depression and what to do if you or a staff member is having issues with this debilitating mental illness. For more information about depression, effective treatments and how to help someone, visit www.beyondblue.org.au or call the beyondblue info line 1300 22 46 36 (local call). 📞

Left: Managing a staff member who has a mental illness such as depression can be a daunting prospect, but a simple tap on the shoulder and a sympathetic ear can often be the crucial starting point for constructive dialogue

One of the key themes of Therese Fitzpatrick's talk at last year's Hobart conference was becoming proactive when it comes to dealing with mental health issues in the workplace



Sea Temple a green sanctuary

At the 2010 GCSAA Education Conference in San Diego, Sea Temple Golf Club won the International category at the prestigious Environmental Leaders in Golf Awards. Course superintendent Brett Morris was on hand to collect the award and here he outlines the environmental efforts which have seen the Port Douglas-based club honoured at the highest level.



Sea Temple Golf Club is located in Port Douglas nestled between the World Heritage listed Daintree Rainforest and Great Barrier Reef. Built on 80 feet of native sand beside Four Mile Beach, it has been described by the architect as the world's first tropical links.

Open in style such as many links golf courses, it is dissected by a tract of native rainforest and wetlands, home to a vast array of native birdlife, aquatic animals, including crocodiles. Comprising a total turf area of 34 hectares, it is grassed with Greenlees Park couchgrass on tees, fairways and roughs, with Novotek ultradwarf couchgrass on the greens.

Being located at a similar longitude as the Caribbean, the golf course is subjected to year round growth, with average daytime temperatures in winter recorded at 26°C. Summer temperatures climb to 31°C which feels much warmer due to the continual high humidity.

During the wet season (summer) it is not uncommon to receive daily rainfall totals exceeding 300mm, or 12 inches (on 5 March 2008, Sea Temple received 415mm in a 24-hour period). Summer monsoons usually coincide with cyclonic activity within the Coral Sea resulting in king tides inhibiting surface runoff. Sub-surface infiltration is also inhibited during this period due to the rise through the sand of the natural fresh water table, thus management regimes alter throughout the year dependent on climatic factors.

The winter period is usually much drier, but last year (2009) culminated in the driest winter on record, with rainfall for June through September totalling just 22mm. The golf course is supplemented via recycled water for irrigation during this period, but care must be taken so that the existing fresh

water wetlands which exhibit the wildlife are not contaminated. Management regimes are then altered to combat the rise in sodium in the sand, before preparation commences to assist the golf course through the wet season again.

Being a semi-private resort golf course, standards and expectations are high with a year round green fee of \$130. Private residential developments have just commenced on the course with a total of 64 home sites available for construction on. This will further provide challenges in education of the home owners in so far as property runoff.

While the stormwater system will not contaminate the native wetlands, the potential exists for nutrient runoff from the properties into the native sand and water table. We are confident, however, that guidelines for runoff can be achieved, ultimately protecting and enhancing the unique environment that we are extremely fortunate to live and work within.

WATER MANAGEMENT

Water management at Sea Temple Golf Club can be a double-edged sword at times, as the dry period of the year (winter) requires regular irrigation cycles due to the lack of rainfall and high usage on the course by golfers, through to the wet season (summer) when we wish at times it would just stop raining!

The golf course is irrigated by a centralised Rain Bird Nimbus electric solenoid system, with heads on all greens, tees and fairways. The majority of the roughs are not irrigated, initially to provide a contrast between the fairways and mounding, typical of links style golf courses.

There is not full head to head coverage on the golf course, meaning that holes which even lie



PRINCIPAL PARTNERS

Bayer Environmental Science



Described by its designer as the world's first tropical links, Sea Temple Golf Club in Port Douglas was honoured at the GCSAA/Golf Digest Environmental Leaders in Golf Awards recently, winning the international category for environmental excellence

side by side have un-irrigated sections between them which are usually mounds. These are left to turn brown during dry periods with the only water being received is during the summer monsoon. Total irrigation therefore is less than 60 per cent of the total turfgrass area on the golf course, or approximately 20ha.

Recycling of water beings at the maintenance shed, with washdown waste water going through a series of settling, chemical, oil and pesticide filtration, before storage and pumping into the irrigation dam for re-use. No waste water, even treated, is discharged into waterways, as this water flows into local creek systems and out to the Great Barrier Reef which lies less than 5kms from the golf course. The lack of irrigation within the rough ensures that if any recycled water does enter these areas, it is effectively adsorbed before it can enter the native areas.

At Sea Temple Golf Club we are in regular contact with the local council authorities regarding water management which in turn provides a personal opportunity to discuss vis-à-vis environmental factors regarding not only this course, but turfgrass management in general.

Further, the State and Federal Government have recently passed legislation which focuses on nutrient and pesticide runoff from surrounding sugar cane farms which is damaging the Great Barrier Reef. This will inevitability also impact turfgrass management operations at all sporting and recreational facilities within the FNQ region.

As the golf course is built on native sand, all tees, greens, fairways and roughs are simply pushed up, with no sub-surface drainage. During winter, ET rates are still high, with the average of 5.5mm per day, combined with infiltration, requiring regular irrigation cycles. It is during these cycles that we aim to restore only what has been lost.

It may fly in the face of conventional irrigation practices, but the main aim in actually preventing deep watering is to keep the recycled water from not contaminating the natural fresh water table, as even in the driest parts of the year is still approximately 1m from the surface. As this water (ground water) provides life for a multitude of wildlife found on the course, it is our aim to protect it as much as possible.

It does not affect the couchgrass at all, as in sand the root system extends close to the water table. The wet season (summer) allows us to basically shut the system down for three months as rainfall provides us with enough (sometimes too much) water to maintain the course as nature intended.

RESOURCE CONSERVATION

One of the main areas in which we are proud to have led the way in the Far North in so far as protecting our main resource (i.e. the property on which the golf course is laid out) is replacing the variety of couchgrass used on the greens.

When the golf course first opened, Tifgreen was used on the greens but during the summer monsoon period it struggled to survive due to a multitude of concerns, both biotic and abiotic. Multiple and repeat applications of fungicide had to be applied, however, the Tifgreen did not fully recover until April when autumn renovations were able to be carried out following the monsoon.

Research was initiated to find a suitable replacement, and the result is a new ultradwarf couchgrass called Novotek which displays genetic resistance to couchgrass decline in FNQ. We quickly instigated a replacement resurfacing programme for our greens over the past three years which has now been completed meaning we are now the first golf course in Australia to use Novotek on all greens.

What this has enabled us to achieve is management of high quality surfaces with less inputs, as the grass has been developed for the local conditions (and is now being used extensively throughout SE Asia instead of TifEagle). The flow-on effects are simple – we now use less energy to maintain our greens whether it is via mechanical or manual means.

We have now shifted our thoughts and work to improving another area of our operation with the investigation of use of bio-diesel in our equipment fleet. FNQ is home to Australia's sugar cane production and local manufacturers have recently commenced production of bio-diesel for engines. The State Government is supportive of the move and is offering rebates for businesses who switch to bio-diesel. We will shortly start trial work with bio-diesel in an effort to evaluate its performance and to reduce our carbon emissions.



Sea Temple Golf Club course superintendent Brett Morris

Comprising a total turf area of 34ha, Sea Temple is grassed with Greenlees Park couchgrass on tees, fairways and roughs, with Novotek ultradwarf couchgrass on the greens





Over the past three years all the old Tifgreen greens at Sea Temple have been replaced with Novotek. In doing so Sea Temple became the first golf course in Australia to use the variety on all greens

INTEGRATED PEST MANAGEMENT

With year round growth we are constantly scouting the golf course daily and monitoring our IPM programmes. As mentioned above, the switch to Novotek on the greens means now that fungicide usage has dropped dramatically. We focus more on producing a healthy soil which in turn produces a plant more capable of resistance to disease.

The change to Novotek saw last year's fungicide bill only total \$500 and that was for a preventative application of Azoxystrobin in summer as we never know what the monsoon will bring us. There are no fungicides applied to tees or fairways.

Main insects on greens are armyworm and webworm, but these are controlled with an application of Acelepryn (750ml/ha) in November which lasts through the monsoon. The only other concern is funnel ant which is easily controlled by hand applications of bifenthrin.

The 2009 ELGA winners do a tremendous job of highlighting the importance of environmental stewardship in golf... The winners, along with their facilities, have demonstrated that golf courses can be compatible with the environment, and in many cases enhance it.

Mark D. Kuhns, GCSAA President

Novotek is a locally developed ultradwarf couch suited to the climatic extremes of Far North Queensland



Weeds are the main concern, particularly Crowsfoot (*Elusine indica*) and summergrass (*Digitaria* spp.). Pre-emergents (pendimethalin 3.5L/Ha) are applied every eight weeks to fairways, while tees are treated with dithiopyr (3.5L/ha) every four months. Oxadiazon (150kg/ha) is then applied to clubhouse lawns and garden beds every three months. Any weed then which does come through on fairways or tees is treated only via spot spraying.

Weeds in water ways have been manually removed in the past by two apprentices in a small boat by a combination of hand removal and use of pool scoops for floating weeds.

Fertility to the greens and fairways is only via spoon feeding, with a Simplot nitrification inhibiting granular slow release applied to tees. Greens are rotated with a Simplot microbial liquid product which features humic acids, organic carbon, microbes, vitamins, etc., due to the low CEC of the native sand, and light amounts of fertiliser dependent on the season.

The fertiliser blend may consist of a full range of NPK and trace, or just N, K and Fe. We do not apply any P at all, as we focus on keeping the soil pH between 6-7 whereby P is in its most available form within the soil. Fairways are spoon fed with combinations of N, Fe and Mg, again dependent on the season.

During the monsoon we will only apply Primo Maxx and Fe monthly and never any N. Yearly actual totals for greens do not exceed 2.5kg/N/100m², while on fairways the yearly total is 2kg/N/100m². Spoon feeding ensures no leaching into the natural water table.

WILDLIFE AND HABITAT PRESERVATION

Sea Temple features a large tract of wetland and native rainforest which winds its way through the golf course which totals about 7ha. These native areas have a 'no entry' policy and are home to a vast array of bird and animal wildlife including:

- Ducks (*Tadorna radjah*, *Anseranas semipalmata*, *Anas superciliosa*, etc.)
- Black-necked stork (*Ephippiorhynchus asiaticus*)
- Great egret (*Ardea alba*)
- Royal spoonbill (*Platalea regia*)
- Osprey (*Pandion haliaetus*)
- White-breasted sea eagle (*Haliaeetus leucogaster*)
- Orange-footed scrubfowl (*Megapodius reinwardt*)

- Masked lapwing (*Vanellus miles*)
- Sanderling sSandpipers (*Calidris alba*)
- Whimbrel curlew (*Numenius phaeopus*)
- Rainbow lorikeet (*Trichoglossus haematodus*)
- Laughing kookaburra (*Dacelo novaeguineae*)
- Collared kingfisher (*Todiramphus chloris*)
- Rainbow bee-eater (*Merops ornatus*)
- Willy wagtail (*Rhipidura leucophrys*)
- Comb-crested jacana (*Jacana gallinacean*)
- Snakes - slatey grey (*Stegonotus cucullatus*), water python (*Liasis mackloti*), amethystine python (*Morelia kinghorni*) and tree snake (*Bioga irregularis*)

- Assorted aquatic animals such as the prized barramundi (*Lates calcarifer*) and saltwater crocodile (*Crocodylus porosus*).

There are presently two saltwater crocodiles in permanent residence on the golf course on the 9th and 10th holes, both around 3m in length. During the summer of 2007/2008, the monsoon and king tides resulted in a further two saltwater crocodiles taking up habitat on the golf course as tidal flow pushed back up a small estuary behind the 7th and 12th greens, bringing with it the new residents. They only lasted around three weeks on the golf course before finding their way back out through the estuary and into the native mangrove habitat which borders the southern end of the golf course.

The permanent crocodiles are monitored by State Government officials who inspect on an annual basis to determine whether they are a risk to the people frequenting the golf course. There are a number of warning signs in place close to the waterways, and we have a policy of no feeding which encourages the crocodiles to become more aggressive in their search for food.

The no entry policy also relates to dead trees which are left standing within the native rainforest. One of these dead trees has been left standing to the left of the 11th. In the top of this tree is the nest for the osprey, which arrive after the monsoon season and breed their single chick before departing before the monsoon starts again in December.



The wildlife are usually the best indicators of upcoming weather patterns by the arrival and departure throughout the year which we can gain some insight from. We keep our management philosophy of these areas straight forward and simple as we already exhibit a vast range of wildlife. And that range of wildlife which calls the golf course home proves that the water quality and ecosystem management is of high quality and on the right track.

Switching to Novotek has enabled Sea Temple to achieve high quality surfaces with reduced inputs

ACKNOWLEDGEMENTS

Brett Morris is course superintendent of Sea Temple Golf Club and is also Director of Agronomy for Turnpoint. 🌿

The most innovative roller around.



The Graden GSR 1200 Roller

- Overlapping heads for a professional result and no 'lines'
- Split rollers for operator friendly steering
- Dual drive train
- Built in trailer
- Universal tow hitch

GRADEN

For more information
call 1800 356 372

www.toro.com.au

TORO Distributed by
Toro Australia



Eastwood eases water worries

When ATM first visited Eastwood Golf Club at the start of 2007, the main dam was at just 10 per cent and newly appointed superintendent Michael Vozzo was wondering what he had got himself into. More than three years on and following a series of works to increase water harvesting abilities, the club's water worries have eased considerably.



PRINCIPAL PARTNERS



As of February 2010 the Eastwood dam was at 70 per cent capacity, a far cry from the same time three years ago when it just at just 10 per cent

Traditionally, Eastwood Golf Club, located in the far eastern suburbs of Melbourne, had always found it difficult to harvest enough stormwater for irrigation every summer. To offset this, prior to my arrival in January 2007, all hand watering of greens, watering with impact sprinklers and the irrigating of our two bowling greens was with potable water therefore reducing somewhat the need for stormwater from the irrigation dam.

Obviously with severe water restrictions in place, we very quickly converted our bowls greens irrigation to dam water (after we completely lost the top green in February 2007) and installed quick coupler valves to all golf greens therefore eliminating the use of potable water (a saving financially, but meaning we needed about 4-5 megalitres more in our irrigation dam per year).

Around this time we had only enough water in our dam to irrigate greens only (approx. 3-4ML) and even had to truck in some more just in case. It would be fair to say that in some way I was fortunate that the situation got this extreme as every suggestion to improve water harvesting since this date has been met with approval, including finance, which historically wasn't necessarily the case prior.

EVERY DROP COUNTS

The Eastwood site is unique in that the course



This dam next to the 3rd green is one of a series of four linked dams at the southern end of the Eastwood Golf Club site which combined hold 8ML. Water from these dams used to be lost but is now pumped to the club's main irrigation dam on the other side of the course

is situated on a 'hog's back' running east to west through the middle of the property with the clubhouse being right in the centre. Our main 30ML irrigation dam is on the northern border, fed from stormwater off Liverpool Rd, the northeast corner of the car park and some drainage lines on two fairways.

However, all stormwater from the club's driveway, car park, bowling greens, clubhouse roof, maintenance sheds and drainage on 10 holes, found its way into a system of four dams dotted throughout the southern end, which eventually overflowed into nearby Bungalook Creek. These dams combined hold an extra 8ML so it was vital we devised a plan to somehow utilise this precious water and virtually increase our holding capacity to 38ML.

We decided to install a diesel transfer pump (we had no power in the vicinity) at a cost of almost \$30,000 to transfer water through the irrigation line, from the last dam in this link (between the 1st and 2nd holes) to the main dam some 700m away at the other end of the course. This had to be done manually, but with careful planning and keeping an eye on the weather radar, we are able to drain the final dam prior to any rain event (it pumps at approx. 36,000l/hr). To date, some two-and-a-half-years after installation, this diesel transfer pump has transferred just over 26ML with diesel fuel being the only cost.

It was also very important that all routes for the stormwater were clear and unimpeded to ensure all captured water found its way into the dams. The route for the stormwater from Liverpool Rd to the main dam was directly on the northern fence line, under many Cypress pines.

Over time this route had washed, was overgrown with vegetation and some of the fencing had falling into the depression. (There was even a suggestion that one of the neighbours was detouring some of the water into his property). So we re-routed the stormwater further into the property to ensure this wasn't going to happen and installed some crushed rock into the base as a short term fix until the water made its own course through the new depression (see photos bottom of this page). After lengthy





Eastwood's desalination unit can supply the club with 14.5ML annually

negotiations the council assisted in installing a new stormwater pit on Liverpool Rd to ensure better flows.

Being an undulating course, we also decided to re-shape most of our paths (formed either with Lilydale toppings or granitic gravel as it is the cheapest method) to direct stormwater to adjacent pits to be sent to nearby dams. For instance the path that runs between the 10th green and 11th tee is almost 250m long and collects almost 2ML annually – every drop counts.

While this has been tremendously successful, it has come with massive headaches including path wash outs, pipe and pit blockages. We have installed significant sized rocks along the gully to trap some of the debris but some still finds its way into the pit at the end. As I write this, a member of the club is about to install asphalt to our 1st and 10th tee paths, which will further assist with directing stormwater without the washouts.

In some spots, we have eliminated pipes in deep roughs to minimise blockages and installed open creek systems to transfer the water. These are well out of play and eliminate pipe blockages and also collect more surface water than previously. These were completed in late December 2009 with native *juncus planifolius* planted among the rocks.

DESALINATION

Despite all the above works we were still reliant on rainfall so in mid-2008, after attending the ARUP Water Conference in Melbourne with my Greens chairman Brian Lanigan, we realised we needed another water source, with the only viable option to further inspect our salty bore.

I remember talking at this conference to Flinders Golf Club superintendent Colin Morrison who mentioned that desalination could be an option for us. After further investigating by both Brian and I, desalination was a viable but costly option for Eastwood. Again in February of 2009 (around Black Saturday) I was watering greens only and with some member support the club cleared the finance



for a desalination unit to be installed by Aqueous Solutions.

We learnt quite quickly that you have to work backwards when installing such a unit. Firstly, after we found we had a plentiful supply, we had to work out where we were to dispose of the brine. The only option was to connect into the sewer near our work sheds some 600m away. However, Yarra Valley Water (which governs the sewer) only allows a total of 200kg of salt waste to flow into the sewer per day.

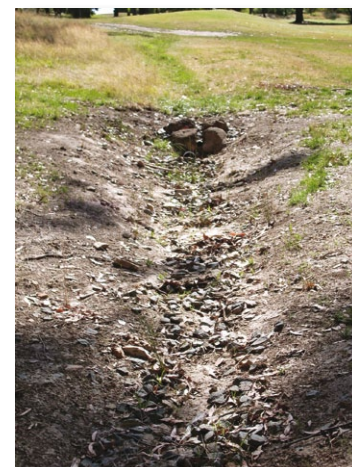
Considering our salt reading from the bore was 4400ppm, this meant we could only retrieve approx 50,000l of bore water per day. The corresponding unit would place, after we re-blended with some salty water, around 40,000l of water with salt of 650ppm into the main dam. It may not sound much, but that is 14.5ML annually.

After much rigmarole and red tape with authorities, the unit was installed in late September 2009 at a total cost of around \$110k including installation, shed and associated costs. To date, this has added another 4.5ML to our supply.

Not content with all of these projects we also apply Aquatain to all of our dams to minimise evaporation with some very good results. We have also planted native *juncus planifolius* and *juncus flavidus* around dam edges and placed barley straw at pipe entrances to filter the stormwater in an attempt to reduce the risk of algal blooms.

So, either by good luck (and Melbourne has had some good rainfalls this past spring and summer) or by good management, in early February 2010 our main dam was at 70 per cent capacity (approx. 21ML). For the first time in many years, Eastwood Golf Club will have no concerns this summer and perhaps beyond. 🌊

By re-grading paths Eastwood has maximised the amount of runoff to its dams. For instance the path that runs between the 10th green and 11th tee is almost 250m long and collects 2ML annually



In out of play areas around the course, open creek systems are an effective means of transferring surface runoff



Eastwood's main source of water is stormwater runoff from Liverpool Rd. Work was undertaken to ensure all routes for the stormwater were clear and unimpeded while council assisted with the installation of a stormwater pit



Above: Avondale Golf Club superintendent David Warwick, together with engineer Peter Savtchenko, have designed a powerful yet quiet fan to help alleviate microclimate issues affecting a number of greens on the course

WINDS OF CHANGE BLOW THROUGH AVONDALE GC

David Warwick readily admits he is short of fans within the turf industry, but the innovative Avondale Golf Club course superintendent has gone out of his way to do something about it.

In an effort to improve the quality of the surfaces on some problematic greens at the northern Sydney course, Warwick, together with a local engineer, has designed a powerful yet quiet fan to assist in generating air movement across his greens.

Although a rare sight on Australian golf courses, the use of pedestal fans by superintendents is commonplace in the United States who employ them to remove saturated air from the leaf canopy and thus improve turf growth and health.

"In a recent article by John Neylan in ATM he spoke about the vagaries of managing bentgrass in

the hot humid environs of inland Sydney courses," says Warwick, who has been at Avondale for nearly 14 years. "The article highlighted the requirement for air movement across cool-season grasses, particularly during hot humid conditions.

"We had struggled for a long time with a few greens on the course during summer so in 2008 we imported a fan from the US and trialled it on our 10th green. This particular green is heavily shaded and sits in a depression where there is very little natural air movement.

"Such was the improvement in plant health, turf density and quality of the playing surface as a result of the fan, it was agreed that the remaining microclimate greens (four in total) would have the 3-phase power installed during the following winter to enable the fans to be operational by summer.

"However, towards the latter stages of the initial trial neighbouring residents complained to the club about noise emanating from the fan and that was the catalyst for investigating fans and air movement at great length."

It was at a local baseball game that Warwick's ideas gained momentum after a chance meeting with a fellow competitor Peter Savtchenko. The two got talking about their respective careers and the conversation quickly moved on to air movement and fans, which happened to be the speciality of Savtchenko's engineering company, Toyesi. Twelve months later and after many trials and exchanging of ideas the Ad-Cool Turf Jet fan has been developed.

As well as the obvious turf health benefits, the new home grown fan is practically silent during operation and in the five months since its installation on Avondale's 10th green there have been no noise complaints. As a result, the original imported fan has been repositioned to the 18th green in the centre of the course.

"From the initial demo model, Peter came up with a design that exceeds all our expectations and requirements in terms of lower noise output, reduced electrical usage and easy serviceability from ground level. The new fan design also has a 24v switch that enables control from our irrigation system, adjustable oscillation speed and angle and adjustable fan speed control which can be used to further minimise noise.

"While the new fan isn't a silver bullet, it certainly comes very close in our situation. The microclimate greens are in much better health than ever before and we can now manage them along similar lines to the others grown in more open aspects." 🌿



Bottom right: The heavily shaded 10th green at Avondale, one of four greens at the club which have unique and challenging microclimates

EMPLOYMENT AWARDS NOW IN EFFECT

As of January 1, 2010, the Federal Government's Award Modernisation came into effect. The key objective of award modernisation is to reduce the number of awards in the system, by creating awards with national coverage across industry and occupational lines.

For the golf industry, this has seen greenkeepers covered under three awards, the most relevant being the Registered and Licensed Clubs Award. The Gardening Services Award and the Amusement, Events and Recreation Award also cover some sectors of the industry.

In 2009, the AGCSA put forward a submission to the Australian Industrial Relations Commission regarding the draft awards, outlining the inclusions thought

necessary to bring greenkeepers awards up to date and more reflective of the skills and knowledge required and existing within our industry.

While a separate award was not granted, the Registered and Licensed Clubs Award has created two levels of 'horticultural management' in the same framework as club managers, the first of which relates best to assistants/foremen, the second covering superintendents. There are also some important exemption clauses to read as well as adjustments to minimum pay levels for all employees.

Also there are changes that could have some impact on course operations, in particular overtime rates and unpaid breaks. Copies of all three awards are available through the members section of the AGCSA website.

TURF INDUSTRY BOOKSHOP

AGCSA PRODUCED DVD's	Non-Member	Member
(DVD) Environmental Issues for Golf Course Architecture	\$88.00	\$66.00
(DVD) HR presentation and templates by Daryl Sellar	\$88.00	\$66.00

AGCSA PUBLICATIONS	Non-Members	Members
2010 Turfgrass Management Diary.....	\$30.00	\$30.00
Sportsturf Protection Manual - The Complete Guide to all Turf Protection Products.....	\$253.00	\$215.05
Improving the Environmental Management of New South Wales Golf Courses.....	\$57.50	\$50.00
Improving the Eco-Efficiency of Golf Courses in Queensland.....	\$57.50	\$50.00

GOLF	Non-Member	Member
A Century of Greenkeeping.....	\$142.36	\$123.80
A Natural Course for Golf.....	\$142.36	\$123.80
A Practical Guide to Ecological Management on the Golf Course.....	\$87.04	\$73.98
Best Golf Course Management Practices.....	\$316.25	\$275.00
Bird Conservation on Golf Courses.....	\$94.88	\$82.50
Bunkers, Pits & Other Hazards.....	\$194.11	\$168.80
Cricket Grounds.....	\$208.39	\$181.30
Cricket Wickets: Science & Fiction.....	\$62.50	\$50.00
Discovering Donald Ross-The Architect & His Golf Courses.....	\$300.49	\$261.30
Ecological Golf Course Management.....	\$197.68	\$171.90
A Guide to Golf Course Irrigation System, Design & Drainage.....	\$253.00	\$220.00
Golf Course Architecture -Design, Construction & Restoration.....	\$208.49	\$181.30
Golf Architecture – A World Perspective Vol 3 – Paul Daley.....	\$63.25	\$55.00
Golf Course Design.....	\$221.38	\$192.50
Golf Course Irrigation: Environmental Design & Mgmt Practices.....	\$221.38	\$192.50
Golf Course Management & Construction.....	\$445.63	\$387.50
Golf Course Tree Management.....	\$151.00	\$131.30
Golf Course Turf Management: Tools and Techniques.....	\$316.25	\$275.00
Golf Facility Planning.....	\$222.86	\$193.80
Golf Greens and Greenkeeping.....	\$155.25	\$135.00
How to Build a Sand based Golf Green.....	\$86.00	\$75.00
Human Resource Management for Golf Course Superintendents.....	\$126.50	\$110.00
IPM Handbook for Golf Courses.....	\$197.68	\$171.90
Keepers of the Green: A History of GC Management.....	\$150.29	\$130.70
Managing Wildlife Habitats on Golf Courses.....	\$150.29	\$130.70
Masters of the Links-Essays on Art of Golf Course Design.....	\$87.04	\$75.70
Practical Golf Course Maintenance – Magic of Greenkeeping.....	\$173.99	\$151.30
Problem Solving in Golf courses, Sportsfields, the Landscape, and Racecourses.....	\$80.00	\$70.00
Rough Meditations (HB).....	\$87.04	\$75.70
Superintendents Handbook of Financial Management.....	\$126.50	\$110.00
Sustainable Golf Course:Guide to Environmental Stewardship.....	\$165.36	\$143.80
The Care of the Golf Course – 2nd Edition.....	\$166.06	\$144.40
The Cricket Pitch & its Outfield.....	\$142.36	\$123.80
The Golden Age of Golf Design.....	\$221.38	\$192.50
The Golf Rules Dictionary.....	\$158.15	\$137.50
The Golf Course – Planning, Design, Const and Mgmt - HB only.....	\$366.61	\$318.80
The Good Doctor Returns.....	\$71.18	\$61.90
The Life and Work of Dr Alistair Mackenzie.....	\$215.63	\$187.50
The Links.....	\$189.75	\$165.00
The Sand Putting Green - Construction & Mgmt (leaflet).....	\$28.51	\$24.80
The Sandbelt.....	\$156.25	\$135.90
The Spirit of St. Andrews.....	\$102.81	\$89.40
The Superintendent's Guide to Controlling Green Speed.....	\$142.36	\$123.80
Turf Management for Golf Courses.....	\$363.74	\$316.30

SOILS	Non-Member	Member
Growing Media for Ornamental Plants and Turf.....	\$100.63	\$87.50
Bioremediation of Contaminated Soils: Agronomy Monograph 37.....	\$347.88	\$302.88
Introduction to Soil Microbiology.....	\$173.99	\$151.30
Mineral Nutrition of Higher Plants – 2nd Edition.....	\$205.61	\$178.80
Practical Soil Management.....	\$57.50	\$50.00
Principles of Soil Chemistry – 3rd Edition.....	\$208.49	\$181.30
Soil Analysis: An Interpretation manual.....	\$194.11	\$168.80
Soil Fertility Evaluation and Control.....	\$180.25	\$156.74
Soils & Soil Management.....	\$257.36	\$223.80
Soils & Their Environment.....	\$215.63	\$187.50
Turfgrass – No 32 in the series Agronomy.....	\$221.38	\$192.50

TURF & PESTS	Non-Member	Member
Ausgrass: Grasses of Australia: CD-Rom & Manual.....	\$142.36	\$123.80
Australian Weed Control Handbook - 10th Edition.....	\$110.74	\$96.30
Beards Turfgrass Encyclopedia for Golf Courses, Ground, Lawns And Sportsfields.....	\$395.36	\$343.80
Biological Control of Weeds.....	\$142.36	\$123.80
Bowling Greens – A Practical Guide.....	\$35.99	\$31.30
Color Atlas of Turfgrass Diseases.....	\$270.25	\$235.00
Color Atlas of Turf Weeds.....	\$308.78	\$268.50
Compendium of Turfgrass Diseases.....	\$71.88	\$62.50
Compendium of Turfgrass Diseases 3rd Edition ON SPECIAL	\$110.00	\$98.00
Complete Guide to Pest Control With & Without Chemicals.....	\$208.49	\$181.30
Controlling Turfgrass Pests 2nd Edition.....	\$337.87	\$293.80
Creeping Bentgrass Management - Summer Stresses.....	\$184.00	\$160.00
Cricket Grounds.....	\$208.49	\$181.30
Cricket Wickets – Science vs Fiction.....	\$75.00	\$65.00
CSIRO Handbook of Australian Weeds.....	\$79.11	\$68.80
Destructive Turfgrass Insect - Biology, Diagnosis & Control.....	\$258.75	\$225.00

Diseases of Turfgrass.....	\$345.00	\$300.00
Diseases of Turfgrass CD-Rom.....	\$316.25	\$275.00
Fertilisers for Turf.....	\$79.11	\$68.80
Field Guide to Weeds in Australia.....	\$136.61	\$116.10
Fundamentals of Turfgrass Management.....	\$181.12	\$157.50
Fundamentals of Weed Science 2nd Edition.....	\$237.24	\$206.30
Gardening with Grasses.....	\$86.25	\$75.00
Grasses of New South Wales.....	\$51.75	\$45.00
Grasses of Temperate Australia – A Field Guide.....	\$103.50	\$90.00
Grasses: Systematics & Evolution.....	\$251.61	\$218.80
Handbook of IPM for Turf & Ornamentals.....	\$337.86	\$293.80
International Turf Management Handbook.....	\$337.86	\$293.80
Lawn Care – A Handbook for Professionals.....	\$222.86	\$193.80
Management of Turfgrass Diseases -3rd Edition.....	\$244.37	\$212.50
Managing Bermudagrass Turf – Selection & Construction.....	\$229.31	\$199.40
Managing Turfgrass Pests.....	\$359.38	\$312.50
Manual of Grasses.....	\$142.36	\$123.80
Mathematics of Turfgrass Maintenance – 3rd Edition.....	\$126.50	\$110.00
Native Grasses:Handbook for Temperate Australia 3rd Edition.....	\$38.86	\$33.80
Natural Turf for Sport & Amenity.....	\$173.99	\$151.30
Noxious Weeds of Australia – Revised Edition.....	\$280.36	\$243.80
Nursery & Landscape Weed Control Manual.....	\$142.36	\$123.80
Organic Control of Weeds.....	\$26.67	\$23.20
Picture Perfect, Mowing Tech for Lawn, Sports & Turf.....	\$122.24	\$106.30
Poa Annua – Physiology, Culture & Control of Annual Grasses.....	\$174.22	\$151.20
Rootzones, Sands & Top Dressing Materials for Sports Turf.....	\$122.24	\$106.30
Salt Affected Turfgrass Sites.....	\$221.38	\$192.50
Seashore Paspalum – The Environmental Turfgrass.....	\$213.54	\$185.70
Sports Fields – A Manual for Design, Construction & Maintenance.....	\$253.00	\$220.00
Sports Turf & Amenity Grasses – A Manual for Use & Identification.....	\$122.24	\$106.30
Sports Turf & Amenity – Grassland Management.....	\$158.13	\$137.50
Sports Turf - Science, Construction & Maintenance.....	\$316.25	\$275.00
Tree, Turf, Ornamental Pesticide Guide.....	\$115.00	\$100.00
Turf Irrigation Manual.....	\$179.74	\$156.30
Turf Managers HBK for Golf Course Construction, Renovation & Grow-In.....	\$213.54	\$185.70
Turf Weeds and Their Control (HB).....	\$313.38	\$272.50
Turfgrass: Agronomy Monograph No 32.....	\$221.38	\$192.50
Turfgrass Diseases & Associated Disorders.....	\$115.00	\$100.00
Turfgrass Installation, Management & Maintenance.....	\$337.86	\$293.80
Turfgrass Maintenance Reduction Handbook – Sports & Golf.....	\$258.75	\$225.00
Turf Management in the Transition Zone.....	\$156.25	\$132.80
Turfgrass Management – 7th Edition.....	\$284.63	\$247.50
Turfgrass Management Information Directory.....	\$126.50	\$110.00
Turfgrass Patch Diseases.....	\$194.11	\$168.80
Turfgrass Pests.....	\$94.88	\$82.50
Turfgrass Problems: Picture Clues & Management Options ON SPECIAL	\$ 64.70	\$56.30
Turfgrass Science & Culture.....	\$323.49	\$281.30
Turfgrass Science & Management 3rd Edition.....	\$222.86	\$193.80
Turfgrass Soil Fertility & Chemical Problems.....	\$287.50	\$250.00
Weeds an Illustrated Guide to Weeds of Australia.....	\$197.68	\$171.90
Weed Science: Principles & Practices.....	\$284.63	\$247.50
Weed Ecology: Implications for Management 2nd Edition.....	\$401.11	\$348.80
Weed Control Handbook: Principles 8th Edition.....	\$363.74	\$316.30

WATER & IRRIGATION	Non-Member	Member
Agricultural Salinity & Drainage.....	\$79.11	\$68.80
Design & Construction of Small Earth Dams.....	\$230.00	\$200.00
Drainage for Sportsturf & Horticulture (PB).....	\$58.53	\$50.90
Drip Irrigation Management leaflet.....	\$11.50	\$10.00
Evaluating Turfgrass Sprinkler Irrigation Systems (leaflet).....	\$11.50	\$10.00
Fertigation.....	\$253.00	\$220.00
Nitrates in Groundwater.....	\$251.61	\$218.80
Simplified Irrigation Design 2nd Edition.....	\$196.29	\$170.70
The Surface Irrigation Manual.....	\$316.25	\$275.00
Turf Irrigation Manual.....	\$186.88	\$162.50
Wastewater Re-use for Golf Course Irrigation.....	\$316.25	\$275.00
Water in Australia: Resources & Management.....	\$136.55	\$118.75

BEST SELLERS FOR 2008 - 2009

Turf Managers Handbook for Golf Course Construction and Grow-In – **B. Charles**
 Destructive Turfgrass Insects, Biology, Diagnosis and Control – **Daniel A. Potter**
 Discovering Donald Ross-The Architect & His Golf Courses – **Bradley S. Klein**
 Growing Media for Ornamental Plants and Turf – 3rd Edition – **K. Handreck, N. Black**
 Golf Course Management & Construction – Environmental Issues – **James Balogh and W. Walker**
 Golf Course Irrigation System – Design and Drainage – **Edward Pira**
 Keepers of the Green – A History of Golf Course Management – **Bob Labbanace**
 Turf Managers Handbook for Golf Course Construction, Renovation and Grow-In – **B. Charles**
 Turf Management for Golf Courses – **James B. Beard**
 Turfgrass Soil Fertility & Chemical Problems – **R. N. Carrow, Waddington & Rieke**

Please note: All prices include GST - Prices are subject to change without notice
 Please contact the AGCSA for confirmation of prices.

The AGCSA has an extensive range of books that can ordered through the AGCSA website, and also through the accompanying order form.

Postage: \$9.90 for first book and \$1.10 for every book after.

You can't help being a tad envious of Melbourne-based author and self-professed golf nut Darius Oliver. Over the past five or so years he has made it his mission to become one of the foremost authorities on golf course design and architecture and having visited some 800 hundred of the world's most prominent golf courses few would dare argue otherwise.

In 2007, following more than three years of research and visiting golf courses in 41 countries, Oliver produced the 416-page 'Planet Golf: The Definitive Reference to Great Golf Courses Outside the United States of America'. The book was lauded as a "stunning achievement" by numerous golf aficionados and now in 2009 Oliver has further staked his credentials with the follow up companion titled 'Planet Golf USA: The Definitive Reference to Great Golf Courses in America'.

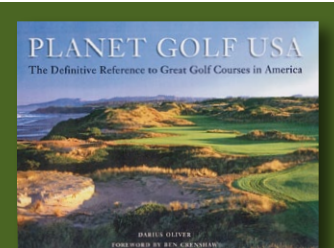
With America boasting around half the estimated 32,000 golf courses, producing such a book was seemingly a predictable progression for Oliver to take, but again he has to compiled an authoritative 350-page plus hardcover directory which pays homage to many of American's iconic courses as well as some of those which don't make the Golf Digest and US Golf Magazine top 100 lists.

From Kapalua in Hawaii, Bandon Dunes on the West Coast, Augusta National down south and up through the northeast where the country's golfing roots lie, Oliver clocked up more than 22,000 miles, passed through 41 states and visited more than 230 courses all in the name of research for Planet Golf USA – tough gig!

The book begins with a foreword from Ben Crenshaw before Oliver himself explains the motivations behind producing this second encyclopaedic tome and what he got out of it. As he writes... "What made Planet Golf USA so fascinating to research and compile was the diversity of an industry that relentlessly leads the world forward yet continually has an eye on the past. There are so many different styles of golf on display across this great nation and though I fully expected to be blown away by the likes of Pine Valley, Cypress Point and Shinnecock Hills, in many ways it was discovering the pleasures of Ballyneal, Bandon Trails, Eastward Ho!, Essex, Fishers Island, Old Sandwich and White Bear Yacht Club that made this journey so unforgettable."

The book is broken down by region – West Coast and Hawaii, The Midwest and Rocky Mountains, The South and The Northeast – and along the way Oliver provides informative and insightful ruminations on more than 140 of the US's premier golfing facilities. As with the previous Planet Golf offering, the calibre of the photography is simply stunning and the illustrations of primary contributors John and Jeannine Henebry and Larry Lambrecht only add further weight to Oliver's words.

The book concludes with a series of rankings lists – best par threes, fours and fives, best opening and closing holes and so on. There's even a 'best greens' and 'best conditioning' list which will no doubt catch the eyes of ATM readers (incidentally Oakmont comes in first in both lists, Augusta National third). 🌿



Planet Golf USA: The Definitive Reference to Great Golf Courses in America

By Darius Oliver
Abrams 2009

This book can be purchased at www.planetgolfusa.com for \$60 (postage included, Aust residents only)

ORDER FORM - ORDERS CAN ALSO BE EMAILED TO info@agcsa.com.au

Name:
Postal Address:
City/Suburb: State:
Postcode: Daytime Phone Number/Mobile:

Please supply the following books:

QTY	BOOK TITLE	AUTHOR	PRICE
.....
.....
.....

Subtotal:

Please add postage (\$9.90 for the first book, Each additional book \$1.10 per book)

Total now due: \$

- ☐ I enclose my cheque/money order made payable to the AGCSA, or
☐ Please charge this purchase to my credit card account
☐ Mastercard ☐ Visa

Card Number:/...../.....

Expiry Date:/.....

Cardholder Name:

Address:

Email:

Signature:

Send completed order form and payments to:



Suite 1, Monash Corporate Centre
752 Blackburn Road,
Clayton, VIC 3168
Phone: (03) 9548 8600
Fax: (03) 9548 8622
Email: info@agcsa.com.au

The final meeting of 2009 was hosted by Tasmania Golf Club (superintendent Dan Gilligan) on 8 December. This successful meeting saw the AGCSA's John Geary give two presentations on the association's Water Initiative and a brief report on the workings of e-par and the Environmental Initiative.

In the golf, the South finally won the Toro North v South Golf Challenge and the day concluded with a BBQ and Christmas drinks. Thanks to Toro for sponsoring the golf and to John for his presentation.

After reporting in the last ATM how most areas around the state had received above average rainfall, the trend changed very quickly in late December and January. To the end of January Hobart Airport had received 7mm, Launceston 6.6mm, Devonport 0.4mm and Wynyard on the northwest coast 3mm.

Our first meeting of the New Year was held at Wynyard Golf Club (superintendent Michelle Hussey) on 23 February. A report from that day will appear in the next edition. In May the TGCSA hopes to hold a meeting at Barnbougle Dunes. This will be a follow up to the meeting last August where we toured the partially completed Lost Farm course. This time we hope to be able to play the course. Dates and format for the meeting will be available closer to the time.

Congratulations to Adrian Box and his team at Kingston Beach Golf Club after hosting the Tasmanian Open in early February. Hats off also to Marcus Pamplin at Bellerive after preparing the venue for the third Test between Australia and Pakistan. Marcus and his staff should be congratulated on the condition of the wicket and the ground. It looked a picture!

With the 26th Australian Turfgrass Conference on the Gold Coast just a few months away, now is the time to register. Early Bird registration is available until 28 March 2010 and represents a fantastic saving! Registration is available through the AGCSA website and I hope to see a good contingent of Tasmanians venture north.

STEVE LEWIS
PRESIDENT, TGCSA

STA NSW



What a start to 2010 we have had in New South Wales! Some very hot days in early January and very wet weeks in February provided many challenges for greenkeepers.

At STA we have been working with Turf Australia to get the Turf10 conference, at Hawkesbury Race Track on 14-15 April up and running and it is now full steam ahead for this exciting event. It will be two full days of everything turf. Day one will include a seminar and trade exhibit then a choice of tours, whether it's playing nine holes at Lynwood Golf Course, inspecting the facilities at Panthers Resort or a tour of the local turf farms. The evening will then be spent enjoying great food and wine at the conference dinner.

Day two involves a turf industry expo and live machinery demonstration in the morning and then the Turf10 race event. All the details can be found on the Turf Australia and STA websites.

This year STA NSW will be celebrating 10 years as an association. It is hard to believe 10 years has gone by so quickly. This milestone will be celebrated at our Sportsman's Charity Luncheon in November.

GRAEME LOGAN
PRESIDENT, STA NSW

GCSAWA



No rain since early December has given the Department of Water in Perth enough reason to enforce a winter sprinkler ban for years ahead. The winter sprinkler ban will start on 1 June each year and finish on 31 August. The Minister will have the power to alter these dates depending on water/rain availability.

Activities exempted from the winter sprinkler ban include:

- Sporting areas, that is, bowling clubs, lawn tennis clubs and turf wickets - these activities, if using scheme water, will be allowed a maximum of three days per week;
- Synthetic sporting surfaces which can be watered for 10 minutes prior to a game;
- Plant nurseries and market gardens;
- Reticulation may be operated during daylight hours for 10 minutes after the application of fertilisers, wetting agents or verti-mowing by a person during the course of employment in the turf, garden and landscaping industries;
- Caravan parks - reticulation is allowed for up to 10 minutes upon the vacation of a site: and
- New lawns or gardens can be watered for up to 35 days from the day of planting, once per day before 9am.

These restrictions do not apply to watering by hand, watering of indoor plants, including glasshouses, installing, repairing and testing of reticulation equipment, fire fighting and maintaining

birds in aviaries. These exceptions show how our association's efforts have allowed us enough scope to enable all our members to get through the period with minimal impact.

The WA golf industry awards have been planned for 15 March and will be shared by the GCSAWA, GMAWA, PGAWA, Women's Golf WA and Golf WA. The GCSAWA awards will be in line with the AGCSA Awards with nominations from within our member base. Our main three awards are as follows

- GCSAWA Greenline Excellence in Turf Management;
- GCSAWA Syngenta Environmental Award; and
- GCSAWA Toro Apprentice of the Year.

Many thanks to the three main sponsors for their support on such short notice. The night will be a major event held at the Burswood Entertainment Complex with Channel 9 sport presenter Michael Thompson the MC and guest speaker Max Walker to entertain all attendees.

GCSAWA life member and 2006 AGCSA Distinguished Service Award recipient Norm Ashlin has retired as superintendent of Collier Park Golf Course at age 68. We wish Norm all the best in his retirement and look forward to still seeing him at our events throughout the years ahead.

DARREN WILSON
PRESIDENT, GCSAWA

We have recently become a part of the World Wide Web releasing our very own webpage www.nswgcsa.com.au. The website contains a wealth of issues and information for NSW superintendents and course maintenance staff. As well as contact details for all current NSWGCSA committee members, there are quick links to trade companies, MSDS sheets, weather and NSW legislation affecting out industry.

The NSWGCSA is also in the final stages of gaining office space for our administration officer Alison Jones. This will be located within the NSW Golf Association headquarters in Arncliffe. The move should be carried out by mid-February and it is envisaged that this shall further improve the relationship between all NSW golfing associations as this is also the home of the NSW Golf Foundation, Junior Golf and the Women's Golf NSW.

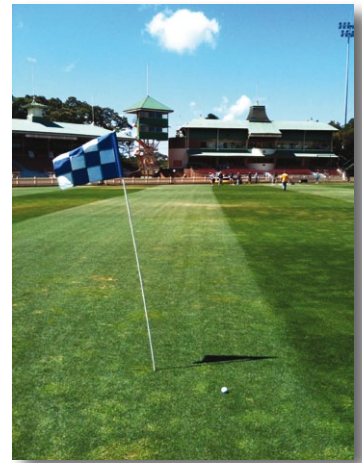
Congratulations to all those superintendents and their staff who have recently held major events over the summer months including Colin Kinghan (Oatlands GC) and Gary Dempsey (New South Wales GC). A special appreciation must go to Gary for his efforts in having a hospitality area within his maintenance complex during the tournament. Allowing industry associates to visit the facility was a very special touch.

The NSWGCSA capped off 2009 with our Christmas event held at North Sydney Oval. We had a change in venue this time with a more laid back day and some fun events including laser shooting, goal shootout, nearest the pin and a bucking bull machine. Our appreciation must go to sponsors Dad & Dave's Turf, Environmental Business Solutions, Vermont Sands and Barmac. Numbers unfortunately were low but those who attended had a good afternoon.

The NSWGCSA has a number of upcoming events with the Rube Walkerden Golf Championship now scheduled for Monday 3 May (not 19 April as originally advertised). The Lakes Golf Club will still host the event and I am sure there will be a full field to see the remodelling works recently undertaken there.

The Annual Ambrose Event is scheduled later that month (31 May) returning to Newcastle Golf Club. North Ryde Golf Club will host the AGM on 30 August while the 2IC Education Day is currently being finalised to fit in with other calendar events.

CRAIG WRIGHT
PRESIDENT, NSWGCSA



North Sydney Oval hosted the 2009 NSWGCSA Christmas event



THE COMPLETE TURF SPECIALISTS

Blacktown City Council Olympic Park



Have a look at this 2 Hi Torque Mentay Tow a Tarps to handle covers at Sydney!

telephone: 03 5339 5004
facsimile: 03 5338 1006
email: mentay@bigpond.com

www.mentay.com.au

To view the entire product list that Mentay has to offer please visit our website!

*These units have been designed and manufactured by Mentay for the special needs of the Blacktown City Council



This year promises to be a big one for STA QLD. Our membership platform is increasing following word of mouth and publicity within a diverse range of sectors that make up the Queensland and Australian turfgrass industries.

At the time of writing, the organising committee was in the final stages of preparations for their first formal field day which was held on 24 February at John Paul College. The field day was set up for a trade display and to facilitate an educational programme to deliver information on irrigation, turfgrass management and sporting grants.

Special thanks must go to Martin Hedley, sports turf manager of John Paul College, and the college itself for allowing us to use the facility and provide areas where sponsors could set up and display their latest products and machinery. A bonus was that participating turf managers were allowed to get hands on and test drive equipment. A further wrap up of the day will be provided in the next edition.

STA QLDs first Annual General Meeting will be held at Redlands Research Station, Cleveland in April 2010 (date to be confirmed). At this point in time a committee, including a secretary, treasurer and president will be appointed. We hope that all STA QLD members will be able to attend and that a diverse committee is appointed from a wide array of sectors within the turfgrass industry. From the initial feedback provided to the organising committee we anticipate this will be so and we look forward to the exciting times ahead.

With the Australian Turfgrass Conference being held in our own backyard, members of the STA QLD

committee will be present and taking occupancy of a booth at the trade display. Please feel free to swing by and say hello and see what STA QLD has to offer. It is also worth mentioning that current members of STA QLD get reduced rates to attend the conference, so it is an ideal time to join.

MAL CADDIES
PRESIDENT, STA QLD

TGAA ACT

Things are ticking along nicely in the national capital with temperatures dropping back to the mid to late 20's giving us a spell from the hot weather... for now! Unfortunately there was no significant rain across January to follow up on our modest Christmas falls but a lot of areas that needed it to the north certainly got their share.

Our first meeting of 2010 highlighted the need to review our current sponsorship packages and with a bit of tweaking we should be able to improve the structure for the TGAA and sponsors.

In the last edition of ATM I reported that the annual Golf Day had been brought forward to 11 March. That date has again been changed and the Golf Day will now be held on Tuesday 16 March at Gold Creek Country Club, with a 10am start. Thanks again to Scott and his team for providing us with a first rate course for us hackers to zig zag around.

The couch trial at Royal Canberra Golf Club has been re-established with a few volunteers giving up their time to clean up and lay the plots. Many thanks to all who chipped in and got their hands dirty in the name of research.

The TGAA ACT Annual Seminar will be held at the Hellenic Club on 28 July. The highlight for me will be the forum focusing on synthetic grass vs turf which has long been a hot topic especially in areas affected by water restrictions. The workshop that was such a great success last year will again be held the day before the seminar with wetland filters and correct sprinkler choice and setup just a couple of the topics being covered. Bookings are essential. Please direct any enquiries to acttgaa@bigpond.com.

Finally, congratulations to the following gents who were nominated for the TGAA ACT Living Turf Apprentice of the Year Award. All the boys did well with the winner to be announced shortly.

Matt Williams (Thoroughbred Park)

Michael Sulis (Pambula-Merimbula GC)

Brad Revill (Bermagui GC)

Adam Crain (Gold Creek CC)

TGAA VIC

Last year was a great year for TGAA Victoria with our Cricket Wicket Seminar at the MCG and the recent Summer Seminar both being a huge success.

2010 looks like being a busy and productive year with TGAA Victoria planning several seminars, one of which will be the yearly Regional Seminar. On 9 March we will head to Central Reserve in Colac for the seminar which will include a speaker from Barwon Water and a trip to Biogreen to see the largest peat mine in the southern hemisphere.

On 21 July we will be back at the MCG for our popular annual Cricket Wicket Seminar run in conjunction with Cricket Victoria, while later in the year (22 November) the TGAA will celebrate its 21st birthday at Summer Seminar.

The 26th Australian Turfgrass

Conference on the Gold Coast will surely be another great week in June with a very informative programme planned, so make sure you keep all these dates in mind.

TGAA will be holding its next national meeting at the conference with representatives from all states in attendance. Also, with STA Queensland now up and running we would like to wish the committee a successful year and trust their first field and education event in February was a success.

TGAA VIC welcomes any feedback, suggestions, any current information or issues relating to the turf industry that members would like to see included in future events. Looking forward to a prosperous 2010.

NATHAN TOVEY
PRESIDENT, TGAA VIC

BROCK WESTON
TGAA ACT, COMMITTEE

This summer has been interesting for Victorian superintendents with pythium being a major problem for many. It has been developing more and more each year as Melbourne's humidity increases and we are starting to get weather more like Sydney as each year passes.

The VGCSA recently conducted interviews for the Apprentice of the Year Award and is pleased to announce that the winner is Ben Hartley from Gordon TAFE. Ben beat home an excellence field of finalists which included Jacob Riordan (Chisholm TAFE), Mathew Oliver (NMIT) and Kane Blunt (Wodonga TAFE).

Ben is employed at 13th Beach Golf Club and has amazing passion for the trade and no doubt we will hear more about him Ben as his career develops. The VGCSA committee congratulates all finalists and wishes Ben well for the AGCSA Graduate of the Year Award.

The VGCSA's first education day of 2010 was held out at Hidden Valley on 23 February. MetroTurf started the day with breakfast before Tim Warren (Horsham GC) and Rob Christie (Marysville GC) gave very interesting updates 12 months on from the Black Saturday fires. After morning tea Martin Greenwood gave a great insight into the Masters held last year at Kingston Heath.

I would like to thank meeting sponsor Nuturf for bringing Peter Kirby, Lee Govan and Charles McClintock from Sumitomo Chemicals who talked about a new herbicide called Nomanee for *Poa* control in bentgrass greens which will hopefully be registered for use soon. A course walk with Hidden Valley superintendent Mick O'Shannessy was enjoyed by all who attended then it was out for nine holes of golf.

The next gathering will be the VGCSA Country Meeting at Tocumwal Golf Club on the Murray River. This will be a Sunday/Monday meeting with golf on the Sunday afternoon, dinner at the club and our normal meeting on the Monday.

I recently spoke to Royal Melbourne Golf Club superintendent Richard Forsyth to see how things are going after his first seven months in the job. With the President's Cup on the horizon there has been a flurry of activity on both courses and the following is a snippet from Richard's latest VGCSA newsletter report:

"December and January have slipped by very quickly with works continuing on the major resurfacing of the West Course and Composite East holes. Legend couch line planting has been completed on 19 fairways with the six East Course holes completed in mid-November and the 13 West fairways in December. The East fairways opened for play on 30 January with an average 90 per cent cover. The West Course fairways are continuing to cover with opening scheduled in March.



Greens resurfacing involved sod cutting to remove the thatch layer, chemical treatment of couch encroachment, scarifying the surface, final leveling and incorporation of amendments. New part circle irrigation heads have been installed.

Three greens on the East Course were turfed with Suttons Mix from the existing nursery and 14 West course greens hydroseeded with Suttons Mix. Seeded greens were then protected with Evergreen turf covers. Establishment has been good and greens are continuing to mature for opening in March.

All approaches and surrounds were stripped and turf removed. Separate irrigation has been installed, followed by turfing with a fine fescue blend. Approximately two hectares of fine fescue turf has been imported and laid in these areas. Seven West Course tees have been rebuilt with turf and thatch removal, additional sand added, new irrigation, laser leveling and Santa ana turf laid.

Water management has been a major consideration during the project and we have benefited from the new hard edge irrigation system on fairways. This has provided much improved uniformity of water distribution which has assisted greatly during the line planting process. The programme of reconditioning bores and improving the control system is almost complete and a state-of-the-art water treatment plant has just been finalised. We look forward to next summer in having a more sustainable supply of bore and stormwater with much improved quality as a result of filtration treatment and reverse osmosis."

While we wish Richard all the best with the future works leading into next year's event, his sandbelt colleague Mark Prosser (Commonwealth GC) is also gearing up for a major event – the 2010 Australian Women's Open. Mark has just recently had a second hip replacement after the failure of material used in his first operation. Mark has been laid up for most of the summer and Mark's 2ICs have admirably stepped up to the plate and have kept the wheels in motion in the lead up. Well done guys and good luck for the Open.

Tocumwal Golf Club will host the VGCSA Country Meeting in April

**TREVOR U'REN
VICE-PRESIDENT, VGCSA**



**GCSAQ Superintendents
Environmental Award recipient
Wayde Leech**



**GCSAQ Graduate of the Year
winner Jesse Zervos**



**GCSAQ Industry Recognition Award
recipient Brian Dale**

A very quiet start to the year for Queensland superintendents with some much needed rain falling just after Christmas in most of the south east followed by some more handy falls at the end of January. There were quite a few reports of dams drying up and hand watering only on greens at many venues and on my patch we had a "wetland" that has never had less than a foot of water in it dry up just prior to Christmas.

The north of the state then had near cyclonic conditions once again in late January with Bradman-like rainfall figures affecting not only golf courses but daily life as well. And you can be sure with the ANZ Ladies Masters at Royal Pines in March that there will be plenty more rain on the way. Poor old Paul McLean and his crew seem to get the worst end of the stick each year when it comes to the weather.

The Queensland Golf Industry Awards dinner has just been held and the GCSAQ was a keen participant. For 2009 the following three awards were presented and the GCSAQ congratulates the following recipients:

Superintendents Environmental Award

Wayde Leech (Noosa Springs CC)

Wayde could well be touted as a quiet achiever with the work that he has undertaken at Noosa Springs. Formerly superintendent at Rich River and Gold Creek, Wayde has been at Noosa Springs firstly as construction supervisor and for the past 11 years as superintendent.

Noosa Springs is a resort/residential development along the shore of Lake Weyba within the Noosa Heads district. Due to the location of Noosa Springs and the very environmentally aware community that is Noosa, Wayde has endeavoured to take a sensitive and environmentally sustainable attitude to all aspects of the course construction and ongoing maintenance and development. This encompasses a range of activities from the design process through to daily practice.

As part of the environmental management, Wayde has undertaken a rigorous water monitoring regime consisting of;

- Weekly in house testing of pH, dissolved oxygen, turbidity, total dissolved salts, temperature and conductivity taken at seven locations throughout the lake system of the course; and
- Monthly sampling of nine surface and seven ground water locations is sent to an independent laboratory for testing nutrient levels, suspended solids, faecal coliforms and algae as defined in the EMP.

This testing regime results in a clear overview of the golf course's impact on the local environment. The analytical results have proven consistently that the water quality improves as it passes through the golf course before entering Lake Weyba, with all

testing overseen by council and EPA authorities. In the 12 years since construction commenced, Noosa Springs has not once been identified as a cause of any downstream pollution or algal blooms.

On his recent trip to our shores, The R&A's Steve Isaac visited Wayde and was impressed that a resort/residential property such as Noosa Springs could be developed and maintained with such a positive impact on the environment. Having the water monitoring programme in place was of particular interest to Steve as it was documented evidence that golf courses can be maintained sustainably.

Industry Recognition Award

Brian Dale (Grovely TAFE)

Brian is a teacher of turf management at Northern Brisbane Institute of TAFE, better known as Grovely. Brian teaches levels 2 through to 5 and in addition to his teaching finds time for the following;

- Queensland representative on the National Turf Education Working Group;
- Involvement in a number of Queensland Government education projects;
- Involvement in turf education programmes at universities.

Prior to his teaching career, Brian worked in various fields of greenkeeping ranging across bowling clubs, sports grounds and golf courses, including a four year stint as superintendent at Wynnum GC. As a teacher since 1992, Brian has seen an incredible change in the turf management profession but in his own words – "Some things do not change....the mateship across the industry both educationally and in the field is still a wonderful positive factor and is one of the hidden secrets of our industry".

Golf Course Turf Apprentice of the Year

Jesse Zervos (Coolangatta & Tweed Heads GC)

Jesse was successful from an impressive group of five nominees. The interviews were held at Indooroopilly GC and Hobart conference speaker Jon Mathias chaired the sessions which was a great experience for all concerned.

Jesse is 23-years-old and finished his apprenticeship in 2009 with an early completion, such is his value to the club. He is a skilled and dedicated worker who is a valuable asset to the course management team at Coolangatta Tweed.

Upon completion of his apprenticeship Jesse was appointed to the important senior role of spray technician and is proving to be most capable in this critical role. Jesse has a very promising career ahead of him in golf course management.

**PETER LONERGAN
PRESIDENT, GCSAQ**

Surface to Surrounds



"Aiming for Perfection"

**26th Australian Turfgrass Conference and
Trade Exhibition
Gold Coast, Queensland 21-25 June 2010**

HAL

**Registration now open
Booth bookings now open
03 9548 8600**





One of two LOWARA Dual SV92 Hydrovar controlled irrigation pump sets installed at the Virginia Golf Club in Brisbane by Australian Irrigation Services. Barry Lemke (pictured right) the Club Superintendent said " he is very pleased with the trouble free operation and considers the efficiency and simplicity of the Hydrovar system far superior to the manual pump system it replaced ". Australian Irrigation Services Dean Smith (pictured left) said " he had now installed several LOWARA Hydrovar systems at Golf Courses in Brisbane with very pleasing results". The second LOWARA Dual SV92 Hydrovar controlled irrigation pump set will be put into service later this year.

What is The Hydrovar?

The Hydrovar has gained a reputation as THE pump mounted microprocessor pumping system controller. But it does much more than just change motor speed.

It actually manages the performance of the pump to match a wide range of system conditions and requirements.

The Hydrovar is fully programmable on site as it incorporates the microprocessor and the variable drive in one compact and unique package

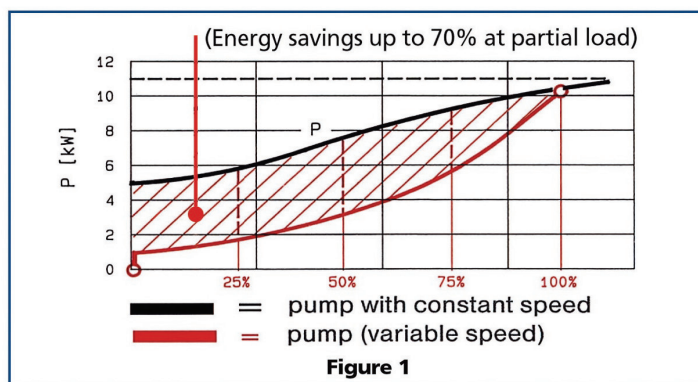
How The Hydrovar reduces energy consumption

Most applications involve the pump operating either along its full speed performance curve or the pumps performance is throttled or regulated by a valve. The Hydrovar eliminates these operating methods by regulating pump speed and hence output to match the system demand. This saves wasted energy traditionally lost in these conventional pump systems. Energy savings of up to 70% can be realized. (figure 1)

How The Hydrovar reduces maintenance cost

The Hydrovar software is designed specifically for centrifugal pump operation, control and protection. The Hydrovar can thus be setup to protect the pump from operating under various unfavourable conditions eg. cavitation, operating against closed head, low NPSHa or operation past a pumps maximum flow rate. The Hydrovar will automatically shut down and alarm if adverse conditions occur.

The Hydrovar provides the Golf Course Superintendent with the flexibility of watering as required with substantial savings on installation, power usage and maintenance. For details about the experience of some of Australia and New Zealands most prestigious Golf Clubs who have installed Hydrovar pumping systems, contact the Lowara distributors nearest you.



Christchurch

Phone (03) 365 0279

Fax (03) 366 6616

Auckland

Phone (09) 525 8282

Fax (09) 525 8284

Melbourne

Phone (03) 9793 9999

Fax (03) 9793 0022

Sydney

Phone (02) 9671 3666

Fax (02) 9671 3644

Brisbane

Phone (07) 3200 6488

Fax (07) 3200 3822

Email info@brownbros.com.au

Web Site www.brownbros.com.au



Brown Brothers
Engineers
Australia Ltd