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AUSTRALIAN Turfgrass MANAGEMENT

Talking Turf Trackside at the 1999 QANTAS Australian Grand Prix

Millennium Bug Bites Turf

Biological Control of Black Beetle

Nutrient teaching on the Swan Coastal Plain

vol 1.2
APRIL - MAY '99

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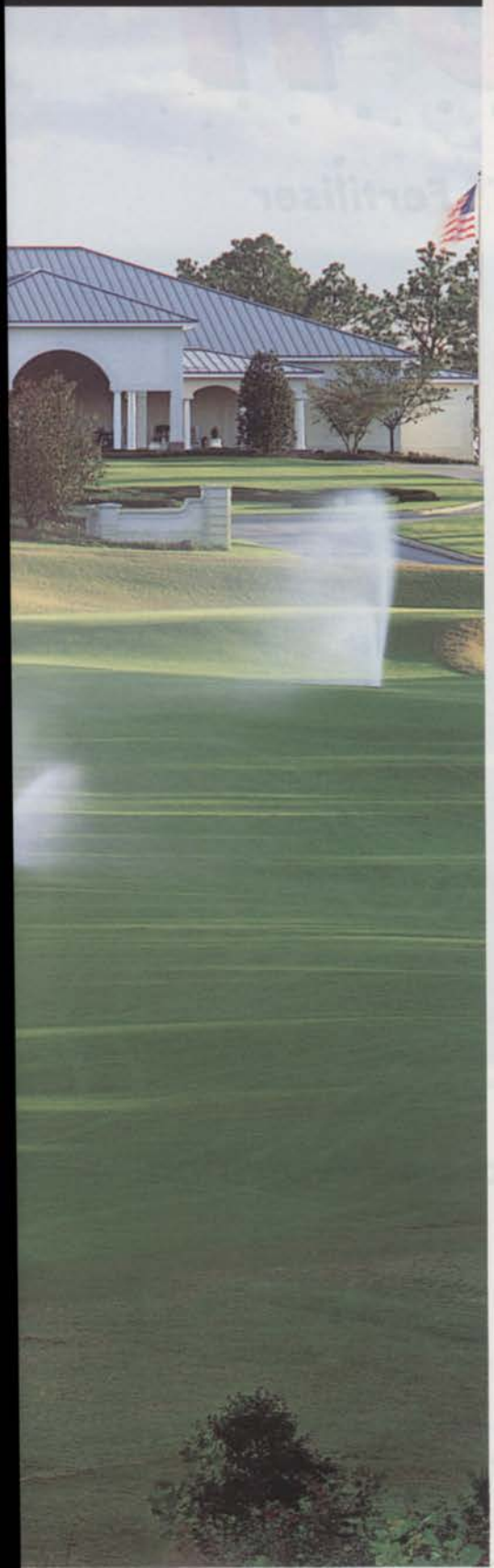

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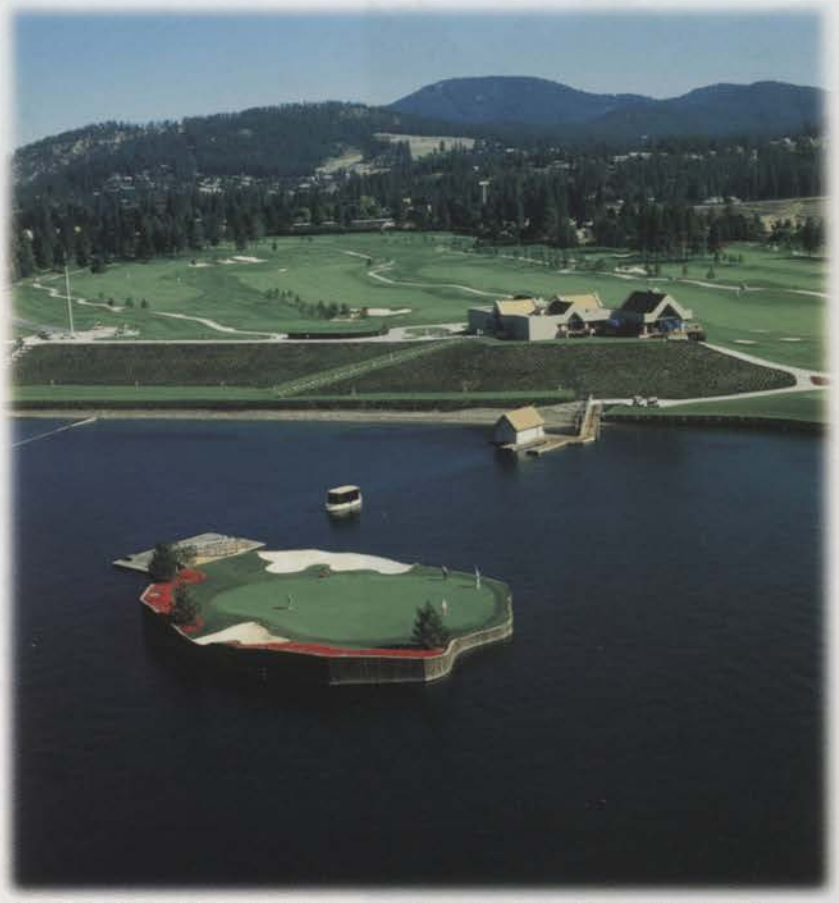

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Cover

Aerial photo of the 1999 QANTAS Australian GrandPrix

Special Features

Research

In Every Edition

what a response!

First of all let me say thank-you for the many faxes, e-mails and phone calls that we received in the weeks following the release of our first edition. It is a tremendous feeling to know that people had enough motivation and enthusiasm to find time to provide feedback - which is invaluable in producing a better magazine.

The response has been overwhelmingly positive and although the suggestion was made to include a free pair of sunglasses to make it easier to read, everyone I have spoken to appreciates the superior production quality and diversity of the well-written articles contained in ATM.

For those of you who are still wondering, the frog on the cover of the first edition was not dead, on drugs, stuck to the ball with pins nor digitally enhanced. The photograph is 'legit' and was taken by honours student Trent Penman, and yes I agree it is a ripper!

The cover of this edition prefaces an article by Simon Gardini on the ground preparation and restoration required for the Qantas Australian Grand Prix. It doesn't have a lot to do with turf but gee it's a good photo!

Also in this edition, Neil Lantzke from the Agricultural Department in Western Australia presents results of an extensive study that included the collection and analysis of ground water from a turf farm on the Swan Coastal Plain. David Nixon from the Peninsula Golf and Country Club in conjunction with Dr Robin Bedding from the CSIRO, investigates the biological control of the Black Beetle. Mr Ray Young provides an interesting review of current methodologies and systems used in the construction of high-profile, high-use turf surfaces and we travel westwards with Nick Bell who profiles the Secret Harbor Golf Course, venue of the 1999 AGCSA Golf Championships.

In addition to this we take a look at a new par three course designed by Jamie Dawson utilising some interesting, environmentally friendly features and this month in 'review' Scott Hinwood and myself discuss some strategies designed to control the 'millennium bug'. Dr Walter Scatini from the University of Queensland explores some facts and figures on 'die back' problems experienced in North Queensland, and ATM acknowledges golfing sensation Karrie Webb and greenkeeper turned miracle worker Errol Lynam as this month's 'winners'.

It's another beauty so put on the shades and enjoy!

Best Regards

Phil George
Editor

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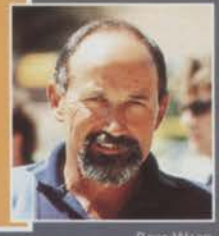

Ross Ward
Noosa Heads Bowls Club

'The Links by the Sea'

SECRET HARBOUR GOLF COURSE WESTERN AUSTRALIA

Venue of the 1999 AGCSA Golf Championships

By Nick Bell

Secret Harbour Golf Club, the 'Links by the Sea' is situated by the Indian Ocean just south of Point Becher between Port Kennedy and Mandurah. It is in the heart of a coastal strip of land that has become known as the Western Australian Golf Coast. The course was designed by Graham Marsh and his objective was to create a true links style course of the famed Scottish championship style that would meld into the terrain, cater for a wide range of golfer ability, respond to environmentally responsible turf management, and be capable of a consistently high standard of presentation.

These objectives have all been satisfied in grand style. The course layout nestles into the surrounding landscape as though it was designed by nature to be there. The fairways are smooth and flowing, generously wide, aesthetically bunkered, and imaginatively contoured.

Fairway on holes 8 to 18 were stolonised with 'Windsor Green' in 1994, and the new section of the course now numbered 1 to 7 which completes the 18 hole course were turfed with 'Wintergreen Couch' last year. The fairways are maintained at a height of 8 - 10mm and are in excellent condition. Coco peat with a pH of 5.5 was incorporated into the surface soil layer to improve the cation exchange and help acidify the native calcareous sand which has a pH of 8.2 - 8.7.

The greens were constructed from local Baldivis sand, which conforms with the USGA greens section specifications, and pelleted poultry manure was incorporated to increase the organic content during the establishment period. The 1019 creeping bentgrass greens are in superb condition and provide a consistently smooth surface that helps keep the ball true to the line of put. The tees are well positioned and staged to provide for all players. Wonderful views can be seen from all tees, and the panorama stretching from horizon to horizon on the fifth is awe-inspiring.

Fairway edges, bunkers, and tee groups are highlighted with a blend of Mustang and Monarch turf type tall fescue which is mown at a height of 25mm in the primary rough for definition, and in the secondary rough to punish errant shots at a height of 50mm.

Great care and attention has been given to preserve wetlands and sand dunes. Wetlands have been undisturbed and utilised as natural features of the golf course, and natural sand dunes and ridges have been regenerated and revegetated with indigenous flora.

There is no private membership at Secret Harbour, locals are given special discounts to encourage them to use the course regularly. The course is proving popular for tournaments, corporate and social golf outings, and was the venue for the first round of the Seniors Golf Coast Cup on the 18th March this year.

Two days earlier the course was the scene of the Golf Course Superintendents Association of Western Australia's John Deere 'Super-Series 99' second round. The 'Super-Series' is an excellent moral booster for our association, it focuses attention on our profession, and provides an excellent opportunity for members to compare notes and share experiences.

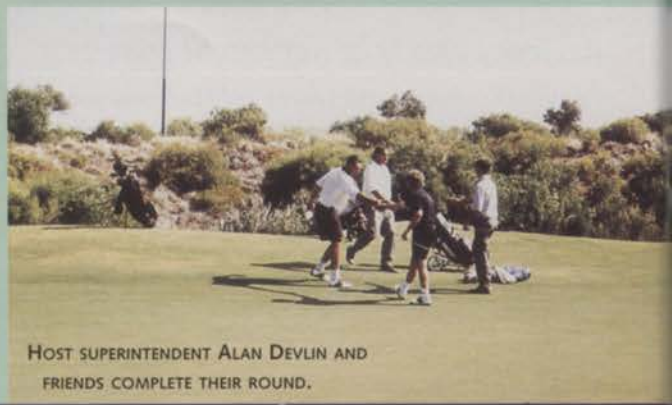
The course will also play host to the 1999 AGCSA Golf Championships to be held in July.

Graham Marsh's inspired 'Links by the Sea' Golf Course at Secret Harbour is being magnificently managed by Golf Course Superintendent Allan Devlin and his team. Their commitment to the care of the total landscape and to the turf management of the golf course is exemplary.

SECRET HARBOUR GOLF COURSE SUPERINTENDENT - ALLAN DEVLIN

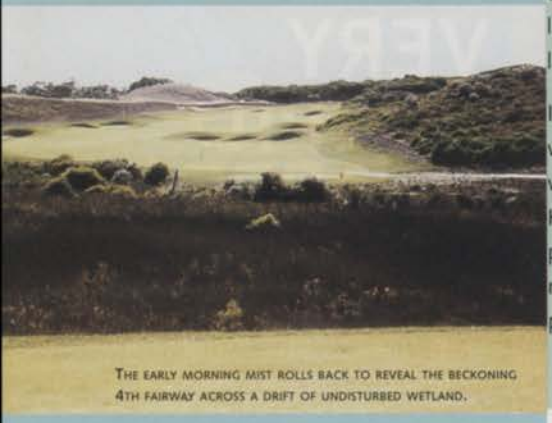
Allan Devlin was born in Glasgow Scotland in 1956, and educated in the south of England where he worked until he immigrated to Australia in 1987 and became an Australian citizen in 1990.

Allan qualified as a professional golfer in England and was a member of the European PGA from 1971 to 1982. He was the Dunwood Manor Golf club champion from 1982 to 1985 and he won the UK News of the World British Champion at Hayling Golf Club Hampshire in 1986.



HOST SUPERINTENDENT ALAN DEVLIN AND FRIENDS COMPLETE THEIR ROUND.

Allan completed his Pro-Golf training in 1974 and worked as an assistant professional at Dunwood Manor Golf Club for two years and as the Head-Pro at Petersfield golf Club for a short period before applying for the reinstatement of his amateur status and making a career change to golf course greenkeeping. Whilst at Dunwood Manor Allan had become greatly interested in golf course turf management and in 1977 he ceased working as a golf course professional in favour of pursuing a career in turf management at Dunwood Manor golf club.



THE EARLY MORNING MIST ROLLS BACK TO REVEAL THE BECKONING 4TH FAIRWAY ACROSS A DRIFT OF UNDISTURBED WETLAND.

Whilst at Dunwood Allan completed his apprenticeship gaining credits in Horticulture and a distinction in greenkeeping. He went on to become Head Greenkeeper and worked at the club for ten years during which time membership rose from 120 to over 800. Allan was responsible for all aspects of turf management at the club leaving there in 1987 to move to Western Australia to take up an appointment as Senior Greenkeeper at Lake Karrinyup Country Club.

After 12 months at Lake Karrinyup Allan applied for and was appointed Golf Course Superintendent at the new Burswood Park Golf Course and was soon promoted to be in charge of the adjacent parks and gardens and was given the added responsibility of supervising the hotel and the casino gardens as well. Whilst at Burswood Allan worked closely with the Perth Development Authority, the Environmental Protection Authority, and the Swan River Trust and Waterways Commission. Allan made significant contributions to the success of the Burswood Park Golf Course the landscaped areas, and the Hotel and Casino lawns and gardens.

In June 1994 after six years of conscientious work for the Burswood Park Board Allan was asked by the owners of the Secret Harbour Golf Course to move there to prepare nine holes for play, and under his management the first nine holes opened for play in October of the same year.

Allan's amateur status was reinstated in 1982 but he has retained his golf talent and with a current handicap of 3, a wonderful temperament, and strong will to win is a sought-after partner in all GCSA-WA events. He has twice won the WA Golf Course Superintendents and is certain to win many more golf trophies.

Allan is a keen contributor to the AGCSA, other professional associations and community organisations, and he has fitted wonderfully well into the Australian lifestyle into which he has brought a diverse cultural background and a thorough understanding of golf from the perspective of a talented professional player and a skilled golf course Superintendent.

PROFILE

NAME.....Allan Smith Devlin

D.O.B.....11 April 1956

Place of Birth.....Glasgow Scotland

Emigrated to Australia.....November '87

Australian Citizenship.....July 1990

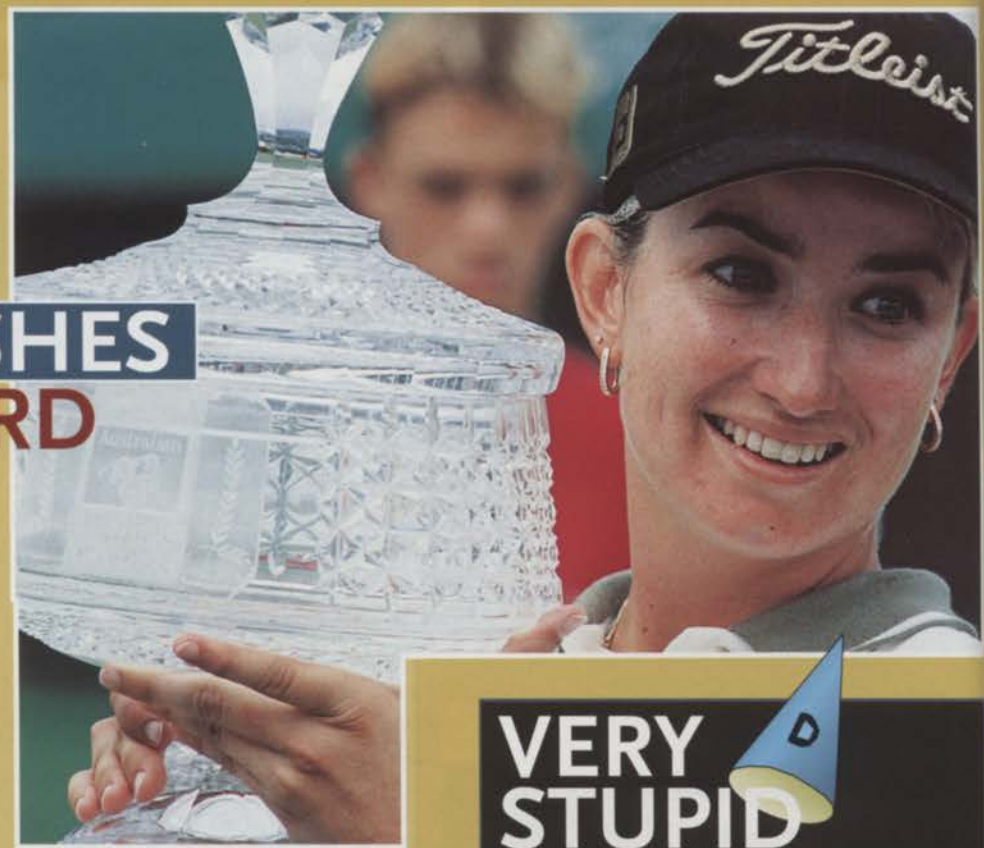
Married happily to Tracy for 20 years

Children.....Stuart, 18, Sam 17, Aimee 14.

INTERESTS Golf and most other sports - health and nutrition - community participation.

TURF

Winners & Losers



DAYLIGHT SECOND AS WEBB SMASHES LPGA RECORD

24 year old Karrie Webb successfully defended her title at the $750,000 Australian Ladies Masters with an awesome 10-stroke victory at Royal Pines Resort in Queensland. Her four-round total of 26-under-par shatters the previous LPGA Tour record of 23-under set by Se Ri Pak at the Jamie Farr Classic last July. Karrie followed this effort with a win in the Standard Ping Register tournament in Arizona and is on her way to becoming one of Australia's greatest ever sports people.

ON THE NINTH DAY THEY PLAYED BOWLS

Veteran greenkeeper Errol Lynam from the Albert Park Bowls Club in Gympie, Qld was factoring SCUBA gear into his next years budget in February but had his greens back in play and running at 14 seconds 9 days after they were covered in 14 feet of water and mud. Supper stuff Errol!

VERY STUPID INDEED!

To find this month's 'loser' ATM searched through the files under 'very stupid indeed' and has come up with this chestnut. As reported in the Bristol Evening Post (UK) a Cricket Field Groundsman apparently at his wits end with troublesome moles, took the following rather unusual steps in an attempt to regain control. His 'secret brew' included a garden fork, a length of cable, a UK mains plug and one pair of Wellington Boots. He proceeded to connect one end of the cable to the fork, the other end to a 240V 50Hz mains outlet and equipped with rubber boots began prodding the rather damp ground in the vicinity of his furry and now slightly crunchy friends. Needless to say he was pronounced dead on arrival.

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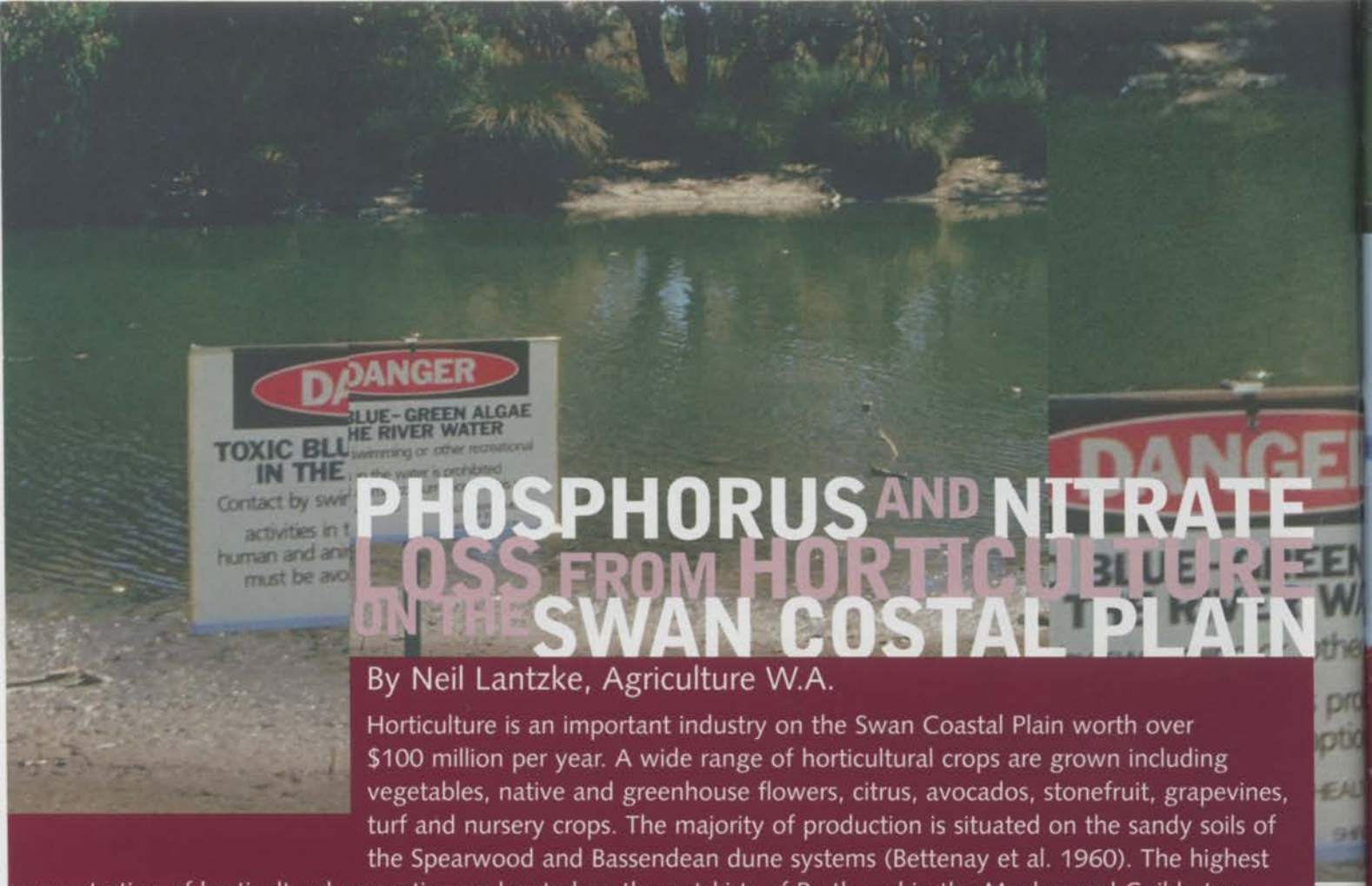


PHOSPHORUS AND NITRATE LOSS FROM HORTICULTURE ON THE SWAN COSTAL PLAIN

By Neil Lantzke, Agriculture W.A.

Horticulture is an important industry on the Swan Coastal Plain worth over $100 million per year. A wide range of horticultural crops are grown including vegetables, native and greenhouse flowers, citrus, avocados, stonefruit, grapevines, turf and nursery crops. The majority of production is situated on the sandy soils of the Spearwood and Bassendean dune systems (Bettenay et al. 1960). The highest concentration of horticultural properties are located on the outskirts of Perth and in the Myalup and Guilderton areas. However, the total area of horticulture is small, covering less than 1 per cent of the coastal plain. Irrigation water is almost always obtained from the shallow unconfined aquifer.

THE PROBLEMS

Phosphorus and nitrogen enrichment of surface water

Estuaries, rivers, lakes and wetlands on the Swan Coastal Plain are often affected by algal blooms that choke the water, give off foul-smelling gases and may kill fish and wildlife. These blooms are caused by an excess of nutrients, with the major source being run-off and leaching from agricultural land. Horticulture, because it is a high fertiliser user has often been accused of being a major contributor to eutrophication of surface water bodies on the Swan Coastal Plain.

Nitrogen and phosphorus concentrations are two major factors which determine eutrophication of surface water bodies. Phosphorus is generally the limiting nutrient in freshwater ecosystems, while nitrogen may be the primary limiting nutrient in many coastal waters (Ryther and Dunstan 1971). However, this may vary seasonally, for example phytoplankton growth in the Peel–Harvey Estuary, Western Australia appeared to be limited by nitrogen in summer and autumn and by phosphorus in winter and spring (McComb et al. 1981).

It is not possible to recommend a single set of nitrogen and phosphorus concentrations that will prevent algal blooms in surface water bodies. However, eutrophication is likely to occur if nutrient concentrations exceed 0.4 - 0.6 mg/L and 0.04–0.06 mg/L for total N and/or total P, respectively (AEC, 1987).

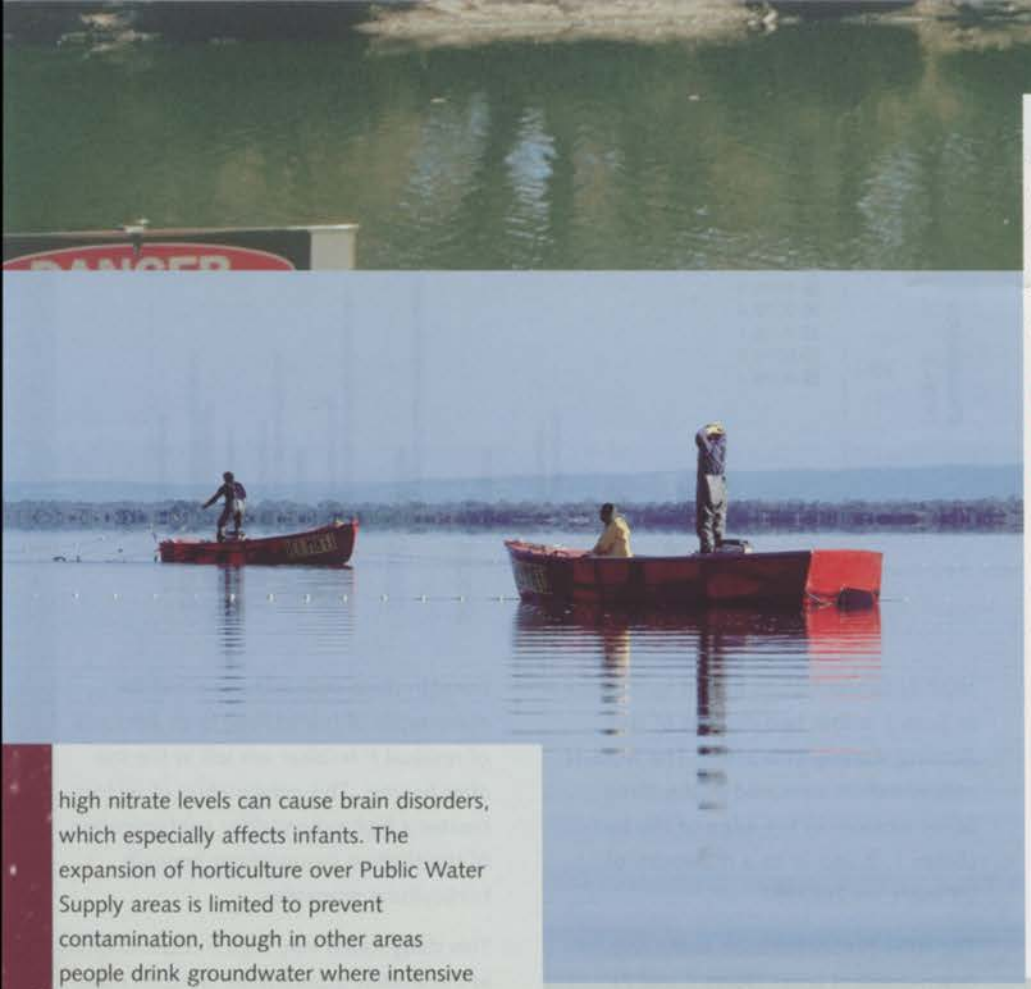
The soils of the Spearwood Dune System have a significantly greater ability to hold excess P than the deep grey sands of the Bassendean Dune System. The Phosphate Retention Indices (PRI) of the Spearwood soils usually range from about 3 to 6 (Karrakatta sand) to about 7 to 20 (Cottesloe sand). The soils of the Bassendean Dune System generally have a poor ability to retain P (PRIs are close to 0). Phosphorus can readily leach through the soil profile and possibly into the shallow groundwater.

Run-off and associated loss of P attached to sediment rarely occurs on the sandy soils of the Swan Coastal Plain because of rapid infiltration.

Nitrate contamination of groundwater

The sandy soils of the Swan Coastal Plain have a poor ability to hold both water and nitrates. Excess irrigation or rainfall carries nitrates into the shallow groundwater system.

The leaching of nitrate from agricultural land and contamination of groundwater is a major concern. The World Health Limit for drinking water is 10 mg/L of nitrate nitrogen (NO_3-N). Drinking water with



high nitrate levels can cause brain disorders, which especially affects infants. The expansion of horticulture over Public Water Supply areas is limited to prevent contamination, though in other areas people drink groundwater where intensive agriculture is pursued. Natural background NO3-N concentrations within the groundwater under the Swan Coastal Plain are usually less than 0.2 mg/L.

High nitrate levels in the groundwater are also of concern to horticulturalists who use the water for irrigation. In some cases nitrate levels have built up to such levels that irrigation with this water can cause excessive growth or toxic effects on crops.

METHODOLOGY

The extent of nutrient loss from nine horticultural properties including one turf farm was monitored from 1992 to 1997.

These properties were located on the sandy soils of the Swan Coastal Plain around Perth, Western Australia.

Estimates of the quantity of nutrient applied to each property were obtained from the grower and in the case of the turf farm, nutrient loss from the property was monitored by measuring levels of total P and NO3 –N in ground water collected from a network of bores. The monitoring bores consisted of PVC pipe (40 or 80mm diameter) with an end cap at the top and bottom. These pipes were slotted so as to collect the ground water as it moved down gradient. The bores were located so as to sample water groundwater up-gradient, within the properties and at various distances down gradient of the production area. The bores were sampled every 3 months with a submersible electric pump. The samples were kept on ice and taken to the laboratory for analysis.

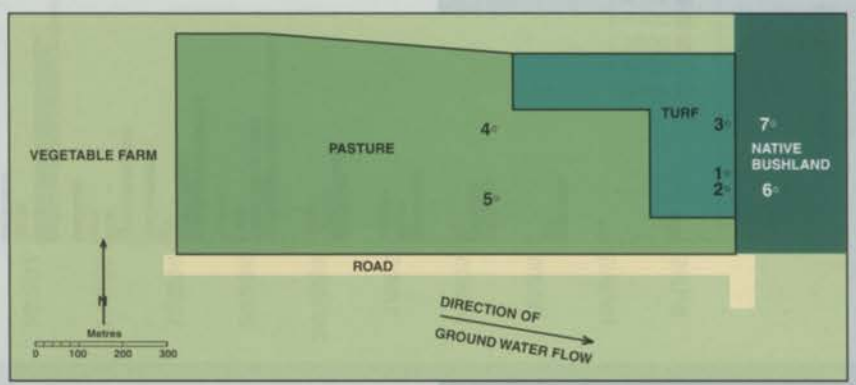


Figure 1

RESULTS OF GROUND WATER MONITORING FROM TURF FARM

Seven monitoring bores were installed to monitor nutrient concentrations. Figure 1 shows the location of the bores. Bores 4 and 5 are located up-gradient of the production area. Bores 1, 2 and 3 are on the immediate down-gradient edge of the production area. Bore 2 was designed to sample from the top 6 m of the watertable (as per Water and Rivers Commission bore license specifications). Bores 6 and 7 are 100 m down-gradient of the production area. The area between the turf and Bores 6 and 7 contains reasonably undisturbed native vegetation. Additional samples were taken from the farmer's production bore on three occasions.

The production area was fertilised and the turf planted in late January 1995. Prior to this the property was used for grazing cattle, with little or no fertiliser being applied in the recent past. The first water sampling was conducted before the addition of fertiliser by the turf farmer.

Over the 2 year monitoring period phosphorus and nitrogen was applied at the rate of 430 and 900 (kg/ha/year) respectively, i.e. 860kg/ha of P and 1,800kg/ha of N was applied to the property in 2 years.

Phosphorus

Figure 2 shows the P concentrations in the monitoring bores. The P levels were very low before development of the turf property. Within two months the levels of P in the three bores on the edge of the turf (Bores 1, 2 and 3) had risen. The P levels continued to rise in these bores to a maximum of 16 mg/L.

The P concentrations in the two down-gradient bores (Bores 6 and 7) remained low for the eight months. From 20/2/96 onwards the P levels in these bores

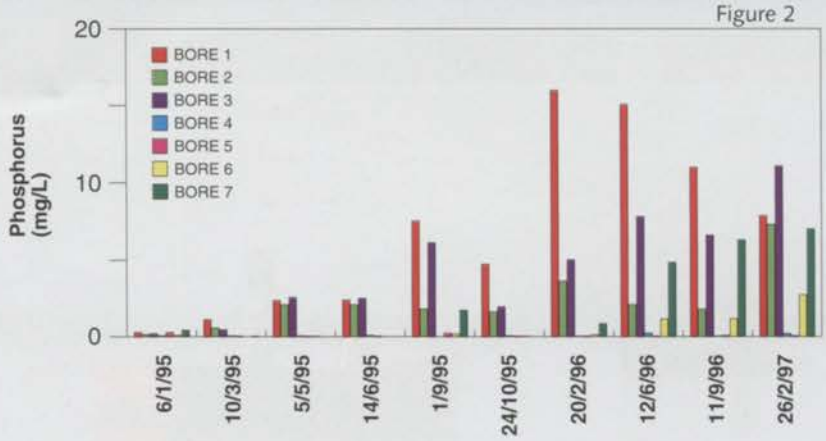
began to rise steadily, with Bore 7 reaching 7 mg/L on 26/2/97. The P concentrations in the up-gradient bores (Bores 4 and 5) remained low, indicating no significant amount of P was detected entering the property.

The level of P in water from the production bore was very low (< 0.01 mg/L) at every sampling date (data not shown).

Nitrogen

Figure 3 shows the NO3-N concentrations in the monitoring bores. Prior to planting the turf the levels were low in all bores except Bore 5. Bore 5 occurs up-gradient of the turf and may indicate that some NO3-N is entering the property. Bore 5 shows elevated NO3-N levels throughout the monitoring period as compared with the other up-gradient bore, Bore 4. It is possible some nitrate from the vegetable property 600 m to the west is being detected in this bore.

Figure 2



NO3-N concentration began to increase in Bore 1 within two months of turf farming starting (10/3/95). The NO3-N concentration increased in the three bores located on the edge of the turf (Bores 1, 2 and 3) to a maximum of 29 mg/L on 26/2/97.

The NO3-N concentration in the two down-gradient bores (Bores 6 and 7) remained low until the 20/2/96 sampling after which the NO3-N concentration increased reaching a peak of about 10 mg/L in Bore 7. The NO3-N concentration in the production bore did not increase (results not shown).

DISCUSSION

Phosphorus

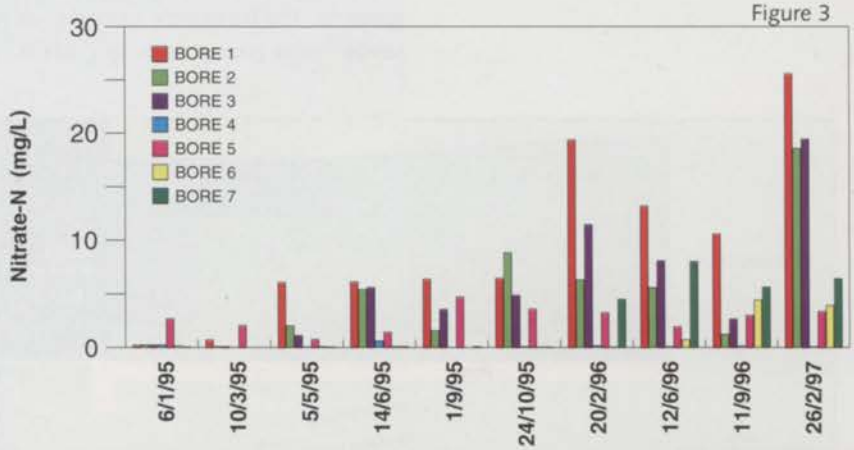
Phosphorus concentrations in shallow groundwater beneath the horticultural properties

Bassendean sands have a poor ability to hold P. The depth to the watertable beneath these soils is shallow and for many types of horticulture large amounts of residual P fertiliser are left in the soil after harvest. This combination of factors creates a high potential for contamination of the shallow groundwater beneath horticultural properties.

This study found very high P concentrations in the shallow groundwater beneath many of the horticultural crops monitored.

Phosphorus concentrations in the shallow groundwater rapidly increased following development of horticultural properties on Bassendean sands. On the turf farm the P concentrations increased from close to 0 mg/L to a maximum of 16 mg/L within 13 months (Figure 2). Phosphorus "breakthrough" times are very short on Bassendean sands when large amounts of phosphorus fertiliser are applied.

Figure 3



Nitrogen

Nitrate-nitrogen concentrations in shallow groundwater beneath horticultural properties

All the sandy soils of the Swan Coastal Plain have a poor ability to hold nitrate. On these soils, often only about a third of the nitrogen fertiliser that horticulturalists apply is taken up by the plant, leaving a large amount of residual nitrogen in the soil. Heavy rainfall and irrigation readily leaches nitrates from the root zone and into the shallow groundwater.

This study found high to very high NO3-N concentrations in the shallow groundwater beneath all of the properties monitored. Concentrations were above the World Health Limit for drinking water of 10 mg/L NO3-N on all but one property (vegetables). On the turf farm NO3-N concentrations had increased to over 5 mg/L within five months.

TURF

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TURF DIEBACK

on putting greens survey findings in queensland & northern new south wales

by Dr Walter Scattini

BACKGROUND

Sixty-four golf clubs from Cairns to Coffs Harbour responded to a dieback survey conducted by the Queensland Golf Union. The survey aimed to reveal management or other factors contributing to dieback on greens in the 1997/98 summer so that strategies could be devised to combat its future occurrence.

Only seven superintendents had previously encountered dieback. The possibility of dieback reoccurring was particularly worrying to those who experienced the problem and its consequence in their golfing communities in the 1997/98 summer.

SURVEY FINDINGS

Information was collated on grass variety on greens, number and range in ages of greens, summer cutting height, root depth and density, renovation treatments and when they were carried out. Chemicals used, water source and watering frequency in spring and summer, dieback occurrence, number of greens affected, ages of greens affected, when the condition was first noticed, weeks for greens to recover, pests and diseases identified, superintendents' opinions on what caused the problem, remedial treatments used and strategies planned for the 1998/99 summer were also included.

A weather analysis was carried out comparing the period January to April 1998 with the previous 41 years at meteorological stations relevant to the region surveyed.

Tony Rollins and Ian Hepburn, Queensland Golf Union Executive Director and Executive Assistant provided estimated player use on golf courses, respectively.

Of the 1,223 greens reported, 968 are 328 (Tifgreen), 115 Tifdwarf, 52 Queensland Blue couch, 73 creeping bentgrass and 15 at one club were common green couch. Ten Clubs had two grass varieties and one had three.

Since 328 was the main grass used on putting greens (79%) a database for 56 clubs with 328 was analysed. Thirty-two of the 56 clubs with 328 greens reported dieback. Weather and player use variables were included for analysis of relationships with dieback occurrence.

MINIMUM TEMPERATURE

Highest mean minimum temperature for 6 days in January/February 1998 and minimum temperature class (less than or equal to 23°C or greater than 23°C) were related to the occurrence of dieback in 328 greens. Dieback occurrence was also related to the differences in the highest minimum temperatures for 6 days in January/February between 1998 and 1997, which on average was only 0.15°C less in 1997. The 1997 and 1998 summers had many first and second highest mean minimum temperatures for 6 days in January/February on record for the last 42 years.

In 1997, 19 of the 22 meteorological stations used for analysis recorded the highest minimum temperature from 11-17 February. In contrast, highest minimum temperature was recorded over a much longer period in 1998.

It is unlikely that a summer with mean minimum temperature for 6 days in January/February as high as those recorded in 1998 will reoccur frequently. The chance of experiencing two consecutive years with highest mean minimum temperature for 6 days in January/February as high as those recorded in 1997 and 1998 is very low, on the basis of historical minimum temperature records. The possibility that climate change is increasing these temperatures relative to the past should not be discounted.

CUTTING HEIGHT

Forty-six of the 56 clubs used a mowing height of 3-4mm. There was insufficient data outside this range to show a significant effect of cutting height on the occurrence of dieback, although 22 clubs using a cutting height equal to or less than 3.5mm experienced dieback.

SUMMER RENOVATION

Summer renovation (coring and scarifying) was related to the occurrence of dieback.

PLAYER TRAFFIC

Estimated player traffic was related to the occurrence of dieback.

No relationship was evident between latitude

SYMPTOMS CONSISTENT WITH TURF DIEBACK

and occurrence of dieback, perhaps because most clubs were in southeast Queensland.

Given that dieback occurrence had some association with high minimum air temperatures, renovation, cutting height and player traffic, the question arises as to whether the influences of these factors may be additive, and/or whether they are themselves fortuitously correlated. Of these factors, only the highest mean minimum temperature for 6 days in January/February and player use index were correlated, perhaps due to the cluster of heavily used courses in coastal south-east Queensland.

There were important relationships among the variables, summer renovation, cutting height class (less than or equal to 3.5mm or greater than 3.5mm), player use index class (less than or equal to 4 or greater than 4) and minimum temperature class (less than or equal to 23°C or greater than 23°C), in pairs, and these factors were likely to have contributed to dieback occurrence.

The separation of dieback from non-dieback occurrence afforded by these factors is not absolute, i.e. dieback was recorded with low frequency below these thresholds and conversely, dieback also failed to occur with low frequency above the thresholds. Nevertheless, the significant tendency for dieback frequencies to be highest with all stress factors operative is evidence that the general occurrence was stress induced.

SUMMARY

Dieback incidence is primarily on 328 and not Tifdwarf and is associated with the imposition of severe physiological stress, e.g. summer renovation, low cutting heights and high player use imposed during low frequency, high minimum temperature extremes. It is not possible to conclude whether some pests or pathogens are involved in precipitating the dieback symptoms as opposed to direct physiological death of stolons and rhizomes.

RECOMMENDATIONS

The probability of reoccurrence may be low and certainly is presently beyond specification. For this reason one could not recommend courses of R&D that would be appropriate and could only be justified if the problem was clearly recurrent. Rather it is recommended that superintendents pursue a course of avoiding severe physiological stresses in extreme weather conditions, e.g. deferring summer renovation to late February.

As a prelude to further action pathology research may be conducted to determine if Gaeumannomyces graminis var. graminis, which causes bermuda decline in southeastern USA occurs in greens that have experienced dieback.

THE RECENT SUMMER

Superintendents contacted have noted reduced severity of dieback symptoms in the last summer. Some have raised cutting height and/or cut the outer circle of greens less often. Another used daytime watering, frequent topdressing and commenced replacing 328 greens with Tifdwarf. Others have employed preventative fungicide treatments. Very high humidity and rainfall have been a feature of the last summer in the survey area.

Ready or not, here it comes

By Phil George

And Scott Hinwood

M.Agr (Turf Management)

Forget fungicides, herbicides and insecticides, the "Millennium Bug" has the potential to have devastating effects on the turf industry.

What is the Bug?

The "Millennium Bug" or "Y2K" as it is more commonly known originated in the 1960's and 70's at a time when the computing industry was in its infancy. Computer programmers assumed that their programs would be superceded by now and decided to use only two digits to store years in data base records. This was to save storage space, which, at the time was very expensive.

As a result, things can potentially go wrong when the date rolls over from "99" to "00" causing many computers and electronic equipment to recognise January 1, 1900 instead of January 1, 2000. This may wreak havoc on electronic billing and time management systems, which run continuously and rely upon accurate dates and times to function properly. Alternatively, the computer may lock up completely as it sets itself on an endless loop looking for a viable value.

How it affects the Turf Industry?

The majority of us who don't know a "RAM" from a "FLOPPY" are likely to assume that the Y2K "crisis" can only be solved by men wearing pocket protectors and thick glasses. However, according to Miles Smith, Y2K Project Leader for one of Australia's largest mining companies, Year 2000 is a "business problem rather than an IT problem".

To protect your business from the millennium bug, firstly identify the most important parts of your business. Ask yourself, "what are the things that that my business absolutely can not do without?"

It will be the middle of summer in Australia on January 1, 2000. If your business involves managing a turf facility, it is inevitable that you will need basic requirements such as water, electricity and chemicals to combat the difficult environmental conditions.

Believe it or not there is a possibility that these essential items may not be available from January 1, 2000. If this is the case then a "Year 2000 plan" should be developed to ensure that these suppliers are able to guarantee delivery during and after the Year 2000.

What to do?

As a manager of a turf facility or any business for that matter, it is your responsibility to ensure that all utilities, computer systems, equipment, products and premises are able to function in the Year 2000.

Utilities

Assurances have recently been given by the Electricity Supply Association of Australia (ESSA) and State Water Authorities, that systems will be compliant by 2000 and that 100% of customer contracts will be fulfilled. However, further updates on progress should be obtained on a monthly basis.

Computer Systems

PC's, irrigation systems, payroll-processing systems and staff records are a few examples of systems that may malfunction. In a recent compliance letter Toro, a large supplier of irrigation products and systems in Australia, stated that "everything is on track for the year 2000". This can only be used as an indication and it is your responsibility to get similar assurances from your key suppliers.

Equipment and Products

Consider the long hard hours that costly turf machinery is subjected to and the volumes of products that are used every day. Spare parts, equipment, pesticides, fertiliser and seed (the majority of which is

imported) may very well be delayed after the Year 2000 due to systems failure. Dealers and suppliers should be reviewed as to how they can continue to guarantee quality and efficient service. Representatives from these relevant industries have stated that they are addressing this issue very seriously and are taking positive steps towards achieving Year 2000 compliance.

Premises

Fire alarms and security systems should be checked for compliance to eliminate the risk of any failure.

If you are unable to get compliance guarantees from your key suppliers you must either "shop around" for someone who can and/or develop a contingency plan as a backup.

Remember! This is only a general list of things you should consider as being part of the planning process. Every turf facility varies in its size and structure. This list should be tailored to suit your business.

What's the Backup?

Consider the thought of your irrigation system having a mind of its own on New Years Day 2000. Even the best of managers would not want to start the new Millennium this way. Upon arrival at work you can't get into the office because the security system won't read the PIN number. Twenty-four hours later you still can't shut off the irrigation system, the turf is @!/!#/#, fungicide is not in stock and unobtainable, pumps are whining and the low water supplies are just about to run dry. What do you do?

The smart manager will have a documented "contingency plan" for such an event and all staff will know exactly what to do (provided they can get there!). This backup plan should involve preparing for everything that could possibly go wrong and developing an alternative strategy if your worst fears are confirmed. A contingency plan should be developed well before the year 2000 and in actual fact should form part of an overall "crisis management" plan whether we are approaching the Year 2000 or not.

Following on from the example given earlier, a contingency plan in the event of power failure would include access to generators capable of running pumps or the capacity of water storage facilities may need to be significantly improved to cope with anticipated shortages.

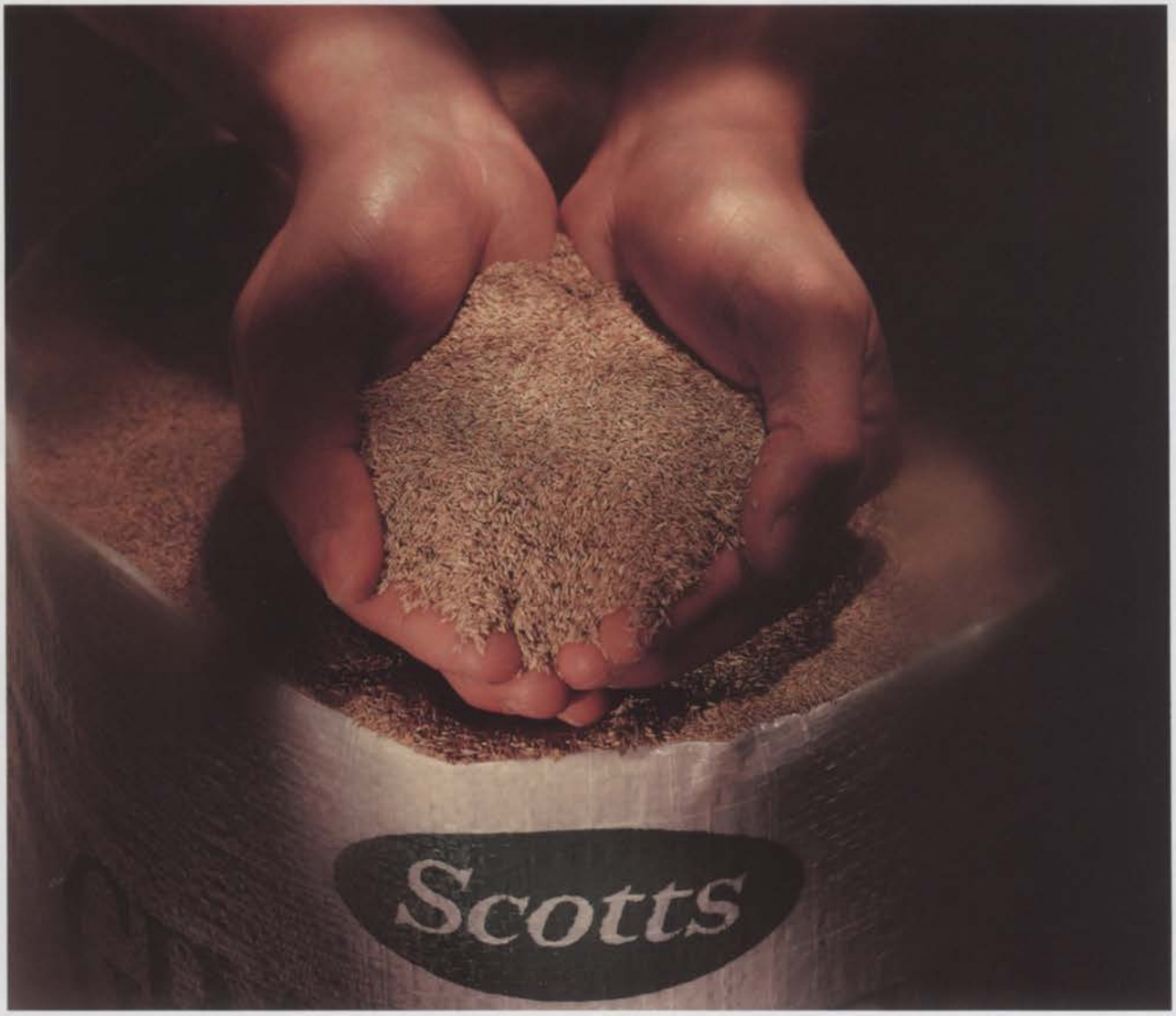
A classic case highlighting the need for a backup plan was the gas shortage experienced in Victoria after the explosion at the Longford Gas Refinery towards the end of last winter. Hundreds of businesses relying solely on gas had to close down completely for at least 3 weeks. If they had a contingency plan that guarded them against the loss of an essential service, perhaps they could have kept the doors open and saved millions of dollars.

Surviving the Bug

There are many stories of how planes will start falling out of the sky and that some extremists are building fully equipped bunkers in the mountains to escape the eminent destruction of civilisation as we know it. The fact is that no one really knows what is going to happen. It may very well blow over like Hayleys Comet or Bill Clinton's impeachment trial but all research clearly indicates that the Millennium Bug will be an issue in some way, shape or form.

Like any pest that effects the turf industry, the key to survival is increasing awareness, planning effectively, taking action and assessing alternative strategies.

For further information about this problem and how you can tackle it, go to the Federal Governments Y2K internet site at www.Y2K.com.au. From there you can go to State Government Y2K information pages and link in with countless other web sites worldwide.



BREAKING NEW GROUND...AGAIN!

For two years Scotts have beeen evaluating and carefully selecting our most suitable turf grass varieties for local production. The result is two new perennial ryegrass products that complement our traditional favourite, Caravelle. DIVINE is Scotts premium single variety. With its dwarf habit and fine dark green leaf, Divine produces a superior dense turf surface

BLEND 101 is suited for the most challenging environments. Its genetic diversity (including Divine) ensures an attractive turf under the widest range of environmental conditions. CARAVELLE is valued for its spring transitional qualities and is excellent for autumn overseeding of warm season grasses. Scotts will continue to develop a whole new generation of seed technology including transgenic turfgrass plants for the new millennium.

Scotts.

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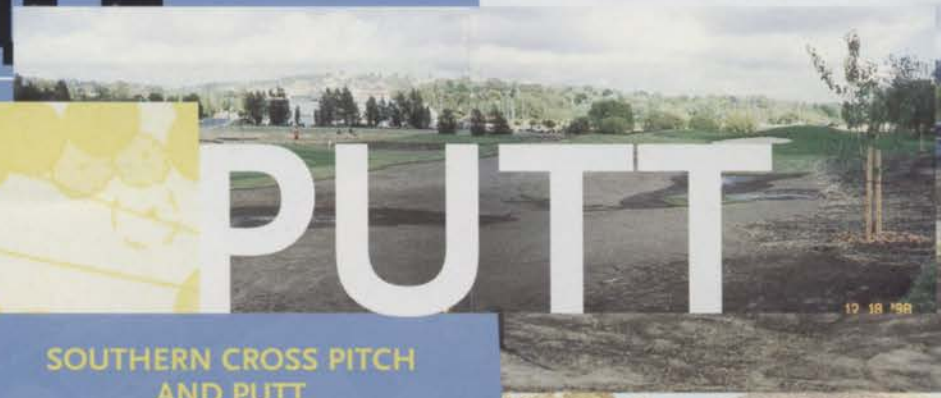
FOR MORE INFORMATION, CONTACT YOUR SCOTTS DISTRIBUTOR OR SCOTTS AUSTRALIA ON (02) 9899 2555

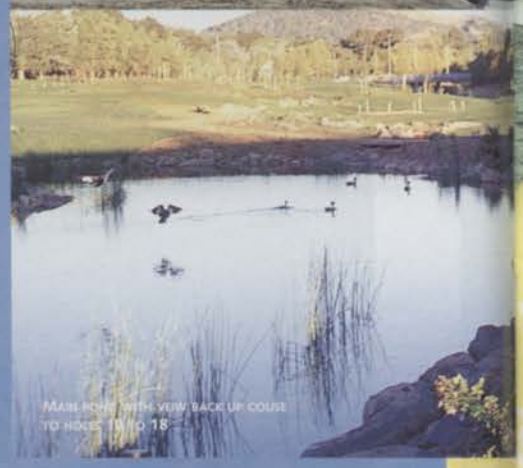
STRATOSPHERE SCO 003

PITCH PUTT

18 HOLES OF GOLFING CHALLENGE IN 3.6 HECTARES

by Jamie Dawson, Golf Course Architect, Enviro Links Design Pty Ltd, Canberra





MAIN HOME WITH VIEW BACK UP COURSE TO HOLES TWO 18

WHAT IS PITCH AND PUTT?

A great little golf game that is basically fun, has a challenge and offers a good opportunity to finesse the short game. It requires guile and skill, not brawn.

Pitch and Putt suits all ages for either competition or social play. It offers a great way for juniors to learn golf and for seniors to compete without the daunting length of a long par 5. Other golfers can use it to practice the short game essential to a winning score on their 5800m+ course - remember around two thirds of strokes are within 100m of the green.

For many it is just a pleasant way to while away 1 to 2 hours in good company or catch some quick stimulating exercise before or after work, or even at lunchtime!

Players are only permitted two clubs - a wedge and a putter.

SOUTHERN CROSS PITCH AND PUTT

Jamie Dawson of Enviro Links Design Pty Ltd was appointed head consultant to undertake the golf course design and specialist supervision. Key support was provided by J.G Service Pty Ltd Project Managers; Young Consulting Engineers Pty Ltd and Greenleigh Irrigation Design.

The client was the Southern Cross Club which comprises four social clubs in Canberra with approximately 80,000 members! Their Yamba Sports Club adjoins the site which is near the Woden Town Centre.

THE KEY FEATURES OF THIS PREMIUM QUALITY PITCH AND PUTT ARE:

- located on 3.6 hectares
- 18 holes ranging from 38 to 71 metres length, totalling 868 metres.
- greens 115 to 180 m^2 totalling 0.25 hectares
- 13 bunkers
- synthetic turf tees
- 2.25 hectares irrigated area (marginally more than a full size Australian Rules Oval)
- 5000m^3 fill and 3500m^3 cut to transform the original gentle sloping site.
- designed to appeal to all standards by exciting the good player but not being too difficult for the beginner.

DESIGN / MAINTENANCE ELEMENTS INCLUDE:

WEAR: 300+ players a day on a compact site with small greens! Dispersed wear access, especially from each green to next tee, is therefore critical in the design. Fortunately few players wear spikes and even pull buggies are uncommon. Synthetic tees mean that even if the tee shot only goes 30 metres the approach shot is usually only a part swing without a divot.

Greens are built to USGA standards and other topsoil has reasonable hydraulic conductivity to ensure sustainable wear regimes, even in the wet.

BUNKERS: Bunkers are generally shallow to allow for a range of standards and skill. Bunkers are often used to protect adjacent holes or prevent balls rolling out of bounds.

GREENS: The greens are small and at gentle grades to allow maximum pin positions. Subtle breaks are used to keep up players interest. The two larger greens at 180m^2 have a tier for added interest.

MOUNDING: As the original site had no features of interest mounding was used to:

- create character and visual appeal;
- ensure a full range of stances and lies to

9TH HOLE & 18 GREEN ACROSS POND

PREPARATION FOR SEEDING & TURFING

ensure the experienced golfer gets a good range of practice opportunities;

- reward pitch and run or high lob shots for variety depending on the land form or pin position.

All slopes are less than 1 in 4 so machine maintainable.

VEGETATION: Due to the tight space, need for dispersed wear and sun access for turf - trees are generally limited to select 'out of play'areas.

Tufted lomandra/dianella and macrophytes (reeds and sedges) are used for visual highlights and contrast. Species selection varies dependent on the water regime.

The only existing trees are perimeter willows and poplars requiring root control barriers in key areas.

ENVIRONMENTAL RESPONSIVENESS

Environmental sustainability and providing benefits downstream was a hallmark of the original design approach. The key features included:

NUTRIENT STRIPPING PONDS: The small site has six nutrient stripping ponds with macrophytes above the adjoining floodway to allow treatment of low flow water and greens subsoil drainage. Extensive swales built as an integral part of the course shaping, direct most flows to these ponds.

Many stormwater outlets discharge into the swales to allow nutrient uptake by the turf to disperse the loadings prior to the ponds.

WATER MINING: The key irrigation water source is the Woden stormwater channel that services an urban catchment of 30,000 people. Flow is generally sufficient even in drought periods to supply the 2.25 hectares of irrigated area. This water has reasonable nitrogen and phosphorus loadings, plus other nutrients, therefore course fertiliser needs can be reduced based on monitored soil and leaf analysis.

The floodway water is 'trickle' pumped from a small weir to the golf course lake where the main pump operates a pressurised automatic irrigation system. This applies the high nutrient runoff water

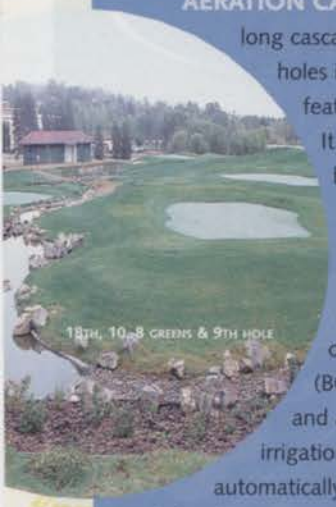
PRECONSTRUCTION DURING EARTHWORKS

to the course allowing its quality to be improved as it passes through the natural filter and uptake systems of the golf course.

Runoff from the course into the floodway should be of higher quality than the water originally pumped out.

Unfortunately this approach requires legislative change and public consultation by the ACT Government which is expected to take 2 years, despite making a positive contribution to their water resource and environmental objectives. Much of the infrastructure is now in place on the course for water mining and a bore when

permitted. Town water supply is to be used in the interim. The design allows ready interchangeability and flexibility between the different water sources.



AERATION CASCADE: A 70m long cascade next to four holes is a key visual feature of the course. It also has a beneficial function of aerating the water in the main lake which will assist biological oxygen demand (BOD), water quality and algal control. The irrigation pump automatically operates the cascade by day using one station on the controller.

RESOURCES

The golf course design was comprehensively documented on 13 No. B1 plans at 1:250 scale, plus details. A 100 page Specification and Bill of Quantities supported the golf course and civil works. The works was put to competitive tender with 4 local civil engineering contractors. Woden Contractors Pty Ltd were successful with a tender in the order of $700,000 for the golf course works. (This excludes costs of starters hut, offsite works, land purchase and maintenance equipment). The course budget increased in the order of 15% with the November 1998 decision to turf greens and most of the key play areas to make up for protracted earthworks delays due to consistent Winter/Spring 1998 wet weather.

The Superintendent, Bruce Grimmond took over the Pitch and Putt consolidation in January 1999. He leads a multi-skilled team maintaining 3 bowling greens, club gardens and the pitch and putt. Their staff resources doubled from 2.5 to 5 persons with the addition of the course.

The Southern Cross Pitch and Putt opens mid April 1999. Enviro Links Design believe these short courses, if well designed and appealing to all ages and range of golfing ability, have a very positive future in well sited locations.

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SPORTSTURF SUPPLIERS & CONTRACTORS

Sydney's Renown Specialist

COLLINS U.S.G.A. GREENS MIX

Laboratory approved USGA greens mixes produced at the Company's depot under stringent quality controls. Complete laboratory analysis available on request.

COLLINS GOLF GREEN MIXES

Blended mixes are readily available with organic and synthetic amendments for topdressing. Mechanical spreading equipment available for contract topdressing. Bunker sands also supplied.

RETURFING SPECIALISTS

Jumbo turf rolls are cultivated under controlled conditions at the Company's farms in selected growing media. Mechanical laying service is carried out by trained Company staff using floatation wheeled equipment to minimise compaction.

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Drainage gravel's, landscaping, road making materials and decorative gravel's delivered throughout Sydney by our modern fleet of tipping vehicles. Prompt service is our speciality.

STOP PRESS!

LEGEND COUCH NOW AVAILABLE EX OUR SYDNEY FARMS IN CONVENTIONAL OR JUMBO ROLLS. PREMIUM QUALITY TURFGRASS IDEAL FOR GOLF COURSE SITUATIONS.

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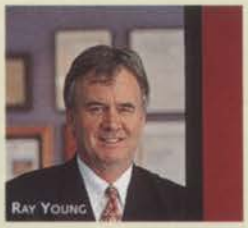
SPORTS TURF SYSTEMS

An independent overview by Ray Young,
Managing Director, Young Consulting Engineers Pty Ltd.

Young Consulting Engineers are civil engineering consultants with offices in Canberra, Sydney and Melbourne with current staff numbers around 45. While providing a full civil engineering service the company has specialised in sports projects for many years.

Some relevant projects include Stadium Australia, Moonee Valley Racecourse, Parramatta Stadium, Royal Randwick, Royal Canberra Golf Course, Docklands Stadium, Gabba, Ballymore and consulting to SOCOG to advise on all Olympic soccer venues.


RAY YOUNG

HISTORY

When it comes to current thinking in the design and construction for today's high profile sports fields the conventional soil profile is "history".

Gone are the days when winter sports were often conducted in conditions more suitable to mud loving animals and ducks.

No more is it necessary for curators to spend inordinate amounts of time repairing water logged and damaged turf and often closing them to use for prolonged periods during the winter months.

Sports men and women are highly paid and to be sidelined due to injury can mean huge financial loss. If this injury is a result of a substandard surface, the loss may ultimately be borne by the venue manager. There is an increasing amount of litigation which relates sports injuries to the competition surface and condition, this means that the standard of the playing surface is critical.

CURRENT TRENDS

Today, using fields constructed in line with the USGA sand profile concept, the risk of injury to our sports stars is significantly reduced. The worst that may happen to our footballers' and jockeys on a very wet day is getting wet.

With a properly designed and constructed sand profile system the performance characteristics of the playing surfaces are for all intents and purposes similar to a fine day with the exception of wet grass. In fact, it is quite likely that the wet surface will perform better with the sand particles settled into the turf canopy, minimising sand "fly" and providing a firm consistent surface.


"GONE ARE THE DAYS."

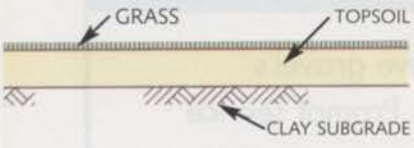
The typical sand profile used in Australia is a sand over gravel concept and has been based on the proven United States of American Golf Association (USGA) system.

Gradually we are seeing the conventional soil systems replaced with sand profiles at our major venues including the Melbourne Cricket Ground, Moonee Valley Racecourse, Royal Randwick Racecourse, ANZ Stadium, Parramatta Stadium, numerous golf greens and tees and many more examples.

Having converted to a sand profile the amount of use increases in response to the high standard of surface and an ability to use the facility in all weather conditions without the damage to surface that would be experienced with a conventional soil profile.

It must be understood however, that regardless of the turf system adopted, the natural grass will wear equally. By eliminating a saturated upper soil layer, surface damage is considerably reduced thus allowing for increased use and reduced maintenance.

Typical Conventional Profile



Turfgrids

ITM MODULE INTRODUCED BY GREENTECH IN THE USA

Over the years there has been considerable discussion on the merits or otherwise of synthetic grass systems. The trend today, particularly at high use/high profile venues is to combine the obvious benefits of natural grass with the practical advantages of synthetic grass.

This situation logically leads to reinforcement of the top layer of the sand profile using an artificial additive to provide for high load bearing strength increased durability and an ability to replace worn and damaged areas of turf. The sand profile provides for superior drainage with infiltration rates in excess of 100mm per hour. The reinforcement increases the surface bearing strength but more importantly allows for turf replacement which will become a vital operation in future turf management given the increasing intensity of use and the need for multi-purpose venues.

REINFORCING SYSTEMS

The systems available worldwide are numerous although to date in Australia the use of Reflex Elements as marketed by StrathAyr has held the predominant market share.

This concept comprises interlocking polypropylene mesh elements mixed with the top layer of sand to provide improved bearing strength and therefore an ability to renew and replace damaged turf using pre-prepared 100mm thick modules typically 1.2m x 1.2m.

The Reflex mesh elements are usually mixed with the top layer sand adjacent to the work site and placed either using specialised StrathAyr machinery or other means such as excavators fitted with modified buckets.

"Turfgrids" are small segments of polypropylene fibre around 40mm in length that are incorporated into the root zone at a depth of 60 to 75mm.

This procedure is done by spreading the fibre on the surface and using specialised machinery the fibre is impregnated into the top layer in a random configuration. This system has been used in the United States and to a limited degree in Australia.

A system promoted as "Grassmaster" by Desso was recently developed in Holland. This concept comprises the injection of vertical strands of polypropylene to a depth of around 200mm and on a grid of 20mm i.e. there is a deep strand every 20mm in both directions. The process which involves the use of specialised machinery can be carried out either during

construction of the soil profile or after establishment of the turf cover.

This system is not designed to accommodate turf replacement and in the event of the natural grass wearing away, the synthetic fibre is exposed and takes its place avoiding the appearance of completely bare areas.

A new system recently introduced to Australia from the USA is the Motz/Sportgrass System.

The system consists of synthetic fibre sown into a polypropylene grid and biodegradable jute backing.

Natural grass is planted into a sand filled synthetic grass carpet with a fibre length of around 35mm.

As the grass becomes established the roots penetrate the polypropylene mesh backing to a depth required to produce healthy turf.

The polypropylene grid provides support to the sand fill during initial establishment and gives lateral strength during transportation. The jute backing which initially assists in maintaining soil moisture, degrades over a predetermined period and eventually dissipates through the profile.

The natural grass/synthetic fibre carpet with a thickness of approximately 50mm is relocated to the site in rolls to replace worn or damaged turf.

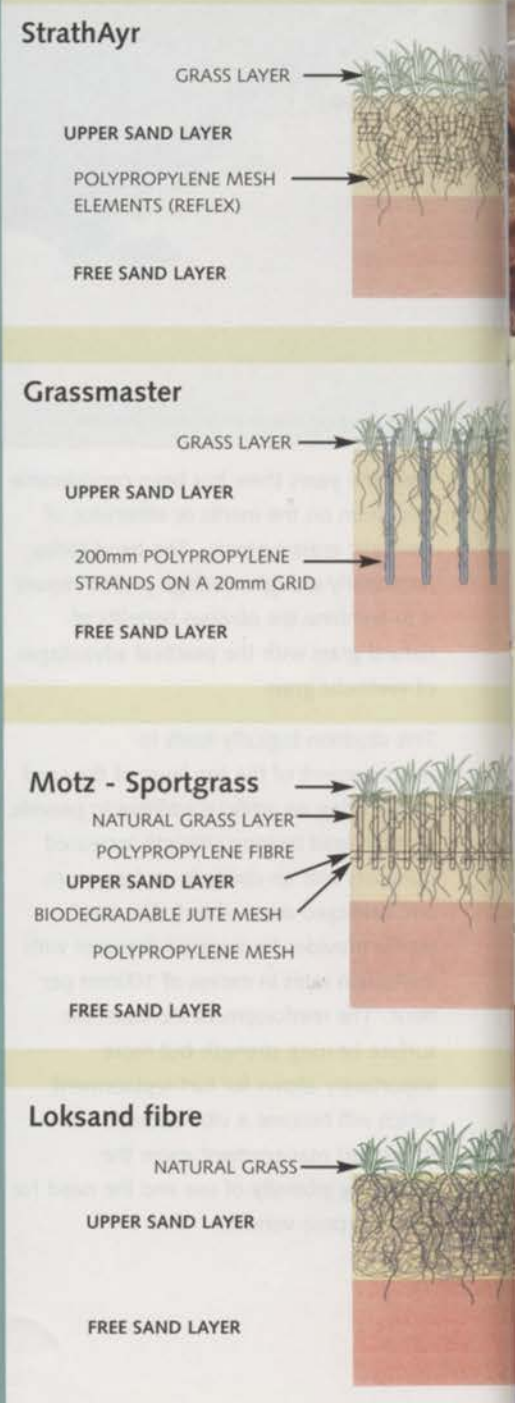
Other systems such as "Loksand" are now entering the Australian market. This system, developed in Ireland in 1968, is promoted by Plasticisers Limited in Auckland. The system utilises precisely crimped polypropylene strands approximately 40mm in length which interlock with the root zone mix in varying densities depending on client requirements. The "crimped" fibre , as claimed by the New Zealand distributor of the product, provides for improved sand/fibre interlock and minimisation of compaction.

There is also a point of view that sand reinforcement is unnecessary. Renovated Turf Surfaces (Bill Wilson), grew a couch grass on 30mm of USGA sand provided by Hexxon Minerals Pty Ltd. on plastic sheeting. The turf was established in Coffs Harbour and transported to the Marathon Stadium in Newcastle where it is now in use by the Newcastle Knights Rugby League team and from all reports, performing well.

THE FUTURE

Following the success of reinforced sand profiles, we can expect in the very near future improved and cost effective drainage concepts, together with the introduction of artificial soils using suitable recycled materials. If grass can grow in sand maybe other artificial materials will fulfil a similar function.

With more intensive use of our sporting facilities expected in the future, turf replacement systems will become more sophisticated and efficient. The aim is to provide a replacement system which is safe, cost effective, invisible, fast and practical to change over and which can be played on



immediately after replacement.

Given the trend towards multi-use stadiums it follows that completely portable fields will be closely examined.

One notable example is the ITM module introduced by Greentech in the USA.

This system comprises square, interlocking plastic modules containing a prescribed growing medium and turfgrass.

The modules are prepared and grown off-site and transported to the field by truck. As they are placed the sides fold down allowing lateral continuity of the growing medium and with appropriate interlocking mechanisms the surface is ready to use immediately.

THE ULTIMATE

The answer to the problems of a football stadium in Holland is the Gelredome at Arnhem. This venue has a capacity of around 25,000 with an opening/closing roof.

This natural grass soccer field is for the most part an outdoor soccer field with the stadium used for concerts, fairs, conventions, car shows etc. When a major soccer event is scheduled the entire field slides into the Stadium on teflon coated steel rails in a period of around 5 hours. After the match the entire field is returned for outdoor use the next morning if necessary.

All this has happened over the past 15 or so years. The changes over the next 15 years will be fascinating to observe.

TURF

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

Turf does not live in insolation from its' environment.

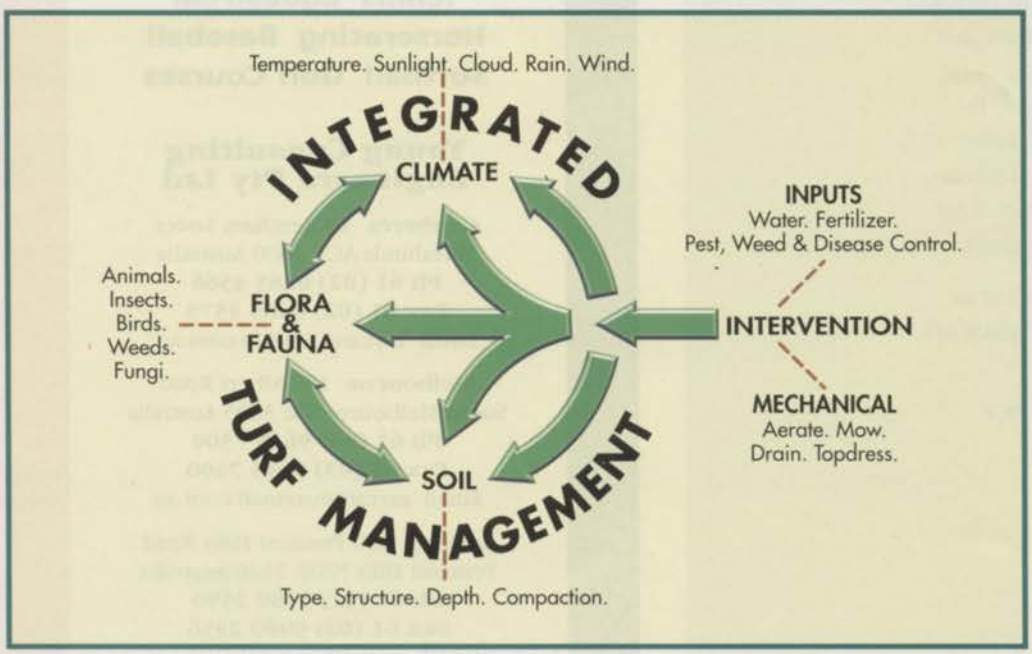
Soil and climate create the circumstances for healthy grasses.

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

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

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

Intervention becomes complex because the age-old rule remains inviolate – for every action there is an equal and opposite reaction.



One thing leads to another.

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

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

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

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

How does Chipco integrate itself into the intervention process?

In two distinct and vital ways.

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

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

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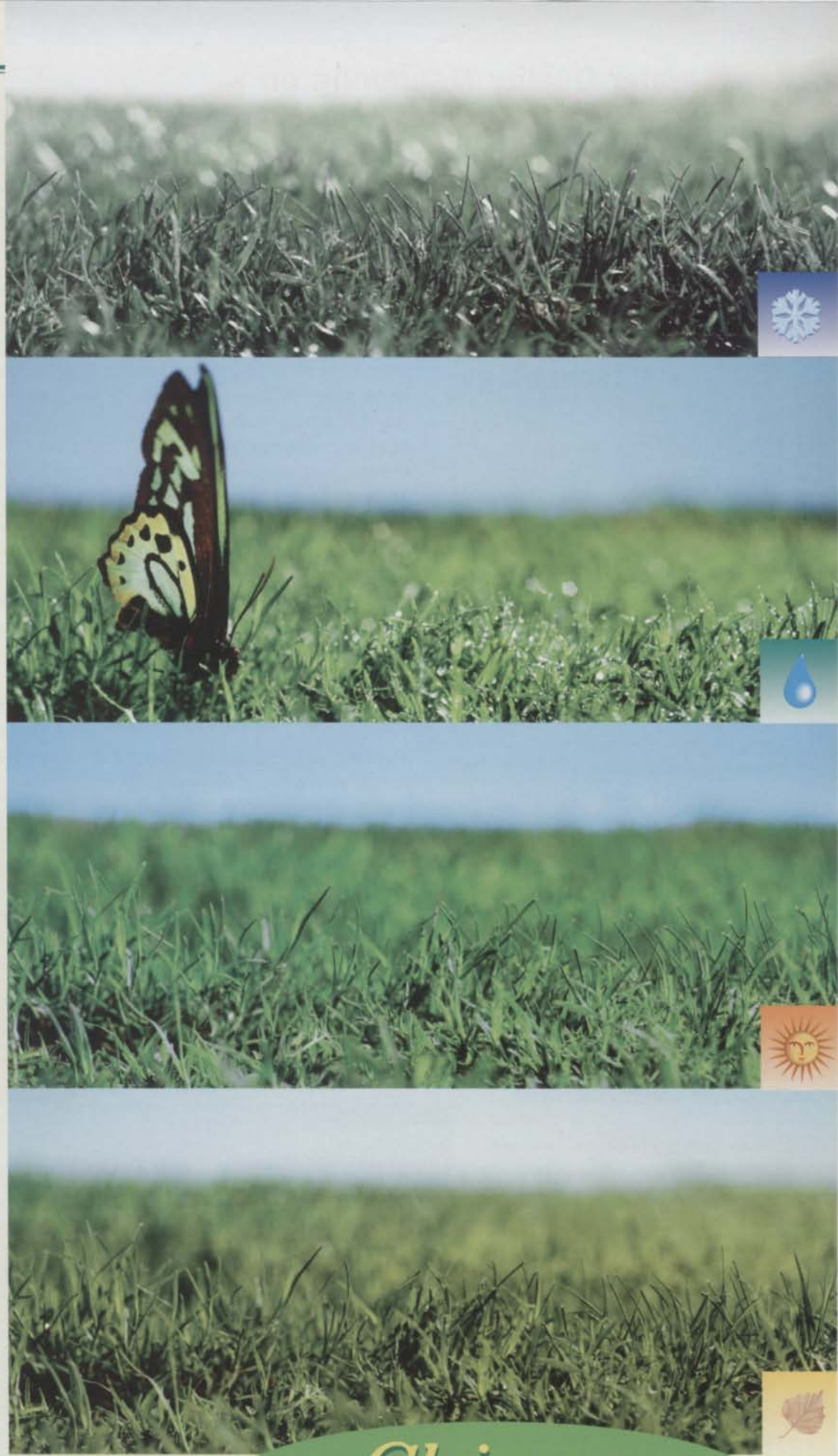
This is why we seek to work so closely with our customers to learn from them and impart knowledge to them. Professional turf management continues to evolve its' techniques and we pride ourselves on being in the forefront of this evolution.

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



Chipco

Encouraging Integrated Turf Management

Water Quality Monitoring on 44 golf courses

Jyri Kaapro
Turfgrass Technology

THE PROJECT

Golf courses are very visible, intensively managed green spaces in urban environments. There has been suggestions that they are significant polluters of waterways due to perceived runoff and leaching of pesticides and fertilisers.

In response to this public perception, and the fact that no Australian data was available, discussions in 1995 between the NSW Golf Course Superintendents Association (NSWGCSA), the NSW Golf Course Secretary Managers Association (NSWGCSMA) and the Australian Turfgrass Research Institute (now Turfgrass Technology) led to the inception of a water monitoring project.

Mollymook Golf Club

The aims of the project are to identify and quantify any nutrient pollution leaving golf courses, and provide best management practices for fertiliser use. The project has been running over the last three years and is due to be completed in June this year. At the completion of this three year survey, data on the nutrients leaving golf courses will exist where none was previously available for Australian conditions.

44 clubs from NSW and the ACT have been participating in the project. Funding for the project has been half from the individual clubs (paid on a per sample basis), and half by the Horticultural Research and Development Corporation (HRDC). The clubs show a wide distribution, from metropolitan areas, country areas, coastal clubs and inland clubs.

At each golf club, water samples are collected from each site and analysed for nutrients (Total nitrogen and phosphorus; soluble nitrogen (NOx) and phosphorus (soluble reactive) and basic water quality parameters (pH and electrical conductivity).

A quarterly newsletter has been sent out to all clubs participating in the project. The newsletter provides information relating to water quality.

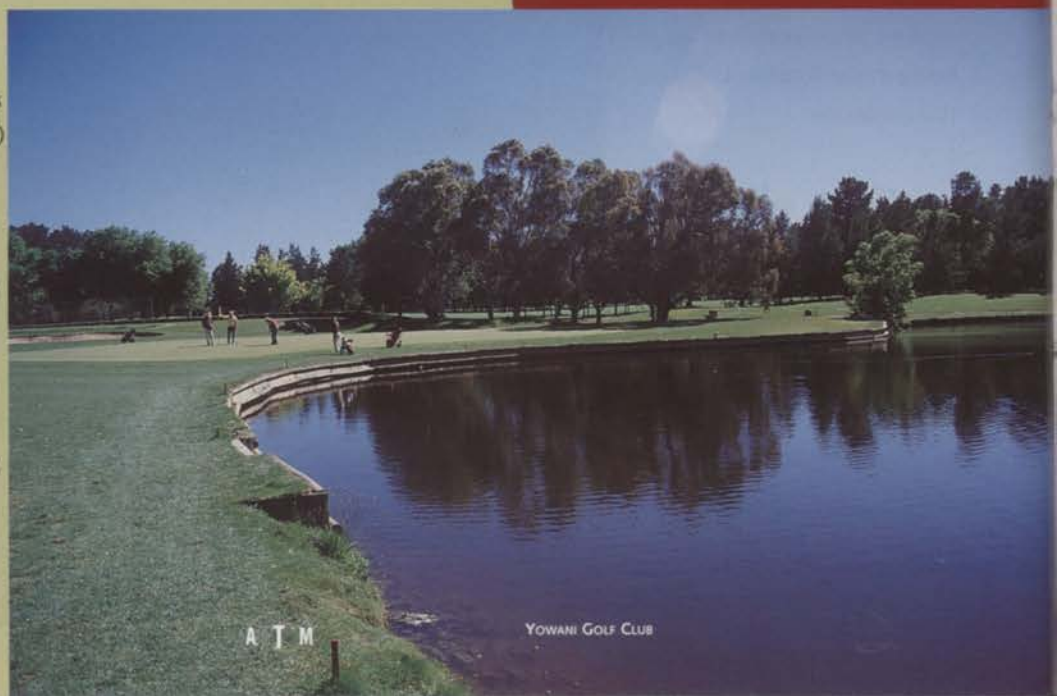
Clubs which have continually recorded higher than expected levels of nutrients are being consulted individually to assess possible sources of the nutrients and to develop a management plan to reduce nutrient inputs.

The project has achieved accreditation from the NSW State Government under their RiverCare 2000 program. This program 'serves to recognise and encourage individuals, companies, community groups and government bodies who are taking an active role in working towards Clean, Healthy and Productive Rivers by the year 2000'. Through this program, the clubs involved have been receiving recognition and publicity for their efforts to monitor and reduce pollution.

In 1997 the project won a silver award in the RiverCare 2000 scientific & research category.

RESULTS

A total of 110 sites have been sampled four times in 1996/97, 97/98 and 98/99. The interpretation of results has been based on the Australian and New Zealand Environment & Conservation Council (1992), Australian Water Quality Guidelines for Fresh and Marine Waters. This national document has been used in the development of NSW environmental protection legislation.



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For the purpose of analysis of the data, where possible the sites are divided into three groups:

1. ENTRY (237 samples in total to date) - Points where water is entering the course, that have no input from any runoff from the course. These sites include water entering through creeks or rivers, stormwater pipes and drains, effluent inflow pipes, bores and underground springs.

2. ON SITE (392 samples in total) - Points sampled from water bodies on the golf courses. This includes dams, drainage sumps and pipes, creeks, rivers and wetlands.

3. EXIT (214 samples in total) - Points where water leaves the courses. These sites include creeks, rivers and exiting drainage pipes.


ROYAL CANBERRA GOLF CLUB


CATALINA GOLF CLUB

The results indicate that the average levels of both phosphorus and nitrogen continue to be significantly highest in the entry samples (see Table of results).

SAMPLING SITE

	Entry	On site	Exit
Total N (mg/L)	1.73a	1.43b	1.08b
NOx (mg/L)	0.58a	0.33b	0.33b
Total P (mg/L)	0.42a	0.18b	0.09b
Soluble Reactive P (mg/L)	0.13a	0.09b	0.03c

Average nutrient levels in Entry, On-site and Exit samples.

Means followed by the same letter do not significantly differ ($P<0.05$)

Overall, the majority of samples are above the nutrient levels published in the ANZECC guidelines.

Polluted urban run-off which enters many golf courses was often found to have very high nutrient levels, particularly phosphorus.

Golf courses which continue to measure elevated nutrient levels are generally those courses which have been constructed most recently. The readings may therefore be a residual affect of the soil disturbance which occurred during construction. Further investigations are being made at these clubs.

Plans are underway for some of the clubs to continue the project past its formal conclusion in June. This would allow new clubs to also join the project.

Special thanks to all of the superintendents and secretary managers of the 44 participating golf clubs, for their support of the project and cooperation in sampling and data collection.

TURF

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Biological Control of Black Beetle Larvae (Heteronychus arator)

Dr Robin Bedding, CSIRO Entomology.
David Nickson, Peninsula Country Golf Club.

The criticism, from an environmental perspective of golf course development and maintenance over recent years has had some beneficial consequences due to extensive research conducted into pesticide fate and the greater concentration on integrated pest management for amenity turf.

Biological control measures are one of the options now available for use within an integrated approach to pest control in agriculture and turf with the potential to assist with the control of pests as diverse as Poa annua in greens, to insect and fungal infections generally. Unfortunately many products lack specific data to support manufacturers claims of efficacy and due to these shortcomings the VGA Turf Advisory Board in association with the Victorian Golf Course Superintendents Association intend to run a series of trials in an attempt to identify product potential for use in the turf industry.

One of these biological sources used for the purposes of insect control is entomopathogenic nematodes (ENs). Nematodes are normally associated with the potential to cause severe damage to golf and bowling greens but there are certain species that survive by feeding on insects. In Australia, the most outstanding success using ENs has occurred with the control of Sirex wasp infestations in pine tree plantations. This work was done by Dr Robin Bedding, research scientist of CSIRO Entomology, ACT. For a period in excess of 20 years, Dr.Bedding has researched ENs and their potential for insect control and in particular, the control of scarab larvae, a significant pest of both pasture and turf.

The genus of the ENs utilized by Dr.Bedding for scarab larvae control is Heterorhabditids. This species is able to detect the scarab larvae from its movement in the soil and an increase in carbon dioxide concentration. It then enters the scarab larvae and after releasing the bacteria Xenorhabdus, the scarab larvae dies from septicemia.

This EN was shown to be effective against the Argentine scarab (Cyclocephala signaticollis) larvae in Canberra and further investigation was required to determine its potential use for control of African Black Beetle larvae. A replicated trial, in association with Dr. Bedding commenced at The Peninsula Country Golf Club in early February 1999 on a site known to be infected with African Black Beetle larvae. A randomized complete block design was used with each plot measuring 2.5 metres by 4 metres, four treatments were each replicated three times. Two rates of ENs; a much lower dose of ENs combined with a very low rate of an insecticide that has proven to be effective for scarab control and an untreated control made up the treatments. The numbers of nematodes applied were (1) 500,000/m^2 - (2) 250,000/m^2 - and (3) 50,000/m^2 in conjunction with 40gms of imidacloprid.

Treatment 1. Normal rate of nematodes

Treatment 2. Half rate of nematodes.

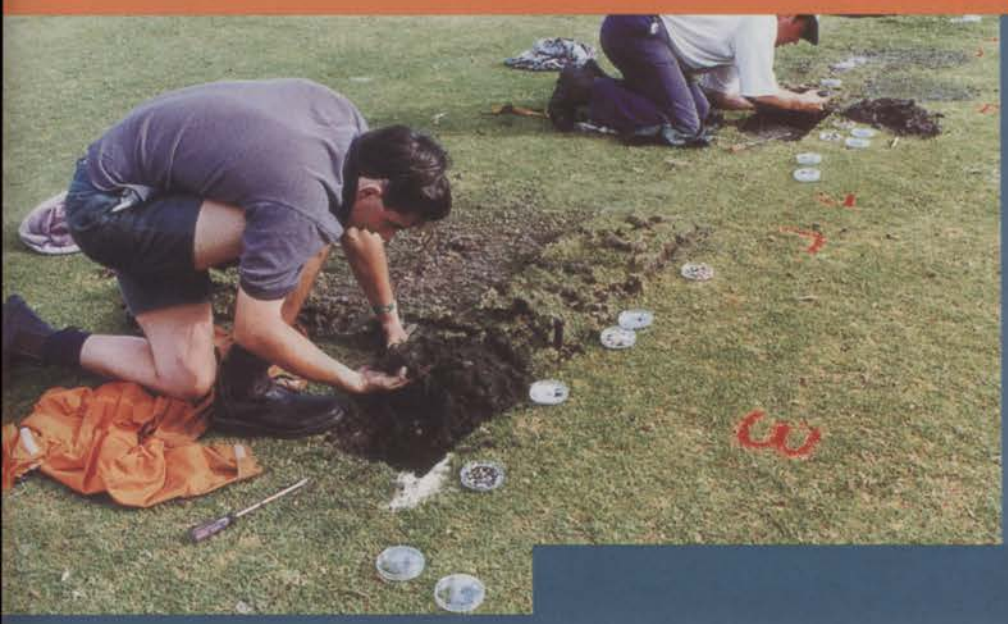
Treatment 3. Control.

Treatment 4. Combination nematodes + insecticide.

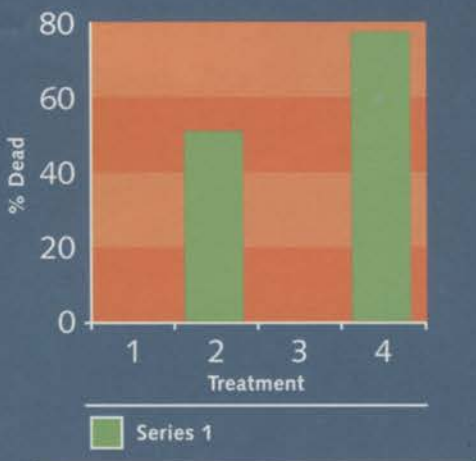
The application was made at dusk to minimize the loss of ENs due to UV exposure and they were applied through a boom spray with all filters removed, two hundred litres of water per hectare was used as the carrier. The nematodes then had 10mm of irrigation applied and the area was kept moist. This irrigation allows the ENs to move into and through the thatch on a film of water. It is yet to be determined if mechanical disruption to the turf surface such as coring or scarifying would improve ENs movement into and through the thatch layer but more than likely this would tend to be a site specific issue and would relate to soil type and moisture content.

After 4 days an informal inspection showed dead larvae in the ENs plots. A formal inspection was made 14 days after treatment which involved removing sections of turf and soil from each plot measuring 2 metres by 300mm by 100mm deep. Live and dead larvae and pupae were then counted.

Both rates of nematodes killed 50% of insects counted and after the initial count only the low nematode rate, treatment 2 and the control were assessed. One week later 75% of insects counted had been killed in treatment 2 receiving the low rate of nematodes. No dead larvae were found in the untreated control apart from a couple of insects infected with a fungus while the combination EN-insecticide gave the poorer control of 28%. Further informal counts in the low rate nematode plots gave control up to 100%.



Insect control 2 & 3 weeks after treatment



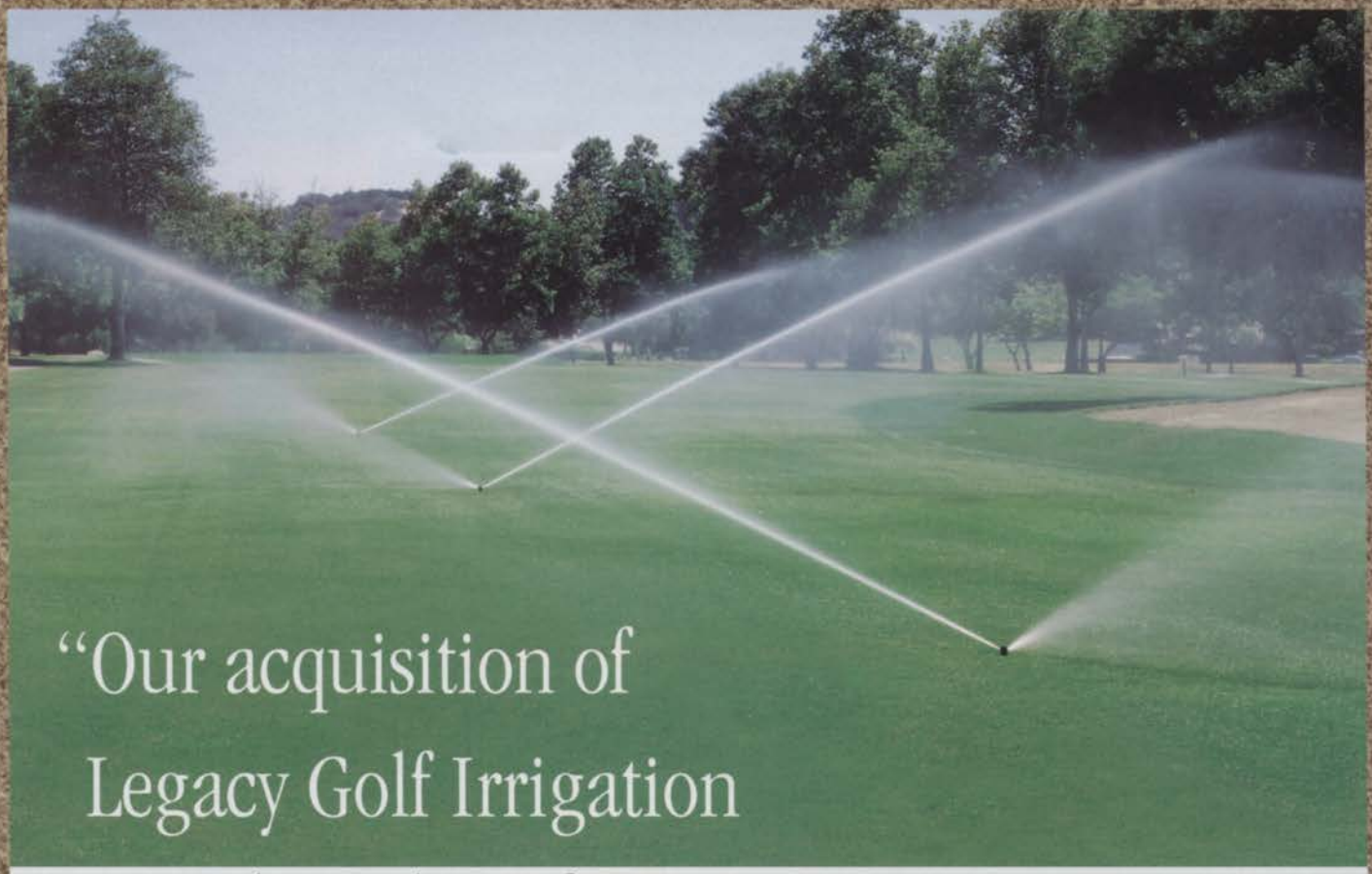
Treatment 1. Control. 2 weeks after application.

Treatment 2. Low rate of nematodes (250,000/m²). 2 weeks after application.

Treatment 3. Control. 3 weeks after application.

Treatment 4. Low rate of nematodes (250,000/m²). 3 weeks after application.

After infecting the insects the nematodes feed and reproduce resulting in a dramatic increase in nematode numbers and consequently infection of other larvae and pupae escalates. This accounts for the increased efficacy over time. Although there were not any counts taken, there



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>Continued from page 33

were dead Billbug (Sphenophorus brunnipennis) larvae and pupae observed in the plots where nematodes were applied and not in the untreated control plots.

By mid March it became noticeable that bird damage was still occurring in all of the control plots. In stark contrast to this were the treated plots where no evidence of bird damage was observed. Further counts did not reveal any significant differences between the treatments as the insect lifecycle had been completed in the control plots and in some of the plots that had been treated with nematodes up to 100% of the larvae had been killed.

Bird Damage

Untreated Controls Treated with EN,s

There are some interesting issues that may influence improved efficacy and affordability with further work. Some of these include; improved application techniques and the nematodes' potential to last more than one season (they will only survive if there are insects they can feed on). There is also the possibility of lower application rates, the further development of improved EN strains, genetic engineering to reduce the problems associated with UV exposure and desiccation. The screening of other insect pests for possible susceptibility and the identification of other nematodes that may have potential for further pest control are also strategies worthy of consideration.

The use of ENs for the control of scarab larvae and potentially the control of other insects in amenity turf gives the turf manager an effective alternative to current pesticides registered for this purpose. It also provides a responsible approach from an environmental perspective that need not be applied as a preventative against anticipated scarab infestations.

References

Nematodes and the biological control of insect pests.

Robin Bedding, Ray Akhumt and Harry Kaya, CSIRO, 1993.

Getting the Formula

Simon Gardini

Well you might question the role that turf plays in motor racing, most would say very little. However Formula One is not normal motor racing, it is a world of it's own, a world of perfection where the track, the suburb, the city, the state and indeed the country are on show to the world. The 1999 Qantas Australian Grand Prix attracted over 340,000 spectators and a live viewing audience in the hundreds of millions. Held at Albert Park each year, the event is more than just a 2 hour race. it is a way of putting both the park and Melbourne itself on the international stage. It is a clear demonstration to the rest of the world how well we can do things in Australia and what a wonderful city Melbourne is.

With this in mind, presentation of the track and surrounding park is given the highest of priorities. Many hours are spent on presentation and park maintenance during the eight week set up. Of equal importance is the dismantle phase post-event. Infrastructure is removed and the park restored to as good or better condition to that in which it begun 9 weeks before and full public use resumed as soon as possible.

Kirwan Landscaping & Construction's role as a sub-contractor to Abigroup Contractors is to improve, maintain and present the track and park during the set up period and restore the park post-event. Our works include turf maintenance and renovation, installation of temporary hardstand and asphalt walkways and vehicle access ways. It also includes coloring of gravel traps, installation of temporary race kerbs, painting of barriers, tyre buffers and race kerbs, spreading of mulch for walkways, dust and mud suppression and various other civil works too numerous to mention.

The Verge

During the eight-week construction period the presentation of the track verge and high profile areas is highest on the long list of priorities. The verge is the area of turf between the track and the barriers; other

right for turf

high profile areas include the team's area behind the pits and surrounding VIP facilities. Any turf manager would be truly impressed with the reverence shown to these areas. Vehicles are strictly forbidden from driving on the verge with their movement being closely watched by roving representatives of the project manager, Kinhill and the Australian Grand Prix Corporation (AGPC).

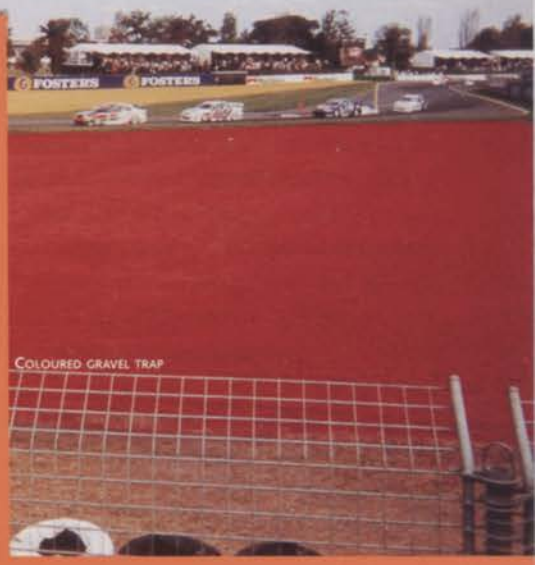
The co-ordination of the track build is quite amazing considering contractors must lift over 3000, 4 tonne concrete barriers into place by forklift, around 65000 kilograms of rock must be set down and leveled to construct the gravel traps and scaffolding and seats for grandstands must somehow be transported to their appropriate position, all without damage to the verge.

From the project commencement date in early January irrigation is of obvious importance in all areas of the park. The park has very variable soil conditions with parts having been a landfill site and drying out very rapidly whilst other areas hold water and become susceptible to damping off disease and algal growth. The combination of this variability and the fact that there is no automated irrigation system within the park makes watering a labor intensive, juggling act with staff on motorbikes working around the clock shifting impact sprinklers. The proximity of the verge to the road and its radiant heat presents further difficulties necessitating the use of water tankers which circulate the track regularly.

Mowing and edging of the verge, which should be a less complicated procedure, is hampered by the thousands of green bollards and lengths of chain which line the road year round to protect the park from would be wheel spinners. Although the chain is removed quite early in the project, to allow access for the installation of barriers, the posts are replaced to maintain protection of the turf from vehicles whilst the park roads remain open. As the roads and park remain open to the public right through the 8 week set up, it is not until race week itself that the posts are removed and the mowers can get a clear run. Mowing itself is carried out both on the verge and throughout the park by rotary mowers of varying sizes ranging from standard domestic walk behinds up to tractor drawn stealth mowers. In the final stages of preparation for the race, verge areas are switched to cylinder mowing and patterns cut into wider verges with consideration given to camera angles for television coverage.

Even the edging of the track itself presents its own set of minor Grand Prix related problems. The use of a mechanical tractor mounted edger, whilst being the most efficient option, is restricted due to the induction lines (used for race timing) located under the track and verge.

These lines are maintained by Formula One Administration, the television network responsible for race timing and in-car cameras, and must be protected from damage. During the final edging of the track no chances are taken with the work restricted to staff walking the 5.3 kilometre track (twice if you account for both sides) brushcutters in hand.



COLOURED GRAVEL TRAP

Formula One Speak

With F1 comes a whole new language, plooibakens, swariflex's, velalunga and layback kerbs just to name a few. Here's a brief introduction to the world of F1 speak.

Layback Kerb – The section of concrete kerb situated on the inside of each turn where cars are likely to put their inside wheels onto the verge ie. Cut the corner. These kerbs are painted in race colours, (red, white and black, the colours of Qantas as the naming rights sponsor), during the event and returned to green for the rest of the year.

Velalunga Kerb – Best known as the "ripple strip" and is the opposite of a layback kerb which has a flatter profile. These, like the layback kerbs, are painted in race colours for the event and are positioned at the exit of each turn on the outside of the track where the cars are most likely to put their outside wheels onto the verge when completing the turn.

Plooibakens – These are plastic, green bollards with white reflective tape positioned at the apex of each turn inside the layback kerb. They are bolted to concrete footings and are protected by small tyre stacks during the V8 Supercar and Nascar events.

Swariflex – Also known affectionately as "floppys" or delineators, these are the yellow rubber flaps mounted along the track edge in strategic locations to help the drivers identify where the track starts and stops at the ridiculously high speeds these

guys like to motor around at. The floppys themselves are attached to a generous steel base before being bolted to a concrete footing. Whilst this appears like engineering overkill, these are the measures necessary to ensure that the cars do not pull them straight out of the ground at first contact.

Debris Fence – These are the heavy duty steel fences mounted on top of the concrete barriers to prevent cars, or pieces of cars, from flying into spectator areas.

Brake Markers – Coming into each turn the drivers have an aversion to driving straight through and into the gravel trap or barriers. To reduce this occurrence and help them to stay on the track, brake marker signs are installed to let the drivers know exactly how far they have to the turn. These are mounted on PVC frames with nylon nuts and bolts (as steel bolts pose too greater threat if they fall onto the track); the frames are then secured to the debris fence. The signs are placed at 150, 100 and 50m from the turn.

Marshall Zone – The continuous access path around the entire track, inside and out, which allows marshalls and emergency vehicles to carry out their duties unhindered by spectators. Standby crews including fire, ambulance, road sweepers, cranes, security, police and the marshalls themselves are stationed within this zone.

F1 Paddock – This holy zone is privy to F1 teams and staff and comprises the pits, the teams hospitality area and further space beyond where equipment and supplies, including tyres and fuel, are secured.

National Race Paddock – This is the area where all competitors other than F1 have their cars and equipment. Temporary garages are created with state of the art tents where the teams can work on their cars, which include the V8 Supercars, historic and classic cars, Formula Fords and Nascars. If you get the opportunity this area is well worth a look as you can get a lot closer than normally would be possible to some of Australia's best drivers and racing teams.

Another aspect of on site talk is the practice of referring to areas in terms of the turn numbers and driver's direction of travel. There are 16 turns around the Albert Park circuit, turn 1 (T1) being a right hander at the top of pit straight, T2 the following left hander and so on in a clockwise direction (driver's direction) around the track to T16 where the drivers swing right into pit straight once more. Thus the driving range near the new swimming centre is located at T2.5DL (halfway between turn 2 and 3 on the left-hand side of the road as the drivers see it). Albert Park Golf Course runs from T7DL to T12.5DL.

Civil Works

In addition to the turf related works performed at Albert Park Kirwan Landscaping & Construction is also responsible to Abigroup for various civil works.

Over 1.4km of race kerbs are painted red, white and black, over 5,500 sq. m. of barriers are painted green, over 1.3 km of tyre buffers are painted red, white and black on the front and across the top of the tyres, 700m³ of mulch was spread and over 3000 sq. m. of temporary hardstand and asphalt laid.

QANTAS

Two temporary fuel dumps, one in the F1 Paddock and one in the National Race Paddock, are constructed to ensure all fuel is safely stored and that there is no chance of fuel spills in the park. These are basically lined, sand bag, bunded areas where F1 fuel is stored on pallets. Fuel for other cars in the National Race Paddock, is fed directly from a tanker parked within the confines of this dump.

As part of the standby crews, we supply a Track & Civil standby team ready to take care of running repairs to equipment around the track during the times when the track is "hot". The track is considered hot from 8.30am each morning when contractors must clear and it is handed over to race control. It becomes cold around 6.30-7pm after racing has finished and has been cleared and special removable barriers opened to allow contractor access once more. During this hot period, cars may tear out swariflex's or hit tyre buffers or barriers and dislodge or destroy them. If it is deemed necessary the appropriate crew may be called upon to rectify the damage between races. The efficiency of these crews was demonstrated in no uncertain fashion this year when a V8 Supercar smashed into the barriers in the race prior to the main F1 event on Sunday afternoon. The incident occurred at T13.5DL and the impact was hard enough to shift the 4 tonne barrier 1.5m backwards and break away sections at each end where it was linked to adjoining barriers. Being the last event before the running of the Grand Prix it was crucial that repairs be made and made quickly. A barrier crew from Mayne Logistics was dispatched, the debris fences removed, 1 barrier removed and replaced, 2 barriers realigned and the debris fences replaced. While this was going on track sweepers were cleaning up the mess created on the track surface and the civil crew replaced 2 swariflex's torn out by the V8's. The turf also got some attention with running repairs being made to loose turf torn up on T2DL in the middle of the Qantas logo. All this was achieved in less than 15 minutes.

The introduction of coloured gravel traps, which has been done since the first GP in Melbourne in 1996, was a world first and is certainly one of the major tasks that must be performed during our pre-event works. The traps, containing around 65 tonne of gravel, cover approximately 2.3 hectares of ground. They are initially sprayed on the

Getting the Formula right for fun

Wednesday of Race Week and again on the Saturday evening to ensure they are in prime condition for Sunday's event. Two of the key criteria apart from the aesthetic qualities of the colorant are also environmental friendliness and rainfastness. This year we were set the task of coming up with more vibrant colours to contrast the surrounding turf whilst still complying with these requirements. Our quest led us to "Rock Magic" a Becker-Underwood product manufactured in Iowa, USA and distributed through Chemturf. They were able to colour match samples provided by us and, although we were sweating on the timely arrival of the product, it was received with 2 days to spare. The gravel traps are sprayed by hand, as vehicles are unable to negotiate the deep gravel designed to stop cars from hitting the barriers at high speed. This process takes much of the night, particularly on Saturday when access cannot be gained to the track until after 7pm. Walking through the gravel is extremely tiring on staff, whilst obtaining a consistent colour is difficult as works are performed using portable lighting towers. Having said this, the new gravel trap colours were certainly well received in 1999, helping to make the staff that slept through the race the following day feel like their effort and sacrifice was worth it.

Post-Event Restoration

The Sunday night after the event is historically a long one. After almost 9 weeks of intense preparation for the event it doesn't seem to matter how many hours you have gone without sleep, you still extract enough energy to celebrate the completion of the event itself. When Monday morning dawns it is an odd and somewhat hollow feeling, however a crucial part of the project works still remains after the cars and teams have made their rapid departure overnight. As Albert Park is a public recreation area the AGPC are committed to its restoration to an as good or better condition than that in which it is found at the commencement of Grand Prix occupation. Ovals are renovated and areas under gravel traps and barrier lines are restored as a matter of course. In addition, any other areas where the event and its associated infrastructure or traffic has had an adverse effect, are assessed and the appropriate level and type of renovation programmed.

In all there are 21 playing fields occupying over 21 hectares within the park. These are fully renovated including aeration, topdressing, laser grading, oversowing and fertilising under a tight schedule to ensure their timely return to the various sporting clubs existing within the park. Timing of renovation is programmed with consideration to removal of infrastructure including barriers, grandstands and gravel traps from ovals and the thorough cleaning of the turf surface to ensure no foreign materials remain. As soon as a field becomes available, the renovation crew begins an operation that sees 18 out of the 21 playing fields either returned to Parks Victoria control or renovated within 2 weeks of the event.

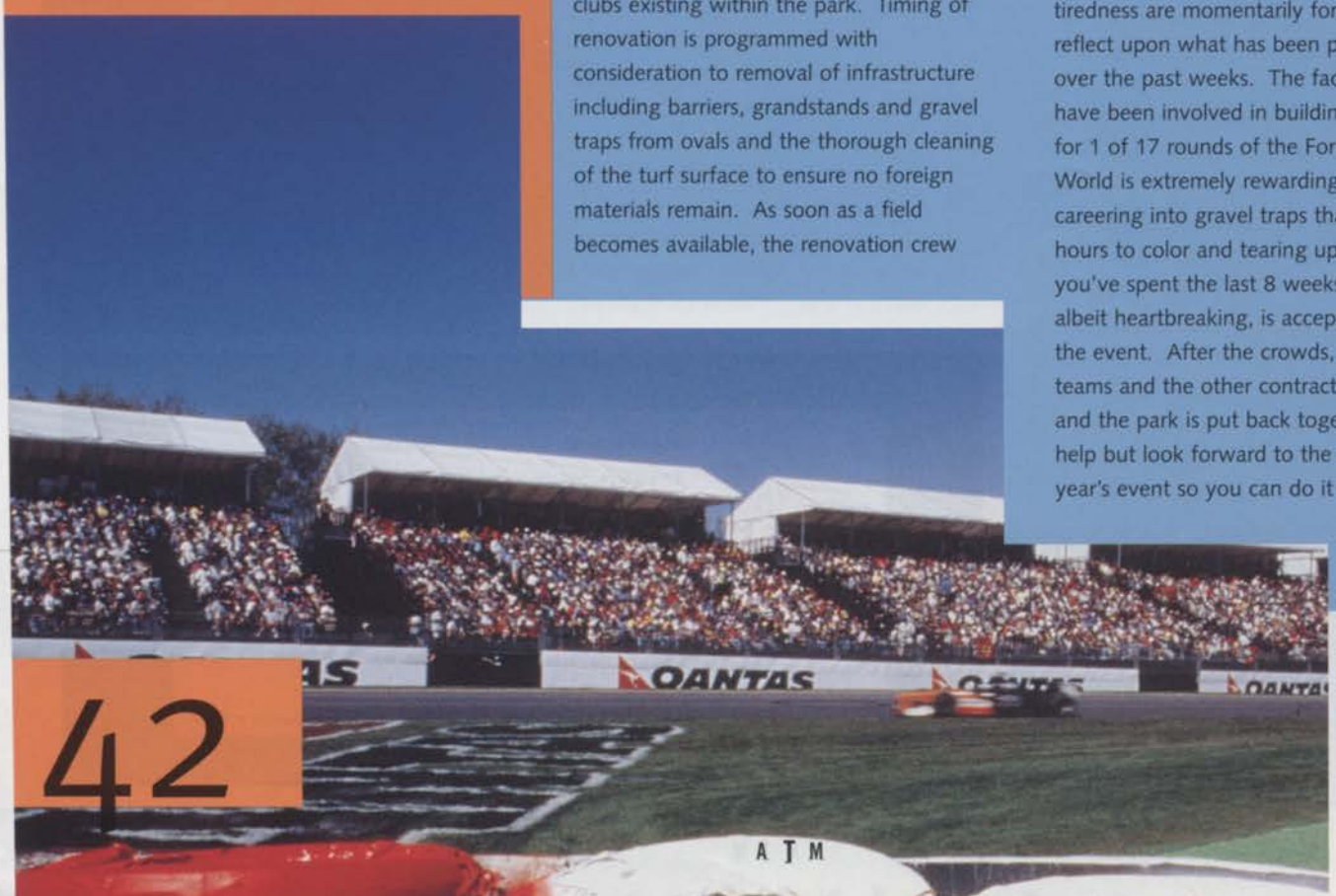
Barrier lines are cultivated, topdressed and oversown, hardstands and mulch are removed and the underlying ground reinstated. Temporary asphalt is torn back up and filled with turf sand. Traffic islands are replaced and swariflex bases removed and the holes reinstated around the park roads. Whilst not having the high profile of the pre-event presentation works, the importance of the restoration of the park in the post event period cannot be understated as it is an integral part of the overall projects success.

The Grand Prix Cycle

It is difficult to describe the satisfaction that everyone involved with this event gets from building and presenting the track to the world. Staff during Race Week run on adrenaline and put in enormous hours. Whilst their financial reward is attractive, it is truly an event into which one must put their heart and soul to produce the results expected. Certainly there is nothing like the feeling you get when the first car thunders around the track. The stress and your tiredness are momentarily forgotten as you reflect upon what has been put together over the past weeks. The fact that you have been involved in building a racetrack for 1 of 17 rounds of the Formula One World is extremely rewarding. Cars careering into gravel traps that took you 12 hours to color and tearing up turf that you've spent the last 8 weeks caring for, albeit heartbreaking, is accepted as part of the event. After the crowds, the cars, the teams and the other contractors are gone and the park is put back together, you can't help but look forward to the following year's event so you can do it all again.

TURF

Special thanks must go to Graeme Rogers, John Spencer and Mark Prosser for their assistance throughout the project



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Crop Care

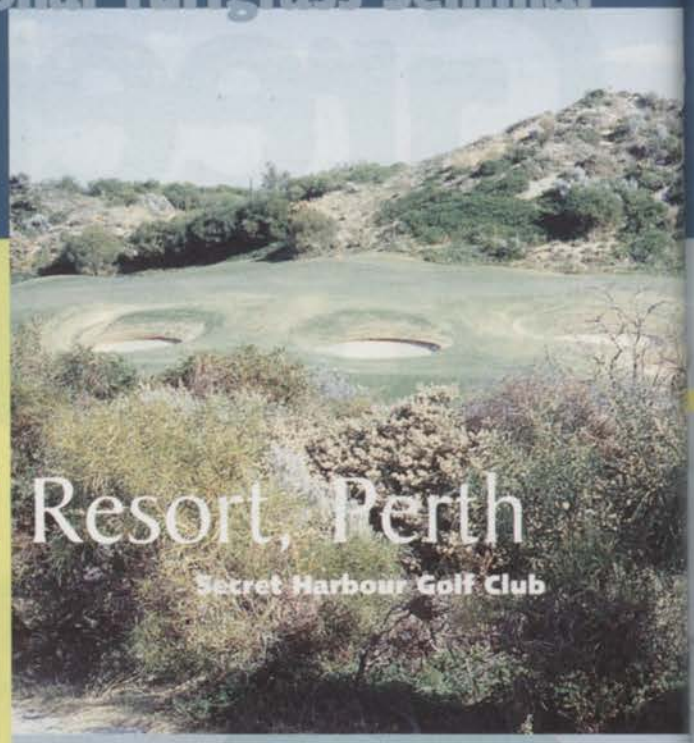
BEAR IRRIGATION

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

CHEMTURF

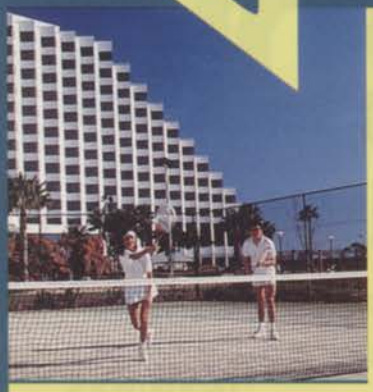
LEADERS IN TURF INNOVATION, TECHNOLOGY AND SERVICE

4th National Turfgrass Seminar



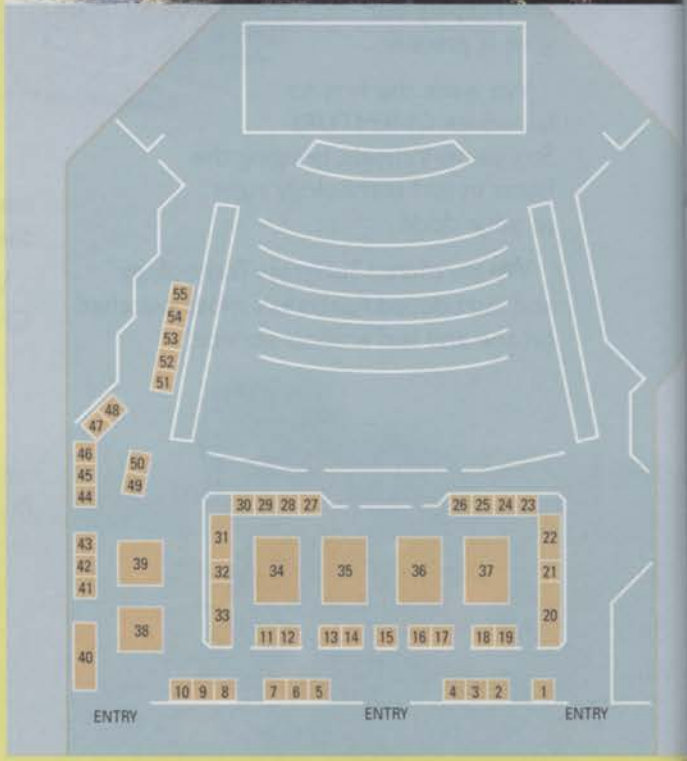
Burswood Resort, Perth

Secret Harbour Golf Club



SECRET HARBOUR GOLF CLUB

Professor Bruce Martin and Walter Woods head the line- up for the AGCSA's 4th National Turfgrass Seminar to be held in Perth in July 1999. Walter Woods, the legendary ex-Golf Course Superintendent from the Royal and Ancient St. Andrews Golf Links will discuss changes in turfgrass management philosophies during his Superintendents life. Professor Bruce Martin, from Clemsen University will present a keynote address on the topic, "Disease Management in Turf – Strategic Planning to stay on course" and two workshops on the topics "Developing Integrated Nematode Management Programs" and "Optimal Disease Control for Bentgrass Greens". The theme for the seminar is better management and the program is divided into three workshop streams. Delegates have a choice of two-hour workshops and must pre-register on the registration form in advance of their attendance in Perth. The AGCSA has negotiated social golf for delegates on the Thursday following the event for those wishing to sample the fine golf courses available in Perth. Evening workshops focus on Public Speaking and will be presented by the Australian Institute of Management.



The 1999 AGCSA Golf Championships, presented in partnership with the Toro Company, will be held on Sunday July 18th at the Secret Harbour Golf Club.

4th National Turfgrass Seminar

PRELIMINARY PROGRAM- 4th NATIONAL TURFGRASS SEMINAR

Saturday 17th — Awards Judging
Sunday 18th — Golf Championship, Trade Show Set-up
6.00pm-8.00pm Welcoming Cocktail Reception
3.00pm-6.00pm Registration

DAY	TIME	STREAM A	STREAM B	STREAM C
MONDAY JULY 19th	8.00AM-9.00AM	OPENING SESSION Showroom, Burswood Convention Centre Walter Woods Opening Presentation		
	9.00AM-11.00AM	TRADE SHOW	TRADE SHOW	TRADE SHOW
	11.00AM-1.00PM	**WORKSHOP 1A** "WA Water Use Study" – Digby Short, Univ. of WA "VGA Low Input Fairway Grass Trial"- Phil Ford, NMCOT "Austep Trials" John Neylan, Turfgrass Technology	**WORKSHOP 1B** Thinking Superintendents: Jeff Lane: "Poa control through better management techniques" Trevor Strachan – "Construction of Port Kennedy Resort" Dion Warr – "The use of Global Positioning Systems in Golf Course Management"	**WORKSHOP 1C** "Challenges in restoring native flora and fauna on golf courses" David Aldous, Burnley College
	1.00PM-3.00PM	LUNCH/TRADE SHOW	LUNCH/TRADE SHOW	LUNCH/TRADE SHOW
	3.00PM	TRADE SHOW CLOSE	TRADE SHOW CLOSE	TRADE SHOW CLOSE
	3.00PM-5.00PM	**WORKSHOP 2A** "Developing Integrated Nematode Management Programs for Turf" Professor Bruce Martin, Clemson University, South Carolina	**WORKSHOP 2B** Thinking Superintendents – Robert Macdonald – "Water Management in Lakes at the Joondalup Country Club" Allan Devlin: Construction of the Secret Harbour Golf Club	**WORKSHOP 2C** "Natural Turfgrass Management" David Aldous, Burnley College
	7.00PM-9.00PM	**WORKSHOP 3** Public Speaking- Session 1: Presented by the Australian Institute of Management Pre-registered delegates only		
TUESDAY 20TH JULY	8.00AM-10.00AM	**WORKSHOP 4A** "Optimum Disease Control for Bentgrass Greens" – Bruce Martin, Clemson University, South Carolina	**WORKSHOP 4B** Thinking Superintendents: Trevor Strachan: "Tournament Preparation" Wayne Millar: "Installation of New Irrigation System at Lake Karrinyup"	**WORKSHOP 4C** "A look at biological products in turf management" John Neylan, Turfgrass Technology
	10.00AM	**TRADE SHOW**	**TRADE SHOW**	**TRADE SHOW**
	1.00PM-3.00PM	**WORKSHOP 5A** "Staff Counselling and dispute resolution procedures" – Australian Institute of Management	**WORKSHOP 5B** AGCSA Award Winners	**WORKSHOP 5C** "Washdown Bays, and Water/Pesticide Management", Steven Appleyard, WA Water & Rivers Commission
	3.00PM-4.30PM	**TRADE SHOW**	**TRADE SHOW**	**TRADE SHOW**
	4.30PM	**TRADE SHOW CLOSES**	**TRADE SHOW CLOSES**	**TRADE SHOW CLOSES**
	5.00PM	**AGM**	**AGM**	**AGM**
	7.00PM-9.00PM	**WORKSHOP 3** continued – Public Speaking, Session 2		
WEDNESDAY JULY 21ST	8.00AM-11.00AM	**KEYNOTE ADDRESSES** "Disease Management in Turf – Strategic Planning to Stay on Course" Bruce Martin, Clemson University, South Carolina "Managing St.Andrews", Walter Woods		
	11.00AM-12.00	**LUNCH**	**LUNCH**	**LUNCH**
	12.00-5.00PM	**TOUR**	**TOUR**	**TOUR**
	7.00PM-11.00PM	**DINNER**	**DINNER**	**DINNER**
THURSDAY JULY 22ND	Golf Options	Joondalup Golf Club, Gosnells Golf Club		

Trade Exhibition

Exhibitor Listing as at Dec. 98

Exhibit Number	Company
6	Plasticisers/Loksand
7	Plasticisers/Loksand
8	Scotts
9	Scotts
10	Scotts
11	Novartis
12	Rural Press
13	Chipco
14	Chipco
15	DGE
16	Hunter Industries
17	Hunter Industries
20	Club Car
22	Chemturf
25	Turf & Irrigation
26	Turf & Irrigation
27	Tru Turf
29	Robert Lintons
30	Barmac Industries
33	Redexim
34	John Deere
35	AGCSA
36	Textron Turfcare Group
38	Toro
39	Toro
40	Hardi Sprayers
41	Graden Turf Machinery
42	MEY Equipment
43	Heritage Seeds
44	Rainman
45	Symonds Seeds
46	Simplot
51	Gripske & Sons
53-55	Exhibitors Lounge

To obtain a copy of a registration form or to book exhibit space at the seminar please call the AGCSA direct on (03) 9886-6200.

Australian Golf Course Superintendents Association & State Associations Membership Application

AGCSA membership:

- **enhances your job security**
- **provides you with peer support**
- **assists you with timely advice**
- **increases your professionalism through recognition of your skills**

By

- **arming you with the latest information through AGCSA publications including Australian Turfgrass Management, AGCSA Online web site and AGCSA Action Newsletter**
- **providing opportunities for continuing education at local, regional and national level**
- **providing access to an industry recognised qualification through the AGCSA Accreditation program**
- **providing legal advice and sound employment agreement guidelines**
- **staging the Australian Turfgrass Conference and Trade Exhibitions**
- **representing the interests of Golf Course Superintendents to the government, golf associations and golfing media**
- **promoting the role of the Golf Course Superintendent in golf publications and to the wider community**

AGCSA Membership Classes

Class A	*Course Superintendent/Course Manager*	*$200.00*
Class B	*Assistant Superintendents*	*$170.00*
Class C	*Trade Members/Individuals*	*$170.00*
Class C	*Foreman/Leading Heads/Ground Staff*	*$140.00*
Class AI	*International Class A Members*	*$245.00*
Class E	*Life Members/Honorary Members*	*Nil*

State Associations

- New South Wales Golf Course Superintendents Association (NSWGCSA) Membership Fee: $60.00
- Golf Course Superintendents Association of Queensland (GCSAQ) Membership Fee: $80.00 (Plus $15 joining fee)
- South Australian Golf Course Superintendents Association (SAGCSA) Membership Fee: $50.00
- Victorian Golf Course Superintendents Association (VGCSA) Membership Fee: $90.00
- Tasmanian Golf Course Superintendents Association (TGCSA) Membership Fee: $60.00
- Golf Course Superintendents Association of Western Australia (GCSAWA) Membership Fee: $80.00

Membership Application Form

Surname: _____

First Name: _____

Preferred Mailing Address: _____

City/Suburb: _____ Postcode: _____

Position: _____

Club/Organisation: _____

Postal Address: _____

City/Suburb: _____ Postcode: _____

Phone: (w) _____ (h) _____ Mobile: _____

Fax: _____

Email _____

Tick Which Association(s)you wish to join

☐ AGCSA ☐ VGCSA ☐ NSWGCSA ☐ TGCSA ☐ GCSAWA ☐ GCSAQ

To join the associations your application must be signed by two current Golf Course Superintendent members of the association.

Signed: _____ Signed: _____

Date: _____ Date: _____

Membership Payment

Membership payments for any of the above associations are to be sent to the AGCSA. ? I enclose my cheque/money order made payable to the AGCSA, or

☐ Please charge this purchase to my credit card account

☐ Bankcard ☐ MasterCard ☐ Visa

Card Number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Expiry Date: ____/____

Cardholder Name: _____

Address: _____

Signature: _____

Send completed application form and payment (made out AGCSA) to:

AGCSA

Level 1

19 Railway Parade North

Glen Waverley, 3150

A T M

STOP PRESS – WARNING ON COBRA

Heritage Seeds wish to advise the Australian Turf industry that COBRA Bentgrass not packed in a genuine COBRA bag (11.34kg) displaying a Line # and a Blue Oregon Certified Seed Tag which matches that line number, is not genuine COBRA seed.

Heritage Seeds are the sole authorised importers of genuine certified COBRA, which guarantees Cobras' varietal integrity. The seed sold through their distributor, Chemturf and their designated reseller network has been sampled and passed by Australian Quarantine for legal sale within Australia.

If you have any questions or issues that you wish to discuss please call **Michael Reese of Heritage Seeds on (03) 9561-9222**.

drumMUSTER – FOR DISPOSAL OF CHEMICAL CONTAINERS

drumMUSTER is a new scheme introduced by the chemical industry predominantly for the agricultural sector for the safe collection and disposal of non-returnable chemical containers. It is not yet clear whether any companies selling turf registered products will also become involved in the program. As it presently stands, only those states that have legislation allowing turf managers to utilise products with an agricultural label (eg. Victoria) will be able to access the program in the long term.

The drumMUSTER program is an exciting initiative. Users of crop protection and animal health chemicals are responsible for correctly cleaning the empty containers with flushing, pressure rinsing, mechanical rinsing or triple rinsing. They then bring the empty, clean container to their local drumMUSTER collection centre on designated days. These collection centres are managed by participating local councils, who may contract independent materials recovery contractors (or use their own facilities) to process and transport the collected containers. These drumMUSTER collection centres are funded by the drumMUSTER levy whereby users of the chemical, pay a 4 cents per litre or kilogram levy on crop protection products sold in non-returnable chemical containers over 1kg or 1 litre in content. The levy pays for trained staff to inspect containers at the collection centre, for councils to process the containers, and for councils to alert chemical users to the location and timing of the drumMUSTER collection days. DrumMUSTER is managed by a group comprising representatives of the NFF, Avcare, VMDA and ALGA. Agsafe, the training and accreditation company which services the crop protection chemicals sector will administer the program. Containers attracting the drumMUSTER levy and able to be taken to the collection centres will be labelled with a drumMUSTER label. Labelling of such containers commenced in February, however, due to the large number of containers already in the distribution chain, clean non-returnable crop protection chemical containers without the drumMUSTER sticker will be accepted for the first year of the program. This provides turf managers with an opportunity, at least in the short term, to avail themselves of these collection days. Further information on the program can be found at www.avcare.org.au/publications/drummuster.html

HUNTER HOLDS COURT WITH CONSULTANTS

Approximately 20 irrigation consultants from all over Australia converged on the Ansonia Hotel in Ballarat, Victoria to look in detail at the new Hunter residential/ commercial product range and the new Legacy by Hunter range of central controllers and data retrieval units. In addition to the 20 delegates, 8 Hunter staff were present including support and technical staff from the United States.

ON THE NINTH DAY THEY PLAYED BOWLS

It was all hands on deck at the Albert Park Bowls Club in Gympie Qld, when at 4am on the 10th February, nearby Mary River peaked at a height of 21.95m. The clubhouse was almost completely submerged and it took 36 hours for the waters to recede. Errol Lynam, veteran greenkeeper of over 30 years has been flooded out 8 times so is no stranger to high water. When the "oceans" finally parted Errol threw his well oiled plan into action and quickly had the local fire brigade on site to help wash away the 250mm of mud that covered the greens. Both greens were then deeply scarified and groomed to dry them out and after dealing with an outbreak of Black Helminthosporium the greens were fertilised and mowed 6 days after the water had receded. Ditches and gardens were repaired, greens were rolled for a day and amazingly they were back in play and running at 14 seconds no less than 9 days after the flood. I am sure you will agree this is a fairly impressive performance and as such Errol has been recognised on page 8 as a "winner".

HUGALL & HOILE TAKE ON RAIN ONE

In a deal worth $2.83 million Perth based irrigation specialist Hugall & Hoile has purchased the Rainbird distribution business from Queensland's Southern Cross Pumps and Irrigation. The new entity is a wholly-owned subsidiary of Hugall & Hoile and will be called "Rain One". Rain One will be based in Adelaide and will give the company a much broader infrastructure.

Rainbird irrigation products, manufactured in the United States and sold worldwide, range from micro sprays to computerised golf course irrigation systems.

A NEW ERA IN RAIN BIRD DISTRIBUTION...

Further to ongoing negotiations between Controlled Sprinkler Supplies (CSS) and Rain Bird International Inc., the companies are pleased to announce that CSS has been appointed a Rain Bird Master Distributor for Australia, effective 1st November 1999.

Despite recent changes to Rain Bird distribution in Australia, there will be no disruptions to the supply of Rain Bird products currently available through CSS.

For further details on pricing, availability and product performance of Rain Bird Landscape Products, please contact your local CSS office.

PERTH WATER USE STUDY

The Western Australian Water Corporation has begun a $700,000 study of water use in 120 Perth households to better understand present and future customer requirements. The homes of volunteers have been equipped with special "smart meters" to provide detailed information on how much water is being used both inside and outside the homes.

Water usage at these properties will be recorded continuously from January 1999 through to March 2000 and general water consumption and wastewater patterns in the areas where the volunteer homes are located will also be checked for comparison.

As part of the study, monthly water use readings will be taken at another 600 Perth homes to help determine seasonal variations. As well as providing the Corporation with up-to-date details on internal and external water use, the study will also indicate how much wastewater is being generated and help determine the actual savings to be made by using various water saving devices.

Water Resources Minister Dr Kim Hames has announced more than $1.5 billion in new capital works over the next five years, and the study will help ensure that investment is used in the most appropriate areas.

The Water Corporation is working closely with the CSIRO on the study. The outcomes will be used by the CSIRO in its Urban Systems Program.

For further information contact

Caroline Lacy, tel. **(08) 9424 7450**

IT'S A BIRD IT'S A PLANE IT IS A PLANE!

Staff and golfers got the shock of their lives on the afternoon of Sunday 21st March when the pilot of this light aircraft lost oil pressure and was forced to make an emergency landing on the 13th fairway at Pymble Golf Club in NSW.

The pilot had time to circle before making his forced descent, demolished two small trees on approach (hence the missing wing and tail section) and made a perfect landing.

Course Superintendent, Scott Harris informs us that there was virtually no damage to the course apart from a long oil burn.

TURF

GETTING DIRTY WITH THE AGCSA

The AGCSA's recent "hands on" roving workshops, "Maximising Soils and Soil Conditions" toured eastern Australia in March. Delegates were provided with the technical theory behind soil structure and what makes a healthy soil. They were then able to get their hands dirty, undertaking a range of both laboratory and field tests. These included such things as Hydraulic Conductivity, determining the Moisture Release Curves for a range of sands, and field tests including the Ring Infiltrometer test, taking Penetrometer readings, and surface hardness tests using the Clegg Impact Hammer. The three workshops were delivered by Michael Robinson, Jyri Kaapro and John Neylan from Turfgrass Technology. The aim of the workshops was to provide a look at the fundamentals of turfgrass soils and how soil problems are often the pre-cursor to a range of turf growth problems. The workshops were accredited with the AGCSA and each delegate received two Continuing Education Points for their attendance at the event.

The AGCSA's next roving workshop series will be held later in the year combined with the Australian Golf Union and the Golf Club Secretary Managers Association. Further information can be obtained by contacting **Euan Laird on (03) 9886-6200.**

new products

JOHN DEERE'S NEW 2500 GREENSMOWER

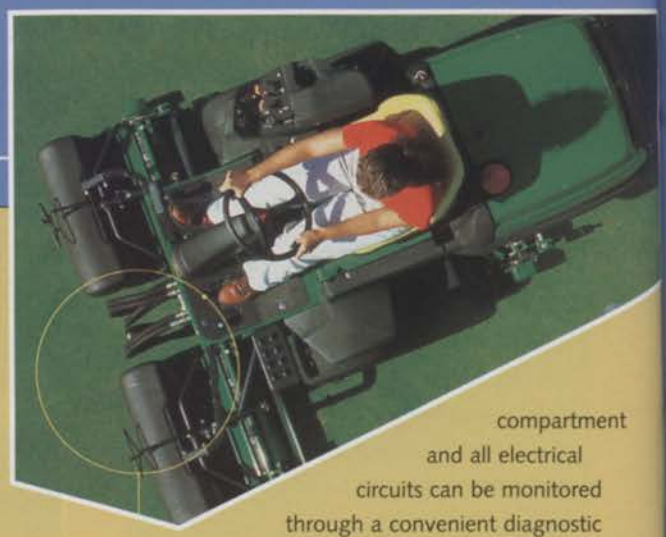
Designed by Superintendents for Superintendents

After three years of testing and feedback John Deere is ready to release the new 2500 Tri Plex Greensmower into Australia. Designed by Superintendents for Superintendents, the 2500 went through a vigorous testing and evaluation process before its release. Deere and Company engineers had only one goal in mind, to produce a Greensmower that superintendents, technicians and operators wanted.

The first area they focused on was the quality of cut. The 2500 features fine-tuned reels that provide clean crisp cutting on both straight and cleanup cuts. The patented offset cutting unit design provides a reduced wear traffic pattern on the clean up cut area of the green while giving the operator a clear view of the cutting units. The new "Quik Tatch" systems means cutting units can be removed in a matter of seconds, and reel settings are made even simpler with the new bedknife-to-reel design.

Operator comfort and convenience was also a high priority. The 2500 features a newly designed control arm that provides finer tip control of the throttle, reel drive, and the height of the cutting units. The control arm also displays engine and coolant temperature, and engine oil pressure. The 2500 also features an ergonomic seat and five-position steering wheel that can be easily adjusted. Customers also have a choice of liquid cooled 19 horsepower diesel or petrol models.

Servicing a Greensmower has never been this easy. Fluid levels are easy to check and all daily maintenance can be conducted on the left-hand side of the machine. The tilt back hood and seat platform makes it even easier to access the engine compartment and all electrical circuits can be monitored through a convenient diagnostic box. Reducing diagnostic time and the need to remove vital components to access key areas. For a demonstration talk to your local John Deere dealer.



John Deere Limited
166-170 Magnesium Drive,
Crestmead QLD 4132
Tel: (07) 3802 3222
Free phone: 1800 800 981 (Aust only)
Fax: (07) 3803 6555
Email: JDLAUST@DEERE.COM

VERTI-DRAIN: THE HIGH SPEED BIG MODELS

At the GCSAA show in Orlando, Redexim-Charterhouse launched the 75 series Verti-Drain.

The 75 series has the same characteristics as the previous one. They break soil compaction through a depth of 400mm and are suitable for work on hard and stony conditions.

The 75 series has between 27 and 28% more capacity, are considerably more user friendly and include extras such as;
1) A central quick adjustment lever for a fast adjustment of the tyne angle;
2) extra safety plates;
3) standard rear rollers;
4) a standard tool box and
5) maintenance free self-lubricated/ sealed bearings.

A wheel kit can easily be bolted on, which makes the pulled 75 series version cheaper than before.

Due to high demand and delivery commitments in the USA availability is limited until June 1999.

The first demonstrations on Australian soil will take place in Brisbane.
For more details call G.L. Palm Equipment on (07) 3277 7599.

NEW OUTFRONT MOWER COMBINES PRODUCTIVITY & STABILITY

A combination of class-leading cutting power, high ground speed, maneuverability and stability in the latest offering from Toro Wheel Horse has produced a highly productive outfront mower, capable of cutting up to 11 hectares a day.

The new Toro Z master 325 Outfront ZRT mower is a totally new unit, having been designed from the ground up to provide efficiency and versatility for a wide variety of applications, including council and contractor use.

Primarily designed as a collection mower, the new ZRT is equipped with huge 23-inch tyres, a wide wheelbase and has a low centre of gravity for hill-hugging performance, excellent stability and outstanding traction.

The new unit is powered by a choice of two high performance Kohler engines, developing 20 and 25 horsepower respectively, each with dual hydrostatic drive for maximum power.

A 48-inch, rear discharge collection deck is standard on the ZRT. However, this can be quickly changed to a recycler deck, complete with grass pump, which mulches the clippings and returns them to the turf for rapid decomposition.

With a forward ground speed of 14kph as well as a large fuel tank and collection hopper – the fastest and largest in its class, the new ZRT is designed to provide maximum productivity.

The new ZRT is engineered for long life and durability and the heavy duty, commercially splined deck drive shaft is significantly more durable than competitive square drive shaft designs.

The ZRT also features an exclusive floating deck design with 2.5cm to 12.5cm heights of cut adjustment and anti-scalp protection for an excellent finish.

For further information on the new Toro Z325 Out front mower can be obtained from Toro Wheel Horse dealers throughout Australia or direct from Toro Wheel Horse Australia, 59 Woodlands Drive, Braeside, Victoria 3195 or by phoning **(03) 9580 7355.**

President's Pen

AGCSA Members will have now received their nomination form for the AGCSA Board of Directors and Notice of AGM. The involvement of members in these processes is a fundamental part of an association and we encourage members to become involved. The second edition of the magazine demonstrates the strong commitment the allied trades have made to the Association and the industry as a whole. The level of advertising support has remained strong, demonstrating an endorsement of the product we are producing. The editorial advisory panel has also been further strengthened and represents wide cross section of industry stakeholders. As a result of industry consultation the magazine has been improved further to reflect the comments of readers. You will find that Australian Turfgrass Management will continue to evolve over its life as it reflects the needs and desires of the industry. At all times the opinions of readers are welcomed and where possible will be implemented to the benefit of the industry.

The AGCSA recently provided roving workshops in Adelaide, Sydney, and Brisbane. Sixty golf course superintendents attended the "Maximising Soil and Soil Conditions Workshop" presented by Turfgrass Technology. This hands on workshop provided delegates with practical exercises demonstrating the methodologies of evaluating your own soil conditions. Unfortunately the Perth and Melbourne workshops on the topic " Managing Drugs and Alcohol in the Workplace" were both cancelled due to low delegate numbers. This topic was certainly new to the association's educational portfolio. It was chosen on the basis of broadening the range of topics that the AGCSA provide superintendents who face such issues on a potentially day to day basis as managers of a workplace. It would be disappointing if turf managers narrowed their educational activities to merely technical soil/plant/water topics when the modern turf manager should be confronting issues of overall business management as well as turf management alone.

Certificates for AGCSA Accredited Superintendents have recently been renewed for 1999/2000. The AGCSA accreditation program is an important part of recognising the efforts of those turf managers who do attend continuing education. Members would have noticed recently a spate of employment advertisements, some of which stipulated registration on the AGCSA Accreditation program as being highly regarded.

Members can attain further continuing education points at the upcoming 4th National Turfgrass Seminar to be held in Perth in July. Plans are progressing well for this event and early bird airflights make this event cheaper to attend than you would anticipate. For the first time, delegates must pre-register for concurrent workshops and the concept of ' first in best dressed' applies to attendance at these workshops. This allows the AGCSA to provide a greater choice and to provide topics of relevance to all members. I look forward to seeing members at the AGM in July.

Peter Frewin
President, AGCSA

GCSAQ

STATE PRESIDENTS REPORT

QUEENSLAND

Congratulations to the AGCSA on their vibrant new publication, the first issue was certainly eye catching and informative.

Queensland has again been copping plenty of extreme weather with many courses having to close briefly due to flooding. On the Gold Coast, rainfall of over 300mm was recorded in the Hinterland overnight resulting in heavy downstream flooding of the Glades and Paradise Springs, while other courses in the area were affected by localised flooding.

At the Glades their flood lift pumps deliver 3,300 litres per second and they were running for two and a half days. The course registered a flood level of 3.8 metres.

At Tallai they received 300mm of rain in 12 hours.

The Sunshine Coast has been experiencing continuing heavy rainfall that so far has shown little sign of breaking up. Courses have had some trouble getting heavy mowers on to cut fairways and it seems like a return to a real wet season. Up North the situation is much the same, tropical downpours and the rain depressions left over from cyclones have meant plenty of water, but that's what they expect in the Tropics.

A bit of movement around the traps with Coolangatta-Tweed Heads Golf Club and Arundel both advertising for Superintendents on the Gold Coast, Indooroopilly in Brisbane and Middle Ridge also advertising for Superintendents.

The recent AGCSA travelling workshop at Pacific Golf Club was sponsored by CHEMTURF successfully and was well attended by members of the GCSAQ. Our next outing is to Gainsborough Greens Golf Club on the Gold Coast, a day sponsored by Bill Heraghty Machinery. The one after that is the big bus trip to Coffs Harbour and Bonville, sure to generate a few stories.

Jon Penberthy
President, GCSAQ

FNQ

FAR NORTH QUEENSLAND

After a smooth start to the year with an under average rainfall and good weather, along came Cyclone Rona. At approximately 10pm on Thursday 12th February, Cyclone Rona, a category 3 cyclone crossed the coast in the Port Douglas, Mossman vicinity.

With winds at 185 km/hr and torrential rains measuring over 500mm, damage in these areas was high. Heavy rains along the coast before the cyclone softened the ground and the high winds made easy work of trees, power poles, signs etc. Massive areas from Cairns upwards were blacked out.

All golf courses south of Clifton Beach recorded only minimal damage. To the North, Port Douglas Mirage and Mossman Golf Course, being the worst effected. Paradise Palms faired OK with only 80 trees lost. South of Cairns, floods were the order, with Innisfail, Tully and Ingham the worst effected.

The rest of FNQ is experiencing a better year. Many courses that had horrific disease problems (328 greens last summer) are reporting vast improvement this year due to less severe climatic conditions and more sensitive management practices.

I would like to take this opportunity to thank Rod Cade for the great job that he has done over the past 4 years as FNQ representative. Rod is actively involved with the Townsville Horticulture Trade Show Committee and we look forward to a big turnout for August 23 and 24 from superintendents all over Australia.

Paul Earnshaw
Paradise Palms

GCSAWA

STATE PRESIDENTS REPORT

With winter approaching fast all Turf Managers are involved or completing renovation or construction programs, and are looking for some cooler weather and some much – needed rain.

Many Golf Clubs have been involved in redesign or construction work this summer. Some of the larger projects have included Cottesloe Golf Club & Gosnells Golf Club, with entire holes being replaced. I hope all plans on Golf Courses proceeded as expected, with a good conclusion.

Turf Managers here in the West are looking forward to the National Seminar in July and hope that everyone in the Eastern States will attend.

The Super Series is up and running again proudly sponsored by CJD (John Deere). These events and others like it can only exist with the support of the Trade. So members, I urge you to support them and their sponsors.

RESULTS FOR ROUND ONE held at WAGC

Hosts GCS – Ross Gray
Winner – Wayne Miller GCS at Lake Karrinyup 19pts
Runner up – Mark Claes 19pts (Well known turf identity)
NTP – Mark Claes
Long Drive- Idras Evans 2IC WAGC

RESULTS FOR ROUND TWO held at Secret Harbour

Host GCS – Allan Devlin
Winner – Frank Griffin (ATI)
Runner up – Alan Redmayne GCS Cottesloe
NTP – Alan Redmayne
Long Drive – Jeff Lane GCS Gosnells (How did that happen?)

UPCOMING EVENTS

Tuesday 20th April
3rd Round JDSS – Gosnells Golf Club
Monday 10th May
Management Challenge – Vines Resort
Tuesday 18th May
AGM

With the AGM not too far away it is prudent now to ask all members to consider a position on the Executive Committee. It has come time for me to step down as State President and several other committee members are debating over their future. This association can only function with hard working people who are prepared to put in some time organising and running events. Please consider this carefully because it is YOUR association.

On a personal note I thank all committee members over the previous three years as State President who helped in the organisation and running of the Association. I will not mention names, other than to say Thank You.

Craig New
President, GCSAWA

NSWGCSA

SENIOR VICE PRESIDENTS REPORT

Well summer has now officially past, but I'm sure most Superintendents are yet to breathe a sigh of relief with the current moist humid conditions throughout the eastern parts of the state prevailing.

Although the severe temperatures of last summer were not experienced generally throughout the state, turf management has probably been harder. Prior to Christmas a reasonably hot/dry spell was experienced, followed by good rainfall and at times severe thunderstorms, especially around the Sydney and North Coast areas.

The continual warm, humid conditions since then have provided excellent conditions for disease activity, with pythium, anthracnose and rhizoctonia being some of the main contenders for the 'Disease of the Season Award'.

Having said that, congratulations must go to those Superintendents who have held tournaments over the past months. Peter Brown at the Lakes Golf Club who held the Greg Norman Holden Classic, Mark Limon from Terry Hills Golf Club with the Canon Challenge. Michael Waring of the Royal Canberra Golf Club holding the ANZ Players Championship and last but not least, Tony Fogarty at Catalina Country Club who held the NSW PGA. I'm sure most would agree the courses were presented in a very professional manner under some very trying conditions.

As autumn is here most Superintendents will be carrying out a variety of renovation procedures to prepare courses for the winter months, and we hope everything goes well.

The NSWGCSA is looking forward to a good roll up at the Championship Day at Concord Golf Club. There's no truth to the rumour that because we are playing on the new A4 bent greens that the term '4' for a misplaced shot will be replaced with AU.

The new NSWGCSA would also encourage members to support the AGCSA, and fill out and submit your application forms for the upcoming conference in Perth, which will be a great event.

Tony Fogarty
Senior Vice President, NSWGCSA

VGCSA

PRESIDENTS REPORT

I recently had the opportunity to visit the new Sanctuary Lakes project under construction at Point Cook. Superintendent Andrew Purchase and staff are working daylight till dark to meet the target opening date in June. The site is extremely challenging but the design by Greg Norman looks potentially very exciting. We look forward to our VGCSA meeting at Sanctuary Lakes in October this year.

Our first meeting for the year was held at Kingston Links where a very pleasing 85 VGCSA members were in attendance. Host superintendent Greg Rooke was apprehensive about addressing the meeting, but need not have worried as his morning presentation, course inspection and input in the afternoon panel discussion was delivered as if by a seasoned professional. Don Reid OH+S consultant to Chisolm TAFE was our guest speaker. Don gave a practical explanation of plant risk assessment and offered his services to assist clubs in the OH+S area. The afternoon panel discussion on couch fairways where 5 superintendents explained their approach to couch establishment was well received. Greg and his team at Kingston Links have done a wonderful job in establishing an exciting golf course with excellent turf quality, which is accessible to the public. Thanks to all at Kingston Links for making the day a success and the team at Turf and Irrigation Services for providing breakfast to start the day.

Our next meeting is the AGM at Yarra Yarra Golf Club on 17 May. The day will commence with golf played for the VGCSA Championship Powell Trophy (stroke) and Toro Cup (stableford). David Hookes is the guest speaker and is sure to be entertaining. We would like to see as many VGCSA members attend the day as possible. The Victorian Golf Association is reporting on the event for an article on our association in the "Golf in Victoria" magazine. Mr. Keith Wood, chairman of the VGA Turf Advisory Board, will present the VGCSA/VGA Apprentice Award to Kate Harbrow from Yarra Yarra Golf Club.

The VGCSA/Kubota Tractors Turf Research Open Tournament is on again this year. Monday 7th June 1999 at the Commonwealth Golf Club is the time and place. Further details will follow in the newsletter, but if you know people, who have played in this event in the past, let

them know that entry forms are out. If you do not have an entry form give me a call, there may still be places available.

Richard Forsyth
President VGSCA

VGA

VICE PRESIDENTS REPORT

After seven months of the bowls season behind us, renovation and new tops are in everybody's mind. Just weeks away from the end of the season and the Australian Bowling Greenkeepers Federation Conference Week, the VGA are keen to have a good representation in Adelaide from May 2nd to May 7th, and are always looking for as many people to come over as possible. Each player will be given a Victorian uniform, which without our major sponsors Scotts and Chipco also with assistance from Golf and Bowls Machinery would not have been possible.

Since the last edition, the V.G.A. have held some different events for our members, one being a golf day at Eastern Golf Club. We would like to thank Clayton Howell for his time and co-operation in giving us a talk on some of his course management techniques. After just finishing hundreds of metres of new drain liner, the course was still a challenge for the few keen players that made the match play exciting until the final putt, where President Peter Baron sunk his putt to tie the day.

A trip down to Melton was planned for the V.G.A. to visit the Golf and Bowls Machinery factory, to enlighten our members on the finer points of machinery maintenance. Having to contend with the torrential rain that day, our members all enjoyed the day (especially the rain), and the food that was prepared, was complemented with the beverages.

The V.G.A. would like to thank Golf and Bowls for their continued support of the Association and with this we held our annual Golf and Bowls Fours day at Port Melbourne. After a feed, we lined up on the green to challenge each others skills. It all came down to the last end, where Matt Perkins won the day with his last bowl (a good recruit for Adelaide).

The match committee are still looking to confirm numbers for the Invitation Fours. If you are interested in entering a team, please contact Alan Elliot on (03) 5428 1883. This is being played at Middle Park Bowls Club on the 28th of March starting at 10:00 am.

Before our season finishes, the K&B Adam's Pairs will be played at Port Melbourne on the 15th April, with a few end of season drinks after it. Being the last event for the season, we are looking for a good turn out, as an appreciation of their sponsorship throughout the year.

At present, the V.G.A. are working hard with a committee of dedicated and enthusiastic people from all different turf industries, in putting together the year 2000 Millennium Turf Conference. This Conference set down for June 2000, has the potential to be the biggest yet in Australia, and is planned to cover all topics for all Turf Managers. The V.G.A. are proud to continue with this new turf magazine, and remember, things like this just do not happen without good sponsorship.

Toby Lumsden
Vice President, VGA

TGCSA

PRESIDENTS REPORT

This year Tasmania has come under extreme weather conditions with record rainfall, strong winds and consistently high temperatures.

Tasmania has experienced a lot of high humidity days not a lot different than Queensland, which has brought on some different kind of problems for a lot of superintendents. With evaporation being 10 to 12mls a day and knowing rain was about, putting irrigation systems on was a major decision.

Currently a "legend" couch grass trial has been under way since October 1998 at three Metropolitan Clubs in the south of the state at Tasmania Golf Club, Royal Hobart Golf Club and Claremont Golf Club. There are a number of objectives we are looking for and they are:

- How long Dormancy is?
- How quickly will it spread laterally?
- Can it handle our winters and frosts?
- Are our summer's consistently hot enough?

Already we have obtained some good information from this trial:

- Gives a good appearance and thick cover.
- Needs a lot less water than our traditional Ryes and Fescues.
- We can save money by using less fertiliser.
- Can withstand high wear.

With water costs in Tasmania becoming high over the next few years and forever changing weather conditions Couch will hopefully become more common on our golf courses.

I will keep our members up to date with trial outcomes as we progress.

Mark Potter
President, TGCSA

TGAA (VIC)

PRESIDENTS REPORT

Has the summer gone quickly or have the cricket finals been fixtured earlier?

For our members in the metro area who prepare weekend sporting facilities the lead up to Xmas seemed to be in a cycle with rain on most Fridays seeing some turf competitions playing only 50% of fixtures. For the outfields it could not have been better with a freshening regular watering. After Xmas we remember the deluge on Boxing Day that ruined Tony Wares best laid plans. Against the elements, he and his team under constant scrutiny by the media, showed how turf managers can rise to the occasion and get results. Congratulations.

The New Year brought back an old foe, the dreaded Black Beetle.

I doubt if the numerous company reps around Victoria are trained to say it but "this is nothing mate, its everywhere! You should see Joe Bloggs turf, poor guy!"

If you survived so far how about the heat wave in late Jan early Feb with 6 days of 35 in a row and the longest run of temperatures over 19 degrees on record.

Heat and wear stress plus humidity over summer caused plenty of disease. Add to this our members who are effected by water restrictions and it has been a strange summer.

Were your management practices sound enough to get you through all this?

If so, well done, if not perhaps the TGAA can assist with our forthcoming events.

We have something to suit everyone;

May19th BURSARS SEMINAR
Wesley College, Glen Waverley

July 4-5 TRADE FAIR
Sandown Racecourse

Oct OHS WEEK ACTIVITIES WORKSHOP (EPA included)

Nov-Dec XMAS BREAK-UP

Of special interest to all TGAA members in Victoria and Canberra especially is the forthcoming IRRIGATION SEMINAR to be held on 23rd June at the Hellenic Club in Canberra. I have seen the program for the day and it looks fantastic. At only $60 for the day it represent super value. For further details please contact **Pat Garratt on (02) 6283 3533.**

Good Health in Turf

Rob Savedra
President, TGAA

SAGCSA

PRESIDENTS REPORT

After a long hot, dry summer where we have experienced high salt problems and no rain for 5 months it is a relief to hear rain on the roof.

Our first get together this year was the AGCSA workshop at Belair with John Neylan and Michael Robinson which was very informative.

The March meeting was held at Murray Bridge Golf Club sponsored by Neutrog.

Mal Grundy, course super, took us on a walk around the golf course showing us what they are doing with returning indigenous trees and shrubs to the area and encouraging native grasses. We also inspected greens. He is having great success in eliminating poa with scotts poa restricter. Chris Trabilse demonstrated the benefits of needle tynes on the verti drain and a fairway aerator. At this stage we were all getting fairly wet which was magnificent so we proceeded to the clubhouse where Andrew Smith from Neutrog gave a rundown on their operation and the various products they manufacture. After lunch which was supplied by Neutrog a few hardy souls ventured out for 9 holes and local knowledge scooped the pool for the crayfish.

If the standard of the first edition of Australian Turfgrass Management is the norm then I think we should be well pleased with the result.

Bob Dellow
President, SAGCSA

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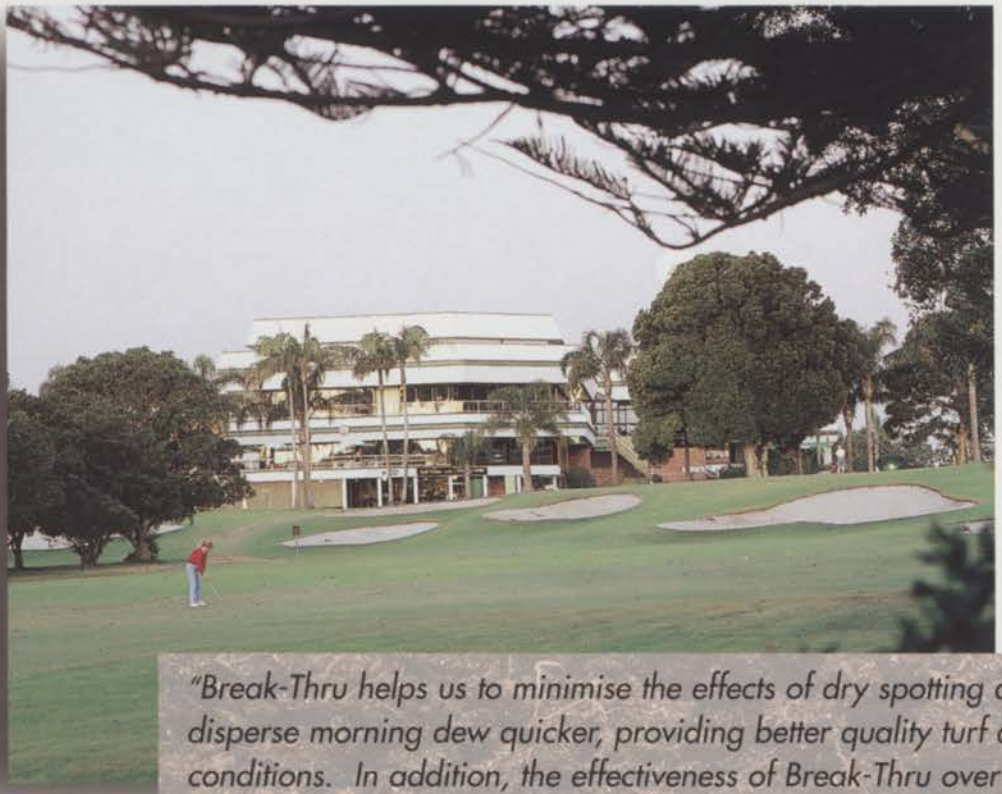

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Scott Williams - Course Superintendent, Coolangatta Tweed Heads Golf Club, Queensland

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