

# **Horticulture Innovation Australia**

## **Final Report**

### **Industry Development for the NSW Turf Industry 2013-2015**

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TGA NSW Incorporated

Project Number: TU12024

## **TU12024**

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# Summary

Driving profitability and professionalism in production of the NSW Turf industry was the key industry's priority for the proposal put to HAL in 2013 by the NSW Turf Producers Association (Turf NSW) and Sports Turf Association, NSW (STA NSW).

This proposal was accepted and titled 'The Industry Development for the NSW Turf Industry Project' and was developed under the research and development category and funding as based on the Voluntary Contribution (VC) arrangement between HAL, Turf NSW & STA NSW.

The project was developed with the target of achieving four key strategies:

- Engagement with the turf grower & maintenance sectors in NSW
- Input into the development and NSW implementation of national industry training programs
- Development of a NSW Turf Grower and Turf Maintenance communications program and input into national industry communications
- Development of strategies and implementing programs of improved biosecurity and water use efficiency within a peri-urban environment

This project assisted in the implementation of the national Turf Industry Strategic Investment Plan 2012-2017 within NSW. NSW Turf Producers Association engaged the services of a part time (up to 12 hours per week) Industry Development Officer (IDO) who worked in conjunction with the NSW Sports Turf Association (STA NSW) in carrying out a series of coordinated industry communication and extension activities.

The project targeted two key areas of the turf industry in NSW:

- The turf production industry including the business owners as well as all levels of staff in the turf growing sector;
- the turf maintenance industry including business management, turf managers and grounds staff from a broad variety of natural turf sporting facilities and organisations.

The initial Industry Development for the NSW Turf Industry project was for the period 1 July 2013 – 30 June 2015. After further review of the project, at the end of 2015, and consultation between Horticulture Innovation Australia, Turf NSW and Turf Australia, the project was extended to May 2016 and a further extension provided to 31 December 2016.

There are many positive outcomes achieved from this project and full details of the outcomes are presented on page 40. The more significant results would be summarized as follows:

- Created a more efficient and effective central location for the New South Wales Turf industry for development of programs and communication.
- Increase in engagement directly with Turf Growers.
- Improved turf industry recognition with local government and state authorities resulting in improved communication and distribution of information for the turf industry.
- Development of relationships with other green industry groups in NSW resulting in cross promotion of events and projects as well as promotion of the environmental benefits of turf.
- Increased exposure and recognition of sports turf management industry with national and state sporting bodies.
- Increase in NSW Turf Growers overall profitability and production through the research and development programs and education in improved business practices.
- Improved work practices in the sports turf maintenance sector through the expert education.
- Increase exposure of the NSW Turf industry through regular reports in external turf industry publications.

# Keywords

NSW Turf Industry, turf production, sports turf management, industry development, productivity, seminars, workshops, communication, engagement, education, work place practices.

## Introduction

NSW is Australia's 2nd largest producer of turf, just behind Queensland with an estimated 14,000,000m<sup>2</sup> annual production. The major turf growing region in NSW is the Windsor, Richmond area northwest of Sydney with smaller production areas scattered throughout the state.

In 2012, the turf industry developed a Strategic Investment Plan for 2012 – 2017. This Strategic Investment Plan (SIP) involved widespread industry consultation and resulted in six strategic objectives:

- Grower Business Capability
- Communications and Extension
- Environmental Sustainability
- Market Knowledge and Market Development
- Industry Capability, Resources and Data
- Biosecurity.

A detailed Analytical Business Case (ABC) was carried out as part of the SIP. Of the six strategic objectives that were assessed, Communication and extension provide strongest returns, justifying a significant investment in this objective.

The SIP also identified that the Turf industry really is different from the 40 other horticulture industries working with HAL (now Hort Innovation Australia), Turf is truly unique as;

- Growers are often the entire supply chain
- The 're-purchase' frequency is low
- The nature of the competition, IE strong competition between: growers; turf type and variety; price; hardscapes (IE pavers).
- Turf has social and health, can increase real estate values and mitigate environmental impacts.

The Turf Producers Association of NSW (Turf NSW) has been in operation for over 20 years and its 46 members are predominately turf growers. Turf NSW is a volunteer organisation and prior to the project only employed a part time administrator.

Sports Turf Association, NSW (STA NSW) has been in operation for 16 years supporting and educating the sports turf industry around the state of NSW. It has a membership that fluctuates from 250 - 550 and includes greenkeepers and turf managers from councils, sports stadiums, private schools, bowling clubs, golf clubs and turf maintenance contractors.

NSW STA employs a part time Communication and Administration Officer who conducts a variety of educational workshops/seminars for members working in the sports turf industry as well as the production of a magazine/newsletter. The main goal of NSW STA is: To provide relevant industry information to improve practices and offer education; To keep members informed of any changes in legislation (State or Federal) that directly applies to them; Keep members up to date with all research programs that are currently being undertaken and disseminating this information as conclusions to these research projects are reached.

The Industry Development for the NSW Turf Industry Project provided the ability to collaborate the two organisations and coordinate a state communications program as well as input into national industry communications.

The project allowed development of strategies and implementing programs of improved biosecurity, water use efficiency, cost of production tools, integrated pest management practices, turf nutrition program and specialized training for improved work practices.

The project provided a central point for the wider NSW turf industry to seek important information for their business such as changes to regulations and legislations as well as general industry advancements for better work place practices etc.

The Industry Development Project achieved a strong understanding of the requirements of turf growers and the turf maintenance sector. This resulted in ensuring the development of appropriate projects addressing the specific needs of the industry. The project provided the opportunity to develop strong relationships with other organisations relevant to the turf industry, to assist in promoting the turf industry and the benefits of natural turf to the community.

## Methodology

The initial task for this project was the appointment of a NSW Industry Development Officer (IDO). The role would work in conjunction with the Sports Turf Association, NSW (STA NSW) in managing the Industry Development for NSW Turf Industry project and carrying out a series of coordinated industry communication and extension activities. The IDO position is a part time role working up to 12 hours per week. In February 2013 the Executive Committee of Turf NSW appointed David Raison to this position. David held the position from 2013 through to planned completion time of May 2015. Due to other work commitment Dave was unable to continue in the role once the project was extended. Turf NSW agreed to allocate the position of IDO to Jenny Zadro who was already doing administrative work for Turf NSW and STA NSW.

The methodology for this project was determined by the findings of the turf industry Strategic Investment Plan (SIP) for 2012-2017. The Plan identified six key strategic objectives for the industry, as listed in the introduction, and this project focused on those objectives for the turf industry in New South Wales.

The strategies put in place for the NSW Turf Industry project included:

- Engagement with the turf grower & maintenance sectors in NSW
- Input into the development and implementation, in NSW, of national industry training programs
- Development of a NSW Turf Grower and Turf Maintenance communications program and input into national industry communications
- Development of strategies and implementing programs of improved biosecurity and water use efficiency within a peri-urban environment.
- Development of strategies and implementing programs for improved environmental sustainability, grower profitability and improved workplace practices.

The process of delivering the project was determined through consultation and planning with the executive committees of both Turf NSW, STA NSW and Turf Australia. In addition, regular consultation was made with the stakeholders to ascertain their requirements.

All proposed projects were structured in the following format:

**Delivery process** - determining the most efficient process to deliver the information to the industry in a format that would achieve maximum benefit, appropriate timing in relation to seasonal work commitments and appropriate location to reach maximum targeted audience.

**Project management** – develop an efficient program for the planning and completion of the task in the required time frame and within budget.

**Program content** – Conduct the necessary research to determine the most appropriate program to achieve the goals of the task. Obtaining expert industry information that is relevant, innovative and informative.

## **Evaluation Framework**

The NSW Turf industry established an evaluation system to achieve the necessary information from members and assess the outcomes of the project to ensure the results were beneficial to the target audience and the industry in general and achieved the strategies of the project.

Throughout the Industry Development for the NSW Turf Industry Project, delivery of the plan was in 3 main formats, workshops/seminars/field days, communication through publications such as a printed magazine and electronic newsletters and turf sector engagement.

In the initial stages of the IDO position work was undertaken to develop a better understanding of where the NSW Industry is placed in terms of its understanding and ways of achieving the National Strategic Investment Plan. The information inherited by the incoming IDO was very much out-of-date and a great deal of work had to be undertaken to distil this information and contact the grower community to gather more accurate data.

A detailed phone and internet survey was carried out with the grower community to gather accurate information.

From this early contact, it was identified that there are 137 Turfgrowers in NSW, yet only 82 of these are identified on the Levy list and some 42 are members of Turf NSW /Turf Australia. It was evident from this work that some 43-46 growers identified are not on the current levy payers list and some work is required by all parties to bring this into line with the SIP and appropriate Levy Legislation. Turf NSW worked closely with Turf Australia on this issue to pursue increased compliance with the Turf Levy as identified in the SIP.

In addition, meetings were held with STA NSW to develop a better understanding of the sports turf maintenance industry and determine the best outcome for joint projects for the benefit of the NSW Turf industry.

The IDO developed an Annual Operating Plan for 13/14 detailing objectives, timelines, actions, resources, expected outputs & outcomes.

A number of discussions and meetings with Turf NSW Executives took place to determine priorities and allow the development of the IDO Annual Operating plan in line with current national SIP. This plan was presented to the full Committee at the May Meeting and to the full membership at a meeting in June 2013.

The following pages of the report includes details of the targets achieved each year of the project. The information is categorised into the following Outputs:

- Activities
- Communications
- Turf Sector Engagement

## Turf Industry Development Project 2013

### ACTIVITIES

During the period of the project a variety of educational events were conducted with the main focus of offering learning opportunities for stakeholders, promoting professionalism in the industry, development of skills and providing resources for new technology, regulations and general industry information. The activities for the period of July - December 2013 were as follows:

#### **Chemical Training and Audit Program**

One item that had been identified as problematic for the turf industry was awareness of the regulations for chemical use and application.

To address this issue, in July 2013 the Turf NSW Chemical Training and Audit program was launched at an Industry Information night and Turf Growers general meeting.

Some 60 people representing approximately 40 growers were in attendance and the information was well received by industry representatives and growers.

From this meeting the Audit program was worked-up into a complete Training and Audit program to be carried out by service provider Chemcert. The Chemical training program has been developed into a full course and program in conjunction with Chemcert. The program is a first for industry of this nature with the courses tailored specifically to the turf production sector.



Photo from Industry Information night and launch of Chemical Audit and Training Program in July 2013.



## **Sports Turf Seminar**

WIN Stadium Wollongong, 26<sup>th</sup> August 2013

The Sports Turf Seminar held at WIN Stadium in Wollongong attracted 140 people within the sports turf industry. WIN Stadium is part of the WIN Entertainment Centre hosting major sporting events in Wollongong such as rugby league and soccer etc. The event attracted sports turf managers from not only the Wollongong and surrounding regional areas but many people travelled from the NSW central coast and Sydney metropolitan areas. Delegates came from a variety of sports turf facilities including, councils, golf courses, stadiums, bowling greens, turf producers and industry suppliers.

The event covered a variety of topics including: spraying techniques, turf pest management, staff management, fire protection and weather patterns and forecasting. This was the first STA NSW event held in southern NSW and the event was received well with great feedback from the presentations and the overall event. Many of the people who attended will now become new members of the STA NSW which gives them more opportunities to continue their education and networking through other events and publications.



## **Industry Information Night and AGM**

On 26<sup>th</sup> November 2013, the Turf NSW conducted an information night for members covering a variety of topics. The presentations included:

- Shane Holborn, BioScience Australia, reviewing Turf for Erosion Control project
- Anthony Kachenko, Nursery & Garden Industry discussing the 20-20-20 Vision
- Richard Stephens, Turf Australia reviewing Turf Australia projects including Chemical trials

The event was attended by 50 members of the turf industry.

## **COMMUNICATION PROGRAM**

Publications:

STA NSW's produces a full colour magazine, 'On Common Ground', for its members and turf industry in general. The document is normally 32 pages and includes a variety of articles; technical reports, event reviews, interviews, general industry information. Distribution of the magazine is approximately 450.

Issue 39, August 2013

Feature articles: Australian Sport Turf Graduate of the Year Award, Manuka Oval Redevelopment, TAFE news, Fungicide Efficacy and Drying Times.

Issue 40, December 2013

Feature articles: Wild for the Wanderers at Pirtek Stadium, Wet Weather Protocols for a Local Government Area, Workplace Health Issues, Pythium – Dealing with a Hot Humid Summer.

Issue 39 & 40 can be found at: <http://www.sportsturf.asn.au/news>

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## Preparation of Stadium Summer Hiner

With the start of the Western Sydney Wanderers club, Parramatta Stadium was the arena they chose to play home. When the Wanderers announced in June that they would be playing at Pinst Stadium, we only had half November for the start of the A-League season. The field decision made us to retain the perennial ryegrass as there was never going to be time for the couch grass to recover to an acceptable standard after the NRL season finished in September.

Maintaining a probed-uprye grass surface has brought a few challenges. Trying to find a balance between maintaining ryegrass and promoting couch recovery, ryegrass has been one of the main goals. Through out the last field before home, we lowered the height of couch from 35mm to 13 mm (grazing) to keep the couch the best possible chance of recovery. We thought we were staying ahead of the game until the A-League announced they would not be playing the Dragons at ANZ Stadium, but would transfer the game back to Pinst Stadium. So back to raising the height of our for the A-League and then lowering it again afterwards.

So far we have had encouraging results with a population of couch at approximately 20% to the ryegrass 80% at this time. We will expect the couch population to increase through the Jan – March period.

Maintaining the ryegrass through summer has made us think our disease program with the summer use of fungicide, both as a preventative and curative measure. Our nutrient programs also had to change through the increase with an increased use of liquid fertiliser to increase the level of nutrient due to leaching from increased and frequent irrigation.

We continue to use granular fertilizers, however at lower rates and more frequent in conjunction with liquid biofertilizers in the A-League. We always remain flexible as our soil and plant tissue feed results usually require us to make adjustments from time to time.

Proper applications of wetting agent/emulsifier are carried out to help reduce the incidence of hyphomycetes sand. These applications are very important during the hottest time of the year to help the sand profile maintain moisture in the root zone to favour couch grass as we back off the irrigation cycles when there are 2 – 3 week breaks between A-League games. So far we have had success with couch recovery while allowing the ryegrass to hold its own when we start irrigating to favour the ryegrass when the next A-League game is approaching.

The above is just a short version of what we are trying to achieve and how we go about it. So far we have been successful. However we know we are heading a fine line at times. There are times when we are achieving long term goals but suffer in the short term and vice versa. The main thing is we have been able to deliver a high standard surface for the A-League and the fans to play home.

Dave Hinkley  
Grounds and Maintenance Manager  
Pinst Stadium

*David Hinkley*

Regular articles are included in the following publications, Turfgrass Management Magazine, TurfCraft Magazine and Turf Australia magazine.

## **TURF SECTOR ENGAGEMENT**

During 2013 the IDO was involved in the preparation and support of several turf industry events scheduled for 2014, including:

- Horticulturist Field Day, planned for April 2014
- ACT Field Day – 'Latest in Turf' field day event to be held in Canberra
- Turf Australia NxGen Forum & Field Day planned for at Windsor, NSW

STA NSW turf sector engagement included:

- The Sports Field and Grounds Forum, 18th-21st November 2013, Melbourne  
Presented by Toro Australia this was the first time this event had been held in Australia and STA acknowledged and supported the event by assisting in the promotion and program information. This was a boutique event that allowed delegates to review equipment and learn of the new technologies coming to the market place. Delegates feedback on machinery was integral to the success of further research and development.
- Industry Information Day, 19<sup>th</sup> December 2013, Sydney  
STA NSW supported an industry information day held on 19th December. A morning with Dr John Kaminski from Penn State University, USA was arranged by Colin Campbell Chemicals. Dr Kaminski is considered one of the most respected and knowledgeable University Professors in turf in the world and this was his first time in Australia and was a great opportunity for sports turf managers to share his knowledge and expertise.
- TAFE Sports Turf Management courses. STA NSW has a close relationship with TAFE organisations in NSW to support students and teachers with Certificate III, Certificate IV and the Diploma of Sports Turf Management. STA is involved in assessment of the programs, supporting awards, presenting to students when required.
- Promotion and involvement in programing for the Australian Turfgrass Conference held on the Sunshine Coast from 23-29 June 2013



## Turf Industry Development Project 2014

### ACTIVITIES

#### **Gear for Growers Field Day**

18<sup>th</sup> March 2014, Pitt Town

80 delegates attended this meeting held at Hi Quality Turf Farm in Pitt Town, Hawkesbury area.

Presentations at this event included:

- Local Land Services update by Matt Plunkett, LLS
- Latest in heavy vehicle regulations and how it affects turf growers, by National Heavy Vehicle Regulator (NHVR) representative.
- Turf Truck Modifications. Assistance in engineering and certification for trucks and forklifts, by Steve Lelean Moffett Aust.
- Turf Australia project update, Richard Stephens, Turf Australia
- Turf NSW projects, Dave Raison, Turf NSW
- Machinery display and demonstrations on the farm.



## **NRL Turf Manager's Conference**

1<sup>st</sup> & 2<sup>nd</sup> April 2014, ANZ Stadium Homebush Bay

The Sports Turf Association facilitated a conference for Turf Managers of NRL Venues designed specifically for their requirements.

The conference was developed to address the issues that NRL Turf Managers face during the season as well as giving you the opportunity to network with other NRL Turf Managers, NRL Management and industry experts.

The conference was designed to allow the Turf Managers to have a voice and to acknowledge the importance of their role in the NRL. The event included time to discuss specific issues and ideas during the Group Discussions as well as an Open Forum.

Presentations held over the 2 days included:

### Tour of ANZ Stadium facilities

- Logos - Getting the balance right, Graeme Logan, ANZ Stadium
- Match Day Operations - Shaun Wendt, NRL
- Match Day Warm Up Procedures, Shaun Wendt – NRL & Graeme Logan - ANZ Stadium/STA NSW
- New Technology for Turf Managers - Paul Prout, Toro Australia
- Playing Surface Quality and its Impact on the End User -  
Malcolm Caddies, Suncorp Stadium  
Andrew Leeds, Physiotherapist and formerly with West Tigers  
Daniel Anderson, Head of Football Operations, Parramatta Eels
- Media Education - David Taylor, NRL & Mark Riddell, 2GB





## **Cricket Wicket Seminar**

20<sup>th</sup> August 2014, Sydney Cricket Ground

This event attracted 170 people from sports turf facilities working on the preparation of cricket wickets. The specialist event allows delegates to review their techniques and learn from the experts in the industry. The focus for the event is to provide a quality learning environment for all levels of wicket preparation with the goal of providing better playing surfaces throughout NSW.

Presenters for the event included:

- Tom Parker, Sydney Cricket Ground
- Dave Sandurski, Melbourne Cricket Club
- Bill Rawlings, St Joseph's College
- Paul Chalmers, St Alyosius' College

A major focus for the day is the practical demonstrations held at the venue to allow delegates to get a close up look at the equipment and the results of its use.



## **Regional Sportsturf Seminar**

28<sup>th</sup> October 2014, Kurri Kurri

STA NSW conducted a seminar for sports turf maintenance workers and held the event at the great facilities at Kurri Kurri TAFE. The industry is very fortunate to have the excellent facilities at the TAFE and student gain so much benefit from being able to work on a variety of sports turf surfaces that the campus offers.

This event attracted 95 sports turf managers from the NSW north coast, central coast, and central west regional areas. The presentations on the day included:

- Grey Water Forum; A Manager's strategy – Steve Harris, Vintage Golf Course  
Soil Health – Jyri Kaapro, Bayer Environmental Science  
Personal Health – Philippe Porigeauz, Hunter New England Health  
The Project – Neale Farmer, Co-coordinator Major Environment Initiatives
- Weeds, An indicator – Carol Rose, NSW DPI
- Pest Management for Tight Budgets, Jyri Kaapro Bayer Crop Science
- A Students Perspective, Where to from here? – Grant Maule, Sports Turf Construction in Canada and Michael Smith, STA Aust Graduate trip to USA.
- Ground Standards for Football Australia events – Brett Campbell
- Machinery demonstrations.





# COMMUNICATIONS PROGRAM

## Publications:

STA NSW's continued production of 'On Common Ground' magazine, for its members and turf industry in general. The document is normally 32 pages and includes a variety of articles; technical reports, event reviews, interviews, general industry information. Distribution of the magazine is approximately 450.

## Issue 41, May 2014

Feature articles: NRL Turf Managers Conference, Winter Turf Diseases, SCG Transformation for Major League Baseball, Turf NSW Forum and Field Day Review.

## Issue 42, September 2014

Feature articles: Review of Cricket Wicket Seminar, Program for Regional Seminar, TAFE News, Men's Health Issues, Graduate of the Year experience, Technical reports.

## Issue 43, December 2014/ Jan 2015

Feature articles: An Indian Experience, ANZ Stadium reconstruction, Turf Tech, Aurora Stadium portable wicket build.

Issues 41, 42 and 43 can be found at: <http://www.sportsturf.asn.au/news>

<h3>Issue 41</h3> <p>Issue 41, May 2014 Membership of Sports Turf Association, NSW Inc &amp; TAS Inc</p>	<h3>STA NRL Turf Manager's Conference</h3> <p>How you ever found yourself on the lounge with a cold beer ready for a big game of footy and as the players run out on the field the first thing you notice is the turf? How often is it that perfect or how is it that bad? Being in the sports turf industry you know you can at least relate to the turf work that goes into preparing a major venue for an NRL game. You probably cringe a little when you see the headlines and the rapid amount of comments scrolling all over that precious surface not to mention the unrelenting comments made by some commentators at the state of the surface.</p> <p>Well at STA NSW we have been listening to the Turf Managers at NRL venues and felt it was time to support them in being able to provide the best quality surface available week in and week out. In order to do that we had to get the NRL involved.</p> <p>In February this year we met with Todd Greenberg, Shaun Howells and Mark O'Neil of the National Rugby League at League Headquarters at Moore Park in Sydney to propose an event for all NRL Turf Managers. We were fortunate with our involvement with turf in the past so the NRL who we were and what we were about. The NRL confirmed their support of the event and recognised the importance of a NSW all game day being worked hard to bring it all together in a short period of time and on the 2nd and 3rd April we conducted the inaugural STA NRL Turf Manager's Conference at ANZ Stadium.</p> <p><b>Day 1</b> was a meeting and a great day of ANZ Stadium. Coaches began to look at the ground around the venue talking about various systems they have in place and challenges for and to staff. Time was spent with two sponsors, PGO Sports Turf and Sustainable Turf Renovations and Equipment, looking at their products and services and how they can help the turf manager in the future.</p> <p>We had 12 NRL venues represented at the conference and being the first time for this event we were happy with the response.</p> <p><b>Day 2</b> was all about addressing issues and during the day. The first topic for discussion was on turf application and how to get the balance right. Coaches began to look at the system they have developed to be able to keep the turf and sponsor happy and reduce the chances of damage to the turf.</p> <p>Shaun Howells from the NRL was very open and forthcoming with information on how the NRL control and the process that work through the Clubs for game day. Shaun covered the match day operations and match day warm up procedures. Both these topics created a lot of discussion and demonstrated a real need for better understanding between the NRL and the turf manager. It was interesting to hear both sides of the story and understand what the NRL have to go through as well as the issues the turf managers have.</p> <p>Turf Australia was another sponsor of the event and they talked to the delegates about their new Precision Sense machine and the benefits it could have on their playing surface.</p> <p>From experience of previous conferences we felt that the best type of presentation is a panel discussion where you can get the views of different people and discuss it openly. This was the process for the next session and we were very pleased to have David Anderson from the Parramatta Eels Club, Andrew Leach, former player with West Tigers and NRL Coach, Turf Manager at Sydney Stadium. There was a wealth of knowledge being shared between the delegates. David has coached at several clubs in Australia, NZ and the UK and Andrew was a former player who then went on to be a physiotherapist for many years with the West Tigers and many New Zealand players had his far sense of NRL games at Sydney Stadium.</p> <p>The majority of the discussion for the panel centered around training on the ground.</p> <p>Event Thomas of Sustainable Turf Renovations talks to the delegates about equipment.</p> <p>Shaun Howells of NRL Sports Turf shows the delegates turf products available.</p> <p>Shaun Howells shows the delegates around the Stadium.</p> <p>Shaun Howells from the NRL addresses the Turf Managers.</p> <p>David Anderson, Neil Collins &amp; Andrew Leach talk about training and surface quality.</p> <p>Chaffing during suffer break.</p> <p>Mark Robb and Mark Taylor (NRL) talk about media education.</p> <p>Shaun Howells reviewing logo practices at ANZ Stadium.</p> <p>David Anderson presentation.</p> <p>17</p>
<h3>Issue 42</h3> <p>Issue 42, September 2014 Membership of Sports Turf Association, NSW Inc &amp; TAS Inc</p>	<h3>STA Cricket Wicket Seminar, SCG</h3> <p>On the 20th August, STA NSW held its bi-annual Cricket Wicket Seminar at the Sydney Cricket Ground.</p> <p>The main purpose of this event is to provide turf wicket managers the opportunity to learn new techniques, review their practices, look at equipment and machinery and most importantly, to network with other wicket managers.</p> <p>There is a great feeling of nostalgia when you walk into the heritage listed Members Lounge of the SCG and not only appreciate the grand architecture and old world charm of the building but the vibrant atmosphere throughout the facility and knowing that it has been undergoing major renovation for over a 100 years.</p> <p>There were 170 people at the event and they were presented with a variety of talks and demonstrations. We were grateful for the support of Cricket NSW and CCG. Andrew Jones opened the event acknowledging the importance of the role of the turf manager.</p> <p>Tom Parker, Curator at the SCG then talked about the enormous task of holding major league baseball games at the ground in between cricket and football.</p> <p>Greg Davidson from Hovint Council is in a unique position to be able to talk to delegates from 3 different angles, as a Curator, presenter, wicket, all player and captain of a team and also as a Chairman of NSW and Australia. Greg's presentation included what an unique look for in a wicket and how they work with both team spirit and wicket curator.</p> <p>Rob Cooper of Long Turf talked about the importance of turfgrass nutrition for wickets and this was followed by Neil Davidson of STA, Joseph's College and Paul Chambers of St Joseph's College. Bill and Paul shared their years experience preparing wickets and outfield, particularly during the renovation time from football to cricket season.</p> <p>We were very pleased to welcome David Sandanski from the Melbourne Cricket Ground to the event. David talked about his experience going from Alan Border Oval to the MCG.</p> <p>Our guest speaker was Pat Cummins, NSW and Australian Cricketer and Pat shared some stories on his career so far in cricket.</p> <p>During the event, guests were able to get out onto the practice wickets and watch a demonstration on the wicket covers and how they work. The day before the event we were prepared to cancel the outdoor demonstration and go with a wet weather option. There had been extremely heavy rain in Sydney for three days but amazingly on the day of the event the clouds cleared and the sun was shining long enough for the demonstration to take place.</p> <p>Delegates were provided with some entertainment during the morning tea break, with Sydney Swans training session and then during the lunch break they had the privilege of walking onto the SCG surface to inspect the ground.</p> <p>Andrew Jones, Cricket NSW.</p> <p>Greg Davidson.</p> <p>David Sandanski.</p> <p>This event would not be possible without the great support of the following organisations:</p> <p><b>Event Partners</b> Sta Australia</p> <p><b>Silver Sponsors</b> Evergreen Turf Turf Australia</p> <p><b>Event Sponsor</b> Murray Caulfield Globe Growing Solutions Cherry Hill M Collins</p> <p><b>Event Supporters</b> Cricket NSW Sydney Cricket Ground Trust</p> <p>NSW Cricket Wicket Seminar Review NSW Golf Day at St Michael's Golf Course Regional Seminar at Kurni Kurri TAFE - Program released STA Australia is formed TAFE News SportsTurf Graduate Trip to USA - An Amazing Experience New Feature: Where are they now?</p> <p>Welcome, STA Tasmania TAS Inaugural Conference Review North Hobart Oval Reconstruction</p>





## Electronic Newsletters

Both Turf NSW and STA NSW produce regular eNewsletters for their members. The newsletter provides updates and important information that can be distributed quickly and efficiently.

The IDO was responsible for producing the Turf NSW newsletters which is distributed to members and general turf producer contacts with a distribution of approximately 60.

The STA NSW newsletters are distributed monthly to members and industry contacts with a distribution of 350. The IDO's role was to contribute to content for this publication.

## Industry publications

Communications and other media activities have taken place to further strengthen the Turf NSW Associations standing in the turf community.

Media Releases, Notifications of meetings and the development of a detailed turf events calendar have been undertaken to assist in the broader communication activities to cross industry and the wider NSW turf consumer market.

Regular articles are included in the following publications, Turfgrass Management Magazine, TurfCraft Magazine and Turf Australia magazine.

STA NSW endorses and approves information contained in the Sporting Amenities Guide to Workplace Safety produced by Pro Visual Publishing

## **TURF SECTOR ENGAGEMENT**

The IDO position was involved in several other industry events in 2014 including:

- Horticulturist Field Day April 29 – successful cross-industry Day at Freemans Reach
- ACT Field Day – ‘Latest in Turf’ field day event held at Canberra with reps from Government and industry
- May 2014 Turf NSW assisted with presentations to NxGen Forum & Field Day at Windsor
- In late May involved in the first Staying in the Green Workshop was held in Richmond
- In June & July, the IDO organised and facilitated two Turf Profitability Meetings held at Windsor where Plant Breeders Rights (PBR) holders and growers from around NSW attended – some 80 growers in all.
- July / August, Turf NSW also assisted in the development and rollout of similar events in Qld, Vic and WA
- August 27-29 – the IDO assisted with organisation of successful National Conference & Field Day in Western Sydney
- Sept 9 – Assistance with Irrigation Needs Workshop with Local Land Services, DPI & Irrigation Australia for growers at Demo Farm, Richmond – approx. 40 irrigators from region in attendance
- Involvement in Turf Australia Chemical Trials Workshop & Industry Day Nov 26 – approx. 40 growers from NSW in attendance.
- The Staying in the Green / Cost of Production Project was successfully delivered in workshops to some 42 NSW Turf Businesses over the period, May – Nov 14.

STA NSW turf sector engagement included:

- The Sports Field and Grounds Forum, 18th-21st November 2014, Adelaide  
STA endorsed and supported the event run by Toro Australia by assisting in the promotion and program information.
- TAFE Sports Turf Management courses. STA NSW continued its close relationship with TAFE organisations in NSW to support students and teachers with Certificate III, Certificate IV and the Diploma of Sports Turf Management. STA is involved in assessment of the programs, supporting awards, presenting to students when required.
- Promotion and involvement in programing for the Australian Turfgrass Conference held on the Gold Coast.

## Turf Industry Development Project 2015

### ACTIVITIES

#### Turf NSW Field Day and Forum

17<sup>th</sup> March 2015, Hi Quality Turf Farm, Pitt Town

This annual field day continues to be a successful event for turf growers with 40 people attending to learn from presenters and inspect machinery. There was a strong focus on work place safety as there had been a few incidents on turf farms, one that was a fatality.

Presenters included:

- WH&S Safety Check, growing safety in your business – Melissa Northey, Workcover NSW
- Beyond WH&S, what your business need to work towards beyond safety, Gavin Rogers, Lawn Solutions.
- Turf Truck Modifications and safety – Steve Lelean, Moffett Australia
- Local Land Services update – Matthew Plunkett, LLS
- HIA update on latest changes to Horticulture Aust
- Turf Australia projects update – Richard Stephens, Turf Australia



## **Advanced Chemical Workshop**

28 April 2015, DPI Demonstration Farm Richmond

Turf NSW presented this event with a strong focus on chemical use including trials and the possibility of new chemicals for use on turf. The day was held at the DPI Demo Farm at Richmond and attracted approximately 35 people. The presentations included:

- Chemical Trials Overview and update – Dave Raison, Turf NSW
- Energy Audits program – Matt Plunkett, LLS
- Resistance Management a reality in turf – Dr Mark Walker, Syngenta
- New products and registrations, getting the mix right – Dr Brett Morris, Amgrow
- Minor Use permits and plans for other chemicals – Richard Stephens, Turf Australia

## **Sports Turf Seminar**

WIN Stadium, Wollongong, 19<sup>th</sup> May 2015

After the success of the first seminar in Wollongong in 2013, STA NSW again developed this event to take the latest sports turf information to regional areas and provide sports turf managers a great opportunity to network, share ideas and be updated with new information.

This event was attended by 105 people from many venues throughout Southern NSW as well as many who travelled from Sydney. The program covered the following topics:

- Turf Australia/Turf NSW Presentation by Dave Raison:  
New Turf Varieties & Cost of Turf Production
- Turf Disease Management  
Part 1 by Paul Patten, Soil Smart Horticulture - Rethinking your normal practices and taking a holistic approach  
Part 2 by Allan Tarrant, AT Rural Consulting - Testing options, looking outside the square & Turf Nutrition

The event was then broken up into 2 streams – Golf and Sports fields

- Golf Stream was a forum on Bunker Systems: Dave Warwick, Avondale Golf Club, Jarrod Arps, Assistant Super Ryde/Parra.  
Dave and Jarrod discussed the systems they have in place at their respective courses and the pros and cons of the system.
- The Sports Field Stream saw the group go onto the oval at WIN Stadium where Frank Dempsey reviewed line marking set up and correct procedures while some delegates participated in a demonstration of the procedures. Following this, a line marking demonstration was conducted by Supaturf. The final part of the sports field stream was a demonstration and discussion on irrigation troubleshooting and this was done by Turf Irrigation Services.

The afternoon session saw the group reunite for the follows presentations:

STA Turf Assessment services.

Chemical Priority in Turf with Dave Raison of Turf Australia/Turf NSW.

Turf Management Practices for healthy turf during times of increased usage, Dr Mick Battam

The final presentation of the day was guest speaker, former NRL player and current NRL Community One member – Shaun Timmins.



### **Phone Skills for Pricing and Profit Workshop**

Tuesday 4<sup>th</sup> August 2015, Richmond Gold Club

The Phone Skills workshop attracted 31 participants and the workshop provided participants with the skills to develop a more professional approach to their phone sales, tools to ascertain exactly what their customer needs are and improve the overall marketing of their business. Participant Feedback was very positive including comments such as "everything was informative and educational" and "different ways of getting information from customers to help with their needs".

Feedback

#### ***How relevant was the Phone Skills for Pricing & Profit Workshop to you?***

Content				Presentation			
<b>v good</b>	good	fair	poor	<b>v good</b>	good	fair	poor
16	3	-	-	17	2	-	-

Comments: Great: They were fantastic: Were great mentors in showing the great techniques in selling: Very good presenter, easy to listen to: Clear and precise: The humour and light atmosphere made for interesting and enjoyable learning: Great and informative: Great energy: Very approachable: Thank you, well done: Great: Both Guys made it very funny and enjoyable: Great job: AWESOME: Some very helpful ideas that make a lot of sense: Very interactive and engaging: Well done: Uplifting, fun, and informative:

### **Energy and Irrigation Efficiency Workshop**

11<sup>th</sup> August 2015, LLS Demonstration Farm, Richmond

The Energy Efficient program provided participants with valuable information including:

- Awareness of efficiently operating equipment to assist in making savings on power and water.
- Advise on whole of the Farm Efficiency.
- Understanding energy tariffs and what it means for the growers.
- Practical Energy Innovation and new products.
- Benefits of Energy Efficiency Audits.

This event attracted a smaller number of member, 15 in total but did secure 5 turf farms who were prepared to participate in an energy audit program.

*Feedback received from the participants included:*

- 'Very informative and I will follow up with the audit program'.
- Interest shown in alternative energy options such as solar power and suggestions for more information on this option.
- Interest was shown in information on at total farm operations and where energy is being used.
- 'Great information about negotiating energy tariffs through a broker'.



## **Pest Management & Soils Workshop**

15 September 2015, Richmond Golf Club

The Pest Management Workshop provided participants with:

- Skills to improve the management practices of turf pests
- Knowledge of approved turf registered chemicals
- Latest information on new innovations and products.
- Awareness of Scarab pests in turf and mite control.
- Value of soil surveys and crop rotation.
- New products available to growers for pest management.

25 participants were involved in this event.

*The overall feedback from participants was very positive in gaining new information. Specific feedback received was:*

- *'Good to learn differences in the pests and understanding life cycle management of the pests'*
- *'Great information on matching soil type to turf varieties and would be good to hear more on this'*

## **Industry Information Night & AGM**

10<sup>th</sup> November 2015, Pitt Town Sports Club

The Industry Information Night provided participants to get an update on projects undertaken in the past 12 months as well as discuss proposed projects. Richard Stephens of Turf Australia and Matthew Plunkett of Local Land Services presented at the event updating members on current projects and industry information. The annual general meeting of the NSW Turf Growers was also held during this event.

40 people attended the event.

*Participants commented that the night was informative and valuable in understanding the direction of the association and direction of research and development for the turf industry.*

## **COMMUNICATIONS PROGRAM**

During 2015 the IDO undertook the role of producing all communications for both The Turf NSW and STA NSW. This included both magazine publications and electronic newsletters.

The Turf NSW Website was finalised and launched in November 2015.

Publications:

STA NSW's continued production of 'On Common Ground' magazine, for its members and turf industry in general. The document is normally 32 pages and includes a variety of articles; technical reports, event reviews, interviews, general industry information. Distribution of the magazine is approximately 450. In 2015 Turf NSW officially joined the publication and all Turf NSW members received the publication.

Issue 44, June 2015

Feature articles: Sports Turf Seminar review, NSW Graduate of the Year announced, Turf NSW Forum review, Advanced Chemical Workshop Review, Turf in the News, Launch of Turf Assessment Service

Issue 45, November 2015

Feature articles: Australian Graduate of the Year, Turf NSW Update including Chemical registration update, Turf industry charity event, Spotless Stadium Profile, Sports Turf Sprinkler Design & Performance – Part 1.

Issues 44 & 45 can be found at: <http://www.sportsturf.asn.au/news>

**STA On Common Ground**  
Smarter Greenkeepers Make Better Playing Surfaces

**Issue 44, June 2015**  
Representative of Sports Turf Association, NSW Inc & NSW Inc & Turf NSW

**Turf NSW On Common Ground**  
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Smarter Greenkeepers Make Better Playing Surfaces

**Issue 46, June 2016**  
Representative of Sports Turf Association, NSW Inc & NSW Inc & Turf NSW

## Electronic Newsletters

Both Turf NSW and STA NSW produce regular eNewsletters for their members. The newsletter provides updates and important information that can be distributed quickly and efficiently.

Regular E-news continued in 2015 on a monthly basis as well as other notices for events were emailed and SMS sent separately. Up to 100 turf producers receiving the notifications.

STA NSW newsletters are distributed monthly to members and industry contacts with a distribution of 350.

## Industry publications

Communications and other media activities have taken place to further strengthen the Turf NSW Associations standing in the turf community.

Media Releases, Notifications of meetings and the development of a detailed turf events calendar have been undertaken to assist in the broader communication activities to cross industry and the wider NSW turf consumer market.

Regular articles are included in the following publications, Turfgrass Management Magazine, TurfCraft Magazine and Turf Australia magazine.

STA NSW endorses and approves information contained in the Sporting Amenities Guide to Workplace Safety produced by Pro Visual Publishing

## TURF SECTOR ENGAGEMENT

**The IDO position was involved in several other industry events in 2015 including:**

- **Contact made with NSW Govt Entities:** Continued discussions are occurring with the EPA, LLS, DPI, RMS, Workcover and other organisations with invitations extended for industry events.
- **Farm Visits - and industry representation to cross industry:** This is continuing on an ad-hoc and as-needed basis. Some 22 farm visits have been carried out and cooperation is continuing with other like industries including Institute of Landscape Architects, Landscape Contractors Association, Sports Turf Association, Australian Institute of Horticulture, Nursery and Garden Industry and more. Representatives from these organisations have attended Turf NSW events and Vice Versa.
- **Accreditation or similar:** The Association is currently working with the TurfCARE concept and is discussing the inclusion of some biosecurity / plant health inspection or similar process to be included with the DPI. Meetings are planned for 2015 to discuss and to investigate biosecurity measures also into the ACT.
- **2015 Next Gen and TPA Conference assistance:** Assistance is being given to Turf Australia in this regard. The IDO assisted on committees, with sponsorships and in the organising of these events.
- **Contributions to TPA Newsletter:** Regular content similar to above is also being provided each quarter for Turf Australia Industry Magazine. Content is mainly oriented towards reporting on past and coming events as well as any current industry issues.
- There have been numerous activities undertaken working with the Turf Australia Board and BIDM Richard Stephens on activities including; levy compliance, Chemical Trials, Sponsorship, Conferences and events including NX Gen and Cost of Production national roll-out, as well as meeting with other state IDOs. A regular monthly phone hookup has been established to discuss and manage state-based-issues.
- **Turf Farm Accidents**

WH&S and general safety issues on turf farms became a larger issue than normal with a number of tragic accidents occurring on three turf farms in NSW with a widely publicised fatality on one farm occurring just prior to Christmas.

The IDO has been working closely with all NSW turf farms, NSW Farmers Assn, Workcover NSW, NSW DPI, Turf Australia and a number of industry consultants to assist those farms affected with these individual issues and to also work with these bodies to help with further injury prevention strategies.

As Investigations continued into these incidents both Workcover NSW and Worksafe Australia work with the IDO and Turf Australia in the dissemination of any safety type alerts or other information stemming from the reports.



- **Turf Loading and Handling:**

Turf Loading, handling, unloading and delivering and the use of truck mounted forklifts has become more of an issue following a number of incidents and the introduction of the National Heavy Vehicle Regulations (NHVR) earlier in the year.

Inconsistencies surrounding the regulations surrounding truck mounted forklifts, rear overhang and load bearing curtains are all issues that have differed between states, yet are now being brought under one set of regulations with the introduction of the NHVR.

Following meetings with RMS, NHVR, as well as vehicle manufacturers and discussions with Safety Councils, the IDO has produced a discussion paper to highlight these issues and has been working with other industry stakeholders to address issues. Further work from a national perspective is also required and the introduction of a specific project to analyze these transport issues may be warranted.

STA NSW turf sector engagement included:

- The Sports Field and Grounds Forum, 8-9<sup>th</sup> December 2015 in Sydney  
STA endorsed and supported the event run by Toro Australia by assisting in the promotion and program information.
- TAFE Sports Turf Management courses. STA NSW continued its close relationship with TAFE organisations in NSW to support students and teachers with Certificate III, Certificate IV and the Diploma of Sports Turf Management. STA is involved in assessment of the programs, supporting awards, presenting to students when required.
- Promotion and involvement in programing for the Australian Turfgrass Conference held in the Hunter Valley, NSW from 21-26 June 2015.

Both STA NSW & Turf NSW were represented at the inaugural meeting of the NSW Green Industry Group held in Sydney.

## ACTIVITIES - 2016

### Turf Nutrition Workshop

Tuesday, 23<sup>rd</sup> February 2016, Richmond NSW

This workshop was developed to provide turf growers with an opportunity to really understand the importance of turf nutrition and soils. A workshop developed to provide turf growers with opportunities to optimise their turf production and reduce input costs.

The Turf Nutrition Workshop was presented by Dr Mick Battam who provided participants with vital information in understanding the health of their soil and turf, including:

- Analysing soil type
- Understanding soil tests and interpreting results
- Determining the best fertiliser program for different soil types and the positive results of getting it right.

The workshop also gave Turf Growers the opportunity to be involved in an industry soil testing program. Growers were offered subsidised soil & leaf tissue tests that would provide detailed reporting of results. 19 Farms took up the opportunity of being involved in the testing. These results will allow the turf grower to see not only the results of their soil and leaf tissue test but also provide a comparative result with other farms. The final stage of the project will see specific case studies being carried out to provide more detail results after changes have been made to the soil and farm practices.

Participants provided feedback from what they learnt at the workshop and the overall feedback from the event was very positive and delegates were satisfied with the content of the workshop and the skills and knowledge obtained on the day.

#### Feedback from Turf Nutrition Workshop

<i>Feedback Questions</i>	<i>Rated from 1-low to 10 – high Average of all results shown</i>
Rate your understanding of soil texture and soil types on your farm	Before Workshop - 5.2 After workshop - 7.8
Rate your understanding of interpreting soil test results	Before workshop - 3.7 After workshop - 6.2
Rate your understanding of nitrogen budgeting and cation exchange capacity	Before workshop - 2.9 After workshop - 6.2
Rate your understanding of salinity and how to manage it	Before workshop - 4.6 After workshop - 7.1
	<i>Rating 1 – low to 5 – high Average of all results shown</i>
Rate awareness of Nutrient Management before the workshop	2.11
Rate awareness of nutrient management after the workshop	3.39
I am confident I can now explore areas such as identifying soil types	3.72
Overall satisfaction of workshop	4.14
Will you change your practices as a result of this workshop?	88% replied Yes
Would you recommend this seminar?	94% replied Yes.

Following the workshop, 17 turf farms took up the option to be involved in the study project for soil and leaf testing and having a better understanding of the soil and plant health on their farms.

AgEnviro Solutions was contracted to undertake the study providing growers with an independent option for soil and leaf testing and a comprehensive report detailing the results of the testing and action required to improve the soil.

This information could lead to healthier and faster growing crops increasing opportunity for cultivation. In addition, the report provides growers with a clearer understanding of nutrient requirements therefore avoiding overuse of products, including chemicals.

This project will assist in establishing a data base of information of soil conditions for turf farms. Prior to this project there is very limited literature available.

A further study of 4-5 turf farms will be undertaken to follow the results of implementing the recommended changes.

An extract from a report provided to the farmers involved in the initial study is shown in Appendix 1.



### **Energy and Irrigation Efficiency Project**

This project commenced in August 2015 providing growers with an onsite audit to assess their energy costs and develop more efficient systems. The project includes selected case studies to provide the industry with the necessary research to improve more farms in the future.

The Turf Farm Energy and Irrigation Efficient project is continuing from the last Milestone report. Up to 5 farms are being selected to be case studies for the project. At the time of preparing the report 2 farms had been confirmed and the comprehensive process will be undertaken and all case studies should be completed by June 2016.

### **Pre-Emergent Herbicide & new Technology for Turf Managers Seminar**

Wednesday 4<sup>th</sup> May 2016, The Kings School, North Parramatta

This event is designed to profile Pre-Emergent Herbicides and new technologies available to sports turf practitioners. The focus was on:

- Research and development of the products
- Trial studies
- Environmental factors
- Correct application
- 

63 people attended the event and were provided factual information from the manufacturer of the product. This was a great opportunity for technicians to gain valuable information to ensure they are using the products correctly and getting the most out of the product.

*Feedback from the event was positive with 91% rating the seminar as either very good or excellent. 95% of delegates who completed the feedback form felt the event met their expectations. When asked what was the best aspect of the day, comments included:*

- *Very good topics and great speakers.*
- *Great range of new products.*
- *Variety of Pre-emergents available for specific issues.*
- *Listening to reps on how products work best.*
- *Clear speakers & good topics.*
- *Better understanding of each chemical*
- *Learning about new products and what they do.*





## **NSW Turf Growers State Forum**

Tuesday, 16<sup>th</sup> August 2016

Turf NSW supported this Turf Australia event encouraging members to attend the comprehensive event addressing many important factors in managing a turf farmer. The IDO liaised with Growers to promote the value of the event and assist Turf Australia in the lead up of the event.

The topics included:

- How Turf Growers can generate more business through social media, Cynthia Mahoney, Cynthia Mahoney & Associates
- Using your accountant and your taxation figures to improve your profitability, Greg Sharpe, 3D Accounting
- Final results from the NSW Turf Nutrition Program, Mick Battam, AgEnviro Solutions
- How the turf levy is being used to make turf farming more profitability, HIA representative
- Generating more business by better understanding how to identify and influence different personalities, Cynthia Mahoney

This event provided valuable information for turf growers to think outside the square with their day to day operations and learn ways to improve their profitability.



## **Cricket Wicket Accreditation Program**

Tuesday, 30<sup>th</sup> August 2016, Blacktown International Sportspark

STA NSW launched a Cricket Wicket Accreditation Program at the Cricket NSW Training Facility at Blacktown International Sportspark. The program was developed to provide specialized training for the requirements of sports turf technicians managing cricket wickets. STA NSW & Cricket NSW believe this to be the first accredited course available in Australia that covers the unique preparation and maintenance required for wickets.

70 sports turf technicians undertook the hands on training event and received accreditation for the Wicket 101 program. Wicket 101 is the first level of accreditation and designed for people who want a refresher course, those new to wickets and club volunteers. Topics covered on the day included:

- Renovations
- Watering
- Game Day
- Marking Out
- Wicket Rolling
- Wicket Covers
- Machinery

The feedback received from the event was extremely positive and encouraging to continue to expand the program.

Comments from the Wicket Accreditation Program included:

- *Everything was excellent, great instructor with great knowledge and experience, thank you*
- *Good and informative*
- *Great presenters and should keep doing it for future years*
- *Very good to refresh wicket prep and learn new techniques*
- *Well thought out course*
- *Excellent course, very impressed with the amount of knowledge supplied by instructors.*

Cricket NSW have endorsed this program as well as further levels of accreditation.



## **Turf NSW Industry Information Night and AGM**

8<sup>th</sup> November 2016, Pitt Town Sports Club

This annual event brings the NSW Turf Farmers together to listen to presentations on current industry issues as well as conduct the Turf NSW Annual General Meeting.

Topics Covered at this event included:

- Turf NSW Review, Paul Saad, President, Turf NSW
- Turf Australia update, Richard Stephens, Turf Australia
- Pesticides for Turf Review, Dave Raison, Turf NSW
- Hand Stacker Safety Rail progress, Prasad de Silva, SafeWork NSW

The information on the Hand Stacker Safety Rail was the most dominated discussion point for the evening. Prasad de Silva from SafeWork NSW updated members on the work that had been undertaken by Anthony Muscat to develop a prototype for the rail system that offered staff working on turf hand stackers a safer environment. This prototype was initiated following the death of a worker at a turf farm in Southern NSW. Anthony and other growers have worked with SafeWork NSW and the machinery manufacturer to develop an industry recommended railing option.

The night was attended by 25 turf farmers.



**Without Safety Rail**

**With Safety Rail**



## **The Big Event Experience**

STA NSW introduced an opportunity for members to obtain hands on experience at elite venues during major sporting events. The program called The Big Event Experience provides members to undertake work in the lead up to and on event day for a major event. Not many members get this type of opportunity to gain experience at the elite level of their industry. In turn it provides members more opportunity to network with other sports turf managers.

This program commenced in late 2016 and was undertaken at ANZ Stadium.

Below is feedback from 2 members who have taken up the opportunity:

*"My 2 days at ANZ Stadium was a great experience and it was great to see a different side of preparation, programming and maintenance of a stadium field. To be able to set up a football field and doing the eye for detail line work was the highlight of my experience and exchanging information between golf and sports fields. All the staff had great industry knowledge and we're more than happy to share their knowledge. Just talking to Graeme Logan was a terrific experience in itself as he has incredible knowledge of working in a stadium. Looking forward to next year to another experience. Thanks, Jason Cover"*



*"I was very thankful to be invited along to the NRL Grand Final for the STA's Big Event Experience. Working alongside the guys at ANZ Stadium was definitely very rewarding. It was great to see how a major sporting stadium is prepared for an event like the NRL Grandfinal. Not just the turf maintenance side of things, but the planning & tight schedule the ground staff are required to work to that often goes unnoticed. I would love to do something like this again if given the opportunity & would definitely recommend it to anyone in the industry, to see how things are done on the big stage. A big thankyou to the Graeme Logan & his team. Regards, Brad Horn"*





# COMMUNICATIONS PROGRAM

The IDO continued the communications program during 2016 with the production of the following items:

## Publications:

The production of 'On Common Ground' magazine continued, for STA NSW & Turf NSW members and turf industry in general. The document is normally 32 pages and includes a variety of articles; technical reports, event reviews, interviews, general industry information. Distribution of the magazine is approximately 450.

## Issue 46, March 2016

Feature articles: Member Feature- Bill Rawling, Turf Nutrition Project and general news, Sports Turf Sprinkler Design & Performance – Part 2. Resurfacing of Belmore Oval.

## Issue 47, August 2016

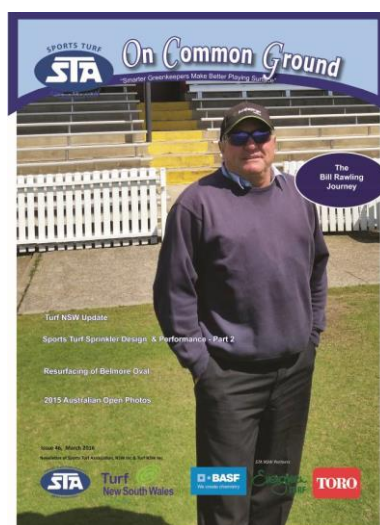
This was the first time the issue was produced electronically only. The decision to go electronic was acknowledging the changes in society and members accessing publications online more often. This option is more cost effective and has the potential reach a wider audience.

Feature articles: Sports Turf Sprinkler Design & Performance – Part 3, Member Profile – Steve Trigg, Member Profile – Bruce Fouracre, Turf NSW Update.

## Issue 48, December 2016

Feature articles: The Legend of Professor Mac, TAFE News, The end of an Era – Parramatta Stadium, Sports Turf Sprinkler Design & Performance – Part 4, Wicket Accreditation Review, Turf NSW Industry Night Review, GHS update.

## Issue 46





# On Common Ground

Kurt Dillon  
Australian Sports Turf  
Graduate of the Year

Launch of  
The BIG EVENT Education

New Accreditation  
Program WICKET 301  
launched at Cricket Seminar  
30th & 31st August

Turf NSW Update

Turf NSW Forum  
16th August

**STA**  
Sustainable Turf Australia  
Turf  
New South Wales  
Club Grass

**BASF**  
The Green Partner

**Evergreen TURF**

**TORO**

## Sports Turf Sprinkler Design and Performance - Part 3

By Rex Sullivan, Aquatic Consultants

### How well do Head to Head Designed Irrigation Systems work?

In our earlier articles we looked at the principles behind head to head irrigation design concepts. Then we looked at how sprinklers operate and apply water and at how we gauge the efficiency of an irrigation system through the Key Performance Indicators of Scheduling Efficiency, Coefficient of Uniformity and Distribution Uniformity. Today we are going to look at how well irrigation systems that are designed on the head to head concept perform.

Just to refresh our memories, do you remember we looked at the basic principle behind the concept of head to head irrigation design? The idea is that the water applied between adjacent sprinklers will tend to even out producing a uniform result.

The graph plots 'mm' on the y-axis (0 to 20) against 'Meters' on the x-axis (0 to 20). A bell-shaped curve represents the water application profile. The curve starts at 0 at 0 meters, rises to a peak of approximately 18 mm at 10 meters, and then falls back to 0 at 20 meters. The area under the curve is shaded light blue.

but there are rarely used for sports turf applications.

This chart demonstrates the result of equally spaced lines of head to head. The lighter blue lines represent the water applied by each of the adjacent sprinklers while the dark blue line indicates the result of the combination of the water applied by all the sprinklers. Doesn't quite work really, does it?

We also looked at the fact that sprinklers don't generally apply water in a straight line as indicated above, except for lateral shift systems of course

These diagrams indicate the application of water from two simple rotator type sprinklers. The water is distributed in a somewhat uneven manner depending on the distance from the head.

The diagram on the left indicate the application of water from two simple sprinkler packs such as those that would typically be used for a sports field or golf application. The results can be extremely varied depending on the sprinkler/pack/spacing/spacing pressure combination.

We have also previously discussed the means by which we can judge the efficiency and effectiveness of irrigation designs through the key performance indicators of Coefficient of Uniformity, Distribution Uniformity and the Scheduling Efficiency.

We also provided a chart which allows us to differentiate between a good system and a poor system based on these two performance indicators.

A well designed sports turf irrigation system should have key performance indicators in the region of the more efficient or most efficient systems as described above.

	Coefficient of Uniformity	Distribution Uniformity (DU)	Scheduling Coefficient	Having reviewed our remarks is it time again to answer the question at hand. The various sprinkler manufacturers provide nozzle charts for their products which allow the user to select the flow rate and radius of the water applied.
Max Efficient Head	90 - 95%	75 - 80%	1.0 to 1.2	
Max Efficient Foot	70 - 80%	75 - 80%	1.2 to 1.4	
Least Efficient Foot	50 - 60%	50 - 60%	1.5 to 1.8 or more	

One of the sprinkler/pack combinations over a range of operating pressures. From these charts it is a simple process to select a sprinkler which suits your particular project requirements. You just select a sprinkler which has a radius of throw which includes, ideally, both the length and width of the required area. Easy but is it effective?

In order to answer the question of how well head to head designed irrigation systems I selected a trusted sprinkler manufacturer and requested a range of nozzle charts. I then selected a range of nozzle charts and selected a range of nozzle/pack combinations for comparison at the major manufacturers' sprinkler performance charts. I recorded the information from the charts and then examined each combination in detail, calculating the key performance indicators versus a programme specifically designed for this purpose.

The results were surprising to say the least.

- Only 7% of the head to head combinations selected had Scheduling Coefficients of 1.1 or less.
- A massive 75% of combinations were capable of Scheduling Coefficients of 1.1, but not at head to head spacing as recommended.
- There were 14% of the combinations for which a spacing resulting in a Scheduling Coefficient of 1.0 could not be found. (These were good but I simply could not find them).

The results of the head to head combinations can be summarised as follows:

So how well do head to head irrigation systems perform?

Not very well at all.

CU	DU	SC	Went	Average	Compared to a irrigation system designed to a standard with a Scheduling Coefficient of 1.1:
50	54%	73%	84%		
70	50%	55%	75%		The worst case shows us how much water for the equivalent application of water the water in the head to head system, despite having Coefficients of Uniformity and Distribution Uniformity of the good category, uses 50% more water.
SC	1.1	2.1	1.4		

So what does this all mean?

What it means is that simply designing an irrigation system on the principle of head to head coverage generally results in inefficient and inefficient irrigation systems with poor key performance indicators. It is far better to design irrigation systems to a performance standard which will invariably result in far more efficient and effective irrigation systems.

Fortunately not at all lost. It is often possible to dramatically improve the performance indicators of existing irrigation systems through a detailed assessment of the system performance. Aquatic Consultants have developed an assessment process which is separate to any process used in the past. This process enables us to identify the key areas of deficit in the performance of the existing system and identify what measures should be taken to bring the system to the system performance.

# On Common Ground

**Turf**  
**New South Wales**  
*Clean Green*

Supporting the Environment  
**STA**  
 The Turf Association of Australia

**WICKET Accreditation**  
 a big hit.

**Dave Hinkley farewells**  
 Parramatta Stadium  
 after 27 years.

**The Legend of**  
**Professor Mac**

**Turf Harvester Safety**  
 Rail progress

**Chemical Global**  
 Harmonisation Rules

©2010 NSW Turfgrass

**BASF**  
 We create chemistry

*Evergreen*  
**TURF**

**TORO**

[illegible]

## Resource Folder "Tools of the Trade"

The IDO initiated a folder for Turf Growers that includes easy to understand resources for items such as Chemical Global Harmonisation System, Work Safety tips for Fork lifts, National Heavy Vehicle Regulator Chain of Responsibility and Sun protection policies.

## Electronic Newsletters

Both Turf NSW and STA NSW produce regular eNewsletters for their members. The newsletter provides updates and important information that can be distributed quickly and efficiently.

Regular E-news continued in 2016 on a monthly as well as other notices for events were emailed and SMS sent separately. Up to 100 turf producers receiving the notifications.

STA NSW newsletters are distributed monthly to members and industry contacts with a distribution of 350.

## Industry publications

Communications and other media activities have taken place to further strengthen the Turf NSW Associations standing in the turf community.

Regular articles are included in the following publications, Turfgrass Management Magazine, TurfCraft Magazine and Turf Australia magazine.

STA NSW endorses and approves information contained in the Sporting Amenities Guide to Workplace Safety produced by Pro Visual Publishing

## TURF SECTOR ENGAGEMENT

The IDO was involved in several industry related events and networking with other industry associations in 2016 including:

- NSW Nursery Industry Association, this involved meetings and representation at events. Cross promotion of events for both associations as well as determining ways to could work together for a stronger Green industry.
- Greater Sydney Local Land Services, continuing to work with LLS through the Turf Nutrition Project.
- Introductory meeting with Hawkesbury City Council to establish a working relationship and understanding issues facing turf growers in the Hawkesbury.
- Planning meetings with Cricket NSW regarding Accreditation program.
- Working with Hawkesbury River County Council regarding chemical and biosecurity issues for the Hawkesbury.
- Attendance at Turf Industry National Education Meeting, June and December 2016
- Assisted in programing and event management of the Australian Turfgrass Conference in Melbourne in June
- Exhibition Stand at the National Sports Convention, held in Sydney in June
- Attendance at the LLS Field Day, Wi-Fi Remote Farm Automation an Management held at Arcadia in July 2016
- Turf NSW coordinated an exhibition stand at the Nursery Industry (NGINA) Trade Expo at Hawkesbury Show Grounds. This event was great exposure for turf and created good opportunity to mix with nursery owners, landscapers and industry reps.
- The IDO and STA NSW initiated a meeting with TAFE NSW regarding the development of a Certificate 2 in Sports Turf Management program to encourage school students into the industry.
- IDO attended the Dept of Primary Industry information night on changes to Biosecurity regulations held in Penrith. This meeting was very beneficial to the industry and DPI agreed to develop an information sheet specifically for the Turf Industry.
- Attended the Turf Australia meeting of Industry Development Officers to discuss the requirements of the industry and develop projects for the coming years.



Biosecurity Meeting with representatives from DPI, Hawkesbury River County Council & Turf NSW IDO



Turf NSW & Turf Australia Stand at NGINA Expo Day.



# Outputs

The Outputs for this project are substantial for the time frame for the project. They include:

## **Direct engagement from the Turf Industry:**

- Environmental Protection Authority
- WorkSafe NSW
- Greater Sydney Local Land Services
- Turf Australia
- Nursery & Garden Industry, NSW & ACT
- Nursery & Garden Industry, Australia
- Hawkesbury City Council
- Hawkesbury River County Council
- NSW Department of Primary Industry
- National Rugby League
- Cricket NSW
- Australian Golf Course Superintendents Association
- TAFE NSW

## **Industry Communication:**

- Ten editions of On Common Ground publications were produced.
- Monthly electronic Newsletters for both Turf NSW & STA NSW
- Bi-monthly reporting for industry publications

## **Seminar, Field Days and Workshop Delivery**

- Chemical Training and Audit Program, July 2013
- Sports Turf Seminar, 26<sup>th</sup> August 2013
- Gear for Growers Field Day, 18<sup>th</sup> March 2014
- NRL Turf Manager's Conference, 1<sup>st</sup> & 2<sup>nd</sup> April 2014
- Cricket Wicket Seminar, 20<sup>th</sup> August 2014
- Regional Sportsturf Seminar, 29<sup>th</sup> October 2014
- Turf NSW Field Day and Forum, 17<sup>th</sup> March 2015
- Advanced Chemical Workshop, 28<sup>th</sup> April 2015
- Sports Turf Seminar, 19<sup>th</sup> May 2015
- Phone Skills for Pricing and Profit Workshop, 4<sup>th</sup> August 2015
- Energy and Irrigation Efficiency Workshop, 11<sup>th</sup> August 2015
- Pest Management & Soils Workshop, 15<sup>th</sup> September 2015
- Industry Information Night & AGM, 10<sup>th</sup> November 2015
- Turf Nutrition Workshop, 2<sup>nd</sup> February 2016
- Energy & Irrigation Efficiency Project continued
- Pre-Emergent Herbicide & New Technologies for Turf Managers Seminar, 4<sup>th</sup> May 2016
- NSW Turf Growers State Forum, 16<sup>th</sup> August 2016
- Cricket Wicket Accreditation Program, 30<sup>th</sup> August 2016
- Turf NSW Industry Information Night & AGM, 8<sup>th</sup> November 2016
- The Big Event Experience, November 2016

## **Targeted and Direct Turf Sector Engagement with:**

- NSW Turf Producers
- NSW Turf Maintenance Sector
- Turf Australia and other state turf Associations
- STA Australia and other state STA Associations
- Australian Golf Course Superintendents Association
- Nursery & Garden Industry, NSW & ACT
- Various local and state government authorities
- Various 'green' industry groups including Landscape Association, Sports Contractor's Association.

# Outcomes

The NSW Turf Industry Development program provided significant outcomes to both the turf producers and sports turf maintenance sector.

Below are comments from Turf Growers and Sports Turf Managers regarding the benefits of the Industry Development Project:

*"The IDO project has worked extremely well for the Turf Growers, taking the pressure off individual growers who just don't have the time or resources to collect or distribute information and keep up to date. Without the IDO role I doubt that the association would have been able to continue to provide good support to the growers."* Paul Saad, Southern Cross Turf

*"I have found the IDO project to be not only supportive for Turf Growers in NSW but my business has benefited from some of the projects held. In particular, the energy efficiency program. This program identified several areas where I could save thousands of dollars each year. I have been very happy with the IDO project for Turf NSW."* Anthony Muscat, Greener Lawn

*"The turf industry in NSW is now a more united industry and that has come from the IDO project. Connecting both growers and sports turf managers has strengthened the industry and meant that the two groups could share information and resources."* Graeme Logan, ANZ Stadium

*"It is vitally important for the NSW Turf industry to continue the joint program of the IDO role. The benefit to the industry is having a central point of communication. Both growers and sports turf managers working together to promote turf and provide education and support."* Chris Chapman, Evergreen Turf

The various outcomes achieved during the project include:

- Created a more efficient and effective central location for the New South Wales Turf industry for development of programs and communication.
- Increase in engagement directly with Turf Growers through farm visits and the communication programs led to clearer understanding of growers needs.
- Collection of data and working with stakeholders to update records of the industry.
- Improved turf industry recognition with local government and state authorities resulting in improved communication and distribution of information for the turf industry.
- Development of relationships with other green industry groups in NSW resulting in cross promotion of events and projects as well as promotion of the environmental benefits of turf.
- Increased exposure and recognition of sports turf management industry with national and state sporting bodies.
- Developed a stronger working relationship with Turf Australia for event co-ordination, communicating issues specific to NSW and in turn working closer to other state bodies.
- Improved the capacity for responding to issue facing the industry such as environmental factors and bio security issues.
- Increase in NSW Turf Growers overall profitability and production through the research and development programs and education in improved business practices. Programs such as the Energy and Irrigation Efficiency project reporting to save over \$6000 per year for growers who undertook the program.
- The Energy & Irrigation Efficiency program provided participants with valuable information including: Awareness of efficiently operating equipment to assist in making savings on power and water; advise on whole of the Farm Efficiency; understanding energy tariffs and what it means for the growers; practical Energy Innovation and new products; benefits of Energy Efficiency Audits.

- The Phone Skills workshop provided participants with the skills to develop a more professional approach to their phone sales, tools to ascertain exactly what their customer needs are and improve the overall marketing of their business. Feedback included comments such as “everything was informative and educational” and “different ways of getting information from customers to help with their needs”.
- The Turf Nutrition Workshop provided participants with vital information in understanding the health of their soil and turf, including; analysing soil type, understanding soil test results and interpreting results, determining the best fertiliser program for different soil types and the positive results of getting it right. Participants provided feedback from what they learnt at the workshop and the overall feedback from the event was very positive and delegates were satisfied with the content of the workshop and the skills and knowledge obtained on the day.
- The eNewsletter provided members with information on upcoming events, reports on research and development projects and relevant industry news. This form of communication allows members to receive information quickly and is particularly beneficial when reporting on changes in regulations etc. The fast and easily accessible communication proved successful with members of both Turf NSW and STA NSW.
- Involvement in other industry publications and sources of communication is beneficial to the broad turf industry allowing higher exposure of information across Australia, sharing articles, research and reports which all work towards developing a more informed and professional industry.
- The Pest Management Workshop provided participants with improved management skills and practices for turf pests and a better understanding of approved turf registered chemicals. This is particularly relevant due to EPA concerns in 2013/14 regarding the use of non-turf registered chemicals and provided members with critical information.
- Improved work practices in the sports turf maintenance sector through the expert education at the various seminars. In particular, chemical use and new regulations, environmental impacts of work practices, pest and weed management and biosecurity regulations.
- Specialised training for sports turf managers of NRL grounds providing them an opportunity to have a voice and create a better understanding of their needs with the NRL.
- Initiation of specialised accreditation training for managers of Cricket Wickets with the opportunity to improve wicket preparation and teach new skills at all levels of cricket throughout NSW. The feedback from the first accreditation course was very positive and this initial program has created the opportunity to expand the program to higher level of accreditation.
- Direct involvement with the training organisations to ensure the National Sports Turf Management course continues to provide what the industry requires.
- Successfully working with WorkSafe NSW in the development of the Turf Harvester Safety Rail System and presenting findings and outcome to members. This resulted in growers having a better understanding of their legal safety requirements and what options are available and supported by WorkSafe NSW.
- Improved understanding of Pre-emergent herbicides by providing the research and data behind the development of the products. In addition, turf managers were instructed on the correct application process to ensure efficient and effective results.
- Improved understanding on how to generate more business through social media and the value this can bring to the marketing of turf producers.
- More opportunities for the NSW Turf Industry to be kept up to date with important information, regulations and general industry news through the publication of On Common Ground magazine.
- Increase exposure of the NSW Turf industry through regular reports in external turf industry publications. This allowed for news and promotion of activities in NSW to be distributed throughout Australia.

# Evaluation and Discussion

The success of the TU12024 project for the New South Wales Turf Industry can be determined by meeting the strategies set at the beginning of the project:

## **1. Engagement with the turf grower and maintenance sector in NSW**

Prior to the project there was very little data available for the Turf production industry in NSW. What was available was out of date and of limited benefit. The IDO project for NSW has succeeded in establishing a more extensive data base of turf growers and farm statistics and has recognized a considerable number of growers who were not contributing to the required turf levy payments. This information was made available to the regulatory authority for follow up.

Throughout the project there was significant engagement with stakeholders for both growers and turf maintenance sector which developed a stronger understanding the issues facing the industry and therefore providing a solid direction for projects to support stakeholders.

In particular, the Turf producers were provided with many opportunities to obtain important information, update of regulations and have an industry representative to contact directly for support.

The project enabled a more holistic approach to the industry, bringing the turf producers and turf maintenance sector together to develop programs to the benefit of the overall industry.

## **2. Input into the development and implementation, in NSW, of national industry training programs**

The NSW IDO role included involvement in several national training programs including:

- Phone Skills for Pricing and Profit Workshop
- Turf Australia State Forum
- National Rugby League Turf Managers Conference
- Turf Australia National Conferences
- Australian Turfgrass Conference
- National Turf Education Training Program
- Turf Australia Chemical Trials Workshop & Industry Days
- NxGen Conferences

## **3. Development of a NSW Turf Grower and Turf Maintenance communications program and input into national industry communications**

The project saw the expansion of the STA publication 'On Common Ground' to incorporate Turf NSW and therefore increase the exposure of the publication across the NSW turf industry. The publication provided both general industry news as well as technical articles and reports on new or changed regulations etc.

Electronic newsletters were developed by both Turf NSW and STA NSW to have fast and efficient means of communication with stakeholders.

The IDO regularly included reports for several industry publications that have a large exposure throughout Australia including:

- Australian Turfgrass Management Magazine
- AGCSA electronic newsletter
- TurfCraft Magazine
- Turf Australia Magazine
- Turf Australia electronic newsletter

#### **4. Development of strategies and implementing programs of improved biosecurity and water use efficiency within a peri-urban environment.**

Throughout the project the IDO developed programs to improve the issues face by the industry. That included working with authorities and organisations to share information and resources for educating members. Organisations such as Local Land Services, Department of Primary Industry, Hawkesbury River County Council and EPA assisted in implementing programs for Bio Security Issues, Chemical use and Peri Urban environmental issues.

Programs such as the Turf Nutrition project was developed to provide turf growers with a better understanding of the importance of soil health to ensure a long and sustainable harvest.

The Energy and Irrigation efficiency project allowed turf producers to undertake a full audit on their irrigation pumps and equipment to review the efficiency of their systems and make recommendations that would result in improved operational function and therefore cost reduction.

Bio Security work was undertaken in the later stages of the project in time with the changes to the Bio Security regulations. The IDO has had meetings with both DPI and Hawkesbury County Council regarding the impacts of the regulations on turf growers. It was identified at these meetings that the turf industry had been overlooked in respect to industry specific resources from DPI. Plans are now underway to develop a fact sheet and resources specifically for the Turf Industry. In addition, Turf NSW will work closely with Hawkesbury County Council to assist Turf producers implement the necessary changes to the regulations.

#### **5. Development of strategies and implementing programs for improved environmental sustainability, grower profitability and improved workplace practices.**

During the project the turf industry has encountered 2 major areas of concern for the industry; use of unregistered chemicals on turf and workplace accidents. The Industry Development project enabled prompt and efficient reaction to these situations with the IDO position being able to investigate the situation with relevant authorities and develop strategies and programs to support the industry through educational programs and working directly with members.

Extensive work was undertaken regarding the use of unregistered chemicals for turf through workshops and field days as well as regular communication through electronic newsletters and publications. A good relationship was established with the EPA to ensure the correct information was communicated and also allowed a central point of contact for the authority to connect with the industry.

During the period there were some workplace accidents that occurred on turf farms in NSW and one resulting in a death. Through the IDO program, workshops and presentations were arranged reviewing the situations and informing the turf industry of their obligations as employers in respect to work, health and safety regulations and the requirements of WorkSafe NSW in the event of an accident.



## Recommendations

The Turf Industry Development project for NSW was considered very successful in being able to offer a designated program to support turf growers and unite the industry for the benefit of developing a stronger, more profitable and professional industry. Prior to the project the support was very limited due to lack of time and funding of voluntary committee members.

The NSW Turf Industry Development project has proven to be very beneficial to both Turf Producers and the Sports Turf Maintenance sector. Turf NSW and STA NSW have developed programs that have had great support from the industry and reported to be very beneficial at providing better work place practices and opportunities to increase profitability and education of both turf producers and employees.

Both Turf NSW and STA NSW feel strongly about the continued support of this program through HIA funding and believe that the industry will continue to benefit from long term development of strategic planning at both a state and national level.

The importance of maintaining a central point of contact for the industry is not only beneficial to the members of Turf NSW and STA NSW but to regulatory authority organisations requiring contact and with the industry as well as response to requirements.

The project initiated the collection of basic data for the turf industry, specifically of turf growers in NSW, but a full economic study of the entire turf industry is required to identify a more in depth understanding of the industry and therefore structure specific programs for increased production and profitability, improved management and business strategies and stronger promotion of the turf industry.

## Scientific Refereed Publications

N/A

## Intellectual Property/Commercialisation

No commercial IP generated

## Acknowledgements

- The Turf Growers Association, NSW Incorporated and Sports Turf Association, NSW Incorporated Executive Committee Members.
- Members, past and present of Turf Growers Association, NSW Inc.
- Members, past and present of Sports Turf Association, NSW Inc.
- Greater Sydney Local Land Services, WorkSafe NSW, DPI, EPA.
- The wider turf and amenity horticulture industries in NSW.
- Turf Australia staff and board members
- HAL/HIA Turf industry program staff

# Appendix 1

*Extract from Soil & Leaf testing as part of the Turf Nutrition Study.*

## Turf nutrient requirements

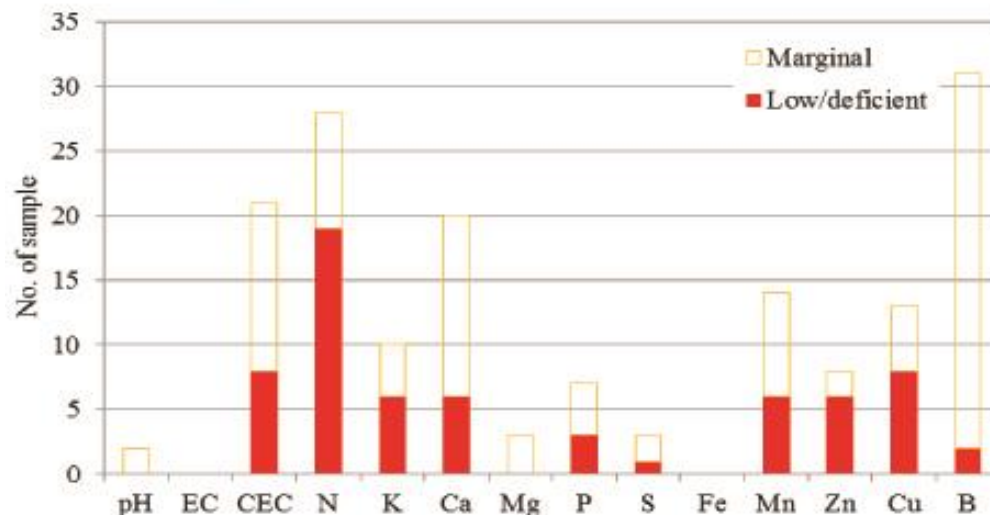
Almost no information exists on turf farm nutritional requirements due to a lack of fundamental research. By combining the limited literature data with the findings of the small number of dry matter and turf tissue measurements taken in this project the nutrients requirements (can be supplied by the soil or fertiliser addition) for each growth stage of kikuyu are roughly estimated to be:

				
Nitrogen:	50 kg N/ha	200 kg N/ha	200 kg N/ha	200 kg N/ha
Potassium:	30 kg K/ha	170 kg K/ha	170 kg K/ha	170 kg K/ha
Calcium:	10 kg Ca/ha	45 kg Ca/ha	45 kg Ca/ha	45 kg Ca/ha
Phosphorus:	10 kg avail. P/ha	20 kg avail. P/ha	20 kg avail. P/ha	20 kg avail. P/ha
				
	<b>Cut</b>	<b>50% ground cover</b>	<b>Almost full cover</b>	<b>Ready to cut</b>

These values can likely be reduced by about 15% for buffalo which appears to require more phosphorus soon after cutting (Appendix A). However, more monitoring is needed so these nutrient requirements can be more accurately defined.

## Soil test findings

Soil nutrient testing was conducted on 17 turf farms (34 samples), with most sites displaying low soil nitrogen reserves. Deficiencies in other nutrients typically occurred on about 10 to 20% of samples (Figure E.1), with the value of the nutrient shortfalls presented in Table 6.1. As soil chemical testing is an inexact science farmers should confirm these findings using one of the techniques outlined in Section 4 of this report.



**Figure E.1:** The findings of soil testing conducted on 17 turf farms (34 samples).

**Table E.1:** Nutrient needed (kg/ha) to address shortfall observed in February/April 2016 samples. Nutrients may need to be applied gradually (Section 6.4), especially micronutrients.

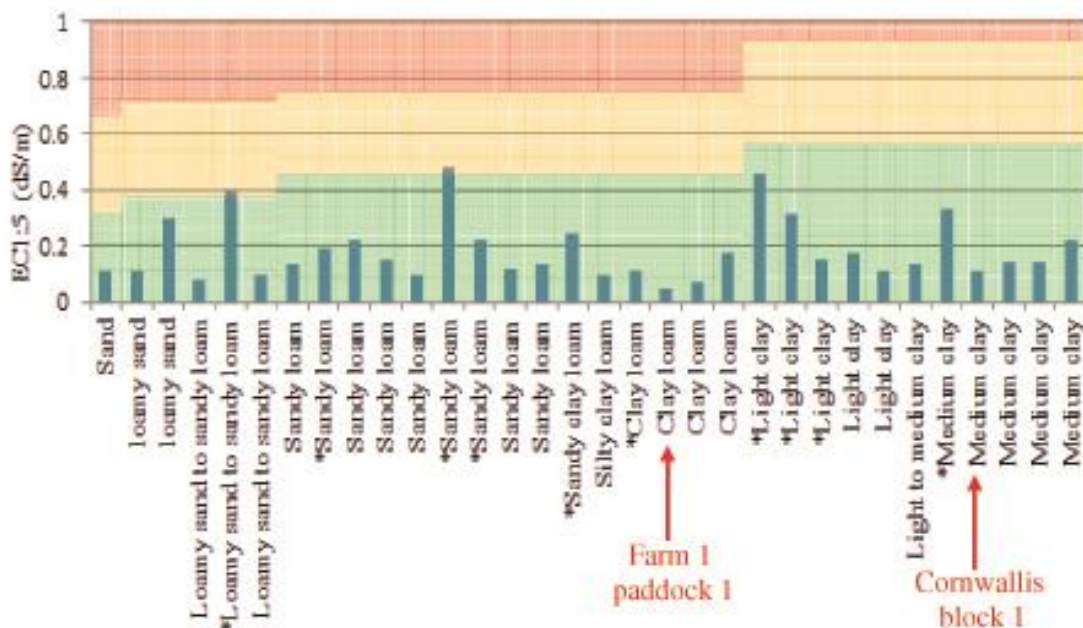
Soil	pH	EC	CEC	N	K	Ca	Mg	P	S	Fe	Mn	Zn	Cu	B
Sand							100	H			20			1.5
Loamy sand					84		180				25		0.8	
								H			5			0.4
Loamy sand to sandy loam						337		H		H				0.2
						468		H						0.8
					280			140						1.0
Sandy loam						88		H			25			1.6
					117		185					2.4	0.8	1.7
						336							1.1	1.4
						294							1.1	1.6
						111								1.6
						36		H			15			0.6
						500		H			25			0.2
								H			10			1.9
Sandy clay loam						700		187			8	3.2	0.2	1.1
					108	350		H						1.6
Silty clay loam									20					2.4
Clay loam						25		310				4.0	1.1	1.8
					166						23		1.1	1.5
									30					2.2
						210					40	1.7	2.3	2.0
Light clay						900		H						2.4
						900		H						2.3
								195	5			5.6		2.7
						240		H						2.7
Light to medium clay					241	900		450			38	6.2	3.2	3.5
					259	900		450			23	5.9	2.7	3.5
Medium clay					277	900					27			2.6
					42									1.3
					210			350			17	2.8	2.5	2.6
						260							0.2	2.5
						870							1.1	2



### 3.2 Salt

#### Salt levels in your soil samples

The soil samples collected on the 17 turf farms in February 2016 generally had low levels of salinity, with **low levels** also observed on your farm (Figure 3.2). However, salinity could be an issue on other sections of your farm. Look for signs such as turf injury or white crystals on the surface (Figure 3.3).



**Figure 3.2:** Salt levels for soil samples from 17 turf farms (\*shows sites outside Sydney Basin). Shading indicates high (red), marginal (orange) and acceptable (green) readings.

#### How to interpret salinity tests

Soil test results can be used to determine whether the soil is too salty, but this is an expensive method of diagnosis. A much cheaper method involves testing the soil yourself with a salt probe which can be purchased for about \$150 to \$250. Generally speaking soil salinity is measured by mixing 1 part soil with 5 parts water. The reading is then measured (depending on the type of probe) in units of either:

- Deci-siemans per metre (dS/m);
- Milli-siemans per centimetre (mS/cm): this is the same as dS/m;
- Parts per million (ppm): divide this reading by 640 to convert to dS/m.

Convert your soil result to dS/m so it can be interpreted using Figure 3.2. If the laboratory issues test results in strange salinity units (or provide results for a saturated soil extract) then ask them to convert into dS/m for a 1:5 soil to water mixture so you can then interpret the results.



**Figure 3.3:** Turf struggling due to salt injury (left), with salt crystals on the surface (right).



### 3.3 Nitrogen

Plants mostly take nitrogen out of the soil as either nitrate ( $\text{NO}_3^-$ ) or ammonium ( $\text{NH}_4^+$ ). However, 70 to 90% of the soil nitrogen is contained in organic matter which acts as a slow release form of ammonium. To work out how much nitrogen will be available for plant uptake is a complicated calculation that a laboratory (or soil scientist for a minor fee) should perform for you based on:

- Nitrate levels;
- Ammonium levels;
- Total nitrogen levels; and
- Soil organic matter levels.

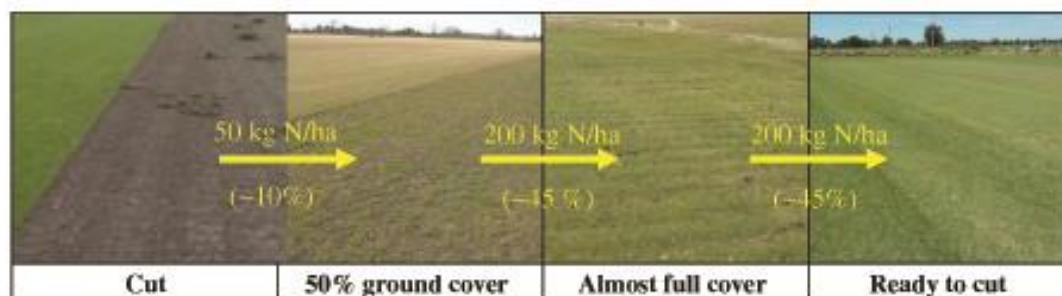
The nitrogen rates will be inaccurate if all these factors are not measured. A severe nitrogen deficiency causes turf yellowing (right).



#### Working out how much to apply

The 17 turf farm samples generally had limited capacity to supply nitrogen for plant uptake, with low levels also observed on your farm (Figure 3.4). Based on the turf growth stage you can use Figure 3.4 to work out how much nitrogen to apply. If for example your turf was at the 50% cover stage then it will require 400 kg/ha prior to cutting (Figure 3.4) minus the amount of nitrogen your soil can supply.

Based on your soils cation exchange capacity (CEC), leaching losses will occur if you apply more than 170 kg/ha of nitrogen in a single event. The addition of 10 mm of AS 4454 composted garden organics could increase your CEC by about 30% so leaching is less likely.



**Figure 3.4:** Nitrogen requirements for each turf growth stage (upper) which can be compared with your soil supply capacity (below) to determine nitrogen fertiliser rates. The growth stage requirements are approximate due to a lack of fundamental turf research.

