Note from the CEO

Welcome to the March edition of The Vegetation Manager,

Over the past month I’ve had a chance to speak to a number of people about what it is we do; not just as a company, but as vegetation managers. Having these types of conversations has got me thinking about our contribution to the community, to the industry, and to our environment as a whole.

I believe that, as vegetation managers, we do more than just fulfill a need within the industry. We don’t just prevent invasive weeds from spreading, maintain public open spaces or ensure that turf is well maintained. Effectively, we are at the frontline in looking after our environment. And as such, we have a responsibility to re-evaluate accepted norms and develop cleaner, safer and better ways of doing things. Our role ensures we are preserving and improving spaces that everyone uses, and so real improvements in our results is a win for the public, as well as our industry.

Part of improving these processes is about being internally forward thinking, but also taking time to listen to ideas and suggestions. If you’d like to connect with us on any topic please feel free to call on 1800 678 611 or you can visit our Facebook page. We’d love to connect with you.

Wishing you well for the coming month.

Cheers,

Nick Bloor

It’s that time of the year

Protect your turf by soil testing

Turf surfaces are required to endure significant stresses each day, including weather extremes and traffic. While there is little we can do to control some of these stresses, we can control soil nutrition. Knowing the physical and chemical properties of soil is critical to the development and implementation of successful turf programs. Now is the optimal time to start thinking about your turf management programs. To learn more about soil testing refer to page 4 or talk to one of our Turf specialists on 1800 678 611.

Fast Facts

> Myrtle rust is known to affect only myrtaceous plants.
> To date, it has been found on more than 60 species of myrtaceous plants, including lilly pilly, willow myrtle, thready bark myrtle, scrub cherry and rose apple.
> Myrtle rust attacks young, soft, actively-growing leaves, shoot tips and young stems, as well as fruits and flower parts of susceptible plants.
Angel's trumpet is a member of the Solanaceae plant family native to tropical South America (i.e. Brazil, Bolivia and Peru). This species has been widely grown as an ornamental in the past, but like all of the Angel's trumpets (Brugmansia spp.) it is no longer popular in cultivation because it is extremely poisonous. For more information about Angel’s trumpet refer to page 5-6.

#### Upcoming Events

- **International Summit of Golf Course Superintendent Associations**
  The Melbourne Convention and Exhibition Centre 2nd - 3th June 2012, Melbourne, VIC.

- **Queensland Pest Animal Symposium**
  Adapting Pest Animal Management to a Changing World
  30th July - 2nd August 2012, Caloundra, QLD. More

- **18th Australasian Weeds Conference**
  Developing Solutions to Evolving Weed Problems.
  8th - 11th October 2012, Melbourne, VIC. More

#### In the news

**Technigro appoints new board member**

Technigro has appointed corporate advisor Sean Wardrop as its first non-family director.

Mr Wardrop is well known as the consulting CEO to local property development company Nifsan, who counts the $1 billion masterplanned Emerald Lakes community as part of its property portfolio.

Technigro CEO Nick Bloor says the appointment is a real coup for the company as Mr Wardrop’s extensive experience in corporate advisory, restructuring and mergers and acquisitions will assist it to grow both its offering and client base.

“We've been able to grow Technigro from a one man operation to a company employing 85 southeast Queensland locals, but now we need Sean’s expertise to enable us to reach the next stage of our growth,” Mr Bloor says.

“His appointment is key to enable Technigro to position itself as a world leader in vegetation management, especially as we move into our 25th year of operation here on the Gold Coast.”

Mr Wardrop is a qualified Chartered Accountant who began his career with KPMG in Edinburgh before holding senior positions in London, Perth (W.A), Melbourne and Queensland.

His experience covers both listed and unlisted entities and includes blue chip companies such as Stockland, Elders, Lloyds TSB and State Street Trust and Bank Company.

Mr Wardrop says his immediate plans are to help position Technigro for international expansion on the back of a recent major contract with the Singapore Government.

“There are a number of exciting opportunities for Technigro to take advantage of and grow the business, and I will be using my corporate experience and contacts to help facilitate this,” Mr Wardrop says.

“They are an impressive company that has grown organically to now become a preferred supplier for a number of local councils and government departments.

“We now want to capitalise on this growth and excellent standing within the industry to take the business to the next level through geographic expansion and the addition of new service offerings.”
Recently, Technigro has sought specialist knowledge on technology options central to the planned upgrade and improvement of the company’s EcoWash facility. In order to do this, they’ve given one university student the opportunity to partner with Technigro to investigate the feasibility of transitioning the EcoWash from a simple water reuse system to a more advanced water recycling capability.

Currently, Technigro uses the EcoWash facility as a vehicle, plant, and equipment wash-down facility to remove herbicide residue and weed-seed material to comply with the company’s ISO QA practices. The waste water is filtered, captured and reused in the business’s operations in southeast Queensland.

Technigro is exploring the potential to move from simple reuse capability to a more complex recycling capability that allows us to reuse the wastewater internally within the facility rather than disposing of the water after one cycle in its operations.

CEO Nick Bloor says he’s very pleased to have the University’s involvement, and looks forward to seeing what the partnership brings to the company’s operations.

"At Technigro we’re passionate innovators, so to have a Griffith University student joining us to bring some fresh ideas and perspectives to our innovation is a big coup for us," he says. "On the other hand, we’re happy to be able to provide this young man with some vital experience, and are proud to be able to play a part in the fostering of young talent that’s nearly ready to move into the workforce."

"I’m looking forward to his involvement, as well as developing other potential innovation roles with university students."

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In the news

Using soil temperature to predict turf weed, disease and pest

The weather has been most unseasonal in many parts of Australia this summer. The mild and wet conditions experienced along the east coast have resulted in weather conditions not seen for many years. Heat and drought stress have not been major factors, but low light levels and excess moisture have resulted in other stresses which have caused different management problems. As we head into autumn the milder weather will most likely result in Poa annua germination to occur much earlier than it normally would. This means that pre-emergent herbicides need to be applied earlier than in most years. So what can help us in dealing with weed, disease and pest issues when they start to occur at abnormal times?

The use of soil temperature data is certainly useful for predicting the germination of annual weeds like Poa annua (21°C), Eleusine indica (16-18°C) and Digitaria sp. (12-15°C).

This will then help with correct timing of pre-emergent herbicide treatments. But soil temperature can also be a useful tool for predicting activity of some turf root diseases and to a lesser extent insect activity. The table shows critical soil temperature ranges which may be useful for turf managers. Most of this information is from the USA and should be appropriately used and adapted for Australian conditions.

Soil temperature information data can be obtained from the Bureau of Meteorology web-site, but measurement of temperature on site will be most valuable as significant variation can occur even across small distances depending on soil type, turf cover, aspect, shade etc. It is important to note that turf cover will have an insulating effect on soil temperature and so on site results may vary from those measured by the Bureau.

**Critical Turf Soil Temperatures** (measured at 10cm depth)

**Weed Control**

- 21°C: Commencement of Poa annua germination in autumn.
- 16-18°C: Germination of Eleusine Indica is expected in spring.
- 12-15°C: Germination of Digitaria sp. is expected in spring.

**Insect Control**

- 13°C: Minimum temperature for scarab larva and mole cricket activity.

**Disease Control**

- 13°C: Preventative fungicide applications should be made for fairy ring control.
- 18°C: Summer Patch (Magnaporthe poae) - infects roots during spring and summer when soil temperatures are above 18°C.
- 4-16°C: Take-all Patch (Gaeumannomyces graminis) - infects roots during autumn and spring when soil temperatures are between 4°C and 16°C. Autumn fungicide applications are the most important for preventative control.
- 16-27°C: Spring Dead Spot (Ophiobolus korrae and O. narmandii) infects couchgrass roots in autumn in this temperature range. Preventative fungicide applications should be applied in this target zone.

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Technigro partners with Griffith University to further innovation

The successful applicant for this program is an Environmental Engineering student from Griffith University on the Gold Coast, who has commenced his work with Technigro.

CEO Nick Bloor says he’s very pleased to have the University’s involvement, and looks forward to seeing what the partnership brings to the company’s operations.

"At Technigro we’re passionate innovators, so to have a Griffith University student joining us to bring some fresh ideas and perspectives to our innovation is a big coup for us," he says. "On the other hand, we’re happy to be able to provide this young man with some vital experience, and are proud to be able to play a part in the fostering of young talent that’s nearly ready to move into the workforce."

"I’m looking forward to his involvement, as well as developing other potential innovation roles with university students."
SOIL TESTING

Whether it is the extremes of winter or summer, or a random act from Mother Nature, significant environmental stress can be placed on turfgrass. This is usually combined with other stresses such as high levels of traffic. While there is little we can do to control some of these factors, we can control soil nutrition and eliminate it as a contributor to turfgrass stress. By using an analytical approach we can eliminate soil nutrition as a limiting factor in producing quality turf and optimal playing conditions.

Why soil test

Soil nutrition is the most critical factor in turfgrass health and performance. Knowing the physical and chemical properties of soil ensures the successful development and implementation of nutrient, irrigation and renovation programs as it guarantees your turf is receiving the nutrition it requires all year round.

A Soil Test provides a Turf Manager with the vital information required to create nutrient programs and identifying weaknesses and issues within the soil profile. Recommendations on the products and rates required to amend any issues can then be determined based upon the results. This ensures that your turf will receive the nutrition it needs to eliminate any imbalances and ensure healthy growth.

The desirable level of soil nutritional components to achieve optimal conditions is:

<table>
<thead>
<tr>
<th>Cation</th>
<th>Optimum level (%)</th>
<th>Optimum level (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>68 - 72%</td>
<td>600 - 1000ppm</td>
</tr>
<tr>
<td>Magnesium</td>
<td>13 - 16%</td>
<td>50 - 150ppm</td>
</tr>
<tr>
<td>Potassium</td>
<td>3 - 5%</td>
<td>60 - 150ppm</td>
</tr>
<tr>
<td>Sodium</td>
<td>&lt;3%</td>
<td>&lt;30ppm</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>4.5%</td>
<td>-</td>
</tr>
</tbody>
</table>

It is crucial that these nutrients are at the correct amount as too much of one nutrition can offset the balance of another and could result in plant death. Balancing soils nutritionally and achieving optimal soil conditions will produce healthier and stronger turfgrass that can better cope with any stress placed upon it. This will reduce the need for other inputs, such as fungicides, to maintain a quality playing surface and will allow better utilisation of applied fertilisers and other products.

Soil pH

pH is the measure of the acidity or alkalinity of a solution based on the concentration of the hydrogen ion. This is an important measure as it determines the availability of nutrients to your turfgrass. An optimal level for soil pH is around 6.5. At this level, all required nutrients are available to the turfgrass. Knowing the pH level of your turfgrass is important as pH problems can result in a general lack of vigour and a lack of response to applied nutrients. Generally speaking, there is always a cause for pH problems and these can be amended through an effective nutrition program.

Technigro, in conjunction with Nuturf Australia, offers complete turf maintenance programs. These programs include soil testing, species audit and the development and implementation of an appropriate nutrition program.

Your Provider of Vegetation Management Solutions
Post: PO Box 2038, Burleigh BC, QLD. 4220
T: 1800 678 611  www.technigro.com.au
Angel's trumpet is a member of the Solanaceae plant family native to tropical South America (i.e. Brazil, Bolivia and Peru). This species has been widely grown as a garden ornamental in the past, but like all of the Angel's trumpets (Brugmansia spp.) it is no longer popular in cultivation because it is extremely poisonous.

Distribution
Angel's trumpet has recently been recorded becoming naturalised in north-eastern NSW and south-eastern Queensland. For example, it has formed dense colonies at a few locations along Enoggera Creek in the northern suburbs of Brisbane. It is also naturalised on Norfolk Island and in other parts of the world (e.g. eastern Africa, Florida and on some other Pacific islands).

Description
A large shrub or small tree usually growing to about 3 m tall, but occasionally reaching up to 4.5 m in height. Its younger stems and leaves are hairless or finely hairy. The large leaves (10-30 cm long and 5-12 cm wide) are alternately arranged along the stems with entire margins and pointed tips.

The very large trumpet-shaped flowers (20-35 cm long) are borne singly in the upper leaf forks on stalks 2-3 cm long. These flowers droop downwards and have a large green tube (8-12 cm long) at the base that is made from the fused sepals (i.e. a calyx tube). This tube separates at the tip into 2-5 small lobes. The white or cream-coloured flowers are made up of five petals, which are also fused together into a tube for most of their length. The flower tube is constricted at the base and leaves a space between it and the green calyx tube. The sides of the flower tubes are ribbed or pleated and separate into five pointed lobes (about 1-4 cm long) at the tip. These lobes are usually spreading or only slightly curved upwards. Each flower also has five stamens and an ovary topped with a long style and two-lobed stigma. The fruit is a smooth capsule (10-15 cm long) with four compartments. It contains numerous relatively large, flattened seeds (7-12 mm long 5-8 mm long).

Quick Facts
- A large shrub or small tree usually growing to about 3 m tall
- Large white trumpet-shaped flowers (20-35 cm long) that droop downwards
- Flower bases surrounded by a green tube that separates at the tip into 2-5 small lobes
- Smooth spindle-shaped fruit (10-15 cm long) with numerous large flattened seeds

Habitat
In its native range, Angel's trumpet grows on river banks and in forest margins in areas with high humidity and heavy rainfall. Hence it is mainly a weed of riparian vegetation, disturbed sites, waste areas and urban bushland in wetter coastal areas.
1. Infestation along Enoggera Creek in Brisbane. 2. Large drooping trumpet-shaped flowers.

### Reproduction and Dispersal
This species reproduces by seed, which are probably dispersed by water and in dumped garden waste. It also spreads vegetatively, suckering to form large colonies and growing from broken stems, which are probably dispersed down waterways during floods.

### Why is it an Emerging Threat?
If left unmanaged, this species may eventually form large colonies that may inhibit the flow of waterways and impact on riparian vegetation. In Africa, it has also become a pest of lowland rainforest and forest edges, where it replaces native species.

### Control Methods
Individual plants can be manually removed with the aid of suitable tools, but care must be taken to remove the crown, as plants may regrow from the base. There is no information readily available on the control of Angel’s trumpet with herbicides, but it is very similar in nature to Wild Tobacco and may respond in a similar way. Some of the products registered for control of Wild Tobacco can be used to control similar shrubby environmental weeds, such as Angel’s trumpet, via APVMA off-label Permit 111463 (see http://permits.apvma.gov.au/PER111463.PDF).

However, some of these products should not be used near waterways. In such circumstances a basal bark or cut stump application of an aquatically registered formulation of Glyphosate is suggested (e.g. Round-up Biactive or Weedmaster Duo). Please read the off-label permit carefully for the exact products and rates to use and, unless otherwise stated in this permit, the use of these products must be in accordance with the instructions on their labels. Within other state boundaries, it is recommended that all managers consult any relevant permits or government legislation applicable to their region.

### Look a-likes
Brugmansia suaveolens is very similar to other Angel’s trumpets, including the popular hybrid Brugmansia × candida. However, the green tube at the base of Brugmansia × candida flowers is partially split down one side, does not separate into small lobes at the tip, and has no obvious gap between it and the white flower tube. The petal tips of Brugmansia × candida are also much longer.

Top. Brugmansia × candida flowers with longer petal tips. Bottom. Base of flower showing single point at tip of green calyx tube.