Turf Surface Guide for Lawn Bowls Clubs
This Booklet was written by
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With assistance from Phil Ford
(NMIT Lecturer in Turf Management)
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Foreword

“The RVBA acknowledges and supports the work of the Victorian Greenkeepers Association.”

Mr Peter Hanlon
Executive Officer
Royal Victorian Bowls Association

“This booklet has been put together by greenkeepers who are interested in passing on to Bowling Clubs information regarding the new grass green technologies available when looking at the replacement of an existing surface.
Thanks to Dyson Appleyard and Andrew Fitzharris for all their hard work on producing this booklet.”

Mr Douglas Agnew
President
Victorian Greenkeepers Association
The Victorian Greenkeepers Association

The Victorian Greenkeepers Association formally known as the VGBA, was formed in 1911 and its members were Greenkeepers from the few inner suburban clubs
The main reason for the establishment of the association was to provide a forum to discuss the best types of grasses, diseases affecting turf, greens construction and provide a social outlet for greenkeepers.
Over recent decades Greenkeeping has evolved, with the biggest change being in the training requirements for turf management. Greenkeepers are required to sign on for a four year Apprenticeship.
All aspects of turf management are covered, subjects include Turfgrass Botany, Weed, Pest and Disease Management, Drainage and Greens Construction, Irrigation Installation and Management.
At the completion of the apprenticeship, greenkeepers have the option of continuing their studies by enrolling in a Diploma course. This three year course covers subjects studied during the Apprenticeship training but at an advanced level. The level of mathematics and science required at this level would surprise most bowlers. This training provides Greenkeepers with the knowledge to not only cut and roll grass, but also to maintain the health and well being of the green, and be able to implement long term plans for watering and fertilising. Clubs with a greenkeeper trained in this way have a Professional Tradesman looking after the most important item in a Bowling Club…. The Greens.

Our membership is continually growing and we welcome not only Greenkeepers and Sales Representatives but also Greens Directors and club members interested in learning about the technical side of turf management. Our website (www.victga.com) is updated regularly with turf related information as well news from around the state. We have also setup a forum for open discussion on turf matters, problems you may be encountering or just to keep in touch with the greenkeepers spread across the state.
What Are Your Options

Deciding which direction to follow.

Does your Bowling Club have Natural Grass Green/s?

Prior to the current drought conditions were they healthy?

Are your members questioning the committee, in regards to the Green/s surfaces at your club?

As a committee are you aware of all your options regarding replacement of your Green/s

Many clubs during the planning stage automatically think that a SYNTHETIC surface is the only answer however this is NOT NECESSARILY TRUE as your other option is Couch Grass.

There are two main construction methods open to your club when installing a Couch green:-
1. A New Top.
2. Reconstruction of the Green.

Research carried out over the past few years at Northern Melbourne Institute of TAFE in conjunction with the Victorian Greenkeepers Association has shown, that by using Couch Grass and new techniques in constructing bowling greens, not only will there be a reduction in water use, but also provide a surface that will survive the harsh summer conditions.

This booklet has been produced to inform you of the options available and ensure your members are happy with a Natural Grass Surface. It will provide your Greenkeeper with information regarding the management and survival of your greens with consideration for the demands of our summer weather and the bowling commitments of the club. At the same improving the quality of your greens, saving water and most importantly money for your club.
Greens Construction

Modern bowling greens require excellent drainage so that minimal time is lost during wet weather. Only sand will provide the required drainage, but not just any sand.

Turf scientists have developed a number of laboratory tests and strict specifications to ensure that construction sand provides the required drainage rate, but also the compaction required for a fast, true running surface and the ability to hold sufficient nutrients and water to grow healthy grass.

A new bowling green construction will cost in the area of $40,000 to $50,000 in materials alone, up to half of that cost can be for sand. An investment of a few hundred dollars in sand selection makes sense, as it is the most important factor for the success of your new green.

Research into Modern greens construction, funded by the Victorian Greenkeepers Association has resulted in simple processes with reduced costs. This research highlighted innovations such as a flat sub-base with pipes laid directly on the sub-base (ie: no trenches) thus reducing the time and quantity of materials required, producing a high quality green at less cost to the club.

In the summer of 2006 / 2007, one green at Highton Bowling Club was built using this technique. Since then Mt Eliza Bowling Club have used the same method.
With the drought affecting most bowling clubs across the state of Victoria over the last few seasons, Highton Bowling Club in Geelong decided in 2006 they were going to embark on a project to ensure they would be able to keep their grass greens not only running well, but alive and healthy. The Club Chairman Alan Mathers, Head Greenkeeper Dave Gudgeon and NMIT Lecturer Phil Ford pooled their resources and expertise to come up with a solution. NMIT had recently conducted trials comparing two different green construction types and used a variety of warm season grasses (couch grass) to determine which one performed better and on what base.

The Highton Club was successful in its application for a $50,000 community Water Grant, to help fund the project. Highton decided to go with the California Method of construction which has a level base unlike conventional Bowling Green bases which generally have a rooftop formation to help the water flow into the drains. The club also purchased a 154,000ltr Water tank to store the water collected from the clubhouse roof and the greens.

With the California Base being flat, Megaflow drains are used. These are flat and sit on top of the base as can be seen in the above picture. They have a fabric cloth sleeve to protect the drains from the infiltration of fine particles of sand. Highton then decided to Sub irrigate (water from underneath.) This method of irrigation allows the water to be applied directly to the rootzone, which in turn promotes a deeper root system, which is required for healthy greens.

The original green was excavated to a depth of 300mm to the existing base and a plastic membrane laid across the surface. The Megaflow drains (300mm x 50mm Deep Rectangular) were laid across the plastic membrane at 3.6m increments. Ventilation was added as air needs to escape from the pipes when being filled with water. Gravel was placed over the drains to a depth of 80mm, followed by 220mm of rootzone sand that contained 15% peat moss.

The green was laser levelled and the Tifdwarf sprigs spread across the entire green. A light top dressing followed to cover the springs to hold the sprigs in place on the surface. Regular watering was carried out to enable the grass to strike. Hand weeding was carried out to eliminate the need for Herbicides that could stunt the growth of the grass.

After 3 months the grass cover was almost 100%, with the root system already at the bottom of the sand layer.
The cost of the project was around $80,000, compared to the cost of synthetic surfaces which generally average around $120,000 - $160,000.

Approximately one year after completion of the project the green is reported to be performing very well.
This may well be the preferred method of future greens construction.

The Green being top dressed over the couch sprigs

Alan Mathers & Dave Gudgeon show the root depth of the green
Natural Turf Vs Synthetic

Many clubs when investigating available options for replacement greens incorrectly think that synthetic greens equates to NO MAINTENANCE. They view this as a cheaper option compared to paying a greenkeeper and the costs associated with a grass green. At present most synthetic surfaces need to be watered, sprayed for algae, weeds and brushed or vacuumed to keep the surface in a good playing condition. This requires new equipment and personnel to carry out the required maintenance. Synthetics are more difficult and costly to repair when damaged by vandals, storms or earth movement.

When looking at the prospect of replacing your existing surface, you must ask yourself,

“What do our Members Prefer?”

Below are some key issues from a study conducted in 2004 comparing Natural Surfaces against Synthetic Surfaces.

Player Preferences for Surfaces

The survey of 300 Victorian lawn bowlers found that:

- 99% of respondents surveyed regularly play on turf greens.
- 34% of respondents play on multiple green types.
- 20% played bowls regularly on a synthetic surface as well as turf greens.

Key reasons for a preference of natural turf included the following:

- “It is a truer surface”.
- The traditionalists, “it’s called lawn bowls”.
- “Is not as hard on the body (feet, legs, eyes, etc).”
- “More of a challenge (more skill utilisation).”
- “Just like it/ prefer it/ used to it.”
- “Doesn’t damage your bowls.”
- “Cooler to play on.”

A survey conducted amongst greenkeepers found that the median time frame for replacing the top of a natural turf green was once every 11 years. There were also greenkeepers who believed the ability of the greenkeeper influenced the time between replacing the top of a green,

“A good greenkeeper on a couch grass green should not have to replace the top at all”.

Below is a comparison between a Synthetic Green and a Natural Grass Green

**Synthetic Green**

Life expectancy: 6 - 10yrs+ Quality declining between the 6th & 10th years

Probable Cost of Construction on existing green: $130,000 - $160,000

Probable Cost of Construction of new green: $170,000+

Probable Cost of Resurfacing at 10 years: $90,000 - $115,000

Probable Cost of Maintenance PA: $2,000 - $5,000

(Including labour)

**Probable Cost Over 10 years** $261,000

**Natural Grass Couch Green**

Life expectancy: indefinite

Probable Costs of re-construction of existing green

New top only: $8,000 to $12,000

Reconstruction from drainage up: $60,000 to $80,000

Probable Cost of Maintenance PA: $15,000 - $18,000

(including labour)

**Probable Cost Over 10 years between $158,000 to $260,000**

While the costs may even out with time, Synthetic surfaces have a use by date, it is a manufactured product that wears out in concentrated areas unlike natural turf that when worn will recover with growth.

A well maintained grass green can last up to 30+ years, for example, **Bundoora Bowling Club** has two Santa Ana Couch greens over 23 years old and has never had to remove their tops.
Why Choose Grass

Advantages of couch grass over bent grass

There is a fundamental difference in the physiology of couch and bent. This results in couch having a vastly superior tolerance to summer stresses compared to bentgrass.

This equates to:

1. About a 30% reduction in daily water requirement
2. Stronger root growth and efficiency as the summer progresses
3. Superior tolerance to Heat Stress
4. Reduced pest, disease and weed susceptibility, requiring less chemical use
5. Vastly superior tolerance to poor quality water (eg: effluent water or saline bore water)
6. All the above points equate to cheaper maintenance saving you money.

All this leads to a tougher and more resilient grass, better suited to our harsh, dry summers. Irrigation is more flexible with couch, and it will survive complete droughting – it will recover rapidly and completely once rainfall or irrigation occurs. Couch greens perform well in the winter too – most bowlers have played on dormant couch greens in the northern states. With good drainage and careful management it can provide an excellent year-round surface in Victoria.
Which Couch Variety Best Suits Our Club?

Of the couch varieties used throughout Victoria you still cannot go past Tifdwarf or Santa Ana. Both have performed well over the past decade, with the Northern section of the state having great success with Tifdwarf.

Below in order of preference are the types we recommend.

**Tifdwarf**

- A very successful couch variety in the Southern part of Australia.
- Developed for its excellent density and quality under very low mowing heights
- Has a fine leaf, which helps it produce a tight fast surface for bowling.
- Has very good drought tolerance, which will lead to water savings.
If you are interested in seeing this grass first hand, below is a list of clubs with Tifdwarf Greens

- Bendigo Bowling Club
- Bennetswood Bowling Club
- Bentleigh Bowling Club
- Camberwell Central Bowling Club
- Castlemaine Bowling Club
- Colac Central Bowling Club
- Fawkner Bowling Club
- Healesville Bowling Club
- Highton Bowling Club
- Ivanhoe Bowling Club
- Kangaroo Flat Bowling Club
- Kyneton Bowling Club
- Maribyrnong Park Bowling Club
- Rosanna Bowling Club
- Webbcona Bowling Club
- Yallourn Bowling Club
- Yarram Bowling Club

One of Bendigo Bowling Club’s Tifdwarf Greens
Our second recommendation is

**Santa Ana**

- One of the most successful couch varieties in Southern parts of Australia.
- Santa Ana was first used in Victoria in the early 1980s
- Has a greater tolerance than other couch varieties when watered with high salt content water. (Refer to Page 15)
- Has a long track record of providing a high quality bowling surface in our climate.
- Has a shorter dormancy period than other couch varieties.

*Bundoora Bowling Club’s 24 Year old Santa Ana Green*

If you are interested in seeing this grass first hand, below is a list of clubs with Santa Ana Greens

- Ashburton Bowling Club
- Bendigo Bowling Club
- Bundoora Bowling Club.
- Donvale Bowling Club
- Kangaroo Flat Bowling Club
- Keilor Bowling Club
The last variety is new to bowling greens in Victoria

TifEagle

- Is a new generation of hybrid couch dubbed an ‘ultradwarf’, as it is even finer, denser and tighter than Tifdwarf.

Middle Park Bowling Club’s TifEagle Green

It is new on the market and Middle Park and Berwick Bowling Clubs are the only clubs in Victoria with a TifEagle green, both are doing very well.

Our Conclusion

We have endeavoured to give you an unbiased review regarding the options available to your club. If you require more Technical Information on green replacement please do not hesitate to contact some of our Committee members (Refer to Back Page)

The companies listed in our directory (Pages 17 - 27) are also available to assist you in making the correct decision regarding the best surface for your club.
Salt Water Trial on Warm Season Grasses

Northern Melbourne Institute of TAFE conducted a test, where five different warm season grasses were irrigated with water from Port Philip Bay. The aim of the test was to determine how each grass coped in natural climatic conditions when irrigated with extreme salt levels in the water. The grasses were watered for about four months. Again Santa Ana proves just how tough and durable it really is. This test provides useful information for clubs that have a bore but the water is too salty for Bent Grass.

1. Seashore Paspalum (Velvetene)
2. Buffalo (Sir Walter)
3. Hybrid Couch (Santa Ana)
4. Kikuyu
5. Common Couch (Legend)

This test is also very useful for clubs in areas where salt is a problem in their water supply. Another grass that performed well was Seashore Paspalum. This grass is still being trialled for use on bowling greens.
Community Water Grants

If you are planning to apply for a Community Water Grant, you should familiarise yourself with the criteria required to be eligible for consideration.

For Full details go to www.communitywatergrants.gov.au

Or Phone Freecall 1800 780 730 between 9am-4pm AEST

We were hoping to include information about a proposed new grant from the state government for “The upgrade from cool season grasses ie, Bentgrass to warm season grasses ie, Couch grass.” But unfortunately the information was not available at the time of printing this book. When the details become available they will be posted on our website www.victga.com
The VGA would like to thank all of our Sponsors, the RVBA, Henselite and all the companies advertising in this booklet. We recommend them for your future projects, as they are the best in their professional field and without their support this book would not exist.
The following companies are experts in their field and will endeavour to answer all your questions regarding Greens Construction.

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