



# Warm Season

Newsletter No 5. February 2009

# Grass Trials

## INTRODUCTION

The warm season grass trials are now into the third year with the spilt plot treatments being applied at the QLD DPI&F, Redlands and regular assessments being undertaken for quality, colour, disease and thatch. There are now four regional sites established with the warm season grass trials entering their final year and over the next 12 months there will be on-going evaluations taking place at ODPIF Redlands Research Station and at each of the regional trial sites. The data being gathered at the regional trial sites is providing very useful information on the merits of the grasses being trialed under different climatic conditions and management regimes.

The regional trials to date have provided valuable observations on the performance of the grasses from a greenkeeping perspective, particularly as it relates to fertility, incidence of disease, presentation as a playing surface and ease of maintenance. The staff at each of the regional sites is undertaking monthly assessments and all this information will be compiled as a practical guide on the management of the new hybrid ultra dwarf bermudagrasses and greens quality Seashore Paspalums.

## ODPIF REDLANDS RESEARCH STATION REPORT

The three year Horticulture Australia Limited (HAL) funded trial (TU05001) will draw to a close in December 2009 and discussions between AGCSA and DPI&F staff are continuing on how the two groups can continue to service the Australian Golf and Bowls industries in the area of turfgrass (cool- and warm-season) research.

The initiative is of particular interest to both groups given the centralised greens test facility has been constructed and is being maintained by a qualified greenkeeper at Redlands Research Station. To have such infrastructure already in place makes it a unique opportunity to undertake a series of detailed research experiments on the new *Cynodon* hybrid and Seashore Paspalum cultivars and acquire information that is desperately sought after by practicing golf course superintendents and bowls greenkeepers.

It has been decided a dedicated field day will be held at DPI&F Redlands in April 2009 (date yet to be confirmed). This will provide researchers and participating superintendents with an opportunity to present their information to a target audience and in-turn provide members of the wider turf industry to hear and see what's new and inspect the Redlands Centralised Test Facility.

At this point in time, the main observation of the grasses in the test facility is that both the hybrid bermudagrasses and the paspalums require a relatively high level of fertility to achieve the best turf quality and density. However, what separates the two species is that the hybrid couchgrasses respond best to the higher cutting height whereas the paspalums perform best at the lower cutting height. The paspalums are very susceptible to scalping and if scalped are slow to recover. Therefore regular cutting on all species at the appropriate cutting height is a critical management requirement.



Observations undertaken in late October 2008 demonstrated quite clearly that at the higher fertility the turf density was higher, the presentation as a surface was improved and most importantly there was substantially less disease (see figure 1 and 2).

One of the primary concerns with these new grasses is thatch accumulation and thatch management from an early age is essential with these grasses. Thatch depth measurements demonstrate that 'MiniVerde' is more thatchy compared to the other cultivars.



**Figure 1: Sealsle Supreme – centre strip is at 1kgN/100m<sup>2</sup>/yr**



**Figure 2: MiniVerde – centre strip is at 4kgN/100m<sup>2</sup>/yr. Note high disease incidence in plots either side**

## REGIONAL TRIAL SITES INSPECTION

In late 2008, AGCSA agronomists inspected each of the regional trial sites where they had an opportunity to discuss the merits of each of the grasses under the local climatic conditions and maintenance regime. The following observations were made;

- 'Tifdwarf' is in some situations developing off-types and typifies what is often observed on golf and bowling greens.
- In many situations turf managers consider 'MS-Supreme' to have superior turf quality compared to

most of the other hybrid bermudagrasses.

- Seashore Paspalum is highly susceptible to the disease dollar spot under humid and cloudy conditions. The disease can be quite damaging to the Seashore Paspalum, however, observations are that the disease often clears up once the weather is clear and sunny.
- 'MS-Supreme' and 'Champion' are very prostrate in their growth habit.
- 'Tifgreen', 'TifEagle' and 'MiniVerde' are strongly affected by patch diseases and in particular *Gaumannomyces* sp. (i.e. "Take-All disease). 'MS-Supreme' is potentially the least affected by disease.
- The Seashore Paspalum cultivars at their best present a very high quality turf, however, it is difficult to develop a high quality putting or bowling surface compared to the hybrid bermudagrasses. Seashore Paspalum has a "sticky leaf" that creates greater friction with the ball and slows it down. The hybrid bermudagrasses will undoubtedly produce the quickest greens.
- In Victoria, all the warm-season grasses are strongly dormant in winter. The Seashore Paspalum cultivars exhibit stronger spring green up compared to the ultradwarf bermudagrass cultivars. The ultradwarf bermudagrass cultivars have very slow growth in the early summer.
- At one of the regional sites the observation has been made that 'Miniverde' has good salinity tolerance.
- At the Chisholm, Rosebud site there was an irrigation failure over the summer and while all the turfgrasses were affected with severe drought stress, the Seashore Paspalums recovered quicker than the hybrid bermudagrasses (see figure 3).



**Figure 3: Seashore Paspalum exhibiting strong recovery from drought affects**

## WARM-SEASON GRASS SELECTION TRIALS

In 2000, the AGCSA commenced a trial where it collected off-types from "Tifdwarf" and "Tifton 328" golf and bowling greens. The purpose was to collect grasses that exhibited outstanding traits such as high density, disease tolerance, shade tolerance and produced a superior playing surface.

The collection was established at Lakelands GC (on the Gold Coast) as a spaced plant nursery where the individual plants were assessed and further selections made for development in large plots maintained at greens height. Of the original 100 plants collected, 12 were identified as having superior qualities. These plants were propagated into 5m<sup>2</sup> plots with four replicates of each grass, where course superintendent Darren Moore (has since moved to China) undertook a detailed analysis of the grasses as part of his Masters studies at Sydney University. The industry standards, "Tifdwarf", "TifEagle" and "Tifton 328" were also included for comparative purposes.

Over the past 2 years the plots have been assessed for turf quality, density, thatch depth and disease. In late 2008 a final assessment was made by several turf experts including; Dr. Don Loch, Mr. Peter McMaugh, Mr. John Neylan, Mr. Matt Roche, Mr. Jon Penberthy and Course Superintendent, Phil Soegaard. The input from Don Loch and Peter McMaugh has been invaluable in providing a broader perspective on the relative merits of each of the grasses.

A considerable amount of data has been collected and this has been summarised in the following tables (tables 1 - 3). As part of the process in providing an overall ranking for each of the trial grasses they have been allocated a ranking for each attribute based on the results of the statistical analysis, which were then added together to give an overall result.

The trial data collected has demonstrated that there are two selections that are as good as or superior to the industry standards. Selections ALT 2 and ALT6 have been the stand outs across all of the selection criteria and these will be established into a practice green for further evaluation under intensive maintenance and high traffic.

Table 1: Visual turfgrass quality (0 = worst, 9 = best)

Cultivar	30/8/07	13/9/07	16/1/08	29/10/08
ALT 1	6.7	6.2	6.0	6.7
ALT 2	7.7	6.5	7.3	7.5
ALT 3	6.5	6.7	6.7	7.0
ALT 4	6.7	5.8	7.0	7.2
ALT 5	6.5	6.0	6.3	6.5
ALT 6	7.8	6.7	7.5	7.7
ALT 7	7.2	6.3	6.5	7.2
ALT 8	6.5	6.0	5.8	7.5
ALT 9	6.8	6.7	6.7	7.0
ALT 10	6.2	6.0	6.2	6.5
ALT 11	6.0	5.7	6.3	6.0
ALT 12	6.8	6.3	6.8	7.0
Tifdwarf	6.2	5.5	6.0	6.8
Tifton328	6.0	5.7	5.8	5.7
TifEagle	5.7	5.2	6.8	5.2
<b>LSD (&lt;0.05)</b>	<b>0.7</b>	<b>0.9</b>	<b>0.6</b>	<b>1.0</b>

Table 2: Visual turfgrass density (0 = worst, 9 = best)

Cultivar	30/8/07	13/9/07	16/1/08	29/10/08
ALT 1	6.7	6.2	6.0	7.0
ALT 2	7.7	6.7	7.3	8.0
ALT 3	6.5	7.0	6.7	7.7
ALT 4	6.7	5.7	6.8	7.3
ALT 5	6.3	6.2	6.3	7.2
ALT 6	7.8	6.8	7.7	7.3
ALT 7	7.0	6.7	6.7	7.3
ALT 8	6.5	6.3	6.0	8.0
ALT 9	6.8	6.8	6.8	7.3
ALT 10	6.2	5.5	6.2	7.2
ALT 11	6.0	5.7	6.3	6.8
ALT 12	6.8	6.3	6.8	7.3
Tifdwarf	6.2	6.0	6.0	7.5
Tifton328	6.0	5.3	5.8	6.7
TifEagle	6.2	6.8	6.8	7.2
<b>LSD (&lt;0.05)</b>	<b>0.6</b>	<b>0.7</b>	<b>0.5</b>	<b>ns</b>

Table 3: Visual turfgrass disease (0 = no disease, 9 = most of plot affected by disease)

Cultivar	30/8/07	13/9/07	16/1/08	29/10/08
ALT 1	0.0	0.0	0.0	1.7
ALT 2	0.0	0.7	0.0	2.7
ALT 3	0.7	1.0	1.3	2.7
ALT 4	0.7	0.7	3.3	2.0
ALT 5	0.0	1.0	0.0	1.7
ALT 6	0.0	0.0	1.3	1.3
ALT 7	0.0	0.3	3.7	0.7
ALT 8	0.0	2.0	1.5	1.0
ALT 9	0.0	0.3	1.7	2.0
ALT 10	0.0	0.0	0.0	2.0
ALT 11	0.3	1.3	0.0	4.7
ALT 12	0.0	0.0	2.7	1.7
Tifdwarf	0.3	0.3	1.0	1.0
Tifton328	0.3	2.0	0.0	4.7
TifEagle	5.0	6.5	0.7	6.0
<b>LSD (&lt;0.05)</b>	<b>0.8</b>	<b>1.7</b>	<b>1.7</b>	<b>2.2</b>

Selections of these grasses have also been taken for propagation at QDPIF as stock material and also to develop sufficient material to establish in North Queensland where their tolerance to prolonged cloud cover and high humidity can be assessed.



Figure 4: Hybrid couchgrass selections at Lakelands GC



Figure 5: Disease damage in "TifEagle" compared to selections

## CONCLUSIONS

Over the past 3 years the warm season grass trials have provided an extensive amount of data on the performance of the new ultra dwarf bermudagrasses and greens quality Seashore Paspalum. This data is providing greenkeepers with an independent analysis of these new grasses and how suited they are to a range of environments and management regimes.

In December this year, the trials at QDPIF will be completed, however, we plan to continue with the regional trials while they remain in place. A final report will be prepared including guidelines on the most appropriate maintenance regime.

If you require further information on the trials please contact Matt Roche (QDPIF) [matt.roche@dpi.qld.gov.au](mailto:matt.roche@dpi.qld.gov.au) or John Neylan at [john@agcsa.com.au](mailto:john@agcsa.com.au).

## ACKNOWLEDGEMENTS

DPI&F and AGCSA gratefully acknowledge support from the following organisations, clubs and business groups in funding the trials;

- Horticulture Australia Limited
- Bowls Australia
- Queensland Golf Union
- Victorian Golf Association
- South Australian Golf Course Superintendents Association
- Golf Course Superintendents Association of Queensland
- Australian Golf Course Superintendents Association
- Horton Park GC
- Sanctuary Cove
- Indooroopilly GC
- Twin Waters GC
- Jimboomba Turf Group
- Tropical Lawns Pty Ltd
- Southern Pacific Sands
- David Burrup Golf Course & Sports Turf Design
- Twin View Turf
- John Deere & BHM Machinery
- Jacobsen
- Tru Turf
- Hydro Pumping & Control Pty Ltd (David Hanby)
- Rainbird
- Root Barrier
- Globe Australia (John Cooper)
- Moreton Institute of TAFE
- Chisholm TAFE Rosebud
- Bermagui Country Club
- Phil Soegaard (GCS, Lakelands GC)
- Darren Moore (former GCS, Lakelands GC)