



# Playing on solid ground

As DAFFQ senior researcher Matt Roche writes, the findings obtained from their community sportsground wear tolerance trials will provide sporting groups and turf managers with solid information on which to base future turf installation and turf management decisions.



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## High wear damage from hockey across the Wintergreen (foreground) and Oz Tuff (rear goal) varieties at the UQ St Lucia campus site (9 May 2012)

However, the figures are relative and researchers are now aware of how many wear applications are required for future testing across turfgrasses being trialled to simulate touch football conditions.

Following 177 wear and turf quality assessments of plots within the simulated wear facility over a four year period, results showed substantial differences in wear tolerance and recovery of grasses that are commonly used on community sportsfields (Table 1, on opposite page).

For example, if a sports club decided to choose between a commercially available variety of green couch (*Cynodon* spp.), blue couch (*Digitaria didactyla*) or kikuyu (*Pennisetum clandestinum*), field closures could vary as much as 89 per cent between species.

Following guidelines by McAuliffe and Roche (2009) of >15 per cent wear (bare ground) is considered unfit for play, if kikuyu was planted on a community sportsfield the field could be closed between 64-100 per cent of the season, whereas blue couch could see the venue shut between 2-90 per cent. Similarly, green couch could see between 0-65 per cent of field closures.

However, varietal difference was also vast, particularly within the green couch species of turf. Wear variation between 2-90 per cent was observed of the green couches which are the primary selection of turf for planting on a sportsfield within sub-tropical and tropical environments.

As well as the RRF site, trials were established across four touch football field at the RTA. Each field played on average 1454 games over a two-year period and on average only incurred approximately 4.9 per cent of wear (damage). The average wear was well under the 15 per cent bare ground recommendations and suggests that more fixtures could potentially be played across these fields in the future.

However, inclement weather must be taken into consideration over the course of the playing season. Damage incurred from allowing games to continue following heavy rain caused significant damage to the turf surface resulting in 40-80 per cent bare ground and compaction issues.

In an effort to relieve compaction, a mixture of irregular (annual and bi-annual) and frequent (six-weekly) verti-draining was conducted across the touch fields and surfaces hardness was monitored. Following 43 collective treatment applications conducted of the RTA and RRF trial sites between 2009 and 2012, no clear pattern in surface hardness reduction was observed. However, soil moisture did play a significant role in reducing surface hardness.

A case study site was also established at The University of Queensland (UQ) St Lucia Campus



## As part of the four-year DAFFQ wear tolerance trials a case study site was established at The University of Queensland's St Lucia Campus following the 2011 Brisbane floods to trail unreplicated 1500m<sup>2</sup> plots of Grand Prix, OZ Tuff, TifSport and Wintergreen couch

following the 2011 Brisbane floods to trail on a larger scale, unreplicated 1500m<sup>2</sup> plots of three high wearing varieties of couch (Grand Prix, OZ Tuff and TifSport) and an industry standard (Wintergreen).

The case study played a significant part within the HAL funded study, as it provided researchers and industry alike to compare disseminated milestone results obtained from small replicated plots of the RRF and RTA studies with in-situ large scale plots undergoing actual use.

Wear tolerance and recovery capabilities of a turfgrass are important, yet so too are the mowing requirements. The morphological-agronomic diversity of C<sub>4</sub> grasses is vast, but also within a species of turf significant variation exists, particularly between old and new varieties. Regular mowing improves turf quality; nevertheless it can be a financial burden on clubs resources and be very time consuming for turf managers during an active growing season.

Within the present study DAFFQ researchers assessed the performance of the plant growth regulator (PGR) trinexapac-ethyl (active constituent 120g/L) across 19 medium- to coarse-textured grasses suitable for sportsfield use. PGRs are used to reduce leaf and stem growth of a turf plant and in turn reduce mowing requirements. Results from the sportsfield suited grasses indicated that using trinexapac-ethyl could reduce mowing time between 15-29 per cent across the majority of the turfgrasses trialled.

As mentioned, the final report is now available through a variety of channels, including the AGCSA website – [www.agcsa.com.au/agcsatech/research](http://www.agcsa.com.au/agcsatech/research). Images taken throughout the project, as well as other DAFFQ projects, can also be viewed through the Redlands Turf Research photostream on Flickr [www.flickr.com/photos/redlandsturfresearch/](http://www.flickr.com/photos/redlandsturfresearch/).

Findings obtained within the present study will assist community sporting groups and turf managers who rely on the performance, including safety, of natural turf surfaces with solid information on which to base future turf installation and turf management decisions.

## ACKNOWLEDGEMENTS

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During the 10 November 2011 inspection at UQ, the Wintergreen plot was profusely seeding

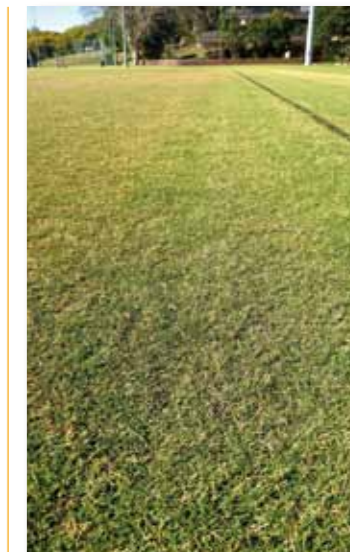


TABLE 1. AMOUNT OF WEAR (REDLANDS RESEARCH FACILITY)

Cultivar	Year 1 (66 assessment dates) <sup>a</sup>			
	Time when wear is ≥ 15%	Mean bare ground <sup>1</sup>	Max bare ground	Wear ranking*
Aussibue	77	52	93	8
Conquest	61	26	65	5
Grand Prix	12	8	33	2
Legend	30	12	44	2
OZ TUFF	0	2	8	1
TifSport	8	8	30	2
Tropika	76	45	90	6
Whittet	76	41	93	6
Year 2 (55 assessment dates) <sup>b</sup>				
Aussibue	80	56	97	6
Conquest	65	32	90	5
Grand Prix	55	21	71	2
Legend	64	25	70	2
OZ TUFF	0	4	14	1
TifSport	65	28	89	2
Tropika	80	68	99	7
Whittet	100	69	88	7
Year 3 (44 assessment dates) <sup>c</sup>				
Aussibue	41	23	88	4
Conquest	48	21	70	4
Grand Prix	36	14	57	2
Legend	41	16	41	2
OZ TUFF	0	2	9	1
TifSport	45	25	81	4
Tropika	68	33	91	7
Whittet	64	57	98	8
Year 4 (12 assessment dates) <sup>d</sup>				
Aussibue	25	10	30	4
Conquest	42	15	42	4
Grand Prix	8	7	24	1
Legend	8	8	18	1
OZ TUFF	0	0	2	1
TifSport	42	14	42	4
Tropika	33	13	49	4
Whittet	75	57	89	8

NB: <sup>a</sup>Year 1 (13 May 2009-6 Apr 2010); <sup>b</sup>Year 2 (7 Apr 2010-3 Feb 2011); <sup>c</sup>Year 3 (4 Feb 2011-6 Feb 2012); <sup>d</sup>Year 4 (7 Feb-1 May 2012). With the exception of wear tolerance, data expressed as percentages. Turf replacement of Whittet plots in Years 1 and 3 mean values for this cultivar are slightly skewed. \*Wear ranking based on mean bare ground data collected for each year, 1 = best, 8 = worst. <sup>1</sup>LSDs for mean bare ground results = 5 (Yr1), 5 (Yr2), 6 (Yr3) and 9 (Yr4).