

Twelve soft-leaf buffalograss genotypes are being evaluated at the University of Western Australia to determine their responses to different renovation techniques. Initial results show that all genotypes recovered within 6-8 weeks following major renovation by hard rotary mowing to cut thatch back to 10mm above the soil surface



Response of soft-leaf buffalograss to renovation

In ATM Volume 12.2 (March-April 2010), University of Western Australia turf researchers outlined two new Horticulture Australia Ltd-funded projects, one of which was evaluating the responses of soft-leaf buffalograss genotypes to renovation treatments. Here

Tim Colmer, Tim Higgott and Louise Barton outline the initial findings from this two-year project.

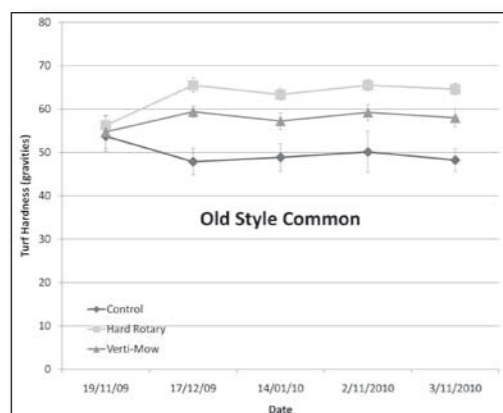


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Many areas recently planted to soft-leaf buffalograss will require renovation in the coming years, so responses of this species to different renovation techniques needs evaluation. Towards the end of 2009, a project (HAL TU09005) was established at The University of Western Australia's Turf Research Facility at Shenton Park, Perth to determine such responses.

Twelve buffalograss (*Stenotaphrum secundatum*) cultivars are included in the study: Sapphire (B12), King's Pride (GP22), Matilda, Palmetto, Sir James, Sir Walter, ST26, ST91, Shademaster, TF01, Velvet and WA common. Data are reported here only for WA common ('old-style buffalo') and Velvet (the first 'soft-leaf type' grown in Western Australia).

Two renovation techniques were applied on 20 November 2009 across the 12 genotypes in four-year-old plots, with some plots of each not renovated (controls). These four-year-old plots had considerable thatch build-up, so provided a suitable resource for the renovation experiment.

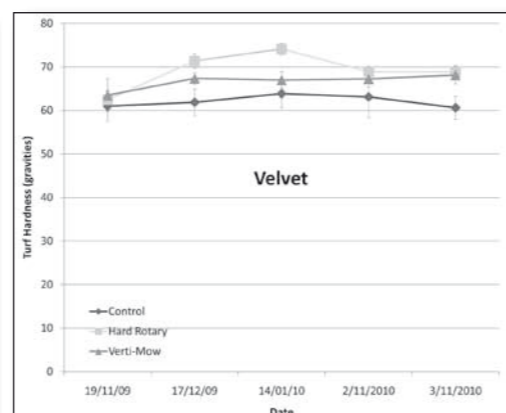


Colour, surface hardness and clippings produced (i.e.: growth) were regularly measured following the renovations, to document recovery of turf quality and subsequent surface improvement post-renovation. Renovation treatments were:

- Control (no renovation);
- Verti-mow in one direction, with light rotary mow to trim, rake off waste, light sanding of 5mm; and
- Major renovation to 10mm above ground using several passes of a rotary mower and rake to remove waste.

Plots subjected to verti-mowing were cut in one direction at 40mm spacings and a depth of 20mm using a Blue Bird Comber. Hard rotary plots were cut down hard, but gradually, using a rotary mower.

Plots receive 15kg/ha of N fertiliser once a month and are irrigated at 70 per cent replacement of net evaporation, summed and applied three times per week. Following renovations, plots were mown every two weeks at 25mm and clippings collected and oven-dried to measure growth.



Surface colour was quantified using a Chromameter every two weeks, while surface hardness was measured every four weeks using a Clegg hammer. These measurements were taken during the re-growth phase following renovations, until the end of March 2010.

RESULTS

The visual impacts of the renovations were presented in Australian Turfgrass Management Volume 12.2 (March-April 2010). The hard rotary procedure resulted in a brown surface, and although green leaves quickly re-sprouted the surface greenness took six weeks to recover to the same levels of the controls and verti-mown plots.

Verti-mown plots also showed a decline in colour as compared with control plots, but did remain green and recovery to an acceptable standard was quicker than for the hard rotary plots (data not shown).

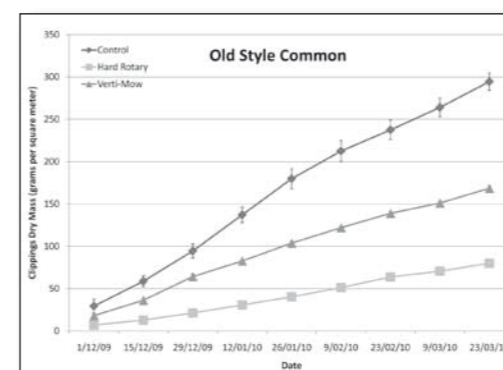
The renovation treatments succeeded in increasing the firmness of the surface of both the common and velvet types, but surface hardness was increased more by the hard rotary mowing than with the verti-mowing renovation (Figure 1) – a response most evident in the old-style WA common buffalograss.

Surface hardness will again be tested during the 2010/2011 summer (i.e.: just over one year post renovations) to assess whether these improvements persist with time. These plots will also be subjected to low irrigation inputs during the 2010/2011 summer, to enable assessments of whether the renovation practices influence the capacity of the various grasses to tolerate drought stress.

The renovation treatments greatly decreased the clippings produced by common and velvet buffalograsses during the summer of mowing following the renovations.

For both cultivars, total clippings produced during the period monitored were reduced by approximately half following verti-mowing, and clippings produced were even less (approximately half again) for the plots renovated by hard rotary mowing (see Figure 2.).

The longer-term effects, if any, on clippings production and rooting depths will be assessed during the 2010/2011 summer and these and other results will be included in future editions of the Australian Turfgrass Management Journal.



CONCLUSION

In summary, all 12 soft-leaf buffalograss genotypes in the study recovered within 6-8 weeks following major renovation by hard rotary mowing to cut thatch back to 10mm above the soil surface, although one genotype remained 'thin' for several additional weeks.

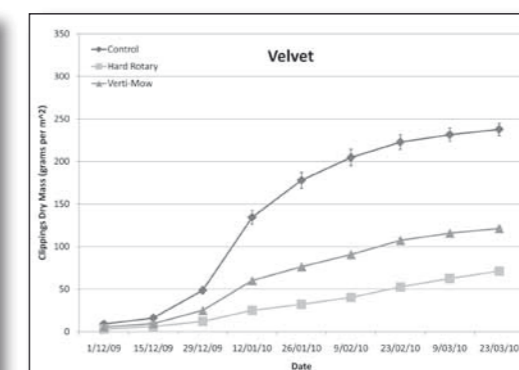
The hard rotary mowing resulted in a brown surface for at least four weeks, whereas verti-mowing resulted in less disruption to the appearance of the turfgrass, but also typically resulted in smaller (albeit significant) increases in surface hardness.

ACKNOWLEDGEMENTS

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UWA project officer Tim Higgott measures surface colour with a chromameter at the university's turf research facility in Shenton Park, Perth

Opposite page: Figure 1. Surface hardness of four-year-old buffalograss plots without renovation (control), or following renovations on 20 November 2009 (either verti-mowing in one direction at 40mm spacing and a depth of 20mm, and then top-dressed with 5 mm of sand; or being cut down hard, but gradually, by several passes of a rotary mower)

Left: Figure 2. Clippings produced by plots of four-year-old buffalograss without any renovation (control), or following renovations on 20 November 2009 (either verti-mowing in one direction at 40mm spacing and a depth of 20mm, and then top-dressed with 5mm of sand; or being cut down hard, but gradually, by several passes of a rotary mower)