



UWA embarks on new turf trials

An overview of plots being used for HAL Project TU09005 at the University of Western Australia's Turf Research Facility. The six main blocks (each block containing 12 genotypes) used in the renovation trials are shown in the foreground and the blocks planted for the mowing height and water use experiments are further away (nearest to the travelling irrigator at the far end)



Members of the Western Australia turf industry provided in-kind support of time and equipment to impose renovation treatments on the soft-leaf buffalograss plots



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Turf researchers Tim Colmer, Sharyn Burgess and Louise Barton outline two new trials being undertaken at the University of Western Australia, one which examines the impact of renovations on soft-leaf buffalograss surfaces and the other which aims to determine the influence mowing height has on the water use of four turf varieties.

A new project, funded by voluntary contributions from the Western Australian turf industry and Horticulture Australia Ltd (Project TU09005), started at the University of Western Australia's Turf Research Facility towards the end of 2009. The field experiments will run until mid-2011 which will enable two summers of research.

Two priority research topics, identified by the WA turf industry, will be addressed. These are:

- Renovation techniques for thatch removal on a diverse set of soft-leaf buffalograss cultivars; and
- The influence of mowing height on water use by four species (soft-leaf buffalo, couch, kikuyu and zoysia).

Such research will benefit the Australian turfgrass industry and its customers via provision of quantitative data on turf responses to mowing heights (four species) and renovation methods (12 soft-leaf buffalograss cultivars). The knowledge gained will assist further development of best management practices for soft-leaf buffalograss surfaces and will define water use of four warm-season turfgrass species under contrasting mowing heights.

RENOVATION OF SOFT-LEAF BUFFALOGRASS

Thatch accumulation can be detrimental to turfgrass management (e.g. increases susceptibility to disease, increased water use) and ultimately turfgrass quality (e.g. increased surface softness).

Many of the areas planted to soft-leaf buffalograss in recent years are approaching the time when renovation will be required, so knowledge is required on how soft-leaf buffalograss responds to renovation.

Six complete blocks of 12 field plots in each are being used in the study. Each block contains 12 buffalograss (*Stenotaphrum secundatum*) cultivars:

Sapphire (B12)	King's Pride (GP22)
Matilda	Palmetto
Sir James	Sir Walter
ST26	ST91
Shademaster	TF01
Velvet	WA common

The plots are four years old and most genotypes displayed considerable thatch build-up before starting the study. Plots receive 15kg/ha of N in the form of Turf Special fertiliser once a month and are irrigated at 70 per cent replacement of net evaporation, summed and applied three times per week.

Three renovation treatments were imposed on 20 November 2009 with two replicate plots of each treatment for each of the 12 cultivars. The three treatments were:

- No renovation (used as a control);
- Vertical mowing; and
- Hard rotary.

Plots subjected to vertical mowing were cut in one direction at 40mm spacings and a depth of

20mm using a Blue Bird Comber. Plots were then topdressed with 5mm of sand. Hard rotary plots were cut down hard, but gradually, using a rotary mower.

Shoot density was measured prior to and immediately following renovation to document biomass removed. Fortnightly collections of turf clippings to measure turf growth commenced on 1 December 2009. Colour and turf hardness was measured prior to renovation and will continue to be measured fortnightly and monthly, respectively, and for up to two years to document recovery of turf quality post-renovation.

MOWING HEIGHTS AND WATER USE

The influence of mowing height on water use and drought tolerance continues to be debated. An experiment to assess how water use changes in four warm-season species under a range of mowing heights has also started at the UWA research facility.

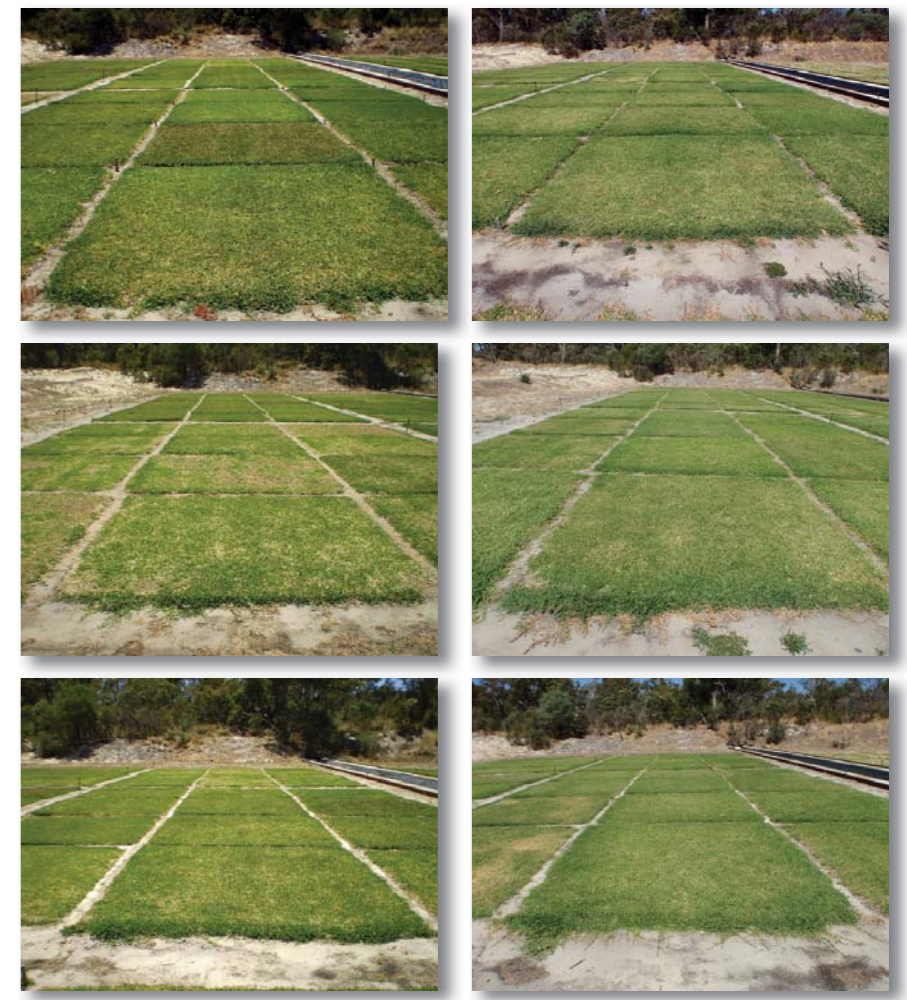
This experiment will evaluate water use at three contrasting mowing heights, for soft-leaf buffalograss (*Stenotaphrum secundatum* cv. Sir Walter), couch (*Cynodon dactylon* cv. Wintergreen), kikuyu (*Pennisetum clandestinum* cv. Village Green) and zoysia (*Zoysia japonica* cv. Empire).

The new plots and lysimeters were planted towards the end of September 2009 as three complete replicate blocks. Each replicate block contains three plots (each plot is 9m²) of each of the four species. Following establishment, three different mowing heights commenced in late December (10mm, 25mm and 50mm). Plots receive 15kg/ha of N in the form of Turf Special fertiliser once a month and are irrigated at 70 per cent replacement of net evaporation, summed and applied three times per week.

Each plot contains a weighing lysimeter to be used to measure turf water use (evapotranspiration). Weekly collection of turf clippings to measure turf growth commenced on 11 January 2010, with water use measurements starting on 3 February 2010. The study will also measure shoot density, thatch biomass, turfgrass colour, rooting depths and root biomass.

ACKNOWLEDGEMENTS

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Below: Soft-leaf buffalo plots two weeks (left-side column of three photos) and two months (right-side column of three photos) after renovation treatments. No renovation (top row of two photos), hard rotary (middle row of two photos) and vertical mowing with top dressing (bottom row of two photos). The photographs show good recovery, even of the hard rotary-mown plots, within two months of treatments