



## The Salinity Tolerance of Oz Tuff Green as Compared to Other Green Couch (*Cynodon Dactylon*) Cultivars

This report summarises the results of the trial conducted by the Department of Primary Industries & Fisheries, Queensland, titled "Amenity Grasses for Salt-Affected Parks in Coastal Australia" (Loch *et al.* 2006). Of particular note is the performance of a new Green Couch cultivar, Oz Tuff Green<sup>TM\*</sup>.

Oz Tuff Green<sup>TM\*</sup> couch was selected as a promising green couch from the Central Queensland region, and has undergone development at the Redlands Research Station, Cleveland QLD. Its strong colour characteristics and dense fine textured growth were the immediate features observed. However, its performance in the salt tolerance trials conducted by the DPI in Cleveland QLD has added another dimension and potential use for this exciting new green couch cultivar.

14 green couch (*Cynodon dactylon*) cultivars were put through a glasshouse trial to screen for salt tolerance. This included a standard, FLoraTeX<sup>TM</sup>, which had shown high salt tolerance in previous work on green couch varieties. The % Leaf Firing with increasing salt concentration (E.C.), Dry Matter weight with increasing salt concentration, and the salt concentration at which the Dry Matter production was reduced by 20%, 50% and 80%, was all assessed for each of the green couch cultivars.

### % Leaf Firing

Leaf firing is a good indication of the amount of tissue (leaf) damage occurring under high salt conditions. As the salt concentration increased to an electrical conductivity (E.C.) of 18 dS/m, significant differences between the cultivars began to emerge. By the end of trial, Oz Tuff Green<sup>TM\*</sup> recorded the lowest percentage of leaf firing (damaged tissue) at this salt level out of all green couch cultivars, including the standard used for the trial (FLoraTeX<sup>TM</sup>). Similar results were also seen at the higher salt concentrations of 24 and 30 dS/m, with Oz-E-Green<sup>TM\*</sup> again showing high salt tolerance performing on a comparable level to the standard, FLoraTeX<sup>TM</sup>.

### Dry Matter Production

Measuring Dry Matter is a good way to assess how much the plant is growing, and whether its growth has been limited by high salt conditions. As the salt concentration increased to an E.C. over 18 dS/m, Oz Tuff Green<sup>TM\*</sup> recorded the greatest Dry Matter weight of all green couch cultivars tested. Also, a significantly higher concentration of salts was required to reduce the Dry Matter production by 50% and 80% compared to all other green couch cultivars. This basically means that Oz Tuff Green<sup>TM\*</sup> couch was shown to be able to continue functioning and growing under high salt conditions better than the other green couch varieties tested, and also outperformed other turf species such as *Digitaria didactyla* (blue couch), *Pennisetum clandestinum* (kikuyu), and *Stenotaphrum secundatum* (buffalo).

With its attractive visual characteristics and now proven high salt tolerance, further studies are anticipated to quantify its colour, growth habit, shade tolerance, wear tolerance, winter growth and disease resistance

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\*Oz Tuff Green in the Trademark name applied to the Oz-E-Green cultivar.