

Since 2000 the Redlands Research Station has maintained a 'living library' of turfgrass selections made up of 138 different turf varieties taken from Australia and around the world

Keeping alive the living library



Redlands Research Station has become one of the primary centres for turf research in Australia and back in 2000 a living library of turf varieties was developed for research purposes. Here DEEDI experimentalist Jon Penberthy provides an update of these unique turf demonstration plots.

In 2000, the Department of Employment, Economic Development and Innovation - DEEDI (previously Queensland Department of Primary Industries & Fisheries) built and maintained a 'living library' of turfgrass selections made up of 138 different turf varieties.

Vegetative material was largely acquired by former principal scientist Dr Don Loch from overseas universities and breeders, and from sources across Australia. Since construction, the turf demonstration plots have been maintained at Redlands Research Station as part of DEEDI's efforts to supply vegetative material for research projects, but also education to the Australian turfgrass industry and wider community (e.g.: home owners).

Over time the plots have received ongoing maintenance and renovation as deemed necessary. However, the plots require significant resources to maintain each individual plot's integrity as far as the maintenance of true-to-type material, the exclusion of weeds and the implementation of appropriate management for each particular plot such as irrigation, fertilisation and mowing.

To date a comprehensive assessment of the plots, their condition and the individual cultivars contained in each have been audited and a plan of action for remediation, upgrading or replacement has been developed. This plan has been ongoing and is constantly being reviewed and revised.

Decisions are made in consultation with key members of the research group including senior turf scientist Matt Roche to ensure remedial action is appropriate, that replacement variety selections are appropriate and that they will assist future research project work.

Work that has taken place most recently has included the installation of a 300mm deep polyethylene root barrier around plots that are to be replaced to prevent any rhizome encroachment either into the new plot or out of the plot when the replacement variety goes in.

One of the greatest problems we have encountered has been the encroachment of grasses from one plot to the next and this is seen as a way of limiting such an occurrence. Each barrier that is installed around each plot is back filled with sodium bentonite in a further effort to discourage root penetration and development.

On the site we have continued hand weeding individual plots, spraying selective herbicides where applicable and using pre-emergent herbicide to control seed germination. This has largely been very successful, however, in some of the plots the decision has been made to replace a variety altogether either due to the variety being 'outdated' or the plot being too contaminated with other grass genotypes.

Where the latter has been deemed necessary, DEEDI staff have cut out the remaining turf, sprayed repeatedly with herbicide over a period of weeks/months, replaced the soil, installed root barrier and bentonite before replanting with sod or plugging of a new variety.

Varieties that have been (re-)planted this year include:

- DEEDI's *Sporobolus virginicus* variety QLD-Coast as runners;
- *Stenotaphrum secundatum* variety Shade Invader as sod and AusFine (ST-85), AusDwarf (ST-91) and ST-135 as plugs;
- *Paspalum notatum* varieties Pensacola, Argentine, Blue Dawn and LowGrow which were initially seeded into trays then plugged out in the field;
- Second-generation *Cynodon* hybrid varieties TifEagle, MS-Supreme, Tifdwarf and Novotek were plugged with material taken using a hole changer from the TU05001 warm-season greens grass test facility;
- *C. dactylon* x *C. transvaalensis* variety AGRD as sod from foundation plots growing at Redlands;
- *Paspalum vaginatum* variety Aloha as plugs;

- *Cynodon dactylon* varieties Princess and Mohawk as seed; Premier, CynoMax (LEG13A) and Legend as plugs and Wintergreen as sod;
- *Axonopus fissifolius* narrow leaf carpetgrass as plugs; and
- *Zoysia macrantha* variety Nara (MAC03) as sod.

Post planting all plots routinely had pre-emergent herbicide applied and were watered liberally until plants were established. Recently DEEDI staff observed the persistent and aggressive weed identified as pearlwort (*Sagina procumbens*) in a number of turf plots. This perennial weed thrives in moist/wet conditions and can quickly establish and become troublesome due to the prolific number of small seeds that can spread.

Selective herbicides to date have been limited and several applications have been necessary at 6-8 week intervals in order to try and keep the weed in check, along with the continued use of pre-emergent herbicide. Cultural practices such as lowering the watering frequency, aeration and routine mowing have also assisted.

Aesthetic and educational items have also been upgraded. Old sleepers used to separate the plots have been replaced and plaques identifying species and cultivar name with plot numbers have been attached to each plot, making the task of having to carry around a field map non-existent.

A number of visitors continue to inspect the turf trial and turf demonstration plots. Groups



include students and staff from the University of Queensland's Centre for Native Floriculture, staff and guests from Nursery and Garden Industry Queensland, TAFE students (including some from China and India) as well as turf managers.

Over the coming season turf varieties will continue to be propagated and planted. Ongoing weed, pest and fertiliser regimes will be undertaken and adjusted where necessary to accommodate new cultivars as they are planted.

ACKNOWLEDGEMENTS

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Following recent replanting of certain varieties, DEEDI staff observed the persistent and aggressive weed identified as pearlwort in a number of turf plots



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