

# Drought proofing with perennials – the proof is in the pasture

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**D**uring the worst drought on record, perennials are really proving their strength by supporting livestock and protecting the environment.

Recent research results from Western Australia suggest perennial pastures under extreme drought conditions can carry stocking rates of up to 200 per cent more than annual pastures, without the risk of erosion (see Figure 1).

A current project, investigating drought proofing grazing systems, funded through partners including the National Landcare Program, Northern Agricultural Catchments Council and the Department of Agriculture and Food (DAFWA), is comparing the effect of annual and perennial pastures on carrying capacity and autumn groundcover in extreme drought conditions.

During winter 2006 through to autumn 2007, the Binu region in WA recorded about 30% of the long-term average rainfall. Producers in the region were forced to reduce stock numbers by 80-100% with remaining stock being hand-fed during autumn. Crop yields were reduced by more than 80% and no grain was delivered to the bin from the region.

## key points

- A shift to perennial pastures can support grazing systems during extreme drought
- About 50 per cent groundcover during autumn can minimise erosion
- Even at high stocking rates perennial systems can maintain sufficient groundcover to protect the environment.

Erosion was widespread, particularly when severe winds reached speeds of about 100 kilometres per hour on 9 March 2007, blowing away much of the remaining crop stubble and dry pasture. Hundreds of kilometres of fencing were covered with sand.

However, out of this dismal picture came the opportunity to pitch the potential of perennial pastures against annual species under some extreme conditions.

Tim Wiley and Rob Grima (DAFWA) involved a group of eight farmer members of the Northern Agri Group (NAG) in the Binu region of WA in the jointly-funded project. These farmers had already established a variety of innovative grazing systems incorporating new pasture species.

To establish a comparison between the systems, stocking and grazing rates for each of the paddocks on all eight farms were calculated and adjusted for hand feeding

*ABOVE: Subtropical grass in foreground and tagasaste in background.*

*INSET: Annual grass/crop stubble on sand, May 2007. (Photos: T Wiley)*

to give a comparable Dry Sheep Equivalent (DSE). Groundcover was visually assessed before the break of season.

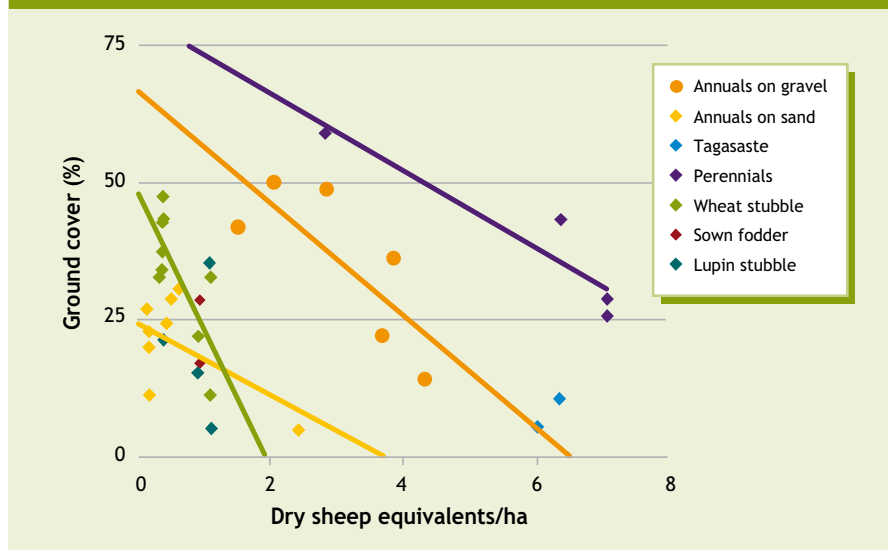
The performance of annuals and perennials was monitored and compared for two main soil types – sand and gravel.

### The power of perennials

Established perennial grasses and tagasaste carried significantly higher stocking rates than annual pastures and grazing oats. Despite heavy grazing, perennials also maintained sufficient groundcover to prevent erosion.

Land with annual pastures and cereal fodder crops suffered major wind erosion throughout summer and any increases in stocking rates

FIGURE 1. Groundcover and grazing intensity for two properties at end of autumn 2007





further reduced groundcover during autumn – each extra DSE/ha resulted in 10% less cover.

Reductions in groundcover with increased stocking were comparable for the sand and gravel soils, but at any given stocking rate for annual pastures and grazing oats there was about 30% more groundcover on the gravel (see Figure 1).

Figure 1 shows similar relationships between stocking rates for the year and late autumn groundcover for both perennial grass paddocks and annual pastures. The graph also shows that at equivalent stocking rates, rotationally grazed perennial grasses on sand would have approximately 30% more groundcover during autumn than annuals on gravel, and approximately 55% more than annuals on sand.

Groundcover between the rows of tagasaste was around 9%, but the windbreak provided by the perennial shrub minimised any erosion.

Overall results suggest the best management option to maximise livestock production while protecting the environment is to establish sand paddocks to perennial grasses with a rotational grazing system and tagasaste. On one selected property in the project this option could have supported 4300 DSE through the drought at an average of 4.7 DSE/ha without erosion.

This project will continue into 2008 and results will be used to conduct whole-farm economic analyses of high stocking rate systems. ↴

### ↴ More information

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