facts Natural Resources and Water
Managing Queensland's natural resources...for today and tomorrow

land series

Managing for drought in grazing lands

Droughts are a recurring fact of life in Queensland yet we treat them as exceptional. We have to plan for a variable climate rather than for 'normal' rainfall. If properties are managed for drier-than-average years, better seasons become a bonus for both production and the landscape.

Rainfall records tell us how long droughts may last, how often good years follow poor years and vice versa. On average, there will be one severe rainfall drought every 10 years, but man-made 'feed droughts' induced by overgrazing can be much more frequent.

Where the problems begin

A pasture in good condition has a combination of desirable species and adequate ground cover to encourage rainfall to soak into the soil. If cover is poor, valuable rainfall may be lost as run-off that will erode the soil. As soil productivity declines, pastures become more susceptible to future droughts.

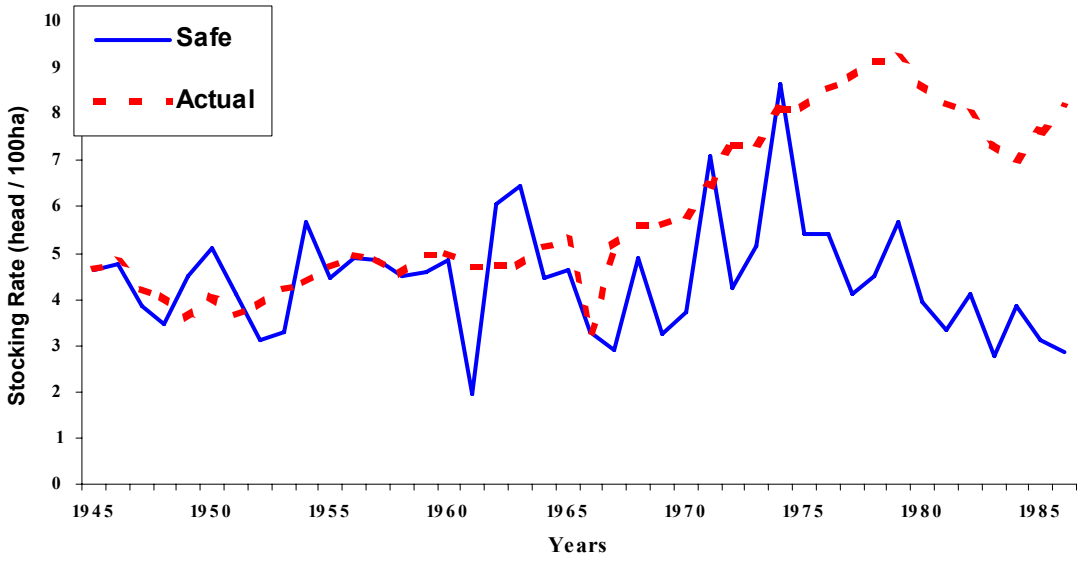
When pasture plants are heavily grazed, the tussock gets smaller—fewer tillers are produced, the root system contracts, less seed is set—and the plant may die out. These effects are most severe on the pasture species that stock prefer, and least severe on the unpalatable species.

Most damage from grazing occurs when a grass is sprouting from its reserves after a dormant period—in spring or after a drought or fire. Overgrazing at this time allows undesirable grasses and weeds to gain a foothold in the pasture. After drought-breaking rain, overgrazed pastures should be spelled until there is sufficient growth to support around one-third of the normal stocking rate. This could take up to two months or more depending on the pasture condition, amount of rainfall received and the time of the year.

Grazing during flowering and seed set—generally in early autumn—will reduce seed reserves. Native grasses must be allowed to drop good seed periodically for regeneration.

Under high grazing pressures, sheep, goats, horses and kangaroos can do more damage to pastures than cattle. These animals can crop closer to the base of the plant and so survive longer when feed is short.

Legumes sown into native pastures can allow more stock to be carried; this allows higher grazing pressure on the grasses unless stocking rates are managed carefully.



Stocking rates in Dalrymple Shire from 1975 to 1985 were well in excess of safe levels

L90 March 2006 Produced by: Natural Resource Sciences Author: Peter Spies (NRW) and Ian Patridge (DPI) QNRM01112

Mulga browse may keep stock alive in a drought but any grasses that try to grow after light rain may be subject to very high grazing pressure.

Sustainable stocking rates

Most native pastures will remain in good condition when no more than 30% of the summer growth is eaten. Low utilisation appears to 'waste' feed but allows the grasses to remain vigorous and to seed. Higher rates of utilisation may seem more profitable in the short term but will degrade any native pasture—perennial species are eaten out, bare soil increases and weeds (herbaceous and woody) invade.

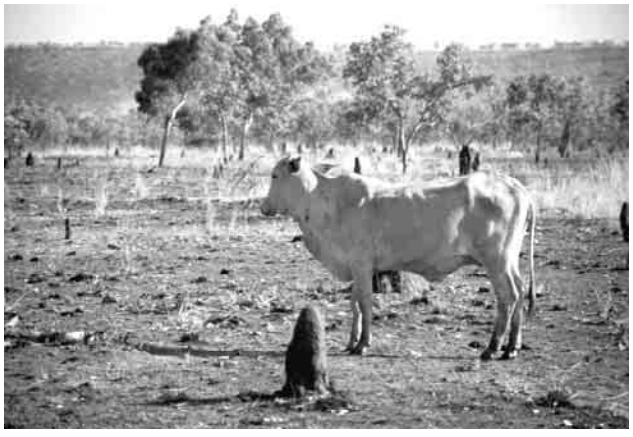
The ideal stocking rate matches stock numbers to available feed each year. But because pastures may take two or more years to recover from a one-year drought it is safest to base long-term stocking rates on the rainfall received in 8 years out of 10 rather than the 'average' expected in 5 years out of 10.

Managing for drought

The worst way to handle drought is to do nothing and hope for rain; this gives you no options later, with stock in poor condition, no grass, no agistment, a flat market and expensive supplementary feed.

Tropical grasses produce more than 80% of their annual growth during the summer wet season. For this reason, stocking rates are best adjusted at the end of the growing season in March–April. An aim should be to have at least 40% ground cover and 1000 kg per hectare of grass at the beginning of the next summer storm period.

If there is little grass left in autumn, you need to de-stock while the market is still good.



Severe overgrazing during droughts impacts on the long term productivity of a pasture

Stocking rates should be based on the amount of grass in the paddock and the condition of the pasture, taking into account likely rainfall patterns for the next spring and summer. Keep an eye on the Southern Oscillation Index (SOI) and seasonal forecasts. A strongly negative SOI can herald an El Niño and significant chance of drought; a positive SOI the chance of wetter than normal conditions.

Forecasting skill for the next summer generally starts in June–July—in time for the second muster.

Strategies that can be used to respond to the seasonal outlook include heavy culling and sale, early weaning, agisting, custom feedlotting and supplementary feeding. Regular planning includes stocking up with hay and supplements such as molasses and cotton seed when prices are attractive. These stockpiles can be used each winter to enhance normal management and replaced to ensure the reserves are always of good quality. If you need to rely on feeding a lot of supplement every year, you are probably stocking too heavily.

Monitoring pastures

Gradual changes in rangeland condition and any deterioration of native pastures can be detected by monitoring. If changes are noticed early, grazing management can be modified to prevent further decline.

Monitoring includes taking a photo and inspecting selected parts of the paddock to check pasture composition, condition and yield each year. Memories are short; a documented record allows comparison with previous seasons. The *GRASS Check* manual can help monitor your pastures.

Further information

The computer program *Australian Rainman: rainfall information for better management* has historical daily and monthly rainfall data for some 3700 locations throughout Australia and you can also enter your own rainfall data. You can analyse this data for different patterns of rainfall as a forecasting tool.

SOI values are given on the weather page of the *Queensland Country Life*, the ABC TV weather forecast on Wednesdays, the DPI hotline on (07)4688 1623, *The Long Paddock* web site and the Weekly Climate Note in the DPI Web Site.

Useful resources and how to access them

The Long Paddock website	www.LongPaddock.qld.gov.au
Bureau of Meteorology website	http://www.bom.gov.au
DPI web site	http://www.dpi.qld.gov.au/climate/
GRASSCheck	Phone NRW Service Centre (07) 3896 3216
Australian Rainman (computer program)	Phone DPI Call Centre 13 25 23
Managing Native Pastures – A Graziers Guide Series	Phone DPI Call Centre 13 25 23