Managing Pastures to Cope with Drought

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Drought is a recurring phenomenon in the Australian environment, its frequency increasing in lower and more variable rainfall zones. However, we cannot identify the first day of a drought and we do not know how long a drought will last.

Landholders need to be prepared for and cope with the effects of drought if their enterprise, their stock and their land resources are to survive. Recent changes to Government policy place greater responsibility on landholders for drought preparation and management.

Effects of Drought

Among other things, drought can have serious and sometimes irreversible effects on soils and pastures. As the ground becomes bare, there is an increased risk of erosion due to both water and wind. Studies by the then Soil Conservation Service show that 90% of soil loss at a site can occur as a result of only 10% of runoff events, these events occurring when groundcover is low. This soil, along with litter and manure, can end up in farm dams and in streams. Trampling ruins soil structure and increases the susceptibility of bare ground to erosion.

Pastures can be affected by the combination of water stress and overgrazing, and, importantly, by the grazing of new growth before plants are properly re-established after the drought ends. Post-drought pasture composition can be radically changed, particularly when resowing is not possible. Perennial species, and especially natives, persist better than annuals, provide better soil protection, and have the ability to reshoot after the drought. Periods of weakened or dead pastures provide opportunities for herbaceous and woody weeds.

Land Management Strategies

Coping with drought requires a combination of ongoing strategies and special measures. The ongoing practices used determine the condition of country going into a drought. The better the condition, the longer the period before drought effects are felt and the better the country recovers afterwards.

In pasture lands the key factors to consider are:

- ground cover levels; and
- the maintenance of perennial species.

Soil Conservation Service studies have shown that for most of eastern NSW groundcover levels should be retained at or above 70% for most of the time. Below this level, the bare spaces start to link up and both runoff and soil loss escalate (Figure 1).

This threshold level can be quickly assessed by estimating cover in real or imaginary 1 x 1 metre squares on the ground, in several places in a paddock. Above this level the pasture bulk will usually be adequate and plants not eaten into the ground. (In some areas stock will be affected by malnutrition before this stage is reached.)

Perennial components give the pasture resilience and drought persistence as well as providing protection of the annuals and the soil. They also help control groundwater recharge and soil acidification. It is widely considered nowadays that a summer perennial-winter annual combination provides a good, well-balanced pasture in many areas of the state.

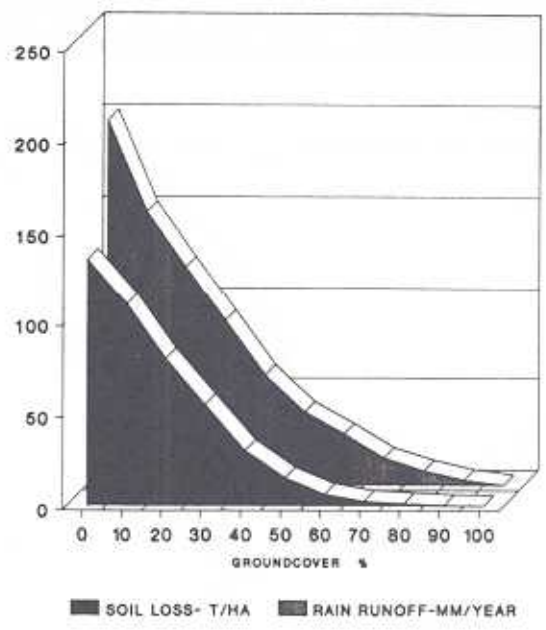

Figure 1: Average annual soil loss versus ground cover at Scone, NSW, for the period 1981-88.

These factors are primarily controlled by stocking rates. While heavy or light stocking rates may be successfully used, the former requires more management and more reliance on supplementary feeding or destocking than does the latter. In many areas lighter stocking rates have been shown to be more profitable in the long-term, and one spin-off is that country will go into drought with some feed reserve and healthy, vigorous pasture components.

Once drought symptoms do become apparent, it is essential to act early while more options remain. It is important to have a staged plan which is linked to the failure of rain at certain key times of the year. Stock can be sold, agisted and/or fed according to prevailing market values, input costs, and classes of stock run.

If feeding is carried out, it is recommended that stock be confined to "sacrifice" paddocks once the general groundcover gets down to 70%. This will allow maximum protection of the perennial grass butts and the soil in most paddocks, hence the ability to respond to drought-breaking rains. The grass butts are of far greater value for pasture regeneration than as dry feed for stock.

Some land requires soil conservation earthworks to increase infiltration of water, and to reduce runoff and soil loss in dry times.

When the drought breaks, the perennials should be given a chance to regenerate adequately before stocking rates return to normal.

Further information

Further detail on the points made here can be obtained from the Department of Conservation and Land Management Technical Paper No. 1, "Managing for Drought".