



NSW Agriculture

## Management for Coolatai Grass on the North West Slopes of NSW



Coolatai grass (*Hyparrhenia hirta*) is a native of South Africa and the Mediterranean region.

Since its introduction to northern New South Wales in the 1940's it has spread along roadsides and stock routes and invaded grazing lands on many properties. It grows on a range of soil types from light textured granites to heavy black earths, but prefers the lighter textured soils where it can dominate.

It is a tall, tufted, summer active perennial growing to more than one metre in height. The species is distinguished by paired seedheads, and leaves which are typically grey-green and harsh to touch. When heavily grazed the basal stems form a dense, hard tuft that successfully protects it from close grazing by sheep and makes it resistant to fire.

Coolatai grass grows prolifically during the warm months but, being frost sensitive, it hays off in winter. Although a tropical grass, it grows in temperate environments and is extremely drought resistant.

Coolatai grass is invasive, can make growth on small falls of rain, grows longer into the cooler months than most other summer growing native grasses and, because of its low digestibility, is avoided by livestock and can dominate native pastures. Many producers consider it a weed, but attention to grazing management, soil nutrition and use of legume species can significantly improve its value.

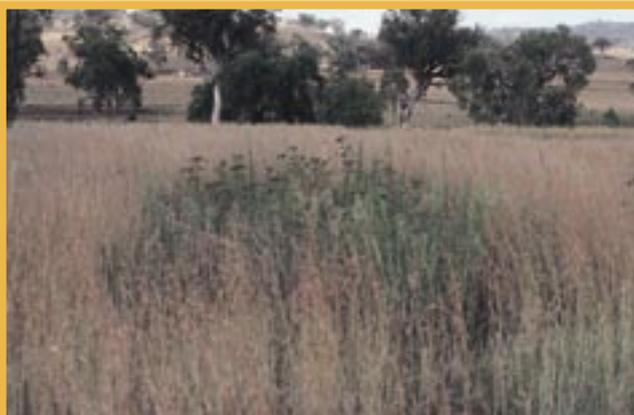


# Research *1989 to 2001*

A research site on the 'Springmount' Tamworth Rural Lands Protection Board reserve, Upper Manilla, was established in 1990. Initially the research aimed at controlling Coolatai grass with grazing or herbicides, but evolved into a study to investigate management of Coolatai grass. The average annual rainfall at the site is 650 mm. Soil type was hard setting red soil and the pasture was completely dominated by Coolatai grass.



*Three pre-herbicide application treatments (back to front) untreated, slashed and burnt*



*Fleabane invading plot following herbicide application*

## Herbicide Treatments

- Three herbicides: Glyphosate (Roundup®), 2,2-DPA (Dalapon®) and fluprofonate (Frenock®).
- Two times of application: Spring 1990, Autumn 1991
- Three rates of each chemical
- Three pre-herbicide application treatments: burning, slashing or untreated.

## Grazing Treatments

- Two grazing pressures: 7 and 37 wethers per hectare.
- The grazing treatments occurred in half-hectare plots.
- Three pre-grazing treatments: burning, slashing or untreated.

## Pasture Improvement

- Legumes and superphosphate were introduced and tactical grazing was employed.
- Subterranean clover, arrowleaf clover and woolly pod vetch were introduced by sod seeding.

## Results

### Herbicides

None of the herbicides completely eradicated Coolatai grass. Glyphosate applied in autumn and fluprofonate applied in autumn or spring were the most effective. Initially, Coolatai grass was replaced by other weedy species and then it reinvaded so that within two years it was again dominant. For herbicides to be effective competitive species need to be introduced into the pasture.

Cost of herbicide control was in excess of \$360 per hectare.

*Legume & coolatai grass*



*Light and heavily grazed plots*

## Grazing Treatments

In the light grazing treatment stock only grazed 20% of the area and large amounts of dead feed accumulated. When conditions turned dry, stock rapidly lost weight.

Sheep grazed at 37 wethers per hectare utilised the entire area. They were removed whenever all green feed was eaten. Coolatai grass, when kept short, provided maintenance feed for dry stock during spring and summer. Feed quality peaked in summer but dropped quickly with flowering and frosting.

After seven years the heavily grazed plots remain dominated by Coolatai grass. The measured growth rates for Coolatai grass were less in the heavily grazed plots.

Heavily grazed plots from November 1990 to mid November 1997 provided 77% more grazing days (an extra 2948 wether grazing days) than the lightly grazed treatment.

Sheep on heavily grazed plots maintained good condition, but were removed when feed became short. Wool cuts from these sheep averaged 6 kg/hd compared with the flock average of 5.5 kg/hd.

The effect of the pre-grazing treatments (slashing, burning and untreated) was short lived. The main benefit was removal of dead rank growth, which encouraged growth of better quality green, leafy feed.

These results were obtained in mainly dry years that did not favour the growth of Coolatai grass. But the research showed that when it is kept short it could provide valuable feed in dry times.

## Introducing Legumes

Legumes can be successfully grown with Coolatai grass to improve winter feed quality of these pastures. However, legume growth and the resultant increased growth of Coolatai grass requires a higher level of grazing management.

The best legumes in this demonstration were arrowleaf and subterranean clover.

## Key points for Coolatai grass management

- Coolatai grass produces a large bulk of feed even in dry years. This extra growth must be utilised to maintain feed quality and to prevent Coolatai grass from dominating the pasture.
- Burn or slash to reduce the bulk of poor quality dead material prior to grazing to increase green leaf for strategic livestock needs.
- High stocking pressures are needed to keep Coolatai grass short, and to maintain higher pasture quality.
- Legumes can increase winter-feed quality, providing nitrogen for grass growth and increasing ground cover and litter.

## Conclusions

Grazing or herbicide use is unlikely to reduce the presence of Coolatai grass in Coolatai grass dominant pastures.

Coolatai grass can be managed to provide a maintenance diet for dry stock in spring and summer, using heavy grazing after slashing or burning. This system of heavy grazing should only be maintained for 2 to 3 years before moving stock to a different area.

Moving stock allows ground cover, litter and pasture vigour to be restored. The pasture should be monitored for signs of degradation during periods of heavy grazing.

Tactical grazing improves pasture quality over spring and summer. Correcting soil nutrient deficiencies and growing a legume with Coolatai grass provides higher quality feed during winter and nitrogen for grass growth during summer.

### Further on-farm research needs

The management of Coolatai grass in whole farm situations should be investigated. Questions which need answering include:

- What grazing strategies can be applied to the whole farm system, to better manage the potentially large bulk of growth?
- How does management prevent Coolatai grass becoming tall and rank in larger paddocks?
- What options are available to manage growth that cannot be controlled?
- How is ground cover and litter maintained under a high utilisation regime?



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The information contained in this publication is based on knowledge and understanding at the time of writing (30 August 2002). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser.

Produced by members of the Information Delivery Program  
Dubbo and Orange  
November 2002