

# final report

Project Code:                   NAP3.306j  
Prepared by:                   Meat Research Corporation  
Date published:                January 2006

PUBLISHED BY  
Meat and Livestock Australia Limited  
Locked Bag 991  
NORTH SYDNEY NSW 2059

## Beef property management in the Rosdale area

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

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# Contents

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<b>Introduction</b> .....	2
<b>Location of the Rosedale area</b> .....	3
<b>Land types</b> .....	4
<b>Enterprises</b> .....	6
<b>Cattle management</b> .....	6
<b>Grazing land management</b> .....	9
<b>Property sizes</b> .....	10
<b>Table 1. Land and vegetation types and their management</b> .....	12
<b>Table 2. Farm management data</b> .....	13
<b>Addendum 1. Plant names</b> .....	14
<b>Addendum 2. Climate data</b> .....	15
<b>Addendum 3. Native Pasture Communities map</b> .....	17

## Introduction

This report contains management guidelines for a beef property typical of the Rosedale area. The guidelines are for sustainable beef production. Sustainable production is defined as production that optimises profit with minimal degradation of the natural resources.

The Rosedale area is located north of Bundaberg, including parts of the Miriam Vale, Gooburrum and Kolan shires, in South East Queensland (see map, page 3).

The report contains a description of the major land types in the area, their vegetation, topography, soils, pastures, production capacity and condition. It also describes suitable enterprises, cattle management and grazing land management. Stocking rates and property sizes are suggested as guidelines for sustainable beef production. A list of common and scientific plant names is included as Addendum 1 to help with plant identification.

The information was provided in 1992 by a group of eight district producers (representing 6 properties) each of whom had at least 10 years experience of cattle and property management. These guidelines were developed by using the Local Consensus Data (LCD) technique. This process involved discussing the best management practices for a hypothetical property typical of the Rosedale area.

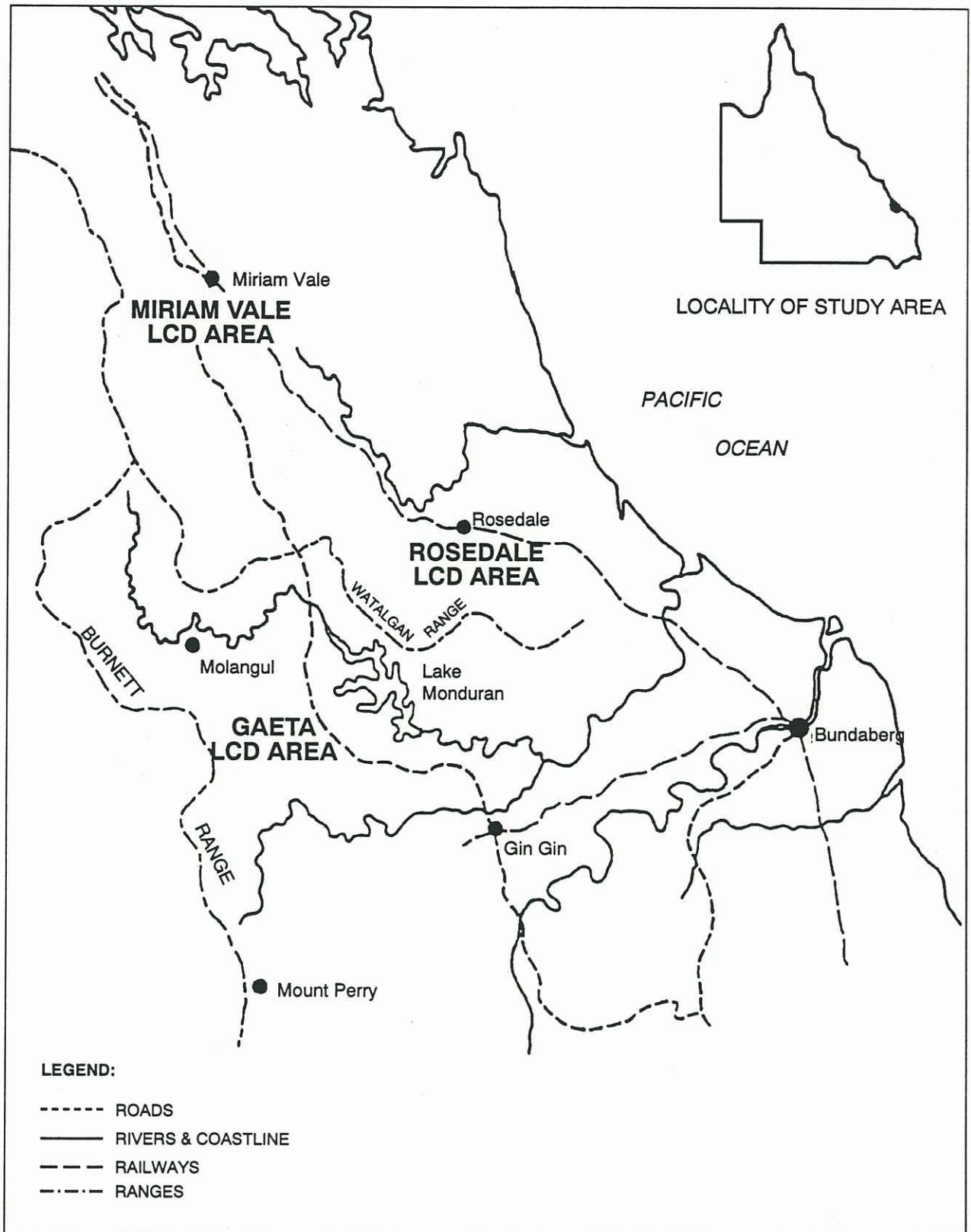
Participating producers agree that this report contains a range of practical, first hand information that contributes to identifying current best practices for local property management.

Similar reports are available for other areas within the black speargrass zone as well as some of the other pasture communities of Queensland (see Native Pasture Communities map, Addendum 3). Together, LCD reports offer a pool of practical ideas for sustainable beef production. The reports also identify industry constraints within and across pasture communities together with problems and gaps in information for further research.

These guidelines are based upon experience up to July 1992. Changes in knowledge, technology and market forces may alter the suitability of this information in the future. Producers and organisations involved in the preparation of this report accept no responsibility for adverse effects resulting from the use of the information. Some conclusions may not be endorsed by the Department of Primary Industries (DPI) or the Meat Research Corporation (MRC).

The production of LCD reports is the first step in a process which will include workshops to give beef producers in all areas of Central Queensland an opportunity to participate in developing improved production systems. The process is sponsored by the MRC and the DPI. Readers should consult the DPI for further information or clarification.

### Coastal Burnett Region



*Location of local consensus data areas*

## Land types

The black speargrass country in the Rosedale area is made up of black soil flats (5%), ironbark ridges and associated blue gum hollows (45%), gum-topped box/supplejack country (5%), spotted gum ridges (40%), and supplejack ridges (5%) (Table 1). The characteristics of each of these land types are discussed below.

### Black soil flats

Black soil flats are the major type of flat country and are noted for waterlogging during the wet season. Most of the stands of blue gum woodlands native to this land type have long been removed with only odd trees remaining. In the past the dominant grasses were paspalum and water couch. Due to the clearing of the blue gums, soils tend to remain waterlogged for longer periods and this, together with higher grazing pressures and fewer fires, probably accounts for foxtail and wild cotton replacing much of the paspalum. During wet periods these flats are avoided by stock, however, after they dry out, cattle will preferentially graze them.

Slashing and burning have been used effectively to control foxtail and wild cotton and have helped the paspalum to re-establish. They should be carried out in spring/early summer, or as early as autumn if not too wet, to get valuable early green pick and encourage the stock to graze the area. Slashing is the preferred option for foxtail control, however, under wet conditions it may not be possible to slash the area often enough. Fire will only knock the weeds back rather than control them. Rotary hoeing has also been effective but is slow and can only be used on small areas.

Black soil flats are not affected by regrowth or salinity. Erosion of gully heads can occur, where there is sloping land adjacent to waterholes.

This type of country may be suited to ponded pastures, however, this has not been trialled in the area.

### Ironbark ridges and associated blue gum hollows

Very little of this country is found in its natural state. Most of the timber was removed by ring barking early this century and it can now be described as semi-open forest country. There is generally only shade timber left, mostly ironbarks (narrow-leaved and some silver-leaved), bloodwoods and Moreton Bay ash on the ridges, and blue gums, sometimes with mahogany, in the hollows. The blue gum hollows (about 10 to 15% of the area) are usually less than 20 acres and are rarely fenced off from the ironbark ridges. As a result, the hollows and ridges are generally managed as a single unit.

The dominant grass species are black speargrass and kangaroo grass, with blue couch being found after clearing. The blue couch becomes dominant after clearing due to the lack of fires and heavier stocking pressures, especially in the blue gum hollows.

Nine to 12 inches (20 to 30 cm) of loamy brown or grey soils over a reddish clay subsoil are common on this land type. Some of the lighter grey soils turn to 'bull-dust' in dry weather. The soils in the hollows are generally deeper (up to 3 foot) and heavier than the surrounding slopes from which they were formed. They are rarely boggy, but are definitely moister than the surrounding ridges.

Ironbark ridges and hollows is the preferred land type for developing as it requires the least amount of inputs. Most of the necessary clearing has already been done, and there has not been a great deal of regrowth. Also, less fertiliser is required compared to other land types.

Immediately after clearing, wattle regrowth (mainly silver wattle with some black wattle) is generally a problem. This can be controlled by using fire and decreasing the stocking rate to allow the black speargrass to come away. Eucalypt regrowth is not a big problem, and can be controlled with Tordon®. Erosion does not present a problem due to the good grass cover generally found on this type of country.

Black speargrass pastures may be improved by adding legumes such as seca stylo and Wynn cassia. Stocking rates should be increased (1 breeder unit (BU\*)/5 to 8 acres) to keep the grass down so the legumes don't get smothered. Fertiliser is not crucial, however, applications will give beneficial returns if it can be afforded. Some properties have areas of fully improved grass/legume pastures. The establishment of these pastures is costly and they require careful maintenance and management. Callide and Katambora Rhodes grasses are considered the most productive pasture grasses. Callide is the more palatable, but it is important not to let it grow rank. Some producers prefer the Katambora variety as it is more hardy. Signal grass is also useful due to its hardiness. Siratro, Wynn cassia and fine stemmed stylo are the most commonly used legumes.

Improved grass pastures should be spelled for two to three months between February and April to allow good seed set. Spelling paddocks every third year is probably sufficient, however, if a paddock has been 'flogged' in the winter it must be locked up and allowed to recover after it rains.

The application of di-ammonium phosphate (DAP) at planting helps establishment of the legumes. For maintenance apply Mo-super (or regular 'super' applied with a molybdenum spray) every year or every second year. One bag per acre every two years is the minimum recommendation.

### Gum-topped box/supplejack

This land type is mainly found in the area south of Rosedale. Gum-topped box, with or without supplejack, is the dominant tree species with varying amounts of narrow-leaved ironbark, red ironbark and bloodwood. Shallow, silty or sandy loam overlying clay is the typical soil type. It is poorly grassed with wire and poverty grasses, not very productive and the cattle do not work it very much.

In its natural state, or when over-grazed, erosion is a major problem due to the lack of grass cover. Erosion can be controlled by establishing a well managed improved pasture, however, the general

recommendation for managing this type of country is "don't touch it unless you are going to do it properly".

To improve the country it is necessary to completely clear the native vegetation. This is done using a bulldozer to pull the timber, followed by raking and burning. It is best to clear around April when it is wet and the sap is 'flowing'. The ground also needs to be wet so that the supplejack bulbs (lignotubers) can be easily removed. Immediately after the timber has been removed, the area needs to be ploughed twice, planted and fertilised. Wynn cassia is the recommended legume. To maintain productivity it is suggested that an annual maintenance application of 2 bags of superphosphate per acre be applied. If this clearing strategy is not followed the resulting wattle, eucalypt and supplejack regrowth is almost impossible to control.

### Spotted gum ridges

This ridge country is naturally heavily timbered and poorly grassed. Spotted gum is the dominant timber but bloodwood, narrow-leaved ironbark and black wattle (especially on the gravelly soils) can be found. Supplejack may also be found on the poorer country. The common grasses are mainly wild oats and black speargrass.

The soils have developed on either granite or sedimentary rocks and are generally poor, shallow and of a sandy or gravelly texture. During wet periods a good body of grass can be found, but it usually dries off quickly due to the poor water holding capacity of the light soils.

There are two classes of spotted gum ridge country. The first is found on the ranges and foothills. The soils contain coarse grey granite granules and areas of granite boulders can be present. Patches of 'bull-dust' occur in the 'soakage' areas. This class of country is often referred to as 'loose country'. The second class of country is of slightly better quality. It is found on the lower slopes and the soil is gravel over clay. Ironstone is often present.

The lower slope class of country has been thinned by selectively ring-barking; about half of the trees have been removed leaving

\* Stocking rates are expressed in Breeder Units (BU). One unit comprising a lactating cow with a calf to weaning age.

just the good timber. Bulldozers can be used to clear this country, however wattle regrowth will often occur. Trees in gullies and along water courses should not be disturbed. The timber on the steeper class of country should be retained.

Spotted gum regrowth is controlled with relative ease by stem injection using Tordon®. If black wattle regrowth occurs it is a major concern as control is difficult. Regular burning is the best method of control.

Signal grass and Katambora Rhodes grass are the recommended grasses. Legumes are well suited to this country with fine stemmed stylo, Wynn cassia and seca stylo usually establishing well. Cattle do not do well unless legumes are used. If the area is 'tordoned', legume seed can be spread by hand. For maximum benefit, fertiliser should be applied to the improved pastures. The recommended rate is 2 bags of superphosphate/acre at planting and a maintenance dressing of 1 bag/acre every 1 to 3 years.

If the area has been mechanically cleared and wattle regrowth becomes a problem, cattle productivity will decline dramatically.

## Supplejack ridges

Supplejack can be found with ironbark, bloodwood and/or spotted gum. Soils are loose and gravelly on these ridges and have a low water holding capacity. In their natural state they are poorly grassed; the main soil cover being leaves and bark.

These ridge soils dry-out quickly after rain, regrowth wattle can be a problem and pastures cannot be relied on. It is recommended that this not be the first land type to be developed, however, clearing and pasture establishment will improve its productivity. Legumes such as Wynn cassia and siratro grow well; signal grass is the recommended pasture grass.

Erosion can be a problem on this land type in its natural state, however, rock ledges tend to 'hold the soil back'. If the grass cover can be increased, there are then far less erosion problems.

Supplejack is the major understorey species on all land types except the black soil flats.

## Enterprises

The most common enterprise in the area (involving about 60% of producers) is the production of store cattle. They are usually sold between 10 and 24 months of age as dictated by demand and season. The best market, however, is the private sale of eight to nine month old weaners. The production of stores is seen as a more flexible system than finishing.

On the better country, finished animals can be produced to supply the domestic trade (only a few producers supply this market), Japanese grassfed ox (sold at 3½ to 4 years of age), Korean grassfed (lighter stock), and the US grassfed and manufacturing markets. To finish cattle successfully it is necessary to have a larger sized property, good improved pastures, regular fertiliser inputs and a high degree of managerial skill. To finish stock within the market time frames they need to be on improved pasture from weaning onwards.

## Cattle management

This section describes the type of cattle and their management which best suit local conditions.

### Breeds and breeding

Most herds in the area are based on Brahman blood, generally ranging from ¾ to pure Brahman (Table 2). It is recommended that most herds should have at least half Brahman blood (for heat and tick tolerance, and foraging ability). Enterprises producing 10 to 24 month old stores generally have a Brahman-cross breeder herd, and are using either British, European or Brahman derived bulls.

The breed of bull used depends mainly on the target market. Most stores from this area are finished in the Burnett, Brisbane Valley or Darling Downs areas. For these markets

Braford, Charbrays and Droughtmaster bulls are generally used. Grading-up breeding programs are common, however, planned crossbreeding systems are rare. Sometimes a mixture of bull breeds are used in the one paddock.

## Bulls

Bulls should be selected in the paddock. They need to be active, well muscled, masculine and structurally sound. They must have grown well but not be fat. They should walk well and, most importantly, have a good temperament.

Bulls are generally purchased as 3 years olds and are usually used for a maximum of five years. Mature bulls are used because they handle the harsh conditions better than younger bulls.

Bull percentages range from 2½ to 3% (1:40 to 1:33) depending on the paddock size and the amount of timber present.

## Cows

Heifers are mated as 2 year olds to calve at 3 years of age. On larger properties heifers are treated separately and given preferential treatment. On smaller places they are kept with the main breeding herd.

Heifers must be in good condition at mating. Brahman-cross heifers need to be 280 kg liveweight or better to begin cycling and it is essential they have the opportunity to conceive at this time. They should be mated early in the season and for a restricted period from September to November.

Care must be taken to prevent breeders becoming too fat at mating as fat animals tend to have lower conception rates. This is especially noted in pure Brahman breeders. Breeders are usually held on improved pastures from mating until weaning.

Breeders are culled for age, poor frame, temperament and fertility (pregnancy tested).

Spaying is a fairly common practice in the area. This is because many producers have difficulty in controlling their bulls and their neighbours' bulls. Culled cows are spayed

around June, conditioned on improved pastures and sold from November to February.

## Mating

Larger properties are generally able to give heifers preferential treatment and practice controlled mating. Smaller properties often do not have a heifer or a bull paddock, and are unable to use these practices. A multiple sire mating system is the norm.

Although a dry spring extending into summer can cause serious problems in a controlled mating program, it is considered that this system is preferable to continuous mating. Major benefits of the system are the reduced labour requirements (e.g. single weaning and branding operations) and eliminating 'out-of-season' calves.

Controlled mating involves putting the bulls in with the breeders from the beginning of October until the end of March. This ensures all calves are on the ground by the New Year.

Continuous mating management may include removing bulls from the herd for up to three months (August to October), allowing bulls to regain condition.

Pregnancy testing is recommended for all herds. This practice avoids the feeding of empty breeders through the winter, and allows culls to be spayed and fattened for sale.

## Reproduction rates

The area's long term weaning rate is estimated to range from 40 to 60%. Disease (leptospirosis and vibriosis) is probably the major contributing factor to these low figures. With good management and herd vaccination, an 80 to 90% weaning rate could be achieved.

## Weaning

Weaning generally takes place from February to May, depending on the season and cow condition. Early calves born before Christmas do better than late calves due to their access to a longer growing season and the better lactation performance of their



dams. First-calf heifers are weaned early (i.e. when calves are 4 to 6 months of age) to help them get back in calf. These young cows are put into the best paddock after their calves have been weaned.

Some producers wean all their calves at the one time, others have two or more weanings per year. When and what to wean is usually determined by seasonal conditions and labour availability. If drought conditions set in, weaning is often brought forward to remove the stress of lactation on the breeders.

At weaning the calves are kept in yards for 2 to 3 weeks. During this time they should be fed on hay and molasses and worked through the yards. After the first week they can be 'tailed-out' for 2 to 3 days to quieten and train them to work with horses, motor-bikes and dogs.

## Marketing

Some producers sell weaners at 6 to 9 months of age to feedlots where they are fattened for three months and sold on the local trade market. These young animals are sold at 100 to 200 kg dressed, with 160 kg being the preferred weight.

The majority of stock are sold as stores through the saleyards at Gin Gin, Berajondo or Bundaberg. Most of these stores are purchased by buyers from the south Burnett, Brisbane Valley/Beaudesert, and Darling Downs areas.

Good stores are often sent direct to Maryborough meat works as 'fresh stores'. This avoids the extra charges associated with selling through the auction system (approximately 5% of the gross value of the beast). The market is usually filled by 2 year old steers dressing out at 180 kg or more.

Older stores are sold to feedlots for finishing as shortfed Japanese or Korean bullocks.

Finished stock (mainly suited to the US, Korean and Japanese markets) and many cull cows are sold direct to works - generally Rockhampton, Murgon or Maryborough.

Store cattle producers usually pregnancy test and send culled cows straight to the sale

yards. Other managers spay their culled cows. The estimated dressed weight at spaying is about 160 kg; after conditioning on pasture sale weights are 230 to 250 kg dressed. These heavier carcasses are more marketable and attract a better value (¢/kg) than the lighter cull cow.

## Herd Health

In an average year breeder deaths are low. Listed are the area's main diseases and their control.

### *Blackleg*

One dose of '5-in-1' (or 7-in-1) at branding is recommended.

### *Botulism*

Can be a problem on phosphorus deficient country and most country is deficient. In the first year all cattle are vaccinated twice, then once each year thereafter. No vaccination is generally undertaken unless there is a history of the disease on the property.

### *Buffalo flies*

A major problem in the area. Fattening stock must be treated. Cattle can be sprayed when mustered for other reasons or they may have to be mustered especially for this treatment. Susceptibility does seem heritable; breeders that are badly effected should be culled.

### *Leptospirosis*

If individuals become infected the whole herd should be vaccinated, including new bulls as they enter the herd.

### *Lice*

Can be a problem if the cattle are not dipped. Some animals are more susceptible to lice than others.

### *Three-day sickness*

Best to leave affected animals alone until they recover.

### *Ticks*

Not a problem in  $\frac{3}{4}$  to pure Brahman cattle. Half-bred breeders on native pasture can be treated up to four times a year. Spring (September to November) and autumn

(March to April) are the critical treatment times. Cattle with under  $\frac{3}{8}$  Brahman blood may need to be treated up to 12 times a year. Ticks are generally less of a problem on improved pasture than on native pasture. Tick fever is not a concern unless cattle are brought from clean country.

### ***Vibriosis***

Bulls and replacement heifers should be vaccinated before mating. If individuals become infected the whole herd should be vaccinated.

### ***Weaner scouring***

Occurs but is generally not a big problem.

### ***Worms***

Weaners should be drenched three times; twice at weaning and again three months later. The third treatment enhances good growth.

### ***Poisonous plants***

Poison peach and zamia are occasionally a problem.

## **Supplementary Feeding**

Most graziers feed a supplement during the winter/spring period (the normal dry season). Feeding usually commences after the first frosts when the feed value of the speargrass drops and breeder condition starts to deteriorate. Molasses is commonly purchased and fortified with additives such as cottonseed, urea and phosphorus, or a commercial product such as Rumevite's Molasses Fortifying Concentrate\*. Licker drums work well if there is sufficient dry feed available.

Although it is difficult to get stock to take supplements during the wet, some graziers in the south of the area provide a year-round molasses plus phosphorus supplement. All this country is phosphorus deficient.

## **Drought Strategies**

The decision for drought action needs to be made early. Look at stock numbers in mid-March when market prices are still good. Stock numbers should be reduced as the

season deteriorates. Feedlots, sale and agistment are the most common ways of reducing numbers. While there is still grass to provide carbohydrate, protein levels should be increased with the use of fortified molasses or a urea supplement.

## **Grazing land management**

A set stocking rate is the grazing system normally used. Pastures, particularly improved pastures, are sometimes destocked to spell them. With over-grazing (higher than 1 breeder unit/5 acres), wire grass and blue couch take-over. The recommended long term stocking rate for each land type is listed in Table 1.

### **Ironbark ridges and associated blue gum hollows**

The suggested stocking rate for this type of country is 1 BU/10 to 15 acres. Areas that have been well cleared and have a greater area of hollows can be stocked at a rate of 1 BU/10 acres. During periods of no rain the ridges dry out rapidly and cattle increasingly use the blue gum hollows.

### **Gum-topped box/suplejack**

In its natural state this country will only run 1 BU/50 acres. When successfully improved and managed, the stocking rate can be increased up to 1 BU/7 acres.

### **Spotted gum ridges**

The recommended stocking rate for this country in its natural state is 1 BU/40 to 50 acres. On selectively cleared country where good timber trees are retained, the recommended stocking rate is 1 BU/15 to 20 acres. By improving the best of the cleared country with introduced grasses and legumes the stocking rate can be increased to 1 BU/5 to 10 acres.

Often only small areas of this type of country are developed and the cattle tend to congregate on them. These artificially high

stocking rates will soon cause regrowth (wattle, spotted gum) and pasture degradation problems (couch grass encroachment).

Developed areas need to be managed carefully, otherwise they can revert to their original condition in four to five years. Rejuvenate by cultivating if the country is not too steep. On steeper country, fire or chemicals (tordon®) may be used to control regrowth.

Spotted gum ridges are very prone to erosion if over-stocked. The improved pastures need to be established in the year the area is cleared. When using bulldozers, do not drive up and down the ridges as the tracks can lead to erosion.

### Tree and woody weed management

Chemical timber treatment is generally done by contractors and is best done in the hotter months when the sap is flowing. Tordon® is the main chemical used because Velpar® tends to move down slopes killing untargeted timber. Control wattle by slashing in March/April. This can be 80% effective, but only if done when the sap is flowing and the soil is wet so that the roots are pulled out of the ground.

### Stock water

Dams, creeks, wells, bores (usually 20 to 30 feet deep) and windmills are the most common sources of stock water.

Underground water quality is generally fairly good however there is usually not a large supply.

### Fire

Fire is a management tool used to remove old black speargrass, to control wattles and to encourage legume growth.

Speargrass is burnt every year if there is sufficient fuel. A slow fire after rain removes the dried-off grass that the cattle will not eat. This also encourages germination and growth of legumes. Improved grasses should not be burnt; they should be grazed down or left to form a mulch.

### Pests

The following animal and plant pests occur in the area:

- Rabbits - an increasing problem
- Wild dogs - not dingoes
- Giant rat's tail grass - an increasing problem
- Wild cotton
- Groundsel
- Foxtail - can be a problem on black soil flats
- Noogoora burr - controlled by rust
- Bush lantana - controlled by fire
- Grader grass - cattle will not eat it

### Flora and Fauna Conservation

Selective clearing works well with patches of scrub being retained along creeks. Kurrajong and fig trees are generally retained where possible. Some graziers would plant trees in very open country and old ring barked areas, but not in blocks along fence lines. Most graziers try to retain good timber, however most millable timber has been removed only leaving timber suitable for sleepers. Retain straight trees and suckers as an insurance income for really bad years.

### Property sizes

Properties in the area range in size from 1000 to 20 000 acres (400 to 8000 ha). Most are between 1000 and 3000 acres (400 to 1200 ha). There are also a large number of smaller holdings (50 to 1500 acres) from which it would be difficult to earn a living.

A property capable of carrying about 1000 head of cattle is considered to be about a living area for a family with two school aged children. Ten thousand acres (4000 ha) or a lesser area of improved country would be suitable to run this number of cattle.

## Acknowledgments

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The following producers are thanked for giving generously of their time in documenting their experiences for sustainable beef production in the Rosedale area:

Mr Michael Bonanno, Mr Trevor Dawson, Mr Ken Hills, Mr and Mrs Mark Hills, Mr and Mrs Ivan Robertson, and Mr Norman Turner.

The Meat Research Corporation provided financial support for the Local Consensus Data (LCD) process and the production of the reports.

The following officers of the Department of Primary Industries facilitated the LCD meetings and produced the reports:

Roger Cheffins, Cindy Lamb, Russ Scarborough and Leath Stewart.

Table 1. Land types and their management in the Rosedale area.

Land type % of area	Enterprises	Recommended stocking rate	Improvements	Constraints
Black soil flats 5%	Breeding, growing, fattening	Not usually run as a separate land unit		Weed invasion
Ironbark ridges and blue gum hollows 45%	Breeding, growing & fattening Growing & fattening Fattening	1BU*/10 to 15 acres 1BU/10 acres 1BU/5 to 8 acres 1BU/5 acres	Thinned Well cleared NP+legumes Fully improved	Wattle regrowth on cleared country
Gum-topped box /supplejack 5%	Breeding, growing Fattening	1BU/50 acres 1BU/7 acres	Natural, untouched Improved pasture	Erosion, poor grass cover Regrowth
Spotted gum ridges 40%	Breeding & growing Breeding & growing Fattening	1BU/40 to 50 acres 1BU/15 to 20 acres 1BU/5 to 10 acres	Natural Thinned Improved pastures	Wattle regrowth Requires a legume Prone to erosion
Supplejack ridges 5%	Breeding & growing	Not usually run as a separate land unit		Soils dry out rapidly

\*1BU = 1 Breeder Unit, comprising a lactating cow with calf to weaning age.

Table 2. Farm management data for the Rosedale area.

Category	Data
Actual Property sizes:	
Range	1000 to 20 000 acres (400 to 8000 ha)
Average	1000 to 3000 acres (400 to 1200 ha)
Small holdings - range	50 to 1500 acres (20 to 600 ha)
Recommended living area/herd size:	
Area	10 000 acres (4000 ha)
Cattle	1000 mixed head
Breeds	Brahman crosses (50 to 75% Brahman)
Mating system	Controlled mating
Mating season (adults)	October to March
Mating season (maidens)	September to November
Bull %	2½ to 3%
Reproduction rates:	
Range	40 to 80%
Goal	Above 80%
Weaning	February to May
Turn off weights (native pastures):	
Fresh stores 2 year old	180 kg dressed weight or better
Bullocks 4½ to 5 year old	300 to 320 kg dressed weight
Steers 3½ year old	240 to 300 kg dressed weight
Cull cows - spayed & finished	230 to 250 kg dressed weight
Cull cow age	8 to 10 years old
Cull bull age	8 years old
Deaths	Low
Herd health:	
'5-in-1' vaccination	All weaners
Botulism vaccination	Where it occurs
Buffalo fly treatment	When required. Cull susceptible breeders
Leptospirosis vaccination	All heifers twice
Lice	Can be a problem if cattle are not dipped
Tick fever vaccination	Only when cattle are introduced from clean country
Ticks <50% Brahman	Dip autumn and spring
Vibriosis vaccination	All heifers and bulls annually
Worm treatment	At weaning x2; 3 mths later x1
Supplements:	
Phosphorus	Only in south of area - all year round
Molasses/urea/protein meal	After frosts

## Addendum 1. Plant names

Common	Botanical
Black speargrass .....	<i>Heteropogon contortus</i>
Black wattle .....	<i>Acacia leiocalyx</i>
Bloodwoods .....	<i>Eucalyptus</i> spp.
Blue couch .....	<i>Digitaria didactyla</i> *
Blue gum .....	<i>Eucalyptus tereticornis</i>
Fig tree .....	<i>Ficus</i> spp.
Fine stem stylo .....	<i>Stylosanthes guianensis</i> var <i>intermedia</i> *
Foxtail (swamp foxtail grass) .....	<i>Pennisetum alopecuroides</i>
Giant rat's tail grass .....	<i>Sporobolus pyramidalis</i> *
Grader grass .....	<i>Themeda quadrivalvis</i> *
Groundsel .....	<i>Baccharis halimifolia</i> *
Gum-topped box .....	<i>Eucalyptus moluccana</i>
Ironbark, narrow-leaved or red .....	<i>Eucalyptus crebra</i>
Ironbark, silver-leaved .....	<i>Eucalyptus melanophloia</i>
Kangaroo grass .....	<i>Themeda triandra</i>
Kurrajong .....	<i>Brachychiton populneus</i>
Lantana, bush .....	<i>Lantana camara</i>
Mahogany .....	<i>Lophostemon suaveolens</i>
Moreton Bay ash .....	<i>Eucalyptus tessellaris</i>
Noogoora burr .....	<i>Xanthium pungens</i> *
Paspalum .....	<i>Paspalum dilatatum</i> *
Poison peach .....	<i>Trema tomentosa</i>
Poverty grass .....	<i>Eremochloa bimaclata</i>
Rhodes grass, Callide .....	<i>Chloris gayana</i> cv. <i>Callide</i> *
Rhodes grass, Katambora .....	<i>Chloris gayana</i> cv. <i>Katambora</i> *
Seca stylo .....	<i>Stylosanthes scabra</i> cv. <i>Seca</i> *
Signal grass .....	<i>Brachiaria decumbens</i> *
Silver wattle .....	<i>Acacia aulacocarpa</i>
Siratro .....	<i>Macroptilium atropurpureum</i> cv. <i>Siratro</i> *
Spotted gum .....	<i>Eucalyptus citriodora</i>
Supplejack .....	<i>Lophostemon confertus</i>
Water couch .....	<i>Paspalum distichum</i>
Wild cotton (balloon cotton) .....	<i>Gomphocarpus physocarpus</i> *
Wild oats .....	<i>Themeda triandra</i>
Wire grasses .....	<i>Aristida</i> spp.
Wynn cassia .....	<i>Cassia rotundifolia</i> cv. <i>Wynn</i> *
Zamia palm .....	<i>Cycas media</i>

(\* Introduced plants)

**Addendum 2. Climate data**

The climate of the Coastal Burnett region is subtropical with long, hot summers and mild winters. Annual rainfall varies from about 1200 mm on the coast to 1000 mm in the west of the region. Approximately 70% of the rain falls in the November to April period.

In winter, generally mild conditions occur on the coast with an increase in the frequency and severity of frosts in inland areas in June to August.

Monthly rainfall data (mm) is given for various official recording stations situated within the region.

<b>GIN GIN POST OFFICE</b>		<b>Lat 25°00' Long 151°58'</b>						<b>Elevation 70 meters</b>					
	J	F	M	A	M	J	J	A	S	O	N	D	Year
Mean rainfall	186	162	130	71	60	58	52	31	40	71	86	122	1038
Median rainfall	152	111	90	50	46	34	32	26	29	59	64	103	1051

<b>MIRIAM VALE POST OFFICE</b>		<b>Lat 24°20' Long 151°34'</b>						<b>Elevation 55 meters</b>					
	J	F	M	A	M	J	J	A	S	O	N	D	Year
Mean rainfall	211	214	141	75	59	58	50	31	35	67	88	141	1165
Median rainfall	167	142	100	55	37	41	30	24	28	50	76	124	1115

<b>MOLANGUL POST OFFICE</b>		<b>Lat 24°45' Long 151°33'</b>						<b>Elevation 244 meters</b>					
	J	F	M	A	M	J	J	A	S	O	N	D	Year
Mean rainfall	186	146	108	60	63	51	50	33	31	71	105	119	1028
Median rainfall	162	110	63	41	66	31	32	25	22	73	97	96	998

<b>ROSEDALE POST OFFICE</b>		<b>Lat 24°38' Long 151°55'</b>						<b>Elevation 45 meters</b>					
	J	F	M	A	M	J	J	A	S	O	N	D	Year
Mean rainfall	216	187	131	70	57	60	52	32	34	70	88	126	1127
Median rainfall	154	127	88	45	40	33	30	25	25	52	65	104	1096

Median rainfall is the 50% probability of receiving that amount of rain.



Temperature data is not available from within the region. Bundaberg's mean maximum and mean minimum temperatures (°C) have been used as it is the closest recording station to the Rosedale area. It is thought that temperatures in the Rosedale area and particularly in the western part of the area, would be several degrees cooler in winter and warmer in summer than those recorded in Bundaberg.

BUNDABERG AIRPORT		Lat 24°54' Long 151°18'						Elevation 31 meters				
	J	F	M	A	M	J	J	A	S	O	N	D
Mean maximum	29.3	29.3	28.5	26.9	23.9	22.1	21.3	22.7	24.8	26.4	27.9	28.7
Mean minimum	20.9	20.8	19.6	17.2	13.4	11.0	9.2	10.2	12.9	15.9	18.6	20.0

### Addendum 3. Native Pasture Communities map

QUEENSLAND  
DEPARTMENT OF PRIMARY INDUSTRIES

## NATIVE PASTURE COMMUNITIES

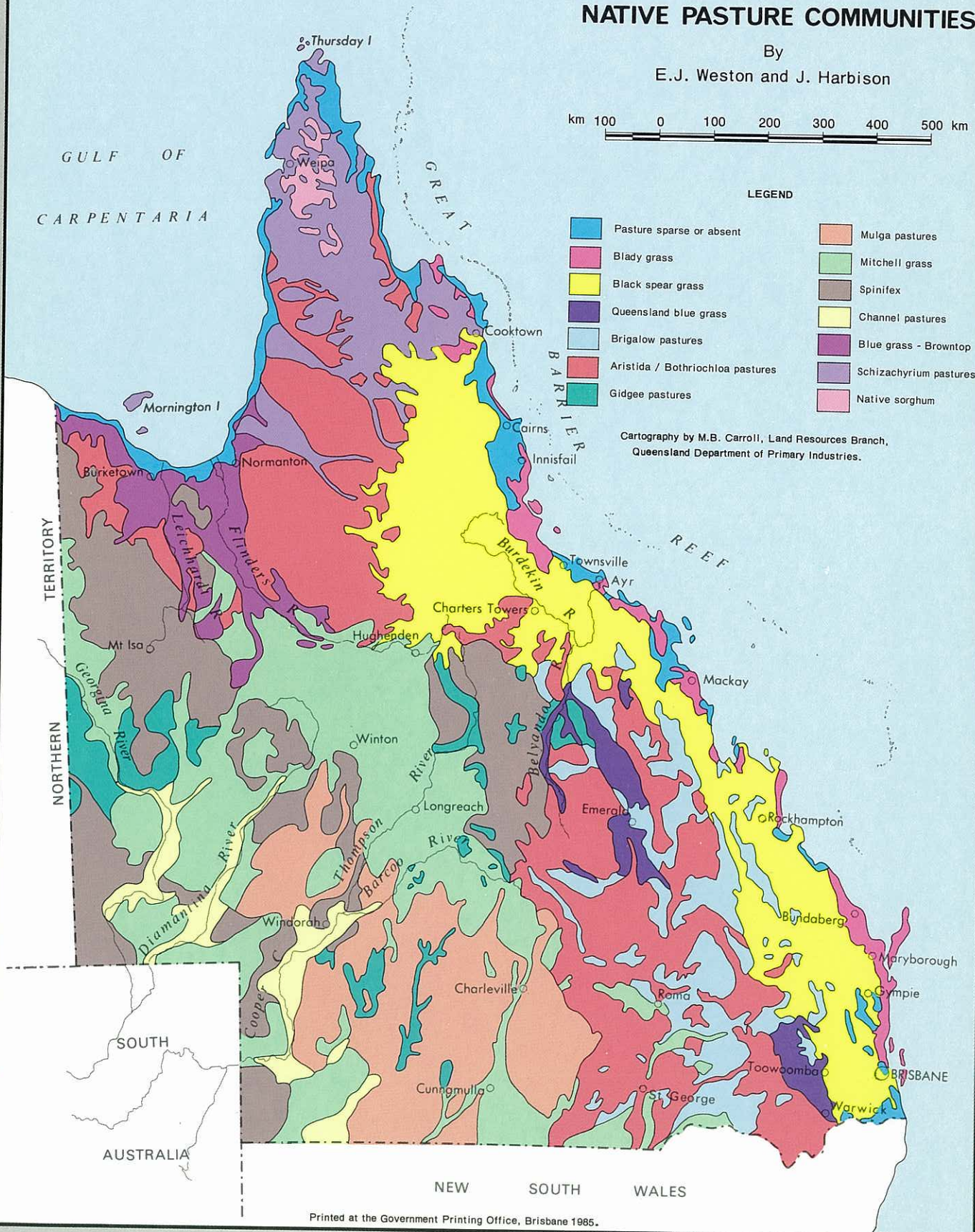
By  
E.J. Weston and J. Harbison



#### LEGEND

- |                                  |                        |
|----------------------------------|------------------------|
| Pasture sparse or absent         | Mulga pastures         |
| Blady grass                      | Mitchell grass         |
| Black spear grass                | Spinifex               |
| Queensland blue grass            | Channel pastures       |
| Brigalow pastures                | Blue grass - Browntop  |
| Aristida / Bothriochloa pastures | Schizachyrium pastures |
| Gidgee pastures                  | Native sorghum         |

Cartography by M.B. Carroll, Land Resources Branch,  
Queensland Department of Primary Industries.



Printed at the Government Printing Office, Brisbane 1985.