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Beef property management in the comet area - based on producer experience

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Contents

Introduction

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

The Comet area is located east of Emerald in the Emerald and Bauhinia shires (see map page 3).

This document contains a description of land-types in the Comet area, their vegetation, topography, soils, pastures, production capacity and condition. The report 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 ensure accurate plant identification.

This information was provided in 1992 by a group of 6 producers each of whom had at least 20 years experience of beef property management in the Comet area.

These guidelines were developed by using a process called the Local Consensus Data (LCD) technique. This process involved discussing the best management practices for a hypothetical property typical of the Comet 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.

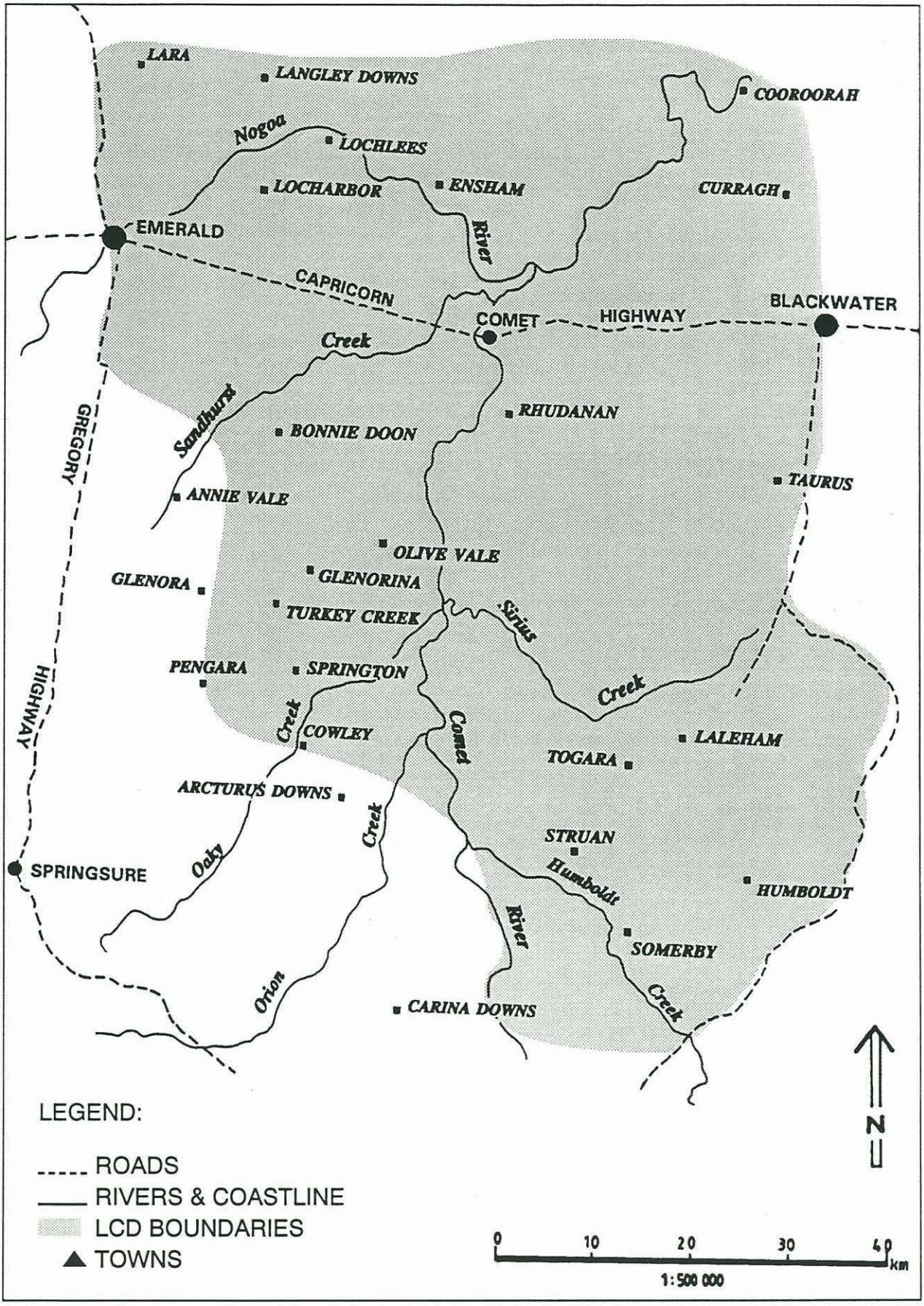
Similar reports are available for other areas in the different pasture communities of Queensland (see Native Pasture Communities map, Addendum 2).

Together, LCD reports offer a pool of practical ideas for sustainable beef production in CQ. 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 this 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 all beef producers (in local areas in Central Queensland) an opportunity to participate in developing improved production systems. The process is sponsored by the MRC and the DPI.

Readers should consult appropriate representatives of the DPI for further information or clarification.



* *Location of the Comet area.*

Land-types

There are 9 different land-types in this area (Table 1). This section of the report provides a description of each land-type. Problems with each land-type and opportunities for improved management are also discussed.

River flats

The river flats make up about 5% of the area (Table 1). They are good for both farming and fattening, although cultivation is advisable because of the major parthenium problem. The majority of the country is currently under maximum production and what is not now, will be in the near future. Frosting can occur, which will damage winter crops and forage.

This land is expensive to 'pull'. It consists of mainly brigalow, coolibah and yellowwood. Rake it after 'pulling' then farm it for weed control until you want to put it back to pasture. Parthenium weed dictates continuous farming of this land-type.

Brigalow/melonhole

Covering about 17% of the area, brigalow/melonhole is made up of a pebbly, heavy grey clay (Table 1). The melonholes can have salty rims growing saltbush.

The vegetation on this land-type consists of whipstick brigalow, false sandalwood, Ellangowan, some teatree and bauhinia on the fringes of the melonhole country.

Blade-ploughing is more expensive in this country because more passes are required over time. Steady rain is needed for even wetting of the melonholes so the blade-plough can work effectively. Graslan® also has limited application in this country. Shorter varieties of buffel are preferred for palatability.

Brigalow/blackbutt

This land-type covers approximately 10% of the Comet area (Table 1). It consists of a sandy surfaced, non-cracking clay and grows blackbutt, brigalow, currant bush, false sandalwood and wilga. The brigalow is generally small or stunted.

This land-type grows good buffel and therefore is recommended for fattening, although breeding in this country has also been successful.

It was suggested to seed from the air before 'pulling' this land-type, if germination after 'pulling' is not sufficient, then reseed. Seed with a mixture of American buffel and Katambora Rhodes and maybe some purple pigeon and creeping blue grass as a trial. Destock until second seed has established, if this is impractical, lightly stock.

Regrowth control (not including regular fires) won't be needed until about 7 years after 'pulling'. Blade-plough and reseed with recommended seed at the time, with a bit of sweet sorghum or equivalent.

Sandy brigalow/box

This land-type represents about 10% of the area (Table 1). It grows the best buffel and good green panic and is ideal for fattening.

Very little farming is carried out, and then only in winter. The soil has no structure and is slow to take up water but it is fertile.

The recommended clearing technique for this land-type is to seed, 'pull', burn and then seed again if necessary. Buffel and green panic are ideal. Fire is essential in the management of this land-type.

Parthenium can be a problem, however once the country is grassed-up it can be beaten.

Brigalow/softwood

This country covers about 8% of the area and consists of brigalow, yellowwood, belah, bonewood, wilga and other softwood species (Table 1).

The condition of this land-type is considered to be average to good. It is recommended for farming (grain or forage) and fattening.

This country was mainly developed about 25-30 years ago. For development, 'pull' and then burn after 12 months. Seed it with a mixture of American buffel, green panic, purple pigeon and some sweet sorghum for quick feed.

Regrowth is not expected until about 10 years after 'pulling'. This can be controlled by blade-ploughing.

Downs

This land-type makes up about 2% of the area (Table 1). It was voted as the top farming land, because it is the easiest to bring into production and ideal for fattening. However it is not the most productive farming country. It grows good wheat, contains some stone and has an erosion problem. Fertiliser was also mentioned as a necessity on this land-type.

This country has problems 'wetting-up' because of large cracks which fill from the bottom up.

Establishment of pasture is difficult and press wheels are needed in cultivation.

Some downs soils are very shallow.

Box flats

Box flats cover about 5% of the Comet area and are a haven for parthenium, although a good grass coverage will keep it at bay (Table 1).

The soil has little structure ('tight soil') and goes to 'bull-dust' when worked.

Due to heavy grazing (years ago), it is quite 'clay-panned', but is slowly coming back to buffel.

This land-type can be developed using the same techniques as used in sandy brigalow/box country. It is recommended for breeding.

Forest country

This is the largest land-type representing about 38% of the area (Table 1). It is made up of sandy loam to red loamy basalt accommodating vegetation such as ironbark, bloodwood, cabbage gum, kurrajong and wattle.

Buffel grass improves the carrying capacity of the land as it continues to spread. Soil disturbance with a light offsetting gives the buffel a boost.

Pasture renovation with the legumes seca and Wynn cassia is recommended. The spread of seca is very slow and it does not like frost.

Breeding is the advised enterprise for this land-type.

Forest country, depending on the type, should be burned every 3 years. Seca needs a cool wet fire (after rain).

It is advised not to rush into clearing this country as it is not all suitable for development. Methods of clearing depend on the type of forest.

Lancewood/bendee

About 5% of the Comet area is lancewood/bendee (Table 1). Development of this land gives varying results due to seasonal factors, and is generally not recommended.

This country grows a good stand of buffel, but it is not as palatable as on other land-types. Legumes such as Wynn cassia and seca stylo are also recommended. The hard edge of this country does not grow much except legumes.

The country is good for young cattle, breeding and some fattening in developed parts. It is frost free and preferred winter grazing.

Fire is recommended in development of this land-type, but if excessive heat is generated it sterilises the soil. It is difficult to get a cool fire.

Lancewood/bendee can be cleared successfully but regrowth is definitely a problem. Regrowth is seasonal and it can vary from thick bendee to thick understorey.

Lancewood should be untouched. Clearing it is unsuccessful, but it is useful as a source of timber (rails).

Cattle management

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

Breeding objectives

Steers are bred for specific Japanese markets. Early maturity of steers is the main breeding objective with a view to turning them off at over 320 kg dressed weight at 2½ years old ('Jap ox') (Table 3). What does not go to the Japanese market goes to America or Korea.

Breeds

Cross-bred cattle received an unanimous vote. Brahmans are the dominant breed, due to their heat and tick resistance. A British breed base and approximately half Brahman was agreed on (Table 3). A European breed cross acquires early maturity for turn-off at 2½ year old.

A higher Brahman content is preferred by some in poorer country (for example forest). No more than half Brahman is preferred for use in feedlots.

Bulls

Bulls are culled at an average age of 6 years old because they become too difficult to handle after that (Table 3).

Temperament was considered when buying bulls. Look at him in the yard, check out seller's reputation for quality of bulls and then look at his progeny. Conformation is also considered when buying bulls, followed by making sure they are local acclimatised cattle. Fertility is usually visually determined by the scrotal circumference.

If performance records are available, by all means use them, but this was a secondary consideration.

Cows

Cows are culled after 10 years, only about 5-10% make it that far and they are exceptional cows (Table 3).

Pregnancy diagnosis is important. Participants recommended that if a cow is not pregnant she is culled. Although a second chance for first calf heifers can be considered.

Mating systems

Seasonal controlled mating was recommended (Table 3). Bulls are put in around November and taken out in May seasonal conditions permitting. This gives more control over calving time, provides easier management and is very useful if the calves require feeding. Six months in, 6 months out was practiced by most, but aim for a shorter mating season.

One opinion expressed was to take the bulls out at the end of March so that no calves are born after Christmas. A fat cow is better than a late calf.

Bulls are first mated at 2-3 years old. Heifers are usually mated at 2 years old, but an opinion was expressed to join 25% of the top (heaviest) heifers as yearlings. Joining percentages ranged from 3-5% depending on the breed, paddock size, number of waters and the age of the bulls. It was agreed that 4% was a good average.

Reproduction rates

Pregnancy test around July/August. Conception rates range from about 50% in artificially inseminated heifers to about 85% in naturally mated cows (Table 3). Conception rate in first calf breeders is low, anything around 60%.

Calving rates are usually about 2% less than conception rates and numbers drop another couple of percent at branding/ weaning. Losses after calving are usually due to condition of feed (seasonal conditions), bad mothers and dingoes.

Weaning

Weaning occurs around May/June when weaners are 6-8 months old. In a poor season though weaning can occur as early as 3 months old (2 weeks old in one extreme case) (Table 3).

It is essential that weaners are kept in yards for about 2 weeks. The first week is spent working weaners through the yards and 'tailing-out' every day for 7-10 days after that. The more time spent working with weaners the better.

Weaners should go on to a good, clean, fresh paddock if possible (for example, sorghum stubble) because it is the worst time of year. While in the yard good quality hay (grassy lucerne) should be fed to weaners. Molasses was also suggested.

Mustering

Mustering times and numbers and even reasons for mustering are variable.

Commercial herds are mustered about 3 times a year, and breeders are brought in 4 times a year.

Females are mustered in August for pregnancy diagnosis. Branding occurs in December and February, and weaning in May. A viewpoint was to muster once just to check numbers in case of duffing.

Overall, mustering ranges from 2 to 4 times a year. Labour requirements depend on the size of the mob. Some examples are:

- 2-3 musterers - 180 head
- 3 musterers - 180 head (forest country)

Musterers are usually brought on to the property to muster. Most participants used horses, only one used dogs as well. Some trapping of cattle is carried out.

Herd health

It is essential to have tick and fly control, whether it be dip or pour on, but it is not necessary to control ticks all the time. Back-rubbers are effective for fly control.

Use a '5 in 1' vaccine at branding and another dose at weaning, also a 2-germ-blood at weaning.

Leptospirosis injections were recommended, although not currently practiced by all graziers.

Bulls should receive a three day sickness injection program. This was considered important, as three day can make bulls sterile and bulls are expensive to lose.

Growth promotants were discussed, and it was decided they should be considered but are a personal preference.

Everyone injected cattle for worms but only one had a regular program.

A vibriosis injection is given to bulls once a year.

Herd health procedures are summarised in Table 4.

Marketing

The 'Jap ox' market is popular, taking beasts from 300-320 kg (Table 3). They will accept them up to 400 kg depending on age.

Options of selling are wide. CALM is not so widely used but it sets the best benchmark. Over-the-hook (meatworks) seems to be the most popular method as it is cheap and feed-back is better than the other methods.

Auctions are necessary as they also set a good price benchmark. Another option is live weight selling. Agents can be involved in any of these processes. Participants all advocated the use of the auction system.

A beast is sold ideally at the correct weight at 2½ years old. If season turns bad and beasts are not up to weight you can agist, feedlot, sell as store or keep for another year. Weight can be determined by scales but mainly visual appraisal is used. Owning a set of scales enables the marketing options of buying and selling liveweight and checking weight gain of own stock.

Cattle deaths

This can be a seasonal thing due to weeds and diseases. An overall average loss/year in the herd is about 1% (Table 3).

Two year old heifers in first calf should be watched closely as up to 2% can be lost. Fat cattle are more susceptible to three day sickness.

Supplementary feeding

A number of choices are available. Phosphate blocks are effective in sandy country. Home made blocks are an alternative. Some forms of supplements are molasses, urea (has a toxicity factor) M8U, meatmeal and cotton seed. A bulk tank and mixer is needed.

It was recommended that supplementary feeding of weaners be carried out every dry season in June/July, as a training exercise until it rains (Table 3).

Breeders should be supplemented in a dry spring to keep them in condition for early cycling soon after calving (Table 3). If you have to supplement breeders every season you have too many.

Grazing-land management

This section describes management to sustain the natural resources for long term beef production.

Stocking rates

Continuous grazing is practiced.

The only time grass is spelled is when the cattle are on forage.

Paddock deterioration is determined by eye-balling the stock not the paddock (within reason). Also check manure, the softer it is the better.

It was decided that an overall rate for developed country was 1 beast/10 acres. In undeveloped country it ranged from 1/30 acres to 1/100 acres, but 1/30 acres was agreed on across the board.

On forage 1 beast/2 acres is possible for 12 weeks or 2 beasts/1 acre for 10 weeks on 'jumbo' types with 'sugar drip' giving longer grazing at 1 beast/2 acres. Grazing sweet sorghum or dolichos could stand 1 beast/2 acres for 6 months.

Stocking rates are summarised in Table 1.

Fire

Fire is an important management tool when used correctly whether it be for controlling regrowth or encouraging new pasture growth. The heat of the fire depends on its objective. A 'wet' cool fire is used for pasture growth, particularly if seca is present, usually around November after rain. The paddock has to be lightly stocked to enable sufficient fuel for the fire to establish. When controlling regrowth a 'hot' fire is needed, the paddock should therefore be destocked for about 9 months (Table 2).

A fire is recommended every 3-4 years in brigalow where possible, and every 2-3 years in forest country to promote grass growth and to control woody weeds. This is all season dependent.

Biloela buffel grass is recommended where fire is required.

Paddock spelling

It is not economical and often impossible to have a paddock locked-up at any one time. Putting cattle onto forage gives the pasture a break. Spelling for any period of time is not considered part of routine management but irregular short spells do occur.

Legumes

Legumes need to be put into 'run-down' pastures and running an offset through it also livens it up. This is because pastures are not always 'run-down' because of nutrient deficiencies but also because of soil compaction. There are believed to be more legumes available for forest country than brigalow (Table 2).

Drought management

Droughts are obviously quite unpredictable therefore deciding to start dropping stock numbers and preparing for the dry usually comes from a 'gut feeling'.

The routine usually starts with early weaning. Then the dry cattle are sold off followed by the fat cattle. Agistment is also an option. Breeders are always the last to go. Keep destocking until it rains.

It is important to reduce the susceptibility to drought. Pre-planning involves the construction of some big deep dams instead of all shallow ones. Try for bores, although they are not always successful in this area.

During drought keep supplements close to water points. Early supplementary feeding works if you do not let cattle become too 'run-down'. Cotton seed is excellent. In the 1969 drought use of bauhinia and bottle trees for fodder was successful. Silage and the like are too expensive for the return on them.

Pests

The major pests in this area are:

- grasshoppers (periodically)
- kangaroos
- fires
- parthenium
- rubber vine
- parkinsonia
- dingoes
- cockatoos and parrots
- pigs

These pests and control options are listed in Table 5.

Fences and water

Fences

Paddock sizes range from 120-1214 ha. A paddock should be capable of stocking 100-150 head with one watering point in the middle, or 2 watering points, that is, in the corners.

There is a mixture of fence types on properties in the area and on individual properties. Fencing to land-types is ideal but not always practical.

Flooded country needs to have high ground in the same paddock. Clay paddocks need some hard or duplex soils for stock in wet weather.

Water

Dams are the main source of water, as bores are very scarce. Bores that do exist can be salty.

It was recommended to fence out and reticulate dams. A minority viewpoint was that if no problem was encountered with the dam - no fence was needed.

Watering points per paddock were commonly 2-3 and sometimes one.

It is recommended that a lot of good dam sites are essential. Bores should be attempted, preferably in the river flats country.

Fencing should be arranged after deciding on watering points.

Road sites need to be thought about for erosion control and fences should be constructed on the contour where possible.

Fauna and flora conservation

Shade and shelter strips and fire breaks are important. A recommendation is to leave trees along water courses for ease of mustering. Kangaroos should be culled professionally, not completely wiped out, as it is believed that if there were no kangaroos there would be an even greater dingo and wild dog problem.

Property sizes

Properties in this area ranged from 3000-26 000 ha with an average property size of 8000 ha (Table 3).

A living area has around 2000 head on developed country with a 20% debt (Table 3). The family would probably exist, but their living standard would not be very high.

Acknowledgments

The process of documenting this information was facilitated by George Bourne (DPI) and recorded by Darren Mietzel (DPI) and Neville Kajewski (DPI).

Table 1. Land-types and their management in the Comet area.

Land-type % of area	Enterprises	Recommended stocking rate	Improvements	Constraints
River flats 5%	Farming, Fattening		Farmed, cash cropping,forage crops	Parthenium
Brigalow - melonhole 17%	Breeding, Fattening	1 AE/9-10 acres (3.6-4 ha)	Improved pasture	
Brigalow - blackbutt 10%	Breeding, Fattening	1 AE/9 acres (3.6 ha)	Improved pasture	
Sandy brigalow/box 10%	Fattening	1 AE/10 acres (4 ha)	Improved pasture	
Brigalow/softwood 8%	Farming, Fattening	1 AE/7-8 acres (2.8-3.2 ha)	Improved pasture	Some regrowth
Downs 2%	Farming, Fattening	1 AE/12 acres (4.9 ha)	-	
Box flats 5%	Breeding, Farming in Winter	1 AE/10 acres (4 ha) 1 AE/20-25 acres (8-10 ha)	Improved pasture, Undeveloped	Parthenium
Forest 38%	Breeding	1 AE/10-12 acres (4-4.8 ha) 1 AE/25-30 acres (10-12 ha)	Improved pasture, Undeveloped	
Lancewood/bendee 5%	Breeding, Some Fattening	1 AE/10-12 acres (4-4.8 ha)	Improved pasture	

AE = Adult Equivalent (2 year old steer)

Table 2. Land-types, their state of development and condition in the Comet area.

Land-type	Percent developed	Condition and/or productivity rank*	Reason	Trends in production	Causes	Solutions
River flats	90-95	1	Fertile friable soil	↑	Cultivation	
Brigalow - melonhole	99	4	Expensive to control regrowth	↑		Blade plough controls regrowth
Brigalow blackbutt	95	6	Sets hard, compaction	↑		Blade - plough controls regrowth
Sandy brigalow/box	90-95	4	Quick response, lower fertility	S		Blade plough controls regrowth
Brigalow/ softwood	99	1	Fertile friable soil	S		Blade plough controls regrowth
Downs	30% farmed	3	steep, rocky, shallow	Cult ↓ Grass S	Dropping fertility	Add legumes
Box flats	80	7	Low water penetration	↓	Box seedlings	Burn when seedlings below grass height. Blade-plough
Forest	40	8	Low fertility, regrowth	↑	Buffel and legumes	
Lancewood/ bendee	40-45	9	Very low fertility, regrowth	S		

S = Stable

↑ = Improving

↓ = Decreasing

* 1 = Best

Table 3. Property and cattle management data for the Comet area.

Category	Data
Breeds	British breed base and ½ brahman
Bull %	4%
Cull-bull age	6 years
Cull-cow age	10 years
Mating system	Controlled
Reproduction rates	85% cows 60% 1st calf breeders
Weaning age	Normal 6-8 months Early 3 months
Turn-off weight/age	300-320 kg dressed at 2½ years
Health procedures	See Table 4
Death rate	1%
Supplement Weaners Breeders	 Every dry season until it rains In dry spring
Actual property sizes Range Average	 3000 - 26 000 ha 8000 ha
Recommended living area Area Animals	 8000 ha 2000 head
Pests	See Table 5

Table 4. Herd health

Problem	Cattle classes	How	When
Ticks	All	Dip Pour-on	2-4 times when cattle are in the yards. Nov-Dec period can be the worst.
'Fly'	All	Spray/rubbers	When in the yards.
'5 in 1'	Calves and weaners	Injection	Branding and weaning.
'Lepto'	Young heifers	Injection	Twice in first year and then yearly.
3 Day	Bulls	Injection	First injection followed by another 6 weeks later. Yearly booster.
'Vibrio'	Bulls	Injection	Yearly.
Tick fever	Weaners	'2 germ' injection	At weaning.
Worms	Weaners	Injection	Yearly.
Lice	All breeders	Spray/dip	Dry August, Spring.

Table 5. Pests and their control.

Type	Solution
Grasshoppers	Spray hopper bands
Kangaroos	Professional culling
Fires	Construct fire breaks annually
Parthenium	Cultivate and crop if possible Spray isolated patches - Brushoff, Ally, Atrazine/2,4-D
Rubber vine	Spray
Parkinsonia	Spray
Dingoes	Trappers, poison (1080)
Cockatoo/parrots (cultivation only)	-
Pigs	Professional shooting, sometimes from helicopters

Addendum 1. Plant names.

Common names	Botanical names
Trees and shrubs	
Bauhinia	*Lysiphyllum* spp.
Belah	*Casuarina cristata*
Bendee	*Acacia catenulata*
Blackbutt/Dawson gum	*Eucalyptus cambageana*
Bloodwood	*Eucalyptus erythrophloia*
Bonewood	*Macropteranthes leichhardtii*
Bottle tree	*Brachychiton* spp.
Box	*Eucalyptus populnea*
Brigalow	*Acacia harpophylla*
Cabbage gum (Ghost gum)	*Eucalyptus papuana*
Coolibah	*Eucalyptus coolabah*
Currant bush	*Carissa ovata*
Ellangowan	*Myoporum deserti*
False sandalwood	*Eremophila mitchellii*
Ironbark (narrow-leaved)	*Eucalyptus crebra*
Ironbark (silver-leaved, broad-leaved)	*Eucalyptus melanophloia*
Kurrajong	*Brachychiton populneus*
Lancewood	*Acacia shirleyi*
Teatree	*Melaleuca bracteata*
Wattle	*Acacia* spp.
Wilga	*Geijera parviflora*
Yellowwood	*Terminalia oblongata*
Grasses	
Buffel grass	*Cenchrus ciliaris*
Creeping blue grass	*Bothriochloa insculpta*
Green panic	*Panicum maximum* var. *trichoglume*
Katambora Rhodes grass	*Chloris gayana* cv. Katambora
Purple pigeon grass	*Setaria incrassata*
Sweet sorghum	*Sorghum* spp.
Wheat	*Triticum vulgare*
Legumes	
Dolichos	*Lablab purereus*
Lucerne	*Medicargo sativa*
Seca stylo	*Stylosanthes scabra* cv. Seca
Wynn cassia	*Cassia rotundifolia*
Weeds	
Parkinsonia	*Parkinsonia aculeata*
Parthenium	*Parthenium hysterophorus*
Rubber vine	*Cryptostegia grandiflora*
Saltbush	*Enchylaena tormentosa*

Addendum 2. Native Pasture and Communities Map.