Pastoral Industry Survey 2004

Tennant Creek

Northern Territory Government

To whom it may concern,

As chairman of the Barkly Research Advisory Committee (BRAC) on behalf of all our members we fully endorse this survey on our industry. The survey will provide the benchmarking from which we can progress and identify the areas we need to focus on for future research.

The survey will also enable us to evaluate the research that has been carried out by DPIFM and the effectiveness of this research to the industry. Through committee's such as BRAC it will help us to meet the needs of the industry.

One of the main outcomes of this survey will be the effectiveness of which past research projects and the relevant information has reached the industry and to what use it has been.

We thank you for your effort and contribution to this survey,

Geoff Murrell

Chairman

Barkly Research Advisory Committee

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Researched and written by Andrew Bubb

Acknowledgements

The author wishes to thank the pastoralists who willingly gave time, information and hospitality to answer the many questions involved in completing the survey. Thanks also go to members of the Barkly Research Advisory Committee (BRAC) for endorsing and supporting this project.

Thanks also go to present and former colleagues Kerryl O'Rourke, Ruth Allan, Jenny Purdie, Melanie Usher, Phil Hausler, Sally Leigo, Trudi Oxley and Neil MacDonald for their efforts in assisting with the completion of this project. Many thanks to the Marketing and Communications team.

Executive Summary

The pastoral industry survey of 2004 was conducted to capture a snapshot of the beef production systems operating in the Barkly Region. Twenty-four stations in the region were surveyed in face-to-face interviews conducted by officers of the Department of Primary Industry, Fisheries and Mines (DPIFM). The survey gathered information on current practices relating to animal and land management, financial and staff management issues. A similar survey was conducted in 1980 by officers of the Northern Territory Department of Primary Production and published as *The Barkly Tableland Beef Industry 1980* by R.M. Holt and J.D. Bertram.

Stations in the Barkly Region represent some of the largest cattle stations by area and number of head in the world. The region can be geographically categorised by three distinct districts - the Gulf, Barkly and Tennant Creek. The average size of a station in the region is 6,745km^2, ranging from 2,241 km^2 to 16,116 km^2.

Fifty per cent of stations in the region have a company/manager ownership structure with the majority of these located within the Barkly District. Enterprises where the owner is also the manager represent 29 per cent of stations, while 17 per cent are privately owned, employing a manager. Only one private lessee station exists in the region. The average length of ownership of a station in the region is 22 years with a range extending from three months to 126 years.

The cattle in the region are tropically adapted breeds, notably Brahman, Santa Gertrudis and composite cattle. One-third of stations surveyed indicated that their breeding goals are to cross breed to suit the market. Breeding is the main type of enterprise with 42 per cent of stations in the region having more than 20,000 head of cattle. Thirty-eight per cent of stations are run individually with the remaining 62 per cent run as integrated production systems with other stations in the Northern Territory, Queensland or Western Australia.

The average bull percentage run in the region is 3.8 per cent with the minimum at 3 per cent and the maximum at 7 per cent. Seventy-nine per cent of stations indicated that they source some or all of their bulls from Queensland stud or commercial bull breeders. Estimated breeding values are used by

more than 60 per cent of stations with fertility being the most desired trait. Growth rate and birth weight were also reported as important traits when selecting bulls.

The average weaning percentage in the Barkly Region is estimated at 70 per cent with the regional range being estimated at 35-86 per cent. The major turn-off period is in June with the main types of stock turned off being feeder and weaner steers destined for fattening in feedlots or on other stations. Queensland represents a major market location for Barkly Region cattle with 29 per cent of stations sending 90-100 per cent of their turn-off there. South East Asia and the company supply chain were also identified as significant markets for Barkly Region cattle.

Ninety-two per cent of stations surveyed feed their cattle a mineral supplement during the dry season with 50 per cent supplementing through the wet season. Fifty-eight per cent of stations supplementing during the dry season feed all stock, predominantly with urea-based supplements.

There are large variations in the number of staff employed on stations in the region. The size of the production system has the greatest influence on staffing levels with ownership structure also having some bearing. The average number of seasonal staff employed on a station is 11 (range 1-36) and the average permanent staff employed is also 11 (range 1-58). Approximately 30 per cent of respondents indicated that operations on the station were limited by staff availability/turnover. There was no significant difference in this response between different ownership structures or districts.

The major land management issues for stations in the region are exotic weeds and wild fire. Patch grazing and native shrub/tree build-up are also recognised as having an impact on station operations. In the Gulf District an average of 54 per cent of individual stations were affected by wildfire in 2004. The Barkly District had an average of 25 per cent of stations being affected by wildfire with 11 per cent of individual stations being affected in the Tennant Creek District. Intentional fire on individual stations averaged 16 per cent, 6 per cent and 14 per cent for the Gulf, Barkly and Tennant Creek districts respectively.

The impact of weeds and pest animals on stations was recorded through the survey with managers classifying their level of impact as nil, low, medium or high. Mimosa Bush *(Acacia farnesiana)* and Parkinsonia *(Parkinsonia aculeata)* were classified by respondents as having the greatest impact on their station with Rubberbush *(Caltropis procera)* and Noogoora Burr *(Xanthium occidentale)* also mentioned. Stations in the region spent an average of $19,400 on weed control during the survey period. Sixty-two per cent of stations invested in the control of Parkinsonia while 41 per cent invested in the control of Rubber Bush.

Ninety-six per cent of stations reported wild dogs as having some level of impact on their production. Kangaroos and wallabies are recognised by 86 per cent of stations as having some level of impact. Wild dogs are the most widely controlled pest in the region with 88 per cent of stations conducting some control measures. The average cost of pest animal control in the region on individual stations was $3,100.

The average number of man-made watering points on a station in the region is 55 with the Barkly District having the highest average for an individual station. The Gulf District has the lowest average number of man-made waters with 27, reflecting the high number of natural waters in the form of rivers and waterholes. In direct contrast to the Gulf disrict the average number of natural waters on stations in the Barkly and Tennant Creek districts is one and three respectively.

Continuous grazing is the most commonly used strategy in the Barkly region. Seventy-five per cent of stations surveyed use continuous grazing exclusively or in combination with other grazing strategies. Rotational grazing such as the spelling of pasture is also widely used. Stations in the Barkly Region currently have an average carrying capacity of 24,000 head. With intended developments, managers estimate this will increase by 15 per cent by 2009 and 25 per cent by 2014.

Staffing issues were identified by pastoralists as the biggest in running their operation. Sixty-two per cent of stations identified recruitment, lack of skills of recruits or retention as a major hurdle. Climatic variation, increasing costs of production and main road access were also identified as hurdles.

The uptake of the National Livestock Identification Scheme (NLIS) at the time of the survey was relatively low with only 21 per cent of pastoralists indicating they were using Radio Frequency Identification Devices (RFID's). However, 71 per cent of stations indicated they intended to use RFID's as a management tool in the future.

Increases in cattle numbers have occurred in the period between surveys. In 1980, 68 per cent of stations had more than 10,000 head and 36 per cent had more than 20,000 head. In 2004, 71 per cent of stations in the Barkly Region had more than 10,000 head and 42 per cent had more than 20,000 head.

Comparisons between 1980 and today indicate significant changes have occurred in the pastoral industry . The estimated weaning percentage in 1980 was 44 per cent compared with the regional average of 70 per cent estimated in 2004. Forty-two per cent of the stations in the Barkly Region have in excess of 20,000 head compared with 36 per cent in 1980.

Methodology

The Barkly Pastoral Industry Survey was conducted through face-to-face interviews with 24 producers in the region. Interviews were carried out on station by DPIFM staff and ranged in duration from 45 minutes to five hours.

Throughout this report there are results which add up to more than 100 per cent. This occurs in questions where respondents have answered a question with multiple variables. For example, mustering respondents may have chosen horse, helicopter, motorbike, or any combination of these.

FIGURE 1 - MAP OF THE NT SHOWING THE GULF, BARKLY AND TENNANT CREEK DISTRICTS

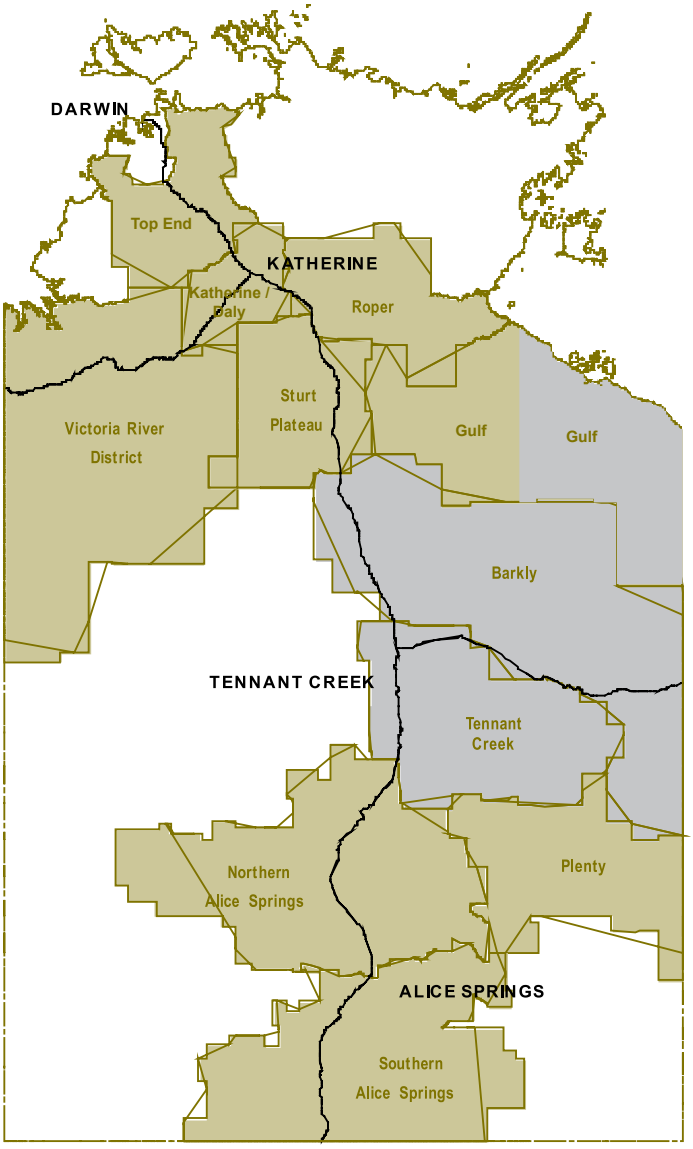
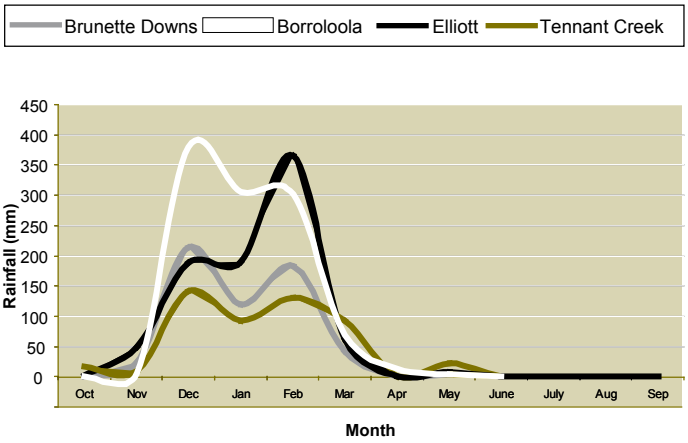


FIGURE 2 - RAINFALL IN THE BARKLY REGION OCTOBER 2003 TO SEPTEMBER 2004



Introduction

The expansive Barkly Region covers an area of more than 240,000 km^2 with beef production and mining being the major industries. Figure 1 outlines the region with a line from Barrow Creek north to Dunmarra as its western boundary. The eastern boundary is the Northern Territory/Queensland border from Lake Nash station north to the Gulf of Carpentaria.

The Barkly Region geographically can be divided into three distinct districts - the Gulf District in the north, the Tennant Creek District in the south and the Barkly District in between. These three districts have distinctive land-type characteristics.

The Gulf District receives the highest rainfall in the Barkly Region. It is characterised by *Eucalyptus* spp., *Corymbia* spp. and *Acacia* spp. woodlands and shrublands with grass understoreys. The perennial grass species common to this area are *Triodia*, *Eulalia* and *Dicanthium* in addition to annual grasses and forbs. The land surface of the district is relatively unstable. Coastal and floodplain alluvia and dissected erosional complexes are the significant soil types, being associated with the local coastal river systems. The district covers approximately 92,546 km^2. Six stations were surveyed in the Gulf District.

The Barkly District is typified by treeless, slightly undulating, black cracking clay plains dominated by perennial Mitchell grass (*Astrebla* spp.) and the annual Flinders grass (*Iseilema* spp.). This is the most common land type of the Barkly Region covering an area of approximately 13,5513km^2. Thirteen stations were surveyed in the Barkly District.

The Tennant Creek District covers approximately 69230 km^2. It receives lower rainfall and is generally less productive than the other districts. Vegetation is variable over the light textured soils and is dominated by Eucalyptus and Acacia species. The understoreys of these woodlands and shrublands are populated by spinifex (*Triodia spp.*) and perennial wiregrass (*Aristida spp.*) as well as annual grasses and forbs. Five stations were surveyed in the Tennant Creek District.

Rainfall during the 12 months to September 2004 was below average across the region, producing below average growth (Figure 2).

World oil prices increased by 22 per cent between September 2003 and September 2004 to an average of US$36.05 a barrel. This caused increases in beef production costs due to the high reliance of stations on diesel fuel for power generation, transport and the pumping of water.

Throughout the survey, stations in the Barkly Region were classified by geographical location, management/ ownership structure and number of cattle on the station. This report presents the results of the survey and captures the state of the pastoral industry in the region.

Picture of the Barkly Pastoral Industry 2004

Size

Station Size

The average station size in the region is 6,745 km^2. The variation in size by district is high with the largest stations being in the Barkly District where they average 8,186 km^2. Stations in the Gulf and Tennant Creek districts have similar average sizes of 4,940 km^2 and 5,166 km^2 respectively.

Company/manager stations have an average size of 9,035 km^2 while private/lessee stations have an average size of 2,241 km^2. Owner/manager stations and those that are privately owned and employ a manager have average sizes of 4,989 km^2 and 4,073 km^2 respectively.

Number of Paddocks and their Size

The average station within the region has 30 paddocks with an average size of approximately 300 km^2. The paddock size for individual stations ranges from 50 km^2 up to 1,214 km^2. Table 2 displays the wide variation of paddock size in relation to the number of paddocks.

Seventy-one per cent of respondents indicated that between 75 per cent and 100 per cent of their station is fenced or effectively enclosed. The Barkly District represents the highest level of enclosure with 84 per cent of respondents indicating 75-100 per cent of their station is effectively enclosed. The Tennant Creek District has 60 per cent of properties with 75-100 per cent enclosed and the Gulf District has 50 per cent of stations effectively enclosed to a level of 75 per cent or higher.

The landscape of the Barkly District is the most likely explanation for its higher percentage of fencing. Relatively flat, treeless plains - compared with the heavily wooded, undulating rocky outcrops of the Gulf District - makes fencing easier and cheaper.

Station Improvements

Pastoralists were asked “What infrastructure developments are planned on your station in the next 12 months?” Watering point development was identified as the highest priority for on station improvements in the region by more than 60 per cent of pastoralists surveyed. Paddock subdivision was the

TABLE 1 - AVERAGE STATION SIZE AND THE ESTIMATED AREA POTENTIALLY GRAZED

DISTRICT	GULF	BARKLY	TENNANT CREEK	REGION
Average station size (km^2)	4940	8186	5166	6745
Average per cent potentially grazed	84%	83%	78%	83%

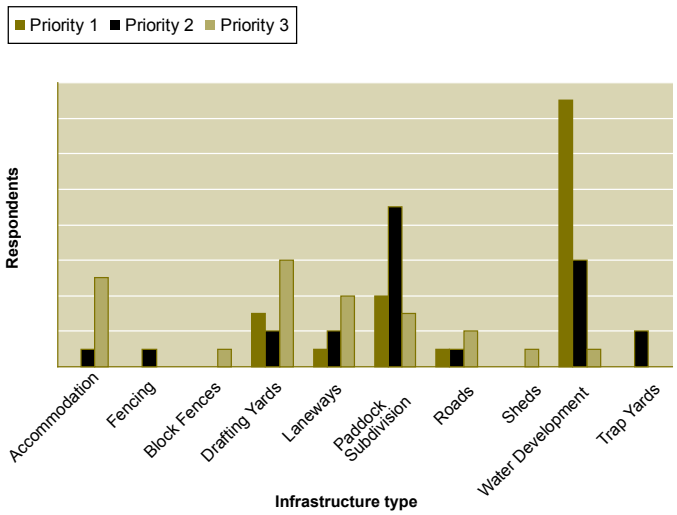
TABLE 2 - AVERAGE NUMBER OF PADDOCKS AND THEIR SIZE

DISTRICT	AVERAGE NUMBER OF PADDOCKS	AVERAGE SIZE OF PADDOCKS KM^2
Gulf	18	148
Barkly	24	364
Tennant Creek	12	325

TABLE 3 - AVERAGE PERCENTAGE OF LAND BOUNDARY FENCED OR EFFECTIVELY ENCLOSED

DISTRICT	AVERAGE PER CENT BOUNDARY FENCED OR ENCLOSED
Gulf	67
Barkly	90
Tennant Creek	72

FIGURE 3 - INFRASTRUCTURE PRIORITIES FOR 2005



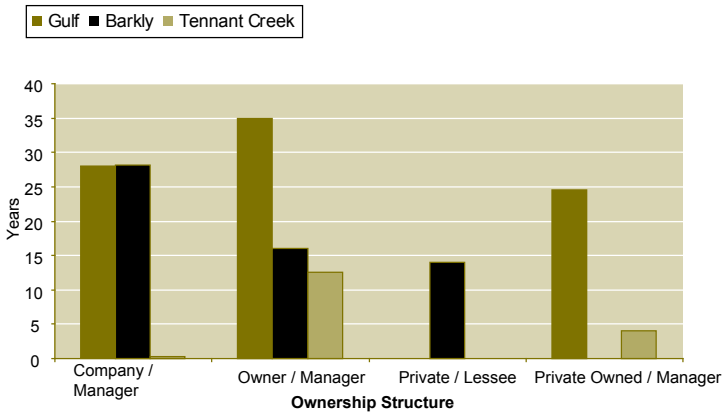
second highest priority with 38 per cent intending to undertake fencing. Drafting yards development and improvement was the third highest priority.

When asked if any action had been taken to install new labour saving devices, producers gave a wide variety of responses, related to many aspects of station operation. 'New labour saving developments' were loosely defined as recent additions to station plant aimed at improving operational efficiencies. Laneways were identified by 63 per cent of respondents as recent additions to their stations. The modification of yards to improve the flow of cattle and the addition of hydraulic crushes/branding cradles was also mentioned. Forklifts and a crane truck with a bore pulley were also cited.

TABLE 4 - OWNERSHIP STRUCTURE OF STATIONS

	GULF	BARKLY	TENNANT CREEK	REGION
Company/ Manager	4%	42%	4%	50%
Owner/Manager	13%	8%	8%	29%
Private/Lessee	0%	4%	0%	4%
Private owned/ Manager	8%	0%	8%	17%
Total	25%	54%	21%	100%

FIGURE 4 - AVERAGE LENGTH OF STATION OWNERSHIP



Ownership

Management Structure

The ownership/management structure of pastoral enterprises surveyed in the region can be divided into four categories. These are Company/Manager, Owner/ Manager, Private/Lessee and Private owned/Manager.

For this survey company ownership includes publicly listed and privately owned companies with an identified corporate structure.

Sixty-two per cent of stations described their enterprise as an integrated production system with the remaining 38 per cent being run individually. Only one station with a company/manager structure is run individually with the others being run as integrated production systems. Eighty-five per cent of owner/ manager enterprises are managed individually.

Length of Ownership and Management

The average length of ownership of a station in the region is 22 years with a range extending from three months to 126 years. Enterprises with a company/ manager structure have similar lengths of ownership to those with an owner/manager. Privately owned stations that employ a manager have an average length of ownership that is only 56 per cent of those with a company/manager structure. Owner/manager stations have the longest average service of a manager at 12 years with all other management structures having an average service of five to six years.

Staff Employed

The average number of seasonal staff on a station in the region is 11 although there is a large variation in the number of employees between ownership structures. Company/manager stations employ the highest levels of seasonal labour with an average of 12 and a range of 1 to 36. Owner/manager stations have an average of 11 (range 3-20), privately owned stations have a lower average of eight (range 4-15) and private/lessee stations have an average of four seasonal staff.

The numbers of permanent staff figures reflect the seasonal staffing with the Barkly Region average of 11. Company/manager stations average the highest with 18 (range of 3-58). The average number of permanent staff employed on owner/manager stations is five and is less than one-third of company/manager structured stations. It is likely that this difference reflects the involvement of family members in running the station. The range for permanent employees is very narrow for owner/manager (two to seven), private/lessee (one) and private owned (one to six).

The number of permanent staff on stations with herd sizes of 1000-2000 head is very low and is likely to reflect the involvement of the owner/manager of the stations. It is likely that the owner and family members are the only permanently employed staff with seasonal labour brought on to the station as required.

Number of Cattle

Large breeding enterprises are predominant in the Barkly Region. Forty-two per cent of stations reported cattle numbers of more than 20,000 head and 71 per cent of stations indicated that cattle numbers on the station were more than 10,000 head. Of those stations with more than 20,000 head 90 per cent had a company/manager ownership while 10 per cent were owner/manager.

FIGURE 5 - NUMBER OF TOTAL STAFF RELATED TO CATTLE NUMBERS

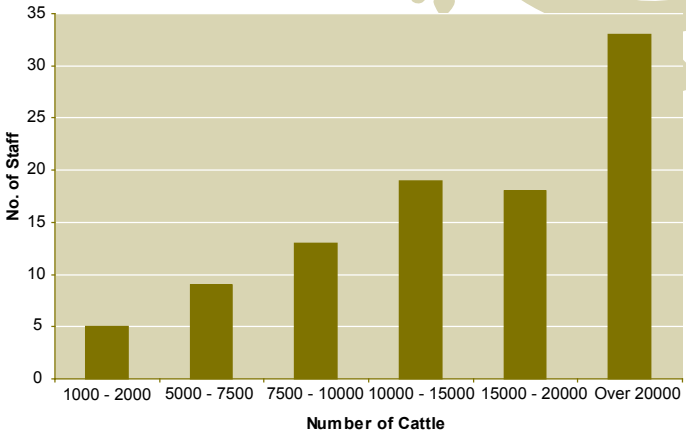


FIGURE 6 - TOTAL HEAD OF CATTLE BY DISTRICT

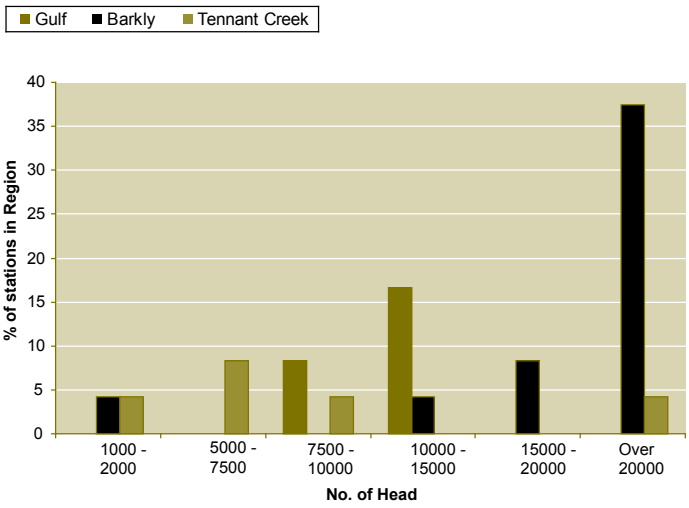


TABLE 5 - MAIN TYPES OF CATTLE ENTERPRISES OPERATED IN THE BARKLY REGION

MAIN CATTLE ENTERPRISE	
Breeding	83%
Breeding and Fattening	13%
Fattening	4%

FIGURE 7 - TOP THREE CLASSES OF CATTLE TURNED OFF

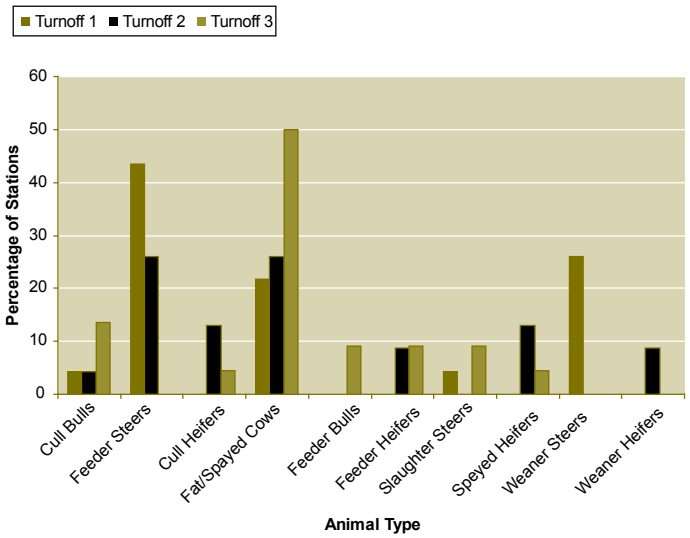


FIGURE 8 - THE MAJOR TURN-OFF PERIODS

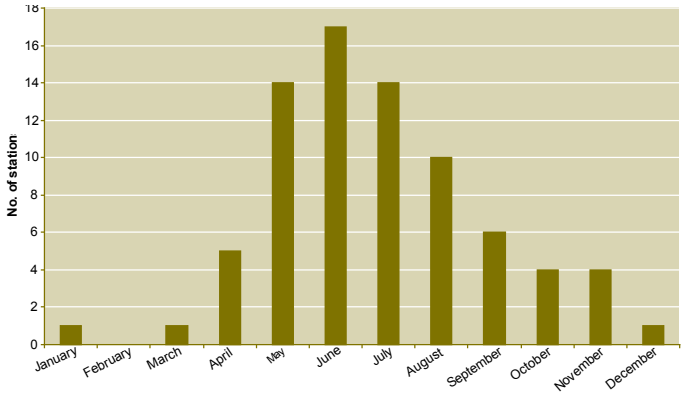
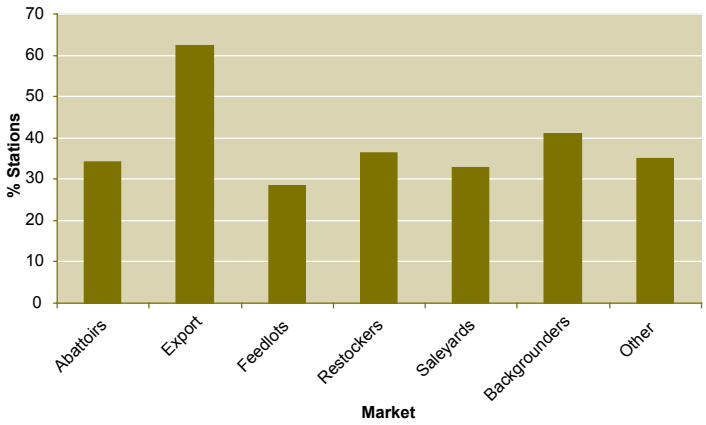


FIGURE 9 - MAIN TYPES OF MARKETS PASTORALISTS SOLD CATTLE TO IN 2004



Chapter 2 - Practices

Turn-off and Markets

Main Types of Cattle Enterprises

The stations in the Barkly Region are predominantly breeding enterprises with only one station being involved exclusively in the fattening of cattle. Thirteen per cent indicated they were involved in breeding and fattening.

Main Types of Animals Turned-off and When

Managers were asked the top three classes of animals they had turned-off over the previous 12 months. Forty-three per cent of stations identified steers destined for feedlots as their main type of animal turned off. Twenty-six per cent identified feeder steers and fat/spayed cows as their second main type of animal turned off. Fifty per cent of stations rated fat/spayed cows as their third main type of animal turned off.

Due to the distinct seasonal variation experienced in the Barkly Region the major turn-off period is the dry season, peaking in June. Only one station identified March as a major turn-off period with steep increases in turn-off over April and May to peak in June. Seventy-one per cent of stations identified June as a major turn-off period. Turn-off reduced gradually from then until February, which no stations identified as a major turn-off period.

Type and Locations of Markets

The main types of markets pastoralists sold their cattle to in 2004 were export, abattoirs, re-stockers and backgrounders. More than 50 per cent of stations in the region sold to the export market in 2004. No stations sold to the European Union or organic markets in 2004.

Twenty-three per cent of stations selling to the export trade as the main market sent 90-100 per cent of their turn-off in 2004. Stations selling to the feedlot market in 2004 sold 30-59 per cent of their turn-off.

Queensland represents a significant market location for Barkly cattle. Twenty-nine per cent of stations send 90-100 per cent of their turn-off to markets located in Queensland. Thirteen per cent of stations send 90-100 per cent of turn-off to South East Asia with a further 13 per cent sending between 60-69 per cent to this market.

TABLE 6 - LOCATIONS OF MARKETS FOR BARKLY REGION CATTLE

MARKET LOCATION	NORTHERN TERRITORY	QUEENSLAND	SOUTH AUSTRALIA	SOUTH EAST ASIA	COMPANY SUPPLY CHAIN	OTHER
% of stations selling to market	21	79	4	42	13	4

Cattle Management

Mustering

Within the Barkly Region, 83 per cent of stations carry out two mustering rounds while 17 per cent carry out one mustering round. Mustering is concentrated in the dry season due to periods of inaccessibility during the wet season. April is the peak mustering period for the first round with September the peak for the second round (Figure 11).

The most commonly used mustering methods in the region involve exclusively, or in combination, helicopters, horses or motorbikes. A common form of mustering involves helicopters mustering the cattle on to a watering point and then a stock camp, using horses and/or motorbikes, moving the cattle to the yards. Trap yards, fixed-wing aircraft and dogs are also used to assist with mustering. Only one station indicated that it uses a bull catcher when mustering.

Predominant Breeds of Cattle

Cattle within the region are predominantly *Bos indicus* or breeds with a significant amount of *Bos indicus* content. *Bos taurus* genetics are utilised in the composite breeds present in the region. The harshness of climate and the presence of cattle ticks (*Boophilus microplus*) in the north of the region contribute to the Brahman being the most common breed.

FIGURE 10 - TIMING OF MUSTERING ROUNDS

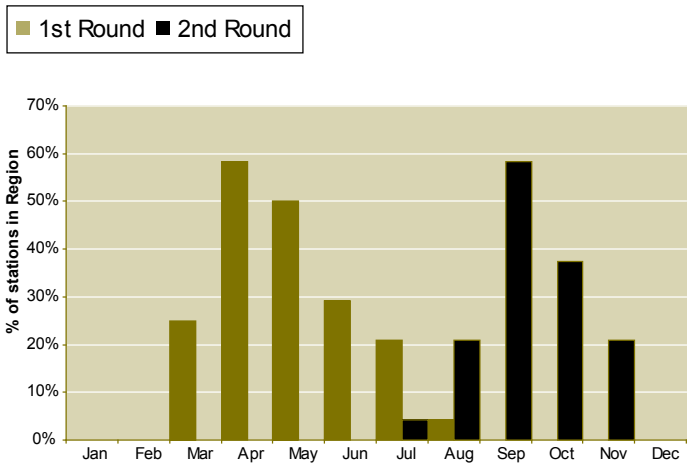


FIGURE 11 - MUSTERING METHODS

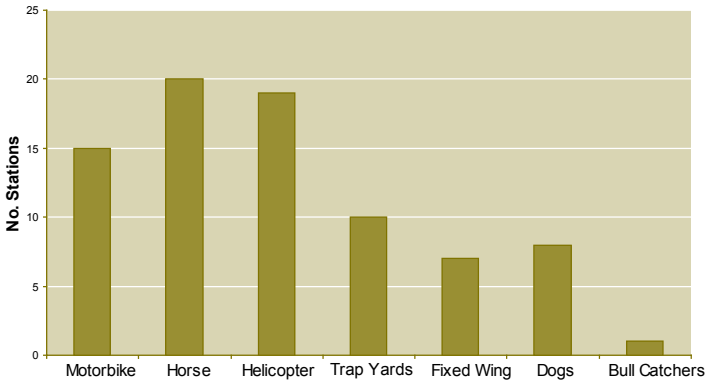


FIGURE 12 - PREDOMINANT BREEDS OF CATTLE

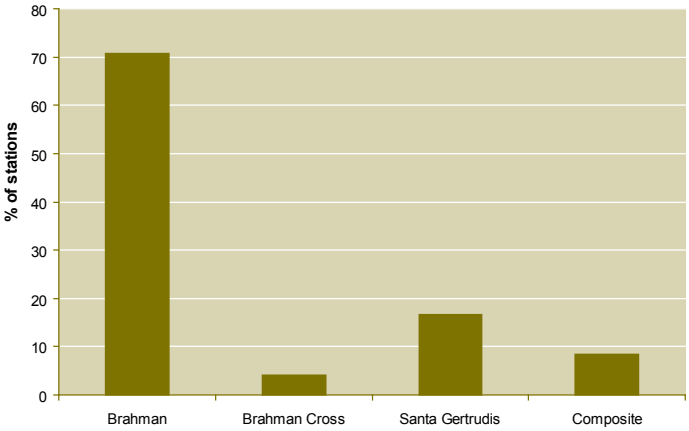


TABLE 7 - MAIN BREEDING GOALS OF STATIONS WITHIN THE BARKLY REGION

Main Breeding Goal	% of Stations
To select traits within breed	29
To cross breed for improved herd performance	21
Concentrating on management, not genetics	4
Breeding for fertility	4
To cross breed to suit market	33
To upgrade to Brahman	4
To make multi-breed	4

FIGURE 13 - BULL PERCENTAGE RUN WITH HERD

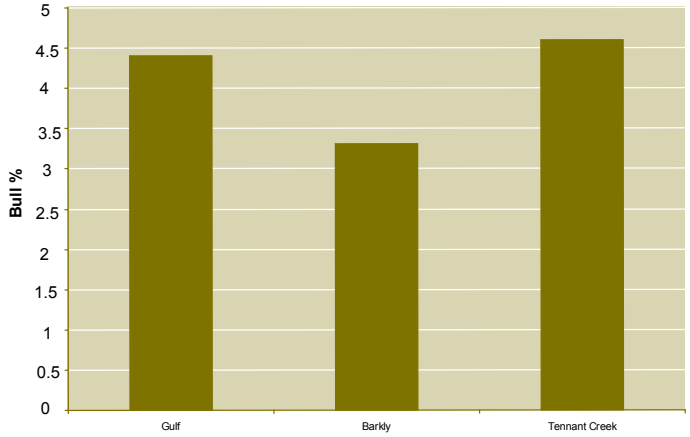


FIGURE 14 - SOURCE OF BULLS

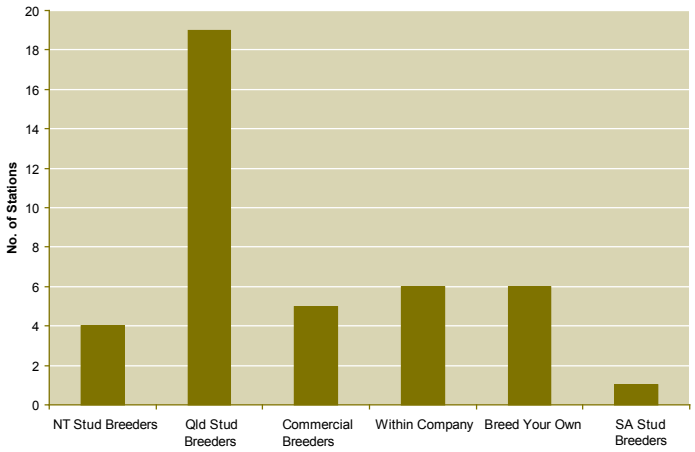
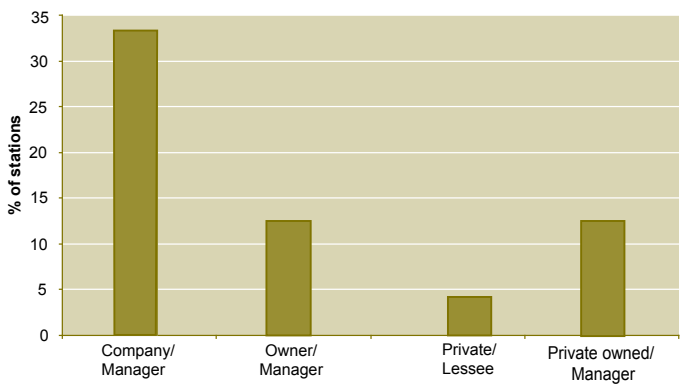


FIGURE 15 - THE MAKE-UP OF THE 63 PERCENT OF PROPERTIES THAT USE EBV'S



Breeding Aims

The main breeding aim (Table 7) identified by 33 per cent of producers in the region is to cross breed to suit markets. Twenty-nine per cent of producers identified their main breeding aim as selecting traits within breed and 21 per cent aim to cross breed for improved herd performance.

Bulls

The average bull percentage that operators aim to run in the region is 3.8 per cent (range 3-7 per cent). When considered by district the Barkly District aim to have a bull percentage of 3.3 per cent in the herd while the Gulf and Tennant Creek districts aim for 4.4 per cent and 4.6 per cent respectively.

Queensland stud breeders are the most common source of bulls for the Barkly Region beef industry. Seventy-nine per cent of the stations source some or all of their bulls from these suppliers. More than half of the stations surveyed use more than one source for their bulls.

Sixty-three per cent of stations in the region use Estimated Breeding Values (EBV's) when selecting their bulls (Figure 15). Company/manager properties represent 33 per cent of pastoralists using EBV's when selecting bulls.

When asked to rank the two most important traits of their breeding program fertility (80 per cent) and growth rate (20 per cent) were ranked first. The second highest ranked traits were fertility (13 per cent), growth rate (74 per cent) and birth weight (13 per cent). Other traits considered when sourcing bulls are temperament and conformation.

Twenty-nine per cent of stations fertility test their bulls or buy them already fertility tested. Seventy-one per cent of stations do not fertility test their bulls.

Weaning Percentage

(Readers should note that weaning percentage in many instances was an estimate by managers and not a figure obtained through an individual ID of cows/ calves).

The weaning percentage estimated by respondents varied substantially between ownership structures and districts with a regional average of 70 per cent (range 35-86 per cent). Company/manager reported an average of 73 per cent, owner/manager an average

of 63 per cent and private owned/manager an average of 76 per cent.

The Barkly District reported the highest weaning percentage, averaging 74 per cent (range of 67-86 per cent), the Gulf District an average of 70 per cent (range of 55-80 per cent) and Tennant Creek District an average of 61 per cent (range 35-85 per cent).

The average minimum weight of mixed sex weaners was 140kg in the first round in 2004 and 111kg in the second round. Pastoralists were also asked to estimate the weaning percentage from four different classes of female. First joined heifers were estimated to have the highest weaning percentage and first calf heifers the lowest. Breeders and old cows were estimated to have a weaning percentage average of 70 per cent and 71 per cent respectively.

Weaner Management

The management of weaner cattle involved feeding in the yards on 88 per cent of stations. Seventy-nine per cent of stations fed hay exclusively or in combination with concentrate feeds. Pastoralists commented that ideally weaners are put on to fresh, spelled paddocks but this was dependent on season.

Percentage of Cull Cows

The percentage of cull cows in 2004 varied greatly. An average of 11 per cent was recorded for the region with a range of 2-30 per cent. The average age of cull cows in the region was 11 years with a range of 9 to 15 years.

Heifer Management

Pastoralists were asked to indicate the importance of six different selection criteria when deciding on replacement cattle for the breeding herd. All criteria were ranked as important to extremely important with the exception of colour.

Weight was considered the most important factor when deciding on when to join heifers. The average weight range of heifers for their first joining for the region was 282-340kg. The minimum joining weight recorded was 250kg with the maximum at 380kg. Twenty-nine per cent of stations indicated they weigh heifers before joining.

Sixty-five per cent of producers join heifers at 24 months old (range 19-30 months).

TABLE 8 - ESTIMATED WEANING PERCENTAGE

	GULF	BARKLY	TENNANT CREEK
Average Weaning %	68	74	61
Minimum Weaning %	55	67	35
Maximum Weaning %	75	86	85

FIGURE 16 - WEANING PERCENTAGE BY FEMALE CLASS

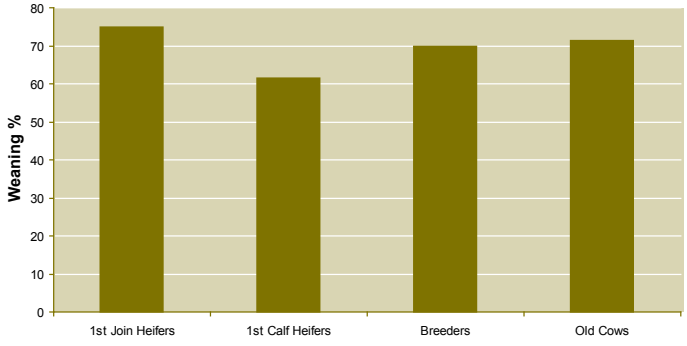


FIGURE 17 - IMPORTANCE OF SELECTION CRITERIA, 1 = NOT IMPORTANT, 5 = EXTREMELY IMPORTANT

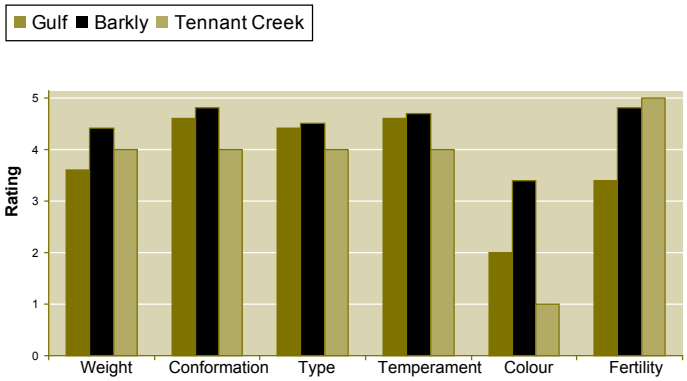


FIGURE 18 - CLASS OF COWS PREGNANCY TESTED

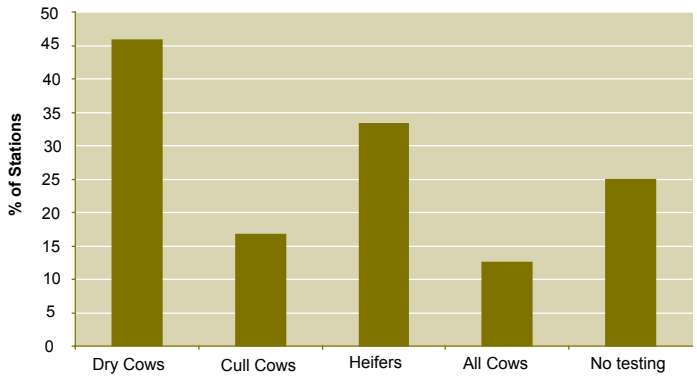
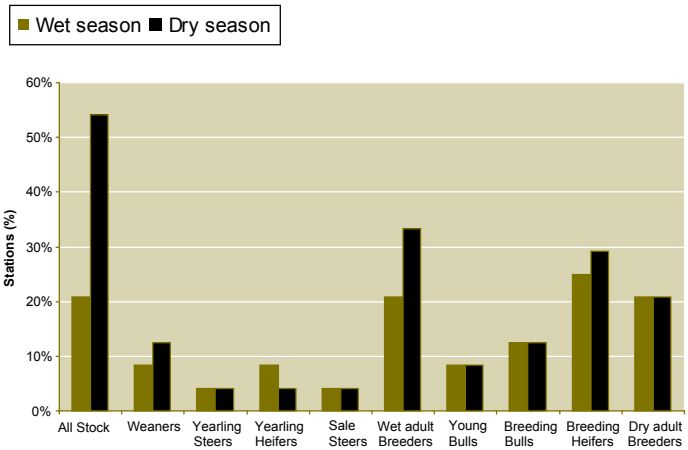


FIGURE 19 - CLASSES OF STOCK SUPPLEMENTED DURING THE WET AND DRY SEASONS



Producers aim to use a bull of a similar age over their heifers with most nominating 24-30 months as optimal.

The separation of heifers from adult breeders occurs on 58 per cent of stations. Approximately half of the stations that separate heifers keep their cattle in a separate age group all of their life. The remaining stations keep their heifers separate from the adult breeders until the birth of their second calf.

Breeder Management

Eighty-seven per cent of respondents indicated that they continuously mate their cattle. Only two stations in the region used artificial insemination on stud cows and no use of embryo transfer was reported.

Dry cows are the most common class of females pregnancy tested in the Barkly Region. Forty-six per cent of stations pregnancy tested their dry cows; with heifers the second most tested class of cattle at 34 per cent (Figure 18). Twenty-five per cent of stations in the region do not pregnancy test any type of cattle.

Segregation of Breeders

Eighty-three per cent of stations segregate their breeders with 67 per cent based on age and the remaining 17 per cent segregating on pregnancy status. Seventeen per cent of stations group breeders by calendar year and, therefore, are never combined with any other breeders on the station. Twenty-one per cent of stations combine their heifers with the main breeding herd before their first or second joining. Of those stations which do not segregate the main reason given was lack of paddocks.

Nutrition Management

Ninety-two per cent of stations fed mineral supplement to their cattle during 2004. The feeding regimes employed on stations varies with the wet and dry seasons. During the dry season 50 per cent of stations fed supplement blocks while 50 per cent fed loose mix. During the wet season, 75 per cent of stations fed block with the remaining 25 per cent feeding loose mix. Fifty-nine per cent of stations supplement all cattle during the dry season with breeding stock being the next highest supplementation class.

Animal Health

Forty-two per cent of stations reported botulism as their most common health problem. Phosphorus deficiency was reported by 17 per cent of stations as a common health problem with three day sickness reported as a health problem on 13 per cent of stations. On average, stations within the Barkly spent $1.65 per breeder on animal health treatments and vaccines (range $0-$6) and are shown in Appendix 3.

All but one station in the region vaccinates for Botulism. Sixty-three per cent of stations used the long-acting vaccine while the remaining 33 per cent used the conventional vaccine. Fify-four per cent of staions in the region vaccinated for vibriosis with all but one carrying out vaccinations every year. Twenty-nine per cent of stations vaccinated only bulls and 25 per cent vaccinated bulls and heifers.

National Livestock Identification System

The uptake of the National Livestock Identification System (NLIS) at the time of the survey was relatively low with only five stations in the region using Radio Frequency Identification Devices (RFID's). Of those five, two tagged all cattle, one tagged cross-bred weaner calves and two tagged their stud cattle. Seventy-one per cent of pastoralists indicated that they intended to use RFID's in the future as a management tool. An update to NLIS policy is included as Appendix 1.

Land Management

Major land management issues identified by pastoralists in the Barkly Region were exotic weeds (59 per cent), wild fire (38 per cent), patch grazing (25 per cent) and native shrub/tree build-up (25 per cent). Managers were also asked if they were involved in any land monitoring programs apart from their legal requirements under the Pastoral Land Act. Thirty-two per cent indicated they were involved in company programs in addition to their legal requirements.

Native Tree and Shrub Build-up

Fifty per cent of pastoralists indicated they had noticed a build-up of native trees and shrubs on their station. One-third had observed the build-up on both black and red soil, one-third had observed the build-up only on black soil and one-third had observed the build-up only on red soil. Seventy-five per cent of managers who had observed the build-up of native trees and shrubs

FIGURE 20 - MOST COMMON ANIMAL HEALTH PROBLEMS

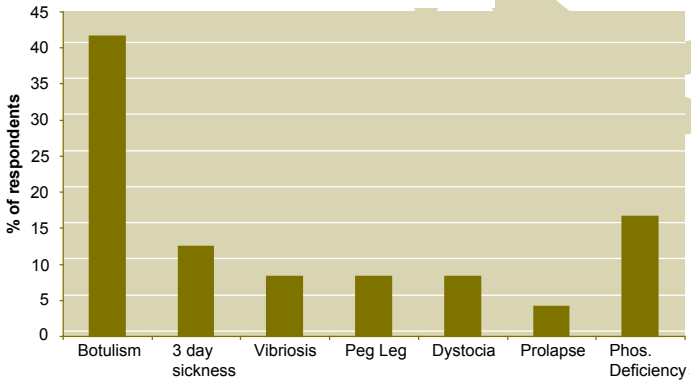


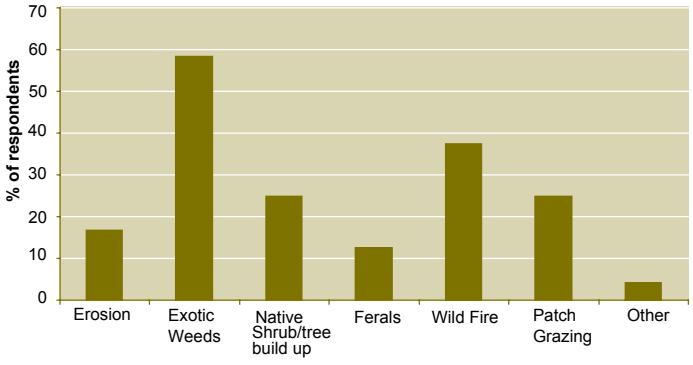
TABLE 9 - DISEASES VACCINATED FOR IN THE BARKLY REGION

DISEASE	PER CENT OF STATIONS WHICH VACCINATE
Botulism	96%
Clostridial Diseases	8%
Vibriosis (Camplyobacteriosis)	42%
Red Water	4%
3 day sickness (Bovine Ephemeral Fever)	8%

TABLE 10 - THE CURRENT USE OF NATIONAL LIVESTOCK IDENTIFICATION SYSTEM WITHIN THE REGION AND DISTRICTS

	GULF %	BARKLY %	TENNANT CREEK %	REGION %
No	25	41	13	79
Yes	0	13	8	21

FIGURE 21 - MAJOR LAND MANAGEMENT ISSUES IDENTIFIED BY PASTORALISTS



considered it to be of major concern, 17 per cent considered it of minor concern and 8 per cent were not concerned by it. Pastoralists were concerned with the effects that native tree and shrub build-up would have on mustering and - to a lesser degree - pasture growth and quality. Forty-six per cent of stations were using controlled burning to reduce the levels of native tree and shrub build-up.

Hay Production and Improved Pasture

Fifty-eight per cent of stations in the Barkly Region were involved in hay production for their own use. 4,768 tonnes was produced during the 2004 season. Hay production was the only fodder conservation recorded in this survey. Across the Barkly Region small areas of improved pasture exist although their age is unknown. Seventeen per cent of stations in the region indicated that they plan to introduce or increase improved pasture.

Grazing Management

Operators were asked, “What area is currently used for grazing?” Across the three districts the average percentage of the station used for grazing is very close, ranging from 78 per cent to 84 per cent. It should be noted that this figure represents the area potentially grazed and it is likely that the area actually grazed is significantly lower.

The area of land used for grazing varies with ownership structures. Company/manager structured stations potentially graze 94 per cent of the total station. This figure is much higher than owner/ manager (57 per cent), private/lessee (49 per cent) and private owned/manager (56 per cent).

Grazing Strategies

The most common grazing strategy in the Barkly Region is continuous grazing with 29 per cent of pastoralists using it exclusively. Other pastoralists in the region use continuous grazing in combination with other strategies including spelling, rotational grazing and burning. More than 50 per cent of pastoralists indicated that spelling was a component of their grazing strategy with the wet season being described as the optimal time to allow pasture to recover. Paddocks intended for weaners were the most commonly spelled with those intended for breeders spelled opportunistically. One pastoralist also used spelling to build up the fuel loads of some pastures so that a fire could be lit to control weeds and “freshen up the pasture”.

Sixty-two per cent of pastoralists indicated that they excluded some areas of the station from regular grazing. Some of these areas included creek systems and natural water holes, areas that may be susceptible to erosion and areas with low carrying capacity potential. Excluding country from grazing to have reserve feed was also reported.

Carrying Capacity

Paddock size and number of watering points are described by pastoralists as major components of how they determine carrying capacity. Visual assessments of the paddocks for grass species and amount of grass present were also used. The nature of the terrain in a paddock (black/red soil etc.) and its previous historical carrying capacity were also considered.

Most pastoralists estimated the carrying capacity of their black soil to be higher than their red soil, ranging from one breeder to 12.5-20ha of black soil and one breeder to 30-100ha of red soil.

The future increase in estimated carrying capacity was about 20 per cent by the year 2014 across all districts. Water point development is a high priority for infrastructure development across many stations in the region. This would play a major role in increasing the carrying capacity to the levels estimated by 2014.

TABLE 11 - CURRENT CARRYING CAPACITY AND FUTURE PREDICTIONS

CARRYING CAPACITY	GULF	BARKLY	TENNANT CREEK	REGION AVERAGE
Average carrying capacity 2004	14667	32231	14400	24125
5 years carrying capacity predictions	15833	36885	17200	27521
10 years carrying capacity predictions	18333	40231	18700	30271

Weed and Pest Impact

The impact of pest animals on stations varies although it can represent significant economic losses. The losses come through direct impact on production, eg. wild dogs killing calves, or indirect impact, eg. kangaroos and wallabies competing for pasture and water. The highest estimated losses of $200,000 were as a result of wild dog attacks on calves with the estimated average loss being $63,000.

The cost of pest animal control on stations averaged $3,100 with the maximum cost reported at $10,000.

When asked what proportion of the station was affected by the weeds listed in Figure 23, a range of 0-20 per cent was recorded with 1.8 per cent being the average (please note; no definition of affected was offered making the figures collected only estimates). Seventy-nine per cent of respondents indicated Parkinsonia was having some level of impact on their station with 39 per cent classifying it as high. Mimosa Bush was also recognised by 42 per cent of respondents as having a low impact. Rubberbush and Noogoora Burr were also cited by more than 40 per cent of stations as having some level of impact (see Appendix 2).

Seventy-nine per cent of respondents indicated they were actively trying to prevent the introduction of weeds to their station. Some of the methods employed include buying weed-free hay, spelling cattle coming in from outside stations in a 'quarantine paddock' for two weeks and ensuring that hay contractors wash down their equipment before entering the station. Sixty-three per cent of stations were actively involved in the control of Parkinsonia with Rubberbush receiving the second highest level of control.

The average cost reported for weed control in the region was $19,400, with $100,000 the highest amount spent.

FIGURE 22 - IMPACT OF PEST ANIMALS AND PERCENTAGE OF STATIONS USING CONTROL

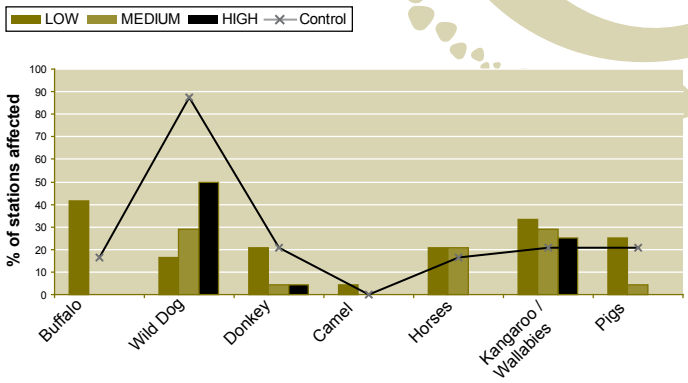


FIGURE 23 - LEVELS OF WEED IMPACT AND LEVELS OF CONTROL

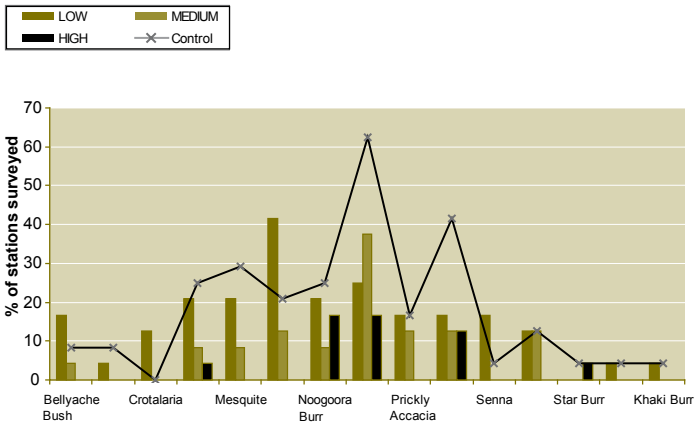
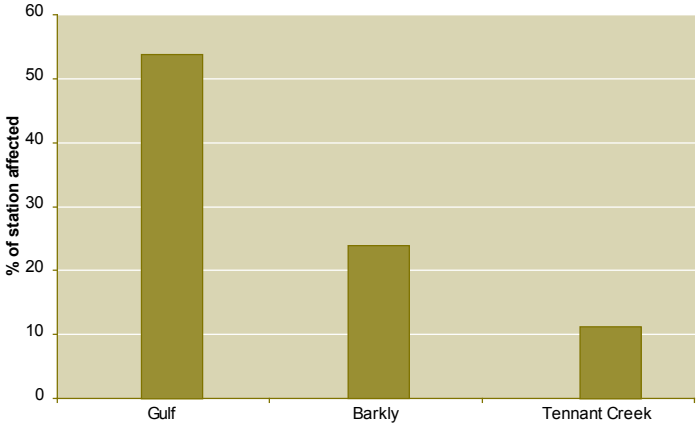


TABLE 12 - MAXIMUM DISTANCE FROM WATER FOR INFRASTRUCTURE DEVELOPMENT

	GULF	BARKLY	TENNANT CREEK
Average upper limit (km)	5.5	5.6	8.6
Maximum upper Limit (km)	8.0	12.0	12.0
Minimum upper limit (km)	3.0	3.0	5.0

FIGURE 24 - AVERAGE PERCENTAGE OF STATION AFFECTED BY FIRE



Watering Points

The average number of man-made waters on a station in the region is 55. Company/manager structured stations have the highest average number of man-made waters with 83. Owner/manager stations had an average of 35, privately owned had 14 and private/lessee averaged 8, this needs to be conceded with station size and pastoral district.

The number of natural waters varied highly between districts. Respondents in the Gulf District described their stations as having thousands of natural waters, reflecting the number of rivers and waterholes. This would also contribute to the Gulf District having the lowest average number of man-made watering points (27) - about half of the Tennant Creek District average (52) and only 38 per cent of the Barkly District average of 71. Higher levels of man-made watering points in the Tennant Creek and Barkly districts result from the lower levels of natural waters with averages of 3.4 and 1.4 respectively.

Pastoralists were also asked if increasing watering points was enough to disperse cattle more evenly through a paddock. Eighty-three per cent agreed while 17 per cent disagreed. Seventy-nine per cent of respondents indicated they employed other methods to also disperse cattle through the paddock. Some of these included fencing (35 per cent), supplement placed away from watering point (52 per cent) and fire (35 per cent).

Proportion of Station Affected by Fire

The Gulf District experienced the highest levels of wildfire during the survey period. On average 50 per cent of individual stations were estimated to be affected by wildfire. The Barkly and Tennant Creek districts experienced lower levels of wildfire with 24 per cent and 12 per cent respectively.

Eighty-three per cent of stations indicated they used fire to manage their station and many examples were provided. A major theme of these is to freshen up pasture and remove old rank grass that was limiting growth. Fire is also used to encourage grazing in certain areas and to open up country for mustering and grazing. One manager, however, answered, “Don’t do it, enough wildfires”.

Business Management

Fifty-six per cent of the stations surveyed in the region indicated they had a property management plan. Eight-five per cent of these were from the Barkly District and were running more than 10,000 head. The components of property management plans included financial management, human resource management, sustainable production systems and natural resource management. Fifty-three per cent of stations indicated that their property management plans covered all four components.

Sixty-six per cent of respondents indicated that they use emails on a day-to-day basis to assist with management decisions. Significant uptake of satellite broadband Internet access has occurred on stations in the region. It is likely that the relatively new technology of email will continue to rise within the pastoral industry as it occurs in many other sectors. Sixty-three per cent of respondents indicated that they use the Internet on a day-to-day basis to assist with management decisions. Fifty-four per cent of respondents said they use the internet to access fire scar and hot spot websites.

Fifty-eight per cent of enterprises use information supplied by the Bureau of Meteorology to assist with day-to-day management decisions. Access to this information is through a variety of mediums including fax, phone, Internet and radio. Thirty per cent of respondents use herd modelling programs in day-to-day operations. Commercially available and company-created programs were identified.

The occurrence of other enterprises/operations on stations in the region is very low with 63 per cent stating beef production is the sole earner for the entity. Thirteen per cent indicated that a form of tourism operated on the property and 13 per cent also indicated mining occurred on their station.

Staff

About 30 per cent of respondents indicated that operations on the station were limited by staff availability/turnover. There was no significant difference in this response between different ownership structures or districts.

More than 87 per cent of pastoralists surveyed indicated that staff training occurs within their enterprise. The type of training varies greatly with ‘on the job’ being the most widely reported. Training in the region includes accredited training in beef cattle production and horsemanship, first aid, a chemical user’s course and low-stress stock handling. One station was also involved in a diploma in frontline management. Company/manager stations represented the highest levels of staff training with 100 per cent involvement. More than 70 per cent of all other ownership/management structures reported staff training occurs

Benchmarking

An understanding of benchmarking was held by 87 per cent of those surveyed. Sixty-seven per cent indicated that they used financial or production benchmarks to help their management.

Just over 50 per cent of respondents said they used benchmarks to assist in managing their natural resources. Owner/managers were less likely to use these benchmarks (71 per cent). Of those who didn’t use benchmarks for natural resources, 78 per cent said they would find it useful. Information that these respondents would require to benchmark their natural resources included:

- Comparable pastoral land;
- Land types and their subsequent carrying capacity;
- Rainfall and stocking rate records with photographic history.

Financial

When asked how the property was financed, 50 per cent of respondents indicated that it was not applicable to their operation. This is likely to be a reflection of the high representation of company ownership of stations within the region where finance is controlled from a head office.

FIGURE 25 - TYPE OF FINANCIAL INSTITUTION USED

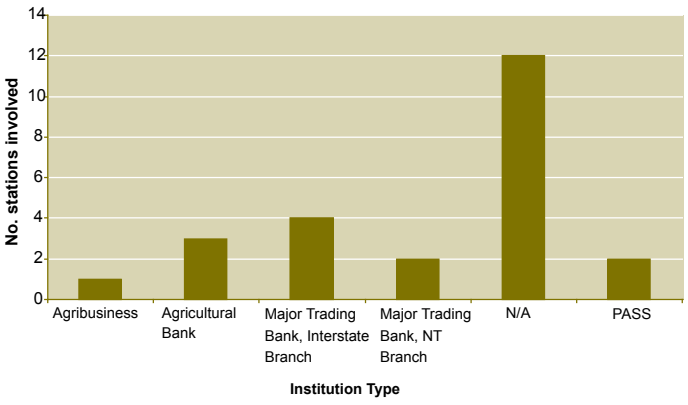


TABLE 13 - EMERGING INDUSTRY ISSUES

ISSUE	PER CENT OF STATIONS WHO THINK RELEVANT	PER CENT OF STATIONS WHO HAVE TAKEN ACTION
Environmental Management System	71	46
Biodiversity Conservation	54	38
Organic Accreditation	8	0
Improved Animal Welfare	79	42
Conservation Plan	58	33
Ecotourism	21	4
Quality Assurance Scheme	67	42

Chapter 3 - Management Priorities

Emerging Issues for Industry

Pastoralists were asked their opinion on the relevance of a range of issues relating to their industry and if they had taken any action on that issue specifically (Table 13). Respondents indicated that environmental management systems and improved animal welfare were of high relevance to the industry and more than 40 per cent had taken action on both issues. Organic accreditation and ecotourism were viewed as having little relevance to the industry by many and little or no action had been taken on either.

Hurdles for Industry

Issues identified as “hurdles” or factors having a negative influence on the financial viability varied greatly, ranging from water quality to cattle theft to main road access. Sixty-two per cent of respondents identified issues relating to staff as the biggest “hurdle” in managing their enterprise. Within the staffing issue three main aspects were identified: recruitment, lack of skills of recruits and inability to retain staff for one or more seasons.

All ownership structures were represented in identifying staffing as a hurdle. This is a significant finding due to the extreme variation in the resources that enterprises devote to sourcing labour. Larger integrated enterprises have dedicated human resource sections while some smaller enterprises indicated “word of mouth” as their only method of sourcing labour.

Twenty-five per cent of respondents identified climatic variations/seasons as one of the biggest hurdles in managing their enterprise. The scarcity of rain in the previous season was identified as a component of this response with the other being the variation of the climate. Respondents expressed the difficulty in managing their pastoral enterprise in a climate that experiences extreme variation.

Increasing costs of production and factors contributing to it were identified by approximately 30 per cent of respondents. These factors included main road access, distance and isolation from markets and service centres and increasing wages. In 2004 world oil prices increased by 22 per cent. This was identified by respondents as a contributing factor to the increasing cost of production.

Chapter 4 - How the Industry has Changed from 1980 - 2004

In 1980, 22 of the 25 cattle stations in the Barkly Region were surveyed by officers of the Northern Territory Department of Primary Production. The results were published in Technical Bulletin No.41, '*The Barkly Tableland Beef Industry 1980*' by R.M. Holt and J.D. Bertram. Vast changes have occurred in the 24 years since then and the following aims to draw out some of these contrasts.

The average estimated branding percentage of 1980 was 44 per cent. Sixty-six per cent of stations surveyed estimated that their branding percentage was between 40 and 60 per cent. Holt and Bertram described this as low with the poor seasonal conditions and high tick infestations of 1979 cited for the poor breeding rates.The current regional estimate of average weaning percentage is 70 per cent.

In 1980 two stations turned off mobs of about 1,300 cattle by droving, while all other stations in the region used road trains. In 2004 no managers reported droving cattle.

Thirty-eight per cent of cattle turned off in 1980 were sent to Northern Territory abattoirs. Holt and Bertram said: "The new outlet, Tennant Creek export abattoir, proved popular in its first year of operation, taking 27 per cent of the district turn-off". Ten per cent of the district turn-off was sent to the Katherine abattoir with Alice Springs and McArthur River each taking 0.5 per cent.

None of these abattoirs were operational in 2004 and no cattle from the Barkly Region were processed in Northern Territory abattoirs.

Interesting Asides

In their report Hold and Bertram wrote: "The Federal Government recently announced that a railway will be built by 1988, linking Alice Springs to Tennant Creek and Darwin." The industry had high hopes that the railway would provide cheap transport of stock to the port of Darwin. The first train travelled from Alice Springs to Darwin in 2004 but up to now no cattle have been transported on it.

TABLE 14 - COMPARISONS BETWEEN 1980 AND 2004 SURVEY

	1980	2004
Percentage of Managers in the position for less than one year	40%	12%
Average number of permanent staff	12	11
Average estimated weaning percentage	44%	70%
Percentage of cattle turned off to Northern Territory abattoirs	38%	0%
Percentage of stations with more than 10,000 head	68%	71%
Percentage of stations with more than 20,000 head	36%	42%
Average bull percentage run with herd	6.3%	3.8%
Percentage of stations feeding supplement	77%	92%
Estimated man-made watering points in region	713	1,248

Appendix 1 - NLIS Update September 2005

The mandatory use of Radio Frequency Devices (RFIDs) for NT cattle will be phased in from 1 July 2005 to 1 July 2007. The change to mandatory use of RFIDs is being adopted to support a nationally consistent approach to livestock traceability. In contrast to results at the time of the survey, pastoralists subsequently are committed to implementation.

A timetable detailing the implementation milestones has been approved the Minister for Primary Industry, Fisheries and Mines. Mandatory use of RFIDs and transaction recording to the national NLIS database will apply to:

Cattle moving interstate	1 July 2005
Cattle carrying RFIDs must be recorded to the national database prior to entry to the NT. Any subsequent movements will be read and recorded.	1 July 2006
Cattle moving to saleyards	1 August 2006
Cattle moving to abattoirs	1 July 2006
Cattle moving from property to property	1 July 2007

(Under the risk based system agreed by the Primary Industries Ministerial Council, exemptions may apply where cattle go direct from property of birth to slaughter or export).

Appendix 2 - Scientific names of plants included in survey

Bellyache Bush	*Jatropha gossypifolia*
Chinee Apple	*Ziziphus mauritiana*
Crotalaria	*Crotalaria* spp.
Hyptis	*Hyptis suaveolens*
Mesquite	*Prosopis pallida*
Mimosa Bush	*Acacia farnesiana*
Noogoora Burr	*Xanthium occidentale*
Parkinsonia	*Parkinsonia aculeata*
Prickly Acacia	*Acacia nilotica*
Rubber Bush	*Calotropis procera*
Senna	*Senna* spp.
Sida	*Sida* spp.
Star Burr	*Acanthospermum hispidum*
Goats Head Burr	*Tribulus terrestris*
Khaki Burr	*Alternanthera pungens*

Appendix 3 - Animal Health Treatments

REASON USED	WORMS	NUMBER WHO USE	FLIES	NUMBER WHO USE	LICE	NUMBER WHO USE	TICKS	NUMBER WHO USE	WOUND ANTISEPSIS	NUMBER WHO USE	GROWTH PROMOTANTS	NUMBER WHO USE
Product			Barricade	1			Acatak	1	Defiance	4		
	Cydectin	2			Bayticol Dip	1					Compudose 200	10
	Dectomax	3	Bayticol Dip	4					Hibitane	2	Compudose 400	14
							Bayticol Dip	4	Kleendok	1		
			Cooper Fly	1			Cydectin	1	Stockholm Tar	1	Unknown HGP	3
									Impatain	1		
			Patriot	1			Defiance S	1				
			Subpoena	1								
Number Using		5		8		1		7		9		27

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Holt R.J. and Bertram J.D. (1981), "*The Barkly Tableland Beef Industry 1980"* Technical Bulletin No. 41, Northern Territory Department of Primary Production.

Christian et al (1951) "*Survey of the Barkly Region, Northern Territory and Queensland, 1947-48"* Land Research Series No. 3, Commonwealth Scientific and Industrial Research Organisation.