Northern Territory Government

DEPARTMENT OF **PRIMARY INDUSTRY AND FISHERIES**

THE 2010 PASTORAL INDUSTRY SURVEY

Barkly Region

The 2010 Pastoral Industry Survey - Barkly Region

Northern Territory Government

Department of Primary Industry and Fisheries

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Collier, C. 2014. The 2010 Pastoral Industry Survey - Barkly Region. Northern Territory Government, Australia.

Contact:

Northern Territory Government
Department of Primary Industry and Fisheries
GPO Box 3000
Darwin NT 0801
http://www.dpif.nt.gov.au

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To the reader,

As Chairman of the Barkly Regional Advisory Committee (BRAC), I fully endorse this document on behalf of all our members as it identifies a wide range of issues faced by pastoralists throughout the Barkly region.

This document, along with its regional counterparts, provides a realistic and important benchmark for the Northern Territory (NT) pastoral industry. By updating the information that was collected and reported in the 2004 survey, we are now able to compare and investigate how our priority areas are changing over time. This allows BRAC to better focus future research, development and extension activities to ensure the industry continues to move forward.

Thank you to all the pastoralists who willingly gave their time to complete the survey and to the team that analysed, wrote and published this report.

I am happy to recommend this report to anyone interested in the NT pastoral industry.

Michael Johnson

Chairman

Barkly Regional Advisory Committee

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List of acronyms

AE	Adult equivalent
BBSE	Bull breeding soundness evaluation
CRC	Cooperative Research Centre
DPIF	Department of Primary Industry and Fisheries
EBV	Estimated breeding value
EID	Electronic identification tag
HGP	Hormonal growth promotants
BRAC	Barkly Regional Advisory Committee
NIRS	Near infrared reflectance spectroscopy
NLIS	National Livestock Identification System
NTCA	Northern Territory Cattlemen's Association

Acknowledgements

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The 2010 Barkly Pastoral Industry Survey is a follow-up to a previous survey conducted in 2004:

Bubb, A. (2006). The 2004 Barkly Pastoral Industry Survey. Department of Primary Industry and Fisheries, Northern Territory Government. The document can be found online at:
http://www.nt.gov.au/d/Content/File/p/Tech_Bull/PastoralSurvey_Barkly.pdf

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Researched and written by Casey Collier

Executive summary

The last pastoral survey in the Barkly region, which was conducted in 2004, provided a comprehensive summary of the beef production systems operating in the region at the time. This was the first survey of its kind since a similar survey conducted in 1980 by R. M. Holt and J. D. Bertram of the Northern Territory Department of Primary Production and published as *The Barkly Tableland Beef Industry 1980*. The 2004 survey was widely accepted and used as a useful reference tool, highlighting important industry changes over the 20-year period and also benchmarking different aspects of management, production and practices. It was therefore decided to repeat the survey approximately every five years to monitor changes within the industry. This survey was conducted in the 2010 calendar year.

One important difference between the 2004 and 2010 surveys is the way in which the data has been interpreted. The results in this survey are a more accurate representation of the industry as the data was weighted by the size of the property in terms of adult animal equivalents (AEs) or land area, whereas the 2004 data was purely based on the number of responses. This is an important point to note if making direct comparisons between the 2004 and 2010 reports.

Data collection began in January 2011 with an initial aim of completion by late 2011. However, in June 2011, the live export trade to Indonesia was temporarily suspended. Although the suspension was lifted a month later, this action had a lasting effect on pastoralists causing a decline in industry confidence. Therefore, it was decided to focus the survey questions on the 2010 calendar year (prior to the trade suspension).

Pastoral stations in the Barkly region represent some of the largest cattle stations by area and number of animals in the world. Geographically, the region can be categorised into two distinct districts, namely the Barkly district and the Tennant Creek district. The 2004 Barkly report included stations in the eastern Gulf, which was then part of the Barkly region but in 2010 it was part of the Katherine region.

Thirteen out of the 28 pastoral properties were surveyed (46%), which accounted for 471 000 cattle out of the estimated 660 000 (71%) in the Barkly region. The surveyed area covered 86 488 km^2 out of 168 662 km^2 under pastoral management. All the surveyed pastoral properties had a minimum of 300 adult cattle.

The average size of the surveyed properties was 6653 km^2, ranging from 2241 km^2 to 16 116 km^2. The median paddock size was 218 km^2 and the median number of paddocks was 23. Out of the total area surveyed, 89% was used for grazing, 6% was considered not productive and 4% was undeveloped.

Infrastructure development was a high priority in 2010 with 85% of properties reporting current investment in water-point development, 62% investing in drafting yards and 46% investing in paddock subdivision. Businesses spent a median of $13/AE annually on capital development. Water-point development and paddock subdivision were identified as being the highest priorities for future development. On average, infrastructure development was based on a 4.5-km grazing radius.

Company/manager ownership is the most common type of ownership in the Barkly region, representing 54% of properties and 78% of cattle. The majority of these were located in the Barkly district. The median length of ownership was six years with a range extending from two years to 135 years, while the median length of management was nine years, with a range from two years to 31 years. This was due to three stations in the region changing ownership, yet retaining the same manager.

The average herd size varied considerably between the two districts. The average herd size in the Barkly district was 47 000, with 90% of properties running herds larger than 20 000, whilst the Tennant Creek district had an

average herd size of 5500. Producer estimates indicated a 12% increase in total AEs for the region since the 2004 survey.

The majority of operations on the Barkly were breeding enterprises (representing 91% of cattle) that either sold or transferred stock for growing out within Australia (68% of cattle) or breed and sell live export feeder cattle (23% of cattle). For those that sold cattle, the main markets were live export (77% of properties/38% of cattle), backgrounders (77% properties/45% cattle) and abattoirs (77% properties/12% cattle).

Cattle in the region were predominantly tropically-adapted breeds, with a significant amount of *Bos indicus* content, notably composite (37%), Brahman (21%) or crossbred (29%).One third of producers identified their main breeding aim was to crossbreed for improved herd performance, including improving calving percentages and using the poll gene marker test.

The average bull percentage run in the region was 3%, with a minimum of 2% and a maximum of 6%. A higher bull percentage was run in the Tennant Creek region (5%). Bulls were most commonly sourced from Queensland stud breeders (39%) or bred on the property (38%). Structure, conformation and temperament were considered the most important traits when selecting bulls. Across the region, 53% of bulls were considered after examining estimated breeding values (EBVs) and 22% were semen tested typically before purchase; however, two large properties semen tested their bulls on average every two years.

The average weaning rate in the Barkly region was estimated to be 72% in breeders and 75% in first-calf heifers. Calf loss was estimated at 14% in mature-aged breeders. Mortality rates were estimated to range from 1.9% to 3.3% depending on the class of animals.

The majority of producers (92%) carried out two mustering rounds while 23% carried out a third round. Major turn-off months were May/June (44% of cattle) and August/September (30% of cattle). Barkly district producers estimated their mustering costs to be $17 per animal while Tennant Creek district producers estimated their mustering costs to be slightly lower at $15 per animal.

Pregnancy testing was conducted on some class of cattle by 85% of producers in the Barkly region, while 54% indicated that they pregnancy tested all cows.

Continuous mating was the preferred strategy for 92% of breeders, 74% of maiden heifers and 92% of first- calf heifers. When asked why control mating was not used, producers indicated that the main reason was that it was too labour-intensive and the result did not justify the effort. The majority of producers (92%) segregated their breeders, with 68% segregating based on pregnancy status and 42% segregating based on age.

Supplementation was carried out on 77% of properties with 35% of cattle being supplemented in the dry, 35% during the wet and 11% year round.

Producers identified buffalo flies and three–day-sickness as the most common animal health problems. Hormonal growth promotants (HGPs) were used by 85% of producers on some type of stock. The main reason why producers did not use HGPs was that animals that were transferred to other within-company properties were implanted when they arrived at the transfer station.

Producers typically assessed feed availability frequently throughout the year and were able to make management decisions accordingly. Most producers (69%) used a combination of grazing strategies, most commonly a combination of continuous grazing and spelling (38% of producers) and rotational grazing and spelling (23% of producers).

Although producers found it hard to put a monetary figure on lost production due to natural resource management issues, weeds and wildfires were estimated to have the largest effect, followed by erosion and feral animals. All surveyed producers had some weeds present and 62% were controlling some or all of their weeds with a median annual expenditure of $15 000 per property. Parkinsonia (85% of producers) and rubber bush (77% or producers) were the most prevalent. The estimated area burnt by wildfires in 2010 was 8% of the surveyed area. Over one third (38%) of producers used controlled burning for wildfire mitigation. The median annual cost of pest animal control was $3000, mainly on wild dogs, which 62% of producers indicated as having a high impact on production losses.

Stations with larger numbers of cattle that were typically company-owned had a significantly larger number of permanent staff. The average number of permanent staff employed on a station was 12, and the average seasonal staff number was also 12. The surveyed properties employed 346 staff, suggesting that approximately 750 people were employed on all pastoral properties in the Barkly region.

Producers indicated that staff availability (43%), cost of production (43%), seasons (21%), water (21%), freight (21%), market issues (14%) and roads/access (14%) were the major hurdles to managing a pastoral enterprise. The major issues affecting profitability were cost of production (62%), market access (23%), roads (15%) and government regulation/policy (15%).

The Barkly district

The Barkly district is dominated by larger company owned/manager properties, running an average of 47 000 cattle. Nine out of ten properties in the Barkly district were running herds larger than 20 000. A larger percentage of the turn-off was through company supply chains onto fattening properties in Queensland. While the paddocks were typically larger than in the Tennant Creek district, the country was more developed and watering points were based on a 3.8-km grazing radius.

The Tennant Creek district

Properties in the Tennant Creek district were typically family-owned and operated, a lot smaller in size and with much fewer cattle. The average number of cattle per property was 5500. Infrastructure development was planned on a 7-km grazing radius, which was much higher than in the Barkly district, which most likely was a function of the Tennant Creek district's poorer country, lower carrying capacity and higher cost of development.

How the survey was conducted and considerations for using information

This survey follows the 2004 Pastoral Industry Survey. Due to the level of interest in the results of that survey, it was agreed with the industry to repeat it after five years to monitor changes.

Survey forms were emailed, mailed or hand delivered to producers. The majority of surveys were carried out by extension officers face to face with producers on their properties.

All of the producers surveyed had 300 or more cattle. Where producers managed more than one parcel of land, the survey was completed on the business unit rather than on each individual property. Thirteen properties out of an estimated 28 commercial stations in the Barkly region (46%) were surveyed. This sample of stations accounts for approximately 471 000 cattle out of an estimated Barkly total of 666 000 (71%), and 86 488 km^2 of land out of approximately 168 662 km^2 under pastoral management (51%).

Data collection began in January 2011 with an initial aim of completion by late 2011. However, in June 2011, the live export trade to Indonesia was temporarily suspended after footage of cruelty in some Indonesian abattoirs was aired on national television. Although the suspension was lifted a month later, the episode left a legacy of

uncertainty and a decline in industry confidence. No survey interviews were conducted while the trade suspension was in place and the majority were carried out towards the end of 2011 and early 2012. Some interviews were conducted prior to, and some after, the trade suspension. It was decided to focus the survey questions on the 2010 calendar year (prior to the trade suspension). Data collection was completed in March 2012.

The context and timing of the survey is therefore important when considering the results, especially for those questions relating to development plans and issues facing the long-term sustainability and profitability of businesses, all of which could be impacted on by the change in industry confidence. The effect of market conditions had a greater impact on the northern Barkly.

Since properties varied greatly in land area and cattle numbers, the results have been weighted to provide the most appropriate representation of the industry. Data concerned with cattle production has been weighted by the total AEs per property and data related to land management by land area, while questions about business management or staff were not weighted. Where producers were not able to provide cattle numbers, regional estimates were used based on herd models used in the regional Beef Cooperative Research Centre templates. Total AEs were calculated for each property and were used to weight questions regarding cattle management where relevant.

Care must therefore be taken when drawing direct comparisons with the 2004 survey as those results were not weighted.

Median figures have typically been used in this report rather than averages. The median of a group is the half-way point at which there are as many values above as below. It provides a better representation of the most common or typical value.

Not all properties responded to each question. The data has been summarised to reflect the number of respondents to each question, rather than to the survey overall.

For many results in this report the percentages total more than 100. This occurs where people have responded to more than one variable; for example, mustering where they may have used horses, helicopters and motorbikes.

Responses collected during this survey are completely anonymous and remain the property of the producers. The database is maintained by DPIFs' Pastoral Production staff at Katherine Research Station. Any requests for further examination of the data must be approved by the Executive of the Northern Territory Cattlemen's Association (NTCA).

Introduction

The extensive Barkly region, which covers more than 165 000 km^2, is a major beef producing area of the NT, breeding mainly feeder cattle. Figure 1 shows the region as it stretches to the northern boundary of Dunmarra, south to Barrow Creek and east to the Queensland/NT border. The Barkly region can be geographically divided into two distinct districts: the Barkly district to the north-east and the Tennant Creek district to the south. Both districts have distinctly different land type characteristics and ownership structures. Stations in the Tennant Creek district are predominantly small and privately owned, while the Barkly district has a strong corporate presence.

The Barkly region is located in the middle of two distinct markets: the live export market to the north and the domestic market to the east. Producers in the Barkly have the advantage of choosing their desired market as distances to both markets are very similar. Corporate-owned properties dominate the Barkly district and the large majority of their cattle are sent along the company supply chain to other interstate properties for fattening and growing out.

The 2010 Pastoral Industry Survey of the Barkly region aims to assist the industry as a benchmarking and planning tool. The objectives of this survey were to:

1. Document the state of the cattle industry in the Barkly region to enable government and the industry to better assess the benefits of past and current research projects.
2. Collect information on industry needs so DPIF, BRAC and other groups, such as NTCA, can consider them in setting priorities for action.
3. Determine the most effective ways of providing relevant information to producers in each region and to initiate or improve communication between DPIF staff and cattle producers.
4. Provide the industry with up to date information on best management practice and to prioritise and plan for future research activities.

While this report focuses on the Barkly region, another three surveys were carried out in the other major pastoral regions of the NT: the Top End, Katherine and Alice Springs. The four surveys are summarised in the NT-wide report.

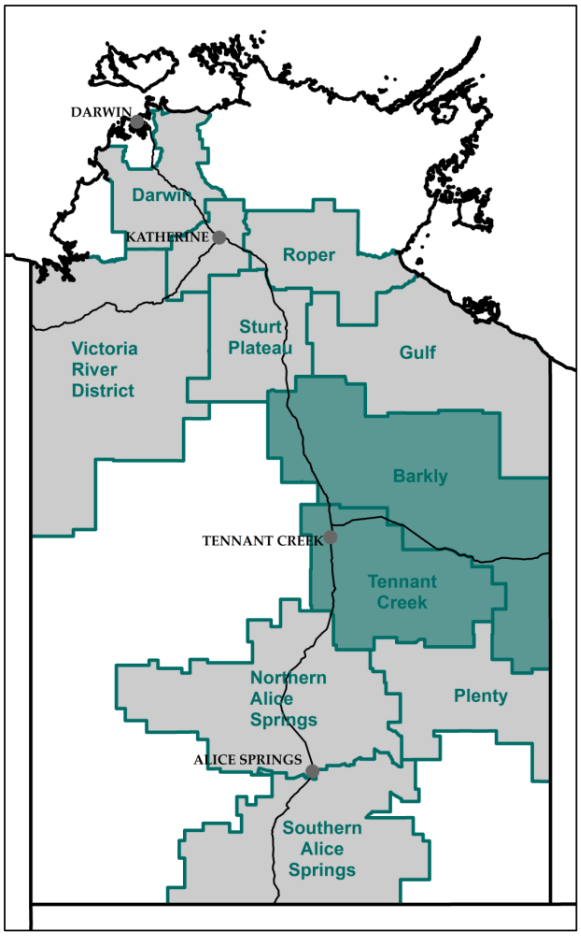
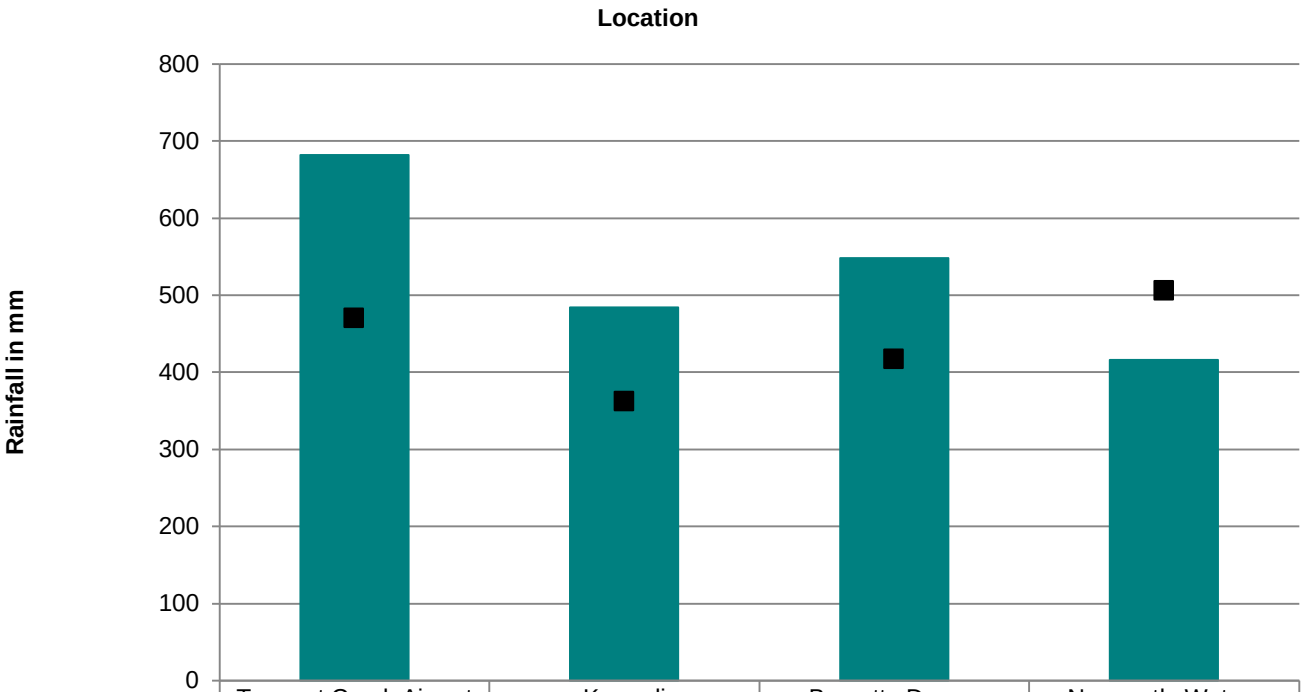


Figure 1. Regions and districts of the Northern Territory

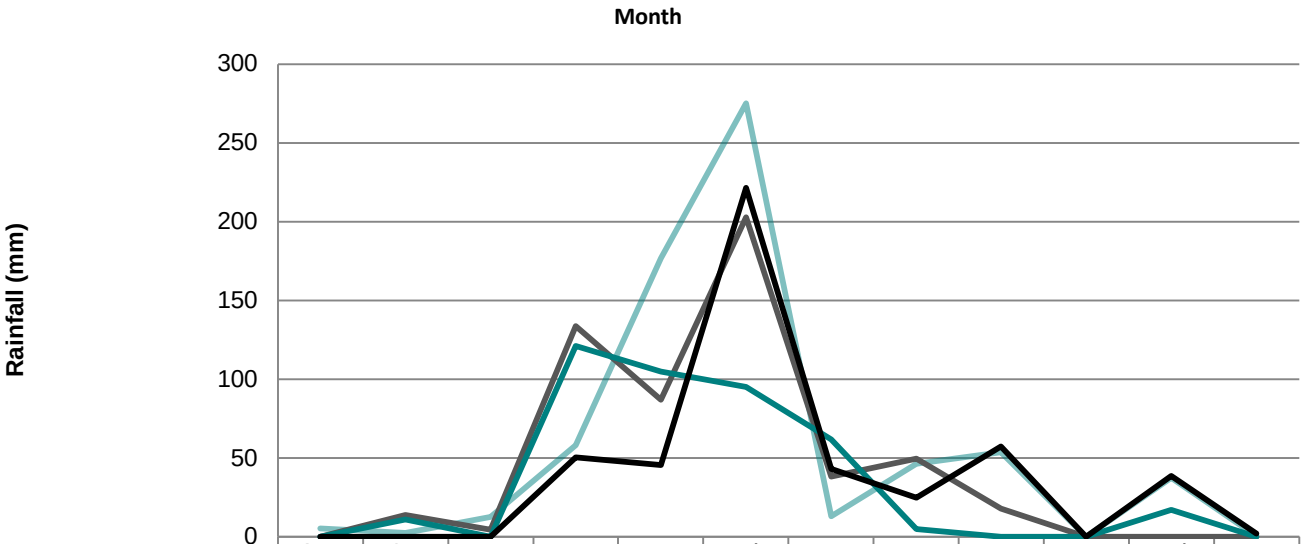
Climate and season

The Barkly region is largely semi-arid and has a well-defined wet and dry season, with the majority of the rain falling in the summer months between December and March. Average annual rainfall is variable and ranges from 505 mm in the north to 360 mm in the south where it is less reliable. Figure 2 shows the long-term annual rainfall and the 2009-10 wet season rainfall for each district.



	Tennant Creek Airport	Kurundi	Brunette Downs	Newcastle Waters
Total 09/10	682	484	548	416
Long term mean	470	362	417	506

Figure 2. Average long-term annual rainfall versus 2010 rainfall



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Tennant Creek	6	3	13	58	177	275	13	47	54	0	37	0
Brunette Downs	0	14	5	134	87	203	38	50	18	0	0	0
Newcastle Waters	0	11	0	121	105	95	62	5	0	0	17	0
Kurundi	0	0	0	50	46	221	43	25	57	0	39	2

Figure 3. Monthly rainfall in the 2009-10 wet season

Size

The total area of the Barkly region identified as having pastoral activity is 168 662 km^2. The total area of land managed by the 13 survey respondents was 86 488 km^2, representing 51% of land and 71% of cattle in the region.

Soils and vegetation

The Barkly district

The Barkly district, characterized by treeless, slightly undulating, black cracking clay plains dominated by perennial Mitchell grass and annual Flinders grass, has an active pastoral area of 140 917 km^2. Due to the good quality of the native grasses and production potential of the land, there has been little attempt to introduce improved pastures to the district. Ten stations were surveyed in the Barkly district.

The Tennant Creek district

The Tennant Creek district, located in the south of the region has an active pastoral area of 27 745 km^2. This district is generally less productive than the Barkly and receives less rainfall. Vegetation on the lightly-textured soils is variable and is dominated by spinifex and perennial wiregrass, with annual grasses and forbs prevalent in the wet season. Three stations were surveyed in the Tennant Creek district.

Differences in districts between the 2004 and 2010 surveys

In the 2004 survey, the Barkly region included a Gulf district in the north. However, in the 2010 survey, this district was under the Katherine region and is not included in this report.

Station size

The average station size in the region was 6653 km^2 with stations in the Barkly district, typically under corporate ownership, being considerably larger than in the Tennant Creek district (Table 1). There was a large variation in size across both districts, with surveyed properties in the Tennant Creek district ranging from 61 km^2 to 3857 km^2 and in the Barkly district ranging from 2241 km^2 to 16 116 km^2. Eighty nine per cent of the surveyed area in the Barkly region was used for grazing purposes, 6% was considered non-productive and 4% was considered undeveloped.

Table 1. Average station size in the Barkly region

District	Average size (km^2)	Grazed (%)
Barkly	7887	89
Tennant Creek	2539	91
Barkly region	6653	89

Current infrastructure

The median number of paddocks per property (excluding small holding paddocks) in the Barkly region was 23, with an average median paddock size of approximately 218 km^2. Table 2 shows the variation in the number of paddocks and their size in both districts of the Barkly region.

Table 2. Median number of paddocks and their size

District	Median number of paddocks	Median paddock size (km^2)	Median size of smallest paddocks (km^2)	Median size of largest paddocks (km^2)
Barkly	28	249	30	553
Tennant Creek	11	194	4	1000
Barkly region	23	218	25	626

The number of permanent yards per property increased as herd size increased (Figure 4). Properties in the Barkly district had an average of 14 permanent yards while properties in the Tennant Creek district had an average of five. The use of trap yards was more common in the Tennant Creek district, with 67% of stations having an average of six trap yards. Portable yards were used on 54% of stations in the region with Barkly district properties having a median of two portable yard sites and properties in the Tennant Creek district having a median of eight portable yard sites. Forty three per cent of properties using portable yards had permanent holding/mothering-up paddocks associated with portable yard sites, 14% had permanent yard facilities, such as a crush or loading ramp and 43% had access to water for stock.

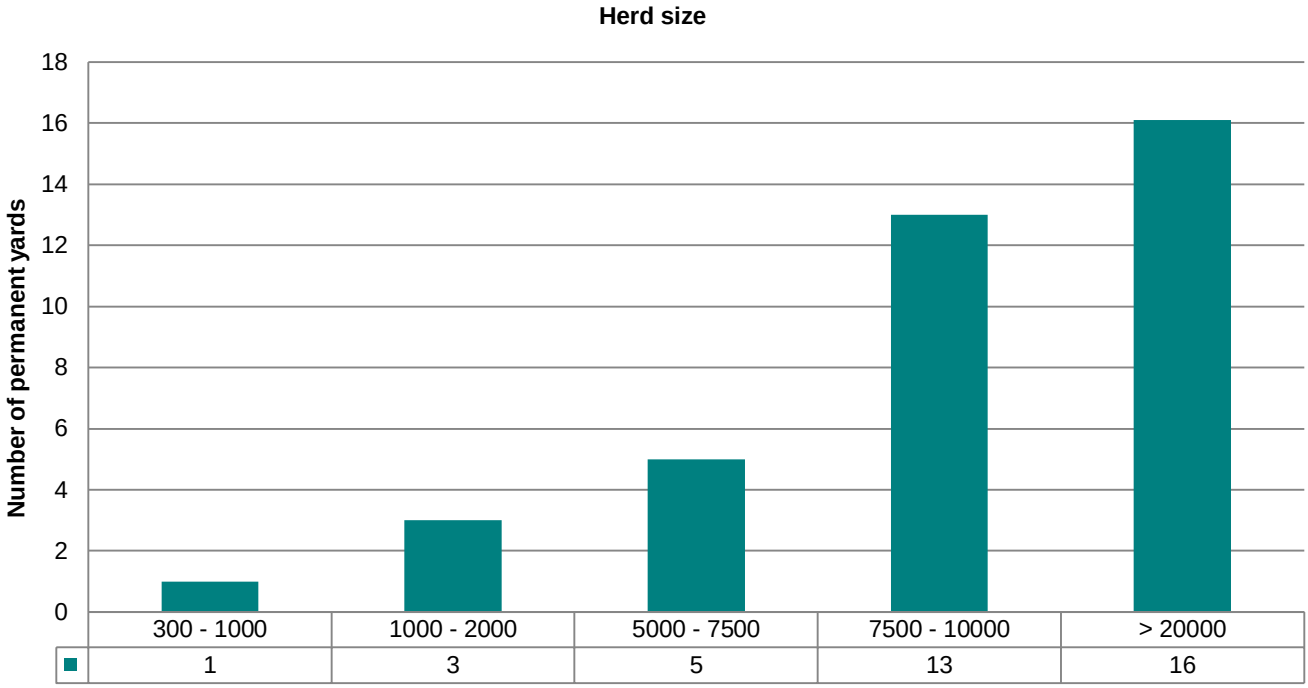


Figure 4. Average number of permanent yards according to number of cattle

The median number of man-made watering points on stations in the Barkly region was 80, with a range of eight to 300. Stations in the Barkly district had a higher number of man-made watering points than stations in the Tennant Creek district; however, the Tennant Creek district had more natural watering points (see Table 3). This can be attributed to the predominant land type of the Tennant Creek district, which tends to have more red soil country and holds surface water more effectively than the cracking clay black soil plains dominating the Barkly district.

Table 3. Median number of natural and man-made water points

District	Median no. permanent natural water points	Median no. man-made water points	Av. grazed area per water point (km^2/pt)
Barkly	3	112	75
Tennant Creek	13	15	63
Barkly region	6	80	72

Producers indicated that the majority of their watering points were equipped with diesel or petrol-powered pumps (Table 4).

Table 4. Power/source of permanent water points in the Barkly region

Equipment	Properties (%)	Av. no. of watering points equipped with
Solar powered pumps	23	3
Diesel or petrol powered pumps	77	85
Windmills	54	5
Water medicators	15	1
Dams	62	18

Station improvements

When asked what infrastructure development had been undertaken in the past two years, respondents indicated water-point development, drafting yards and paddock subdivision as the top three activities (Figure 5).

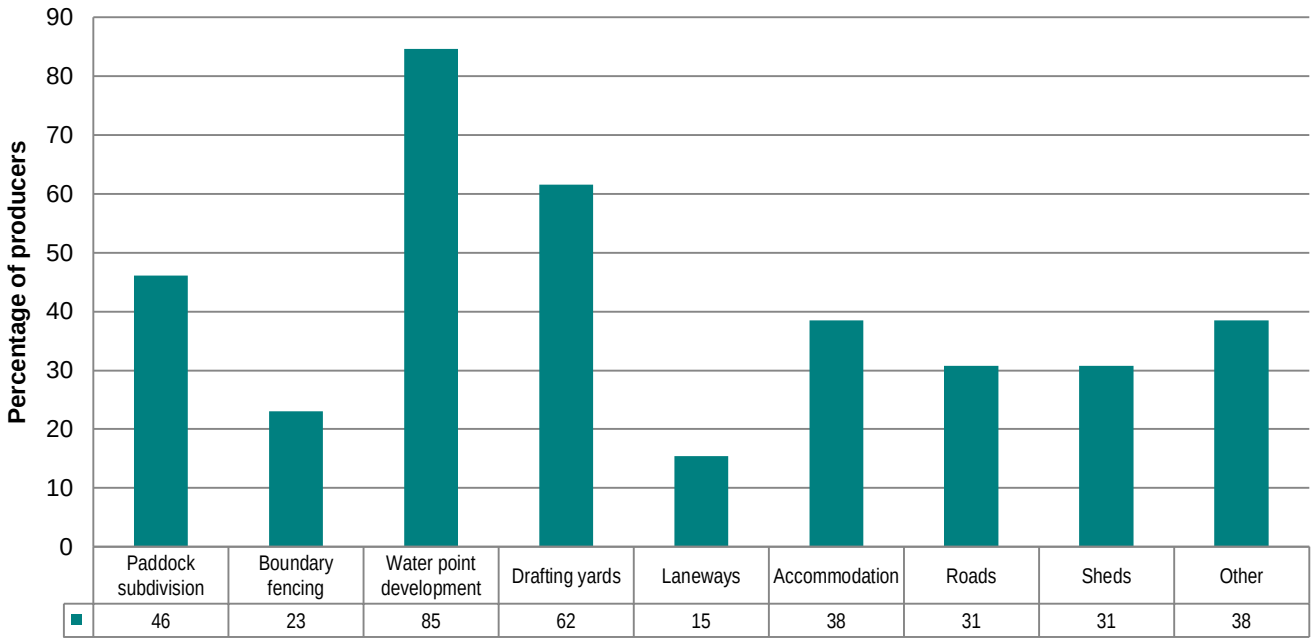


Figure 5. Percentage of properties carrying out infrastructure development in 2009-2010

Producers were asked to provide an estimate of the total cost of capital development undertaken in 2009 and 2010, with larger properties in the Barkly district spending more per property but slightly less per AE (Table 5).

Table 5. Median estimates of capital development expenditure during 2009 and 2010

District	No. responses	Median expenditure ($)	Median expenditure per AE ($/AE)
Barkly	9	630 000	13
Tennant Creek	2	115 000	14
Barkly region	11	500 000	13

Plans for infrastructure development

Pastoralists were asked to rank their three priorities for future infrastructure development. Figure 6 shows that water-point development and paddock subdivision were the highest priorities.

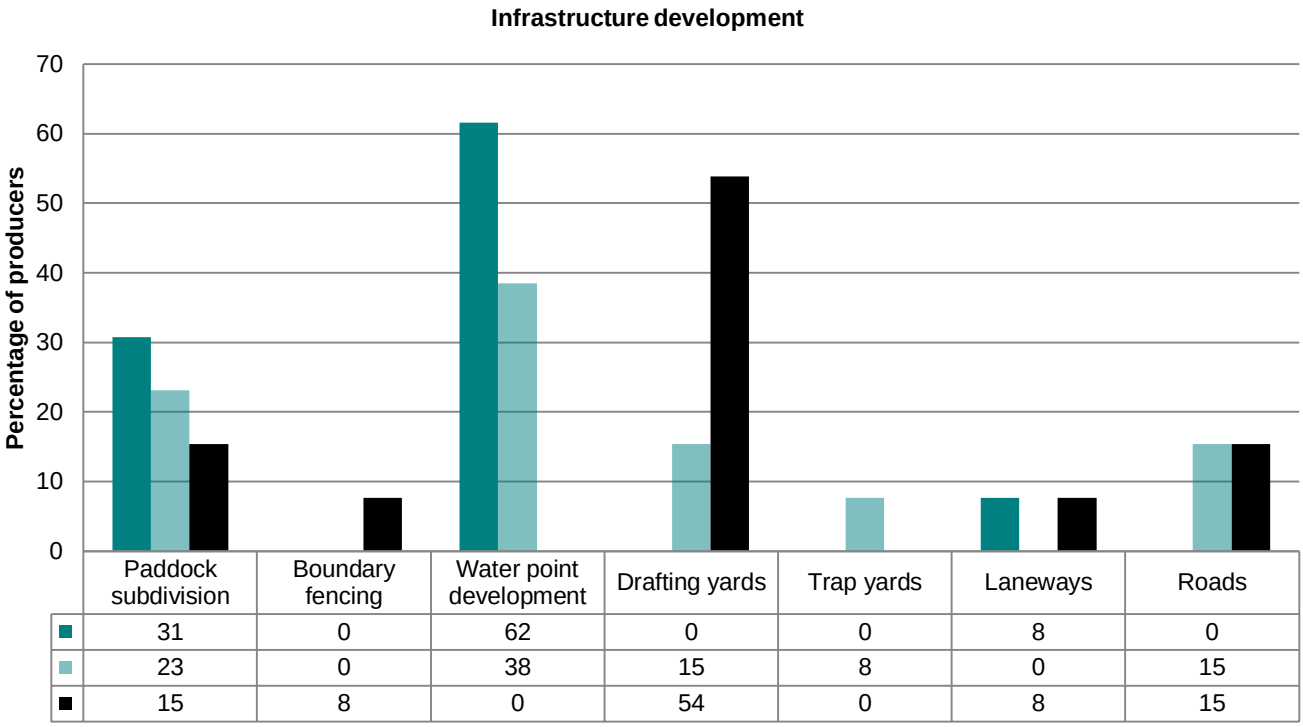


Figure 6. Priorities for infrastructure development

Ownership

Management structure

The ownership and management structures of pastoral enterprises surveyed in the Barkly region can be divided into five categories. These were company-manager (company-owned, employing a manager), owner-manager (i.e. run by the owner), private-lessee (producers running cattle on leased land), private owned-managed (privately owned with a manager employed) and private partnership.

The most common management structure was company-manager, representing 54% of stations and 78% of cattle in the Barkly region. Table 6 shows that the Tennant Creek district was dominated by family owner-operators while the Barkly district was predominantly company-owned. The percentage of cattle represented by some ownership types was proportionally negligible against others.

Table 6. Ownership structure of stations

Ownership structure	Barkly district		Tennant Creek district		Barkly region	
	Stations (%)	Cattle (%)	Stations (%)	Cattle (%)	Stations (%)	Cattle (%)
Company-manager	70	81	0	0	54	78
Owner-manager	0	0	67	96	15	3
Private-lessee	10	0	0	0	8	0
Private owned-manager	20	19	0	0	15	18
Private partnership	0	0	33	4	8	0

Along with owning more cattle, companies on average owned larger stations, compared with other ownership types (Table 7).

Table 7. Average property size according to ownership structure

Ownership structure	Average size (km^2)
Company-manager	9249
Private owned-manager	5943
Owner-manager	3779
Private-lessee	2241
Private partnership	61

Fifty four per cent of stations described their enterprise as an integrated production system, meaning that two or more properties were run as a single unit, with the remaining 46% being run individually. Only one station with a company-manager structure was run individually with others being run as integrated production systems.

Length of ownership and management

The median length of ownership of a station in the Barkly region was six years, with a range extending from two to 135 years (Figure 7). The median period under current management for the Barkly region was nine years with a range from two to 31 years. Three properties on the Barkly had changed ownership while retaining the same manager.

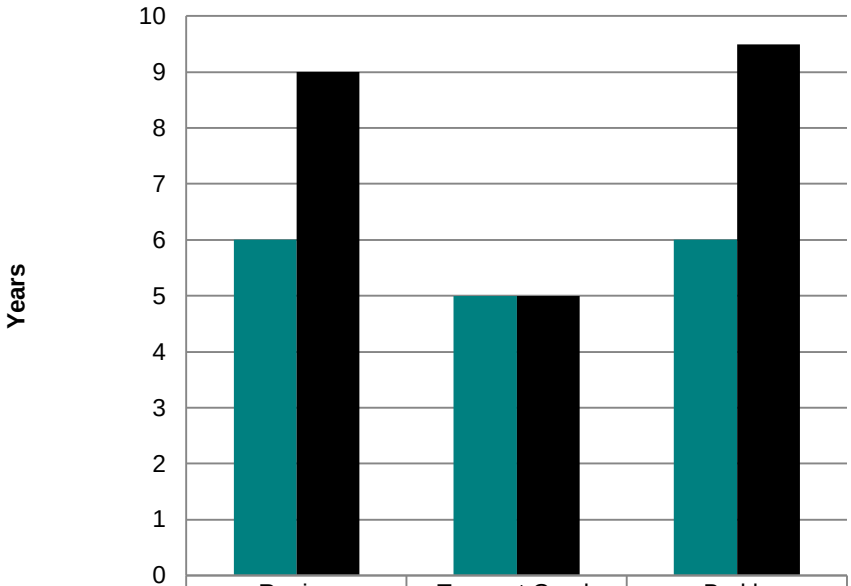


Figure 7. Median length of ownership and management in the Barkly region

Staff

Ninety two per cent of producers in the Barkly region used permanent staff (Table 8) and 77% employed seasonal staff.

Table 8. Percentage of properties employing different staff types and median number of staff employed

Staff type	Properties employing (%)	Median number of staff	Median number of weeks employed per year
Permanent staff	92	12	N/A
Seasonal contractors	54	7	8
Seasonal station hands	31	12	7
Seasonal backpackers	31	2	10

Stations with the larger cattle numbers, which were typically company owned, had a significantly larger number of permanent staff (Figure 8).

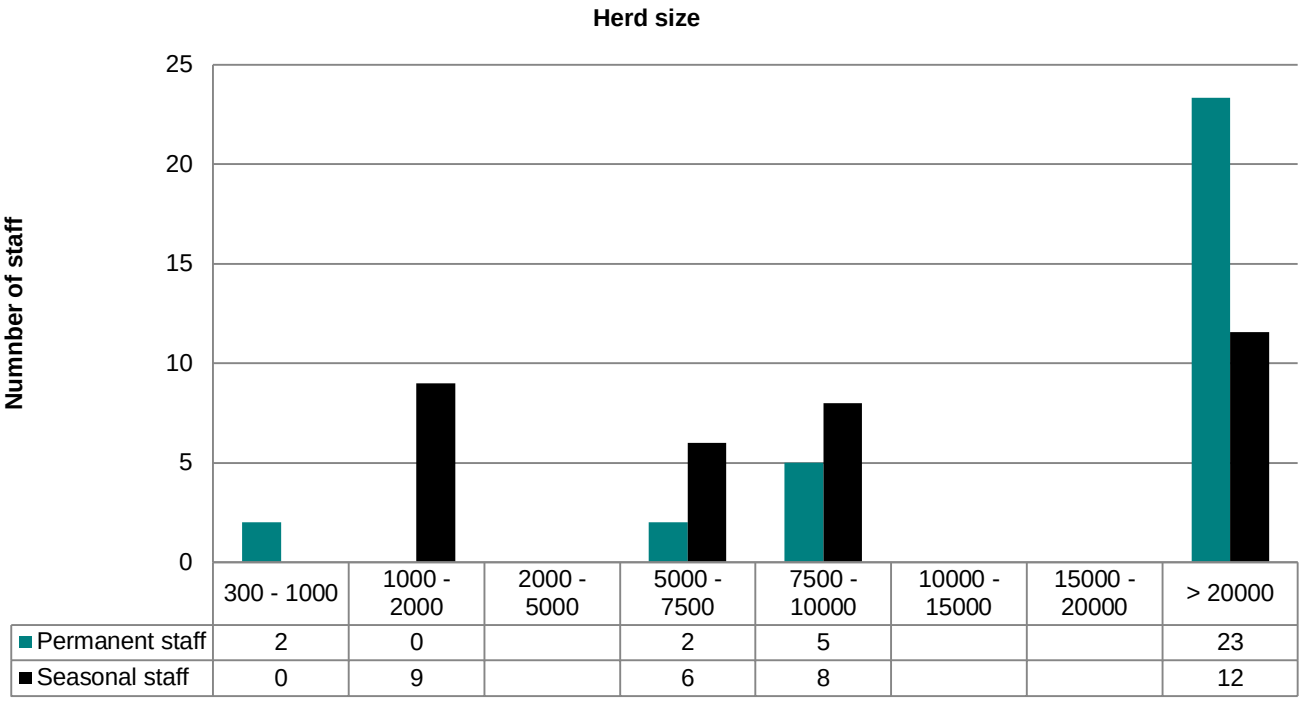


Figure 8. Average number of staff according to number of animal equivalents of cattle on the property

Altogether, 219 permanent staff and 127 seasonal staff were employed on the surveyed stations during 2010, suggesting that approximately 487 staff were employed in the Barkly region overall, based on having surveyed 71% of cattle.

Table 9. The average number of staff employed and total staff employed on surveyed properties in 2010

District	Average number of staff employed	Total permanent staff	Total seasonal staff
Barkly	32	210	113
Tennant Creek	8	9	14
Barkly region	27	219	127

Number of cattle

The total number of cattle represented by the surveyed properties was approximately 471 000. The average herd size was 47 000 for the Barkly district properties, with nine out of the 10 properties running herds larger than 20 000 animals. In the Tennant Creek district, herd sizes were much smaller, with an average of 5500 animals.

Producers were asked to estimate the change in cattle numbers since 2004. Overall, 38% indicated an increase in numbers, 8% reported a decrease and 54% reported no change. This equated to a 12% increase in AEs across the surveyed properties between 2004 and 2010.

Turnoff and markets

Main types of cattle enterprises

The majority of producers in the Barkly region said they were running predominantly breeding enterprises (Figure 9).

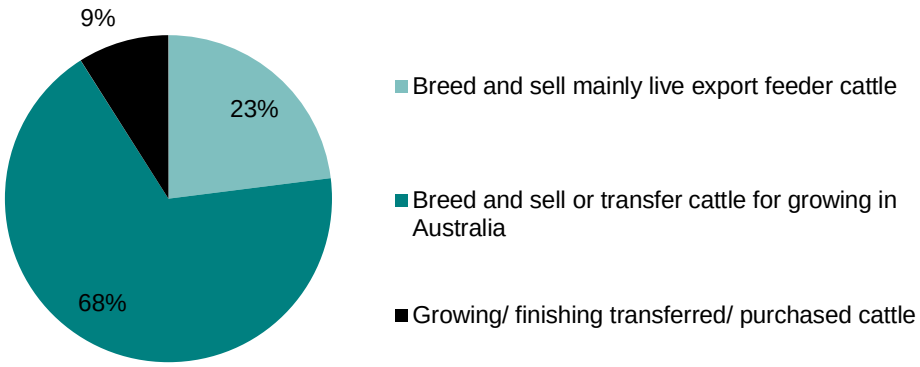


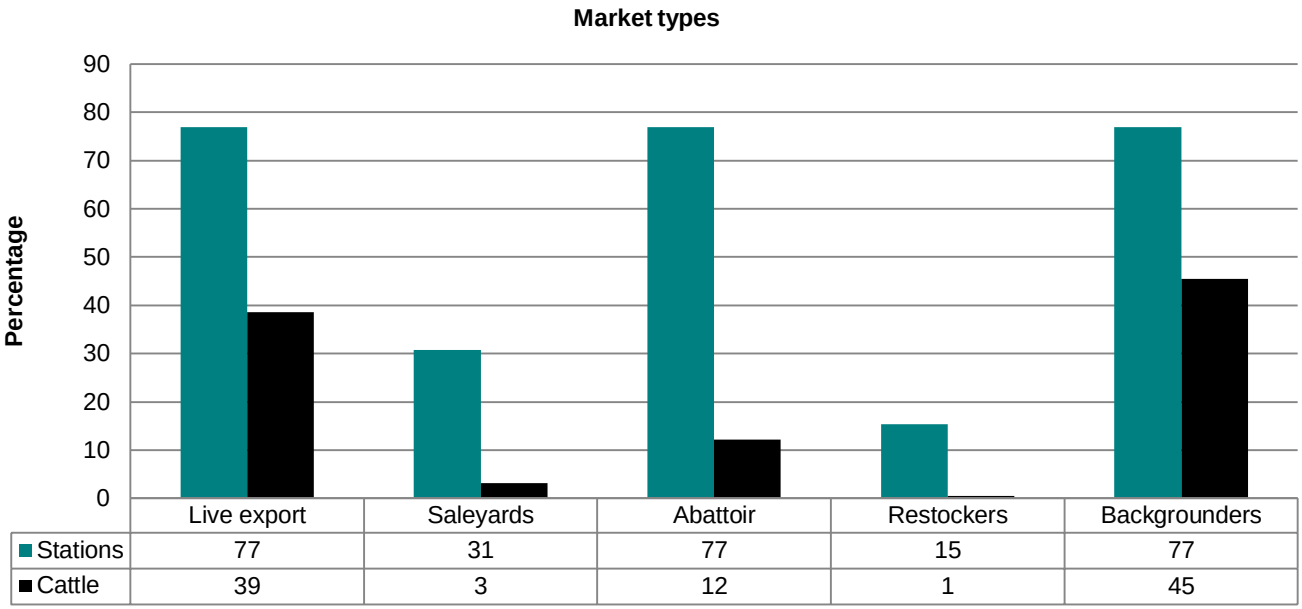
Figure 9. Percentage of cattle represented by different types of cattle enterprises

Only one producer identified predominantly as a stud operator; however, another four properties representing 49% of cattle in the Barkly region also bred and sold stud cattle as a part of their business.

Producers were asked how many purchased or transferred cattle they grew out during 2010. Four properties in the Barkly district finished an average of 23 500 cattle, while two properties in the Tennant Creek district finished an average of 1032 cattle. Typically, pastoralists growing or finishing cattle in the Barkly region purchased weaners from neighbouring stations and grew them on good quality lake country before sending them on through their own company supply chain.

Markets

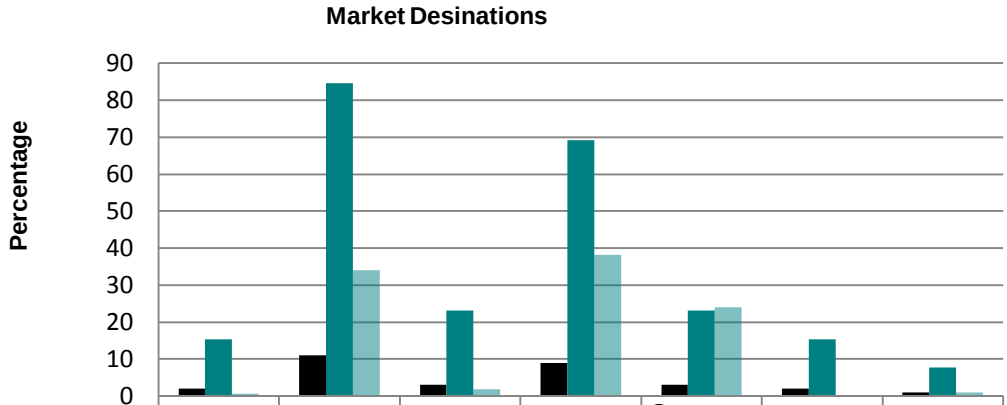
In 2010 pastoralists sold their cattle mainly to the live export market, to backgrounders and to abattoirs; many properties sold some animals to all the three markets. While a large number of stations sold to abattoirs, the total number of animals sold was relatively low in comparison with other markets (Figure 10).



	Live export	Saleyards	Abattoir	Restockers	Backgrounders
Stations	77	31	77	15	77
Cattle	39	3	12	1	45

Figure 10. The main types of markets to which pastoralists sold cattle in 2010

The location of the Barkly region gives producers the choice to sell cattle through both the domestic and live export markets. Cattle are often turned off through Queensland or a company supply chain, or to the export market, where the majority of cattle are sold to South-East Asia (Figure 11).



	NT	QLD	SA	South East Asia	Company Supply Chain	NSW	VIC
Number of stations	2	11	3	9	3	2	1
Percentage of stations	15	85	23	69	23	15	8
Percentage of cattle	1	34	2	38	24	0	1

Figure 11. Percentage of properties selling to different market destinations and percentage of cattle

Turnoff

Producers were asked to provide details of their turnoff in 2010, including class, age, weight and number. The major class of turnoff was feeder steers to Queensland, representing 38% of the total turnoff for the region (Figure 12). Table 10 shows a more comprehensive breakdown of the different classes of stock, with percentage of animals, percentage of properties and average weight and age of animals turned off. 'Other' generally referred to intercompany transfer of weaners.

Figure 12. Class of stock turned off in the Barkly region in 2010

Table 10. Average turnoff data for the Barkly region in 2010

Stock class	Turn-off in the region (%)	Properties turning off (%)	Average turnoff weight (kg)	Average turnoff age (years)
Bulls for slaughter	1	62	684	8.8
Cows interstate	4	46	426	7.5
Cows for slaughter	10	62	471	8.5
Feeder steers live export	18	54	305	1.5
Feeder steers NT	0*	8	325	2.0
Feeder steers Qld	38	62	252	1.1
Heifers live export	13	54	290	1.8
Heifers slaughter	3	31	439	2.6
Mickeys live export	0*	8	360	1.3
Slaughter steers	0*	8	456	3.0
Slaughter steers live export	2	15	461	2.3
Other	10	46	202	1.3

* Percentage of regional turnoff was less than 1%.

Due to the distinct seasonal variations experienced in the Barkly region, the major turnoff periods occurred during the dry season. Peak turnoff months included May, June and September, although there was steady turnoff from April through to October (Figure 13).

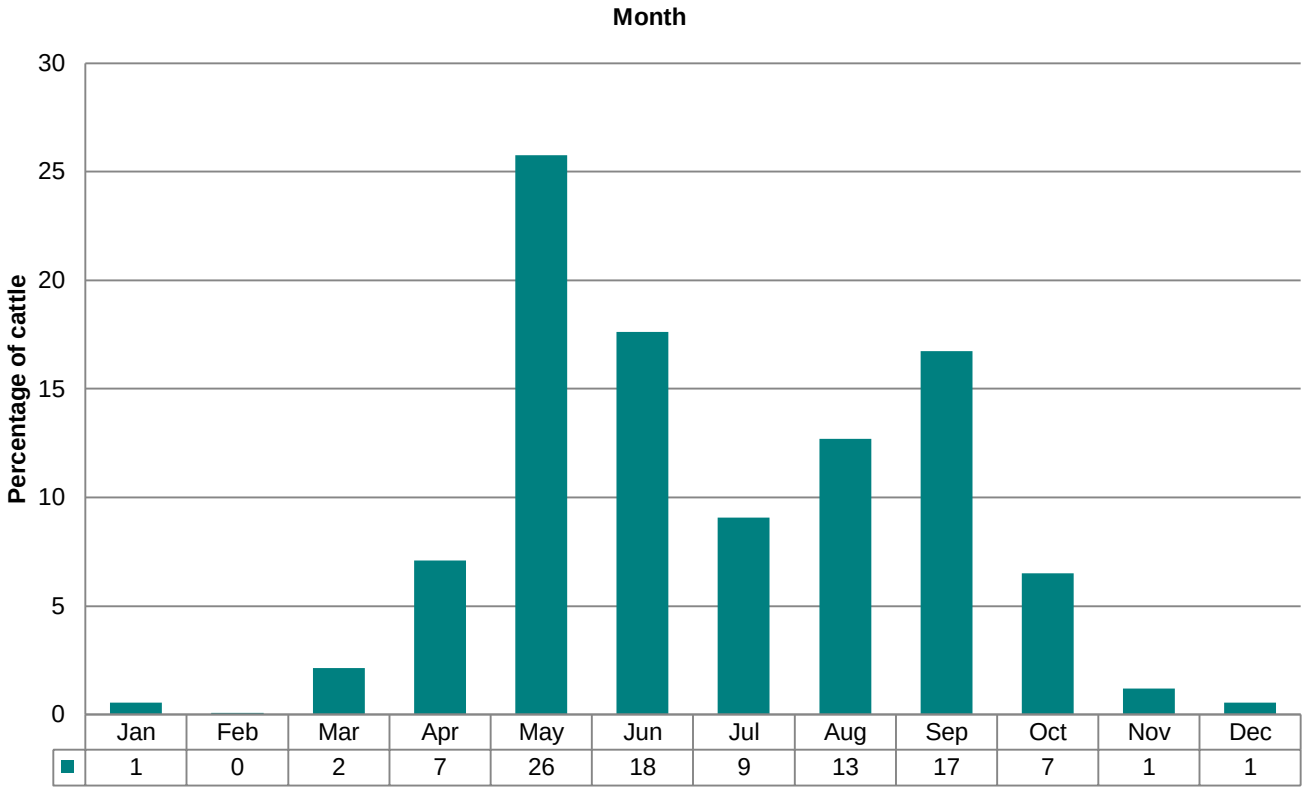


Figure 13. Major turnoff months for sale stock

Impact of Indonesian import restrictions

Respondents were asked what strategy they used when Indonesia enforced the 350-kg weight limit in June 2010. The most common strategy was to adjust management of animals to ensure none went over the 350-kg weight limit (Table 11). Due to the large number of company-owned stations on the Barkly that had their own supply chain and sold to the domestic market, this question was not applicable to 23% of producers who represented 31% of the cattle in the region.

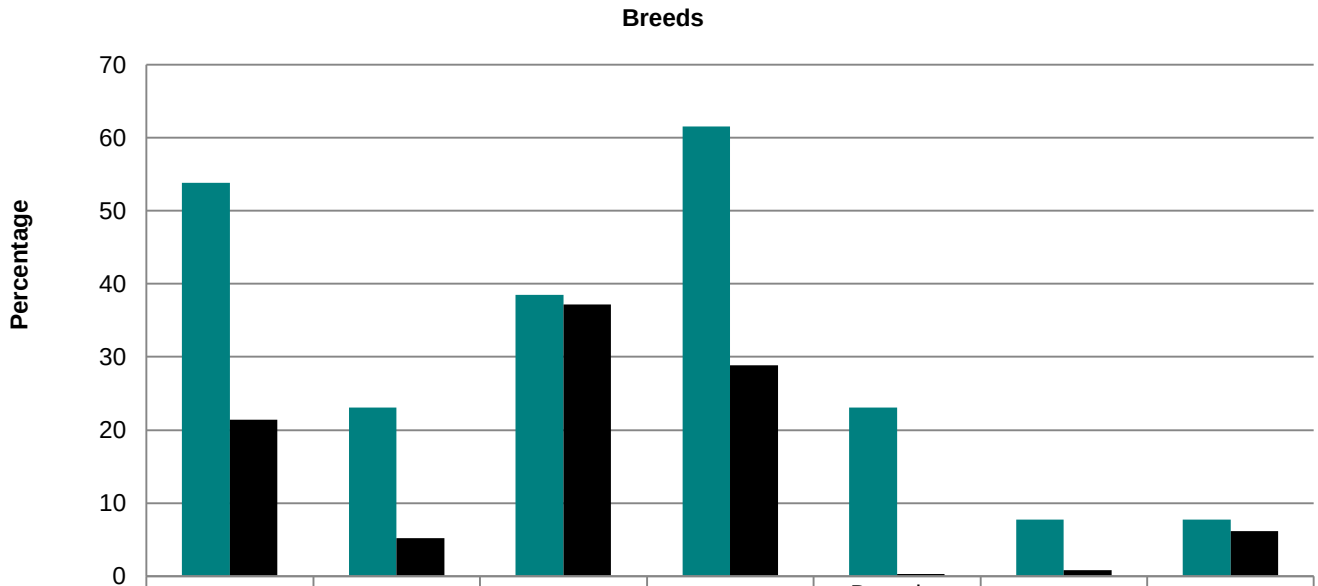
Table 11. Change in management due to Indonesian 350-kg weight restrictions

Strategy	Properties (%)
Held cull cows over	15
Held heavy steers over	23
Sold cull cows to interstate saleyards	23
Sold heavy steers to interstate saleyards	23
Sold cull cows direct to slaughter	23
Sold heavy steers directly to slaughter	15
Adjusted management of steers	23
Sent/sold cattle to another company property	23

Cattle management

Breed of cattle

Cattle in the Barkly region are predominantly *Bos indicus*, or crossbreeds with a significant amount of *Bos indicus* content. There are a number of company–owned and developed multi-breed composites as well as Santa Gertrudis, Droughtmaster and Senepol. Crossbred cattle include Angus and Charolais crossed with Brahman (Figure 14).



	Brahman	Charbray	Composite	Crossbred	Drought-master	Hereford	Santa
Stations	54	23	39	62	23	8	8
Cattle	21	5	37	29	0.3	1	6

Figure 14. Predominant breeds of cattle on the Barkly

Breeding aims

The most common breeding aim identified by 31% of Barkly producers was to cross-breed for improved herd performance, including improving calving percentages and using the poll gene marker test. Table 12 shows that cross-breeding to suit market, selecting traits within breeds and developing a composite breed were also priority breeding goals.

Table 12. Main breeding goals of stations in the Barkly region

Main breeding goal	Properties (%)
To cross breed for improved herd performance	31
To cross breed to suit market	23
To select traits within breeds	15
To develop a composite breed	15
To upgrade to Brahman	8
To select traits for fertility	8

Mustering practices

In the Barkly region, 92% of stations carried out two mustering rounds per year, 23% carried out three rounds and only 8% carried out one mustering round. April was the peak for the first round while October was the peak for the second round (Figure 15).

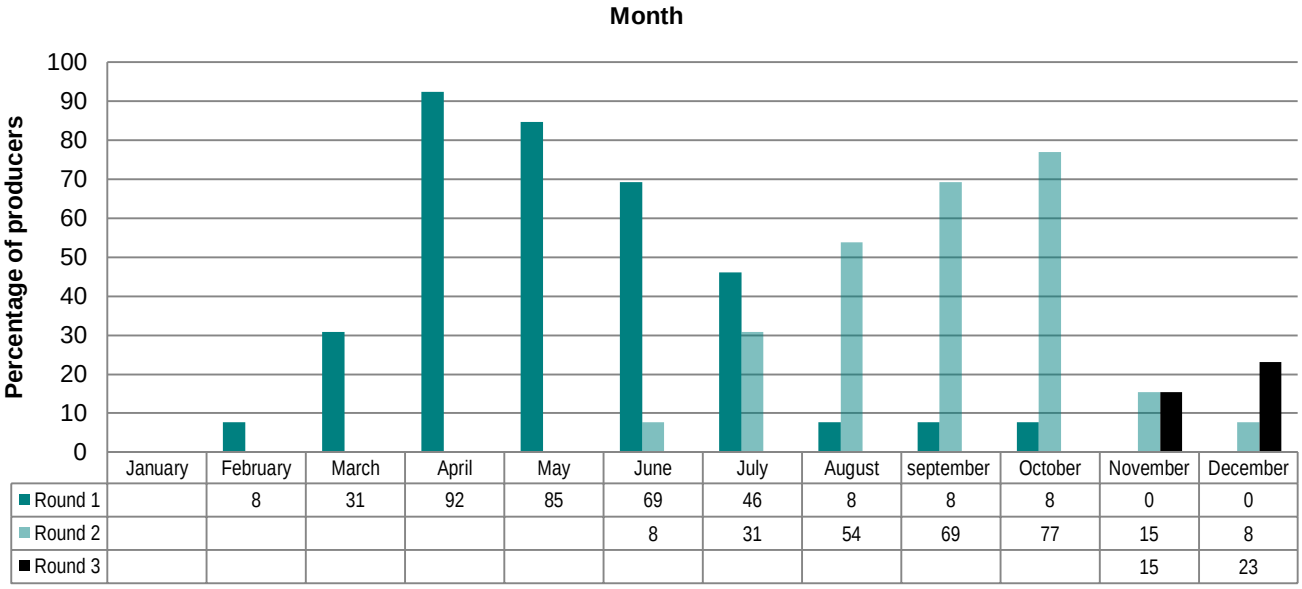


Figure 15. Timing of mustering rounds

The most commonly used mustering methods in the region included motorbikes, horses, helicopters and fixed wing aircraft. Producers in the Tennant Creek district were more likely to use dogs, trap yards and buggies than those in the Barkly district.

Figure 16. Mustering methods used in the Barkly region

Barkly district producers estimated their mustering costs to be $17.00/animal while Tennant Creek district producers who were mainly owner-managers estimated their costs to be slightly lower at $15.00/animal.

Bulls

The average number of bulls that producers aimed to run in the Barkly region was 3% (range 2% to 6%) of the herd. Barkly district producers reported a lower average number of bulls of 3% than Tennant Creek district producers (5%).

Feral bulls were not considered a problem in the Barkly district; however, two of the three Tennant Creek district producers estimated that feral bulls made up 15% of their total bull numbers.

Bulls were most commonly sourced from Queensland stud breeders; however, a significant number of producers bred their own bulls (Figure 17).

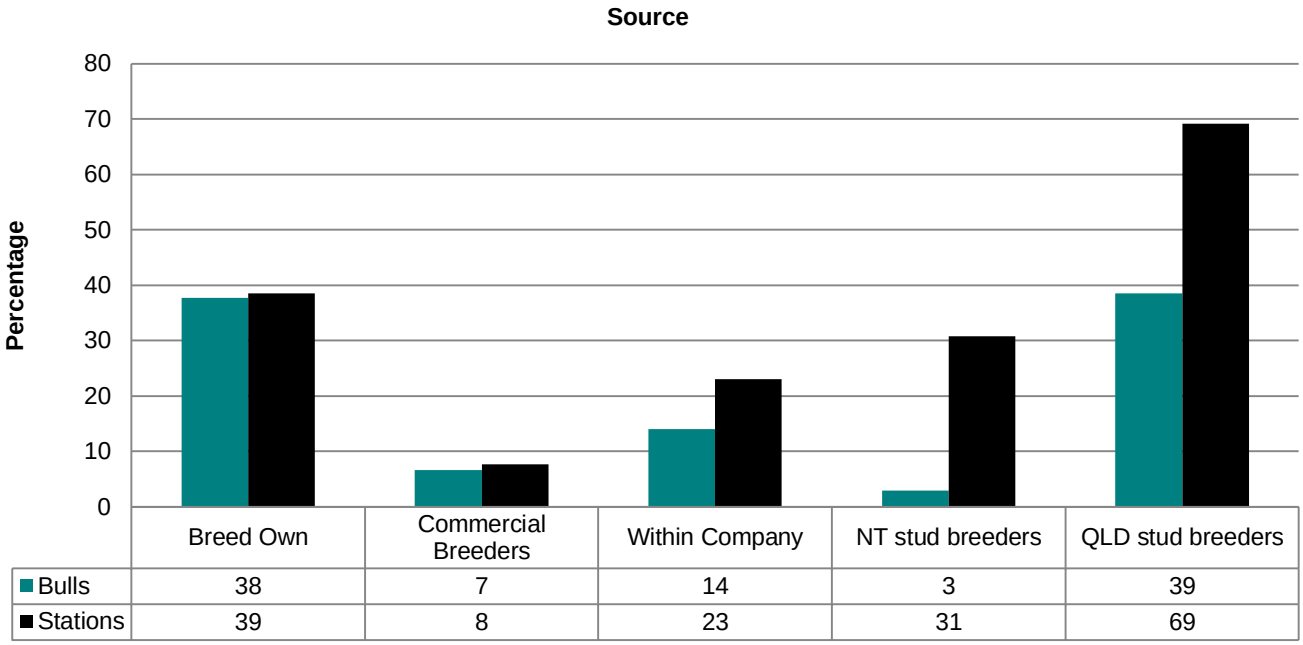
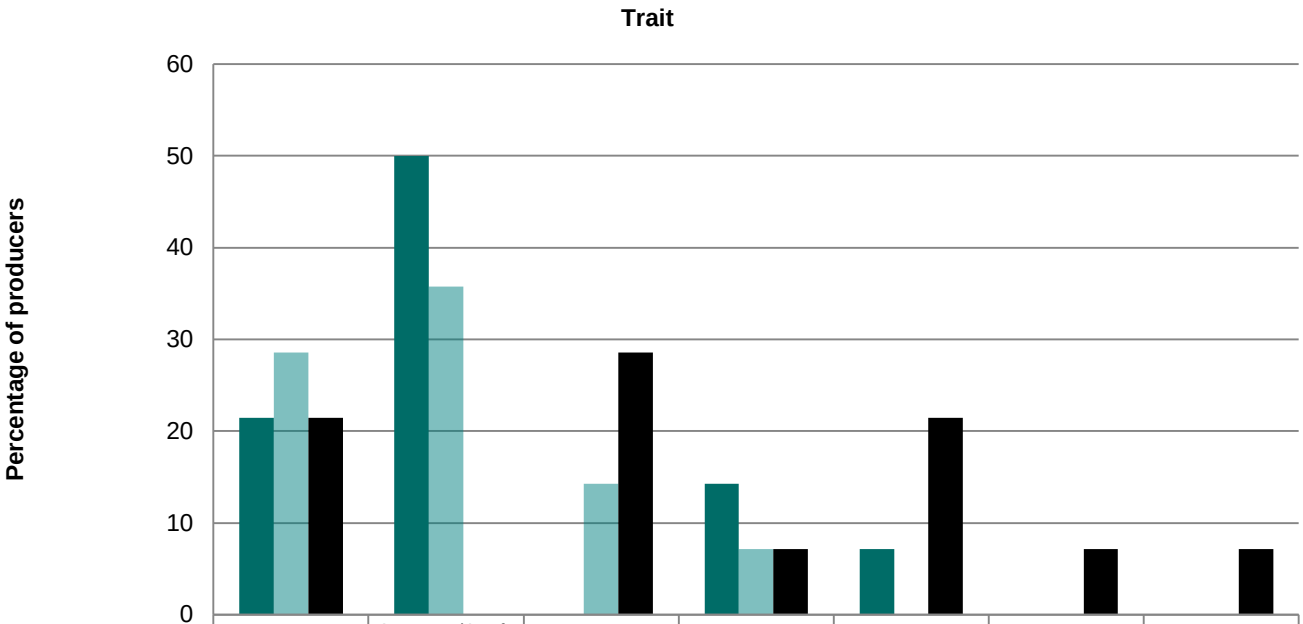


Figure 17. Source of bulls

Structure, conformation and temperament were considered the most important traits when selecting bulls (Figure 18).



	Temperament	Structure/Conformation	Polled	EBVs	Fertility	Growth	Carcass traits
Most important	21	50	0	14	7	0	0
2nd most important	29	36	14	7	0	0	0
3rd most important	21	0	29	7	21	7	7

Figure 18. Importance of traits when selecting bulls

Sixty nine per cent of producers considered EBVs when selecting bulls. This equated to 53% of bulls sourced for the Barkly region being selected using EBVs. Fertility EBVs were seen as the most important to consider, followed by growth, birth weight and carcass quality.

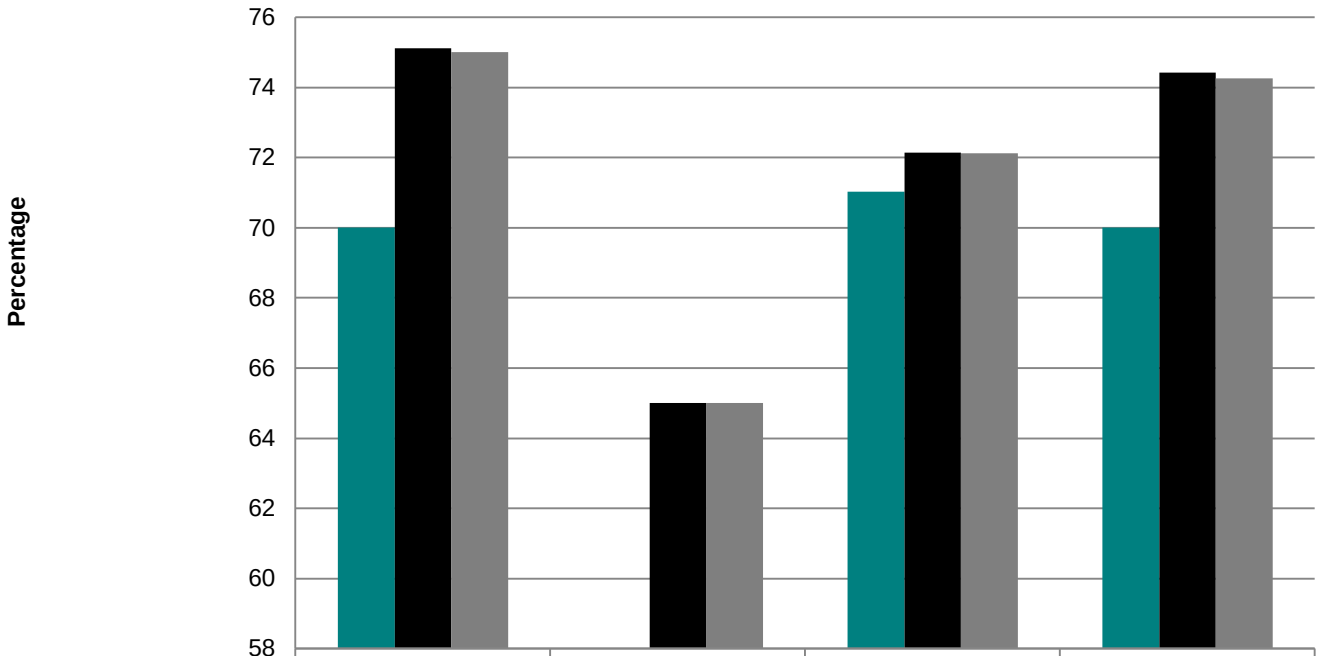
Three producers had used the Jap Ox index and one had used the Northern Live Exporters index when selecting bulls.

Fifty four per cent of respondents indicated they had some bulls assessed for breeding soundness while 31% had semen tested some bulls. This equated to 54% of bulls in the region undergoing a bull breeding soundness evaluation and 22% being semen tested. Testing typically occurred before purchase; however, two large properties tested their bulls on average once every two years.

Breeder management

Weaning percentage

Respondents were asked to estimate the weaning percentage of four different classes of females as shown in Figure 19. Only one property in the Barkly district provided a weaning rate for second joined heifers.



	First calf heifers	Second calf heifers	Breeders	Old cows
Tennant Creek district	70		71	70
Barkly district	75	65	72	74
Region	75	65	72	74

Figure 19. Weaning percentage by female class

Calf loss

Producers were asked to estimate calf losses between pregnancy and weaning. The average calf loss in breeders was estimated at 14%.

Cull cattle

Barkly producers estimated that on average, 15% of cows had been culled between 2008 and 2010. Producers most commonly culled cows based on pregnancy status, although age and temperament were also considered important criteria (Figure 20). Tennant Creek producers were more likely to cull based on conformation and less likely to cull based on age, compared with Barkly producers. When culling on age, the average age of cull cows in the region was 10 years.

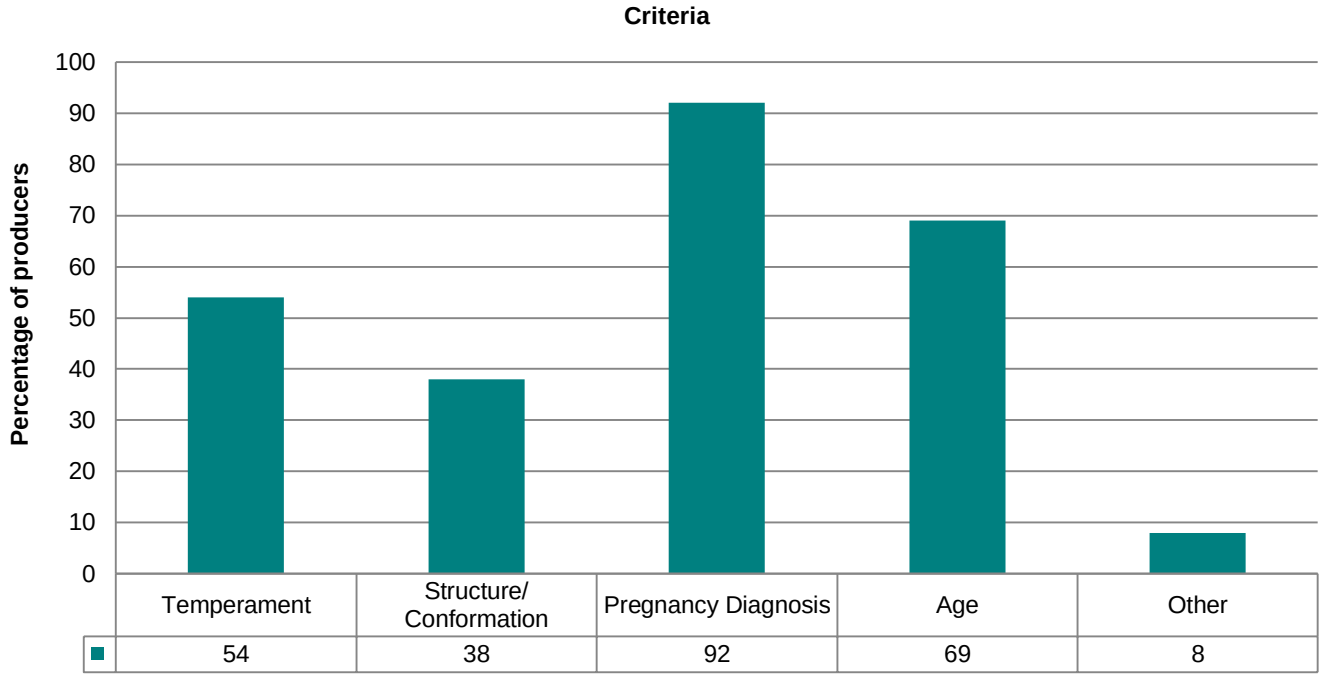


Figure 20. Percentage of producers using different criteria when culling breeders

Table 13. Percentage of producers spaying cull females and percentage of cull females spayed in the Barkly region

Cull female	Properties (%)	Cattle (%)
Breeders	15	2
Heifers	8	10

Segregation

Ninety two per cent of producers in the Barkly region indicated that they segregated their breeders. Sixty eight per cent segregated based on pregnancy status, while 42% segregated on age. One producer in the Tennant Creek district, who had several breeds of cattle, segregated cows based on breed.

Pregnancy testing

All producers interviewed in the Barkly district indicated they used pregnancy testing on some class of breeding animals (Figure 21). Only one station in the Tennant Creek region pregnancy tested and tested cull cows prior to sale. Eighty per cent of producers in the Barkly district used a vet to conduct the pregnancy testing, 30% used a qualified pregnancy tester, 20% used an employee and 10% did it themselves.

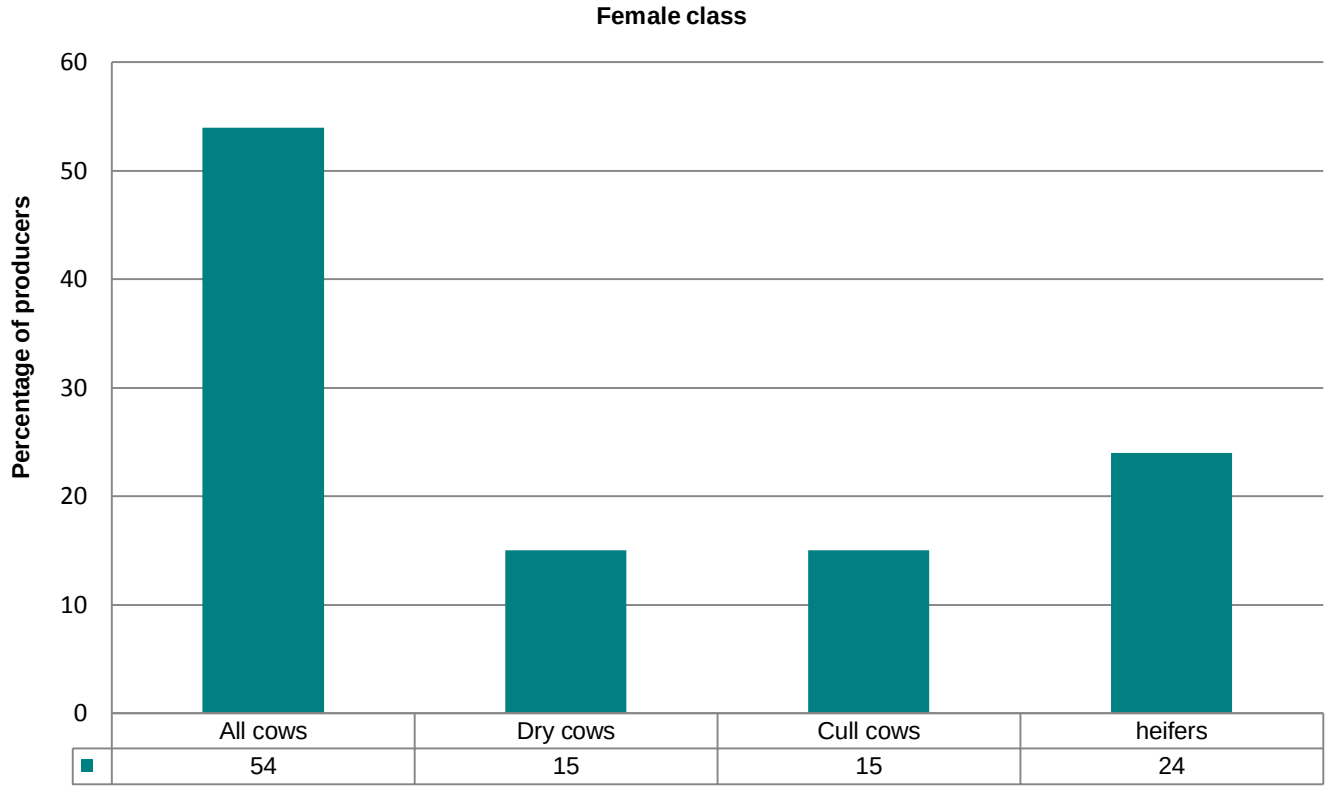


Figure 21. The percentage of producers that pregnancy-tested different classes of cattle

Herd performance recording

The National Livestock Identification System (NLIS) requires that all stock have an electronic identification (EID) tag for movement off the property unless they were being transported to a live export boat. Over half the producers in the Barkly region, equating to 50% of the cattle, reported that they used individual cattle identification for performance recording purposes as did one producer in the Tennant Creek district who bred stud cattle.

Figure 22 shows the percentage of producers who were recording different classes of stock and the percentage who had planned to.

Table 14. Percentage of cattle individually identified with tags

Tag type	Barkly (%)	Tennant Creek (%)	Barkly region (%)
Tags (visual)	8	0	7
EID (NLIS)	8	0	8
EID and tags	34	4	33
Total cattle with tags	50	4	48

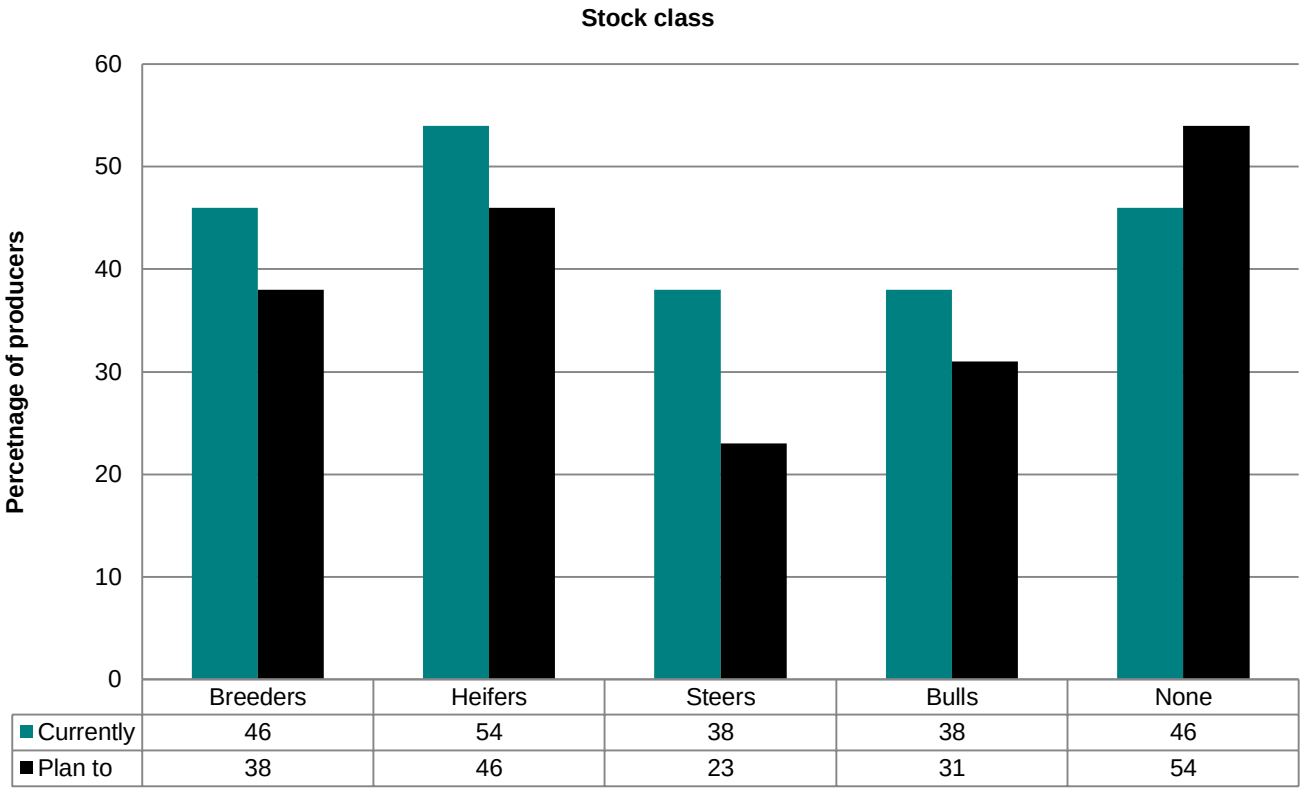


Figure 22. Percentage of properties that currently individually identified and those who planned to individually identify different classes of stock for management purposes

Performance was recorded for a number of different traits (Figure 23). Other traits recorded included health treatments, property of origin, colour, breed and average daily gain.

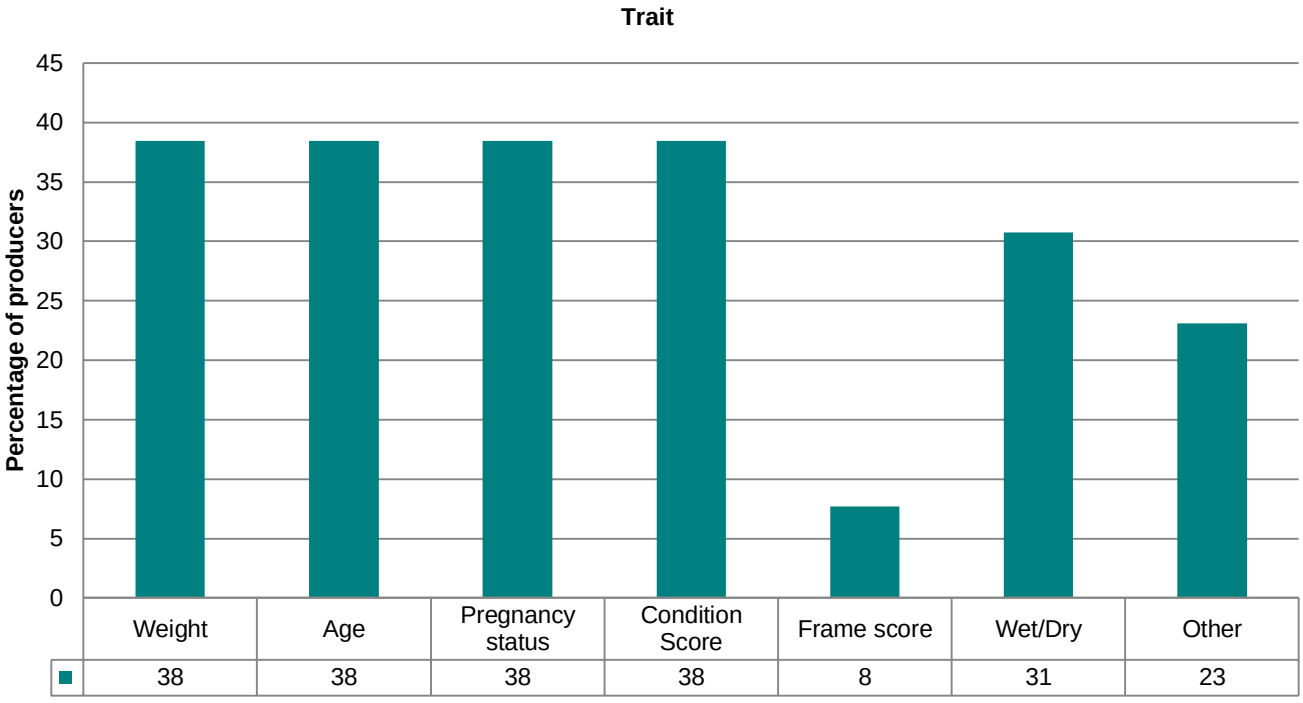


Figure 23. Traits recorded for management purposes in the Barkly region

Artificial insemination or embryo transfer

Only one producer in the Barkly region used artificial insemination in their commercial cattle.

Continuous or controlled mating

Ninety two per cent of breeders in the Barkly region were continuously-mated. Two producers control-mated their breeders: one from the Barkly district from November to March and one from Tennant Creek from September to January.

Two producers control-mated their maiden heifers and one producer control-mated his first-calf heifers in the Barkly district. This equated to 74% of maiden heifers and 92% of first-calf heifers being continuously mated in the Barkly region. Bulls were put in with heifers as early as September and as late as January and were pulled out between January and March. The average length of time the bulls were put with heifers when control- mating was four months.

Pastoralists were asked why they did not use control mating. The main reasons were that it was too labour-intensive and they believed that the results did not justify the effort (Figure 24). Another reason was because pregnancy testing was used to manage calving periods so controlled mating was not considered.

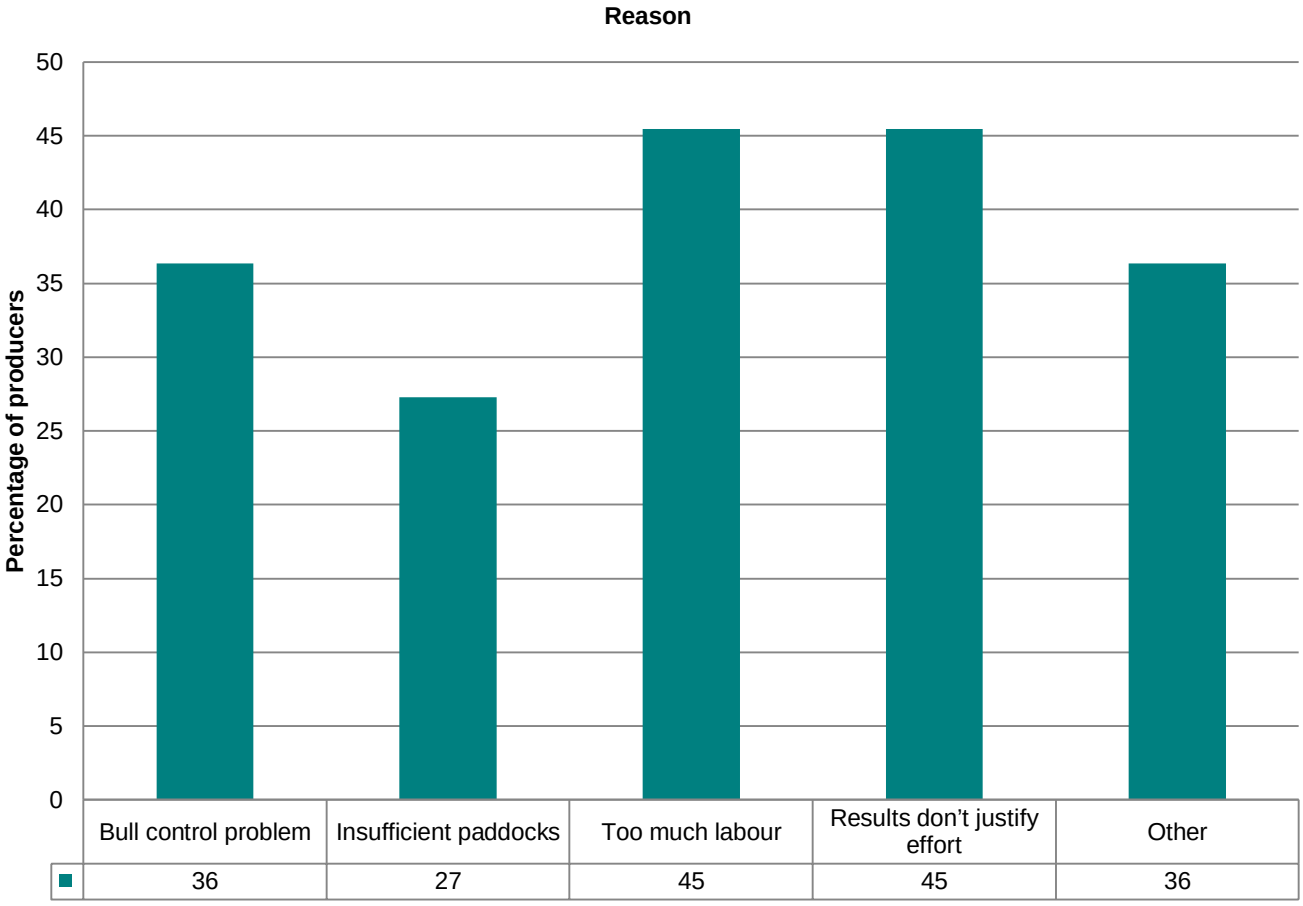


Figure 24. Reasons for not using controlled mating

Mortality rates

Respondents were asked to estimate the mortality rates of different classes of stock, averaged over the past three years. Mortality rates were extremely hard to estimate as less than half the cattle across the region were individually identified, many dead animals were not seen and animals could move from paddock to paddock. Estimated average mortality rates across the region ranged between 1.9% and 3.3%, depending on the class of animal (Table 15).

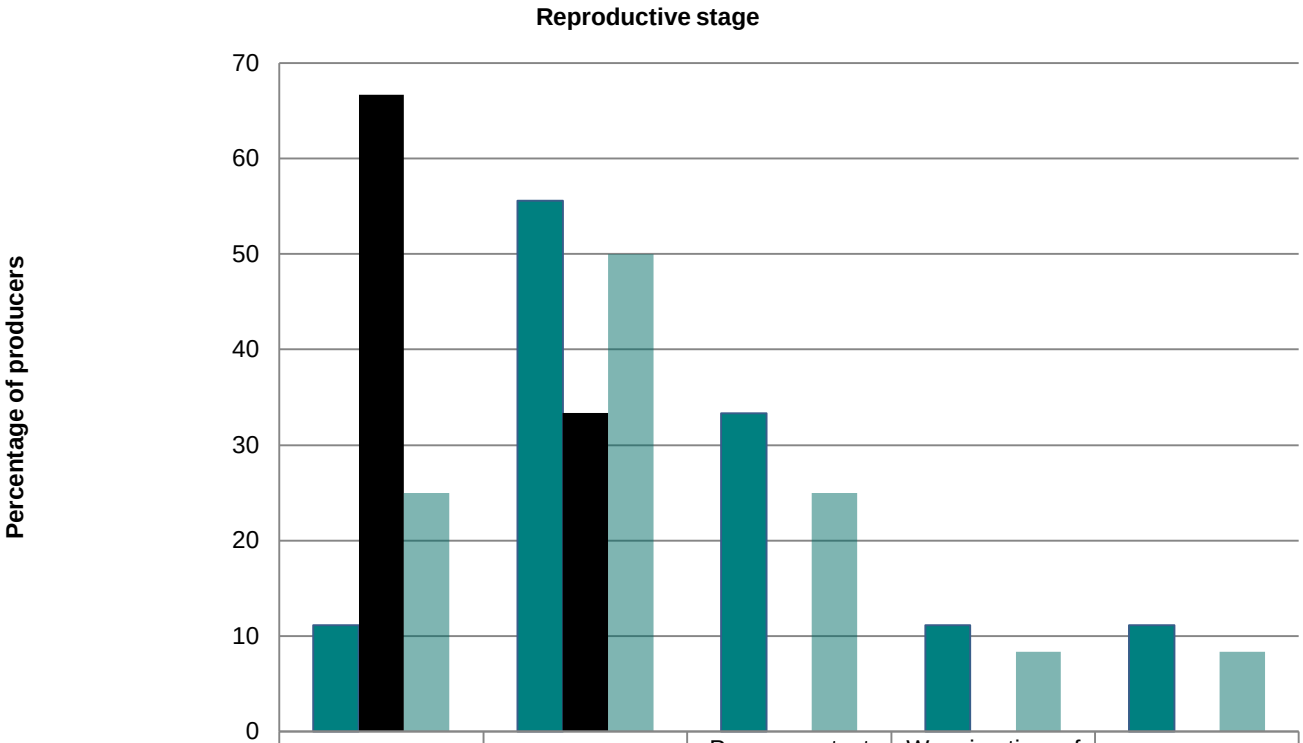
Table 15. Average estimated mortality rates for different stock classes

Stock class	Mortality (%)
Weaner heifers	3.3
First-calf heifers	2.8
Second-calf heifers	3.3
Breeders	3.0
Old cows	3.1
Weaner steers	3.1
Steers	1.9

Heifer management

Producers were asked what percentage of heifers they kept as replacements in 2009 and 2010. Barkly district producers kept 56% of heifers as replacements, which was significantly higher than in the Tennant Creek district where producers kept only 25%. There was no significant difference in numbers of heifers kept between 2009 and 2010.

Producers selected heifers at various reproductive stages, but most commonly prior to joining. In the Tennant Creek district however, weaning was the most common time of selection (Figure 25).



	At weaning	Before joining	Pregnancy test after mating	Weaning time of first calf	Other
Barkly district	11	56	33	11	11
Tennant Creek district	67	33	0	0	0
Region	25	50	25	8	8

Figure 25. Percentage of producers selecting heifers at different reproductive stages

Pastoralists were asked to indicate the importance of seven different selection criteria when selecting replacement heifers on a scale of 1 to 5 (where 1 is not important and 5 is very important). Weight and temperament were considered the most important factors. 'Other' traits mentioned included age at puberty and breed.

Table 16. Importance of traits in heifer selection

Trait	Average rating
Weight	4.3
Temperament	4.3
Conformation	3.7
Type	3.6
Fertility	3.3
Polled	2.4
Colour	2.0
Other	4.5

Based on producer estimates, over half the heifers in the Barkly region were joined at 18-24 months of age (Figure 26) and 70% were joined at 250-300 kg (Figure 27).

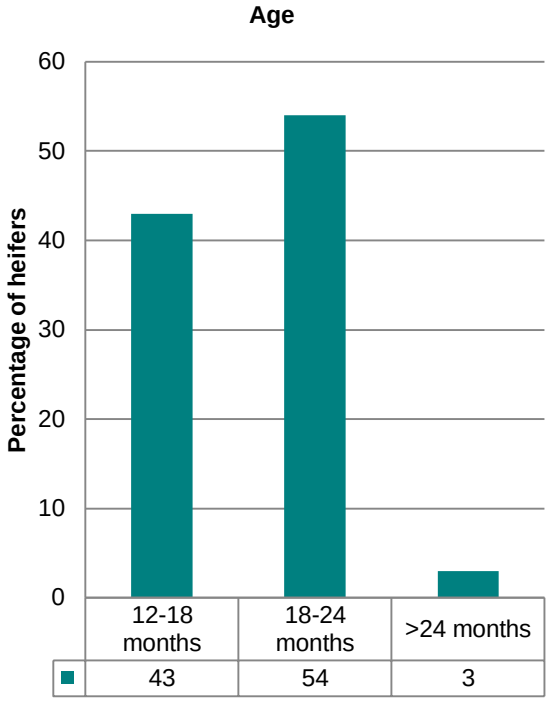


Figure 26. Percentage of heifers joined at different ages

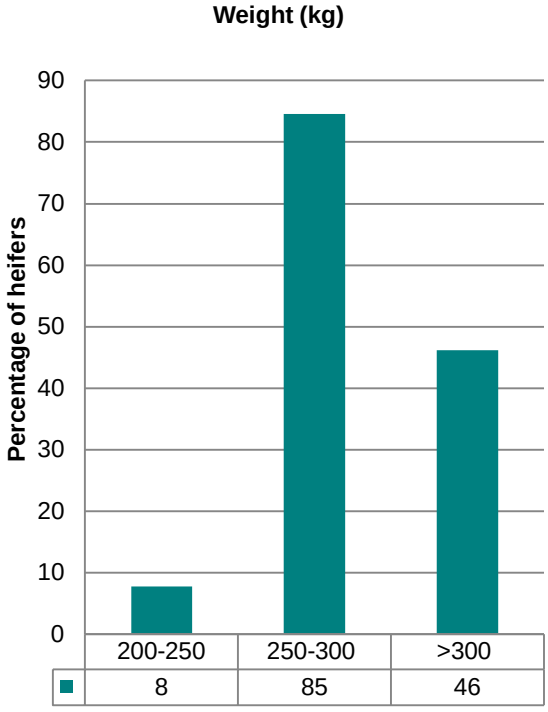


Figure 27. Percentage of heifers joined at different weights

Forty six per cent of producers did not weigh heifers at any time prior to joining. Those that did, weighed heifers at a variety of ages between weaning and joining, with some weighing heifers twice.

Seventy seven per cent of producers segregated their heifers from their breeders. Table 17 shows that the majority of heifers in the region were either kept separate until the start of their second joining or until after they had weaned their first calves. A greater percentage of producers in the Barkly district (90%) segregated than in the Tennant Creek district (33%). Pastoralists who did not segregate their heifers said it was due to too much labour or because they could not see any advantage in it.

Table 17. Age until heifers remain segregated from the rest of breeding herd

Age kept segregated until	Properties (%)	Heifers (%)
Not segregated	23	2
Until start of second joining	23	40
After weaning of first calf	38	39
For life	8	17
Other	8	5

Eighty five per cent of producers preferred to use bulls that were less than three years old to mate to their heifers.

Producers were asked what determined when calves were weaned from heifers. Body condition of heifers was the chief determinant (Figure 28).

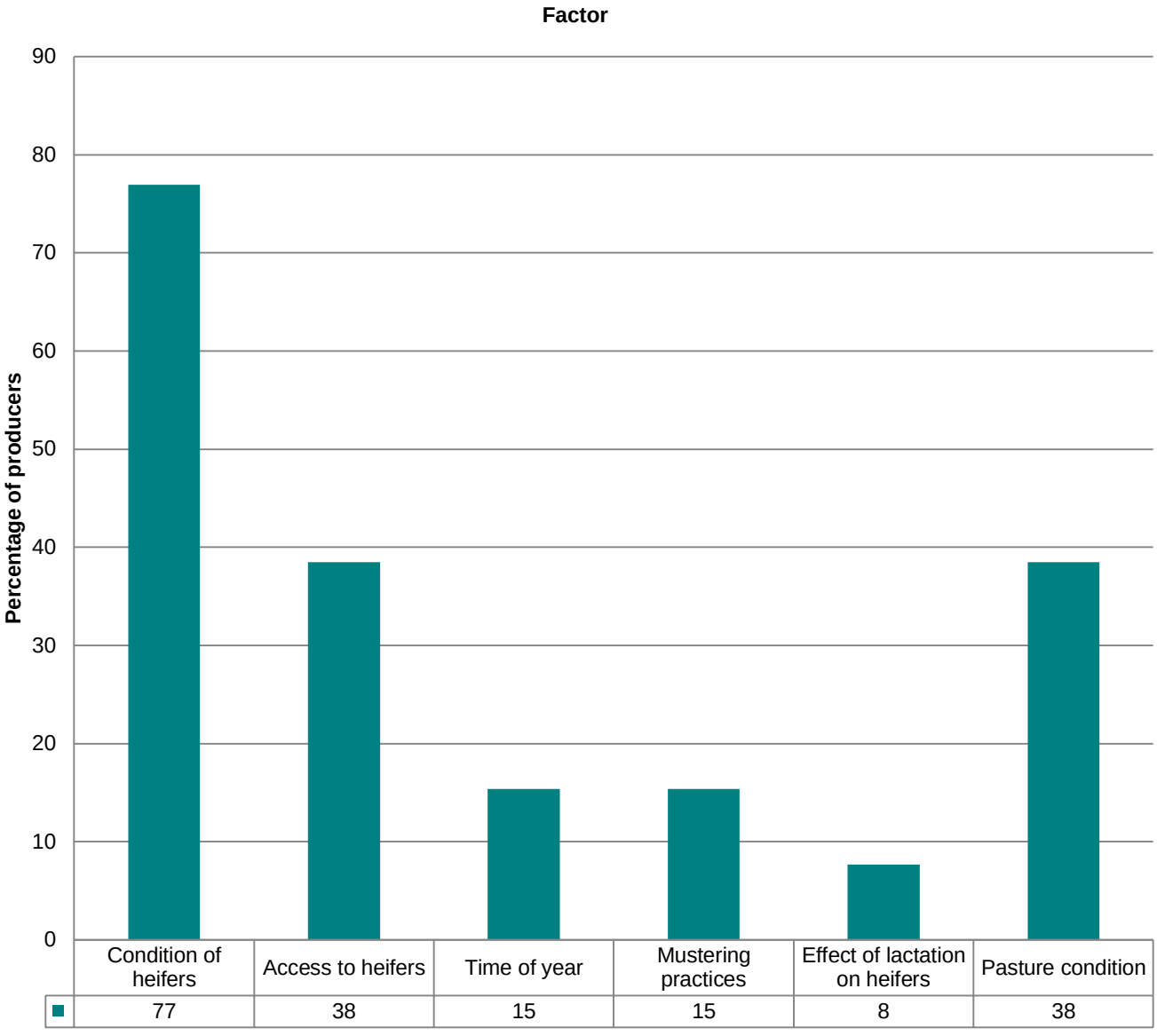
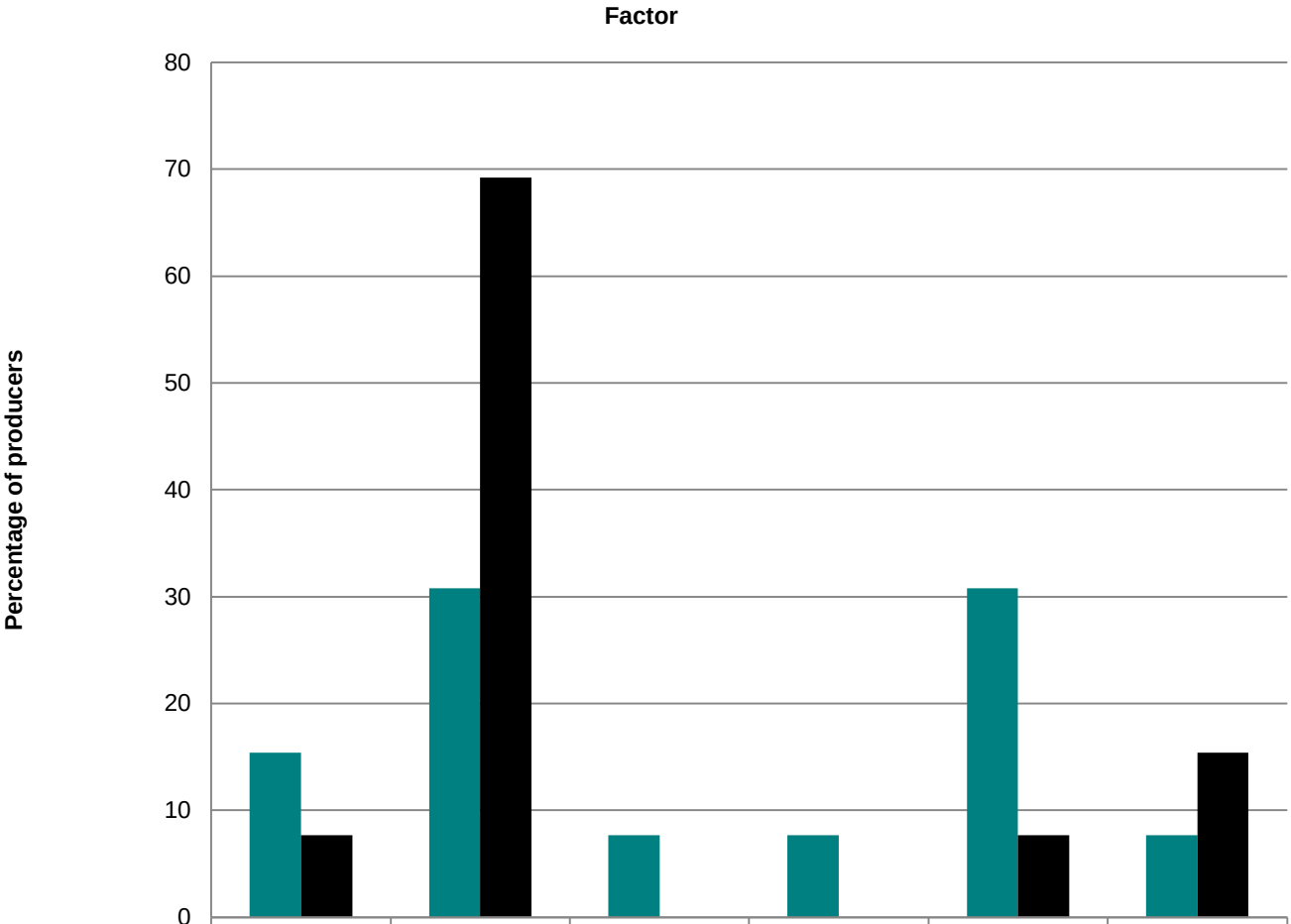


Figure 28. Factors influencing when to wean calves off heifers

The majority of producers also believed that body condition was the most important factor affecting the reproductive performance of heifers (Figure 29).



	Age	Body Condition	Genetics	Plane of nutrition	Weight	Other
Maiden heifers	15	31	8	8	31	8
First calf heifers	8	69	0	0	8	15

Figure 29. The percentage of producers that chose different factors as most important in affecting fertility in heifers

Management of young stock

Weaning

All producers surveyed indicated that they weaned. Ninety two per cent of producers weaned down to a different minimum weight each year according to environmental and breeder conditions (Figure 30).

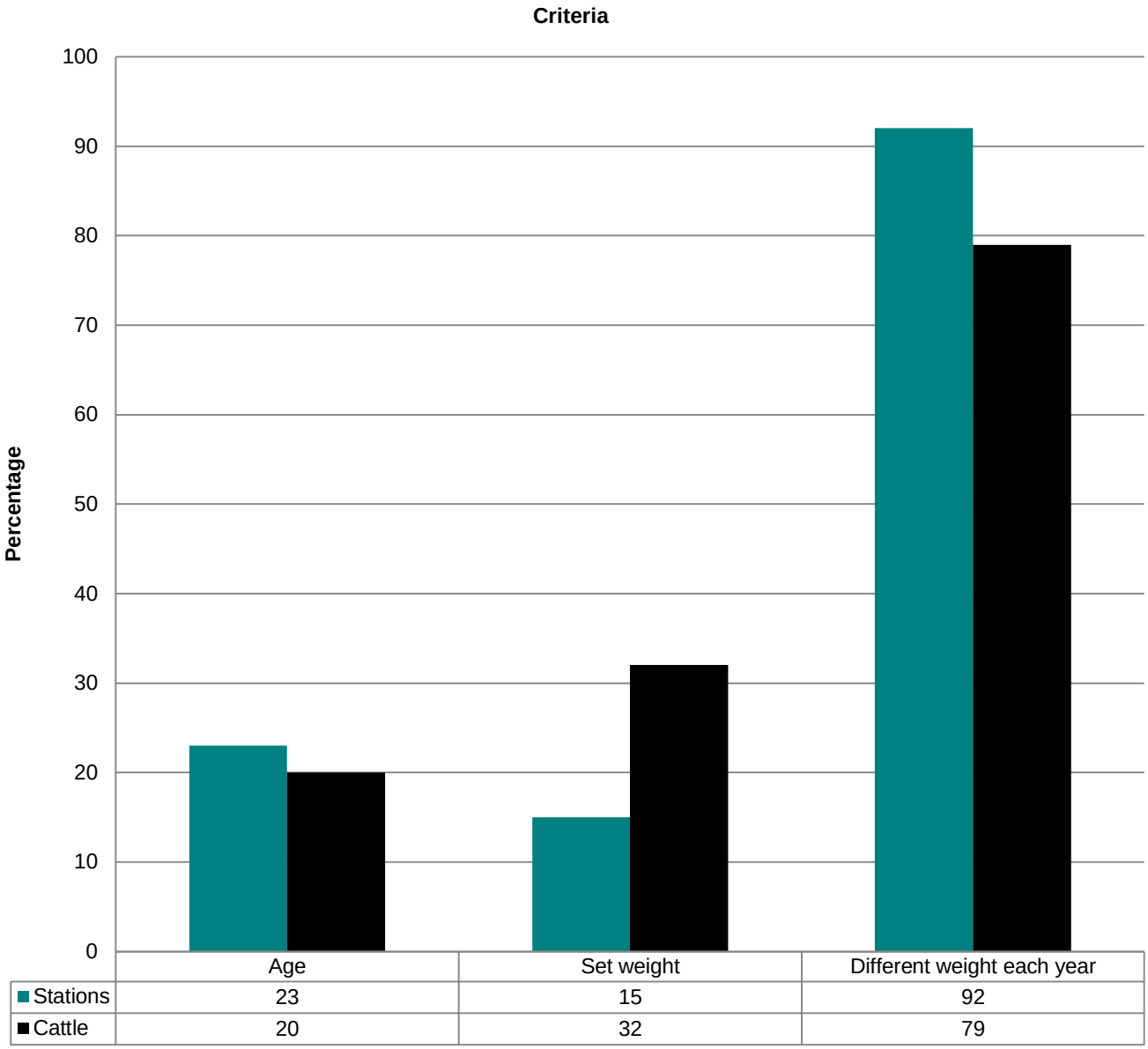


Figure 30. Criteria for weaning

Table 18 shows the variation in average minimum weaning weights across the region in 2010. Producers in the Tennant Creek district weaned at lighter weights than those in the Barkly district.

Table 18. Average minimum weaning weight

Time of weaning	Barkly (kg)	Tennant Creek (kg)	Barkly region (kg)
First round	117	82	116
Second round	114	80	113
In a bad year	85	80	85

The average estimated weaning weight for the Barkly region for first round musters was 201 kg and 175 kg for second round musters (Figures 32).

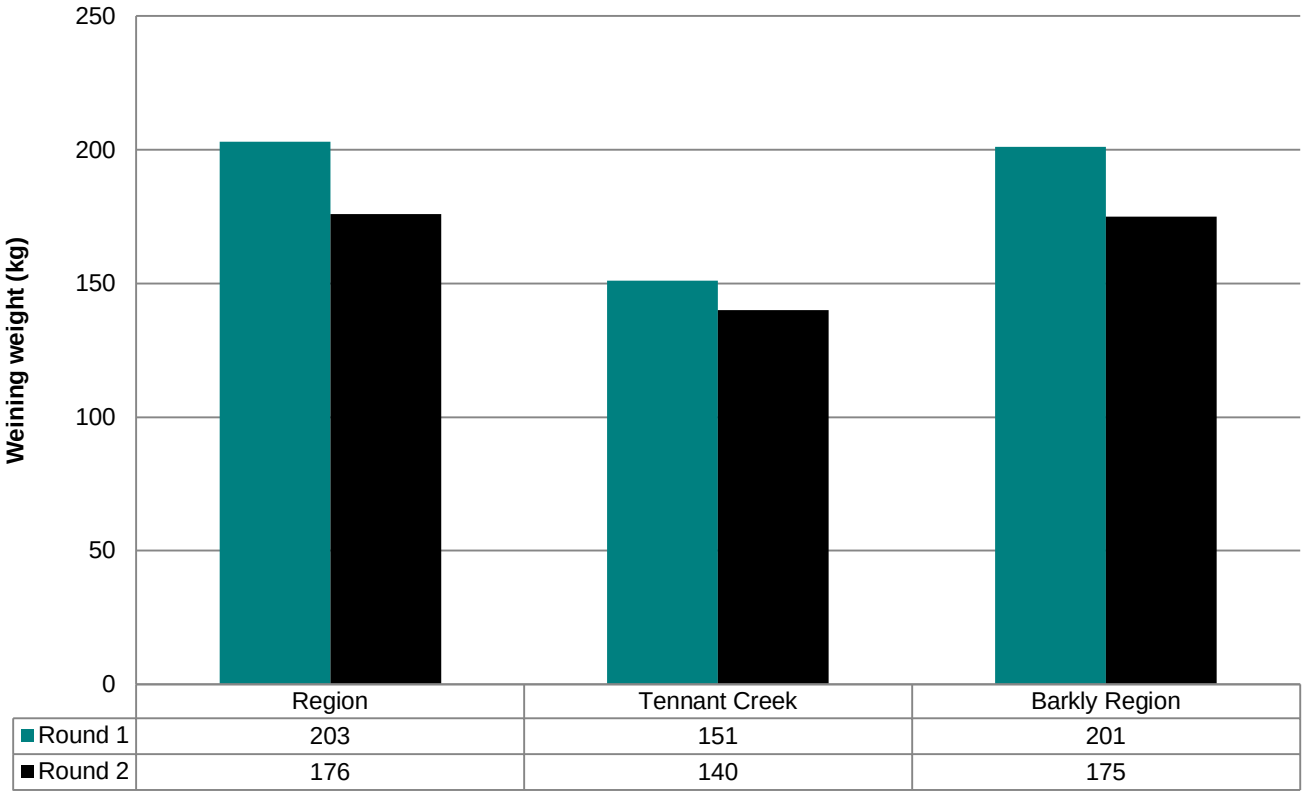


Figure 31. Average minimum weaning weight in first and second round

Weaning often involves a training process where young animals are introduced to experiences that they are likely to encounter later in life. Typically, producers trucked weaners to a weaning complex, fed them in the yards and worked them through the yards, as well as tailing them out over a five-day period before branding and turning out (Figure 32).

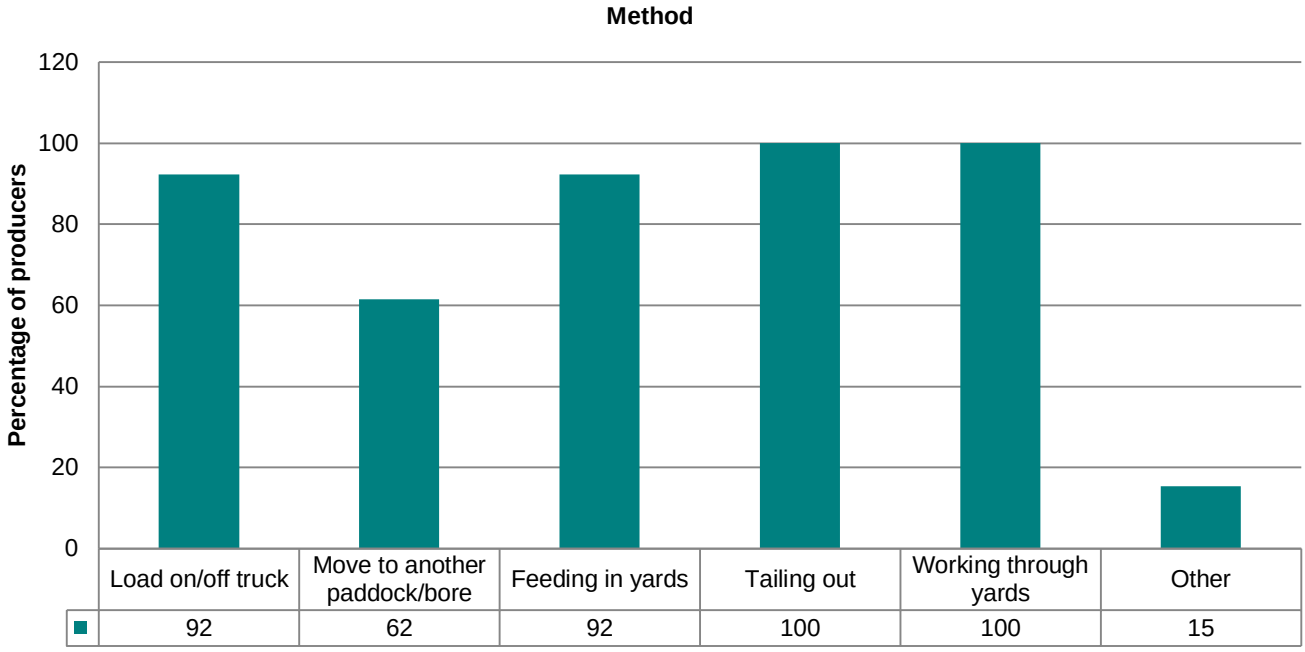


Figure 32. Training methods of weaners in the Barkly region

Sixty two per cent of stations, representing 89% of weaners in the region segregated weaners into weight classes and fed them accordingly. Table 19 shows the percentage of producers using different feeding strategies for different weaner classes.

Table 19. Percentage of producers using different feeding strategies for various weight classes of weaners

Feeding strategy	All	<100 kg	100-150 kg	>150 kg
Feed throughout dry season	31	8	8	0
Feed to target weight	8	31	23	0
None	15	0	0	0
Put on spelled pasture	31	0	0	8
Short term feeding in yards with concentrate	23	31	31	0
Short term feeding in yards with hay	69	0	0	15

Producers were asked what feed type they used for weaners. The most common feed types included native/rangeland hay and weaner pellets (Table 20). Lighter weaners (less than 150 kg) were more likely to be fed weaner pellets.

Table 20. Percentage of producers feeding various feedstuffs to different weight classes of weaners

Feedstuff	All	< 100 kg	100-150 kg
Cottonseed meal	8	8	8
Legume/grass hay mix	15	0	0
Native/rangeland hay	54	0	0
Other	8	0	0
Dry season supplement	15	8	8
Weaner pellet	0	54	31

Year branding

Producers were asked what methods they used to brand their stock. All stations in the region except one indicated they branded to a calendar year, while one station in the Tennant Creek district branded to a financial year.

Nutritional management

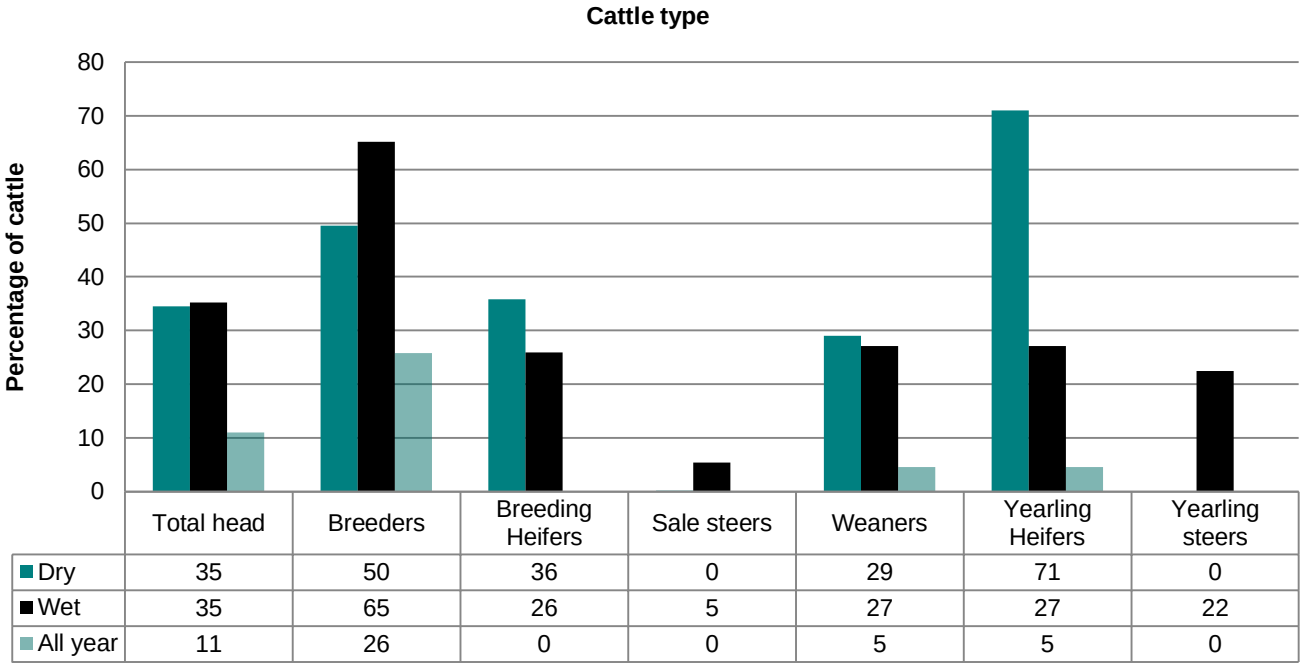
Supplementation

Seventy seven per cent of producers in the Barkly region fed a mineral supplement (80% in the Barkly; 66% in Tennant Creek). There was a broad range of supplementation strategies, with some producers feeding different classes of stock at different times of the year (Table 21). While 69% of producers supplemented some stock during the dry season, 15% of producers only fed during the dry. A further 62% of producers supplemented during the wet season, with 8% who only supplemented stock during the wet.

Table 21. Percentage of producers who carried out various broad supplementation strategies

Broad supplementation strategy	Properties (%)
Only supplemented in the dry season	15
Only supplemented in the wet season	8
Supplemented all year round	0
Supplemented in the dry and wet season, but not all year	31
Supplemented some stock all year, and some stock part year	23
None	23

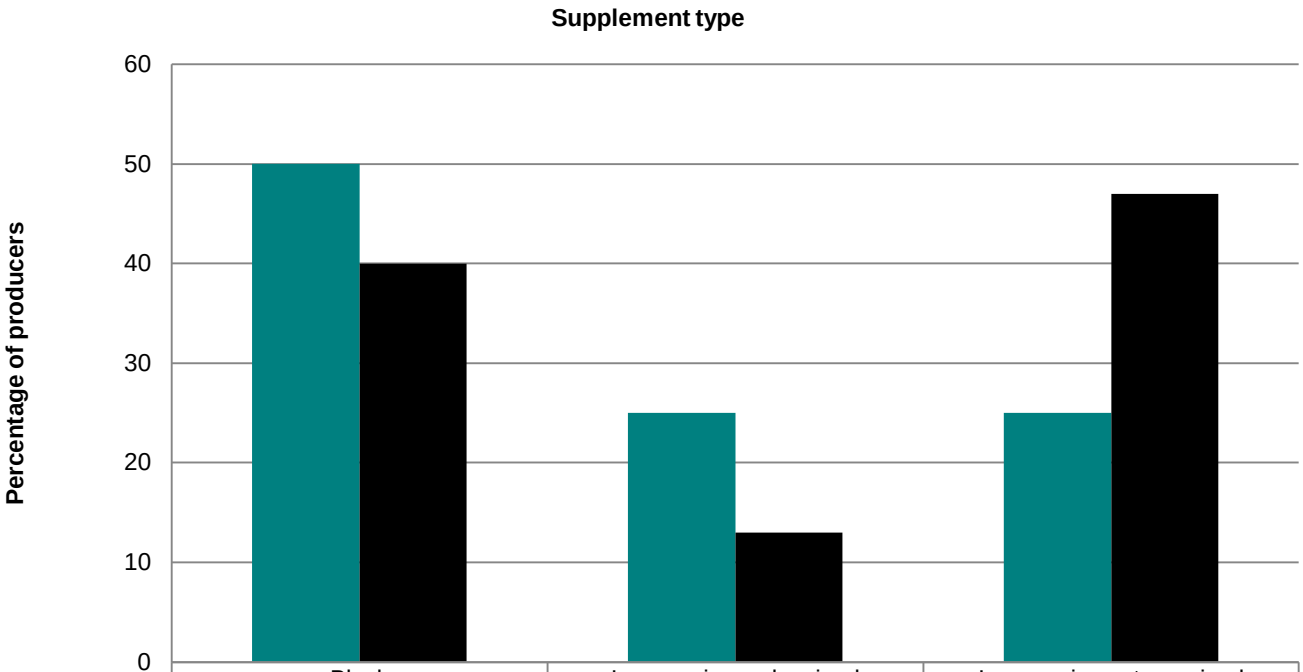
Breeders, heifers and weaners were more commonly supplemented than other stock classes. Altogether, 11% of the surveyed stock were fed year round. Including these, 35% were fed in the dry season and 35% were fed in the wet season (Figure 33).



	Total head	Breeders	Breeding Heifers	Sale steers	Weaners	Yearling Heifers	Yearling steers
Dry	35	50	36	0	29	71	0
Wet	35	65	26	5	27	27	22
All year	11	26	0	0	5	5	0

Figure 33. Percentage of cattle supplemented over different periods of the year on the Barkly

Figure 34 shows that using a supplement block was more popular in the wet season, whereas a custom loose mix was more common in the dry season.



	Block	Loose mix-ready mixed	Loose mix-custom mixed
Wet season	50	25	25
Dry Season	40	13	47

Figure 34. Methods of feeding the supplement

The major mineral supplemented in the wet season was phosphorus and in the dry urea (Table 22).

Table 22. Percentages of properties feeding mineral supplements throughout the year

Mineral	Wet season (%)	Dry Season (%)
Phosphorus	89	29
Urea	11	83

Pastoralists were asked to estimate the cost of supplementation for 2010. The estimated average cost in the Barkly region was $12.70 per animal during the dry season and $14.70 per animal during the wet season.

Near infrared reflectance spectroscopy (NIRS) is used to determine the nutritional quality of grazed pastures through the analysis of faecal samples. Thirty eight per cent of producers in the Barkly region used NIRS to determine the timing of mineral supplementation. One producer used it in the past but discontinued it due to the lack of timeliness of results and as they felt they had already built up the necessary knowledge.

Production feeding

Producers were asked if they provided any production feeding to stock. Two producers fed proprietary feed mixes to heifers and weaners and a stud provided it to their bulls. One property fed a weaner mix to yearling heifers and another property fed a custom cottonseed mix to out-of-season breeders.

Hay for own use

Twenty three per cent of producers surveyed in the Barkly region produced hay for their own use. In 2010, the average production per property was 600 tonnes of native hay and ranged from 120 to 1200 tonnes. Producers thought that transport, weather variability, quantity and quality of water available and competition from interstate sellers were main issues affecting hay production. The main factors limiting the expansion of hay production included time, lack of machinery and cost of inputs.

Animal health

Common problems

The two most commonly seen animal health problems in the Barkly region were three-day-sickness and buffalo flies. Figure 35 shows the percentage of stations that mentioned each problem.

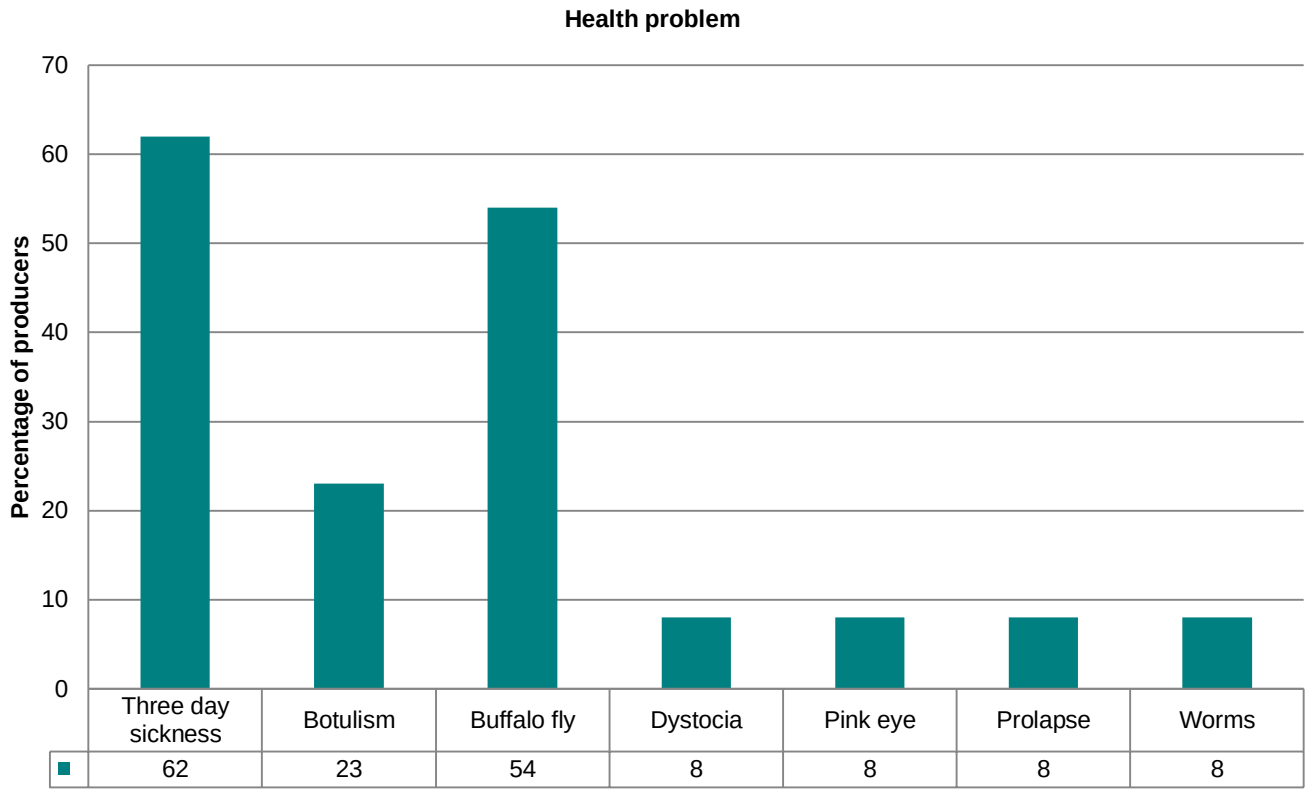


Figure 35. Most commonly seen animal health problems in the Barkly region

Health treatments

Botulism

Ninety two per cent of producers surveyed vaccinated 92% of cattle against botulism. The Barkly district vaccinated 94% of cattle and the Tennant Creek district vaccinated 39% of cattle. Of those, 75% used a long-acting vaccine, 17% used a conventional/annual vaccine and 8% used a combination of both, depending on the class of stock being vaccinated.

Vibriosis

Sixty two per cent of producers, all from the Barkly district, vaccinated against vibriosis annually. Of these, half vaccinated bulls only and half vaccinated their bulls and maiden heifers. This equated to 38% of maiden heifers in the Barkly region and 67% of bulls being vaccinated against vibriosis.

Clostridial diseases

One property in the Barkly district vaccinated breeding heifers against clostridial diseases and one property in the Tennant Creek district vaccinated weaners.

External parasites

Worms were the most commonly treated external parasite. One large property treated breeders, heifers and weaners against lice. Table 23 outlines the treatment for external parasites in the Barkly region.

Table 23. External parasite treatment

External parasite	No. properties	Properties (%)	Cattle treated (%)
Cattle ticks	1	8	1
Buffalo flies	3	23	1
Worms	5	38	12
Lice	2	15	17

Wound antisepsis

Five producers reported using wound dressing after dehorning on 29% of weaners in the region.

HGPs

Eighty five per cent of producers used HGPs with 35% of sale steers and 83% of yearling steers being implanted. The main reason why producers did not use HGPs was because the majority of younger cattle were moved to growing out properties where they were subsequently implanted.

Grazing management

Carrying capacity

Producers were asked to estimate the carrying capacity of their properties with current infrastructure. The average carrying capacity estimates varied greatly between the Barkly and Tennant Creek districts. This can be attributed to the large variation in station size between the two districts with the Barkly district typically having larger, company-owned stations and Tennant Creek district having smaller privately-owned enterprises. The average estimated total carrying capacity for the Barkly district was 48 000 animals and ranged from 8000 to 94 100. Producers from the Tennant Creek district estimated their breeder carrying capacity rather than total animal carrying capacity. The average breeder carrying capacity was 2200 and ranged from 400 to 4000.

Producers were also asked to estimate their carrying capacity in five and 10 years' time taking into account their plans for infrastructure development. An increase of 19% and 27% was estimated by 2015 and 2020, respectively across the surveyed properties.

Due to the large seasonal variability and unpredictable nature of the wet season, most producers often had a contingency plan in the event of a drier than normal year. Respondents were asked how they adjusted their stocking rates in a below average pasture growth year. All producers surveyed in the Tennant Creek district and 90% of those surveyed in the Barkly district said they reduced the number of stock to match the carrying capacity of the land (Figure 36).

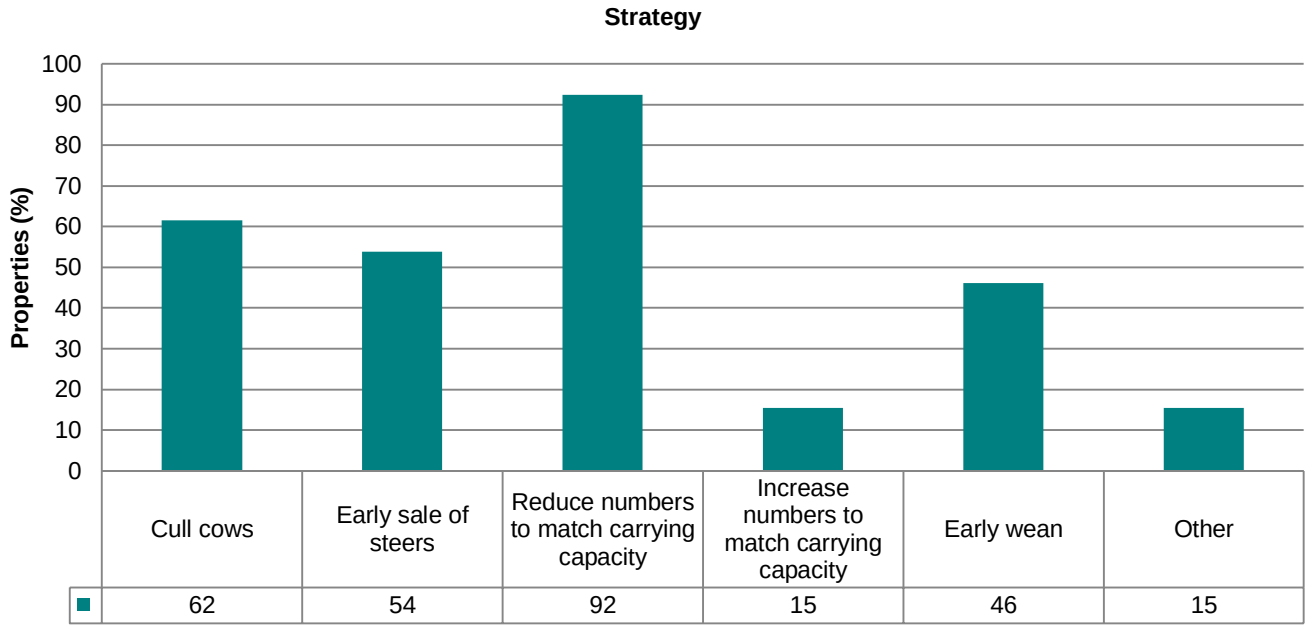


Figure 36. Percentage of properties using different strategies to adjust stocking rates during a dry season

Producers were asked what indicators they used to assess feed availability and how often this was done. The two most common methods were assessing the condition of the stock and using historical information and/or experience (Figure 37).

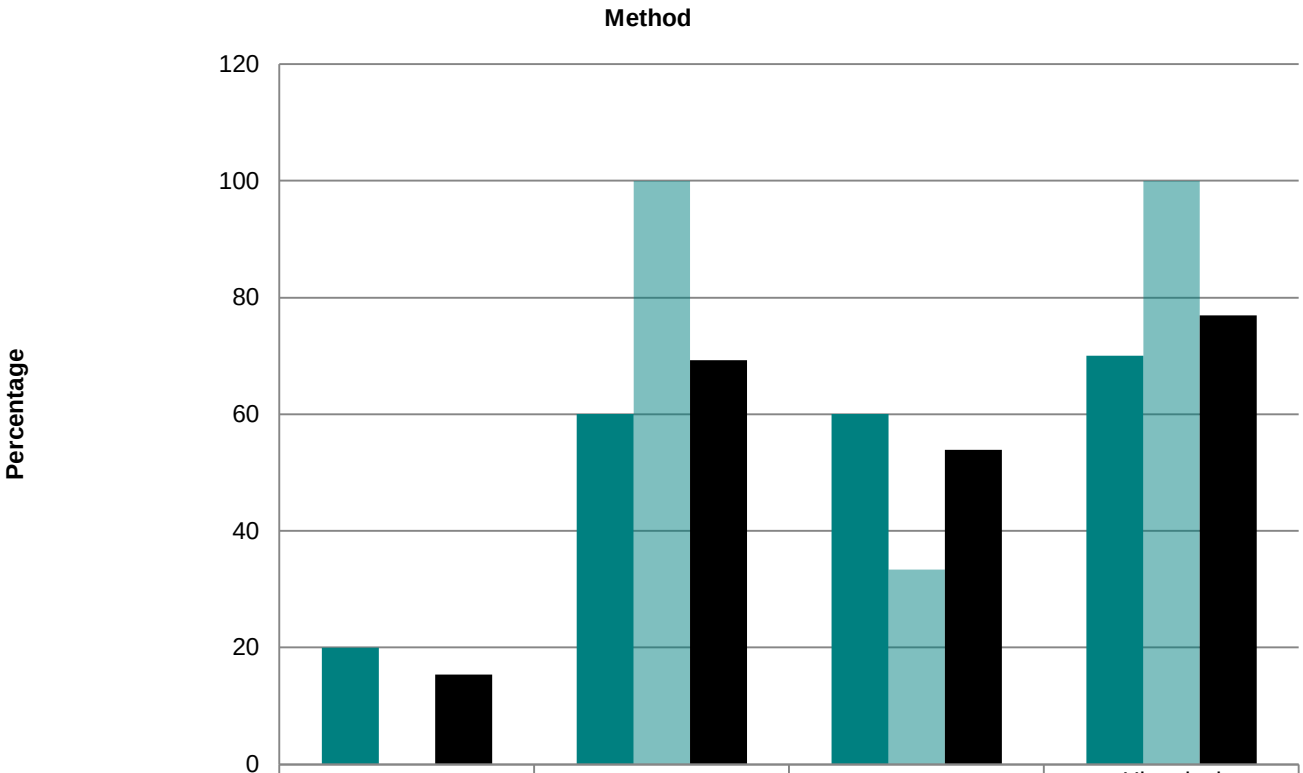


Figure 37. Indicators used to assess feed availability

Producers typically assessed feed availability frequently throughout the year (Table 24). One producer stated that he inspected pastures in December/January to make decisions for the coming year.

Table 24. Percentage of producers assessing feed availability at different times of the year

Timing of feed assessment	Barkly (%)	Tennant Creek (%)	Barkly region
End of growing season	50	0	38
In a drought	10	0	8
Frequently throughout the year	90	100	92
Based on long term safe average	10	0	8
Other	10	0	8

All pastoralists surveyed in the Barkly region indicated they were able to recognise different land systems/types on their properties and rank their carrying capacities. Lake country was seen as the most productive, followed by black soil Mitchell grass downs, frontage/channel/flood-out country and soft spinifex; hard spinfex/turpentine country was the least productive.

Water-point development

Producers were asked: what was the upper limit of distance from water around which they planned to build their infrastructure (Figure 38). The majority felt that 5 km was the upper limit. The average distance for the region was 4.5 km; however, this varied considerably between districts, with producers in the Barkly district preferring their cattle to walk less (3.8 km), while the average for the Tennant Creek district was 7 km. This was a function of the poorer country in the Tennant Creek district with a lower carrying capacity and a higher cost of development to run the same number of cattle as in the more productive Barkly downs country.

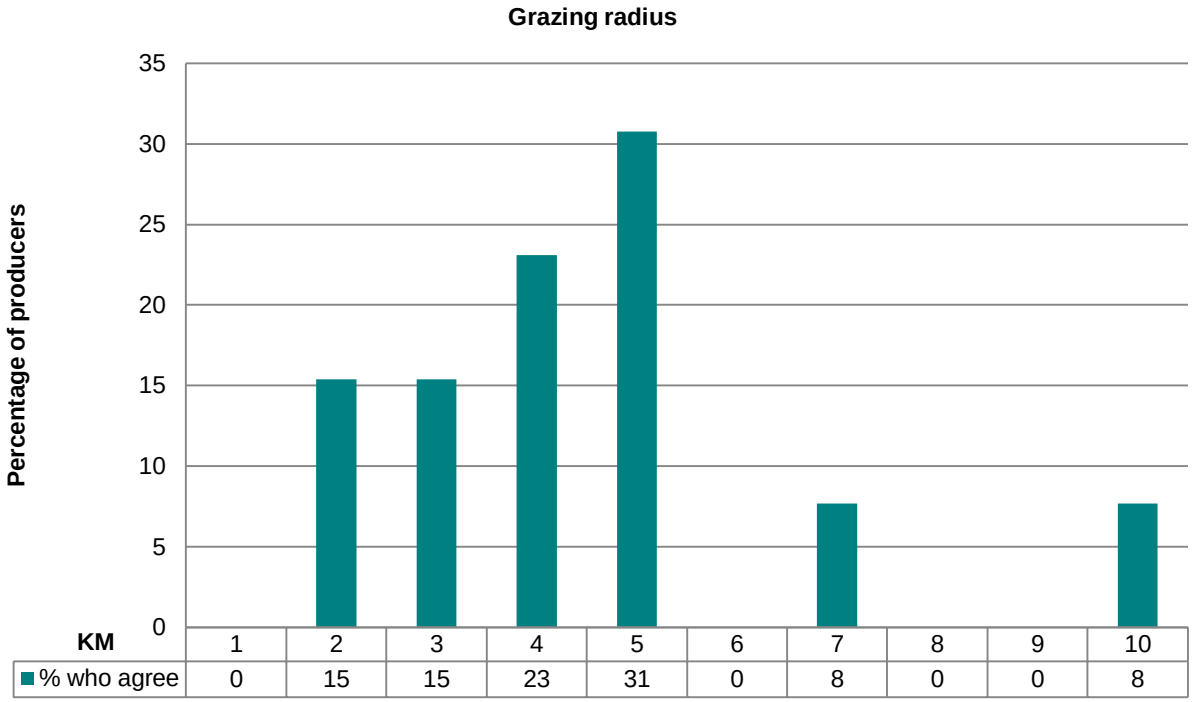


Figure 38. Preferred maximum grazing radius (km) when planning water points (percentage of producers)

Seventy seven per cent of producers agreed that increasing the number of watering points was sufficient to disperse cattle more evenly through a paddock. When asked what other methods were used, 85% of respondents said fences were also an effective method of dispersing cattle through a paddock (Figure 39). One producer mentioned that natural cattle movement from semi-permanent waters as they dried up to permanent water points worked to naturally spread grazing pressure.

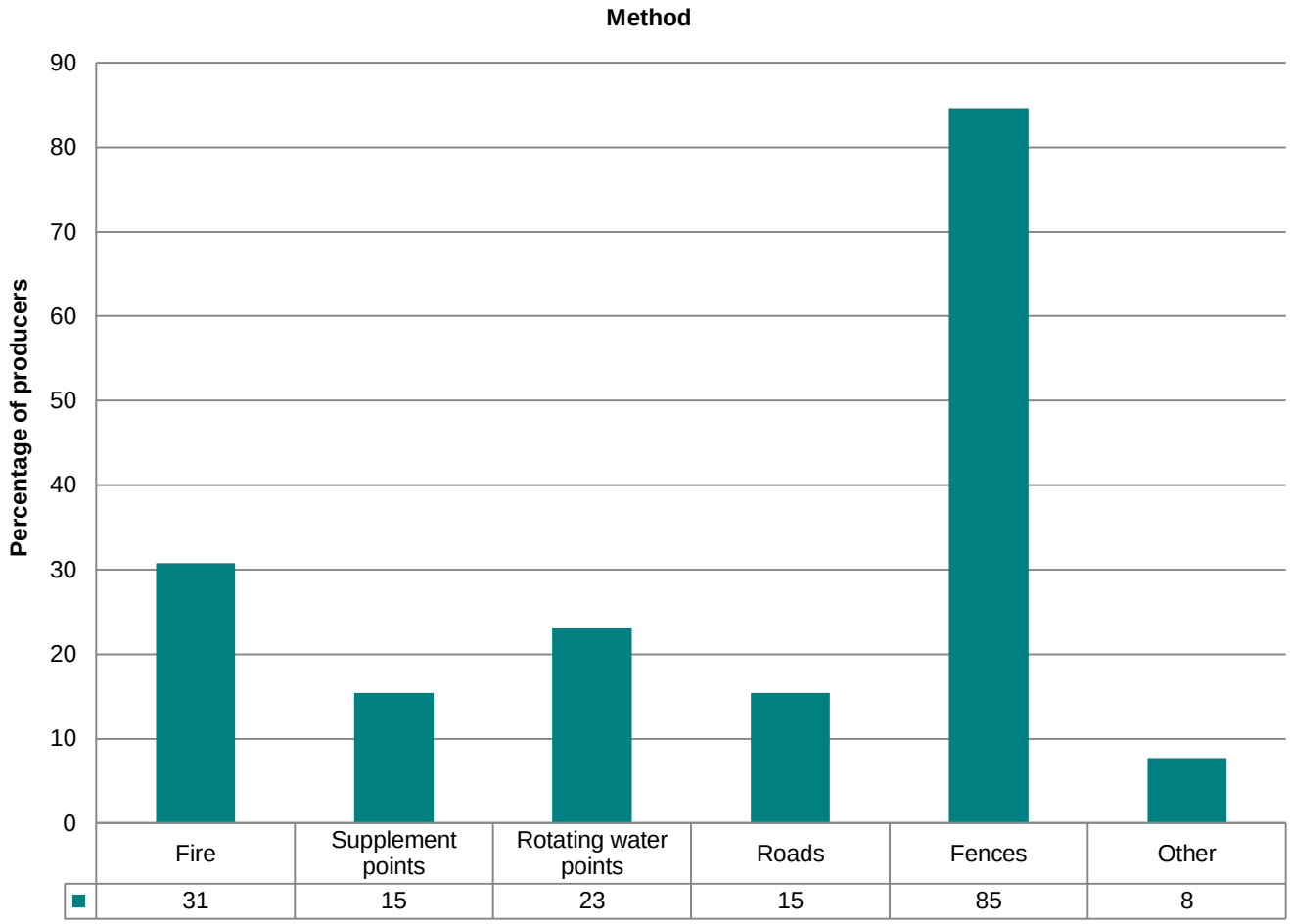


Figure 39. Methods used to disperse cattle more evenly through a paddock

Grazing strategies

Producers were asked to indicate what grazing strategies they used. They most commonly mentioned spelling and continuous grazing. Spelling was the most frequently nominated strategy (69%), followed by continuous grazing (61%) and rotational grazing (46%). No one used cell/time control grazing. Most (69%) used a combination of strategies, depending on the stock class, country type and seasonal conditions. Figure 41 shows the percentage of producers who used different combinations of strategies and shows that a mixture of continuous grazing and spelling was most common, which typically meant continuously grazing most paddocks and occasionally wet season spelling paddocks as required.

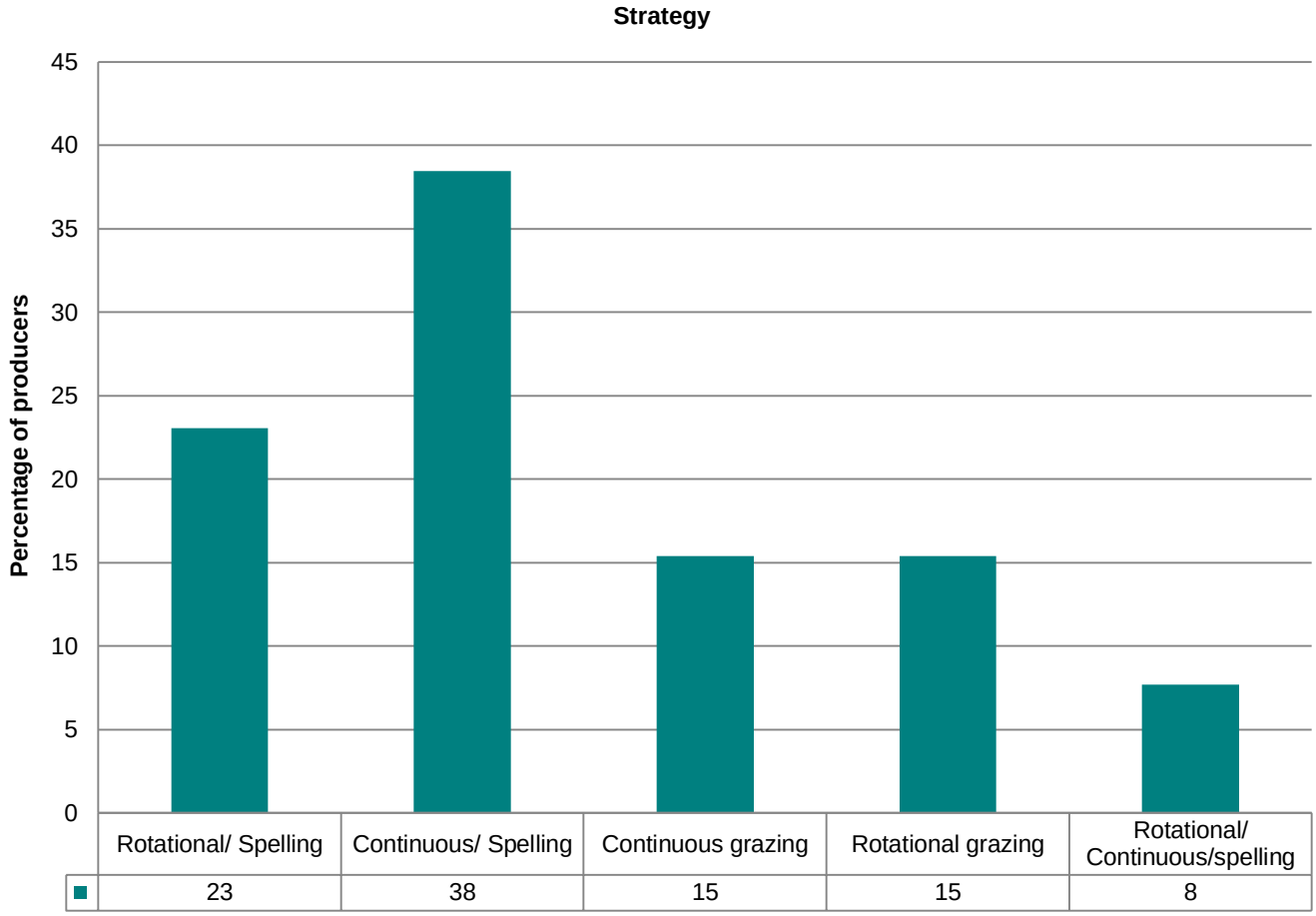


Figure 40. Grazing strategies used in the Barkly region

Fifty four per cent of producers indicated that they excluded some areas of their stations from regular grazing. Excluded areas were most commonly used for drought reserves or were not used at all as development was not considered cost-effective (as opposed to country that they were planning to develop) (Figure 41). Of the people that had not excluded areas from grazing, 67% said they would consider excluding areas in the future if required.

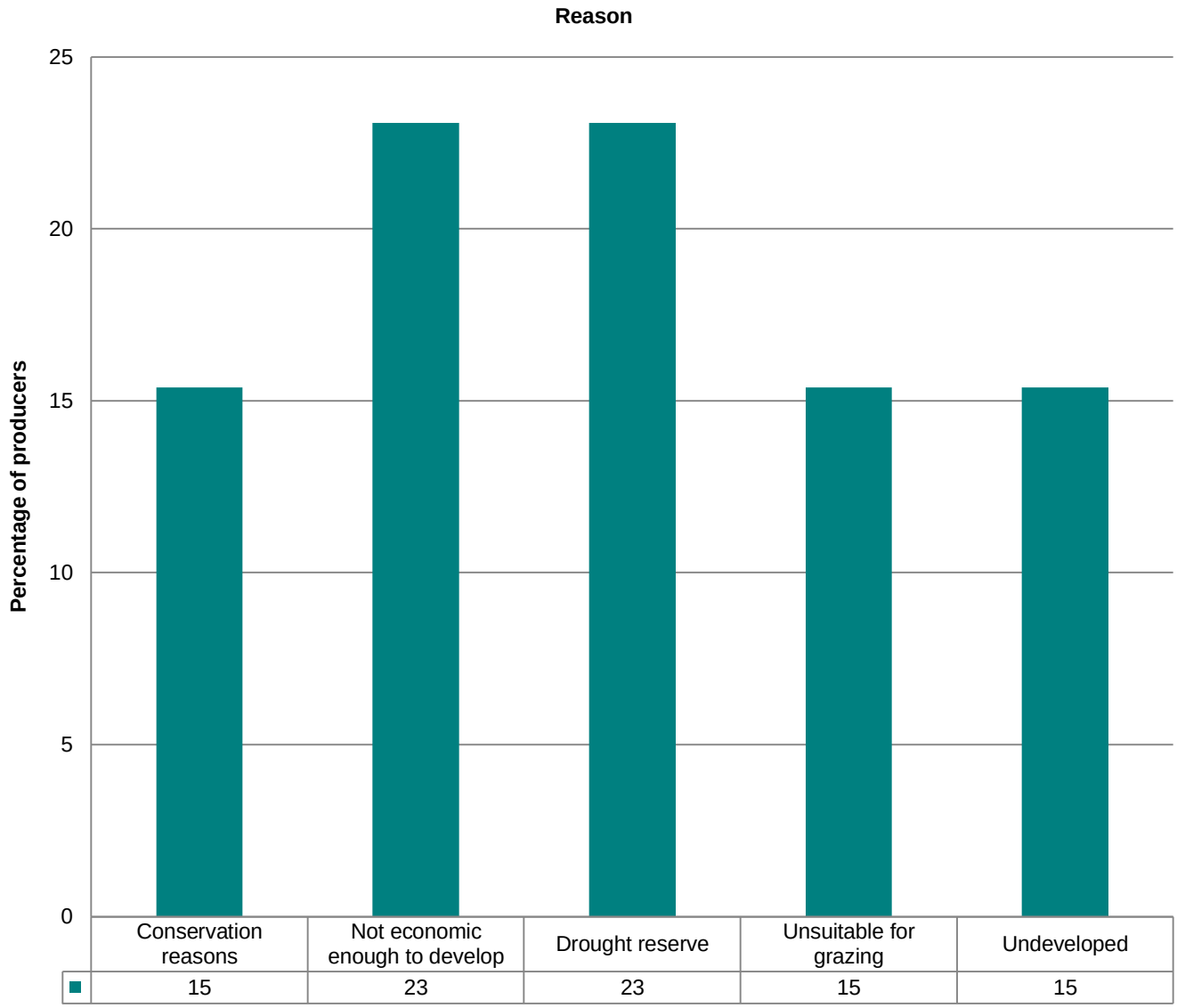


Figure 41. Reasons to exclude areas from regular grazing in the Barkly region

Drought strategies

Producers were asked what strategy they used in the last drought and were asked to refer back to 2008 after the 2007-08 'wet' season, which virtually did not existent. Figure 42 shows that the two most popular strategies were to sell a percentage of the herd and to use supplementary feeding. Other strategies included moving cattle to other inter-company stations or sending cattle to the floodplains for fattening.

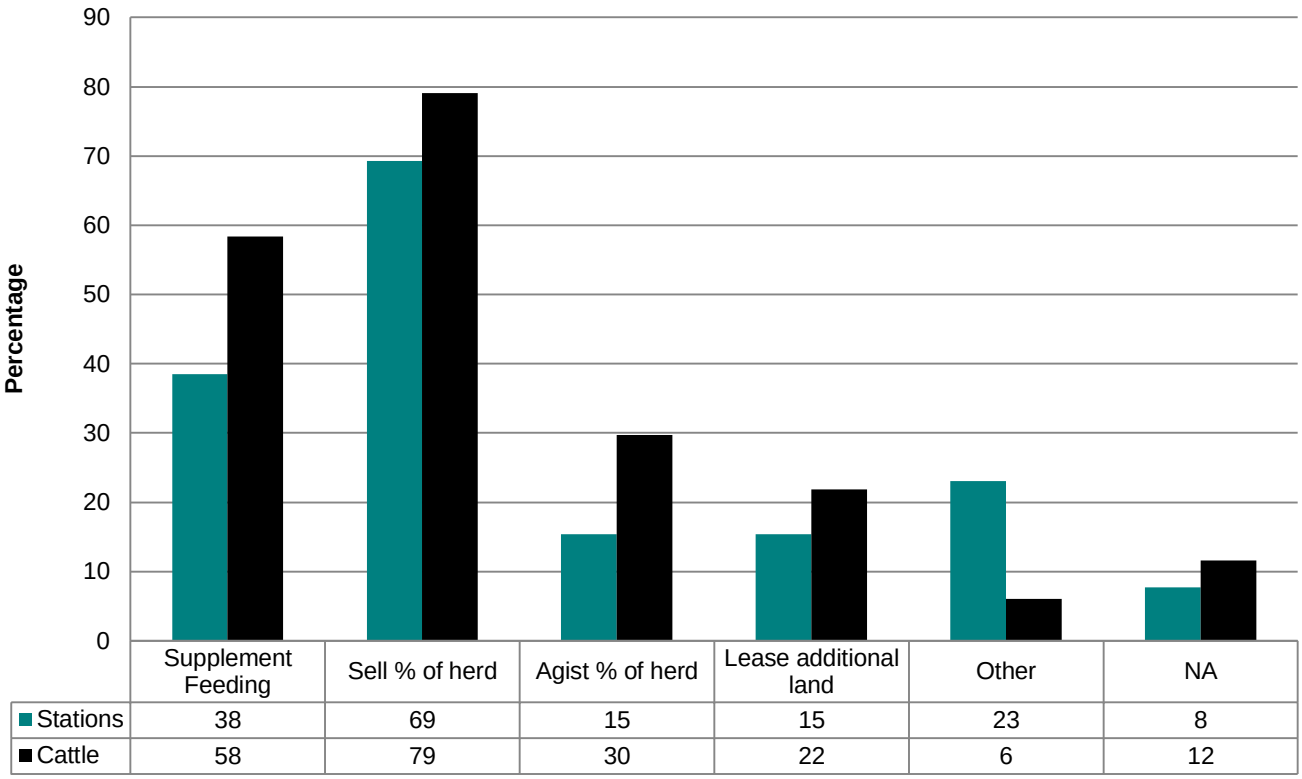


Figure 42. The strategies implemented in the Barkly region during the last drought

Fire

Producers were asked to estimate the percentage of their properties that were burnt by wildfire and through management burns during 2010 (Table 25). The Tennant Creek district experienced much higher levels of both wildfire and intentional fire in the 12 months leading up to the survey than the Barkly district.

Table 25. Estimated percentage of surveyed area burnt by fire in 2010

Burn type	Barkly (%)	Tennant Creek (%)	Barkly region (%)
Wildfire	7	21	8
Intentional fire	2	12	2

Properties in the Tennant Creek district were much more likely to burn for management purposes (100% of properties versus 60% in the Barkly district) and burnt much larger areas. Two properties in the Tennant Creek district burnt 30% and 50% of their leased areas every two years in the early wet. In comparison, Barkly district properties generally burnt a very small amount of their leased areas (1-3%).

Producers in the Barkly region used fire to manage their stations in a number of ways. These included wildfire mitigation (38% of producers), manage pasture species composition (15% of producers), control grazing distribution/remove rank pasture (38% of producers) and manage tree-grass balance (38% of producers).

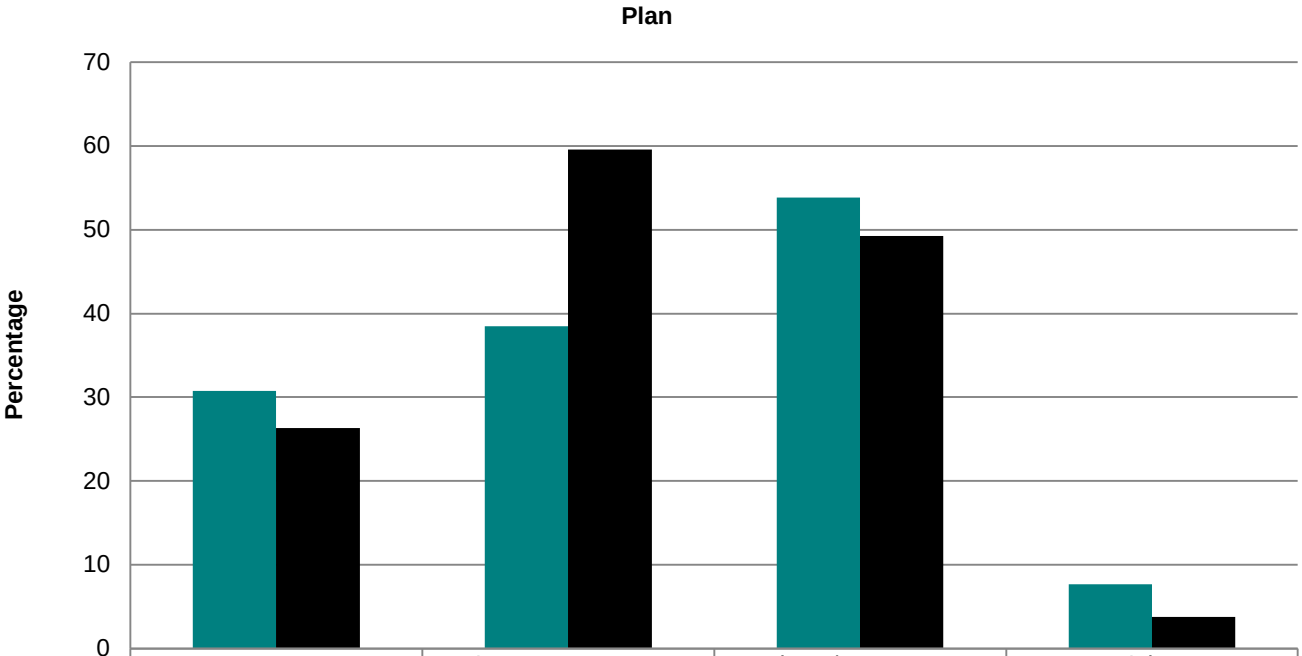
Cool burns appeared to be used more frequently for wildfire mitigation in the early wet, whereas the majority of producers indicated they preferred a moderate to hot burn in the early wet for managing species composition, removing rank pasture, controlling grazing, and managing the tree-grass balance.

Improved pasture

Twenty three per cent of producers indicated they had areas of improved pasture on their stations. Respondents found it hard to judge the area of improved pasture as it was often scattered around airstrips and throughout paddocks. Based on producer estimates, 300 km^2 or 0.3% of the surveyed area was under improved pasture. Varieties included buffel grass, Verano stylo and Seca stylo, which were typically low input pastures where seed was broadcast into native pastures.

Natural resource management (NRM)

Sixty nine per cent of respondents said they had some form of documented land monitoring program. Thirty eight per cent of producers, who represented 60% of the surveyed area, had a company program, while 54% of producers, representing 49% of the surveyed area, had a Landcare or NRM program in place (Figure 43). Note: The percentage of area and percentage of stations add up more than 100% as 23% of respondents indicated they used both a company and a Landcare or NRM program.



	No	Company program	Landcare/NRM program	Other
Stations	31	38	54	8
Area	26	60	49	4

Figure 43. Percentage of stations and area they represented that used documented land management plans

Native tree and shrub build-up

Thirty eight per cent of producers in the Barkly region, representing 56% of the pastoral area, had noticed a build-up of native trees or shrubs on their black soil country. Twenty three per cent of respondents, the majority from the Tennant Creek district, representing 10% of the pastoral area, said they had not noticed a build-up on their stations. Thirty eight per cent of producers indicated they used burning to control the build-up of native trees and shrubs.

Weeds

NRM issues, such as weeds, erosion, wildfires and feral animals can reduce productivity through degrading land condition, decreasing the amount of useful pasture available and increasing mustering difficulty, among others. Producers were asked to estimate the annual cost of lost production due to NRM issues. While many found it

difficult to put a figure on the cost, the majority indicated that weeds and wildfires tended to be of most concern in terms of the monetary value of lost production, followed by erosion and feral animals.

Producers were asked to identify the various weeds on their properties, how much of an impact they were having and if they were doing anything to control them. All producers had some weeds present and all were carrying out some control. Thirty eight per cent of producers were controlling all weed species present and 62% were controlling some of the weed species. Table 26 shows the prevalence of different weed species across the Barkly and the percentage of these stations that were attempting to control them. Parkinsonia and rubber bush were the most prevalent with 85% and 77% of stations, respectively indicating the weeds were present, although rubber bush was considered to be having a high impact by more producers.

Table 26. Species of weeds present in the Barkly region, their impact rating and the percentage of producers attempting to control them

Weed	Properties with weeds (%)	Properties controlling weeds (%)	Impact (% producers rating as)		
			Low	Medium	High
Athel pine	23	67	23	0	0
Bellyache bush	8	100	8	0	0
Crotalaria species	8	0	8	0	0
Kapok bush	8	0	8	08	0
Khaki weed	15	50	8	15	0
Mesquite	38	100	23	8	0
Mimosa bush	46	83	38	8	0
Mossman River grass	8	100	8	0	0
Noogoora burr	54	43	38	0	8
Parkinsonia	85	100	46	31	8
Prickly acacia	38	100	23	15	0
Rubber bush	77	90	38	8	31

Producers were asked to estimate the percentage of their properties affected by weeds and their annual expenditure on weed control, including labour. Based on producer estimates, seven per cent of the surveyed area was affected by weeds (Table 27). The median expenditure on weed control in 2010 was $27 500 in the Barkly district (range from $1000 to $200 000) and $5000 in the Tennant Creek district (range from $500 to $5000). To take into account the size of their leases, expenditure on weed control was also calculated per square kilometre of the lease.

Table 27. Percentage of area affect by weeds and weed control expenditure

District	Area affected (%)	Median $/property spent on control	Median $/km^2 spent on control annually
Barkly	7	27 500	2.70
Tennant Creek	3	5 000	1.30
Barkly region	7	15 000	2.40

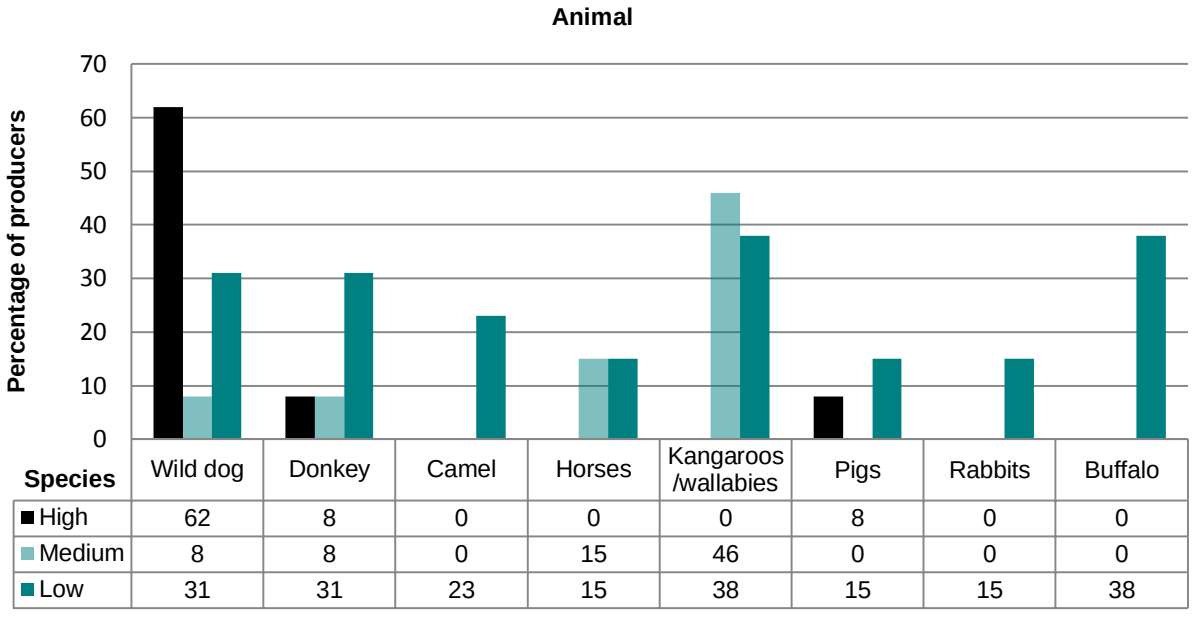
All but one station in the Barkly region had measures in place to prevent the introduction of weeds onto their properties. The main methods, as shown in Table 28, included quarantining animals purchased off the property and quarantining machinery and equipment. For example, making sure hay contractors washed their equipment before use and using their own hay as feed.

Table 28. Strategies used to prevent the introduction of weeds

Strategy	Producers (%)
Buy certified hay/seed	15
Feed out purchased hay in designated areas	23
Quarantine animals purchased off property	62
Quarantine machinery and equipment	38
Restrict access of off-property machinery and vehicles	23
Use own hay	38
Wash down bays	23
Other	15

Pest animals

The average cost of lost production due to feral animals is hard to quantify as the impact can be either direct, such as wild dogs killing calves, or indirect, such as wallabies and kangaroos competing with cattle for grass. Producers were asked to rate the overall effect that different pest animals were having on their stations, categorized as high, medium or low. Wild dogs were reported to be a problem on all surveyed stations and were rated as high on over half (Figure 44). Kangaroos and wallabies were the next most prevalent pests, but were rated as having either a medium or low impact.



Species	Wild dog	Donkey	Camel	Horses	Kangaroos /wallabies	Pigs	Rabbits	Buffalo
High	62	8	0	0	0	8	0	0
Medium	8	8	0	15	46	0	0	0
Low	31	31	23	15	38	15	15	38

Figure 44. Impact of feral animal species across the Barkly region

Producers were also asked if they attempted any kind of control methods for listed pest animals. Of the producers mentioning particular pests, 92% controlled wild dogs, 20% controlled buffalo, 67% controlled donkeys and 75% controlled feral horses.

The median annual cost of pest animal control on stations was $3000, with the maximum cost reported at $10 000.

Climate change

Climate change is a controversial topic, with large differences in opinion about whether it is a real phenomenon and what effects it will have on production. When asked if they thought climate change would affect their business, 38% of producers agreed, 23% did not know enough about it to say and 38% did not believe in it. Of those who thought it would affect their businesses, the main concerns included increases in government regulations leading to an increase in fuel prices, tax on inputs and overall cost of production, higher temperatures negatively affecting production and an increase in woody weed infestations.

Producers were asked if the carbon footprint of their operations had been measured. Eighty five per cent had not had it measured, 31% were interested in it being done and 54% were not.

Business

Staff

Staff were recruited in the Barkly region primarily through newspaper advertisements, online advertising and word of mouth. Other methods included advertising in backpacker books and on the company website (Figure 45).

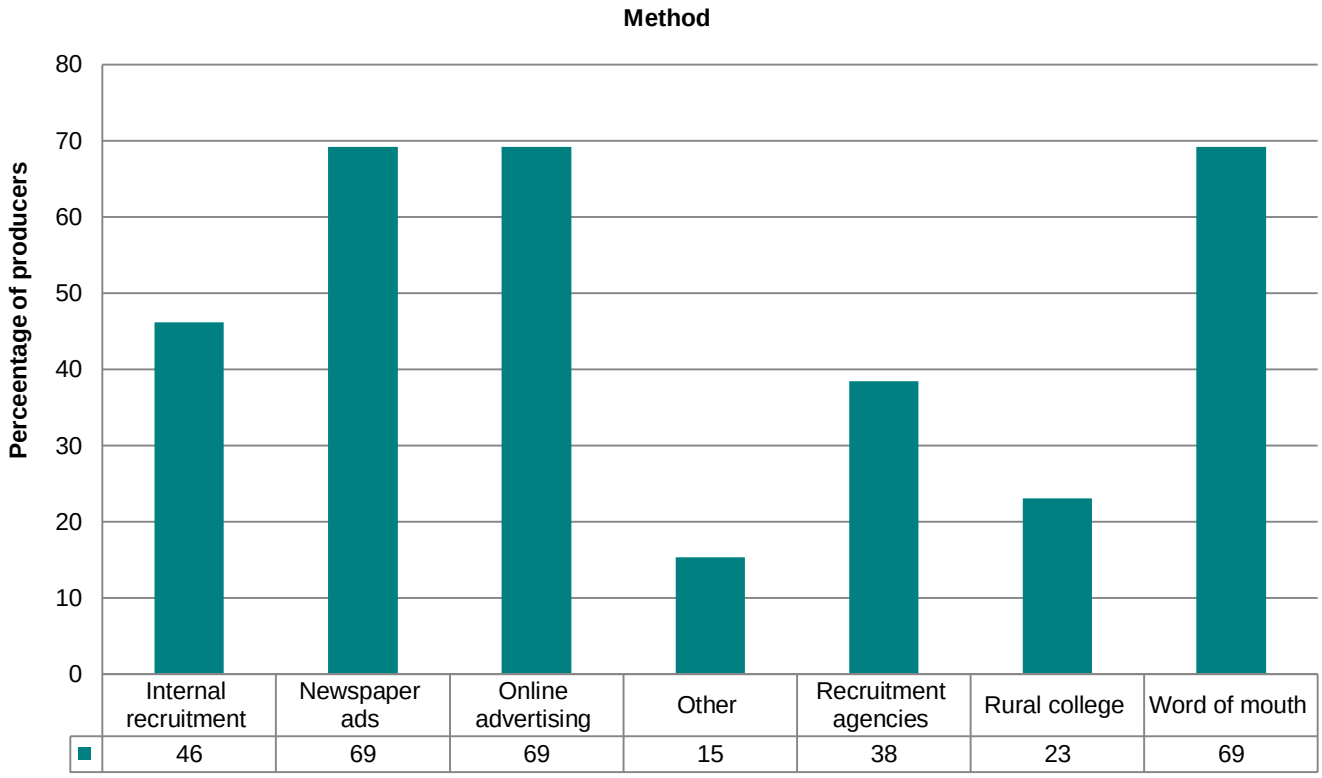


Figure 45. Methods of recruitment

All surveyed pastoralists in the Barkly region indicated that staff training occurred. The type of training varied. Informal on-the-job training was the most common with 85% of stations across the region offering this to all of their staff (Figure 46).

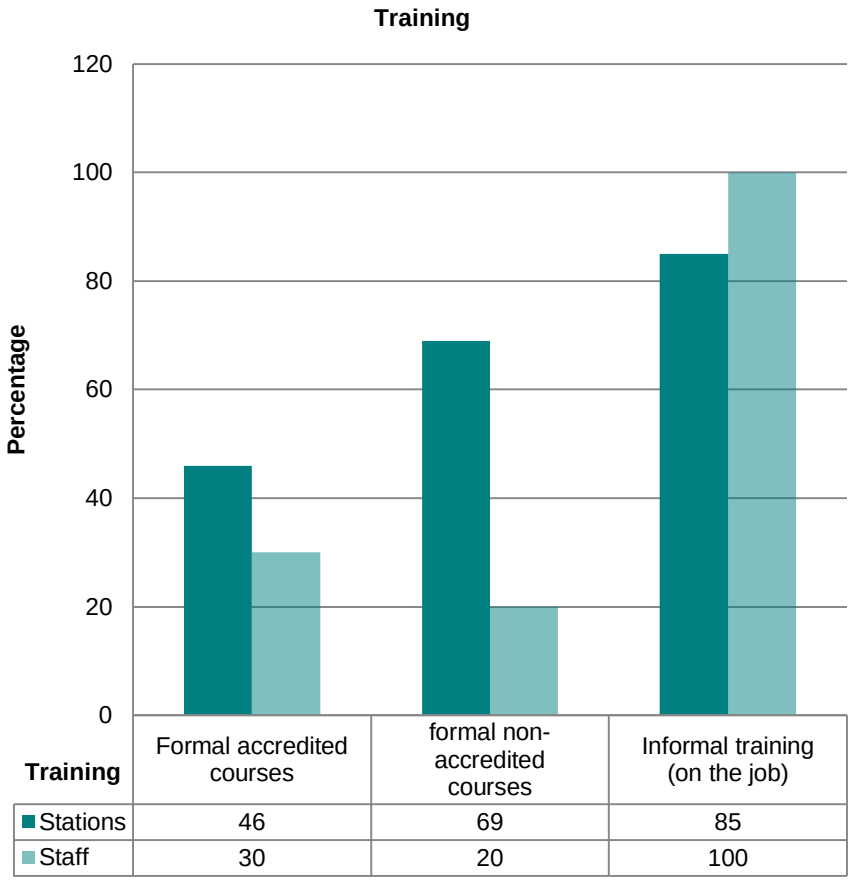


Figure 46. Training types used in the Barkly region

A wide range of training topics were undertaken, as shown in Appendix 3. Training topics varied throughout the region with horsemanship (54% of properties) and livestock handling (54% of properties) being the most widely used. 'Other' training courses included grazing land management (46%) and nutrition EDGE (46%).

Succession planning

Due to the large company presence on the Barkly, succession planning was only relevant to three producers. Of these, two had a succession plan in place.

Benchmarking and planning

Eighty three per cent of producers in the Barkly region indicated they had some form of documented property management plan. Of these, 39% indicated a financial/business component or occupational health and safety component (Table 29).

Table 29. Documented management plan components

Component	Properties (%)
Financial/business management	39
OH&S	39
Human resource management	30
Natural resource management	26

Benchmarking is a valuable tool used to measure and monitor key performance indicators. Eighty five per cent of producers indicated that they used financial or production benchmarks to assist in decision making. The most common benchmarks used were weaning rate and cost of production (Table 30). Other benchmarks mentioned included pregnancy rates in segregated breeder groups and mustering costs per animal.

Table 30. Financial and production benchmarks used by producers in the Barkly region

Benchmark	Properties (%)
Weaning rate	77
Cost of production per kg	62
Return on assets	46
Gross margin per AE	38
kg beef turned off per AE	31
kg beef turned off per ha	31
Other	15

Ninety two per cent of producers said they used benchmarks to manage their natural resources. Rainfall and grazing records were the two most commonly used benchmarks (Table 31).

Table 31. Natural resource management benchmarks used by producers in the Barkly region

Benchmark	Properties (%)
Grazing records	69
Photo monitoring sites	46
Rainfall records	92
Residual yield	31
Tier 2 monitoring	8
Weed maps	31

Financial

Respondents were asked how their property businesses were financed. Sixty seven per cent of producers indicated that they were financed through an interstate branch of a major trading bank (Table 32).

Table 32. Types of financial institutions used

Financial Institution	Properties (%)*
Major trading bank, interstate branch	67
Agribusiness (e.g. Landmark, Elders)	25
N/A	17

*NB: does not add up to 100% as one station uses more than one financial institution

Other enterprises on pastoral properties

Three producers in the Barkly region indicated that they had other enterprises/operations on their properties. These included a station store, civil construction, heavy machinery contracting and opportunistic hay production.

Information delivery and management

Ninety two per cent of respondents said they used email and the Internet on a day-to-day basis to assist with making management decisions. Popular websites used by producers included the Bureau of Meteorology website and fire scar hot spot websites (Table 33).

Table 33. Technology used to assist with management decisions

Technology	Producers using (%)
Email	92
Internet	92
Fire scar and hot spot websites	77
Bureau of Meteorology	69
Electronic ID of animals	69
Electronic bookkeeping	62
Electronic herd recording programs	54
Excel	54
Electronic herd modelling programs	31
Recording programs	31

Priorities

What were the hurdles faced by the pastoral industry?

Respondents were asked about the hurdles encountered when managing their enterprises. Responses varied from herd fertility problems to infrastructure development issues. Forty three per cent of stations identified issues related to staff availability and cost of production as the largest hurdles in managing their enterprises (Table 34). Issues with staff availability included both obtaining suitable staff and then being able to retain experienced staff from year to year. Other hurdles mentioned included weeds, seasonal variability and distances to major centres.

Table 34. Hurdles identified in the Barkly region

Hurdle	Producers (%)
Staff availability	43
Cost of production	43
Seasons	21
Water (quality/infrastructure)	21
Freight	21
Market issues	14
Roads/access	14

At the end of the survey, producers were asked about the major issues affecting the profitability and environmental sustainability of their businesses. Cost of production was seen as the greatest issue affecting profitability (Table 35) with five producers specifically mentioning freight/transport/fuel costs.

Table 35. Factors that affected profitability of enterprises

Issue	Producers (%)
Cost of production	62
Market access	23
No response	15
Roads	15
Government regulation/policy	15
Cattle prices	8
Weaning rate	8
Turnoff weight	8

No consistent issues were seen to be affecting the environmental sustainability of businesses in the Barkly region (Table 36), suggesting that there were no major perceived risks to environmental sustainability.

Table 36. Factors that affected environmental sustainability of enterprises

Issue	Producers (%)
No response	31
Government policy	15
Not an issue	10
Cost of development	8
Drought/seasonal conditions	8
Weeds	8
Wildfire	8
Neighbours	8
Stocking rates	8

What were the risks to long-term sustainability?

Producers were asked to rank a list of risk factors to long-term sustainability (Appendix 1). The top three risks selected were seasonal variation, markets and cost of production. Other factors that were considered important included NRM issues and cattle prices. The factor that was considered to be of least risk was climate change.

What motivated people to be part of the pastoral industry?

Finally, producers were asked why they chose to be a part of the pastoral industry. The most common response was "I just love it!" Some said it was a lifestyle choice and others thought it was a great environment to bring up children. Below are directs quotes from producers.

I've always done it. I enjoy it and it's a good environment to bring a family up in.

Don't really know – I just really like it!

Knew nothing else – born into it.

Lifestyle.

Enjoy working with cattle and horses.

I just love it!

Because I love it.

Proud to be a member of the pastoral industry and don't know anything different.

Defective gene favours the northern beef industry! It's a lifestyle choice. I enjoy the flexibility and am building assets for the next generation.

Passionate about the northern beef industry. Great family environment.

I just love it!

How the Barkly pastoral industry has changed 2004-2010

It is difficult to make some comparisons between the 2004 report and this report due to some changes in the methodology of data analysis and changes in sample size and number. This section of the report highlights the key differences, based on knowledge of the samples and methodology. Where comparisons have not been made, it is due to no noteworthy differences or to inability to compare because of changes in analysis methodology between the 2004 and 2010 reports.

Differences in sample population

In the 2004 report there was a Gulf district in each of the Barkly and Katherine regions, with the eastern Gulf included in the Barkly region and the western Gulf included in the Katherine region. In the 2010 survey, the Gulf district was surveyed as part of the Katherine region only. Table 37 shows the number of businesses surveyed by district for each of the surveys. In 2004, 80% of the pastoral area was surveyed, compared with 51% in 2010. Comparisons between the two surveys can most confidently be made for the Barky district.

Table 37. Differences in sample population between 2004 and 2010 pastoral industry surveys

District	No. properties surveyed	
	2004	2010
Barkly	13	10
Gulf	6	0
Tennant Creek	5	3
Barkly region	24	13

Property size and infrastructure

In the Barkly district, the average number of paddocks had increased from 24 in 2004 to 31 in 2010 and the average paddock size had decreased from 364 km^2 in 2004 to 268 km^2 in 2010, suggesting that producers had carried out a moderate amount of paddock subdivision over this period. Forty five per cent of producers reported carrying out paddock subdivision in 2009 and 2010, while 38% of producers had intended to undertake it in 2004. Water points were the highest development priority across both surveys and the number of man-made water points nearly doubled from an average of 55 per property in 2004 to 94 in 2010. Correspondingly, preferred grazing radii when planning infrastructure development reduced between the surveys, from 5.6 km in the Barkly district to 3.8 km and from 8.6 km in the Tennant Creek district to 7 km.

Markets and turnoff

There appeared to be some significant changes in markets, with quite a change in the percentage of producers sending cattle to various types of markets. More producers sent cattle to abattoirs in 2010 (77% vs 37%), live export (77% vs 60%) and to backgrounders (77%vs 40%). In contrast, no producers sent cattle direct to feedlots in 2010, compared with 29% of producers in 2004. Queensland remained the most popular market destination for Barkly cattle in terms of percentage of producers. Interestingly, in 2010 while more producers sent cattle to Queensland, a greater number of cattle were actually sent to the live export market. There was an increase in the percentage of producers in 2010 selling cattle to South-East Asia, to company supply chains, to NSW and to Victoria compared with 2004.

Cattle management

A lower percentage of producers reported having Brahmans or Santa Gertrudis cattle, while a higher percentage reported having crossbred or composite cattle. Fewer producers were sourcing bulls from Queensland studs or from commercial breeders and more were breeding their own bulls or purchasing them from NT stud breeders. There appeared to be an increase in the percentage of producers who fertility tested bulls (29% in 2004 vs 44% in 2010).

Twenty five per cent more producers reported pregnancy testing cattle in 2010 (100%) compared with 75% in 2004. A greater percentage of producers were pregnancy testing all cows (54% in 2010 vs 17% in 2004). While there was only a slight increase in segregation of breeders, there was an increase in the percentage of producers that segregated breeders based on pregnancy status (17% in 2004 vs 68% in 2010) and a decrease in segregation according to age (67% in 2004 vs 42% in 2010). There was a marked increase in the use of NLIS technology for performance recording purposes. In 2004, only 21% of producers used NLIS technology compared with 54% in 2010, with another 23% planning to use it.

There was an increase in producers segregating heifers from breeders (58% in 2004 vs 77% in 2010) and weighing heifers prior to joining (29% in 2004 vs 54% in 2010).

It appeared that producers weaned down to lower weights in 2004 compared with 2010, with the average minimum weaning weight in 2004 being 116 kg compared with 140 kg in 2010. This may have reflected the inclusion of Gulf properties in 2004, or may reflect a better season in 2010.

Fewer producers supplemented in 2010 (77%) compared with 2004 (92%) or produced their own hay (58% in 2004 vs 23% in 2010).

Animal health

The most common animal health issues differed between the two surveys. In 2004, producers thought that botulism and phosphorus deficiency were the most commonly seen problems, while three-day-sickness and buffalo flies were the most common in 2010. More than 90% of producers vaccinated animals against botulism in 2004 and 2010, suggesting it was a well-recognised and preventable disease. There was an increase in vaccinations against vibriosis, with 62% of producers vaccinating in 2010 compared with 42% in 2004.

Grazing management

In 2004, producers on average predicted a 13% increase in carrying capacity by 2009. The 2010 survey data indicated that producers had actually achieved a 12% increase in cattle numbers, suggesting that development did occur as planned. Producers remained optimistic about future development potential with slightly higher predictions for increases in carrying capacity in 2010. In 2004, the average predicted increase within five years was 13% and in 10 years 25%. In 2010, producers predicted a 19% increase within five years and a 27% increase in 10 years.

Weed issues increased over time, with a larger area affected by weeds (from an estimated 1.8% in 2004 to 7% in 2010) and impact ratings increased for several species. Thirteen per cent more producers controlled weeds with control costs nearly doubling. Thirty per cent more producers recognised rubber bush as a weed in 2010 and producers rated it as having a higher impact.

Kangaroos/wallabies, pigs, feral horses and donkeys were all considered to be having a higher impact in 2010, with the control of the latter two also increasing. While the same percentage of producers were controlling wild dogs during both surveys, in 2010 fewer producers believed they were having a high impact and more producers believed that they were having only a low impact.

Business management

In 2010, there was a 17% increase in the number of producers using documented plans and a 15% increase in the use of financial and production benchmarks to guide management decisions. More producers used email (26% more in 2010), and the Internet (29% more in 2010). Staff training increased from 87% of properties in 2004 to all properties in 2010.

Hurdles

Staff issues were considered the major management hurdle in 2004; however, 20% fewer producers mentioned them in 2010. Cost of production was identified as the other major hurdle in 2010 with 13% more producers mentioning it in 2010 than in 2004.

Appendices

Appendix 1 – Risks to long term sustainability

Risk (%)	Priority 1	Priority 2	Priority 3
Cost of production	46	15	15
Seasonal variation	38	0	8
Markets	23	31	8
Staff	0	0	23
Cattle prices	0	46	8
NRM issues	0	8	0
Energy availability	0	0	23
Government regulation	0	0	0
Climate change	0	0	0

Appendix 2 – Index of plant names

Grass species

Common or Cultivar name	Scientific name
Buffel grass	*Cenchrus ciliaris*
Flinders grass	*Iseilema fragile, I. vaginiflorum*
Mitchell grass	*Astrebla lappacea, A. pectinata*
Spinifex	*Plectrachne pungens, Triodia pungens*
Wiregrass	*Aristida holanthera, A. hygrometrica, A. inaquiglumis, A. latifolia*

Legume species

Common or Cultivar name	Scientific name
Seca stylo	*Stylosanthes scabra*
Verano stylo	*Stylosanthes hamata*

Weed species

Common name	Scientific name
Athel pine	*Tamarix aphylla*
Bellyache bush	*Jatropha gossypifolia*
Crotalaria	*Crotalaria goreensis, Crotalaria* spp
Kapok bush	*Averva javanica*
Khaki weed	*Alternanthera pungens*
Mesquite	*Prosopsis pallida*
Mimosa bush	*Acacia farnesiana*
Mossman River grass	*Cenchrus echinatus*
Noogoora burr	*Xanthium occidentale*
Parkinsonia	*Parkinsonia aculeata*
Prickly acacia	*Acacia nilotica*
Rubber bush	*Calotropis procera*

Appendix 3 - Training

Training topic	Properties (%)
Horsemanship	54
Livestock handling	54
Grazing land management	46
Nutrition EDGE	46
Breeding EDGE	38
Pregnancy testing	38
Bull selection	23
Business management	23
Monitoring	23
Other	23
Rangeland management	23
ChemCert	15
First Aid	15
Shoeing	8