Northern Territory Government

DEPARTMENT OF **PRIMARY INDUSTRY AND FISHERIES**

THE 2010 PASTORAL INDUSTRY SURVEY

Alice Springs Region

The 2010 Pastoral Industry Survey - Alice Springs Region

Northern Territory Government

Department of Primary Industry and Fisheries

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Bibliography:

Conradie, P. 2014. The 2010 Pastoral Industry Survey – Alice Springs Region. Northern Territory Government, Australia.

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ASPIAC
ALICE SPRINGS PASTORAL INDUSTRY ADVISORY COMMITTEE
incorporating CABRC (Central Australia Beef Research Committee)

Dear Reader

If we want change, we have to make it. If we want progress, we have to drive it. So it is encouraging to see more producers developing watering points with solar pumps. Water point development still remains the top priority in the Alice Springs region followed by yards and fencing. There has been an increase in the use of hormonal growth promotants (HGPs) since the last survey, but I think the trend will reverse with new markets, such as the Pasture-fed Cattle Assurance Scheme along with existing markets, such as the European Union (EU), the organic market and Coles. It was interesting to note at the field day held at the Old Man Plains Research Station that Ian McLean argued that “It is still more profitable to concentrate on controlling input costs rather than chasing high end markets”.

"Those that can't change their minds can't change anything"

As Paul Smith mentioned in his foreword for the 2004 survey, "If you can't measure it you can't manage it", it was disappointing to see that only 31% of the breeders were recorded. We need to change this if we are to get a true handle on production and, in turn, improve profitability.

Another area for concern is that there has been little change in management practices between the two surveys. For this reason, more extension services, producer demonstration sites and field days should be a priority in the future.

Yours sincerely

Christopher Nott
Chairman, the Alice Springs Pastoral Industry Advisory Committee (ASPIAC)
Alcoota Station, Alice Springs

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AE	Adult equivalent
AI	Artificial insemination
ASPIAC	Alice Springs Pastoral Industry Advisory Committee
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 promotant
MLA	Meat and Livestock Australia
NAFI	North Australian Fire Information
NIRS	Near infrared reflectance spectroscopy
NRM	Natural resource management
NTCA	Northern Territory Cattlemen's Association
OH&S	Occupational Health and Safety
PCAS	Pasture-fed Cattle Assurance Scheme
PEG	Polyethylene glycol

Acknowledgements

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Also thanks to my colleagues Casey Collier and Arthur Cameron for advice and consultation during this project.

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Researched and written by Pieter Conradie

Executive summary

This survey is a follow up to the 2004 Pastoral Industry Survey for the Alice Springs region compiled by Sally Leigo. Before that, in *1979,* the Alice Springs District Cattle Industry Survey was conducted by Petty, Holt and Bertram. The changes that have occurred in the industry over the past 31 years in some aspects are vast, while in some areas minimal changes have taken place due to the nature of the environment. As expected in such extensive pastoral enterprises, limited changes have taken place between the last two surveys, which were conducted in 2004 and 2010. This survey was conducted with the cooperation of 31 of the 60 pastoral operations in the region and is considered as representative of the Alice Springs region.

The average size of stations in the Alice Springs region is 3799 km^2, with the most common herd size being between 2000 and 5000 head. The average herd size was 5701 and the average number of breeders was 2430. The genotype of these cattle is predominantly *Bos taurus* with the main cattle breed being Santa Gertrudis, closely followed by Herefords and Droughtmasters. The majority of cattle are crossbreds. The majority of stations have a management structure in which the station owner is also the manager (53% of land area).The average length of ownership is 29 years with the average length of management being 19 years.

On average, the number of permanent staff required to manage a station is three with two seasonal staff employed for periods during such activities as mustering.

The majority of pastoralists described their cattle enterprises as being solely a breeding operation. This type of enterprise fits in with the main class of cattle being sold in the Alice Springs region. In 2010, the most common animals sold were two-year-old steers and culled-for-age cows. Seventy-eight per cent of pastoralists chose to send a proportion of their sale cattle to abattoirs, while about 39% also sold to feedlots. The majority of cattle were turned off to markets in South Australia (48%) followed by Queensland (32%) and about 8% were marketed in the Northern Territory (NT). The average estimated weaning percentages varied between 67% and 75% for different female classes. Less than half of respondents were confident in providing figures on weaning percentages and calf losses. This was primarily due to the extensive size of the properties and the shortage of labour, which meant that contact with animals and record keeping were limited to the bare minimum on many properties.

All the properties in the survey carried out at least one annual muster, with 68% doing a second round muster The predominant months for mustering in the Alice Springs region were from March to May for the first round and from September to October for the second round. Trap yards were used for 80% of cattle mustered, which brought down the mustering cost in the Alice region compared with the rest of the NT. With the high rainfall variability in the region, the majority of pastoralists chose to continuously join their breeders with bulls. The percentage of bulls joined with cows was on average 4%, but ranged between 2% and 8%. Bulls were mostly sourced from commercial breeders and stud breeders interstate, while 18.5% were home-bred.

Breeders were culled on temperament and age, while some were culled based on pregnancy diagnosis. Records were kept for 48% of heifers and 31% of breeders for management purposes. Age and weight were the two main traits recorded.

The percentage of stock not recorded for management purposes was higher in the southern Alice Springs and the Plenty districts. The traits recorded by most properties were age, followed by weight and pregnancy status.

Continuous mating was practised by the majority of producers, but where controlled mating was practised, bulls were usually put in with the breeders in December and removed in April, with the bulls staying one to two months longer with maiden and first-calf heifers. Limited infrastructure and labour as well as the variable climate were listed as reasons why more producers did not practise controlled mating. Artificial insemination (AI) and embryo transfer were not used by any of the respondents.

The average mortality rate in breeders in the Alice Springs region was estimated at 8.5%, but most producers did not feel confident in providing figures; as a result, the figure has limited value. The estimate of mortality for old cows varied between 11.7% in the Plenty district and 4.4% in the southern Alice Springs district.

The high percentage of heifers (79%) retained in the Alice region during the survey period reflected the good season and subsequent herd rebuilding, as well as high breeder mortality. The majority of producers selected replacement heifers at weaning, followed by selection before joining.

The criteria for weaning calves differed significantly from year to year due to the variable climate, which affects the pasture and breeder condition. In the northern Alice Springs district, 71% of cattle were weaned based on age, while in the southern Alice Springs district 26% of cattle were weaned on a set weight during the survey year. The difference in the minimum weight at which calves were weaned differed greatly between average and poor years. Average weaning weight varied between 109 kg and 181 kg in the southern Alice Springs district and between 118 kg and 252 kg in the northern Alice Springs district. Various strategies were applied at weaning, with most calves being loaded onto trucks and moved to other paddocks and 81% of calves being tailed out.

Supplementation was provided on 63% of properties in the Alice Springs region. When provided, the supplement was generally available to all stock.

Rainfall events can occur at any time during the year in Central Australia, with the summer months being the predominant months for rainfall and pasture growth and the winter months having lower mean monthly rainfall and less potential for pasture growth due to lower temperatures. During the pasture growing season, a larger percentage of blocks were put out, while the feeding of different forms of loose mix supplement increased during the dormant season. Water medicators were used only in the northern Alice Springs district during the survey period.

The main mineral supplements fed during the summer growing season were phosphorus (50% of producers) and urea (44% of producers). During the dormant winter period, urea was fed by 100% of producers and phosphorus by 40% of producers. Other supplements listed by pastoralists included polyethylene glycol (PEG), sulphur and mixed minerals.

Only ten producers were confident in providing an estimate of the cost of supplementation for the assessment year. At $12.53 estimated cost per head, this is less than half that of the average for the NT, which is $27.19 per head. This may be due to the fact that pastures in good condition can maintain their quality for much longer in Central Australia compared with the Top End.

Only two properties in the Alice Springs region, one in the north and one in the south, produced hay, primarily for their own use and some for sale to other stations.

The most common animal health problems identified by producers were pink eye, botulism, phosphorus deficiency and three-day-sickness. Treatment for botulism was the most common, with 56% of properties vaccinating against it. The dry climate of Alice Springs is conducive to good animal health, with producers spending a relatively small amount on animal treatment.

HGPs were not widely used in the Alice Springs region as only about 24% of respondents indicated that they ever used them. Yearling steers were mostly implanted followed by sale steers. The main reasons why respondents did not use HGPs were market restrictions and practicality.

Producers estimated the average carrying capacity, with current infrastructure, at 6573 head per property for the region. This is in accordance with the 5% increase in carrying capacity predicted by pastoralists in the 2004 survey. A further estimated 5% increase is expected over the next 10 years.

On average, producers planned infrastructure development based on a maximum grazing radius of 9.3 km. Seventy two per cent of producers were of the opinion that increasing water points was sufficient to disperse cattle more evenly through paddocks. The main priority for infrastructure development was therefore also water point development (50% of properties) followed by drafting yards and paddock subdivision.

Grazing management data showed that a range of strategies were used to adjust stocking rates during dry spells. A common strategy was to reduce cattle numbers to try and match carrying capacity, while the culling of cows and early sale of steers were also strategies applied to deal with extended dry periods. Pastoralists used a range of formal and informal indicators to assess feed availability throughout the year, with the condition of stock followed by historical information and experience being the most predominant indicators.

A combination of grazing strategies was applied by most pastoralists. Continuous grazing was the predominant strategy while 38% of properties applied some form of spelling. Spelling was often opportunistic and linked to season. Forty five percent of producers excluded portions of their properties from regular grazing for various reasons.

Controlled burning for wildfire mitigation was used by 26% of producers, which affected approximately 2% of the region. Approximately 15% of producers used fire for management purposes, such as grazing distribution and tree grass balance. The majority of prescribed fires occurred during the winter to spring seasons, before the rains started, with an average 12 year frequency.

Three respondents in the Alice Springs region indicated that they had areas under improved pastures, including 40 hectares of irrigated lucerne and approximately 5000 hectares of buffel grass without irrigation. Buffel grass was introduced on a large number of properties in the past, but due to its natural spread, producers were not able to provide accurate figures on the areas where it occurred.

A large percentage of producers in the Alice Springs region had noticed a build-up of native shrubs and trees in their native pastures, with the highest build-up being recorded on red soil (35% of the area) and river flat areas (33% of the area).

Based on the responses from 26 producers, 9% of the surveyed area of the Alice Springs region was affected by weeds. Weeds that had a high impact on many properties included Mexican poppy, Noogoora burr and Senna species; prickly thorn apple and gidgee were also mentioned. Producers either had a full weed control program (46%), no weed control (42%), or selective weed control (12%).

The average annual expenditure per property on weed control in the Alice Springs region was $1332 with the highest expenditure in the Plenty district ($2263) and the lowest in the northern Alice Springs district ($200). The expenditure on weed control in the Alice Springs region was low compared with the average for the NT, which was $20 884.

The highest impact pest animals in the Alice region were wild dogs, camels and kangaroos. A certain level of control was applied to all pest animals. The average amount spent per property on pest animal control each year was $7968.

Producers found it challenging to estimate the loss in production due to natural resource management (NRM) issues but they perceived the loss in production from feral animals and wildfires as having the biggest impact on their operations followed by the loss due to soil erosion and weeds.

Many producers had difficulty answering questions around climate change. Thirty one per cent of producers were of the opinion that climate change would have a negative effect on their businesses while 21% believed it would not have an effect.

Staff recruitment was done mainly by word of mouth in the Alice Springs region (69%) with online advertising used by the majority of producers in the southern Alice Springs district. Some form of staff training occurred on 84% of properties with 56% of staff receiving informal training, 5% receiving formal non-accredited training and 6% receiving formal accredited training.

While 40% of producers had a succession plan in place, 20% were in the process of developing such plans.

Sixty five per cent of producers had some documented plans for their properties, mainly financial and business management plans (48%), occupational health and safety (OH&S) plans (35%) and NRM plans (23%).

Financial benchmarks, such as weaning percentages, return on assets (ROA) and kg beef turned off per hectare were used by 40% of respondents to help with management decisions. Seventy per cent of producers used NRM benchmarks to assist with management. The most used benchmarks were rainfall records, grazing records and weed maps.

Almost half of the properties (47%) were financed by the major trading banks. Other financing included self-funding or company-funding.

Producers used a range of computer technologies to assist with day–to-day operations. Apart from the general use of the Internet (77%) and email (71%) the Bureau of Meteorology and North Australian Fire Information (NAFI) websites were used extensively. Electronic bookkeeping and herd recording software were also employed to assist with operations.

The major hurdles for managing pastoral enterprises were identified as staff availability (29%), seasonal variability (26%), cost of production (16%), government regulations (13%) and road access (13%).

Towards the end of the interviews, producers were asked to consider the main issues affecting the profitability of their enterprises. The cost of production against prices received was identified as the main issue followed by issues associated with climate variability, as well as staff availability and quality of labour, while fuel prices and transport costs were also listed as important factors.

Producers were also asked to list issues they anticipated might have an effect on the environmental sustainability of their enterprises. Issues ranged from land condition in the northern Alice Springs district to feral animals in the southern Alice Springs district and gidgee poisoning in the Plenty district. Seasonal variability was the most important issue raised in all districts with soil erosion also listed in more than one district.

The most significant identified risks to long-term sustainability were seasonal variability followed by cattle prices, cost of production, government regulations and markets.

When pastoralists were asked why they chose to be part of the pastoral industry, it came down to the fact that they preferred the lifestyle.

How the survey was conducted and considerations for the use of the information

This survey follows the 2004 Pastoral Industry Survey (Leigo, 2006). Because of the interest in the results of that survey, it was agreed with the industry to repeat it after five years to monitor changes.

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, 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. Some interviews were conducted prior to that and some after. It was therefore decided to focus the survey on the 2010 calendar year, which was prior to the trade suspension. Data collection was completed in March 2012.

Although the Alice Springs region was not affected to the same extent as other regions by the suspension of live export to Indonesia, the carry-over effects had an impact on the whole industry and therefore this industry survey and the interpretation of the data should be given a similar consideration as that for the Top End.

A natural phenomenon that happens periodically had a considerable effect on the survey in Central Australia. As a result of record summer rains in the 2010-11 season, the intensity and magnitude of bushfires in Central Australia were exacerbated by a high fuel load. Within the period from September to November 2011, roughly 40% of the area under pastoral production in the Alice Springs region, comprising approximately 80 984 km², was burnt. These fires occurred on the majority of properties and due to the social, environmental and economic impact on the industry, conducting the survey was suspended until January 2012.

The context and timing of the survey is therefore important when considering the results, especially for those questions related to development planning that could be impacted by the change in industry confidence.

Survey forms were emailed, mailed or hand-delivered to producers. Extension officers completed the surveys with producers at convenient locations, including on their properties and at departmental offices.

All of the properties surveyed had 300 or more head of livestock. Where producers managed more than one parcel of land, the survey was completed on the business unit rather than on the individual properties. A total of 31 production units were surveyed out of an estimated 60 commercial production units in the Alice Springs region (52%). This sample of stations accounted for approximately 176 723 cattle (51%) out of the estimated Alice Springs total of 347 745, and 117 756 km^2 (50%) of land out of approximately 237 266 km^2 under pastoral management.

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 on the total animal equivalents (AEs) per property and data related to land management on 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 Beef Cooperative Research Centre regional 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 generally 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.

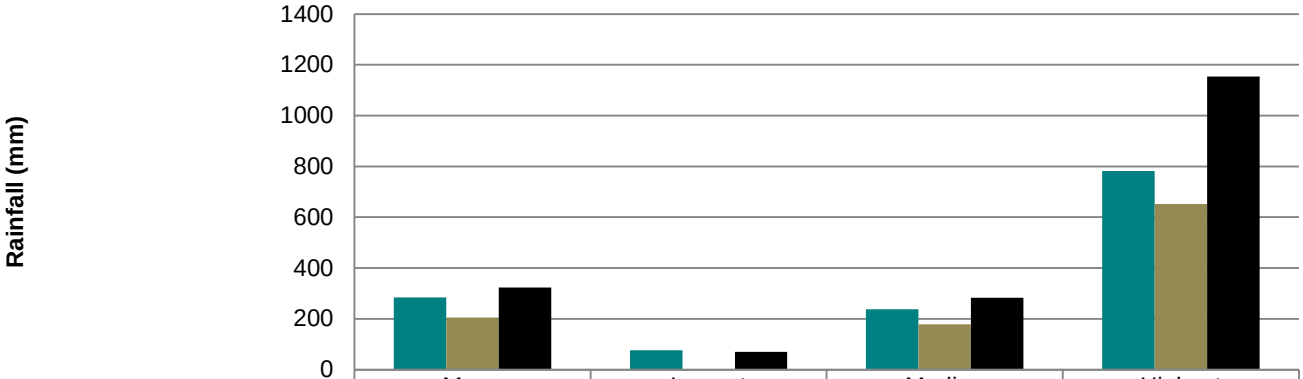
Throughout this report there are many results in which the percentages total more than 100%. This occurs when people have responded to more than one variable; for example, when responding to questions on mustering where they may have used a combination of horses, helicopters and motorbikes.

Responses collected during this survey are completely anonymous and remain the property of the producers. The database is maintained by DPIF Pastoral Production staff at Alice Springs. Any requests for further consideration of the data must be approved by the Executive of the Northern Territory Cattlemen's Association.

Introduction

The Alice Springs region is semi-arid to arid with an average (mean) rainfall that varies greatly from the south-east to the north. Of significance is the huge variation between years with the lowest annual rainfall recorded at the Alice Springs Airport being 76.8 mm and the highest 782 mm. The mean annual rainfall in the region varies from 204.7 mm at Erldunda, south of Alice Springs, to 323.4 mm at Barrow Creek, north of Alice Springs (Figure 1). Rainfall can occur at any time of the year, but is generally summer dominant (Figure 2) with the distinction becoming more obvious towards the northern part of the region.

Rainfall figures presented for the Alice Springs Airport, in the centre of the region, show the annual rainfall for 2010 was 769.6 mm with a relatively even distribution throughout the year (Figure 3). The rainfall received in 2010 was exceptionally high with the Alice Springs Airport only 12.9 mm short of its wettest year on record. Some areas, especially to the north-east, did indeed have their wettest year on record. Consistent falls throughout the entire year guaranteed exceptional pasture growth in terms of quantity and quality. Coming out of a dry cycle where cattle numbers were reduced, this exceptional season introduced a rebuilding phase of cattle numbers, which should be taken into account when interpreting the pastoral survey results.



	Mean	Lowest	Median	Highest
Alice Springs Airport	283.7	76.8	237.6	782
Erldunda (south of Alice)	204.7	2.5	178.8	652.3
Barrow Creek (north of Alice)	323.4	70.3	282.8	1153.4

Figure 1. Alice Springs region annual rainfall

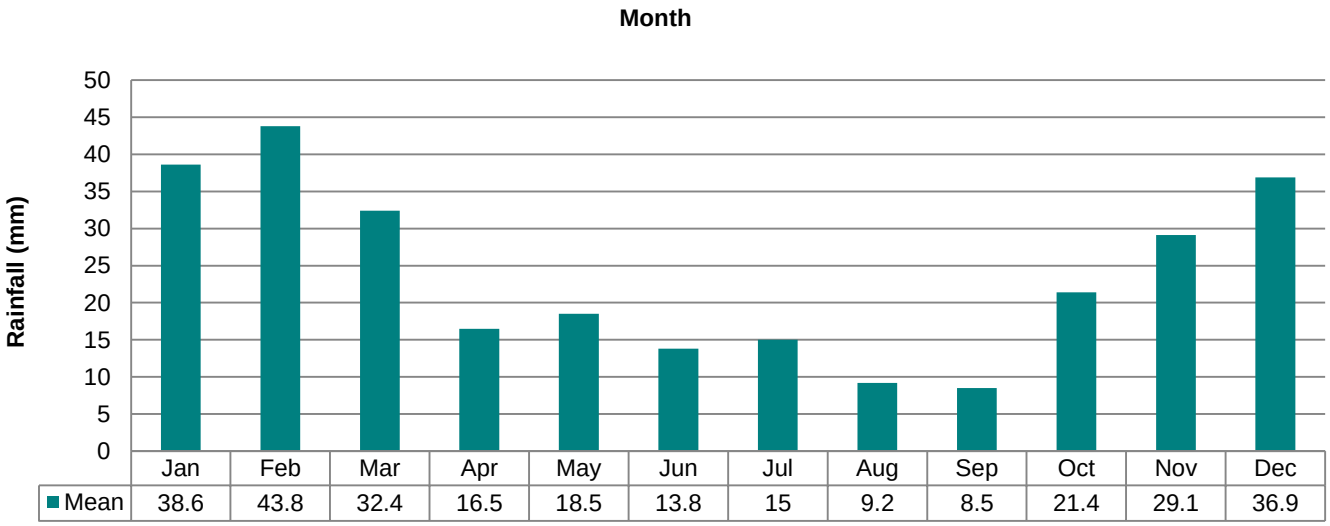


Figure 2. Alice Springs Airport long term monthly rainfall

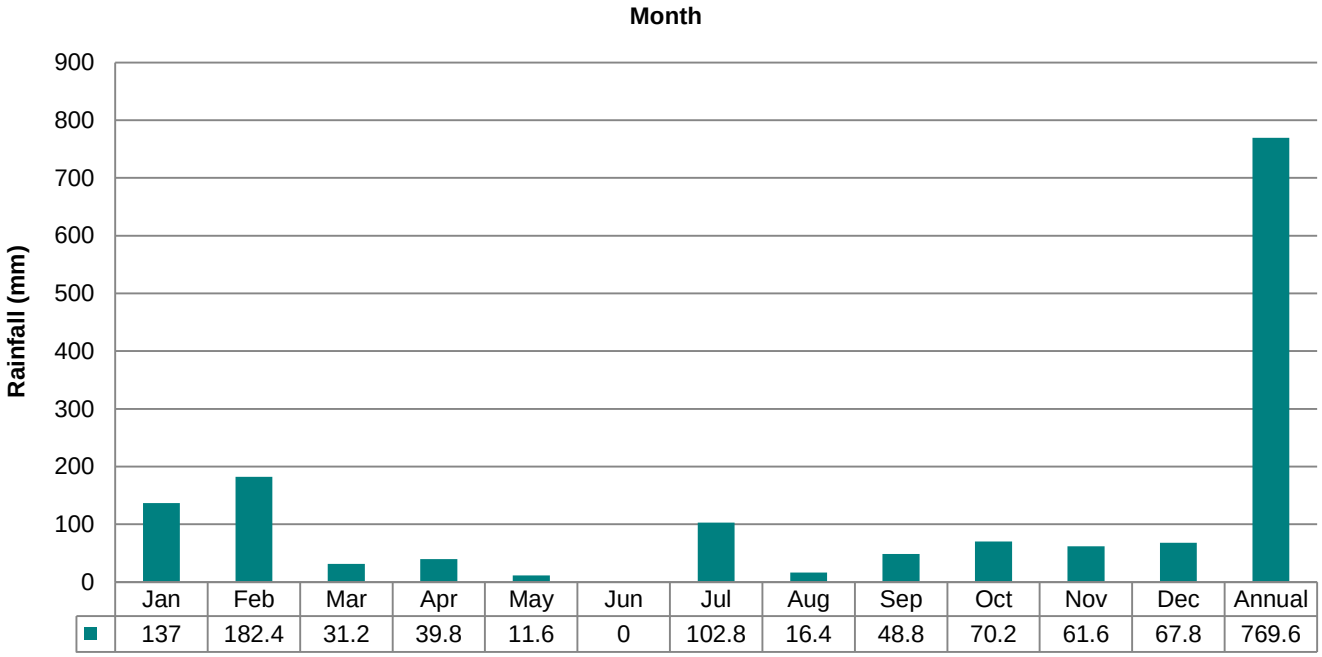


Figure 3. Alice Springs monthly rainfall for 2010

The rangelands across the Alice Springs region are diverse in landform, soil type, vegetation and importance to the pastoral industry. Productivity from different vegetation types, as described by Bastin, Shaw and Dance (1996), varies from the minor pockets of highly productive Mitchell Grass Plains (800 km^2) through to vast areas of much lower productive Mountain Ranges, Spinifex Sand Plains and Dune Fields(140 000 km^2). Highly productive Alluvial Plains and Flood Outs of major rivers (5000 km^2), often with established Buffel grass, are scattered throughout the region. More common vegetation types of significance to pastoral production are the Open Woodlands (18 000 km^2), Woodlands of Gidyea (19 000 km^2), Mulga with lesser common, but very productive Calcareous Shrubby Grasslands (6000 km^2) and Chenopod Shrublands (11 000 km$^{2)}$. Other vegetation types of moderate productivity include Small Hills (33 000 km^2) and their associated Clayey Stony Slopes (750 km^2).

The Alice Springs region is made up of three districts: the northern Alice Springs, the southern Alice Springs and the Plenty. Although rainfall increases in a northerly direction, the major vegetation types described above are found in all three districts.

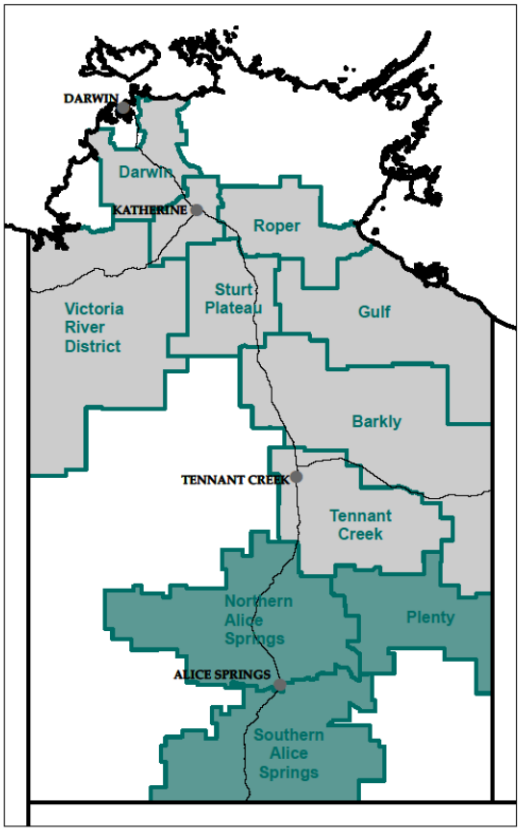


Figure 4. Regions and districts of the Northern Territory

Station size

The average size of an Alice Springs region cattle station was 3799 km^2 (Table 1). Of the 31 properties surveyed, 12 were more than 4000 km^2 while none were smaller than 1000 km^2 (Table 2).

Ninety one per cent of the area surveyed in the Alice Springs region was used for grazing purposes and 9% was described as not productive by the respondents. Approximately 2% of the area was under agistment and 3% was under lease at the time of the survey. Agistment and lease areas were often additional to the main property.

Table 1. Size of properties in the Alice Springs region

Region	Average size (km^2)	Sum of area (km^2)	Number of properties
Alice Springs	3799	117 756	31
Northern Alice Springs	3450	44 845	13
Plenty	4359	34 871	8
Southern Alice Springs	3804	38 040	10

Table 2. Property size ranges

Range (km^2)	Number of properties
<1000	0
1000-2000	3
2000-4000	16
>4000	12
Grand total	31

Current infrastructure

The median number of paddocks, excluding small holding paddocks, in the Alice Springs region was eight (average 13) with a median paddock size of approximately 377 km^2. Table 3 shows the variation in the median number of paddocks and size for districts of the Alice Springs region.

Table 3. Median number of paddocks and their size

Region	Median number of paddocks	Median size of paddocks (km^2)	Size of smallest paddock (km^2)	Size of largest paddock (km^2)
Alice Springs	8	377	25	3035
Northern Alice Springs	11	216	25	777
Southern Alice Springs	8	583	216	1750
Plenty	8	377	187	3035

Table 4 shows the median number of permanent yards per property in the Alice Springs region to be nine. The use of trap yards was more common in the southern Alice district with a median of 16. Overall, 72% of properties in the Alice Springs region had trap yards, with a median of 11 trap yards per property. Portable yards were used on 69% of stations in the region.

Producers using portable yards were asked what facilities were available at their portable yard sites. Forty three per cent said they had holding/mothering-up paddocks, 45% said they had permanent yard facilities, such as a crush or loading ramp. Eighty per cent of respondents in the Alice Springs region said stock had access to water at portable yard sites while all the respondents in the southern Alice Springs district indicated that stock had access to water at portable yard sites.

Table 4. Types of yards and facilities in the Alice Springs region

Facilities	Properties (%)	Median number per property
Permanent yards	100	9
Trap yards	72	11
Portable yards	69	1
Portable yard sites	90	5
Holding/mothering up paddocks	43	-
Permanent yard facilities	45	-
Access to water for stock	80	-

The median number of man-made water points in the Alice Springs region was 28, with a range of four to 80 (Table 5). The grazed area per watering point is an indication of the size and level of development of the properties. All the properties had watering points equipped with diesel or petrol-powered pumps, with a large number of properties relying on windmills and dams. Solar-powered pumps were used on 64% of properties with the highest uptake being in the southern Alice Springs district with 88% (Table 6). Compared with the rest of the NT, electronic monitoring systems and solar-powered pumps were used more in the Alice Springs region. This can be explained by the fact that the 21st Century water smart project that initiated this new technology was based in Alice Springs.

Table 5. Median number of watering points vs. grazed area in the Alice Springs region

District	Permanent natural waters (median no.)	Man-made water points (median no.)	Grazed area per water point (km^2/pt.)
Alice Springs	4	28	159
Northern Alice Springs	5	21	131
Southern Alice Springs	0	28	237
Plenty	2	29	136

With limited and unreliable surface water, Alice Springs region properties relied primarily on man-made watering points. Ten percent of producers did not respond to the question on man-made watering points, but it is accepted that all properties in the region have some man-made watering points.

Table 6. Type and number of watering points in the Alice Springs region

Type of watering point	Properties (%)	Watering points per property (median no)
Man-made watering points	90	28
Natural watering points	19	4
Solar-powered pumps	64	5
Diesel or petrol-powered pumps	100	19
Windmills	79	5
Water medicators	18	11
Dams	71	8
Electronic monitoring system	11	10

Ownership

Management Structure

The ownership/management structure of pastoral enterprises surveyed in the Alice Springs region can be divided into four categories. These are Company/manager, Indigenous, Owner/manager and Privately owned/managed. (Figure 5)

The most common form of ownership/management is where the owner is also the manager (owner/manager), representing 53% of the area and 50 % of cattle in the Alice Springs region. The next biggest category is classified as privately owned/managed where the property is privately owned and employs a manager (33% of the area and 41% of the cattle). The southern Alice Springs district had no Indigenous properties included in the survey. The only company-owned property with a manager in the survey was recorded in the southern district.

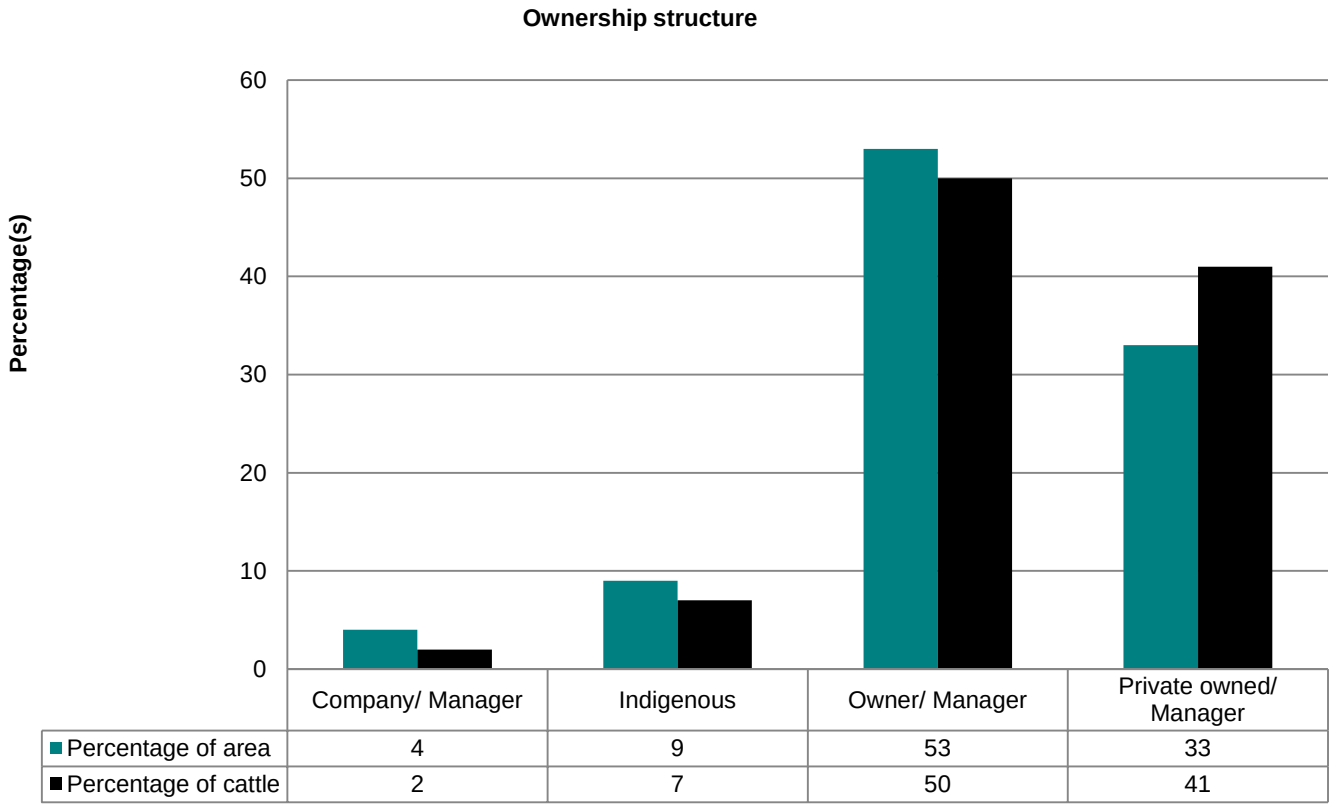


Figure 5. Ownership structure of stations in the Alice Springs region

The actual area and the number of respondents in each category are shown in Table 7.

Table 7. Average property size for different ownership types (km^2)

	Average size	Total area	Number
Alice Springs	3799	117 756	31
Company/manager	4387	4387	1
Indigenous owned land	3729	11 186	3
Owner/manager	3492	62 856	18
Privately owned/managed	4370	39 327	9

Seventy four per cent of stations described their enterprise as being run individually, with the remaining 26% being integrated production systems. The majority of integrated production systems were in the privately owned/managed category.

The average length of station ownership in the Alice Springs region was 29 years, with a range extending from one year to 91 years. The average period under current management for the Alice Springs region was 19 years, with a range from one to 55 years. Stations in the process of being sold/changing ownership were not included in the survey. The fact that the majority of properties in this region were family owned must be recognised when interpreting this data. Figure 6 shows the average length of ownership and management for the Alice Springs region and districts.

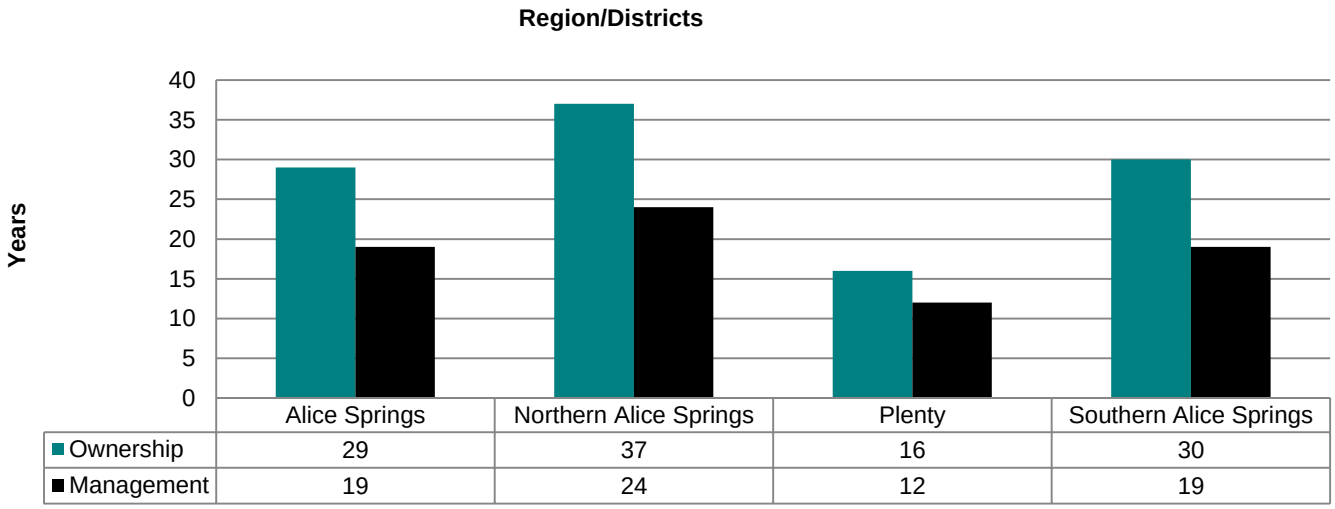


Figure 6. Average length of ownership and management in the Alice Springs region

Staff

Ninety-seven per cent of stations in the Alice Springs region said they used permanent staff (Figure 8). A large number of the properties were family-owned and operated, which sometimes leads to an undefined employment structure. Depending on the ownership/management structure, some of the respondents included themselves as permanently employed staff while others did not. As shown in Figure 7, the number of staff generally increased with the number of cattle on the property.

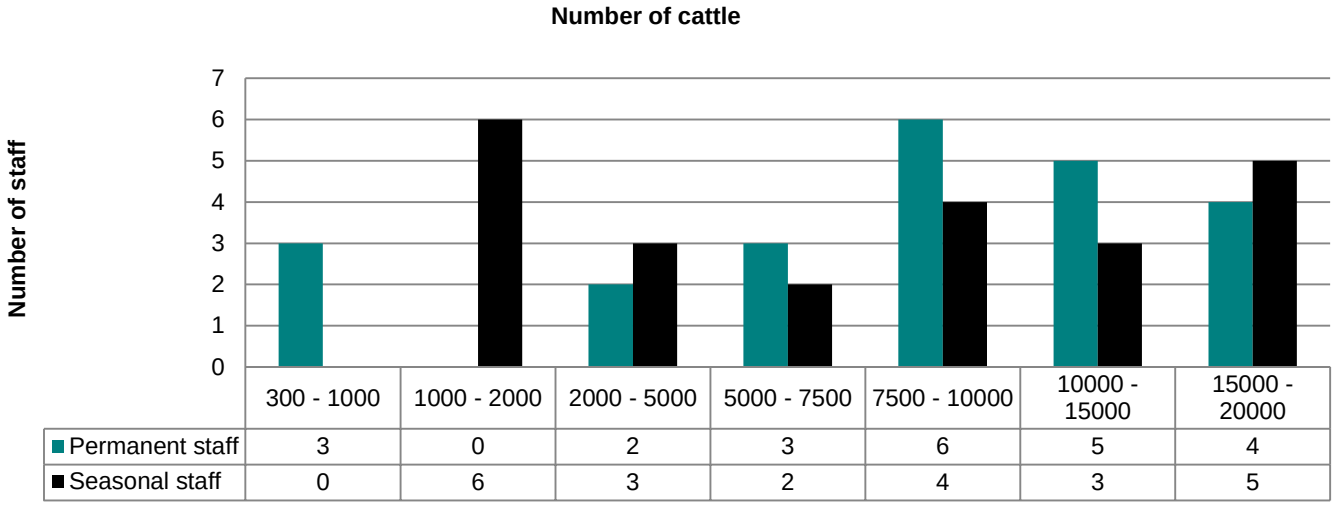


Figure 7. Average number of staff according to number of cattle

Seasonal contract workers were not used to the same extent in Alice Springs region as in the other regions of the NT. Twenty four per cent of properties indicated that they did not use any contract workers (Figure 8). The average time of employment for contract workers varied between two and five weeks. On average, less than one seasonal backpacker was employed per station during the survey period.

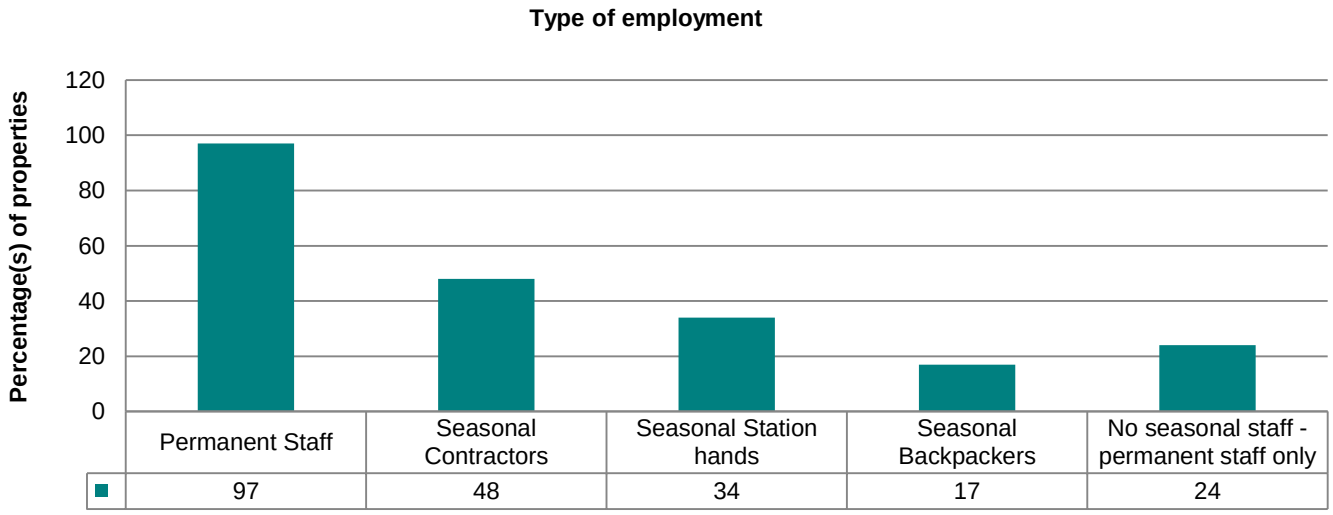


Figure 8. Percentage of properties in Alice Springs that used different types of labour

The highest number of staff employed in the Alice Springs region was in the southern region (eight per property) with an average of six per property throughout the region. The surveyed properties in the Alice Springs region provided employment to 180 people throughout the survey year, although some of the seasonal workers might have worked on more than one property during the period. On the basis that the properties surveyed covered an estimated 51% of the region's cattle, it can be suggested that employment in the region's cattle industry may be approximately 353 people.

Table 8. Staff members employed in the Alice Springs region during the survey period

District	Av. no. staff employed	Total permanent workers employed on surveyed properties in 2010	Total seasonal workers employed on surveyed properties in 2010
Alice Springs	6	91	89
Northern Alice Springs	4	29	29
Southern Alice Springs	8	27	39
Plenty	6	35	21

Number of cattle

The total cattle numbers for the 31 stations in the 2010 Alice Springs region survey was 176 723 (Table 9). If this number is extrapolated to the 60 stations in the region, it equates to 347 745 cattle in the entire region. A number of stations, not included in the survey but still contributing to the total number of stations in the region, were completely destocked at the time of the survey while a number of stations were in the process of changing ownership.

Table 9. Total cattle numbers versus number of breeders

Row Labels	Total cattle	Average cattle numbers per station	Total breeders	Average breeders per station	Number of stations
Alice Springs	176 723	5701	75 325	2430	31
Northern Alice Springs	64 083	4929	29 978	2306	13
Plenty	56 358	7045	22 083	2760	8
Southern Alice Springs	56 282	5628	23 264	2326	10

Properties included in the survey had between 300 and 20 000 head of cattle each. The most common total herd size for the Alice Springs region was 2000 to 5000 (42% of stations) followed by 5000 to 7500 (19% of stations) as shown in Figure 9. In the 2004 survey, the herd size for the majority of stations (36%) was in the 5000 to 7500 range. The apparent reduction in herd size may be due to the drought that occurred through most of the period from 2004 to 2009.

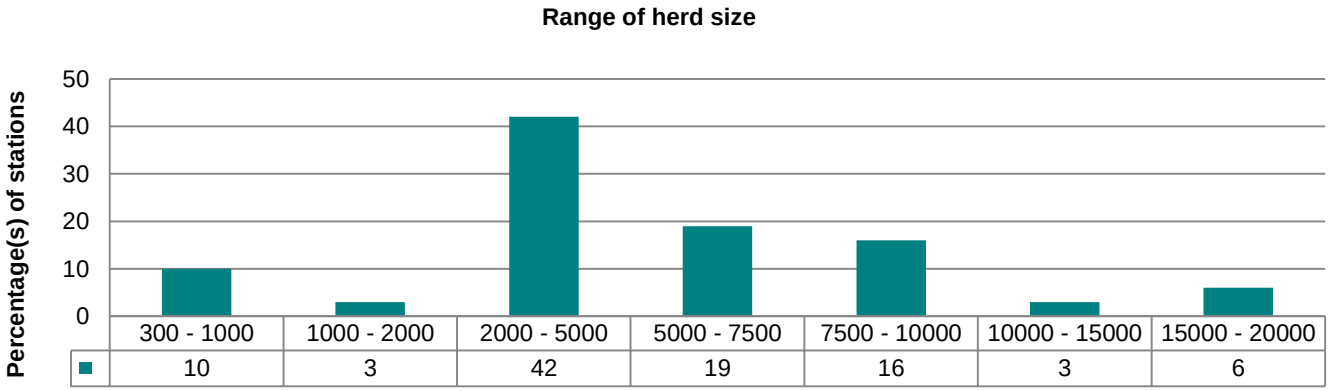


Figure 9. Percentage of cattle with herd size in a specific range

A number of producers indicated a change in cattle numbers between 2004 and 2010 with 9% indicating a decrease, 32% indicating an increase and 19% indicating no change. A large percentage of participants (39%) did not respond, which may indicate that there was no change or they were not in a position to disclose such information.

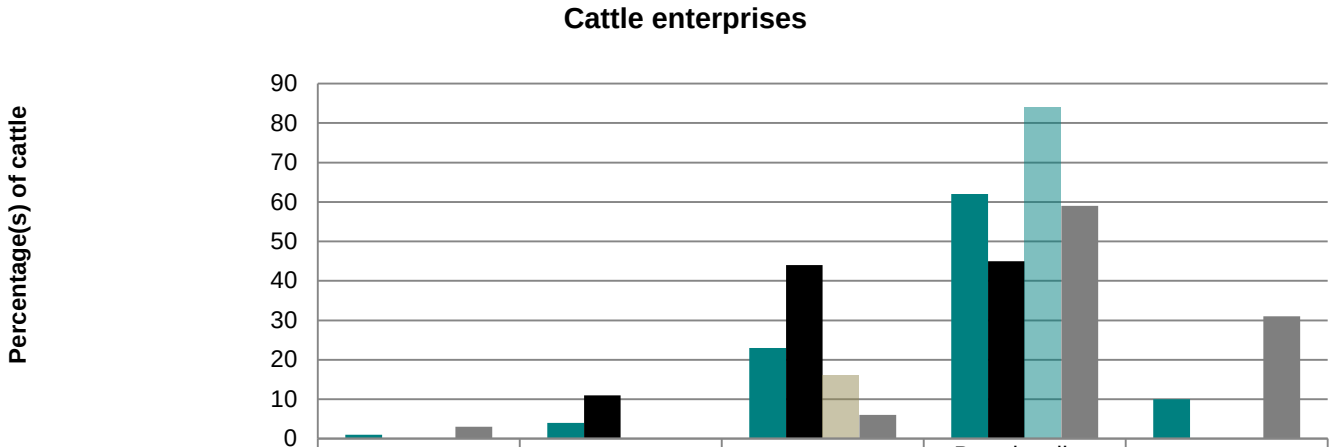
Table 10. Number of properties reporting a change in cattle numbers since 2004 and percentage change in animal equivalents

District	Number of properties indicating a change in cattle numbers	Percentage change in AEs
Alice Springs	12	13
Northern Alice Springs	6	10
Plenty	3	7
Southern Alice Springs	3	22

Turn-off and markets

Main types of cattle enterprises

The majority of cattle in the Alice Springs region were bred and sold or transferred to be grown out elsewhere in Australia (Figure 10). Breeding and selling slaughter cattle, the second biggest enterprise, was particularly strong in the northern Alice Springs and Plenty districts, while cattle were traded by a number of producers in the southern Alice Springs district. The live export market is targeted by very few cattle enterprises in the Alice Springs region with the northern district being the only contributor. Agistment was only recorded by southern district respondents.



	Agistment	Breed and sell mainly live export feeder cattle	Breed and sell mainly slaughter cattle	Breed, sell or transfer for growing elsewhere in Australia	Growing/ finishing transferred/ purchased cattle
Alice Springs	1	4	23	62	10
Northern Alice Springs	0	11	44	45	0
Plenty	0	0	16	84	0
Southern Alice Springs	3	0	6	59	31

Figure 10. Main cattle enterprises

Markets

Abattoirs were the predominant market place while feed-lotting also accounted for much of the market, especially in the southern district where it was used by 48% of producers. A small percentage of cattle were assigned to the EU and the live export market, while the organic market was not used by any of the respondents at the time of the survey.

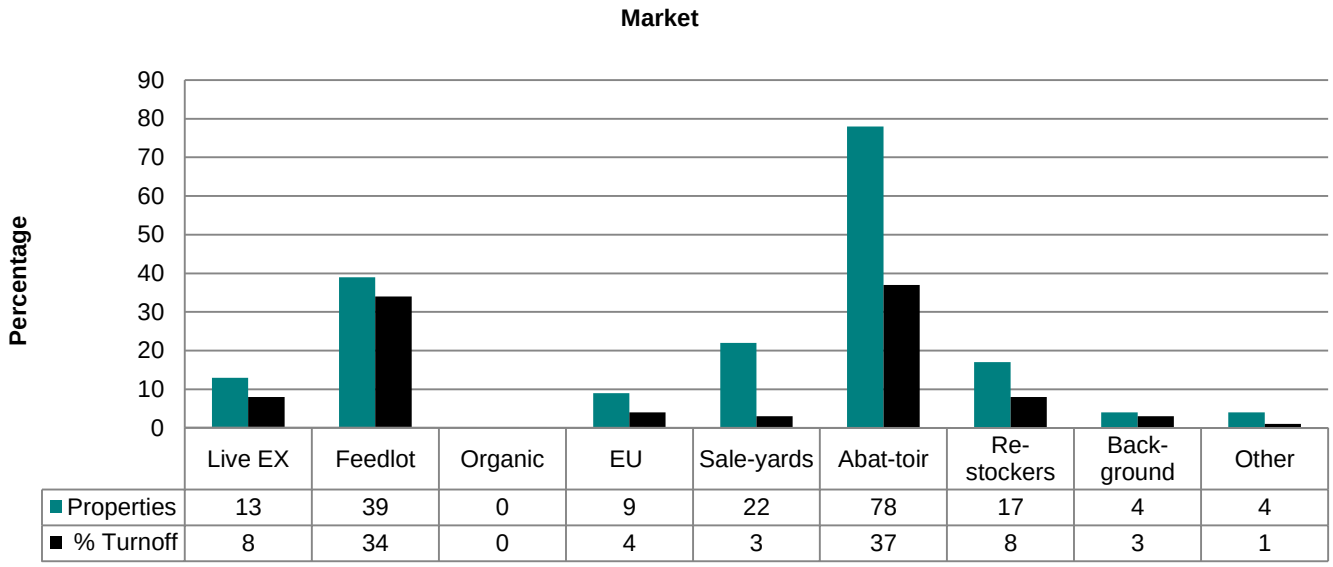


Figure 11. Percentage of properties using different market types and average percentage of cattle sent to each market

South Australia was the predominant market destination for cattle from the Alice Springs region with 61% of cattle ending up there (Figure 12). Queensland markets attracted the majority of cattle from the Plenty district, while the Plenty and northern districts marketed in excess of 10% of their cattle within the NT.

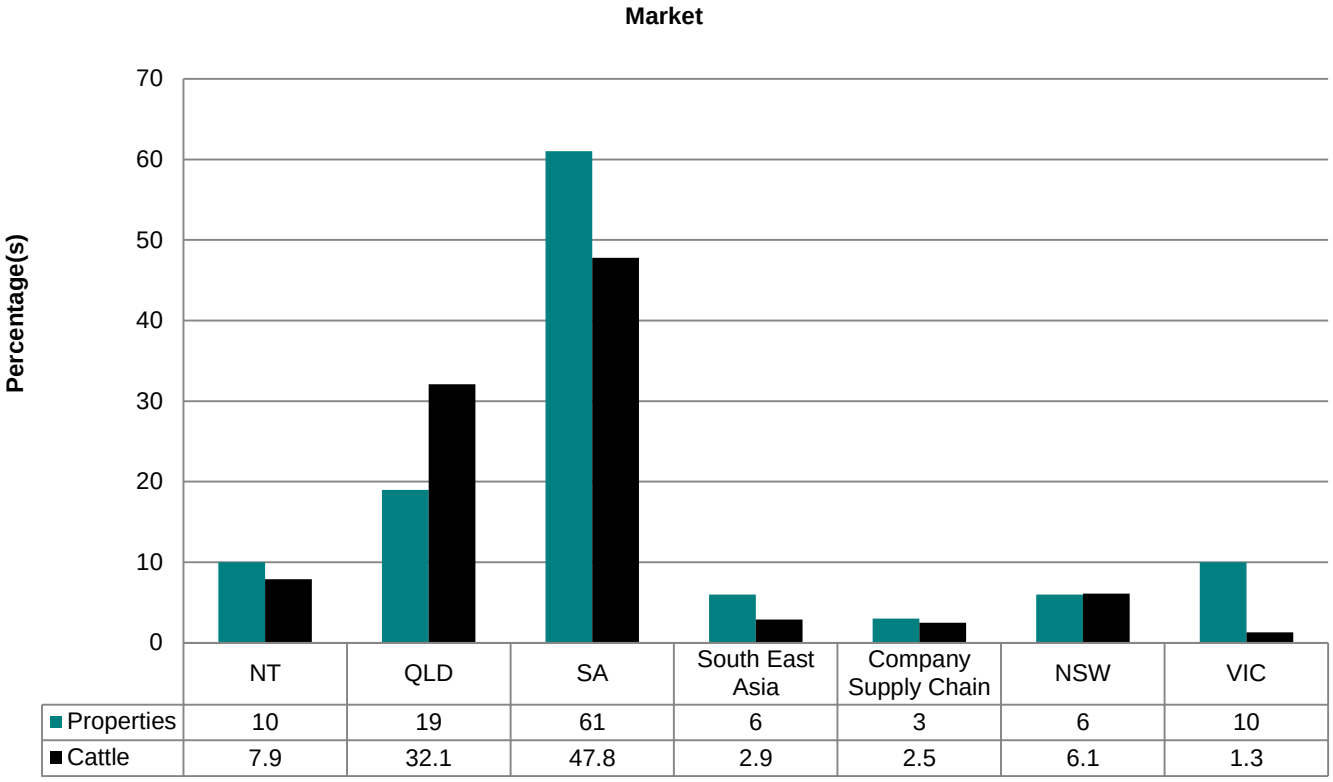


Figure 12. Percentage of properties using different market destinations and average percentage of cattle sent to each destination

Turn-off

The percentage of sale stock turned-off during different months of the year is shown in Figure 13. Sale stock was turned-off during every month of the year except December, while March to July was the peak turn-off period. The turn-off period was loosely correlated with the muster cycle reported under mustering practices.

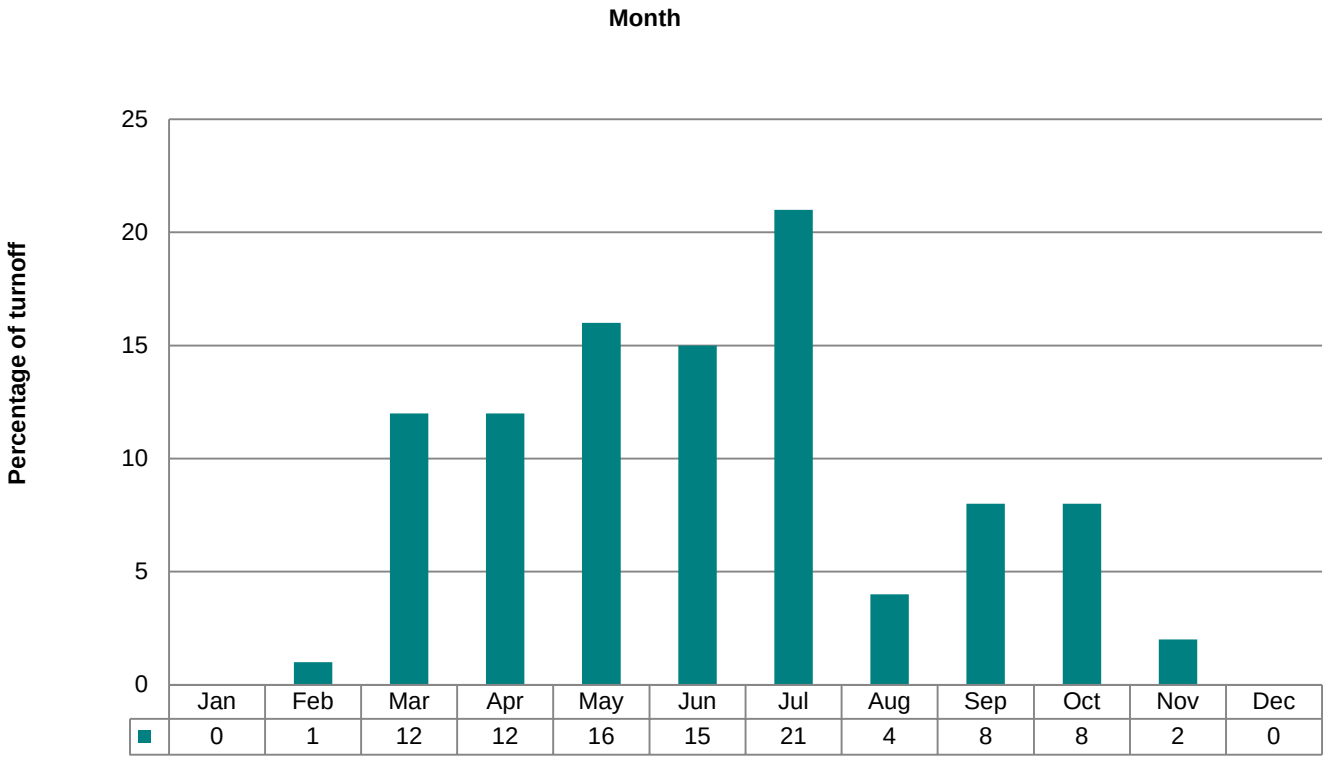


Figure 13. Percentage of sale stock turned-off at different months

Average turn-off data for the Alice Springs region is presented in Table 11. The data is based on a relatively small number of respondents as not all properties provided weights, ages or number of stock turned-off. It was, however, decided to include this table as it provides trends in an area where very little information is available.

Table 11. Average turn-off data for the Alice Springs region

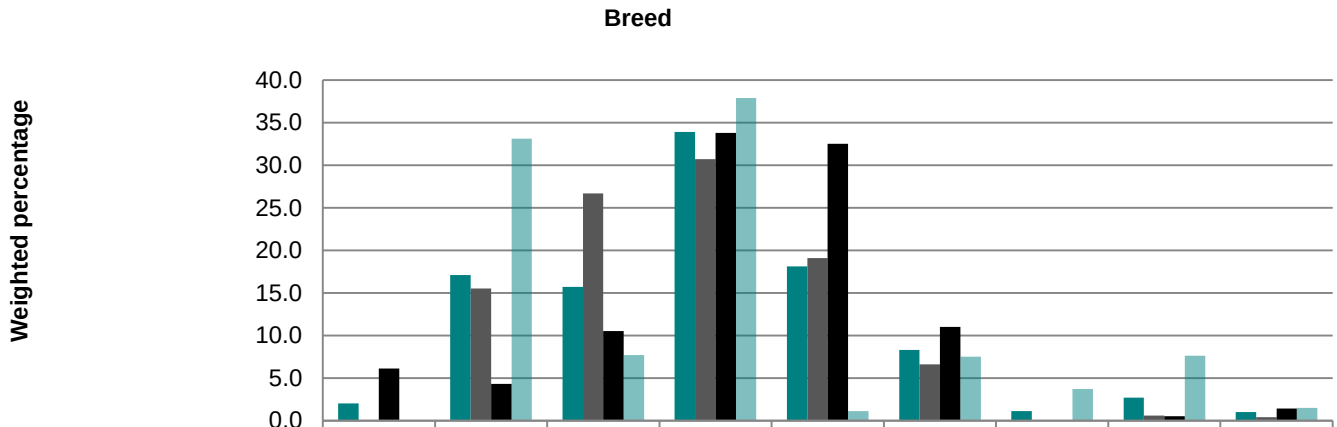
Stock class	% turned-off in region	% of properties turning-off	Av. turn-off weight (kg)	Av. turn-off age (years)	Av. number turned-off per property
Feeder steers NT	24	29	379	2	1062
Slaughter steers	22	71	523	4	983
Other	19	48	389	4	119
Cows slaughter	10	95	449	8	217
Cows interstate	8	33	518	9	661
Feeder steers Qld	7	52	200	1	469
Feeder steers LE*	5	33	300	1	1189
Heifers slaughter	3	48	319	1	52
Bulls slaughter	2	90	706	5	47
Mickeys NT	1	0			
Bulls LE	0	5			
Heifers LE	0	33			412
Heifers NT	0	10	400	2	
Mickeys LE	0	5			148
Mickeys slaughter	0	14	222	2	
Slaughter steers LE	0	10			

LE* = Live export

Cattle management

Breeds of cattle

Region-wide, the predominant cattle breed was Santa Gertrudis (Figure 14). This was closely followed by Herefords and Droughtmasters, while the majority of cattle were crossbreds. Santa Gertrudis were predominant in the Plenty district (32%), Herefords in the southern Alice Springs district (33%) and Droughtmaster, which have increased significantly since the previous survey, made up 27% of the cattle in the northern Alice Springs district. Shorthorns were dispersed throughout the region.



	Brah-man	Here-ford	Drought-master	Cross-bred	Santa	Short-horn	Com-posite	Angus	Other
Alice Springs	2.0	17.1	15.7	33.9	18.1	8.3	1.1	2.7	1.0
Northern Alice Springs	0.0	15.5	26.7	30.7	19.1	6.6	0.0	0.6	0.4
Plenty	6.1	4.3	10.5	33.8	32.5	11.0	0.0	0.5	1.4
Southern Alice Springs	0.0	33.1	7.7	37.9	1.1	7.5	3.7	7.6	1.5

Figure 14. Percentage of each breed by district

Breeding aims

At 42% of stations the main breeding goal was to select for traits within the breed of choice (Table 12). This goal was followed by crossbreeding to improve herd performance and to suit the market. When it came to individual traits, some of the breeding goals mentioned by producers were breeding for adaptability and to suit the country, carcass traits (e.g. marbling), weight for age and fertility.

Table 12. Breeding goals of pastoralists

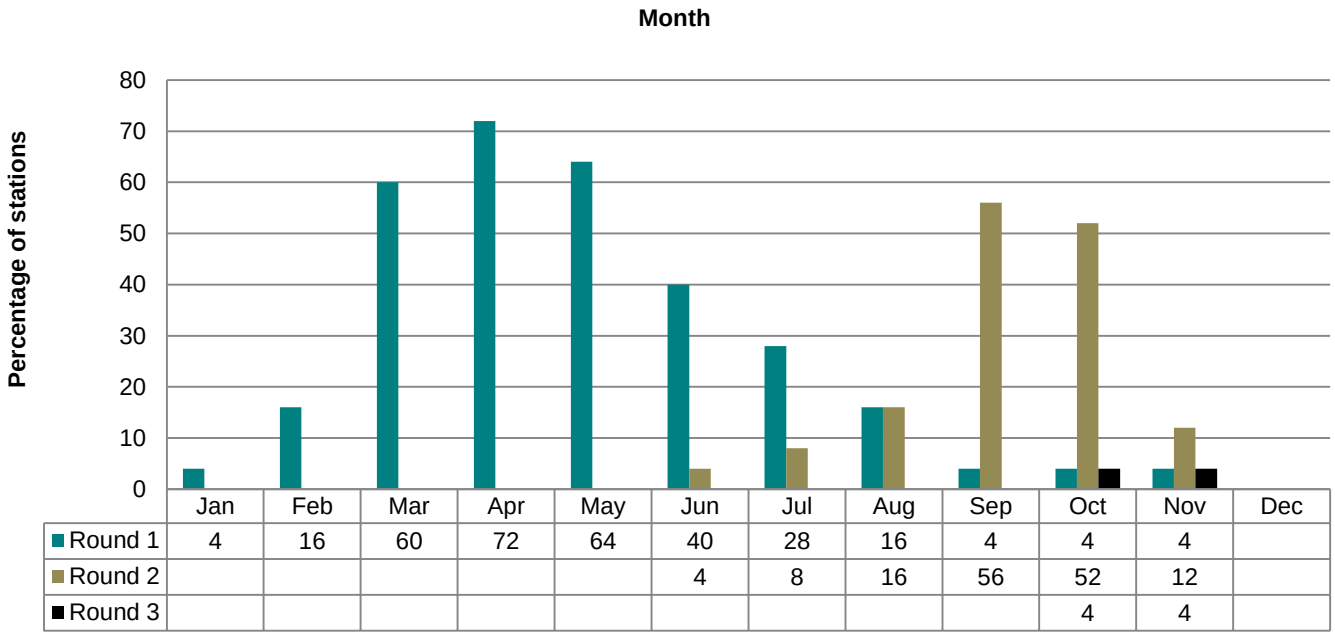
Main breeding goal	Percentage of producers
To select traits within a breed	42
Cross breed to improve herd performance	27
Cross breed to suit market	15
Upgrade to other tropical breeds	4
Develop composite breeds	4
Concentrate on other areas of management, not genetics	4
Other	4

Mustering practices

All the properties in the survey carried out at least one muster per year, with 68% doing a second round muster (Figure 15).

The start of the second muster could be as early as June and as late as November. The predominant months for mustering in the Alice Springs region were from March to May for the first round and from September to October for the second round.

The northern Alice Springs district generally did its main mustering earlier and also had the only station that conducted a third round muster during the survey year.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Round 1	4	16	60	72	64	40	28	16	4	4	4	
Round 2						4	8	16	56	52	12	
Round 3										4	4	

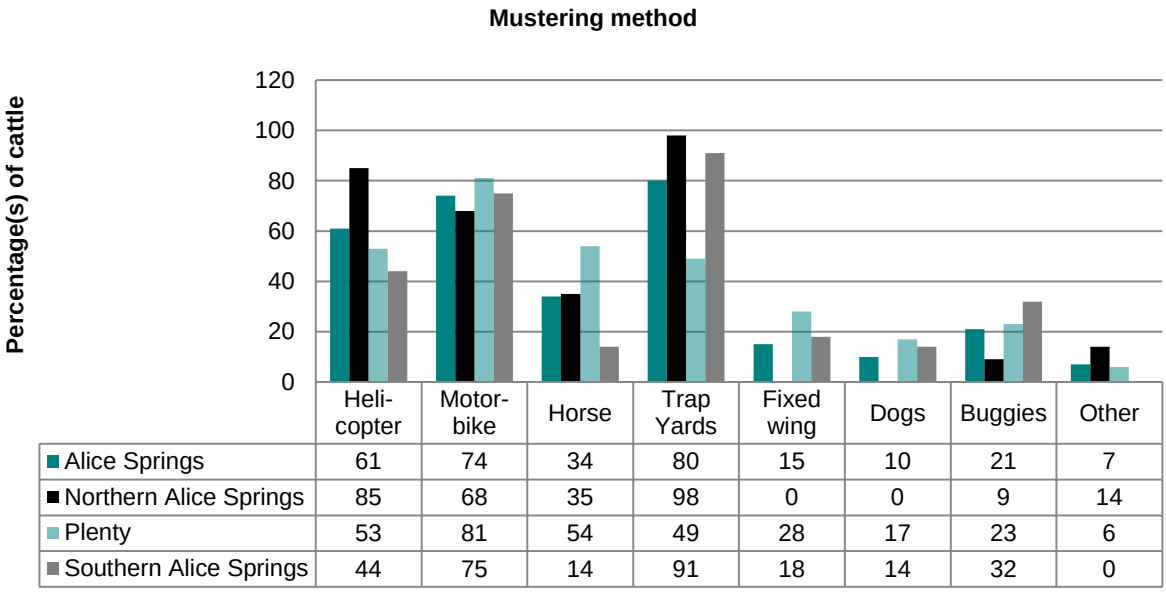
Figure 15. Percentage of stations that muster during different months

At $12.29/head, the average mustering cost for the Alice Springs region (Table 13) was lower than that for the NT ($17.06/head). The ability to control access to stock water enabled the use of trap yards on many stations, which reduced the cost of mustering to a degree. Trap yards were used for 80% of cattle mustered in Alice Springs compared with 34% of cattle mustered in the whole NT.

Table 13. Mustering costs per head

Cost per head	Average ($)	Count
Alice Springs	12.29	12
Northern Alice Springs	8.72	5
Plenty	22.49	3
Southern Alice Springs	7.27	4

Of all the cattle mustered in the northern and southern Alice Springs districts, more than 90% were mustered using trap yards; motor bikes were the most commonly used method in the Plenty district (Figure 16). Helicopters were used to muster 60% of cattle in the region while horses were used to muster 34% of cattle. It would appear that the use of dogs has increased since the 2004 survey, especially in the Plenty district where dogs were used in mustering 17% of cattle.



	Heli-copter	Motor-bike	Horse	Trap Yards	Fixed wing	Dogs	Buggies	Other
Alice Springs	61	74	34	80	15	10	21	7
Northern Alice Springs	85	68	35	98	0	0	9	14
Plenty	53	81	54	49	28	17	23	6
Southern Alice Springs	44	75	14	91	18	14	32	0

Figure 16. Mustering methods used

Bulls

Pastoralists aimed to use on average 4% bulls with up to 8% in the southern Alice Springs district (Table 14).

Table 14. Percentage of bulls that pastoralists aimed to use

Region	Average (%)	Number of properties	Minimum	Maximum
Alice Springs	3.9	24	2	8
Northern Alice Springs	3.6	10	2	6
Plenty	3.2	7	2	4
Southern Alice Springs	4.9	7	2	8

Feral bulls were found throughout the Alice Springs region and rough estimates indicated that they made up to about 6% of total bull numbers. In the southern Alice Springs district, the percentage of feral bulls was estimated to be 1.8% and in the northern district 8.4%. As only 58% of respondents were confident enough to estimate the number of feral bulls, the figures presented are therefore only indicative.

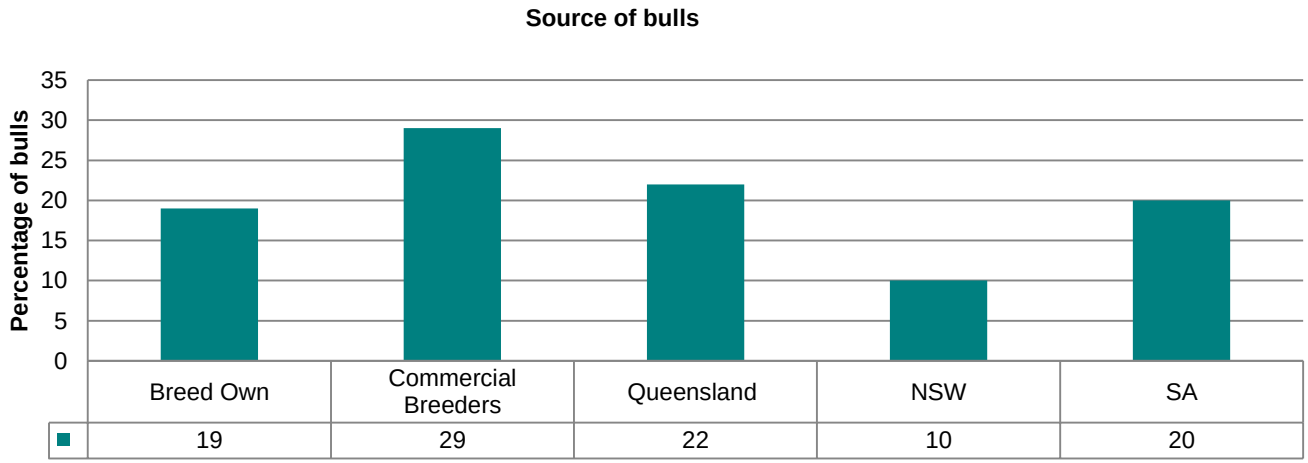


Figure 17. Percentage of bulls from different sources

At 29%, most bulls were sourced from commercial (non-stud) breeders (Figure 17). Stud breeders from Queensland provided more bulls to the northern Alice Springs and Plenty districts, while more bulls for the southern Alice Springs district were sourced from South Australian stud breeders. A relatively large percentage of bulls (19%) were home-bred.

Estimated breeding values (EBVs) were used by 56% of properties in Alice Springs region when evaluating bulls (Table 15). This equated to 37% of bulls sourced for the Alice Springs region being selected using EBVs (Table 12). The traits rated most important by the majority of breeders using EBVs were fertility, followed by growth rate, birth weight and carcass traits.

Table 15. Use of EBVs in the Alice Springs district

Region	Percentage of properties that use EBVs	Percentage of bulls bought using EBVs
Alice Springs	**56**	37
Northern Alice Springs	62	40
Plenty	38	19
Southern Alice Springs	67	48

Eight producers in the Alice Springs region, representing 27% of properties, used bull breeding soundness evaluations (BBSEs) on 26% of bulls in the region, while another 10 producers, representing 33% of properties, used semen tested bulls (41% of the region). Of the bulls tested using BBSEs, the majority were tested before purchase and very few during their working life.

Selection indexes were not widely used to select bulls with only four respondents indicating the use of the Jap Ox index and one respondent using the Northern Live Exporters' index.

Breeder management

Weaning percentage

Less than half of respondents were confident in providing figures on weaning percentages and calf losses. This was primarily due to the extensive size of the properties and the shortage of labour, which meant contact with animals and record keeping were limited to the bare minimum on many properties. The figures provided in

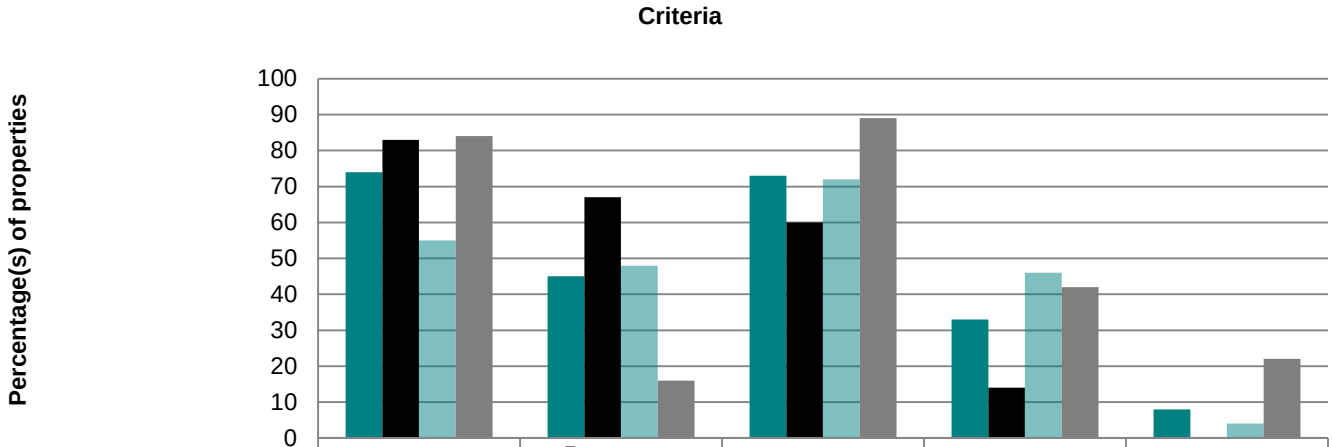
Table 16 indicate a trend between breeding female categories and should not be interpreted as representative of the Alice Springs region.

Table 16. Average weaning percentages and calf losses in different classes of female cattle in Alice Springs

Wean % 1st calf heifers	Wean % 2nd calf cows	Wean % breeders	Wean % old cows	Calf loss in breeders (%)
72	67	75	67	4.3

Cull cattle

Based on producer estimates, 12% of cows were culled annually on the surveyed properties. Breeders were primarily culled for temperament and age with 45% being culled on pregnancy diagnosis results (Figure 18). The average age for culling breeders was 10 years.



	Temperament	Pregnancy diagnosis status	Age	Conformation	Other
Alice Springs	74	45	73	33	8
Northern Alice Springs	83	67	60	14	0
Plenty	55	48	72	46	4
Southern Alice Springs	84	16	89	42	22

Figure 18. Criteria for culling breeders

Segregation

Segregation was practised predominantly on age (42% of properties) and pregnancy status (16% of properties) while colour and condition was mentioned by 6% of producers. On 16% of properties animals were segregated for other reasons, such as breed, cull females, and first cross, while on 13% of properties no segregation was practised.

Pregnancy testing

Pregnancy testing was used to a lesser degree in the Alice Springs region compared with the rest of the NT. From the 22 respondents that indicated the use of pregnancy testing, none did it as a standard practice for all breeders. Pregnancy testing was primarily used for culling and selling female animals. Table 17 shows the percentage of properties where pregnancy testing was carried out on different classes of female animals. In the northern Alice Springs district, the services of a qualified pregnancy tester were mostly used (67%), while in the southern Alice Springs district, the services of a vet were used by those that practised pregnancy testing (Table 18).

Table 17. Percentage of properties where pregnancy testing was done on different female classes

Region	All cows	Dry cows (%)	Cull cows (%)	Heifers (%)	Opportunistically for sale cows (%)
Alice Springs	0	13	16	16	10
Northern Alice Springs	0	8	15	23	0
Plenty	0	25	25	0	0
Southern Alice Springs	0	10	10	20	30

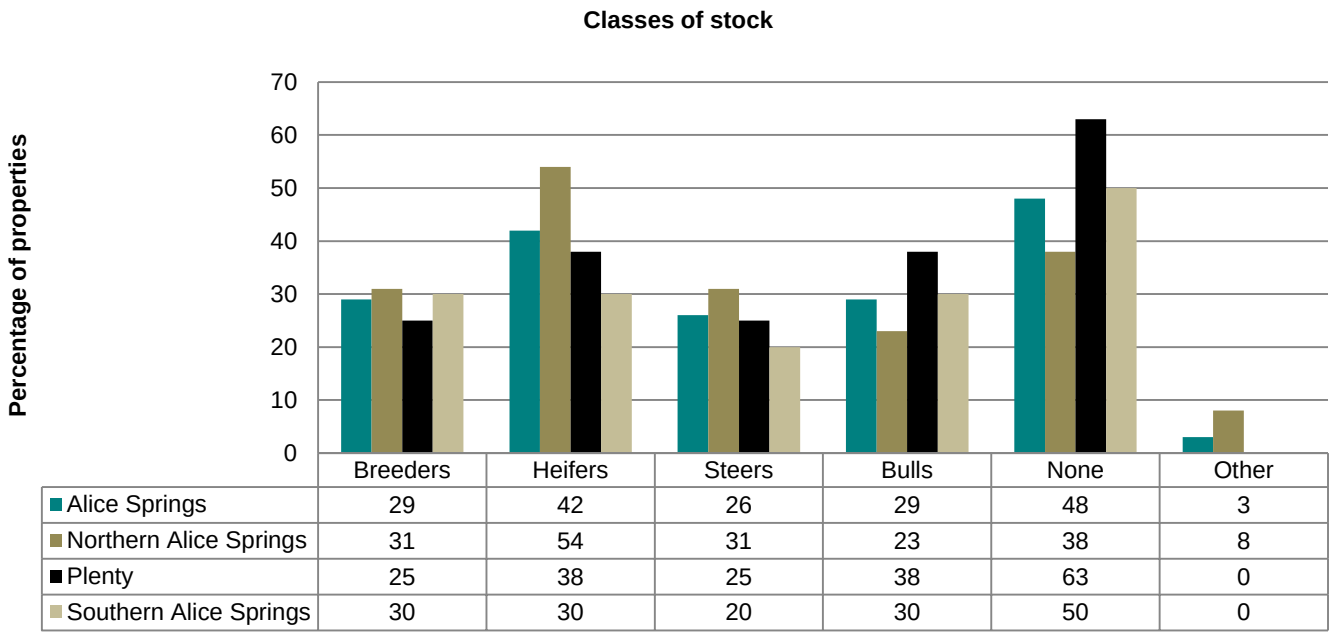
Table 18. Pregnancy testers

District/region	Percentage			
	Vet	Self	Employee	Hire a qualified pregnancy-tester
Alice Springs	25	17	25	42
Northern Alice Springs	0	17	33	67
Plenty	25	25	25	25
Southern Alice Springs	100	0	0	0

Herd performance recording

Herd performance recording was carried out by 52% of producers. These producers individually identified 44% of stock for management purposes. The lowest level of recording was done in the Plenty district (38%) where 10% of stock had just management tags, 21% had EID tags and 14% had EID and management tags.

Figure 19 shows the percentage of animals per class in the Alice Springs region recorded for management purposes. Of the animals that were recorded for management purposes, heifers and breeders were the most plentiful (42% and 29% of properties, respectively).

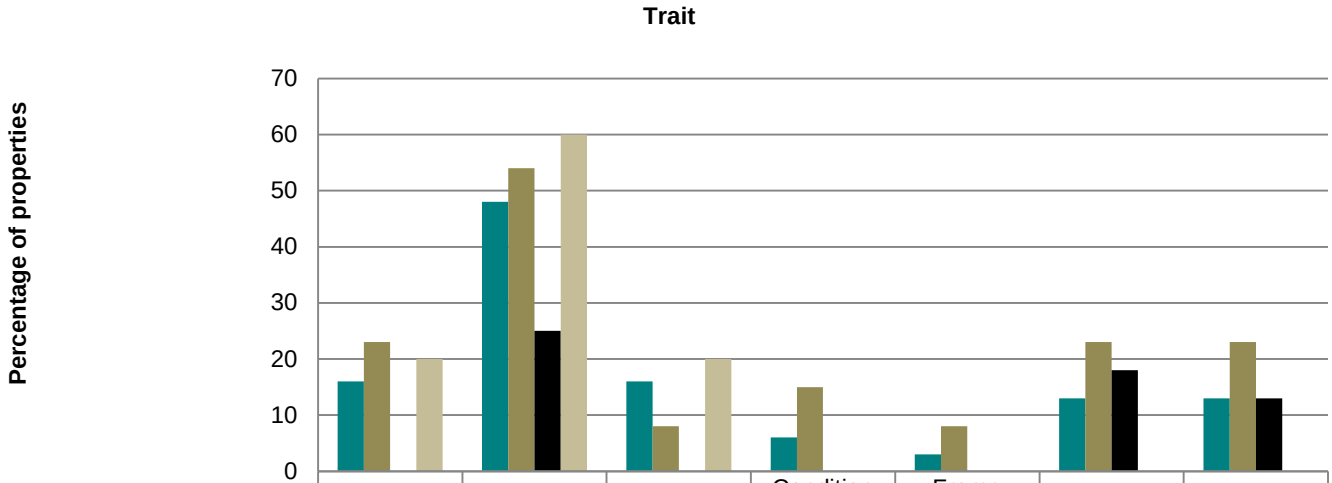


	Breeders	Heifers	Steers	Bulls	None	Other
Alice Springs	29	42	26	29	48	3
Northern Alice Springs	31	54	31	23	38	8
Plenty	25	38	25	38	63	0
Southern Alice Springs	30	30	20	30	50	0

Figure 19. Classes of stock individually identified for management purposes

The percentage of stock not recorded for management purposes was higher in the southern Alice Springs and Plenty districts. The traits recoded by most properties were age, followed by weight and pregnancy status (Figure 20).

AI and embryo transfers were not used by any producers. These specialised management practices were more relevant to studs and none of these were recorded in this survey.



	Weight	Age	Preg Status	Condition Score	Frame score	Wet/Dry	Other
Alice Springs	16	48	16	6	3	13	13
Northern Alice Springs	23	54	8	15	8	23	23
Plenty	0	25	0	0	0	18	13
Southern Alice Springs	20	60	20	0	0	0	0

Figure 20. Traits recorded for management purposes

Continuous or controlled mating

Controlled mating was not adopted as a management practice by many pastoralists in the Alice Springs region compared with the NT as a whole. Where controlled mating was applied, bulls were usually put in with breeders in December and removed in April with bulls staying one to two months longer with maiden and first-calf heifers.

Table 19. Controlled mating

Region	Maiden heifers control mated (%)	First calf heifers control mated (%)	Breeders control mated (%)
Alice Springs	4	2	2
Northern Alice Springs	5	5	5
Plenty	0	0	0
Southern Alice Springs	7	0	0
NT	32	12	9

The main reasons given for not using controlled mating related to limited infrastructure and labour and are shown in Figure 21. Other reasons mentioned why controlled mating was not used included cattle responding best to seasonal conditions and the Alice Spring region having extremely variable climatic conditions.

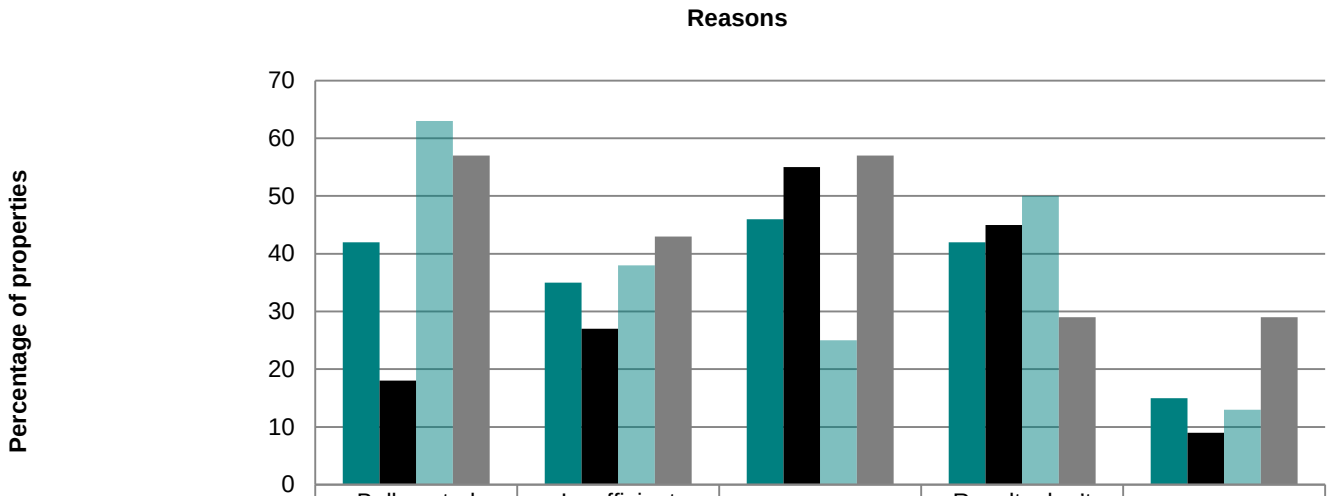


Figure 21. Reasons for not using controlled mating

Mortality rates

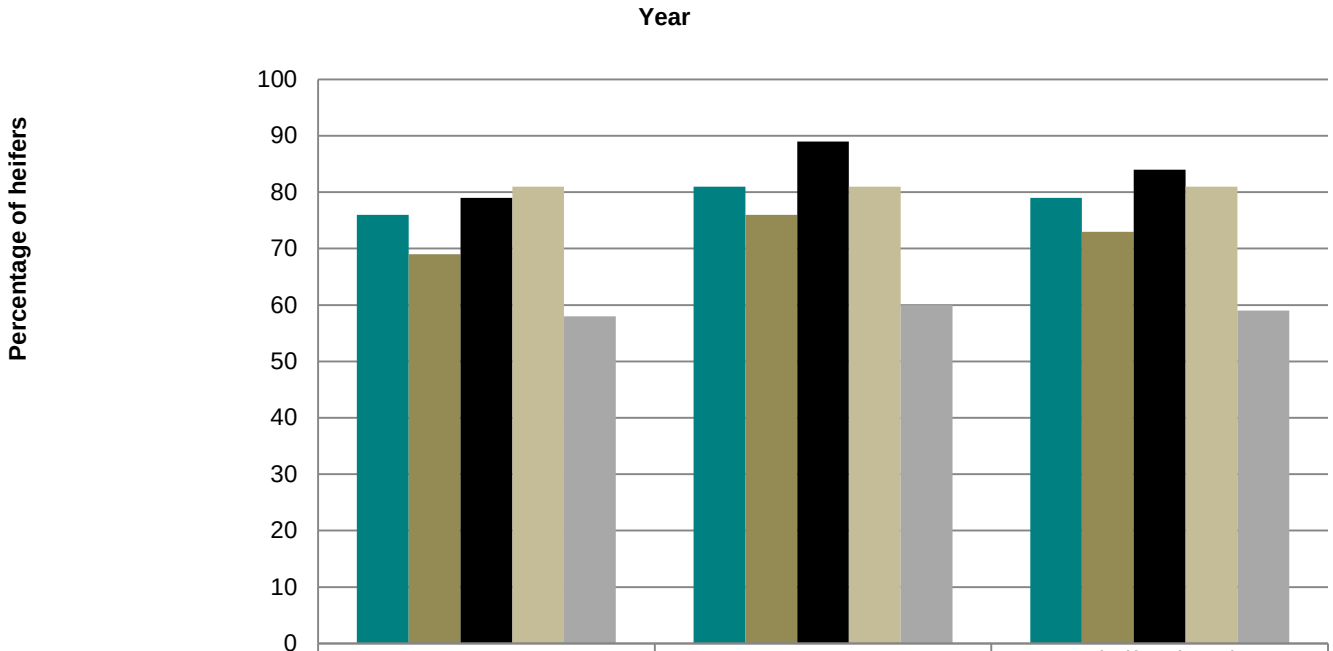
Respondents were asked to provide an estimate of the annual mortality rate for different classes of stock over the previous three years. Less than a third of respondents were confident in providing figures on mortality. The figures in Table 20 therefore indicate a trend but do not necessarily provide an accurate representation of mortality rates in the Alice Springs region. The highest estimated mortality rate (11.7% in old cows) was in the Plenty district and the lowest mortality rate (4.4%) was in the southern Alice Springs district.

Table 20. Average mortality rate for different classes of stock in the Alice Springs region (10 respondents)

Class of stock	Weaner heifers	1st calf heifers	2nd calf heifers	Breeders	Old cows	Weaner steers	Steers
Mortality (%)	6.7	6.2	7.9	8.5	7.5	5.2	4.9

Heifer management

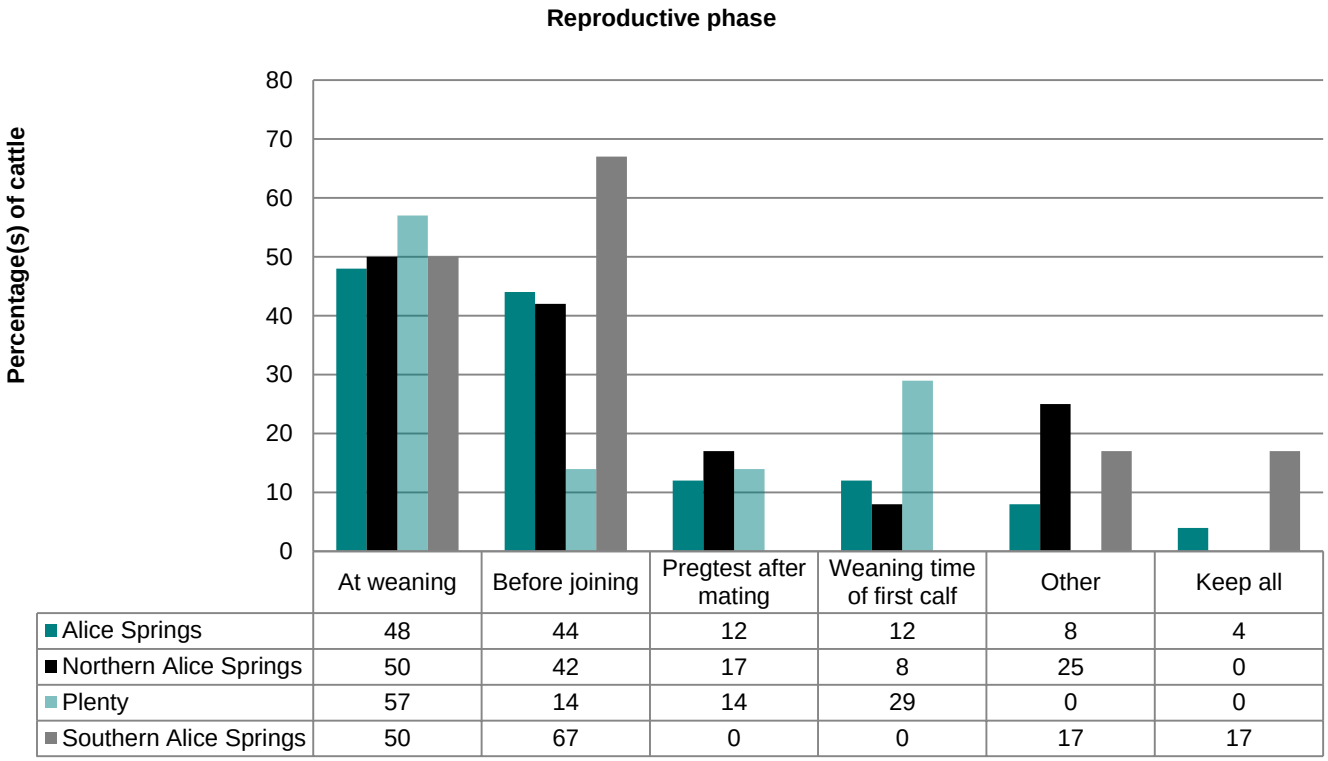
Figure 22 illustrates the increase in heifers retained from 2009 to 2010. Subsequent to the end of the drought in 2010, pastoralists started to increase their herd sizes. The figures also indicated that a much higher percentage (79%) of heifers was retained in the Alice Springs region compared with the NT average (59%). The higher breeder mortality rate in the Alice Springs region, reported earlier, together with the herd size increase were likely reasons for retaining more heifers.



	% heifer 2009	% heifers 2010	% heifers kept in region/district 2009-10
Alice Springs	76	81	79
Northern Alice Springs	69	76	73
Plenty	79	89	84
Southern Alice Springs	81	81	81
NT Wide	58	60	59

Figure 22. Percentage of heifers kept as replacements for 2009 and 2010

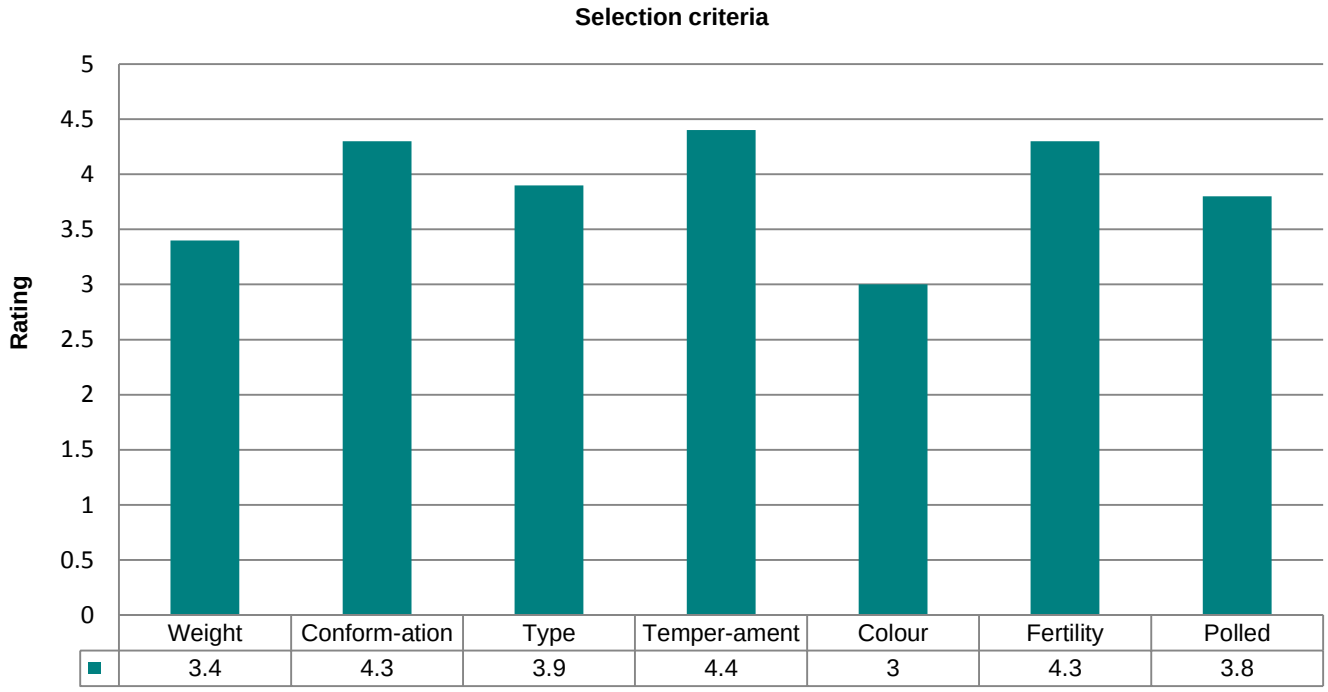
The majority of producers selected replacement heifers at weaning, while some producers selected before joining. Even though the selection of heifers on fertility through pregnancy testing after first mating is considered an important trait (Figure 23) this selection method was only applied on 12% of properties at the time of interviews.



	At weaning	Before joining	Pregtest after mating	Weaning time of first calf	Other	Keep all
Alice Springs	48	44	12	12	8	4
Northern Alice Springs	50	42	17	8	25	0
Plenty	57	14	14	29	0	0
Southern Alice Springs	50	67	0	0	17	17

Figure 23. Reproductive phase when replacement heifers are selected

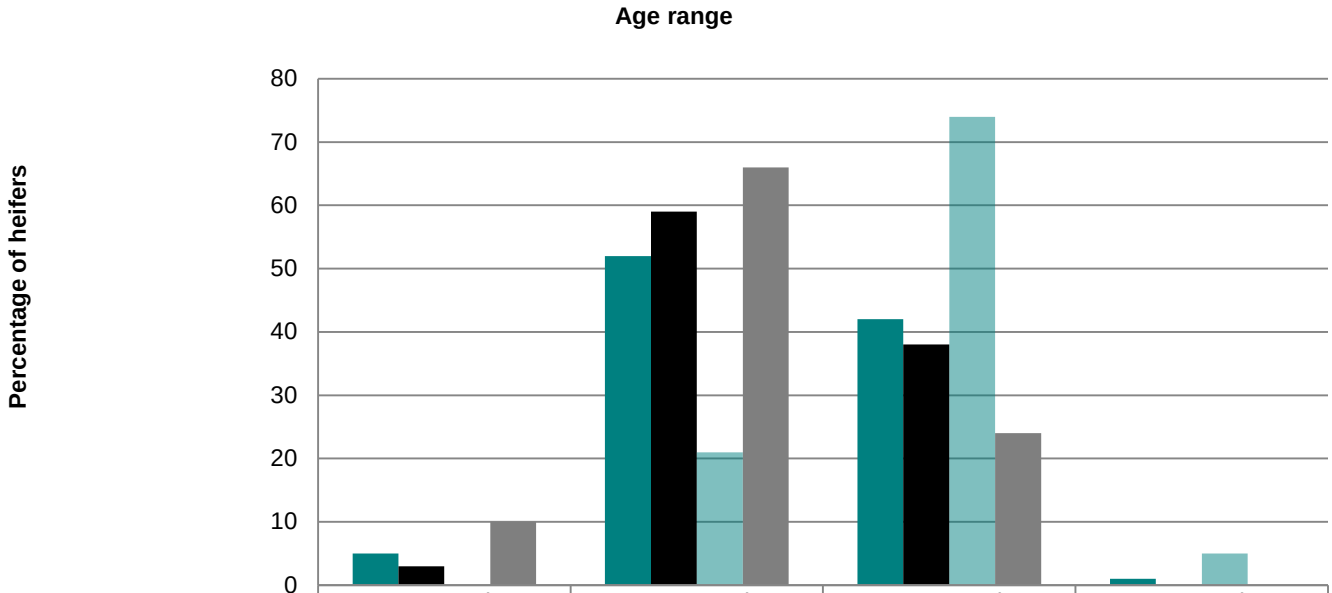
Figure 24 shows the importance producers placed on different selection criteria when selecting heifers. Temperament and conformation seem to be the most important traits to producers when selecting heifers. Fertility is also rated highly as a selection criterion where heifers are selected after first joining.



	Weight	Conform-ation	Type	Temper-ament	Colour	Fertility	Polled
	3.4	4.3	3.9	4.4	3	4.3	3.8

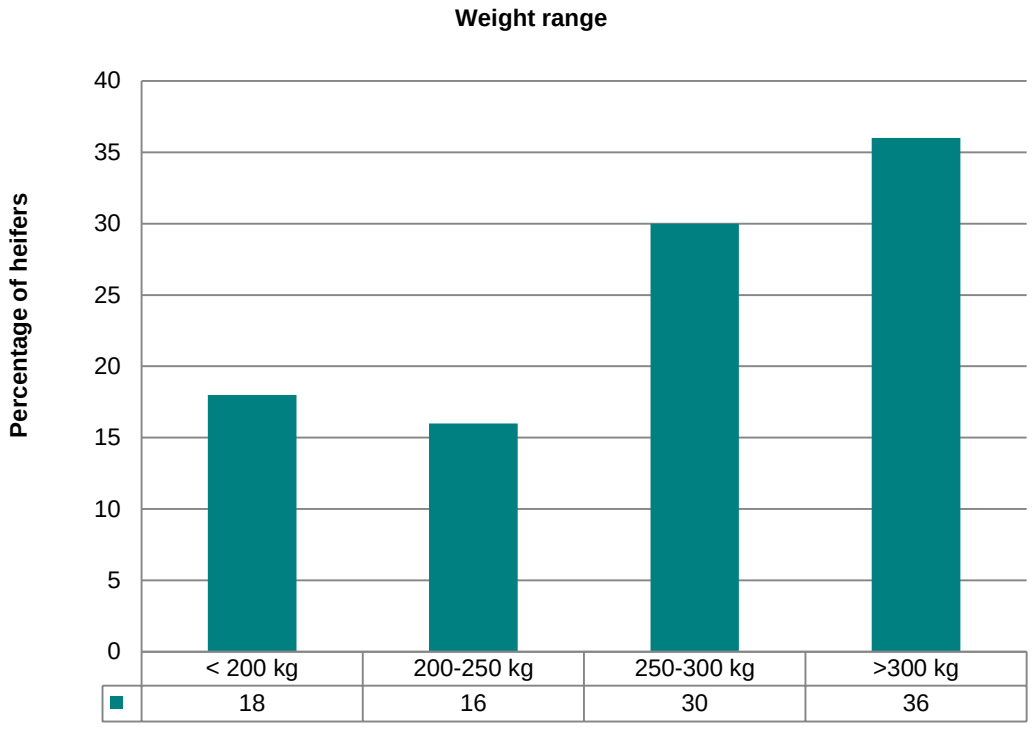
Figure 24. Importance of selection criteria when selecting replacement heifers

The largest percentage of heifers were joined for the first time when they were 12 to 18 months old and thereafter at 18 to 24 months. In the Plenty district, heifers were generally mated at an older age than in the rest of the region (Figure 25). Producers estimated that most heifers were more than 300 kg when mated for the first time (Figure 26).



	< 12 months	12-18 months	18-24 months	>24 months
Alice Springs	5	52	42	1
Northern Alice Springs	3	59	38	0
Plenty	0	21	74	5
Southern Alice Springs	10	66	24	0

Figure 25. Approximate age range of heifers when joined for the first time



	< 200 kg	200-250 kg	250-300 kg	>300 kg
	18	16	30	36

Figure 26. Weight range of heifers when first joined

Approximately 42% of heifers from 43% of properties in the Alice Springs region were segregated from breeders. Many of these remained segregated until the start of the second joining (15%) while 10% stayed segregated until after the weaning of the first calf. Seven percent of heifers stayed segregated for their entire life. Eleven respondents provided reasons why they did not segregate, which included insufficient paddocks, too much labour requirements, not worthwhile or not cost-effective.

Most of the heifers were mated to younger bulls, while some producers used home-bred bulls or smaller framed bulls to produce lower birth weight calves to ease calving

Table 21. Preferred age of bulls mated to heifers

Percentage of cattle	< 3 years old	Average age herd bulls	Artificial insemination	Other
Alice Springs	63	29	0	8
Northern Alice Springs	82	18	0	0
Plenty	65	29	0	6
Southern Alice Springs	37	43	0	20

Similar to the rest of the NT, the condition of heifers and the condition of the pastures were the main determining factors for when weaning was done (Table 22).

Table 22. The most important factor/s influencing the time of year that calves were weaned from heifers

Percentage of properties	Condition of heifers	Access to heifers	Time of year	Mustering practices	Effect of lactation on heifers	Pasture condition	Labour availability	Other
Alice Springs	44	12	20	28	4	36	16	20
Northern Alice Springs	40	10	10	40	0	10	10	20
Plenty	43	14	14	0	0	43	29	43
Southern Alice Springs	50	13	38	38	13	63	13	0

Body condition followed by weight and plane of nutrition were considered to be the main factors affecting the fertility of maiden heifers. For maiden heifers, age was considered more important than genetics in influencing pregnancy rates while genetics were considered to be more important in influencing re-conception rates in first-calf heifers than age (Figure 27).

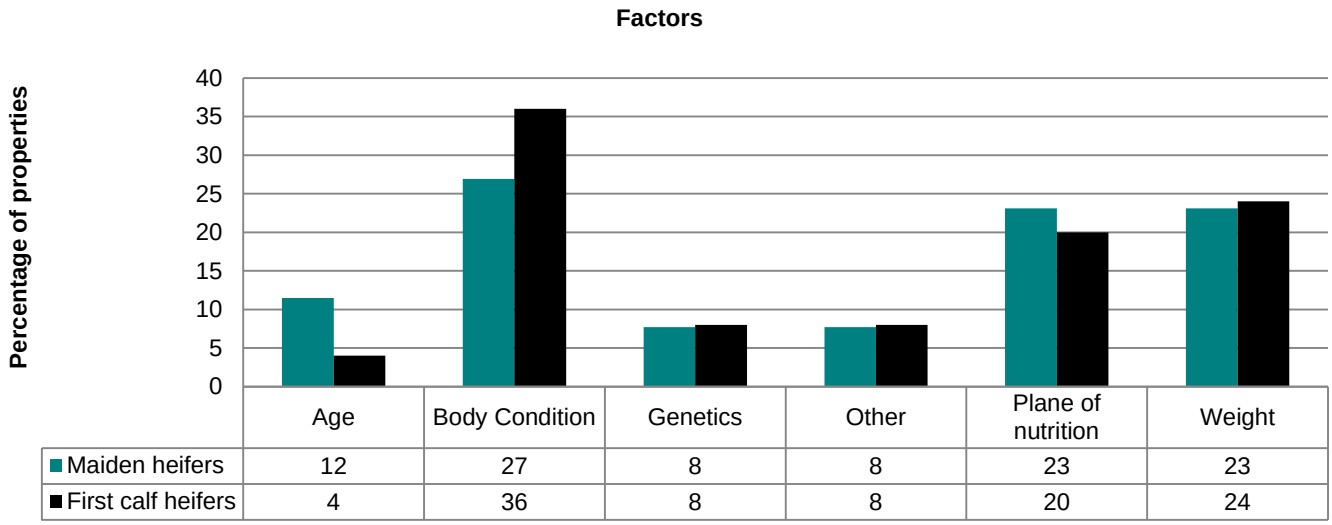


Figure 27. Factors affecting the fertility of maiden and first calf heifers in Alice Springs

When asked to rate the importance of different strategies to improve heifer performance, segregation and the use of spelled or better paddocks to improve joining weights and bull percentages were rated high. Genetic selection for fertility was rated at the same level although it was considered a lesser factor affecting fertility of heifers in the previous response (Figure 27).

Management of young stock

Weaning

The criteria for weaning cattle differ significantly from year to year due to the variable climate, which affects the pasture and breeder condition. Table 23 indicates the number of properties that weaned and the percentage of the breeder herd that was included in the weaning process per district.

Table 23. Incidence of weaning on Alice Springs properties

Region	Number of properties that wean	Percentage of properties	Percentage of cattle weaned on properties where weaning did take place
Alice Springs	26	84	94
Northern Alice Springs	11 of 13	85	83
Plenty	8 of 8	100	100
Southern Alice Springs	7 of 10	70	100

In the northern Alice Springs district, 71% of cattle were weaned on age, while in the southern Alice Springs district 26% of cattle were weaned on set weight during the survey year (Figure 28).

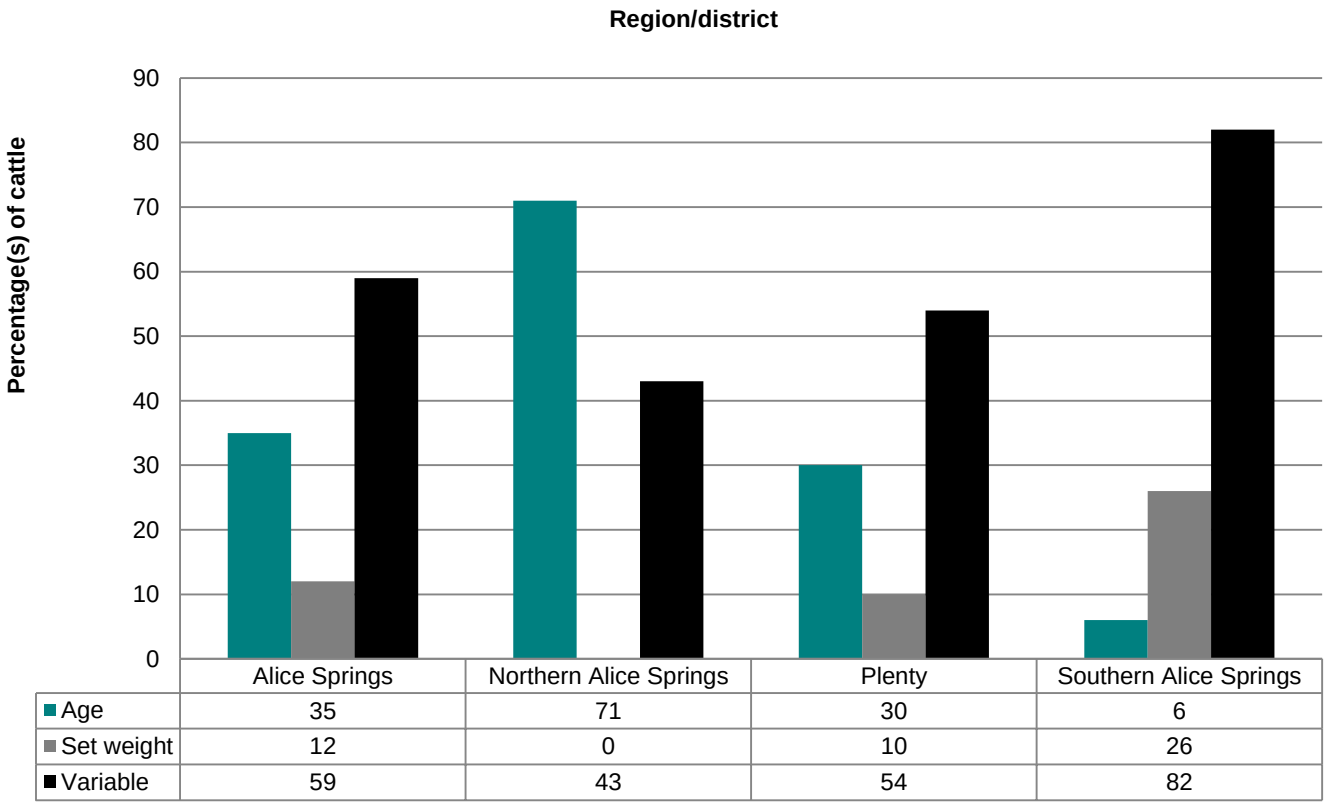


Figure 28. Weaning criteria per region

The difference in the minimum weight at which calves were weaned differs greatly between average and poor years (Table 24), with the average weaning weight varying between 109 kg and 181 kg in the southern Alice Springs district and between 118 kg and 252 kg in the northern Alice Springs district.

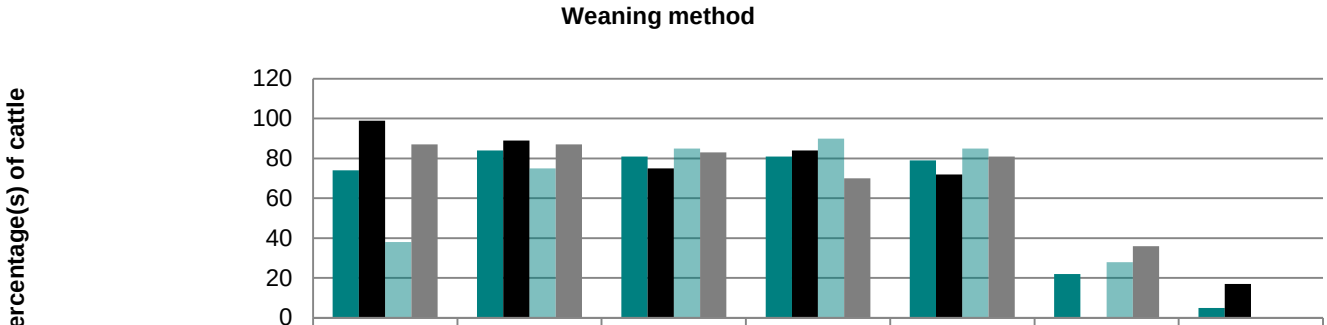
Table 24. Minimum weight for first and second round weaning (kg)

Region	First round	Second round	In a bad year
Alice Springs	151	153	116
Northern Alice Springs	170	166	118
Plenty	147	191	122
Southern Alice Springs	137	128	109

Table 25. Estimated average weight for first and second round weaners (kg)

Region	First round	Second round
Alice Springs	197	203
Northern Alice Springs	226	252
Plenty	208	250
Southern Alice Springs	179	181

Various practices were applied at weaning with most calves being loaded on a truck and moved to another paddock and 81% of all calves being tailed out (Figure 29). While 36% of weaners in the southern Alice Springs district were moved to another property, none of the respondents from the northern Alice Springs district moved weaners off property for weaning.



	Load on / off truck	Move to another paddock / bore	Feeding in yards	Tailing out	Working through yards	Moved to another property for weaning	Other
Alice Springs	74	84	81	81	79	22	5
Northern Alice Springs	99	89	75	84	72	0	17
Plenty	38	75	85	90	85	28	0
Southern Alice Springs	87	87	83	70	81	36	0

Figure 29. Weaning methods

Year branding

In the Alice Springs region, 74% of livestock were year branded according to the calendar year and 22% were branded according to the financial year. Four percent of livestock from the northern Alice Springs district were not year branded.

Nutritional management

Two thirds of pastoralists interviewed provided information on supplementation. In the Alice Springs region, cattle were supplemented on 63% properties with the northern Alice Springs district having the highest supplementation at 79% and the Plenty district having the lowest at 49% of properties providing supplementation (Table 26).

Table 26. Do you feed a mineral supplement?

Region/District	Percentage of properties	Actual count
Alice Springs	63	20
Northern Alice Springs	79	10
Plenty	49	5
Southern Alice Springs	58	5

About 15% of livestock on surveyed properties were fed all year, and another 15% were fed for part of the year only. If producers fed any supplement, they generally fed it to all stock (12 out of 16 respondents).

Rainfall events can occur at any time during the year in Central Australia with the summer months being the predominant months for rainfall and pasture growth and the winter months having lower mean monthly rainfall and

less potential for pasture growth due to lower temperatures. The questionnaire was designed to accommodate wet/growing and dry/dormant seasons and therefore the same distinction has been made when analysing the data to point out seasonal variation (summer/growing season vs. winter/dormant season) for the supplementation program in the Alice Springs region. Table 27 shows that during the growing season a larger percentage of blocks are put out, while the feeding of different forms of loose mix increases during the dormant season. Water medicators were used only in the northern Alice Springs district during the survey period.

The main minerals fed during the summer growing season were phosphorus (50% of producers) and urea (44% of producers). During the dormant winter period urea was fed by 100% of producers and phosphorus by 40% of producers. Other supplements listed by pastoralists included PEG, sulphur and mixed minerals.

One producer used near infrared reflectance spectroscopy to determine the timing of mineral supplementation while three producers stopped using it due to the cost and the fact that they felt they had gained sufficient knowledge from past use to make an accurate estimate.

Only ten producers were confident in providing an estimate of cost of supplementation for the assessment year. At $12.53, the estimated cost per head was less than half that of the average for the NT, which is $27.19 per head. The fact that pastures in good condition can maintain their quality much longer in Central Australia compared with the Top End provides some insight into the reason for the lesser use of supplements in the Alice Springs region.

Table 27. Forms of supplement fed per percentage of properties

Region	Block	Loose home	Loose ready	Loose custom	Water medicators
Summer/wet (predominant growing season)					
Alice Springs	70	0	10	10	10
Northern Alice Springs	50	0	17	17	16
Plenty	100	0	0	0	0
Southern Alice Springs	100	0	0	0	0
Winter/dry (dormant season)					
Alice Springs	57	5	10	14	14
Northern Alice Springs	33	0	12	22	33
Plenty	80	0	20	0	0
Southern Alice Springs	71	14	0	15	0

Hay for own use

Two properties in the Alice Springs region, one in the north and one in the south, produced hay. Hay production was primarily for own use with some for sale to other pastoralists. One producer said the cost of fertiliser was $25 to $49/ha while another producer estimated the cost at more than $100/ha. No hay production figures were provided for 2010.

Hay production was affected by cost of production, variable climate and difficulty in obtaining diversification permits. One of the respondents had a weed management plan, which was included in the pastoral management plan. The main factor limiting expansion of hay production enterprises was legislation.

Animal health

Common problems

Producers were asked to select the two most common animal health problems from a list. Twenty one producers identified pink eye, botulism, phosphorus deficiency and three-day-sickness as the most common animal health problems. A similar trend was shown whether the animal health problems were expressed as a percentage of properties (where it was recorded) or as a percentage of cattle represented by the properties. The main animal health issues that properties took steps to prevent or treat are shown in Table 28.

Table 28. Most common health problems observed by producers

Animal health problems	Percentage of properties where it was recorded	Percentage of cattle represented by these properties
Three-day-sickness	20	24
Botulism	28	25
Buffalo fly	12	11
Tick	0	0
Other	12	13
Pink eye	40	37
Tail rot	0	0
Prolapse	0	0
Worms	0	0
Dystocia	4	2
Vibrio	4	0
Tetanus	4	7
Phosphorus deficiency	28	36

Health treatments

Botulism was the most common health problem treated on 56% of properties. Sixty four per cent of livestock on surveyed properties were vaccinated against botulism. Seven per cent of heifers and 22% of bulls were vaccinated against vibriosis, while 19% of cattle were vaccinated against clostridial diseases.

Table 29. Most common treatment of animal health problems

Animal health problems	Percentage of properties where it was treated/vaccinated
Three-day-sickness	0
Botulism	56
Buffalo fly	8
Tick	0
Pink eye	No data
Tail rot	0
Prolapse	0
Worms	16
Dystocia	No data
Vibriosis	20
Clostridial	12
Lice	20
Wound antisepsis	10
Pestivirus	4
Leptospirosis	12

Hormonal growth promotants

HGPs were not widely used in the Alice Springs region with only about 24% of respondents indicating that they had ever used them. Yearling steers were mostly implanted followed by sale steers. The highest application was in the Plenty district followed by the northern Alice Spring district and with only a limited use in the southern Alice Springs district. The main reasons why respondents did not use HGPs were market requirement and practicality (Figure 30).

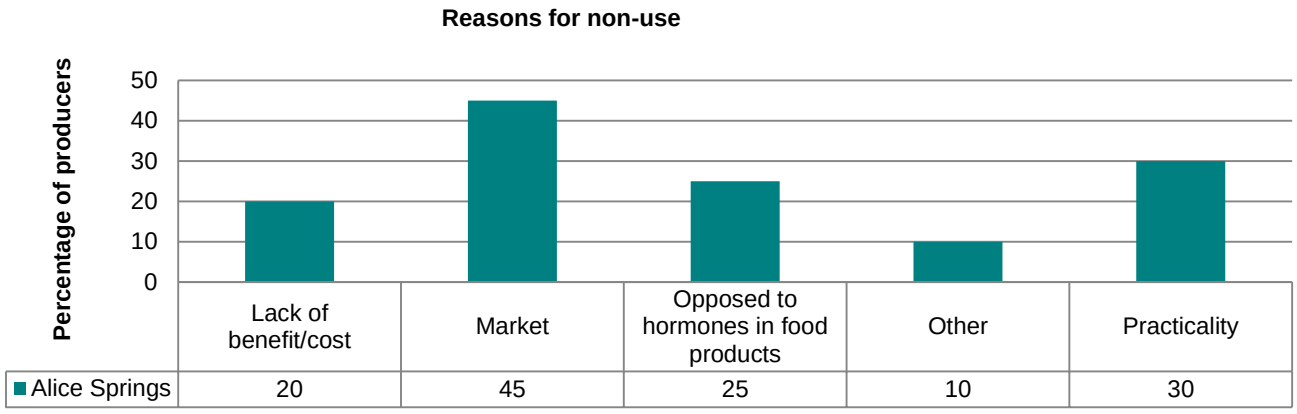


Figure 30. Reasons for not using HGPs in the Alice Springs region

Grazing management

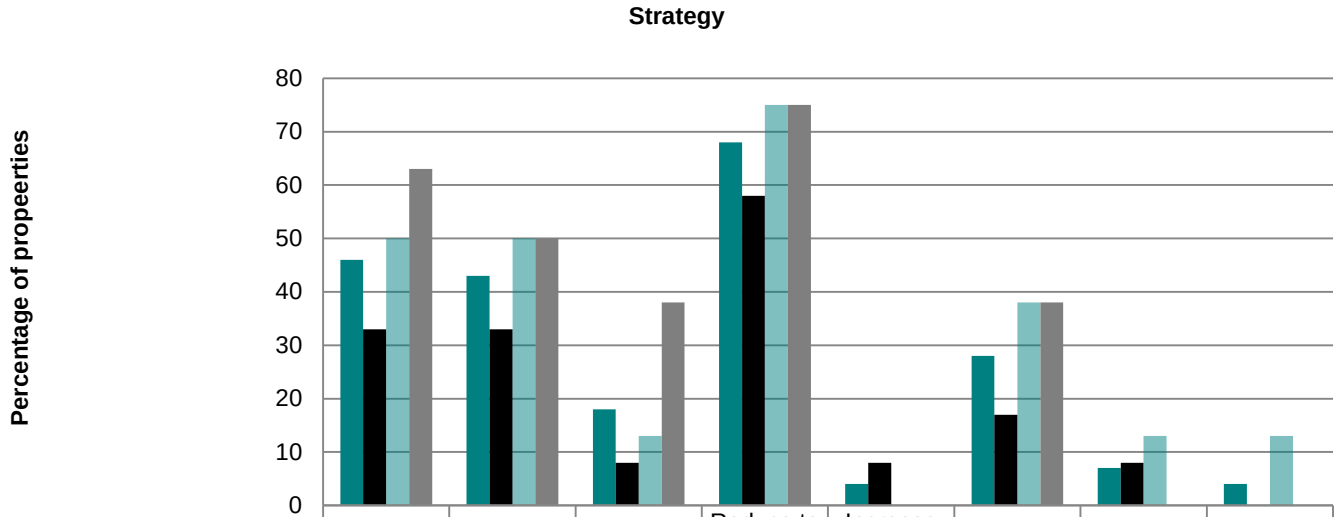
Carrying capacity

Pastoralists were asked to provide the estimated carrying capacity of their properties with their current infrastructure. The highest average carrying capacity was recorded in the Plenty district (7350 head) and the lowest in the southern Alice Springs district (5486 head). The average carrying capacity for the district was 6573 head. This is a 5% increase from the 2004 survey figure of 6240 head, which is in accordance with the increase in the carrying capacity predicted by pastoralists in the 2004 survey.

In this survey, pastoralists were once again asked to estimate the expected increase in carrying capacity based on planned infrastructure development. Over a five-year period, no increase in carrying capacity was predicted for the district, but over a ten year period, pastoralists estimated a 5% increase.

The limited infrastructure development planned may be seen as an indication of the marginal economies of scale (e.g. the high cost of infrastructure development compared with the potential productivity benefit) for this extensive farming area together with the extremely variable climate.

Pastoralists used a range of strategies to adjust stocking rates during dry spells. A common strategy in all three districts was to reduce cattle numbers to try and match the reduced carrying capacity (Figure 31). The highest percentage of cattle removed through active destocking happened in the southern Alice Springs district. Only in the northern Alice Springs district did pastoralists indicate that they actively increased numbers to match carrying capacity in good seasons with the other two districts relying on natural increase.

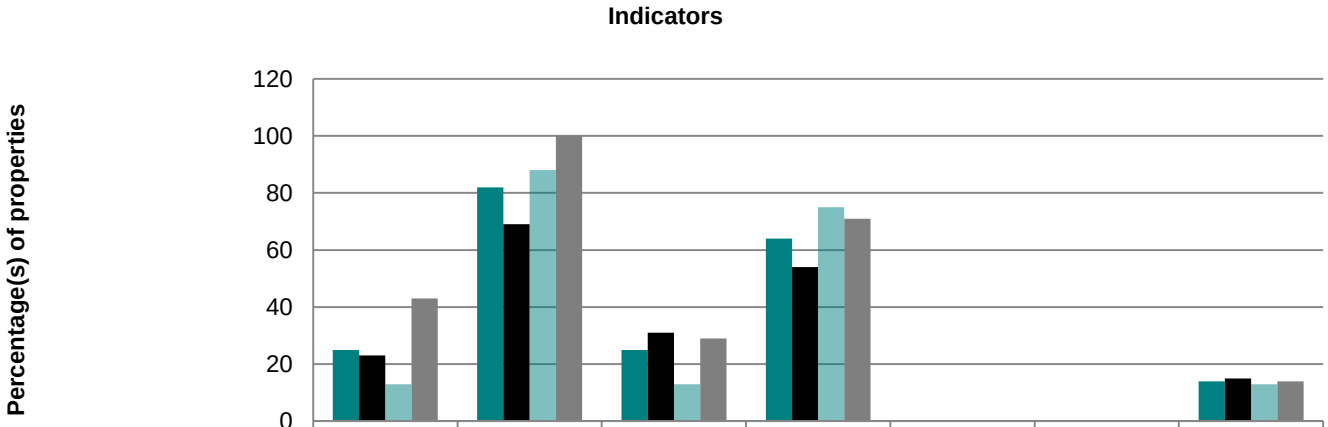


	Cull cows	Early sale of steers	Destock	Reduce to match capacity	Increase to match capacity	Early wean	Do nothing	Other
Alice Springs	46	43	18	68	4	28	7	4
Northern Alice Springs	33	33	8	58	8	17	8	0
Plenty	50	50	13	75	0	38	13	13
Southern Alice Springs	63	50	38	75	0	38	0	0

* More than one strategy can be used on a property, hence totals add up to more than 100%

Figure 31. Strategies to adjust stocking rates during dry periods

A number of indicators were used to assess feed availability. The condition of livestock, followed by historical information/experience, were the predominantly used indicators. Grazing charts were not used on any of the stations but 43% of stations in the southern Alice Springs district used monitoring sites. Other indicators mentioned by pastoralists to assess feed availability included visual observation, availability of water in the paddocks and species identification to determine the quality of feed.

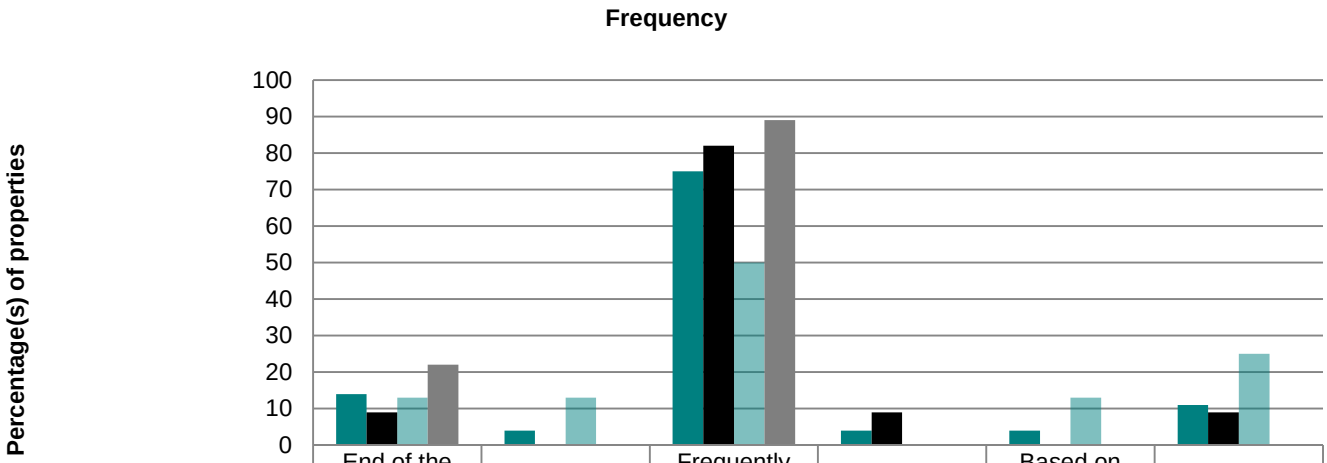


	Monitoring sites	Condition of stock	Food on offer	Historical info/ experience	Grazing charts	None	Other
Alice Springs	25	82	25	64	0	0	14
Northern Alice Springs	23	69	31	54	0	0	15
Plenty	13	88	13	75	0	0	13
Southern Alice Springs	43	100	29	71	0	0	14

* More than one indicator can be used on a property, hence totals add up to more than 100%

Figure 32. Indicators used to assess feed availability

Most pastoralists indicated that they assessed feed availability throughout the year. Based on the information provided in Figure 32, the main indicators used were the condition of stock together with experience. At the end of the growing season, 14% of pastoralists conducted an assessment which was after the first cold spell, possibly frost, in winter. Other comments made regarding assessment frequency included: “Subconsciously asses all the time, but very confident in our stocking rate” and “Gut feeling”.



	End of the growing season	In a drought	Frequently throughout the year	Never	Based on long term safe average	Other
Alice Springs	14	4	75	4	4	11
Northern Alice Springs	9	0	82	9	0	9
Plenty	13	13	50	0	13	25
Southern Alice Springs	22	0	89	0	0	0

Figure 33. Frequency of feed availability assessment

When asked to allocate a carrying capacity to the different land types or land systems on their properties, 17 respondents identified different land types or land systems on their properties and allocated carrying capacity estimates to each. Ten of the 27 producers that responded to this question did not feel confident in providing estimates of carrying capacity.

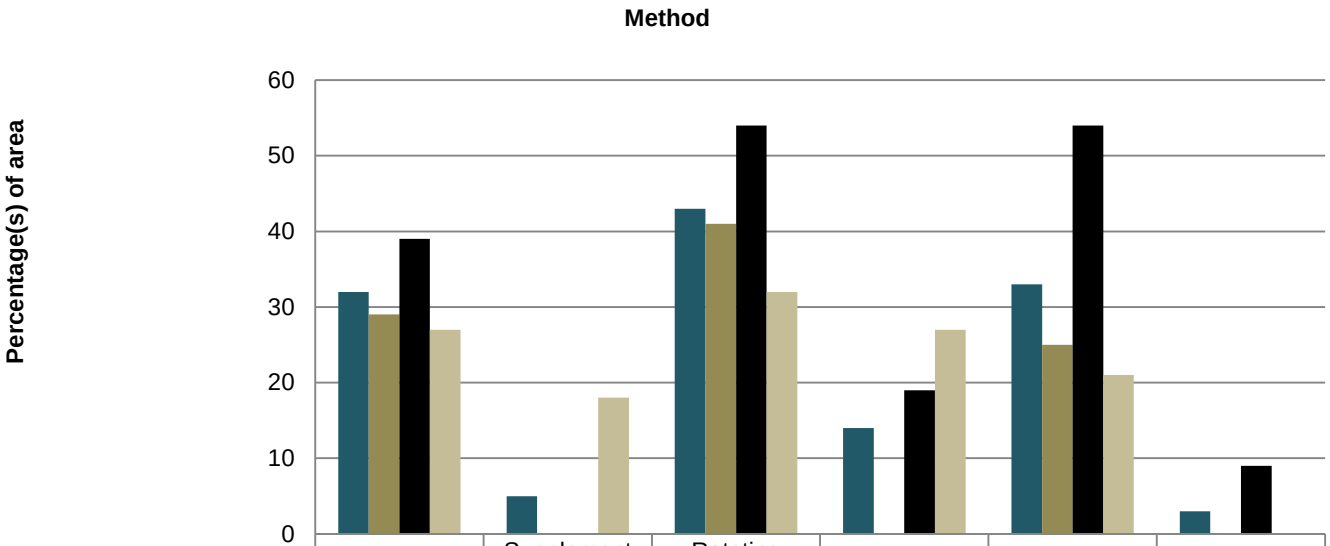
Water point development

On average producers in the Alice Springs region planned infrastructure development based on a maximum grazing radius of 9.3 km. As illustrated in Table 30, grazing radii reported by respondents ranged from 4 km to as far as 20 km in the southern Alice Springs district.

Table 30. Preferred maximum grazing radius (km) of distance from water that infrastructure is planned around

Region	Mean	Number of respondents	Min	Max	Median
Alice Springs	9.3	28	4.0	20.0	9.5
Northern Alice Springs	7.9	13	4.0	15.0	7.0
Plenty	11.6	7	8.0	15.0	10.0
Southern Alice Springs	9.5	8	5.0	20.0	9.0

When pastoralists were asked whether they thought increasing water points was sufficient to disperse cattle more evenly through paddocks, 72% said yes and 28% said no. Due to decreasing rainfall (surface water) and increasing dependency on bores, the effectiveness of dispersing cattle through additional watering points increased from north to south in the Alice Springs region. A similar trend can be observed for the NT as a whole. Figure 34 shows the perceived effectiveness of other methods to disperse cattle, listed as a percentage of the grazing area.

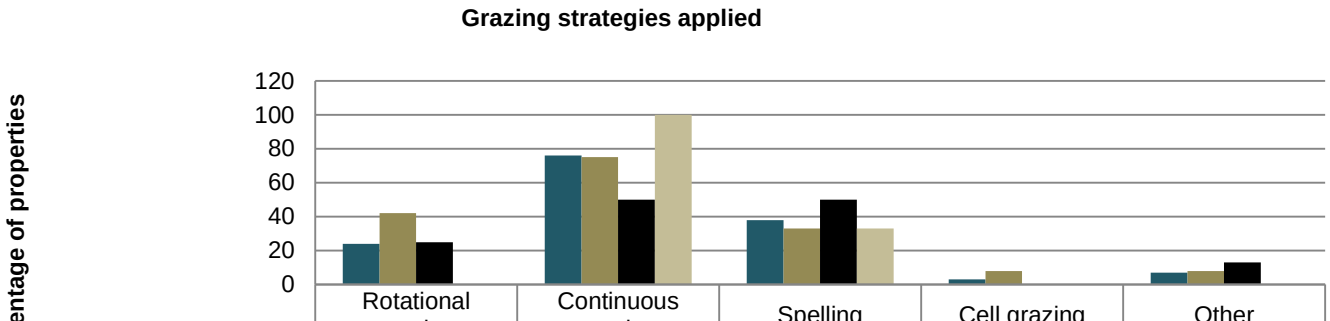


	Fire	Supplement points	Rotating water points	Roads	Fences	Other
Alice Springs	32	5	43	14	33	3
Northern Alice Springs	29	0	41	0	25	0
Plenty	39	0	54	19	54	9
Southern Alice Springs	27	18	32	27	21	0

Figure 34. Methods used to disperse cattle more evenly through a paddock apart from increasing watering points

Grazing strategies

Most pastoralists applied a combination of grazing strategies. Continuous grazing was the predominant strategy, although 38% of properties were spelled. Spelling is often opportunistic and linked to season, so for example parts of the property could be spelled in an above average growth season. In the southern Alice Springs district pastoralists typically applied a system of continuous grazing with a spell from time to time, but no formal rotational grazing occurred. In the Plenty district, pastoralists indicated that under other strategies they rotated animals between watering points.

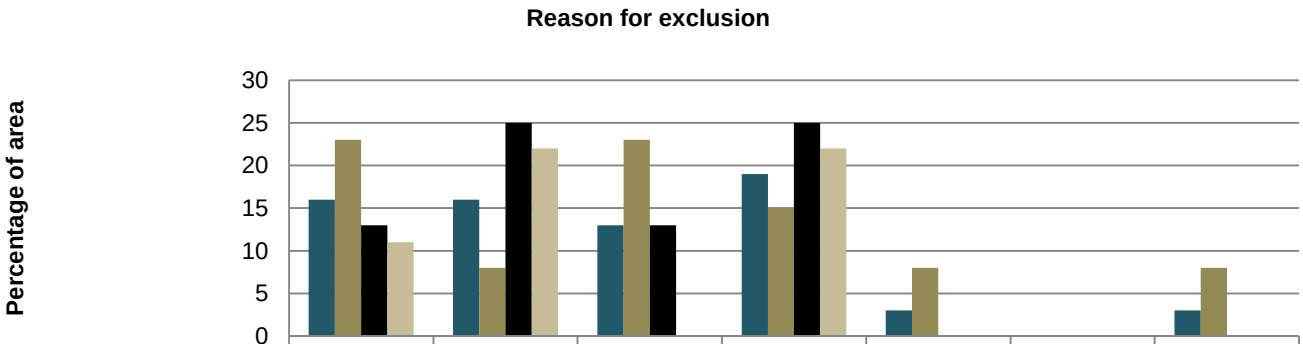


	Rotational grazing	Continuous grazing	Spelling	Cell grazing	Other
Alice Springs	24	76	38	3	7
Northern Alice Springs	42	75	33	8	8
Plenty	25	50	50	0	13
Southern Alice Springs	0	100	33	0	0

Figure 35. Grazing strategies applied

In the Alice Springs region, 45% of producers indicated that they excluded a portion of their properties from regular grazing. Figure 36 provides a breakdown of the reasons for exclusion from grazing for the Alice Springs region as a whole. Some land areas are excluded for more than one reason.

In the northern Alice Springs district, land is primarily excluded from grazing for conservation reasons (23%) and to serve as a drought reserve (23%). In the Plenty district, 25% of land excluded from grazing was considered either not suitable for grazing or not economical to develop.



	Conser-vation reasons	Not economic enough to develop	Drought reserve	Unsuitable for grazing	Too difficult to muster	Rivers	Other
Alice Springs	16	16	13	19	3	0	3
Northern Alice Springs	23	8	23	15	8	0	8
Plenty	13	25	13	25	0	0	0
Southern Alice Springs	11	22	0	22	0	0	0

Figure 36. Breakdown of area excluded from regular grazing and reasons for exclusion – Alice Springs region

Fire

In the Alice Springs region, 26% of producers surveyed burnt for wildfire mitigation covering an area of approximately 2% of the region. Cool (low intensity) fires were applied by 63% of producers that burnt for mitigation while 25% of producers applied a mild (moderate intensity) fire and 13% of producers applied hot (high intensity) fires. The majority of prescribed fires occurred during the winter to spring season before the rain started with an average 12 year frequency.

Only 15% of producers used fire for management purposes, such as grazing distribution. This was done during the winter using a cool fire (75% of properties), and during the early spring with a moderate intensity fire (25% of properties).

One producer used fire to manage species composition of pastures. This was done during the early spring with a moderate intensity fire.

Fire was used to manage tree/grass balance on 15% of properties. The application of a hot fire during the early spring, late dry is the typical strategy.

No respondents indicated that they used fire to control exotic weeds in the Alice Springs region.

Figure 37 shows the areas affected by different types of fire, expressed as weighted percentages of the total area surveyed.

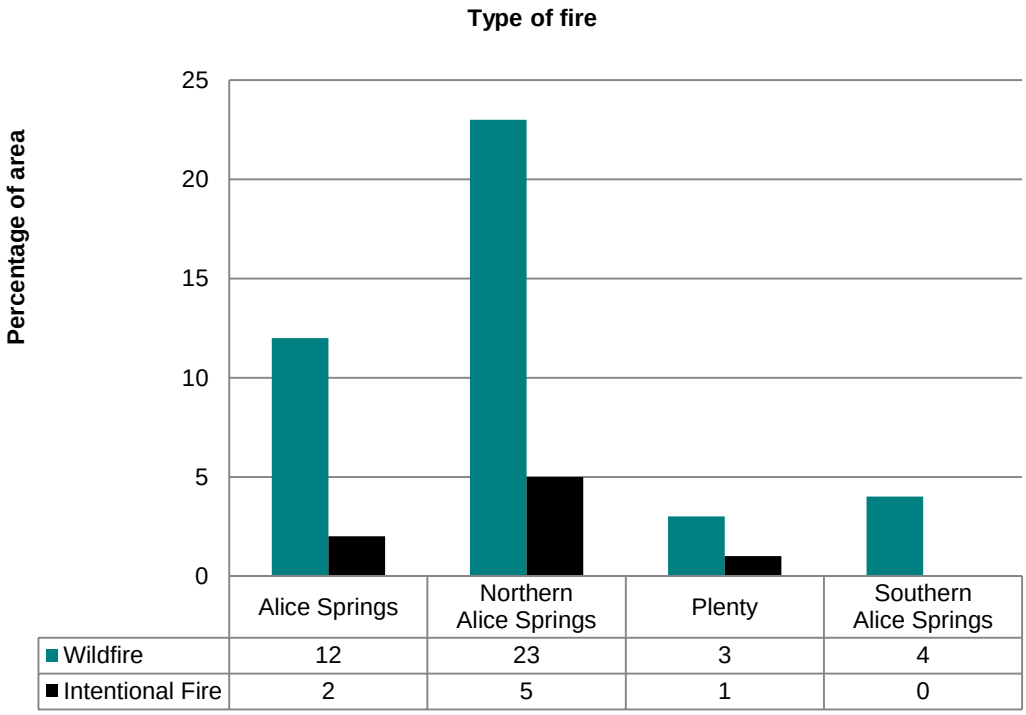


Figure 37. Percentage(s) of area affected by fire

Improved pasture

Only three respondents in the Alice Springs region indicated that they had areas under improved pastures totalling 40 hectares of irrigated lucerne and approximately 5000 hectares of buffel grass without irrigation. One respondent intended to introduce a legume, such as stylo, in the future. Buffel grass was introduced on a large number of properties in the past, but is now readily spreading throughout the region, so producers were not able to provide accurate figures on the areas where it occurred.

Natural resource management

Producers were asked if they did any form of documented land monitoring. Thirty one producers responded to this question and indicated that on 72% of grazing land no formal NRM plan was in place. More information was provided in a later part of the survey where 23% of producers indicated that they had an NRM plan in place and therefore many NRM indicators were used to manage and monitor the businesses (Figure 38). On 13% of land, private monitoring was done with photo sites and other undescribed methods while some form of Landcare activities were reported on 14% of the land area covered by the survey.

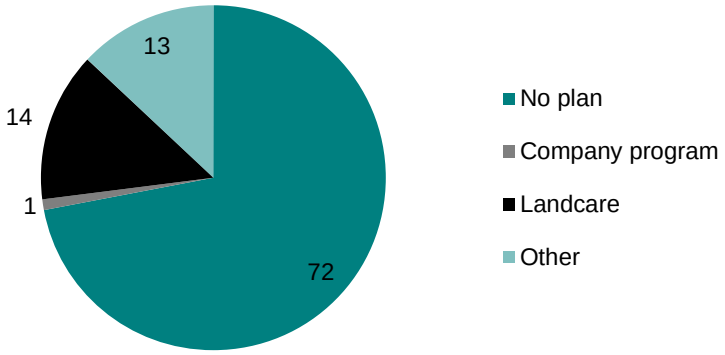
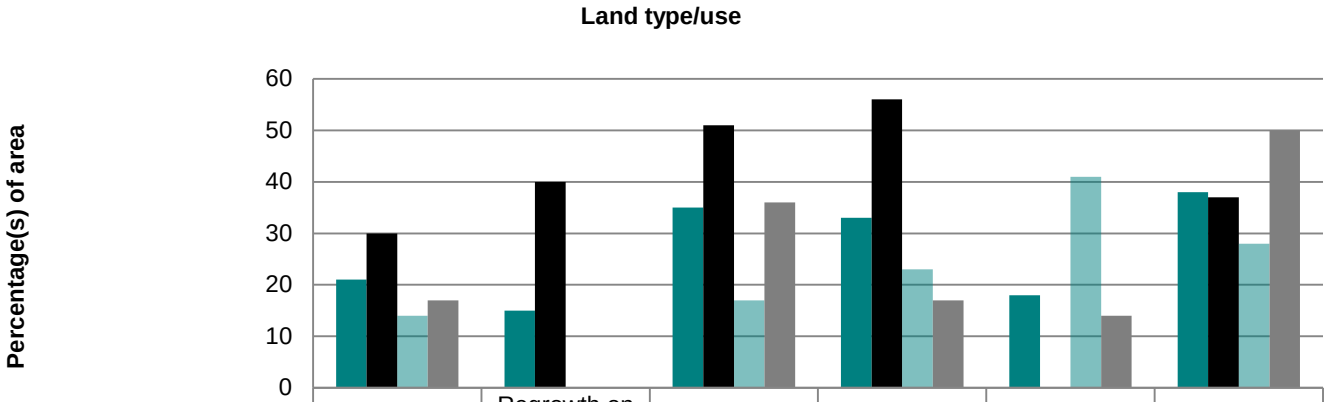


Figure 38. Percentage of grazing land area in the Alice Springs region covered by different NRM plans

Native tree and shrub build-up

A large percentage of producers in the Alice Springs region had noticed a build-up of native shrubs and trees in their native pastures across a range of soil and land types. The highest native tree and shrub build-up was recorded in the northern Alice Springs district with 51% on red soils, 56% on river flats and 40% on previously cleared areas. Other areas where a build-up was recorded included burnt areas and on a combination of land types (Figure 39).



	Black soil	Regrowth on previously cleared areas	Red soil	River flats	No	Other
Alice Springs	21	15	35	33	18	38
Northern Alice Springs	30	40	51	56	0	37
Plenty	14	0	17	23	41	28
Southern Alice Springs	17	0	36	17	14	50

Figure 39. Native tree and shrub build up as a percentage of area represented

Weeds

Based on the response from 26 producers who answered the question on weeds, 9% of the surveyed area of the Alice Springs region was affected by weeds. Weeds that were recorded to have a high impact on many properties were Mexican poppy, Noogoora burr and Senna species, while prickly thorn apple and gidgee were added by respondents to the list of weeds that occurred in the Alice Springs region. Table 31 lists the percentage of properties where specific weeds were recorded as well as the percentage of those properties that controlled the weeds. A rating of the impact of the weed is also provided.

Table 31. Species and impact of weeds present in the Alice Springs region and the percentage of producers attempting to control them

Type of weed	Properties with weeds (%)*	Properties which control weeds (%)	Impact (%properties rating weed as)		
			Low	Medium	High
Athel pine	23	33	19	4	0
Castor oil plant	19	0	19	0	0
Kapok bush (*Aerva javanica*)	8	0	8	0	0
Khaki weed	8	50	0	8	0
Mexican poppy	27	29	23	0	4
Mimosa bush (*Acacia farnesiana*)	46	58	27	19	0
Mission grass (*Pennisetum* species)	4	0	4	0	0
Mossman River grass	15	50	11	4	0
Noogoora burr	19	20	8	8	4
Other	12	0	4	4	4
Parkinsonia	31	75	23	4	0
Prickly acacia	4	0	0	4	0
Rubber bush	23	50	23	0	0
Saffron thistle	12	100	12	0	0
Senna species	8	0	4	0	4

*Of the properties which said they had a weed problem, the next column indicates the percentage of properties that controlled the weed. For example 8% of properties had khaki weed, but only half of these properties (50%) were controlling the weed.

Table 32 provides the general status of weed control in the Alice Springs region. The trend was that producers either had a full weed control program (46% of respondents), whereby they attempted to control all weeds, or they did not do any weed control at all (42% of respondents).

Table 32. Control of weeds on properties (% respondents)

Controlling some weeds but not others	Yes to all weeds	Not doing any control at all
12	46	42

On 57% of properties specific measures were taken to prevent the introduction of weeds. They are shown in Figure 40.

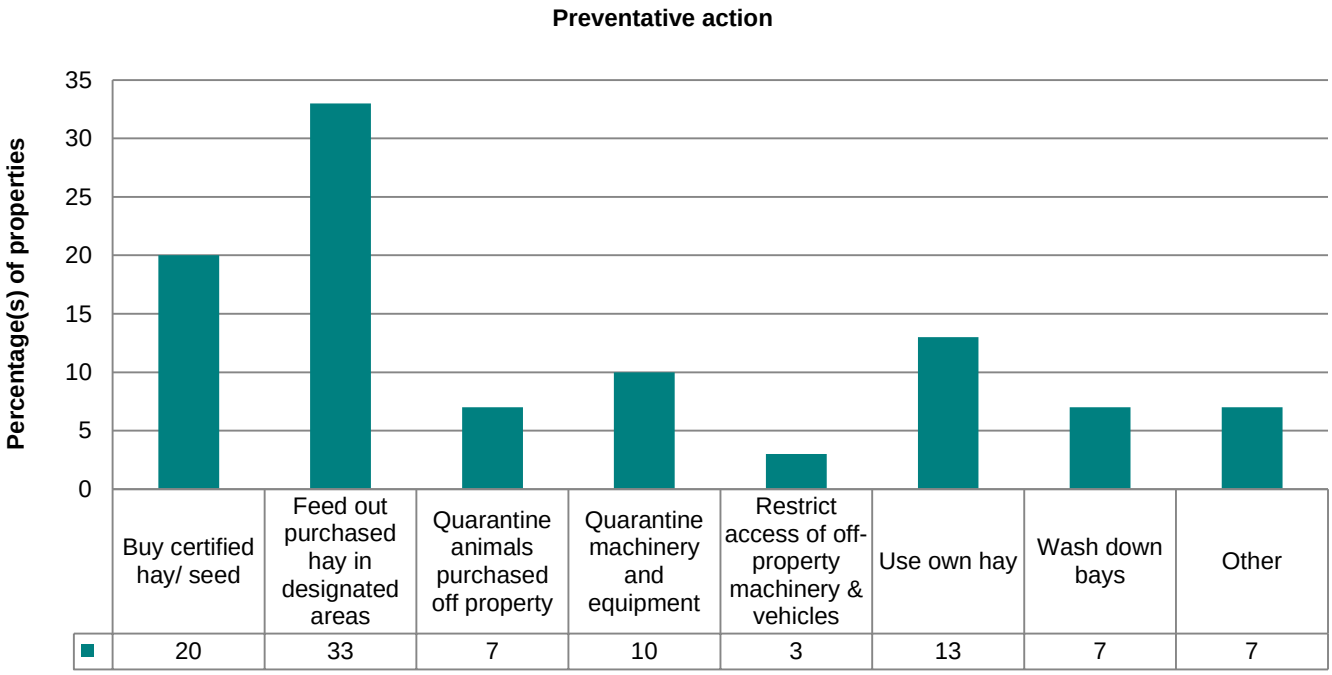


Figure 40. Percentages of properties and measures taken to prevent the introduction of weeds

The average annual expenditure per property on weed control in the Alice Springs region was $1332 with the highest expenditure in the Plenty district ($2263 per property) and the lowest in the northern Alice Springs district ($200 per property). The expenditure on weed control in the arid zone is relatively low compared with the average for the NT, which is $20 884.

Pest animals

The pest animals which impact on Alice Springs properties are listed in Table 33. While the highest impact pest animals were wild dogs, camels and kangaroos, all pest animals were controlled to some extent. One property manager regarded camels as a source of income rather than as pests while two properties added mice and rats to the list of pests.

Table 33. Pest animals, their impact on Alice Springs properties and the proportion of properties that control them

Pest animal	Impact (%)			Not applicable	Percentage of properties which control pest animals
	High	Medium	Low		
Wild dogs	67	20	13	0	93
Camels	24	24	38	14	84
Donkeys	0	0	52	48	47
Horses	10	14	48	28	71
Pigs	0	0	14	86	50
Kangaroo/wallabies	17	24	48	10	12
Rabbits	7	24	41	28	14

The average amount spent on pest animal control each year per property is $7968 (Table 34), which is much higher than the average expenditure on weed control ($1332).

Table 34. Approximate spending on pest animal control each year ($)

Spending on pest animal control	Average ($)
Per property	7968
Per square kilometre	2

Producers were asked to provide the estimated loss in production due to NRM issues. Due to the small number of producers that were confident in supplying figures, the results provided in Table 31 can only be used to indicate general trends and should not be considered as representative of the region. Producers perceived the loss in production from feral animals and wildfires as having the biggest impact on their operations followed by the loss due to soil erosion and weeds.

Table 35. The annual cost of lost production due to natural resource management issues expressed as $ per property

	Number of respondents	Mean	Median
Feral Animals	10	317 575	19 375
Wildfires	8	32 500	1500
Erosion	7	6429	0*
Weed	5	1000	0*

* Where the median is 0 it is due to the fact that most respondents gave 0 and only a few provided an amount.

Climate change

The topic of climate change elicited a number of opinions. None of the 29 producers that responded to this question had had the carbon footprint of their operation measured. Thirty one percent of producers thought that climate change would affect their businesses into the future, while 21% believed it would not have an effect. The same percentage did not have sufficient confidence in their knowledge of climate change to make a prediction. A significant percentage (28%) of producers stated that they did not believe in climate change (Figure 41).

Producers that anticipated climate change to affect their businesses believed it would have a negative effect on production as well as on the cost of production, such as mustering, transport and energy. A number of respondents thought that their businesses would be negatively affected by government regulations and taxes related to climate change.

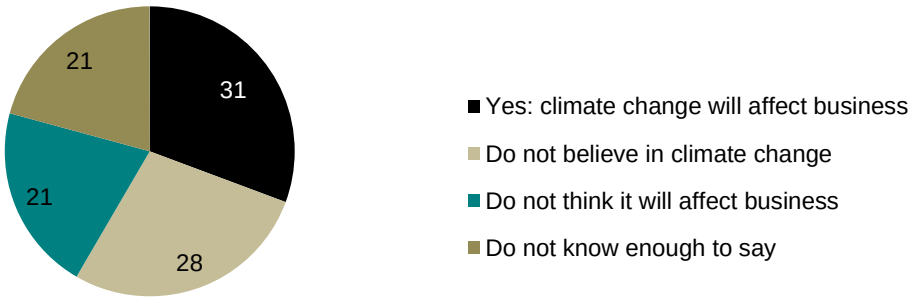


Figure 41. Thoughts on climate change affecting business

Staff

The majority of producers relied on word of mouth to source labour, while no properties sourced labour through rural colleges. Online advertising was used by the majority of producers in the southern Alice Springs district to source labour. The results of the survey on a district basis are summarised in Table 36.

Table 36. Sources of labour for Alice Springs producers (as a percentage of properties)

Labour source	Northern Alice Springs	Southern Alice Springs	Plenty	Alice Springs region
Word of mouth	69	40	100	66
Online advertising	23	40	33	31
Newspaper advertisements	15	10	17	14
Recruitment agencies	23	0	17	14
Internal recruitment	15	10	0	10
Other	23	30	17	24

Some form of staff training occurred on 84% of properties. The proportion of stations that provided informal training was high, while those receiving formal non-accredited and accredited training were much lower. On properties where training occurred, a large percentage of staff was trained. The percentage of staff that underwent different types of training is shown in Figure 42.

On surveyed properties, 56% of staff received informal training, 5% received formal non-accredited training and 6% received formal accredited training.

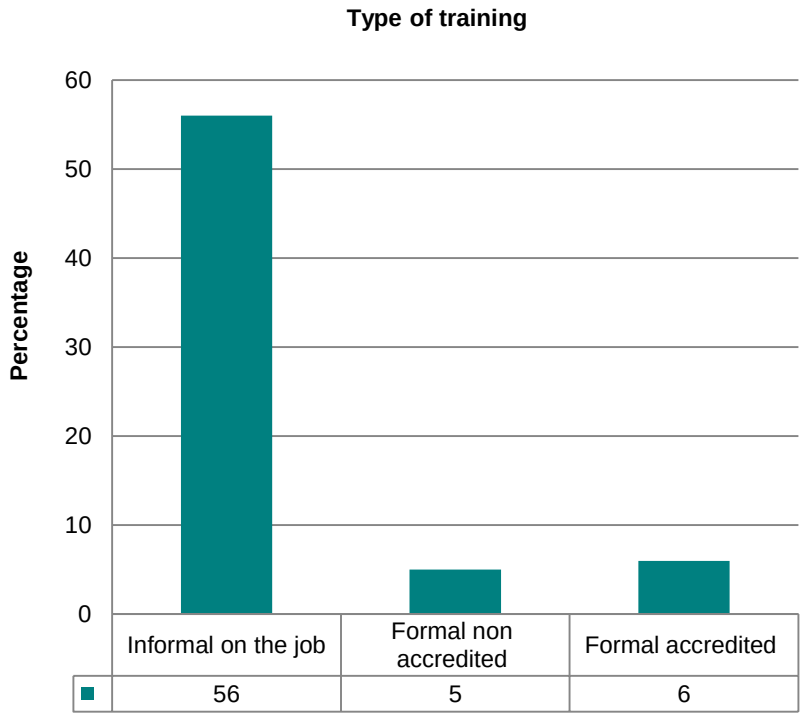


Figure 42. Percentage of staff receiving different types of training in the Alice Springs region

Staff received training on a wide range of issues during the assessment period. Training topics provided to staff were mainly in livestock handling, grazing land management (GLM) and pregnancy testing (Table 37).

Table 37. Training topics provided to staff

Training topics	Number of properties that provided this training
Livestock handling	8
Grazing land management	6
Other	5
Pregnancy testing	5
Bull selection	4
Horsemanship	4
Business management	3
Monitoring	3
NutritionEDGE	3
BreedingEDGE	2
Rangeland management	2
Mechanics	2
Welding	1
Bushfires Training	1

Succession planning

While 40% of producers had a succession plan in place or were in the process of developing a plan (20%), there were almost as many who did not have a succession plan (Figure 43).

Reasons provided for not having a succession plan included family not being interested in running the property, children were too young or were not interested and no one had come forward to take on the responsibility. When asked about the merit of succession planning, 67% of the respondents without a succession plan considered such a plan to be useful.

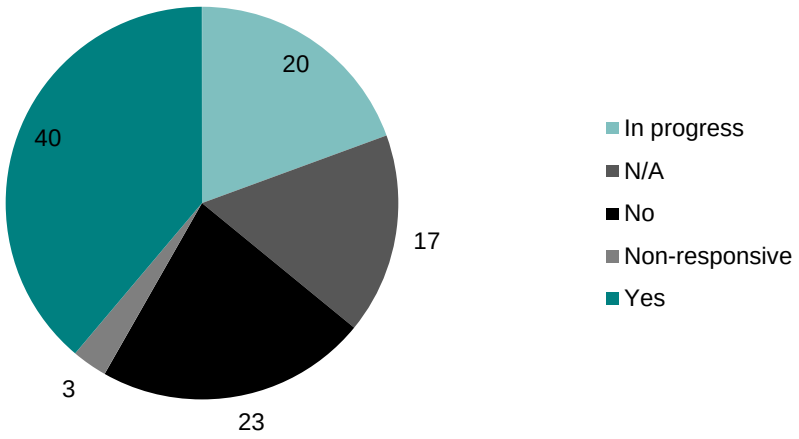


Figure 43. Proportion of properties with a succession plan

Benchmarking and planning

Sixty five per cent of producers had some documented plans for their properties, mainly financial and business management plans (48%), OH&S plans (35%) and NRM plans (23%) (Figure 44).

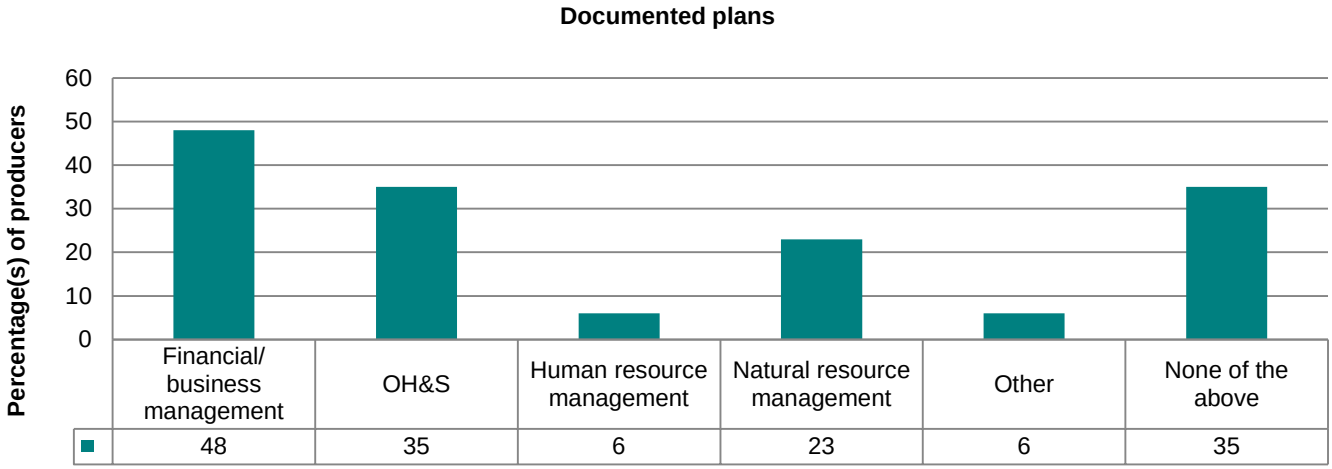
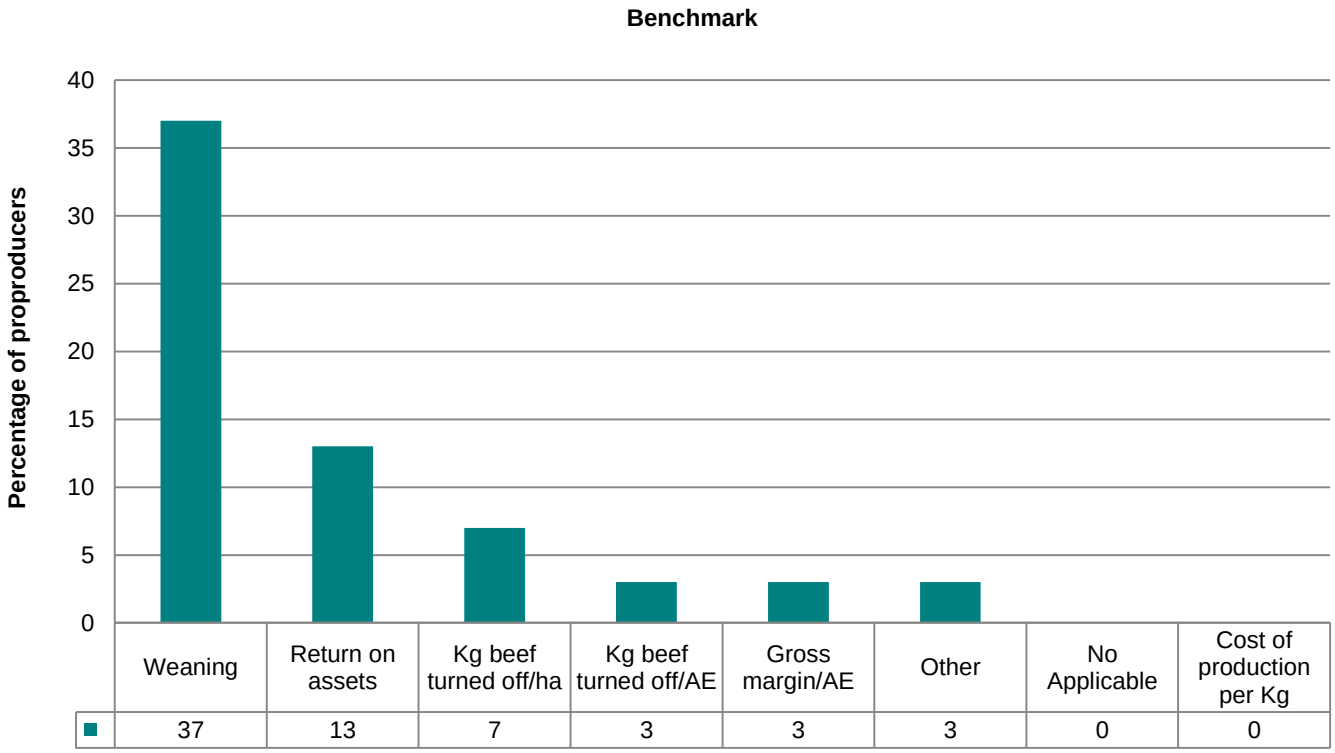


Figure 44. Percentage of producers with documented plans

Forty per cent of respondents indicated that they used financial benchmarks to help with management (Figure 45). The main benchmarks used by producers were weaning percentage, ROA and kg/ha of beef turned-off. Sixty seven per cent of producers that were not using production and financial benchmarks at the time of the survey thought that benchmarks would be useful.



*The percentages depicted in Figure 45 above include the properties that said no to using benchmarks.

Figure 45. Production and financial benchmarks used by producers

Seventy per cent of producers used NRM benchmarks to assist with management. The most used benchmarks were rainfall records, grazing records and weed maps (Figure 46).

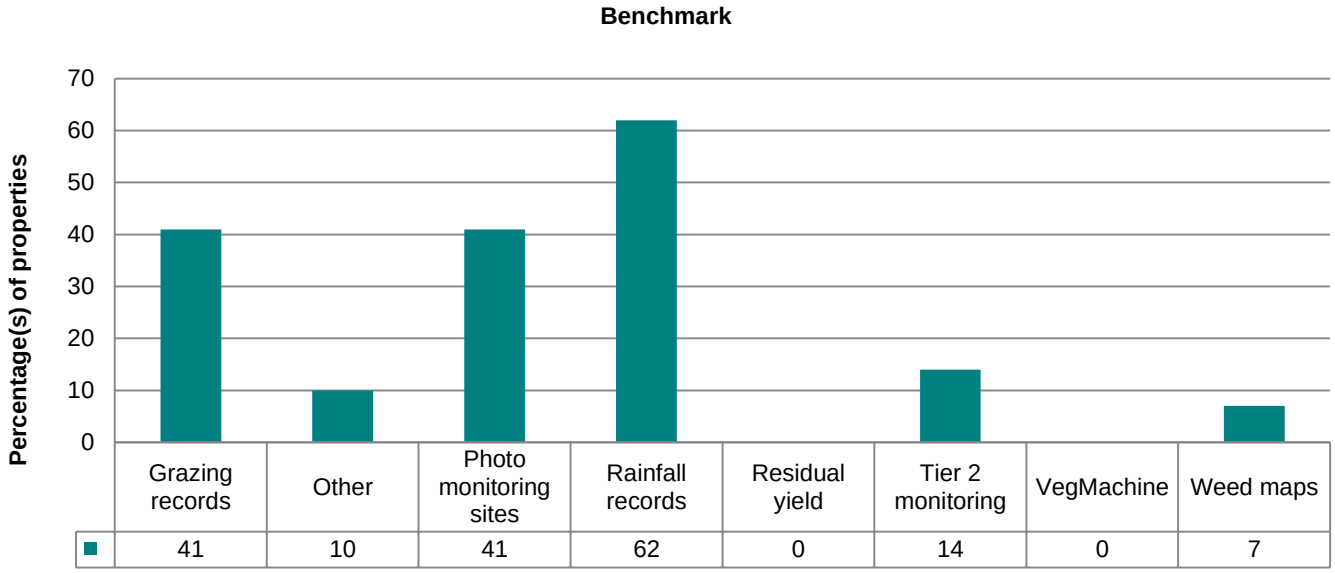


Figure 46. Natural resource management benchmarks used by producers

Financial

Twenty eight producers responded to the question on how the property business was financed. Almost half of the properties (47%) were financed by the major trading banks. Other financing included self-funded or company-funded (Figure 47).

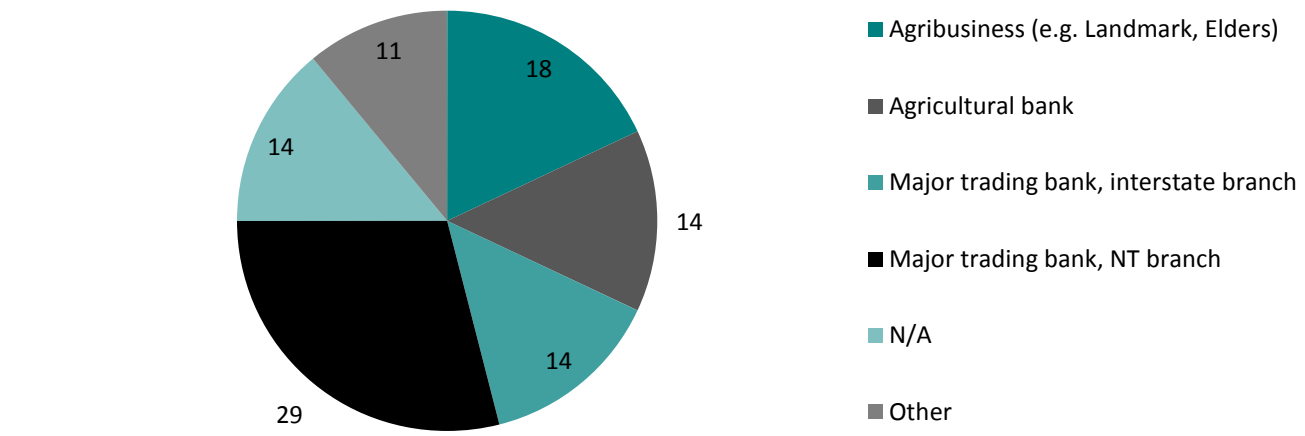


Figure 47. Sources of finance for Alice Springs properties

Information delivery and management

Producers used a range of computer technologies to assist with day-to-day operations. Apart from the general use of the Internet (77%) and email (71%) the Bureau of Meteorology and NAFI websites were used extensively. Electronic bookkeeping and herd recording software were also applied to assist with operations (Figure 48).

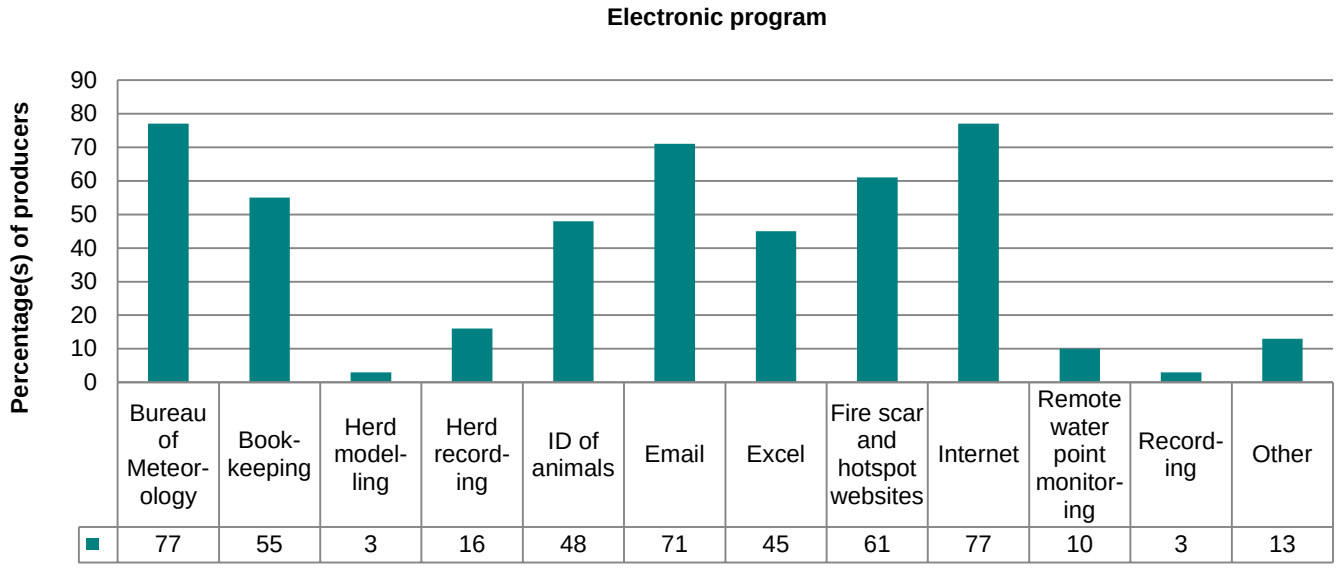


Figure 48. Electronic programs used by producers to assist with operations

Research needs

Research needs identified by producers were focussed on NRM issues, production/marketing development issues and technology development. (Table 38) Research in innovative technology, such as the auto drafter, telemetry and the use of solar energy were listed by two producers in the southern Alice Springs district. Research on wild dog control was required in the northern Alice Springs district while research in the control of Athel pine and gidgee poisoning was needed in the southern Alice Springs district. The use of fire in GLM was listed as a research need in the Plenty district, while the financial benefits of supplementation; such as liquid phosphorus needed to be assessed.

Table 38. Research needs identified by producers

District	Nr	Research need
NRM related issues		
Northern Alice Springs	1	Erosion and rehabilitation
Northern Alice Springs	1	Dingo control
Northern Alice Springs	1	Manage biodiversity
Southern Alice Springs	1	Bio control of Athel pine
Southern Alice Springs	2	Gidgee poisoning
Plenty	2	Fire in GLM
Production/marketing related issues		
General	2	Supplementation, benefit of liquid P
General	2	Economic benefit of improved management systems/changing practices/supplementation
General	2	Market options, herd management, selling steers vs. bullocks.
General	2	Production and business focus
Southern Alice Springs	1	Horticulture food production
Plenty	1	Sustainability of the production system
Plenty	1	Meeting MSA grading standards
Technology related issues		
Southern Alice Springs	2	Testing innovative technology and management systems (auto drafter, telemetry, solar energy) and making results known

What are the hurdles faced by the pastoral industry?

At the start of the interview pastoralists were asked to rank the biggest hurdles faced in managing an enterprise. Issues such as staff availability, seasons (variability), cost of production, government regulations and road access were mentioned by the highest percentage of producers (Table 39). Factors that were not highly ranked were not included in this list with the exception of herd fertility, fire and pest animals that were included for comparison with results from the NT-wide survey. Other issues raised in the Alice Springs region were government bureaucracy, finding and keeping good staff and managers and droughts. It is clear from this survey that there were a large and diverse range of hurdles faced by producers affecting their ability to produce beef effectively and efficiently.

Table 39. Hurdles faced by the pastoral industry

Type of challenge	Percentage of properties	
	Alice Springs	NT-Wide
Staff availability	29	24
Seasons	26	13
Cost of production	16	17
Government regulations	13	9
No response	13	7
Roads/access	13	19
Other	13	9
Freight	10	8
Dingoes	6	6
Fertility of herd	3	6
Pest animals	3	3
Fire	0	2

The main issues affecting the profitability of the pastoral enterprise

Towards the end of the interview, producers were asked to consider the main issues affecting the profitability of their enterprises. The cost of production against prices received was identified as the main issue with fuel prices and transport costs also listed as important factors. Issues associated with climate variability, as well as staff availability and quality of labour, were also regarded as important factors affecting profitability. Other issues raised by more than one pastoralist included government involvement through regulation, compliance, policy and tax. Gidgee poisoning was listed in the Plenty district and feral animals were reported to affect profitability in the southern Alice Springs district.

Table 40. Issues affecting the profitability of the pastoral enterprise

District	No. of producers listing an issue	Issues affecting profitability
Northern Alice Springs	2	Government policy (climate change and carbon tax)
Northern Alice Springs	1	Government taxation
Northern Alice Springs	1	Shire rates
Northern Alice Springs	1	Interest rates
Northern Alice Springs	1	Costs to sell cattle
Northern Alice Springs	1	Energy
Southern Alice Springs	2	Feral animals, camels
Southern Alice Springs	1	Feed
Southern Alice Springs	1	Management practices, record keeping
Southern Alice Springs	1	Cost effective water development
Plenty	2	Gidgee poisoning
Plenty	1	Low cattle numbers
General	9	Cost of production and price received
General	7	Climate, weather, variable rainfall, seasonal variation, drought
General	6	Staff availability, quality, accessing labour, human resources, age
General	4	Fuel prices, Fuel costs
General	4	Transport costs, freight prices
General	3	Government regulations and compliance
General	2	Infrastructure, roads and gates

* Where more than one district identified a specific issue it is classified as general

The main issues affecting the environmental sustainability of the enterprise

Producers were also asked to list issues they anticipated might have an effect on the environmental sustainability of their enterprises.

The issues raised ranged from land condition in the northern Alice Springs district to feral animals in the southern Alice Springs district and gidgee poisoning in the Plenty district. Seasonal variability was the most important issue raised in all districts with soil erosion being also listed in more than one district.

Two respondents were confident that if production was matched to feed availability with a low stocking rate and diversification, the environmental sustainability of their enterprises would not be negatively affected.

Table 41. Issues affecting the environmental sustainability of enterprises

District	No. of producers listing an issue	Issues affecting the sustainability
Northern Alice Springs	2	Land condition
Northern Alice Springs	1	Ignorance
Northern Alice Springs	1	Few trucks available to send cattle to markets
Northern Alice Springs	1	Affordability to improve and maintain infrastructure
Northern Alice Springs	1	Political interference
Northern Alice Springs	1	Management
Northern Alice Springs	1	No issues if production is matched to feed utilisation
Southern Alice Springs	3	Feral animals (camels)
Southern Alice Springs	1	High running costs
Southern Alice Springs	1	Stocking Rates
Southern Alice Springs	1	With low stocking rate and diversification no threat foreseen.
Southern Alice Springs	1	Cost of production
Plenty	2	Gidgee Poisoning
Plenty	1	Not an issue
Plenty	1	Waste management
Plenty	1	Roads
Plenty	1	The over hunting of some small native animals and birds
General	7	Seasonal variability (rainfall/droughts)
General	2	Erosion

Risks to long-term sustainability of the pastoral enterprise

When asked to rank the risks to long-term sustainability (Table 42) the most important risks were seasonal variability followed by government regulations, cattle prices and cost of production. Other factors that pastoralists felt could affect the sustainability of their operations included cattle freight and land tenure certainty.

Table 42. Range of risks to long-term sustainability

Risk	Priority 1	Priority 2	Priority 3	Priority 4	Total of 4
Seasonal variability	11	3	1	3	18
Government regulation	8	3	2	0	13
Cattle prices	6	5	5	6	22
Cost of production	5	5	6	7	23
Markets	1	3	9	3	16
NRM issues	1	1	0	2	4
Energy availability	1	0	2	2	5
Staff	0	5	2	3	10
Climate change	0	1	0	0	1

What are the plans for infrastructure development?

The main priorities for infrastructure development were water point development (50% of properties) followed by drafting yards and paddock subdivision. Roads and trap yards were also listed as priority 1 activities (Table 43).

Table 43. Priorities for infrastructure development, (% of properties)

Alice Springs region	Priority 1	Priority 2	Priority 3
Water point development	50	17	3
Paddock subdivision	13	3	7
Drafting yards	13	23	10
Trap yards	7	3	13
Roads	7	13	17
Other	7	0	7
Boundary fencing	0	17	3
Laneways	0	10	10
Accommodation	0	7	7
Sheds	0	0	0
Telemetry	0	0	7

What were the risks to long-term sustainability?

To provide some insight into how producers perceived the future, they were asked to rank nine risks towards long-term sustainability. In their responses, seasonal variability followed by government regulations, cattle prices and cost of production were ranked as priority 1. Additional factors, not included on the ranking list, that pastoralists suggested could affect the sustainability of their operations included cattle freight and land tenure certainty. Table 44 lists the four highest priority risks to long-term sustainability as described by producers.

Table 44. Range of risks to long-term sustainability

Risk	Priority 1	Priority 2	Priority 3	Priority 4	Total of 4
Seasonal variability	11	3	1	3	18
Government regulation	8	3	2	0	13
Cattle prices	6	5	5	6	22
Cost of production	5	5	6	7	23
Markets	1	3	9	3	16
NRM issues	1	1	0	2	4
Energy availability	1	0	2	2	5
Staff	0	5	2	3	10
Climate change	0	1	0	0	1

What motivates people to be part of the pastoral industry

Producers were asked in the final question of the survey why they chose to be members of the pastoral industry. Most producers took a few moments to reflect before they answered and some mentioned it was a very difficult question to answer. At the time of interviewing, most producers had just experienced one of the best seasons on record in terms of pasture growth followed by devastating bushfires, which created an instant 'drought' for some. Despite this and dealing with significant market uncertainty, the general response to this question was positive. The most common response was lifestyle (24%) and because they enjoy it (14%), was born into it (14%), and liked cattle and horses (14%). Others liked the challenge that it provides (7%) and to contribute to food security (7%) while some just stated that it was all they know. Below is a sample of responses, which provide more insight into why people were choosing to be part of the pastoral industry.

- Love Central Australia and love cattle and love eating beef, love that it is so clean, on average we have a very clean industry. Why wouldn't you want to live out here?
- Lifestyle and good money. We get a house and food covered and I see my children regularly throughout the day. I enjoy every day and can't believe I get paid for it.
- Solitude, love challenges, not repetitive work, achievement, something to pass on to kids, improving property.
- Chosen profession
- It is something I have grown up in and know.
- Generational lifestyle
- Enjoy it. Long term food security.
- Because it is the closest thing to free enterprise. Content with our living and not out to make a killing.
- In the blood - way of life - been in family for generations.
- The environment, the cattle, the people, the mixing of hobby and business, just generally an inexplicable addiction!

How the Alice Springs pastoral industry has changed 2004-2010

It is difficult to make some comparisons between the 2004 report and this report due to a number of changes in the data analysis methodology, and also due to changes in the sample. This section of the report highlights the key differences, based on knowledge of the sample and methodology.

Differences in sample population

In the 2004 report the northern Alice Springs district was combined with the Plenty district while in the 2010 report the northern Alice Springs, Southern Alice Springs and Plenty districts were reported on separately. In 2004 the number of pastoral operations was 61 compared with 60 pastoral operations in 2010. Table 43 shows the number of properties surveyed and the percentage of the area that these surveyed properties represented. For comparison, the figures for the whole NT have also been provided.

Table 45. Differences in sample population between 2004 and 2010 pastoral surveys

	Number of properties surveyed		Area Surveyed (km2)	
	2004	2010	2004	2010
Alice Springs	40	31	151 498 (64%)	117 756 (50%)
NT Wide	149	127	465 401 (72%)	354 801 (53%)

Property size and infrastructure

The average property size in the Alice Springs region has decreased somewhat from 3885 km2 to 2799 km2. Sample differences may have some effect. For example, a major pastoral holding in the Southern region was not surveyed, which had a large effect on the percentage of area surveyed compared with 2004.

No large increases in water point development were reported; however, this could be affected by sample differences. Priorities for infrastructure development remain the same, with water points the first priority and paddock subdivision the second priority.

Ownership

The ownership structure has remained much the same with owner-manager where the owner is also the manager remaining the most predominant structure followed by privately owned manager.

The average length of ownership has increased slightly from 25 to 29 years while the average length of management has increased from 16 to 19 years between 2004 and 2010. This may have changed after the survey as a number of stations were in the process of changing ownership during the interview period and were therefore not included in the survey.

Markets and turnoff

The marketing and turnoff of cattle in 2010 remain similar to that reported in 2004 with breeding still remaining the main operation. In the 2010 survey the biggest percentage of cattle (62%) were bred and sold or transferred for growing elsewhere in Australia while in 2004 most producers (45%) described their enterprise solely as a breeding operation. The main markets that pastoralists sold cattle to remained unchanged with abattoirs (78% in 2010) and feedlots (39% in 2010) the largest followed by saleyards and restockers.

Cattle management

The most common herd size reduced from 5000 – 7500 head (36% of stations) in 2004 to 2000-5000 head (42% of stations) in 2010.

There was increased emphasis on selecting traits within a breed (35% in 2004 to 42% in 2010). Cross breeding to increase herd fertility has increased as a selection trait, from 13% in 2004 to 27% in 2010, as the second most important selection trait.

A decrease was noted in the number of producers indicating they were upgrading their herd to purebred (or other tropical breeds), 23% in 2004 compared with 4% in 2010.

There has been little change in the number of musters carried out per station per year, with the majority (68%) still carrying out two musters per year; April and September remain the most common months for musters. Mustering methods have remained similar, with trap yards and motorbikes as the main methods. The greatest change is the increased use of helicopters for mustering (from 43% in 2004 to 60% in 2010) while there has been a slight increase in the use of dogs.

The average bull percentage used has decreased from 4.6% in 2004 down to 4% in 2010. There has been a marked increase in the number of producers buying bulls from commercial breeders (13% in 2004 to 29% in 2010) and the number of producers sourcing bulls from stud breeders in Queensland and SA dropped from 53% in 2004 to 22% and 20%, respectively in 2010.

The properties that used EBVs when selecting bulls increased from 49% in 2004 to 56% in 2010. Traits associated with EBVs were fertility first, but with growth rate listed ahead of carcass traits in 2010.

There was no increase in properties that pregnancy tested different female classes and segregation was still done predominantly on age. The percentage of cows culled annually has declined from 18% in 2004 to 12% in 2010. The main reasons for culling remain age and temperament.

Heifers were segregated on 43% of properties in the Alice Springs region in 2010 compared with 58% in 2004, with 15% of these remaining segregated until the start of the second joining compared with 24% in 2004. In 2004, 14% of heifers stayed in their age group for life compared with 7% in 2010. It should be noted that few producers responded to this question and that no properties that took part in the DPIF heifer project, which promoted the benefit of heifer segregation, were included in the survey sample from the Alice Springs region.

Temperament and conformation were still considered the most important traits when selecting heifer replacements.

As in 2004, a similar number of producers in the Alice Springs region were attempting to control-mate a proportion of their mature breeders in 2010. There was a decrease in the percentage of properties supplementing (81% in 2004 compared with 63% in 2010). A similar trend was observed with regard to the period of supplementation.

Animal health

There was a marked change in the perceived major animal health problems between surveys. In 2004 the most commonly mentioned problems were botulism (43% of stations), plant poisoning (11%) and lice (11%). In 2010 pink eye (40%), botulism (28%), phosphorus deficiency (28%) and three-day-sickness (20%) stood out as the major animal health problems. A high percentage of properties vaccinated against botulism in both surveys, suggesting that botulism is a well-recognised and preventable animal health problem. There was limited HGP use (24% of respondents used it at some stage) in 2010 but there is no record of its use in 2004.

Weaning and mortality rates

While it is difficult to compare between the 2004 and 2010 survey due to weighting of the 2010 data, the estimated average weaning percentage as reported by Alice Springs producers had decreased slightly from 72% in 2004 to 67% in 2010. Apart from the fact that very few respondents (less than a third) felt confident to supply information to this question, the open mating system, predominant in the region, makes accurate weaning percentages very hard to determine.

Breeder mortality estimates had generally increased in the Alice Springs region (3% in 2004 to 8.5% in 2010). The fact that the number of heifers kept as replacement breeders had increased from 62% in 2004 to 79% in 2010 is indicative of a higher mortality rate although it must be noted that producers in Alice Springs were rebuilding their herds after a prolonged drought, which ended in early 2010. Breeder mortality is once again a very difficult benchmark to calculate and the fact that estimates have increased through time is probably due to improved record keeping rather than just an actual increase in mortality.

Grazing land management

The 2010 producer estimates of expected increases in carrying capacity in five and 10 years' time was less than in 2004, reflecting both a decrease in industry confidence but also the amount of development that has been achieved since 2004. The average increase in carrying capacity from 6240 head in 2004 to 6573 head in 2010 was 5% and in accordance with the projections made by producers during the 2004 survey.

There was no significant change in preferred distance to water (9.3 km grazing radius in 2010) when planning infrastructure. A large percentage of producers indicated in both surveys that water point development was a priority in terms of infrastructure development.

Fire was being used as a management tool by producers in 2004 to burn spinifex (26%), scrub control (19%) and wildfire mitigation (11%), and in 2010 for wildfire mitigation (26%) and to manage grazing distribution and tree grass balance (15%).

In 2010 woody thickening was not listed as one of the major issues affecting environmental sustainability or profitability; however, a similar numbers of producers in 2010 mentioned they had noticed a build-up of woody trees and shrubs on their properties as in 2004.

There were some changes in weed control and weed impact ratings. Weeds mentioned as having a high impact in 2004 were Athel pine, Mexican poppy and Mimosa bush; in 2010, high impact weeds included Mexican poppy, Senna species and Noogoora burr. The highest presence of weeds on properties in 2010 was Mimosa bush, Mexican poppy and Athel pine. Estimate expenditure on weed control decreased from $2129 in2004 to $1332 in 2010 in the Alice Springs region.

Wild dogs were rated by 67% of properties as having a high impact in 2010 compared with 33% in 2004. Camels remained as having a high impact on 24% of stations with kangaroos/wallabies being rated as a high impact pest animal on 17% of stations in 2010 compared with 29% in 2004.

The average estimated cost of controlling pest animals by a producer had increased by more than 100% from $3679 in 2004 to $7968 in 2010.

Business management

The average number of staff employed on a cattle station has increased from five in 2004 to six in 2010. The main form of staff recruitment continues to be by word of mouth (71% in 2004 vs. 66% in 2010) but online advertising (31% in 2010) has taken over as the second most used form of recruitment from newspaper advertisements (45% in 2004).

In 2010, 65% of producers stated they had some form of written property management plan compared with 43% in 2004.

Issues affecting profitability

Producers mentioned cost of production and price received followed by seasonal variability and climate as the main issues affecting profitability in 2010. In 2004, seasons and cattle prices together with cost of production were the main issues. Staff remained the third biggest issue affecting profitability in both surveys while transport costs

remained important and government regulations were raised as an issue by an increasing number of producers in 2010.

The key factors affecting environmental sustainability remained the ability to manage seasonal variability while fire, which was the second biggest factor in 2004, was not listed in 2010.

Staff availability and seasonal variability remained the major hurdles facing producers with the cost of production and government regulations increasing in importance in 2010.

Lifestyle continues to be the major factor mentioned as to why Alice Springs producers chose to be members of the pastoral industry.

Appendix 1 – Index of Scientific Names

Grass species

Common or Cultivar name	Scientific name
Buffel grass	*Cenchrus ciliaris*
Kangaroo grass	*Themeda triandra*
Spinifex	*Triodia* spp.

Legume species

Common or Cultivar name	Scientific name
Lucerne	*Medicago sativa*

Tree species

Common name	Scientific name
Acacia	*Acacia* spp.
Bloodwood	*Corymbia* spp.
Chenopod	*Chenopodium* sp.
Eucalyptus	*Corymbia* spp., *Eucalyptus* spp.
Gidgee	*Acacia georginae*
Mulga	*Acacia aneura*

Weed species

Common name	Scientific name
Athel pine	*Tamarix aphylla*
Castor-oil plant	*Ricinus communis*
Kapok bush	*Aerva javanica*
Khaki weed	*Alternanthera pungens*
Mexican poppy	*Argemone ochroleuca*
Mimosa bush	*Acacia farnesiana*
Mission grass (annual)	*Cenchrus pennisetiformis (Pennisetum pedicellatum)*
Mission grass (perennial)	*Cenchrus polystachios (Pennisetum polystachion)*
Mossman River grass	*Cenchrus echinatus*
Noogoora burr	*Xanthium occidentale*
Parkinsonia	*Parkinsonia aculeata*
Prickly acacia	*Acacia nilotica*
Rubber bush	*Calotropis procera*
Prickly thorn apple	*Datura spp.*
Senna (Sicklepod)	*Senna obtusifolia*
Saffron thistle	*Carthamus lanatus*
Senna (Coffee senna)	*Senna occidentalis*
Prickly thorn apple	*Datura* spp.