

Pastoral Industry Survey 2004

Katherine



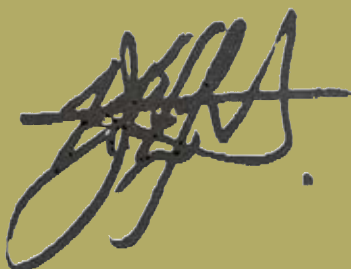
To the reader,

This survey has received the full backing of the Katherine Pastoral Industry Advisory Committee (KPIAC) because it identifies a range of issues faced by a large number of cattle producers. The wide consultation will ensure that future work carried out by the Department of Primary Industry, Fisheries and Mines (DPIFM) is relevant and can provide meaningful outcomes for producers.

The results of the survey will provide a basis for the committee to draw up a plan that allows all future funding requests for research work to be checked against the needs of the industry, and helps identify gaps in our existing knowledge. It also provides some district benchmarks for producers.

It would be remiss not to acknowledge and thank Trudi Oxley and her team at DPIFM for the excellent job of gathering and correlating all the relevant data and presenting it in this readable format.

Thank you to all people associated with the pastoral industry for their time and contributions to this survey.

A handwritten signature in black ink, appearing to read 'Keith Holzwart', with a horizontal line extending to the right.

Keith Holzwart

Chairman

Katherine Pastoral Industry Advisory Committee (KPIAC)

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Researched and written by Trudi Oxley

Acknowledgements

This report would not have been possible without the generous assistance of so many producers who freely gave their time, information and hospitality. Special thanks to those producer members of the Katherine Pastoral Industry Advisory Committee (KPIAC) who contributed their time and knowledge generously when the survey was being designed.

Thanks to Sarah Fea and Melanie Usher for assisting with property visits, and Melanie for entering the data.

Thankyou to Robyn Cowley, Neil MacDonald and the members of the Northern Territory Cattlemen's Association (NTCA) and KPIAC for checking the report for accuracy and errors.

Thankyou to Caroline Green of the Natural Systems Division, Department of Natural Resources, Environment and the Arts (DNRETA) for assistance in preparation of maps and calculation of areas.

Thank you to the Marketing and Communications division for the assistance with the publishing of this report.

Special thanks to Sally Leigo, Andy Bubb and Phil Hausler for assistance with this project.

Disclaimer

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Executive Summary

The last survey conducted in the Katherine region took place in 1982. The industry has changed considerably since then. This survey documents the management practices and attitudes of producers in the Katherine region in 2004. Sixty of the 85 people identified as managing cattle enterprises in the region were surveyed.

The average size of a cattle enterprise in the Katherine region is 2200km². There are about 597,000 cattle on the properties surveyed. The cattle run in the district are predominantly Brahman and Brahman cross.

The most common form of ownership is company employing a manager (30 per cent), followed by owner/managers (28 per cent) and privately owned employing a manager (25 per cent). 30 per cent of producers run an enterprise on Indigenous-owned land. Producers leasing and agisting country to run their enterprise made up the rest of the respondents (4 per cent).

The most common herd size in the Katherine region is between 2000 and 5000 head (19 per cent of producers fall into this category). More than half of producers in the Katherine region manage herds of more than 5000 head.

Ninety five per cent of producers identified their operation as being predominantly a breeding enterprise. The main type of turn-off animal in 2004 was feeder steers, followed by cull cows and cull export heifers. On average, producers sent 88 per cent of their turn-off to South-East Asia. Sixty five per cent of producers said they sent their whole turn-off for export. The most significant turn-off months for Katherine producers in 2004 appeared to be April, May and July.

Eighty eight per cent of producers undertake two or more mustering rounds each year. The most common months are April and May for first round, September and October for second round and November/December for any third rounds. Cattle are generally mustered using horses (90 per cent) and/or helicopters (93 per cent).

The average bull percentage across the region is 4.4 per cent. The weaning percentage for the three years up to and including 2004 averaged 71 per cent. Cows are culled at 10.5 years of age, with conformation, temperament and fertility all important criteria for

culling. The average percentage of cows culled each year across the region is 7.7 per cent. Continuous mating is the most common form of joining, but a number of producers are interested in trying to implement a restricted mating period, particularly with heifers where 44 per cent attempted to control mate. Heifers are joined at an average weight of 280kg. All producers in the Katherine region practice weaning of calves, mostly according to weight, taking into account the season and cow condition. The average minimum weaning weight at first round in 2004 was 111kg.

Mineral supplementation is common practice in the Katherine region with 98 per cent of producers feeding supplement during the dry season and 66 per cent supplementing through the wet season.

Thirty per cent of properties surveyed in the Katherine region indicated they had produced their own hay in 2004.

The most common animal health problems seen in 2004 were botulism, tail rot and ticks. The most common animal health treatment was botulism vaccine, with 96 per cent of producers vaccinating against this disease.

Based on producer estimates of increased carrying capacity according to current plans for infrastructure development, the number of cattle in the area could increase by 25 per cent over the next five years, and by 42 per cent over the 2004 estimate in the next 10 years. On average, producers thought 4.5km was the upper limit cattle should walk to water for economic reasons. The most common grazing strategy in the Katherine region is a continuously grazed system, with one-third of producers nominating this as their only strategy. Others included rotational systems (18 per cent of properties), continuous with opportunistic spelling (25 per cent) or some other combination of these (20 per cent).

Thirty five per cent of producers indicated they had areas of fully improved pasture on their station. Species of concern for unwanted spread of improved pasture were Gamba grass, Wyn Cassia, Leucaena, Mission grass, Stylo's and Indian blue grass.

Seventy nine per cent of producers have noticed a build-up of native shrubs and trees on their property. Sixty eight per cent of these felt it was some cause for concern. Half the producers in the region are using fire to attempt to control this woody shrub build-up.

Producers invest significant time and money into natural resource management in controlling wildfire, weeds, pest animals and erosion. Weeds can be a significant limitation to production, with producers spending \$8154 on weed control, on average.

Eighty-six per cent of producers said they made a planned effort to prevent the introduction of weeds on to their property. The most popular strategy was to buy clean hay.

Pest animals were also named as being limitations to production, with wild dogs being the species of most concern. The average amount spent on control was \$3951.

Twenty seven per cent of producers said they had some other form of income beside cattle production on their property. These included hay production (six properties), earthmoving and fence contracting (one property), horticulture (one), roadhouse (one) and tourism ventures (two).

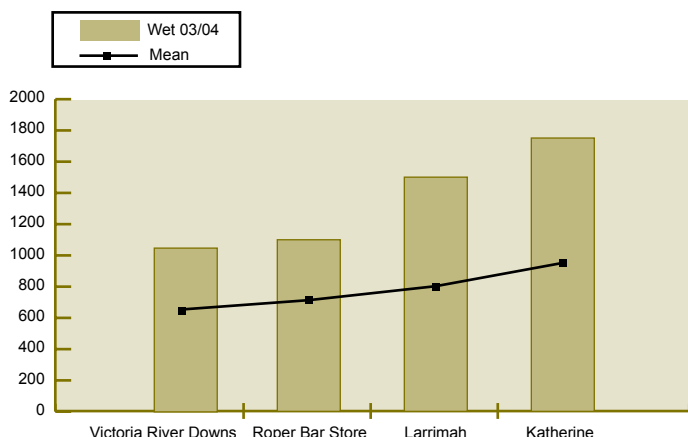
Recruiting and maintaining skilled staff is the biggest hurdle named by producers in the region, with rising costs of production and natural resource management issues such as exotic weeds and woody shrub build-up being named as major issues facing the economic and environmental sustainability of the Katherine pastoral industry.

The industry has undergone significant change since 1982, with production such as weaning increasing from 45 per cent to 71 per cent. This has been brought about by a number of factors including improved management, more adapted animals and more profitable markets for the sale of cattle.

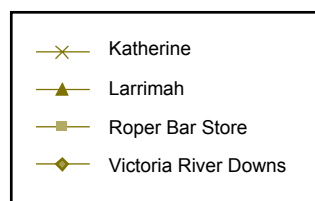
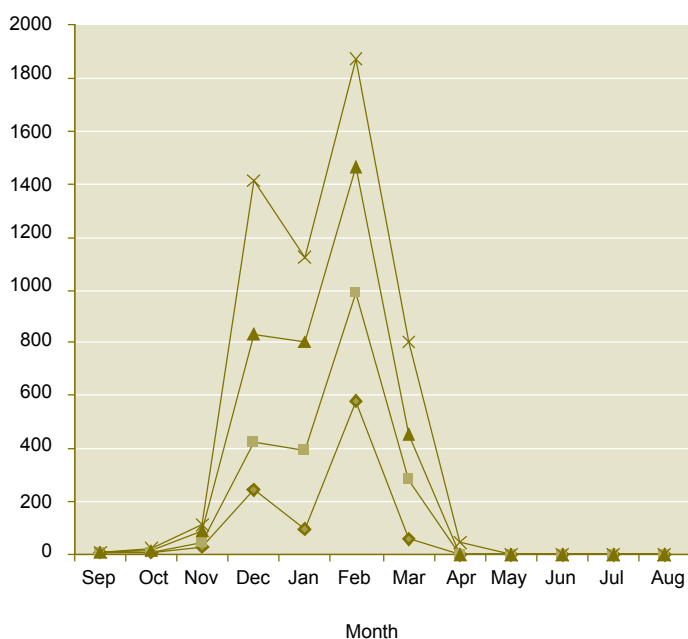
Pastoralists name lifestyle factors as the predominant reason for choosing the pastoral industry as a career.



GRAPH 1 - AVERAGE ANNUAL RAINFALL VS 2004 RAINFALL FOR 4 DISTRICTS



GRAPH 2 - MONTHLY RAINFALL IN WET SEASON 03/04 FOR 4 DISTRICTS



Introduction

The 2004 Pastoral Industry Survey of the Katherine region has been prepared by the Department of Primary Industry, Fisheries and Mines (DPIFM). The objectives of this survey were:

1. To document the state of the cattle industry in the Northern Territory to better enable government and industry to monitor the performance of research and development; .
2. To collect information to better allow the needs of the industry to be addressed by DPIFM and groups such as Industry Advisory Committees and the Northern Territory Cattlemen's Association (NTCA);
3. To determine the most effective ways of providing extension information to producers in each region and to initiate or improve communication between DPIFM staff and cattle producers;
4. To give the industry an up-to-date picture of management practice to better tailor future directions for research.

This report focuses on the Katherine region. Three other surveys were carried out in the Alice Springs, Barkly and Top End regions of the Northern Territory.

Climate and Season

The Katherine region has a semi-arid monsoonal climate with a 'wet season' from October to April, and a virtually rainless 'dry season' from May to September. There is a very marked contrast in average annual rainfall between the north and south of the region, with average annual rainfall at Inverway Station (southern Victoria River District) being 521mm, compared with 981mm in the north at Katherine. Graph 1 compares the annual average rainfall received in four districts throughout the survey area with rainfall received in the 2004 wet season. Graph 2 compares the average monthly rainfall over the wet season to the rainfall experienced in the wet season of 2003/2004. Seasonal conditions in 2004 were generally regarded as being very good, with most areas receiving above average rainfall.

Size

The total area of land managed by survey participants was 136,744 km². This is 62 per cent of the total area of the 219,692 km² in the region identified as having pastoral activity (Natural Systems Division, Katherine, DNRETA).

The Katherine region was divided into the following pastoral districts as defined by the Pastoral Land Management branch, DNRETA:

- Katherine/Daly (8,527 km² surveyed)
- Roper (19,300 km² surveyed)
- Victoria River (85,702 km² surveyed)
- Sturt Plateau (15,986 km² surveyed)
- Gulf (19,455 km² surveyed)

Soils and Vegetation

Katherine/Daly

This area is characterised by large areas of rugged hill and ridges. The areas of greatest pastoral importance are Tipperary red earths with tropical tall grasses such as Black speargrass, Kangaroo grass, White grass and Perennial and annual Sorghum.

Roper and Gulf

These districts are characterised by large areas of soils that are shallow, coarse textured and stony with abundant rocky outcrops. Vegetation is predominantly open woodland dominated by Eucalypts, with limited areas of grasslands on alluvial plains. There are extensive areas of lancewood forests. Grasses typically found on the more productive areas used for pastoral production include Ribbon grass, Silky browntop, Perennial sorghum, White grass, Black speargrass, Limestone grasses and soft Spinifex.

Victoria River District

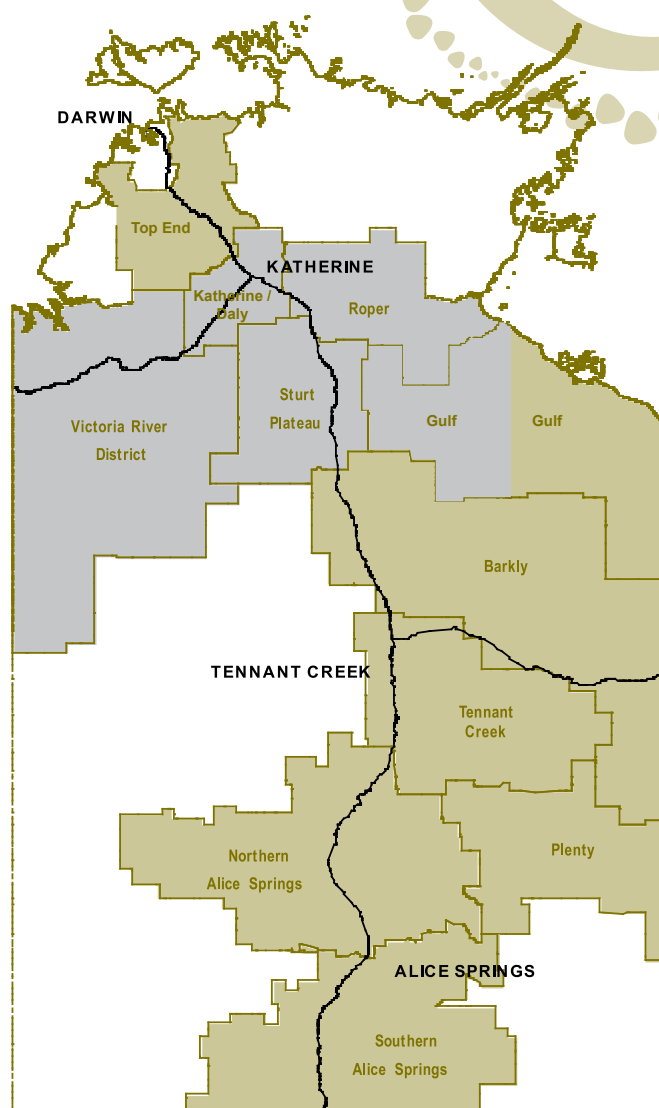
In the higher rainfall northern area of the VRD the country is rugged and hilly with valleys of tropical tall grass and blue grass plains. Tall grasses include Kangaroo grass, Perennial sorghum, Ribbon grass, Bluegrass, Black speargrass and White grass.

In the southern area there are larger areas of more undulating country with plains dominated by Mitchell grass. Upland red country supports arid short grasses such as Limestone, Kerosene and Wire grasses, with soft Spinifex on the rockier hills.

Sturt Plateau

Red earths are the most widespread soil type in this district, interspersed with yellow earths and areas of alluvial clay. Vegetation consists mainly of Ribbon grass, Perennial sorghum, and Kangaroo grass, White grass with Kerosene grass, Wanderrie grasses, Wire grasses and soft Spinifex on the more gravelly rises.

FIGURE 1 - MAP OF THE NORTHERN TERRITORY



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

Sixty face-to-face interviews were conducted with producers in the Katherine region who run a cattle enterprise of more than 300 head. A cattle enterprise was considered to be one in which producers ran cattle on a property they owned or leased, or an agisted area within a pastoral lease. In cases where more than one pastoral lease was run as one enterprise, it was counted as only one business. Two producers had two properties that were run quite separately, so they answered for two enterprises, but were counted as one producer.

The surveys were carried out between October 2004 and March 2005. DPIFM staff identified that the total number of producers who met the criteria of this survey in the Katherine region was 85, from which there was a 71 per cent response rate. Interviews were carried out by three members of DPIFM staff.

Surveys were collected in writing, then entered into an Access database. Questions were then analysed using a combination of Access and Excel spreadsheets.

It was felt this survey needed to concentrate on as many producers as possible to ascertain how cattle in the region were being managed. It was also designed to guide future research by identifying the attitudes and problems faced by pastoralists, rather than being a numbers collecting exercise which could replicate the work undertaken by the Australian Bureau of Agricultural and Resource Economics (ABARE), and potentially lead to fewer producers being willing to participate if they felt they had to disclose their cattle numbers or financial position.

Throughout this report there are occasions when findings total more than 100 per cent. This occurs in questions where people have responded to more than one variable, for example, mustering, where they may have chosen horse, helicopter, motorbike, or any combination of these. In some cases where producers declined to answer a question, the average is calculated over the number of producers who did respond.

In considering the accuracy of the data it should be remembered that producers were asked for their best estimate, which sometimes was their best guess as to what was actually happening in relation to production performance that was not being formally recorded on the property.

This report documents a dynamic industry undergoing constant change. The data documents practices and attitudes given the prevailing conditions. Many things have changed already since the survey was carried out, for example, the legislation relating to the National Livestock Identification System (NLIS) program, which is now being rapidly adopted by industry in the Katherine region. Future use of the data needs to acknowledge it is a historical snapshot of 2004.

The data collected from this survey is completely anonymous, and remains the property of the producers of the Katherine region. The database is managed by Pastoral Production at the Katherine Research Station; any requests for interrogation of this data must be approved by the executive of the NTCA.

Picture of Industry 2004

Size

Tables 1 and 2 show that the largest properties tend to be company-owned and privately owned employing a manager. These tables also show that the larger properties are located in the Victoria River and Gulf districts. The average size of a cattle property in the Katherine region is 2,200km², ranging from 38km² to 13,500km².

TABLE 1 - AVERAGE PROPERTY SIZE ACCORDING TO OWNERSHIP

| OWNERSHIP | AVERAGE SIZE Km ² |
|-------------------------|---------------------------------|
| Company / Manager | 2861 |
| Indigenous Owned Land | 1673 |
| Indigenous/Agistor | 325 |
| Owner / Manager | 1872 |
| Partnership | 900 |
| Partnership/Manager | 1578 |
| Private / Agistor | 50 |
| Private / Lessee | 180 |
| Private owned / Manager | 2120 |
| Overall Average | 2200 |

TABLE 2 - AVERAGE PROPERTY SIZE AND PERCENTAGE GRAZED ACCORDING TO DISTRICT

| | KATHERINE/ DALY DISTRICT | ROPER DISTRICT | VICTORIA RIVER DISTRICT | STURT PLATEAU DISTRICT | GULF DISTRICT |
|--|-----------------------------|----------------|----------------------------|---------------------------|---------------|
| Average area (km ²) | 1218 | 1411 | 3275 | 993 | 3665 |
| Average area grazed (km ²) | 921 | 970 | 2227 | 750 | 1597 |
| Estimated percentage Grazed | 76 | 69 | 68 | 76 | 44 |
| No. of producers surveyed | 7 | 9 | 24 | 15 | 6 |

Current Infrastructure

To gain an understanding of the level of infrastructure development, Table 3 shows the average number and size of paddocks for each district.

This reveals that properties in the Katherine region still have relatively large paddocks, particularly in the Victoria River and Gulf districts. This is reflected in managers' priorities for infrastructure development (discussed later), with paddock subdivision high on the list.

Producers were also asked how many yards they had on a property. Four of the five districts had an average of 1.5 sets of permanent yards per property, with a minimum of one and a maximum of three. However, in the Victoria River District (VRD) the average number of yards was four, with a maximum of 10. On average, all properties in the region had less than one set of portable yards, with many properties having none, and a maximum of two.

Properties in the Katherine region had, on average, four trap yards, with higher numbers being found in the south of the region, and fewer in the wetter districts.

Stations in the region have an average of 86 per cent of their property boundary fenced, with the regional breakdown found in Table 4.

Water point development varies significantly throughout the Katherine region. The number of water points differs according to the average size of the property, time that development has been occurring, finance available to undertake water point development and the amount and quality of water available. Most people indicated there usually would be at least two or three water points off each bore. Producers identified fairly low numbers of permanent natural waters and indicated less of a reliance on them (Table 5).

TABLE 3 - AVERAGE NUMBER OF PADDOCKS AND THEIR SIZE ACCORDING TO DISTRICT

| DISTRICT | AVG. NUMBER PDKS (KM ²) | AVG. PDK SIZE (KM ²) |
|----------------|--|----------------------------------|
| Kath/Daly | 13 | 45 |
| Roper | 12 | 86 |
| Victoria River | 20 | 130 |
| Sturt Plateau | 11 | 68 |
| Gulf | 10 | 110 |

TABLE 4 - AVERAGE PERCENTAGE OF PROPERTY BOUNDARY FENCED ACCORDING TO DISTRICT

| DISTRICT | AVG PERCENTAGE OF PROPERTY BOUNDARY FENCED |
|----------------|---|
| Kath/Daly | 94 |
| Roper | 79 |
| Victoria River | 89 |
| Sturt Plateau | 88 |
| Gulf | 71 |

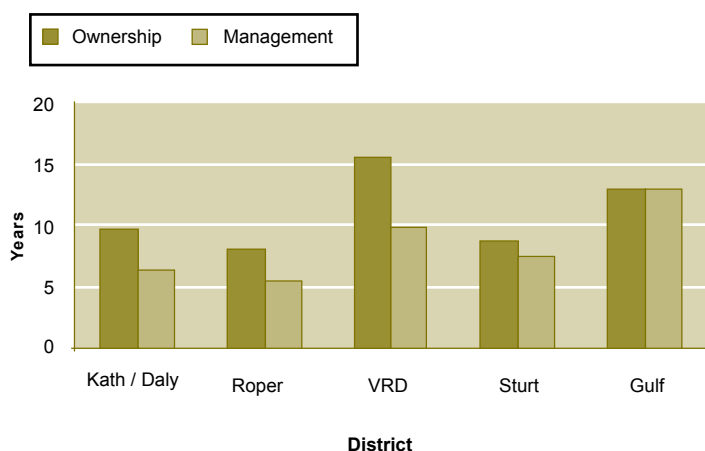
TABLE 5 - AVERAGE NUMBER OF MANMADE AND NATURAL WATER POINTS ACCORDING TO DISTRICT

| DISTRICT | AVG. NUMBER OF PERMANENT NATURAL WATERS | AVG. NUMBER OF MANMADE WATER POINTS |
|----------------|---|---|
| Kath/Daly | 2.00 | 16 |
| Roper | 4.00 | 15 |
| Victoria River | 2.00 | 52 |
| Sturt Plateau | 1.75 | 23 |
| Gulf | 1.67 | 26 |

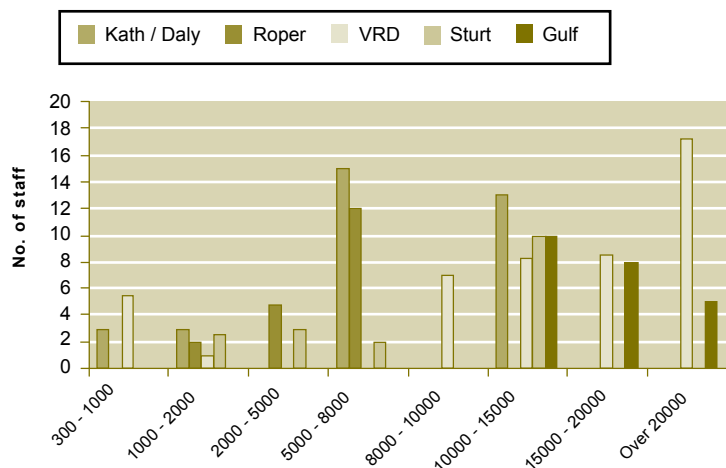
TABLE 6 - NUMBER OF PROPERTIES WHO HAVE AN INTEGRATED VS INDIVIDUAL PRODUCTION SYSTEM

| OWNERSHIP | INTEGRATED | INDIVIDUALLY |
|-------------------------|------------|--------------|
| Company / Manager | 6 | 1 |
| Indigenous Owned Land | 2 | 4 |
| Owner / Manager | 6 | 9 |
| Private / Agistor | - | 1 |
| Private / Lessee | - | 1 |
| Private owned / Manager | 2 | 8 |
| | 40% | 60% |

GRAPH 3 - LENGTH OF TIME OWNED/MANAGED BY CURRENT OWNER/MANAGER BY DISTRICT



GRAPH 4 - AVERAGE NUMBER OF SEASONAL STAFF ACCORDING TO DISTRICT AND NUMBER OF HEAD



Ownership

The most common form of ownership/ management in the Katherine region is company-owned employing a manager (30 per cent), followed by owner-manager (28 per cent) and privately owned but employing a manager (25 per cent). People running an enterprise on Indigenous-owned land accounted for 13 per cent. Other forms of management included privately owned with leasers and agistors. Producers running cattle as a management enterprise on a pastoral lease that they did not own were also considered a management unit.

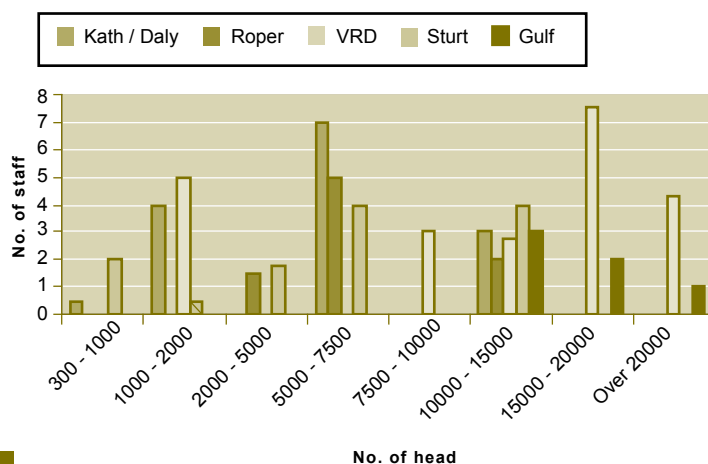
Table 6 demonstrates that most company properties are run as an integrated production system, but privately owned properties are more likely to be run as an individual production unit.

Graph 3 demonstrates the length of time current owners and managers have been employed. It indicates that properties in the VRD have on average had the longest term of ownership (16 years). The average term of ownership in the Katherine region is 12 years. The average period under current management is 8.5 years.

Staff

Staff is a major consideration for Katherine region cattle producers. The following graph shows the average number of people employed seasonally and permanently on a station according to district and number of head. In general more people are employed in the VRD, which is a reflection of larger properties, more cattle and a higher incidence of company ownership, with companies tending to employ more staff. Graph 4 demonstrates the average number of staff employed according to district and number of head.

GRAPH 5 - AVERAGE NUMBER OF PERMANENT STAFF ACCORDING TO DISTRICT AND NUMBER OF HEAD



There is a large variation in numbers employed between the districts according to the scale of enterprises, so an average figure across the Katherine region is of limited relevance. There may be some labour efficiencies in having more than 10,000 head because the number of staff required generally does not dramatically increase on those properties running 20,000 head.

Number of Cattle

The most common herd size in the Katherine region is between 2000 and 5000 head (19 per cent of producers fall into this category). More than half of producers in the Katherine region manage herds with more than 5000 head. Graph 6 details the breakdown of percentage of people managing various herd sizes. There was a fairly even mix between forms of ownership and size of herds, although companies tended not to have herds below 5000, and people leasing or agisting tended to be managing smaller herds.

Breeder numbers according to ownership and district obviously reflected total herd sizes. Graph 7 shows the breakdown of number of breeders according to ownership.

Management Practices of the Katherine Pastoral Industry 2004

Turn-off and markets

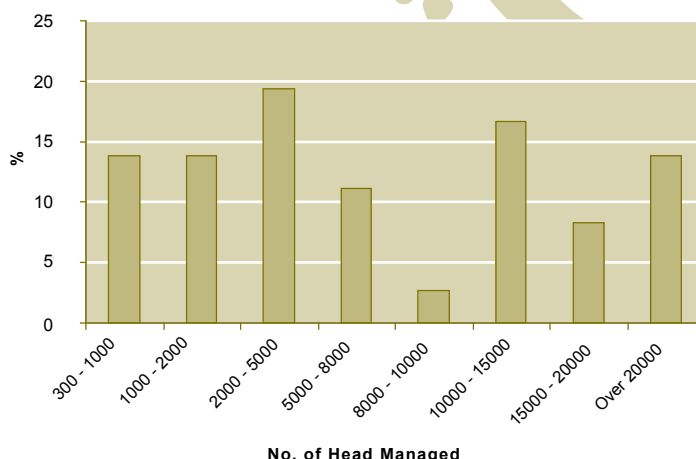
Main types of cattle enterprises

All but four properties in the Katherine region identified themselves as a predominantly breeding enterprise. One property in the Gulf was solely a fattening block, and three properties in the Victoria River District which had more than 20,000 head, said they were both a breeding and fattening block.

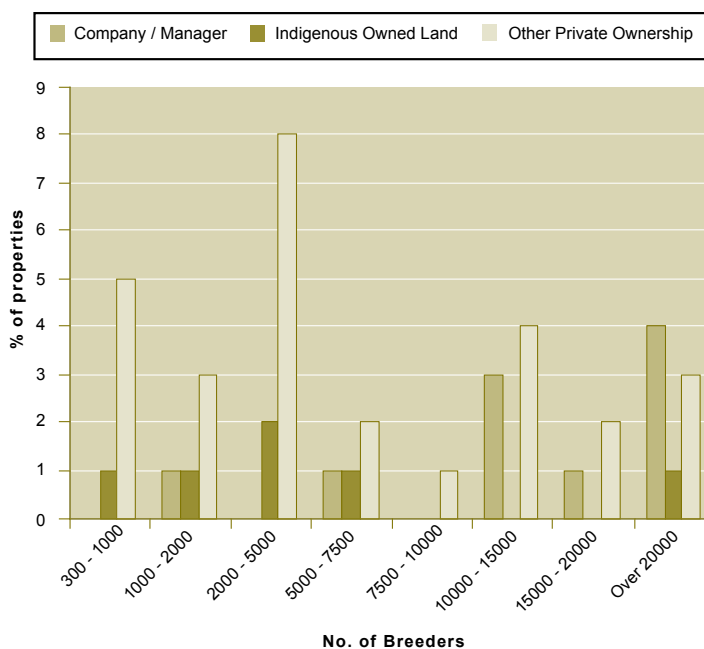
Turn-off

The main type of animal turned off from Katherine region properties is feeder steers, with almost 70 per cent of producers nominating these as their major turn-off class. The second and third most significant turn-off classes were spayed cows and export heifers. Graph 8 details the three most significant turn-off classes for the Katherine region.

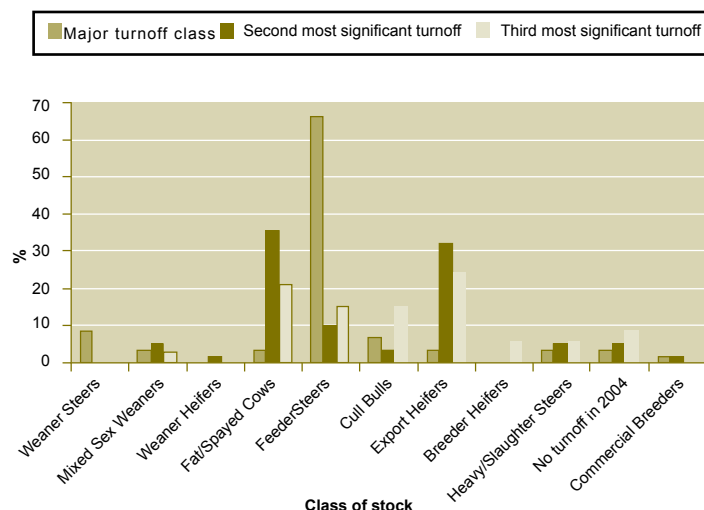
GRAPH 6 - PERCENTAGE OF PEOPLE MANAGING DIFFERENT HERD SIZES



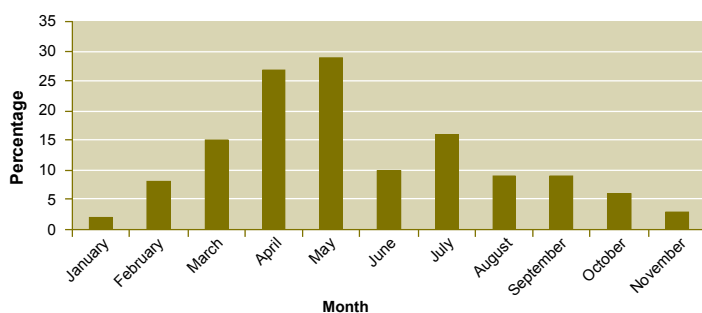
GRAPH 7 - BREEDER NUMBERS ACCORDING TO OWNERSHIP



GRAPH 8 - THREE MOST SIGNIFICANT TURN-OFF CLASSES IN 2004



GRAPH 9 - MAJOR TURNOFF MONTHS FOR SALE STOCK



GRAPH 10 - PERCENTAGE OF TURNOFF DESTINED TO VARIOUS MARKETS

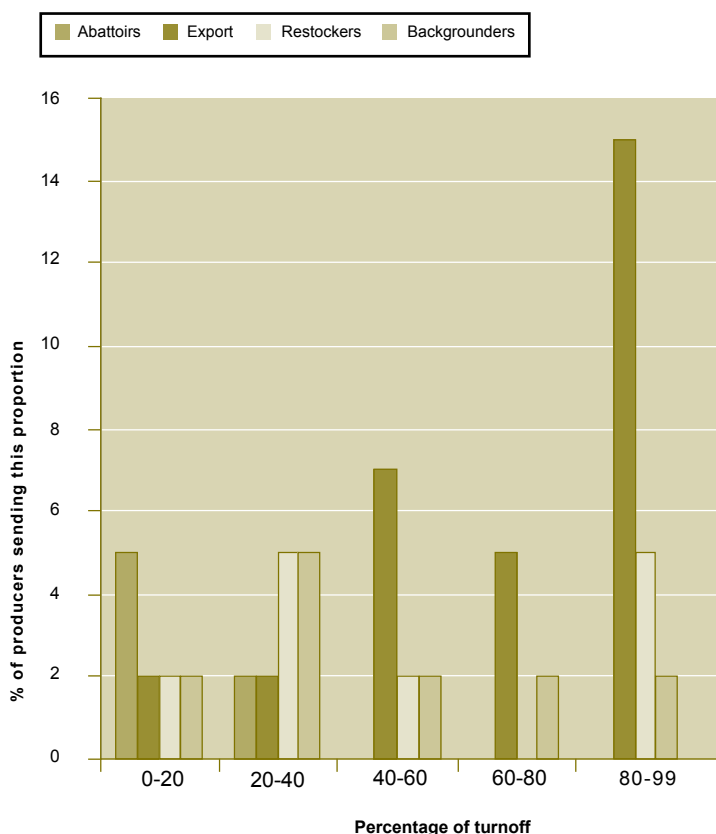


TABLE 7 - MAIN BREEDING AIM

| MAIN BREEDING AIM | % |
|---|----|
| To upgrade to Brahman | 24 |
| To cross breed for improved herd performance | 22 |
| To select traits within breed | 18 |
| Concentrating on management, not genetics | 14 |
| To crossbreed to suit market | 14 |
| Don't breed - fatten | 2 |
| Maintain a high grade Brahman herd and increase calving | 2 |
| Crossbreed for market and/or performance | 2 |

A number of properties have concentrated on turning off weaners, but as the survey captured 2004 turn-off only, this may have been due to special circumstances, not that they considered themselves dedicated weaner producers. Spayed cull cows and cull export heifers are important turn-off classes to Katherine region producers. Very few breeding females were sold in 2004.

Turn-off months vary between producers; Graph 9 shows the months that producers indicated were the major turn-off months for their enterprise. The most significant turn-off months for Katherine producers in 2004 appeared to be April, May and July.

The most significant market in the Katherine region is the export market to South-East Asia. Producers accessing this market exported 89 per cent of their turn-off. Sixty five per cent of Katherine producers export 100 per cent of their turn-off to this market (not shown in graph). The other proportions sent to alternative markets are shown in Graph 10. Only one producer indicated he sold directly to feedlots, to which he sent between 20 and 40 per cent of the year's total turn-off.

Seventeen percent of producers indicated they turned off cattle within the NT, sending 69 per cent of their turn-off to this market. Eleven per cent of producers indicated they turned cattle off to Queensland, averaging 39 per cent of their turn-off to this market.

Cattle Management

Predominant Breed of cattle

Ninety-seven per cent of respondents indicated that the predominant breed of the herd was Brahman. Three per cent listed the predominant breed as Droughtmaster.

Breeding Aims

Producers were asked to nominate their one major breeding goal. Table 7 shows that upgrading to Brahman was the most commonly mentioned with almost one-quarter of producers still trying to achieve this goal. The next most important aim indicated was the increasing number of people looking to crossbreed to improve their herd performance and ability to meet market demand. A relatively high number of producers (14 per cent) felt they needed to concentrate on management issues as a higher priority before improving genetics could make major gains.

Mustering

Most producers in the Katherine region undertake two mustering rounds per year. Twelve per cent of producers indicated they undertook only one round, and 8 per cent said they carried out three rounds. The main months for carrying out first round are April and May, for second round September and October, and November/December for any third rounds. Graph 11 shows the spread of months in which mustering occurs.

The most common method of mustering was helicopter, used by 93 per cent of the surveyed enterprises, closely followed by horses (90 per cent of enterprises). Graph 12 shows the breakdown of methods. The most common combination was that of helicopter and horses (25 per cent), followed by helicopter, horse and motorbike (15 per cent).

Bulls

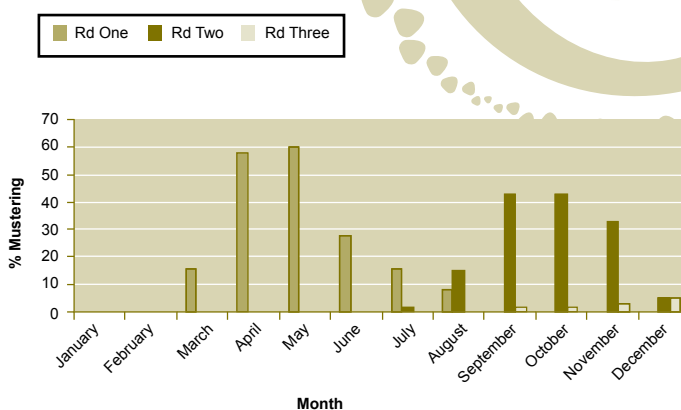
The average bull percentage used in the Katherine region was 4.4 per cent. The percentage ranged from 3 per cent to 7 per cent. There was not a lot of variation between the districts; the most noticeably different was the Katherine Daly district which used 5.2 per cent on average. One producer commented he used 5 per cent for cows, but increased this to 7 per cent for heifers, another also changed his percentage on a paddock basis according to how spread out the waters were.

Table 8 shows that the most common way of sourcing bulls is from Queensland stud breeders.

Estimated Breeding Values (EBVs) are not commonly used in the Katherine region for bull selection; only 20 per cent of respondents said they used them to aid their decision. Of these, the majority felt the most important trait was fertility, with two producers selecting growth rate, and one birth weight. The majority then indicated growth rate as being the second most important trait.

Forty three per cent of producers said they did fertility test their bulls. On average across the region they are tested once every 3.5 years, varying from annually, to once every eight years, which equated to only having bulls tested when purchased.

GRAPH 11 - MAIN MONTHS MUSTERING IS CARRIED OUT IN



GRAPH 12 - MUSTERING METHODS USED IN THE KATHERINE REGION

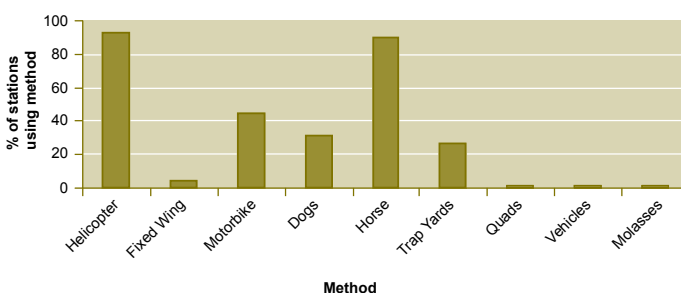


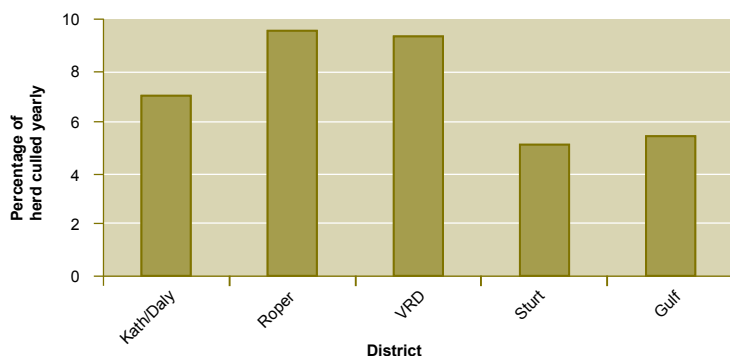
TABLE 8 - WHERE BULLS ARE SOURCED FROM

| SOURCE OF BULLS | % OF PROPERTIES |
|---------------------|-----------------|
| QLD Stud Breeders | 58 |
| NT Stud Breeders | 38 |
| Breed Your Own | 25 |
| Within Company | 10 |
| Commercial Breeders | 7 |

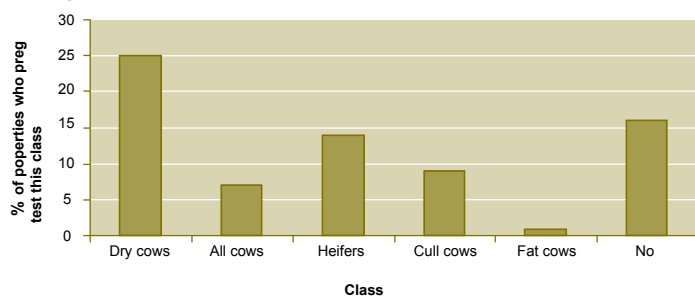
TABLE 9 - WEANING PERCENTAGE ACCORDING TO DISTRICT

| DISTRICT | AVERAGE WEANING % | MINIMUM % | MAXIMUM % |
|----------------|-------------------|-----------|-----------|
| Kath/Daly | 69 | 60 | 80 |
| Roper | 67 | 60 | 75 |
| Victoria River | 74 | 60 | 85 |
| Sturt Plateau | 70 | 60 | 80 |
| Gulf | 64 | 50 | 70 |

GRAPH 13 - PERCENTAGE OF COWS CULLED ANNUALLY



GRAPH 14 - PERCENTAGE OF FEMALE CLASSES PREGNANCY TESTED



Breeder Management

Weaning Percentage

The average weaning percentage for the Katherine region over a three-year period up to and including 2004 was 71 per cent, with a minimum of 50 per cent and a maximum of 85 per cent. Table 9 shows the variation between districts.

Cull cattle

The age producers cull breeders averages 10.5, with the minimum eight and the maximum 15. There was no real variation between ownership type or district. Producers used the following criteria to cull breeders: temperament (70 per cent of respondents), age (60 per cent), confirmation or type (60 per cent), and pregnancy diagnosis (60 per cent). If cows were culled on pregnancy the variation included empty and dry at first round (41 per cent of people who cull on pregnancy), empty and dry for two years running (19

per cent of people who cull on pregnancy) and just empty and dry but time of year not specified (44 per cent of people who cull on pregnancy).

The percentage of cows culled in each district is detailed in Graph 13.

The overall average of cows culled for the Katherine region was 7.7 per cent. This suggests many herds are still being built up in numbers, but it also indicates there may have been some confusion about this question as to whether this figure included cull for age cows.

Segregation

Forty-two per cent of producers indicated they carried out segregation of their breeders. The basis for segregating them was: age (ten properties), pregnancy (ten), colour (two), condition (two) and breed (one).

Pregnancy testing

Twenty-six per cent of producers indicated they did not pregnancy test any of their females. The other 74 per cent of producers used pregnancy testing for different classes of females. Twelve per cent indicated they used it for all females. Graph 14 details the way pregnancy testing is used in the Katherine region, with "no" representing those who did not carry out any.

Artificial Insemination or Embryo Transplanting

Five properties in the Katherine region indicated they used AI for stud cows, and one used it for commercial cattle. No producers were using Embryo Transplant technology in 2004.

Continuous or control mating

Seventy five per cent of producers said they continuously mated all their breeders. Of those who attempted to control mate a proportion of their herd, the months they used to put bulls out in were December (four producers), January (six) and February (one). Bulls were removed in April (five) and May (six).

Mortality rates

Table 10 shows the average district death rates. They range between 2.2 per cent and 3.3 per cent. The average for the region is 3 per cent.

Heifer Management

The number of heifers kept in most regions reflects that many herds are in build-up stage. The average for the Katherine region is 58 per cent. The regional breakdown is shown in Table 11. The Gulf district is the most noticeably different, keeping on average 87 per cent of their heifers. This was also analysed in terms of ownership, and companies on average kept the least amount of replacements at 50 per cent, reflecting they were closer to being fully stocked, with privately owned properties keeping 70 per cent replacements.

Graph 15 shows the variation in age of when people select replacement breeders.

Producers were asked to rate the importance of various traits when selecting a heifer to be used as a replacement breeder. Each person was asked to rate on a scale of one to five the importance of a heifer's weight, confirmation, type, temperament, colour and fertility (if they were being selected after first joining), with one being not important and five being extremely important. The average rankings were:

- Confirmation 4.4
- Temperament 4.3
- Type 4.1
- Fertility 4
- Weight 3.9
- Colour 2.4

The distribution of scores that made up these averages is shown in Appendix 1.

Graph 16 shows the spread of ages, with a large proportion being joined at after two years of age. A small number of producers practise yearling mating, and a proportion of heifers are mated at around 18 months of age, mainly in the Victoria River District.

Weight tended to be a more important indicator of stage of puberty to producers than age. The ranges of estimated first joining weight are indicated in Graph 17. This indicates a wide spread of joining weights, with the lower weights tending to be in herds where there was no control mating of maiden heifers. The average joining weight across the region was 280kg.

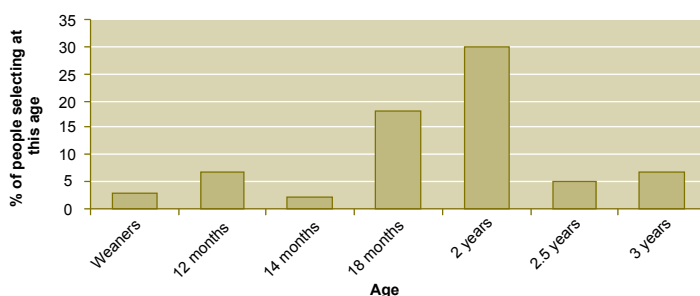
TABLE 10 - MORTALITY ACCORDING TO DISTRICT

| DISTRICT | AVERAGE MORTALITY (%) |
|----------------|-----------------------|
| Kath/Daly | 2.2 |
| Roper | 3.3 |
| Victoria River | 3.0 |
| Sturt Plateau | 3.2 |
| Gulf | 2.7 |

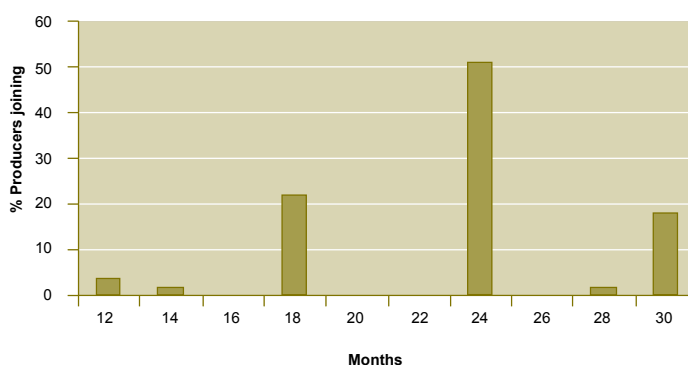
TABLE 11 - PERCENTAGE OF HEIFERS KEPT ACCORDING TO DISTRICT

| DISTRICT | % OF HEIFERS KEPT |
|----------------|-------------------|
| Kath/Daly | 67 |
| Roper | 57 |
| Victoria River | 46 |
| Sturt Plateau | 64 |
| Gulf | 87 |

GRAPH 15 - AGE OF REPLACEMENT BREEDER SELECTION



GRAPH 16 - AGE OF FIRST JOINING HEIFERS



GRAPH 17 - WEIGHT OF HEIFERS AT FIRST JOINING

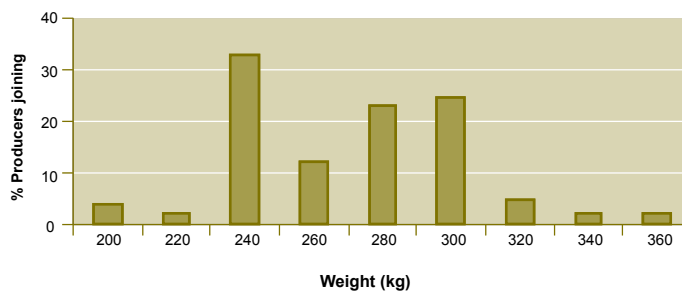


TABLE 12 - AGE UNTIL HEIFERS REMAIN SEGREGATED FROM REST OF BREEDING HERD

| AGE KEPT SEPARATE UNTIL... | % OF PRODUCERS |
|---------------------------------|----------------|
| After weaning 1st calf | 30 |
| After weaning 2nd calf | 5 |
| After weaning 3rd calf | 4 |
| Start of first joining | 11 |
| Start of second joining | 7 |
| Until pregnant with second calf | 4 |
| Stay separate as age group | 11 |
| Other | 5 |

TABLE 13 - PERCENTAGE OF PRODUCERS CHOOSING MONTH OF FIRST MATING WHEN ATTEMPTING TO CONTROL MATE HEIFERS

| MONTH BULLS PUT IN | MAIDEN HEIFERS | | 1ST CALF HEIFERS | |
|--------------------|----------------|-----|------------------|-----|
| | In | Out | In | Out |
| | % | % | % | % |
| December | 12 | | 7 | |
| January | 10 | | 6 | |
| February | 2 | | 1 | |
| March | 3 | 1 | | |
| April | 2 | 5 | | 6 |
| May | 3 | 6 | | 6 |
| June | 1 | | | |
| July | 2 | 6 | | |
| August | 0 | | | |
| September | 1 | | | |
| October | 2 | 6 | | |
| November | 2 | | | |
| Stay In | | 1 | | |

Sixty six per cent of producers said they did not weigh heifers at any time prior to joining. Those who indicated they did weigh prior to joining were more likely to be companies.

Seventy nine per cent of producers indicated they did segregate their heifers from the rest of the breeding herd. Of these the majority answered they were separated until after weaning their first calf. The other variations are detailed in Table 12.

Of those who indicated they did not segregate, eight cited lack of infrastructure and one cited lack of bull control as the reason.

The majority of producers indicated they preferred to mate young bulls (two years of age) to their maiden heifers.

Sixty six per cent of people indicated they continuously mated their maiden heifers, ie once the bulls were put out with them they stayed with them. Sixty eight per cent said they continuously mated their first calf heifers. For those who indicated they did control mate the most popular months to join were December and January with just over 50 per cent of all properties putting bulls with the heifers in these months. Table 13 shows there was an even spread of a small number of producers timing their month of first mating in all other months except August. The majority of the bulls were then removed at first round. The table also shows the months producers who control mated their first calf heifers chose to put the bulls in with them. The average length of time that bulls were put with heifers when control mating was five months.

Producers who chose not to control mate named the following reasons:

Lack of infrastructure (eight producers); unable to control bulls (seven); miss too many calves (five); more cost effective to leave bulls in (one) and it's not worth it, too busy (two).

Producers were asked to give their estimates on the branding percentages achieved in maiden and first calf heifers. Many found this difficult, particularly those who ran all ages together. Anyone who did not have a good idea was asked not to respond, in an attempt to obtain a more accurate idea from people who had heifers segregated or had appropriate records - which still proved difficult. The average weaning percentage from first joined heifers was 67 per cent, and the average of second joined heifers was 59 per cent.

TABLE 14 - AVERAGE FIRST ROUND MINIMUM WEANING WEIGHT

| DISTRICT | AVERAGE MINIMUM FIRST ROUND WEIGHT (KG) | LOWEST MINIMUM MENTIONED (KG) | HIGHEST MINIMUM MENTIONED (KG) |
|---------------------|---|-------------------------------|--------------------------------|
| Kath /Daly | 112 | 90 | 150 |
| Roper | 113 | 80 | 140 |
| Victoria River | 109 | 40 | 150 |
| Sturt River Plateau | 119 | 60 | 210 |
| Gulf | 88 | 80 | 100 |

TABLE 15 - AVERAGE SECOND ROUND MINIMUM WEANING WEIGHT

| DISTRICT | AVERAGE MINIMUM SECOND ROUND WEIGHT (KG) | LOWEST MINIMUM MENTIONED (KG) | HIGHEST MINIMUM MENTIONED (KG) |
|---------------------|--|-------------------------------|--------------------------------|
| Kath /Daly | 115 | 80 | 150 |
| Roper | 90 | 80 | 100 |
| Victoria River | 93 | 40 | 140 |
| Sturt River Plateau | 110 | 55 | 210 |
| Gulf | 85 | 80 | 90 |

The relatively low branding percentage from what could be expected of maiden heifers has probably been a reflection of the number of people who considered their heifers to be first joiners even though they would not have yet hit puberty. The average of second joined heifers is possibly higher than might be expected of second calvers, but many respondents did acknowledge this was a hard group to keep records of, as in most cases they had been joined with the breeding herd.

The average death rate given by producers in the Katherine region for heifers was 2.6 per cent for weaner heifers, 2.9 per cent for first calf heifers and 3 per cent for second calvers. It was generally acknowledged it was difficult to estimate.

The most common vaccination heifers are given in the Katherine region is for botulism (92 per cent of producers). Other vaccinations given to heifers include 7 in 1 (14 per cent of properties), 5 in 1 (19 per cent) and leptospirosis (8 per cent).

Management of young stock

Weaning

All producers surveyed in the Katherine region indicated that they weaned. The criteria they used for doing so included a different weight each year according to environmental conditions (60 per cent of producers), a set weight they weaned to every year

(28 per cent) and age (11 per cent).

Table 14 shows the variation in average, and the highest and lowest minimum weaning weight mentioned between the five districts of the Katherine region in 2004. Some of the more noticeable figures in this table include the minimum weaning weight in the VRD where one producer had weaned radically to protect cow condition and then put all the calves on to a feeding program. Another producer commented he had a higher than usual minimum weaning weight in 2004 due to the exceptional seasonal conditions. Average minimum weaning weight tended to be lower at second round (Table 15). The most common feeding strategy for weaners in the region was to feed them hay in the yards for a short period as they are educated (74 per cent of producers). Other strategies included feeding in yards with concentrate, which tended to be for the smaller weaners (45 per cent) and turning weaners on to spelled pasture (60 per cent).

Year Branding

Producers were asked what method they used to brand their stock. Fifty seven per cent indicated they branded to a calendar year, 26 per cent to a financial year, and 5 per cent August to August. Three people responded that they didn't year brand so it wasn't applicable to them.



TABLE 16 - MONTHS DRY SEASON SUPPLEMENT IS FED

| MONTHS | % WHO FEED AT THIS TIME |
|----------------------|-------------------------|
| All dry (Apr - rain) | 63 |
| May - rain | 3 |
| June - rain | 14 |
| July - rain | 7 |
| August - rain | 5 |
| September - rain | 5 |
| As required | 3 |

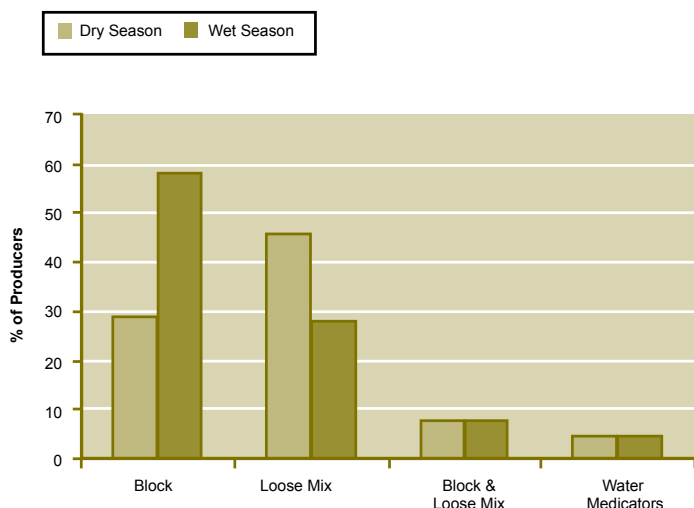
TABLE 17 - MONTHS WET SEASON SUPPLEMENT IS FED

| MONTHS | % WHO FEED AT THIS TIME |
|---------------------------|-------------------------|
| All wet season | 83 |
| December | 3 |
| Early wet | 3 |
| November | 3 |
| November December January | 3 |
| October November December | 3 |
| Some years | 3 |
| When they need it | 3 |

TABLE 18 - CLASSES OF STOCK SUPPLEMENT IS FED TO

| WHICH STOCK CLASSES ARE FED | % WHO FEED STOCK CLASS DRY SEASON | % WHO FEED STOCK CLASS WET SEASON |
|-----------------------------|-----------------------------------|-----------------------------------|
| All stock | 69 | 75 |
| On certain land type | 12 | 15 |
| Weaners | 20 | 10 |
| Breeding heifers | 12 | 5 |
| Yearling cattle | 7 | 23 |
| Wet breeders | 7 | 5 |
| Dry breeders | 2 | 5 |
| Sale steers | 5 | 5 |
| Stud cows | 0 | 3 |

GRAPH 18 - METHODS OF FEEDING OUT SUPPLEMENT



Nutritional Management

Ninety-eight per cent of people indicated they fed mineral supplement. Of these, all supplemented during the dry season, with 66 per cent supplementing during the wet season. Tables 16 and 17 show the spread of months that dry and wet season supplement is fed.

Producers had different ideas as to the most critical classes of stock to supplement. The majority supplemented all classes. Of those who chose certain groups the breakdown is shown in Table 18.

The most commonly fed supplement was urea in the dry season and phosphorus in the wet season. Methods used to distribute supplement are shown in Graph 18. The preferred methods appear to be loose mix in the dry season which is perceived as a cheaper option, and blocks in the wet when it is more difficult to distribute and needs to withstand weather. Of the people who used water medicators the average number they had on a property was five, ranging from two to eight.

Twenty-two per cent of people indicated they provided some level of production feeding. This included a combination of molasses (used on 12 per cent of properties), grain concentrates used on one property or a home made mix (8 per cent of properties).

Twenty-two per cent of people indicated they had attended Nutrition EDGE courses. Seventy-seven per cent of these said they had made management changes as a result.

Hay for own use

Thirty per cent of properties surveyed in the Katherine region indicated they had produced their own hay in 2004. The breakdown of hay produced in the districts is shown in Table 19. The averages varied significantly. The very large average in the Katherine/Daly district was influenced by one major hay producer who cut 12,000 tonnes.

Hay was made from both native and improved pasture. In the Katherine/Daly and Sturt Plateau districts only improved hay was made. In the VRD both native and improved pasture hay were cut, while in the Roper only native pasture hay was produced. All of these produced hay for their own use, except for one who indicated they produced hay for sale to other pastoral properties as well as for their own use.

Animal Health

Common problems

Producers were asked to name the two most common animal health problems on their property. The most common were botulism, tail rot and ticks. The number of times different problems were mentioned is outlined in Table 20.

Vaccines and costs

Botulism is the most common disease vaccinated against in the Katherine region, with 96 per cent of those surveyed saying they vaccinated. Of these, 74 per cent used long acting vaccines and 26 per cent used the conventional annual vaccine.

The other diseases that stations in the Katherine region vaccinated against in 2004 are outlined in Table 21.

Vibriosis is another disease commonly vaccinated for. Of the 48 per cent of producers who vaccinate against this, 90 per cent do so annually, with 10 per cent doing so less frequently. Bulls were mostly commonly vaccinated (69 per cent of those who vaccinate); heifers only were vaccinated on one station; and bulls and heifers were vaccinated on 28 per cent of stations.

Other Medical Treatments

Table 22 outlines the various treatments that stations in the Katherine region use on some or all of their stock. The actual products are detailed in Appendix 2. The most common treatments used on stock in the Katherine region are wound antiseptics, and hormonal growth promotants. Products such as Cydectin and Dectomax that were applied for specific uses, eg ticks, were also credited as being used for other purposes by the producer, even though they may not have specifically had that problem on the property eg worms.

National Livestock Identification System (NLIS)

At the time of the survey only three properties in the Katherine region are currently using NLIS accredited Radio Frequency Identification Devices (RFIDs) which require readers. These were two company properties and one research station. They did not specify what type of cattle they had tagged. Producers were asked if they would use NLIS tags as a management tool in the future. Sixty three per cent said no, and 27 per cent responded that they would.

TABLE 19 - AVERAGE TONNES OF HAY PRODUCED BY DISTRICT

| DISTRICT | TONNES | NUMBER OF PRODUCERS | MIN | MAX |
|---------------|--------|---------------------|------|-------|
| Kath/Daly | 5225 | 3 | 1200 | 12000 |
| Roper | 59 | 3 | 30 | 87 |
| VRD | 649 | 7 | 4 | 3000 |
| Sturt Plateau | 342 | 5 | 7 | 1300 |
| Gulf | 0 | 0 | 0 | 0 |

TABLE 20 - MOST COMMONLY SEEN ANIMAL HEALTH PROBLEMS

| TWO MAIN ANIMAL HEALTH PROBLEMS SEEN MOST COMMONLY | NUMBER TIMES MENTIONED MOST COMMON | NUMBER TIMES MENTIONED AS SECOND MOST COMMON |
|--|------------------------------------|--|
| Botulism | 12 | 2 |
| 3 day | 4 | 6 |
| Fly/Insects | 5 | 5 |
| Calving difficulties | 1 | - |
| Knuckling over | 1 | - |
| Malnutrition | 4 | 1 |
| Phosphorous deficiency | 1 | 1 |
| Prolapses | 3 | 2 |
| Tail Rot | 7 | 9 |
| Ticks | 8 | 3 |
| Vibriosis | - | 2 |
| Leptospirosis | - | 1 |

TABLE 21 - DISEASES VACCINATED AGAINST IN THE KATHERINE REGION

| DISEASE VACCINATED AGAINST | % OF PRODUCERS |
|----------------------------|----------------|
| Botulism | 96 |
| Vibriosis | 48 |
| Clostridial | 25 |
| Red Water | 12 |
| 3 day | 7 |

TABLE 22 - MEDICAL TREATMENTS USED ON STOCK IN KATHERINE REGION

| TREATMENTS | % PROPERTIES USING |
|-------------------|--------------------|
| Growth promotants | 83 |
| Wound antiseptics | 72 |
| Fly control | 65 |
| Tick control | 62 |
| Worming | 45 |
| Lice control | 2 |



TABLE 23 - ESTIMATED CURRENT AVERAGE CARRYING CAPACITY AND INCREASE OVER TIME ACCORDING TO DISTRICT

| DISTRICT | Current Av. AE/property | Estimate 5 years time | % increase on 2004 | Estimate 10 years time | % increase on 2004 |
|----------------|-------------------------|-----------------------|--------------------|------------------------|--------------------|
| Kath/Daly | 6950 | 10900 | 57 | 11900 | 71 |
| Roper | 6422 | 9100 | 42 | 10629 | 65 |
| Victoria River | 21493 | 25991 | 21 | 29963 | 39 |
| Sturt Plateau | 6012 | 7024 | 17 | 8576 | 43 |
| Gulf | 16000 | 23000 | 44 | 24250 | 5 |
| Kath Rgn | 13570 | 1696 | 25 | 19215 | 42 |

AE = adult equivalent (a standard 450kg dry cow)

TABLE 24 - METHODS USED TO ASSESS CARRYING CAPACITY OF PADDOCKS

| HOW DO YOU ASSESS CC OF A PADDOCK | % WHO USE METHOD |
|--------------------------------------|------------------|
| Grass availability and seasonal cond | 38 |
| Land type and water distributions | 20 |
| Experience/ Trial and error | 18 |
| Benchmarks from Govt or other | 15 |
| Paddock history | 15 |

GRAPH19 - UPPER LIMIT DESIRED FOR CATTLE TO HAVE TO WALK TO WATER

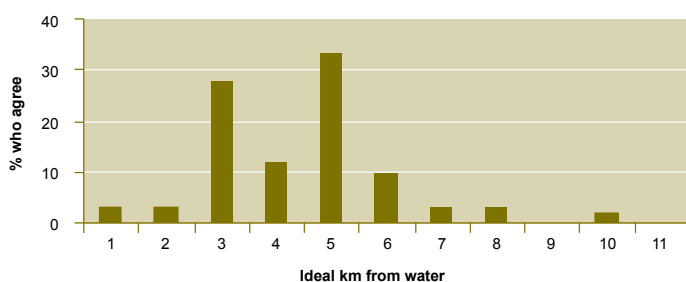


TABLE 25 - METHODS USED TO DISTRIBUTE GRAZING PRESSURE MORE EVENLY

| METHOD | % WHO USE |
|-----------------|-----------|
| Supplement | 58 |
| Fire | 28 |
| No other method | 27 |
| Wire | 10 |
| Roads | 8 |
| Turn water off | 5 |
| Handling | 3 |

Grazing Management

Carrying Capacity

The average carrying capacities as estimated by the manager of each property surveyed varied markedly between districts. The average for each district is found in Table 23. The capacities reflect the difference in average property size between the districts. Producers were also asked to give an estimate on what they felt the carrying capacity of the property might be, with the current plans for infrastructure development, in five and 10 years' time. People were generally just taking into account an increase in capacity through increased water point and fencing infrastructure development as they answered this, rather than wide scale pasture improvement.

Across the region it was estimated that an increase of 25 per cent in five years could be made with current infrastructure development plans, and an increase of 42 per cent across the region could be achieved with more infrastructure development in 10 years. This varied between districts according to their stage of development. It was estimated lower increases could be made in the Sturt Plateau and Victoria River Districts as outlined in Table 23.

Matching what a paddock can carry with actual stock numbers is an important management skill. Table 24 outlines the variety of methods that producers use to determine the carrying capacity of a paddock.

Water point development

Producers were asked the maximum preferred distance from water and any planned infrastructure, allowing for a compromise between capital development limitations and optimal cattle production. Graph 19 shows the distribution of what people think is the upper limit cattle should walk to water, as opposed to what they physically could walk. A large proportion of people felt the upper limit was 3km, while many others thought that 5km was about right. The average

TABLE 26 - AVERAGE PERCENTAGE OF PROPERTY BURNT BY INTENTIONAL AND WILD FIRE IN 2004 BY DISTRICT

| District | % property affected by wildfire | % property intentionally burnt | % property affected by fire |
|----------------|---------------------------------|--------------------------------|-----------------------------|
| Kath/Daly | 28 | 30 | 58 |
| Roper | 47 | 7 | 54 |
| Victoria River | 28 | 12 | 40 |
| Sturt Plateau | 41 | 13 | 54 |
| Gulf | 57 | 8 | 65 |

distance across the region was 4.5km, with some variation between districts: producers in the Gulf and Sturt Plateau district preferred cattle to walk less (3.5km and 3.9km respectively), while the highest figures were in Roper where the average distance was 5.9km. Producers in the Victoria River District and Katherine/Daly were fairly similar, thinking that 4.6km and 4.4km were a compromise between production and expenditure.

People were asked if they thought increasing water points within a paddock was sufficient to spread grazing pressure more evenly. Sixty per cent agreed with this, while 30 per cent felt that cattle often continued to graze in preferred areas despite new waters. Ten per cent were unsure.

Producers were asked what other methods they used to distribute grazing pressure; the most popular were supplement and fire. Table 25 details the other methods used.

Grazing Strategies

The most common grazing strategy in the Katherine region is a continuously grazed system, with one-third of producers nominating this as their only strategy. Others included rotational systems (18 per cent of properties), continuous with opportunistic spelling (25 per cent) or some other combination of these (20 per cent). Descriptions of their grazing strategy included comments such as “spell holding paddocks in the wet”, “try to use four paddock rotations”, “try to spell one paddock a year”, “spell all sale cattle and weaner paddocks” and “turn waters off to spell country that needs it”.

Fifty per cent of all properties surveyed had at some time excluded certain areas of the property from regular grazing. Examples of these included fencing off riparian areas or fragile country, to spell areas that needed it and to conserve areas of special significance. Of the people who had not excluded areas from grazing, half said they would consider

excluding areas in the future if the situation required.

Twenty three per cent of respondents had attended a Grazing for Profit course, with 93 per cent of attendees saying they had changed practice or made management decisions as a result. Seventeen per cent had attended a Grazing Land Management course with all of them saying they had made management decisions or changed practice as a result.

Fire

In the 12 months leading up to September 2004 the average amount of property burnt by wildfire in the Katherine region based on producer estimates was 37 per cent. This was affected by the relatively high amounts in the Gulf and Roper regions (Table 26).

The amount of wildfire experienced by producers probably affected the amount of intentional burning carried out, which across the region averaged 13 per cent of the property, with the highest being in the Katherine/Daly district. On average, 50 per cent of the property was burnt across the Katherine region in 2004.

Producers stated they lit intentional fires to manage their properties in a variety of ways. These included wildfire prevention (45 per cent of people), removing rank grass/moving cattle to green pick (58 per cent), controlling woody shrubs (53 per cent) and managing pasture composition with fire (3 per cent).

Generally it was stated that cooler fires were used to burn for wildfire prevention, managing species composition and removing rank grass. It seemed to be fairly common to wait until after the first rains to burn for rank grass removal.

Most producers agreed that hotter, more intense fires were required to control woody tree and shrub build-up.

However, a small percentage of producers felt that cool, early burns were sufficient to control woody weeds, and that hot fires should be used to remove rank pasture.



TABLE 27 - AVERAGE AREA OF IMPROVED PASTURE ACCORDING TO DISTRICT

| DISTRICT | AVERAGE AREA OF FULLY IMPROVED (HA) | AVERAGE AREA AUGMENTED (HA) |
|----------------|-------------------------------------|-----------------------------|
| Kath/Daly | 4 | 50 |
| Roper | 1 | 104 |
| Victoria River | 38 | 80 |
| Sturt Plateau | 9 | 38 |
| Gulf | 0 | 0 |

Improved Pasture

Thirty five per cent of producers indicated they had areas of fully improved pasture on their station. Thirty three per cent indicated they had areas of pasture, mainly legumes, that were distributed over larger areas among native pastures – also known as augmenting. The regional breakdowns are found in Table 27. One special case property which had wide scale rehabilitation with more than 1000 ha of improved pasture was taken out of the average for the Victoria River District. Many people had difficulty answering the question of area of improved pasture as much of it was scattered thinly over large areas.

When asked the reason for using improved pastures producers replied:

- Special purpose areas such as holding paddocks (38 per cent of properties)
- Hay production (13 per cent)
- Rehabilitation (2 per cent)
- Improving diet quality in a native pasture system (53 per cent)
- Improving diet quality in an improved pasture system (7 per cent)

Species of concern for unwanted spread of improved pasture were Gamba grass, Wyn Cassia, Leucaena, Mission grass, Stylo's and Indian blue grass.

Natural Resource Management

Native tree and shrub build-up

Seventy-nine per cent of producers in the Katherine region have noticed a build-up of native trees or shrubs on their property. Of these, 42 per cent felt it was a major concern, 27 per cent thought it a minor concern and 10 per cent didn't feel that it was a concern to them. Those who had noticed a build-up occurring were asked to rate the effect it had on mustering and pasture growth and quality – with a score of 1 being not affected to 5 being greatly

affected. Fifty three per cent of producers rated the effect on pasture growth as a 3 or higher, and 55 per cent rated effect on mustering as a 3 or higher.

Other problems caused by this tree/shrub build-up besides its effect on mustering and pasture growth included damaging fence lines, the cost of removal, erosion underneath due to reduced grass cover and losing biodiversity.

Producers were asked if they were doing anything to control the build-up of trees and shrubs. Eighty per cent were doing nothing as they felt unable to do anything, or that it was not an issue. The most popular method of control was burning, with half of producers surveyed using this technique. Other methods mentioned were poisoning and adjusting grazing management to allow pasture to better compete and clearing.

Weeds

Producers were asked to give an overall rating that encompassed environmental and economic considerations as to the impact of different weed species on their station. Graph 20 shows the overall ratings for the major weed species in the Katherine region. It demonstrates that while weeds such as *Crotalaria*, *Hyptis*, Rubber bush and *Sida* are widely distributed, they generally are having a low impact. A regional breakdown of impact and presence of weeds is shown in Appendix 3. Most producers said this low impact was due to the very small percentage of the property they covered, but this meant that if they increased in area their impact would also rise. This understanding has resulted in high numbers of people being aware of the need to focus on preventing the introduction of new weed species, and control the increase of existing species. Table 28 shows the species present on properties, and the percentage of affected producers trying to control them.

GRAPH 20 - IMPACT OF WEED SPECIES ACROSS THE KATHERINE REGION

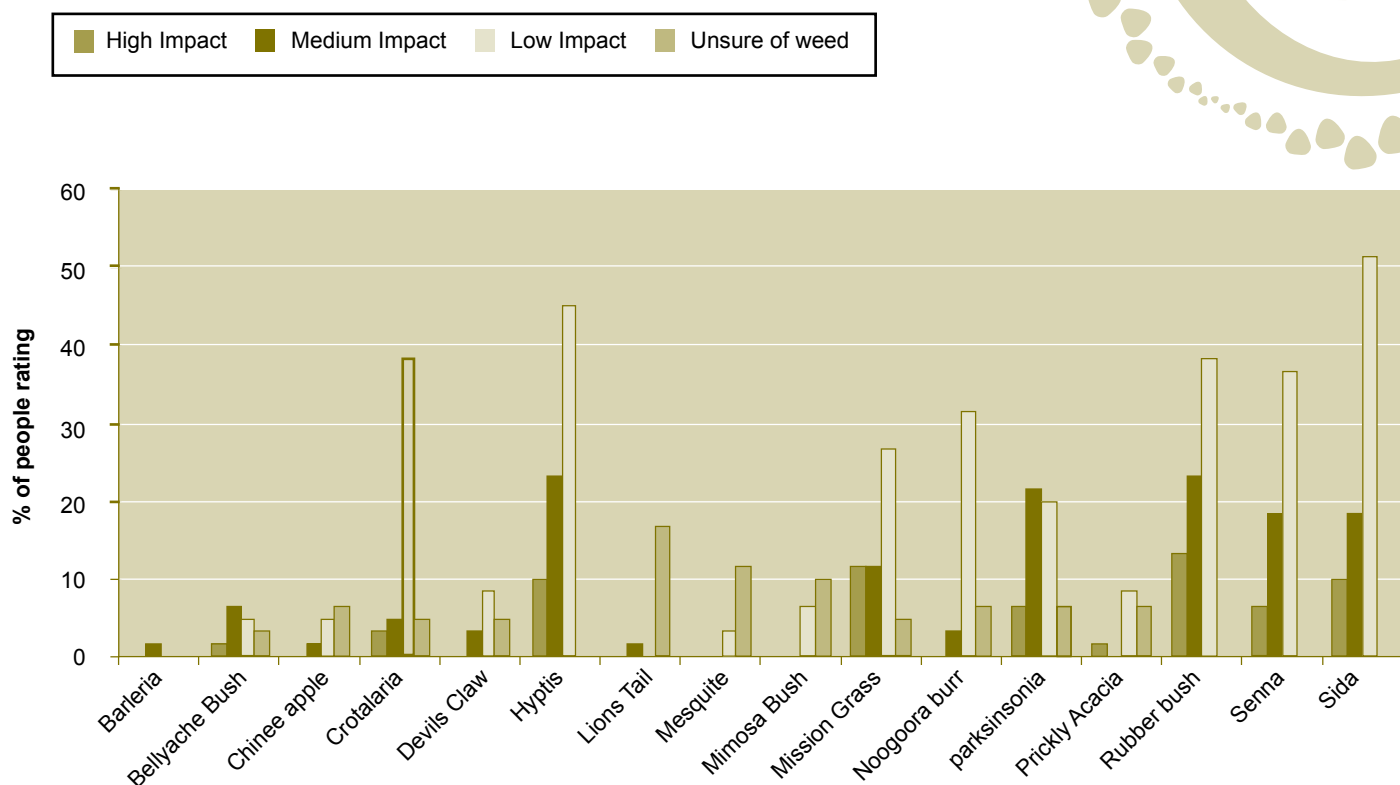


TABLE 28 - SPECIES OF WEEDS PRESENT IN THE KATHERINE REGION AND THE PERCENTAGE OF PEOPLE ATTEMPTING TO CONTROL THEM

| WEED | % PROPERTIES PRESENT | % PROPERTIES WHERE PRESENT ATTEMPTING CONTROL |
|-------------------------|----------------------|---|
| Barleria | 2 | 100 |
| Bellyache bush | 13 | 88 |
| Chinee apple | 10 | 100 |
| Crotalaria | 47 | 29 |
| Devils claw | 12 | 100 |
| Hyptis | 78 | 70 |
| Lions tail | 3 | 100 |
| Mesquite | 3 | 50 |
| Mission grass/penicetum | 50 | 40 |
| Noogoora burr | 35 | 48 |
| Parkinsonia | 48 | 86 |
| Prickly acacia | 10 | 67 |
| Rubber bush | 75 | 40 |
| Senna | 62 | 65 |
| Sida | 80 | 65 |

TABLE 29 - STRATEGIES MANAGERS USED TO PREVENT THE INTRODUCTION OF WEEDS ONTO THEIR PROPERTY

| PERCENTAGE WHO USE STRATEGY | % |
|---|----|
| Buy clean hay (try) | 52 |
| Wash down machinery | 25 |
| Quarantine incoming stock | 20 |
| Feed in one area | 12 |
| Make own hay | 10 |
| Be vigilant and able to identify weeds | 7 |
| Regulate movement of people on property | 5 |

TABLE 30 - AVERAGE AMOUNT SPENT ON WEED CONTROL ACCORDING TO DISTRICT

| DISTRICT | AVERAGE \$ SPENT ON WEED CONTROL PER YEAR | MINIMUM \$ PER YEAR | MAXIMUM \$ PER YEAR |
|----------------|---|---------------------|---------------------|
| Kath/Daly | 9000 | 1000 | 26000 |
| Roper | 3786 | 1000 | 7500 |
| Victoria River | 14636 | 600 | 150000 |
| Sturt Plateau | 2295 | 80 | 7500 |
| Gulf | 1140 | 0 | 5000 |

GRAPH 21 - IMPACT OF PEST ANIMALS

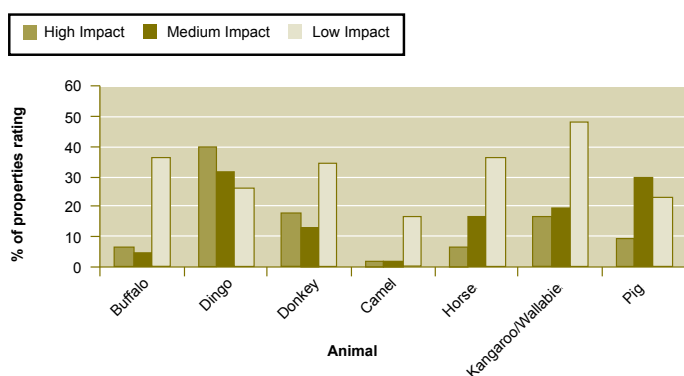


TABLE 31 - AVERAGE AMOUNT SPEND ON PEST ANIMAL CONTROL ACCORDING TO DISTRICT

| DISTRICT | AVERAGE \$ SPENT ON FERAL CONTROL | MINIMUM \$ SPENT IN DISTRICT | MAXIMUM \$ SPENT IN DISTRICT |
|----------------|-----------------------------------|------------------------------|------------------------------|
| Kath/Daly | 920 | 100 | 2000 |
| Roper | 4167 | 100 | 20000 |
| Victoria River | 6591 | 600 | 40000 |
| Sturt Plateau | 652 | 0 | 4000 |
| Gulf | 2900 | 1000 | 10000 |

Eighty six per cent of producers said they made a planned effort to prevent the introduction of weeds on to their property. The most popular strategy was to buy clean hay. Many said this was often difficult. Table 29 shows the percentage of properties using different strategies.

The average amount of money spent on weed control per property across the Katherine region in 2004 was \$8154. Table 30 reveals the largest amount spent was in the Victoria River District which has been more impacted by weeds. Producers in the Gulf spent the least.

Pest Animals

It is difficult to quantify the effects of pest animals on production and the environment, so producers were asked to rate the overall effect on their enterprise as being low, medium or high. Graph 21 shows the impact of each animal considered to be pests, including kangaroos and wallabies, which add unwanted grazing pressure. Wild dogs were regarded as having the highest impact across the Katherine region. Buffalo, donkeys, horses, kangaroos and wallabies were all found on a high number of properties but were assessed as having a low impact on environment or economics.

There was a large variation between districts in making up this regional average, and the complete tables of impact by district can be found in Appendix 4.

How often producers responded that they tried to control a pest was a factor of how highly they rated their impact. Wild dogs had a high impact, with 92 per cent of producers saying they attempted to control them. The other species where some control was attempted include: donkeys (55 per cent of properties), pigs (52 per cent), horses (47 per cent), buffalo (33 per cent) and camels (7 per cent). A high proportion of producers said the number of kangaroos and wallabies was increasing at a rate that was cause for concern, and that control methods should be considered.

Producers were asked to estimate the amount of money they were spending on pest animal control. The amount spent on average in each district is shown in Table 31. The overall average for the region was \$3951, including labour costs.

Business

Staff

Problems with recruiting and retaining skilled staff surfaced in many areas of this survey. Forty-three per cent of producers said that day-to-day operations were often limited by staff availability and turnover. The 57 per cent who said operations were not limited, usually qualified this with a comment along the lines of “no, we usually manage, somehow”, but many indicated the problems increased the pressures on existing staff and management.

Staff are primarily recruited through word of mouth, with more than 75 per cent of properties using this method. Other ways in which staff are recruited, in conjunction with word of mouth, are outlined in Graph 22. Less common methods included finding them at the pub, and registering with the Willing Workers on Organic Farms organisation which provides volunteers for organic enterprises.

Staff training is formally provided on 60 per cent of stations in the Katherine region, with the figure reaching 95 per cent on company properties. Thirty three per cent of properties provided formal on-the-job training. Other training commonly undertaken included horsemanship/shoeing (23 per cent of properties), first aid (13 per cent), pregnancy testing/spaying (12 per cent) rangeland management courses, Jabiru human resource management, EDGE network courses, mechanics/welding (8 per cent) and low stress stockhandling (7 per cent).

Bench marking and planning

Property management plans are found on 46 per cent of stations in the region. Of these, 100 per cent covered financial management, 25 per cent covered human resource management, 57 per cent covered natural resource management and 54 per cent covered sustainable production systems.

Benchmarking is a useful tool to draw “a line in the sand” to help measure future progress and monitor plans. Eighty-three per cent of producers indicated they understood what benchmarking was, and 68 per cent said they used financial or production benchmarks to aid their management. Fifty five per cent of producers said they used benchmarks to manage their natural resources. Table 32 outlines the different types of natural resource benchmarks used.

GRAPH 22 - METHODS OF RECRUITMENT

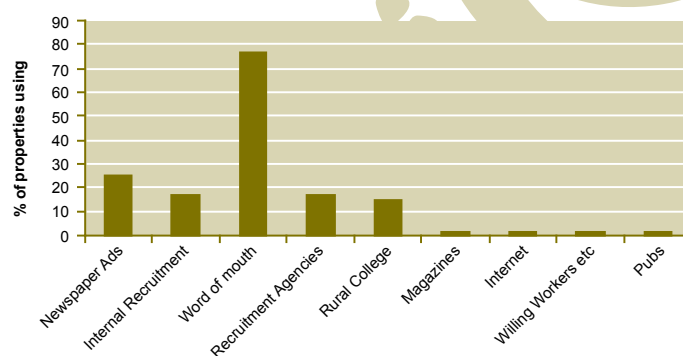


TABLE 32 - NATURAL RESOURCE MANAGEMENT BENCHMARKS USED BY PRODUCERS IN KATHERINE REGION

| BENCHMARK | % WHO USE |
|--|-----------|
| Photos | 42 |
| Weed and erosion maps | 35 |
| Pasture monitoring | 13 |
| In head | 10 |
| Tier One data | 10 |
| Wildlife/Biodiversity surveys | 6 |
| General industry production | 6 |
| Recommended stocking rates | 6 |
| Notes and diaries | 3 |
| Other properties | 3 |
| Rainfall and seasonal growth summaries | 3 |

TABLE 33 - PERCENTAGE OF PEOPLE WHO MENTIONED THE HURDLES FACED BY MANAGEMENT

| ISSUE | % WHO MENTIONED |
|--|-----------------|
| Staff issues | 26 |
| Finances, Cost of production, Cash flow | 11 |
| Distances and access | 10 |
| NRM issues - weed management and erosion control | 7 |
| Managing in a tropical environment- ticks, low protein feed, | 7 |
| Time management | 6 |
| Lack of infrastructure | 6 |
| Wildfires | 5 |
| Seasonal issues - big wet seasons & long dry seasons | 6 |
| Cattle control | 5 |
| Market issues | 3 |
| Communication and education | 3 |
| No major | 3 |
| Fertility of herd | 3 |

TABLE 34 - FACTORS MOST AFFECTING THE PROFITABILITY OF ENTERPRISES IN THE KATHERINE REGION

| ISSUE | % WHO MENTIONED |
|------------------------------|-----------------|
| Costs of production | 20 |
| NRM issues | 20 |
| Production issues | 17 |
| Uncertainty over markets/A\$ | 15 |
| Lack of infrastructure | 12 |
| Prices | 10 |
| Seasonal issues | 8 |
| Poor roads | 7 |
| Outside community pressure | 3 |
| Lack of cashflow | 3 |

Financial

Sixty eight per cent of properties indicated they had some form of finance. The most common finance in the Katherine region is from an NT branch of one of the major trading banks (39 per cent of properties who had finance). Other sources of finance include agribusiness, agricultural banks, major trading banks, interstate branch and company finance, Australian or international.

Twenty-seven per cent of producers said they had other forms of income beside cattle production on their property. These included hay production (six properties), earthmoving and fence contracting (one), horticulture (one), roadhouse (one) and tourism ventures (two).

Information Delivery and Management

Producers in the Katherine region use an array of technology to help them manage. The most popular sources of information were the Bureau of Meteorology website (85 per cent) and the FireNorth website (83 per cent). Many people are using email (72 per cent) and the internet (60 per cent), with lesser numbers using computer programs such as herd modelling programs (28 per cent), recording programs (33 per cent), spreadsheets (2 per cent) and Electronic Identification (EID) technology (7 per cent).

Priorities

What are the hurdles faced by the pastoral industry?

To capture a snapshot of the problems faced by pastoralists managing a cattle station in the Katherine region we asked them to name the major hurdles they faced. The responses were many and varied, with the most common being staffing issues. These included difficulties in attracting enough staff to cope with the workload, and often it is impossible to get experienced staff. Also mentioned was the difficulty in retaining staff for more than one season, so that each year they have to train inexperienced staff.

Others issues frequently mentioned were the costs of production and lack of finance/cash flow, the problems of large distances and often poor access. The hurdles discussed and the percentages of producers who mentioned them are found in Table 33.

To gain a more in-depth view of issues, pastoralists were asked to outline the factors they felt most impacted on their economic and environmental sustainability.

Table 34 shows that rising costs of production and natural resource management issues such as fire, weeds, pest and overgrazing were mentioned by the largest number of producers as affecting their economic sustainability.

The issues mentioned as having the most effect on future environmental sustainability were weeds - named by 45 per cent of producers as a major threat - and erosion, named by 20 per cent. Many respondents named more than one; Table 35 outlines the variations. A few issues were mentioned by only one or two producers. For example, one pastoralist thought US President George W. Bush was possibly the biggest threat to our environmental sustainability. Another felt that clearing could be the biggest threat. Two producers said not being able to clear was a major threat - they wanted to clear areas to invest in improved pasture production which they felt would enable them to lighten off stocking rates on the rest of their properties.

What are the plans for infrastructure development?

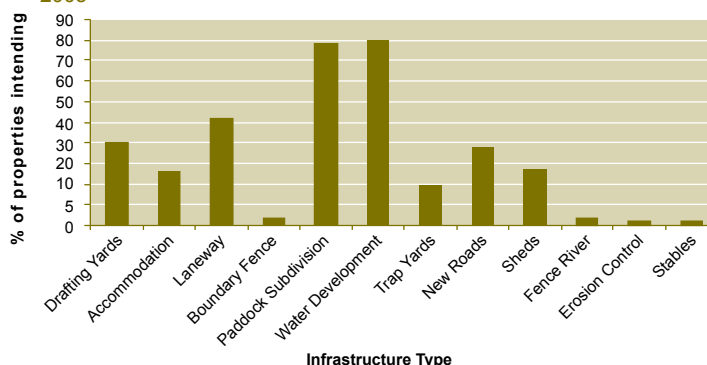
Managers were asked to nominate the type of infrastructure development they intended to undertake in 2005.

The development most commonly planned was paddock subdivision and water point development, demonstrated in Graph 24. All properties indicated they would be undertaking some form of infrastructure development in 2005 (Graph 23). When asked their priorities, they nominated increasing waters and reducing the size of paddocks as being the most important, followed by roads, laneways and drafting yards.

TABLE 35 - FACTORS MOST AFFECTING THE ENVIRONMENTAL SUSTAINABILITY OF ENTERPRISES IN THE KATHERINE REGION

| ISSUE | % WHO MENTIONED |
|--|-----------------|
| Weeds | 45 |
| Erosion | 20 |
| Woody shrub encroachment | 13 |
| Ability to plan and monitor rangeland management | 10 |
| Wildfire | 10 |
| Ill-advised community pressure | 10 |
| Overgrazing | 7 |
| Pest Animals | 7 |
| Changing pasture composition | 5 |
| Managing for climate variability and change | 5 |
| Not being able to clear | 3 |
| Lack of cash flow | 2 |
| Ability to match stocking rate and carrying capacity | 2 |
| Lack of government funding | 2 |
| Clearing | 2 |

GRAPH 23 - INTENDED INFRASTRUCTURE DEVELOPMENT FOR 2005



GRAPH 24 - PRIORITIES FOR INFRASTRUCTURE DEVELOPMENT ON PROPERTIES IN KATHERINE REGION

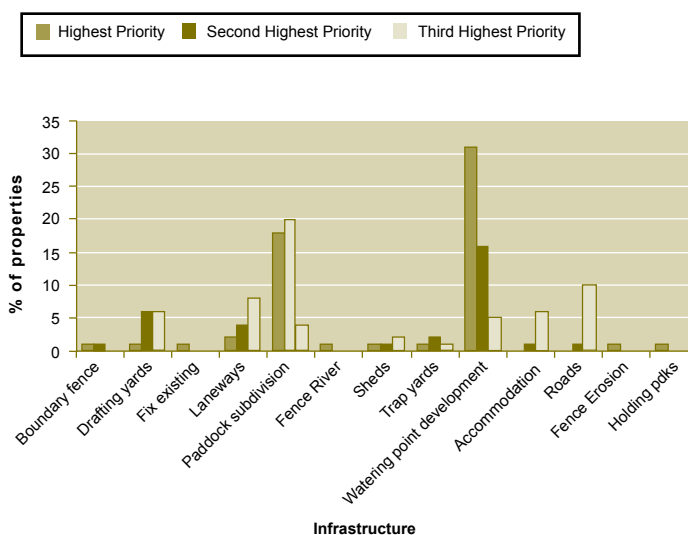


TABLE 36 - PERCENTAGE OF PEOPLE WHO FELT EMERGING ISSUES WERE RELEVANT TO INDUSTRY

| ISSUE | % WHO THINK RELEVANT | % OF THESE WHO HAVE TAKEN ACTION |
|---------------------------------|----------------------|----------------------------------|
| Environmental Management System | 82 | 30 |
| Conservation planning | 77 | 22 |
| Biodiversity conservation | 77 | 18 |
| Quality Assurance Schemes | 55 | 22 |
| Organic accreditation | 32 | 2 |
| Eco tourism | 28 | 2 |

What emerging issues do pastoralists feel are relevant?

Producers are under increasing community pressure about how they manage their land and produce their cattle. A series of questions was designed to gauge the attitude of producers to these “emerging” issues, with the view that it will provide a benchmark of attitudes for several years, and also to document the large amount of work producers are already doing to meet consumer demand for a quality product produced in an environmentally friendly way.

Table 36 shows the issues producers were asked that they felt were relevant to industry and, if they thought they were relevant, whether or not they had investigated them or taken any action.

The issues producers felt were most relevant and had taken action towards were in the area of environmental management. The type of action outlined here included attending grazing land management courses and undertaking conservation plans with local Landcare groups, carrying out wildlife surveys, fencing rivers and, in one case, preparing to take ISO 14000 accreditation (ISO 14000 is an internationally recognised accreditation system for environmental management standards that can be adopted by any organisation and reviewed and certified by an accredited body).

The least popular concepts were quality assurance schemes which many respondents felt did not produce enough benefits to justify the extra paperwork. Most pastoralists felt organic accreditation would be too difficult given the need for botulism vaccination and that it was not relevant to the predominantly export market.

Animal welfare was considered an emerging issue facing the industry, which most pastoralists said they addressed as part of good cattle management for production.

What motivates people to be part of the pastoral industry?

After time spent discussing the endless number of hurdles faced by pastoralists in the Katherine region it was pleasing to see that despite this, people involved in the industry generally have a real passion for the land, their cattle and their industry. Producers were asked at the end of the survey why they chose to be a member of the pastoral industry. The answers were many and varied, but the most common response was the lifestyle, which 41 per cent mentioned directly as being their motivation to work in the industry. Eight per cent said they didn't know anything else or had no other skills, and 30 per cent said they were born into it.

Some of the responses are given here, and make for entertaining reading.

"Couldn't live anywhere else - wouldn't want to live anywhere else."

"It's my heritage, my family are in the pastoral industry and I grew up with it."

"Love the lifestyle, fifth generation grazier, it's in the blood. It is a lifestyle, but we run it as a business."

"Lived it all our lives, like the lifestyle and are interested in cattle breeding. Though 'sometimes I wonder'."

"Family tradition."

"Both grew up in it."

"Lifestyle".

"Mad in the head."

"Enjoy it."

"Because I like it."

"Got stuck in it."

"Always been involved in cattle."

"Don't want to do anything else, grew up with it."

"Opportunity, lifestyle, current market conditions."

"Born into it, don't know any other life."

"Stupidity - grown up with it, it's what I like doing and have good skills in."

"It's what you've always wanted to do."

"Grew up in it and done nothing else."

"Challenging, interesting, good people and I like cattle."

"We like it!"

"There's nothing else I'd rather do."

"There is nothing better."

"Creates a good balance, combination of nature and animals and a necessity to be smart business people and challenge all facets of intelligence - HR, marketing, animal production, natural resource management."

"Some are born into it, some grow into it, and some have it thrust upon them."

"It's the most challenging, dangerous and exciting thing you can do for the least reward."

"Love the lifestyle."

"Enjoy it, don't know anything else."

"Born into it, what else would you do?"

"Just lucky I guess. Country, cattle, kids."

"Freedom, love cattle, sense of achievement, challenge."

"It's what I understand the best."

"Masochistic. Family tradition. Imagined lifestyle benefits."

"The only industry I have worked in."

"Because I like it and because I was born into it."

"The lifestyle and the love of horses and cattle."

"Born into it, like working cows."

"Adventure initially and now lifestyle."



TABLE 37 - COMPARISON OF THE KATHERINE REGION
PASTORAL INDUSTRY IN 1983 AND 2004

| PRACTICE | 1982 | 2004 |
|---|------|------|
| % doing two or more full rounds | 9 | 87 |
| Branding / weaning | 45 | 71 |
| % who wean males | 68 | 100 |
| % who wean females | 35 | 100 |
| % who attempt to segregate maiden heifers | 21 | 79 |
| % who supplement | 35 | 98 |
| % turn-off live export | 6 | 89 |
| % turn-off meatworks | 66 | <1 |
| Av. Number main turn-off months | 6 | 3 |
| Av. bull % | 4.3 | 4.4 |
| Percentage of properties with less than 50% of the herd showing Bos indicus blood | 68 | 0 |

How the Katherine Pastoral Industry has changed 1980 – 2004

To gain an understanding of how the industry has changed since the last survey was carried out we have noted some of the major issues and the type of changes that have occurred.

The last survey in the area was carried out specifically on the Victoria River District, but it has been useful as a basis for comparison of practice across the Katherine region as surveyed in 2004.

In many cases, the industry has changed so much there was no point in revisiting many of the questions asked 22 years previously. The topics covered in the 1982 survey act as a useful indicator of the concerns of industry. In that survey there was much emphasis on the Brucellosis/Tuberculosis Eradication Campaign (BTEC) and very little on grazing management and environmental issues.

The seasons in 1982 and 2004 were both regarded to be generally good, with adequate rainfall to ensure good stock and pasture conditions across the region.

However, industry conditions were quite different. In 1982 producers were still recovering from the beef slump of the 1970s, with the level of management appearing to have decreased since 1973 when the industry was buoyant. In 2004 the success of the export trade had increased confidence within industry, resulting in spending on variable costs such as supplement and plans to invest in capital development.

Other major differences were in the area of production, with huge gains being made since 1982 when the average branding rate was 45 per cent. In

2004 a weaning percentage as opposed to a branding percentage was collected and was found on average to be 71 per cent, but as losses between branding and weaning are considered to be minimal it is useful for comparison.

A number of husbandry changes have occurred which no doubt have contributed to this increase in productivity, including the level of supplementation and improved weaning practice. Heifers are being managed more closely which also may contribute to increased productivity.

The increased level of infrastructure development allowed by an increase in price received and productivity (ie branding/turn-off gains) of the industry during the past 15 years most likely also contributed, as more paddocks and watering points have evened out stocking rates and allowed better cattle control.

In 1982 pastoralists reported that on average 40 per cent of their properties were paddocked. This information was not sought in 2004 because it was assumed that most areas that are topographically suitable are paddocked. Instead, intention to subdivide paddocks was asked as the trend is to make the larger paddocks smaller.

Portable yards played an important role in the management of cattle in 1982; with 87 per cent of producers using them to muster that season. Anecdotally, during the survey interviews it seemed there was a low reliance on portable yards in 2004.

Of particular note in Table 37 are the changes in breeds used and the market destinations.

Another change due to the different market has been the main turn-off months and the number of months in which producers turn cattle off. In 1982 over half the producers turned cattle off over a period of five to eight months. In 2004 it was more common to only turn cattle off in three or four months of the year. In 1982 the major turn-off months were from May to October, while in 2004 the most significant turn-off months were April, May and July reflecting the decreased flexibility of not having meatworks to deliver to all season

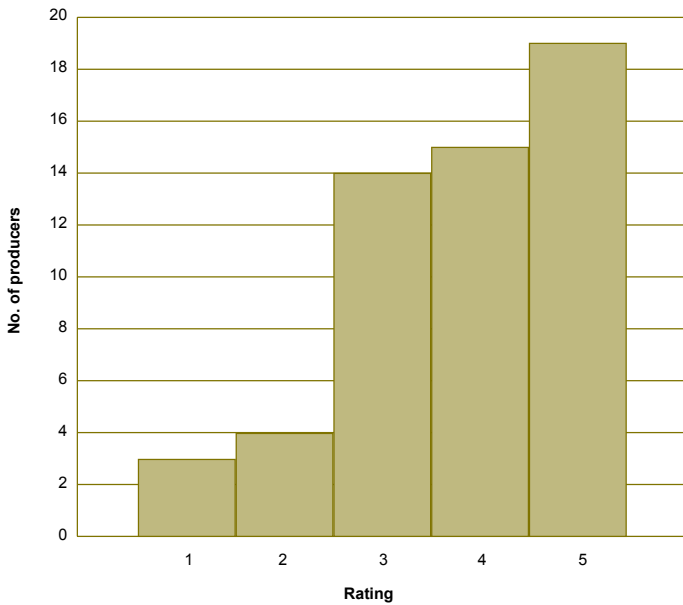
Some practices have remained the same, including the bull percentage that people run on average, which has had no significant change in 22 years. Overall, comparisons such as this document an industry which has made rapid change to adapt and take advantage of opportunities that have arisen.

Appendices

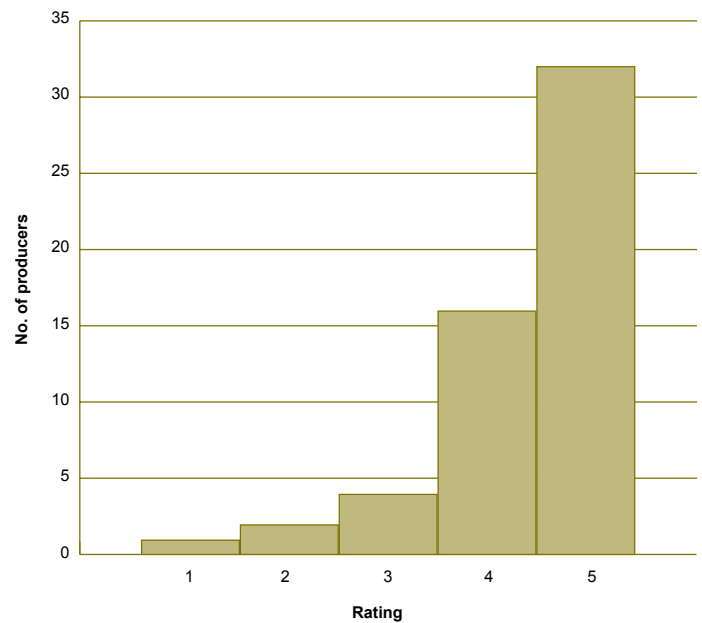
Appendix 1 - Rating of importance of various criteria for heifer selection

How producers rated the importance of the following criteria when selecting joiner heifers. Rating scale is one, not important, to five, very important.

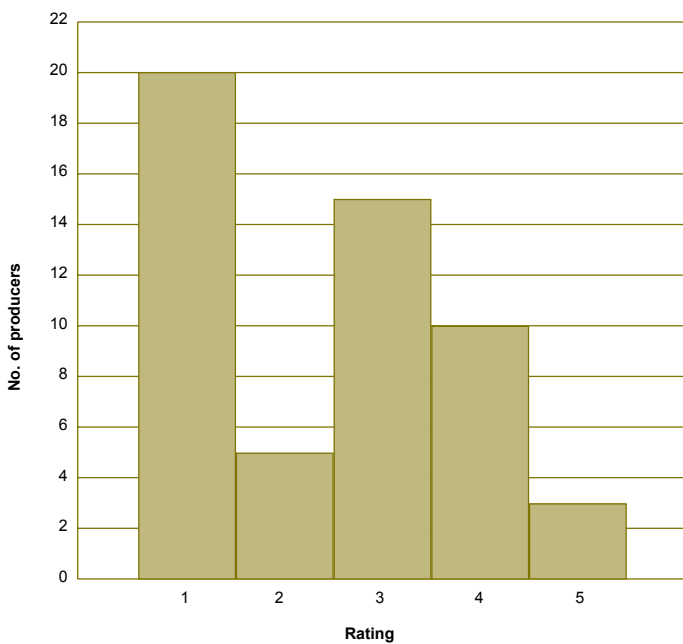
Weight



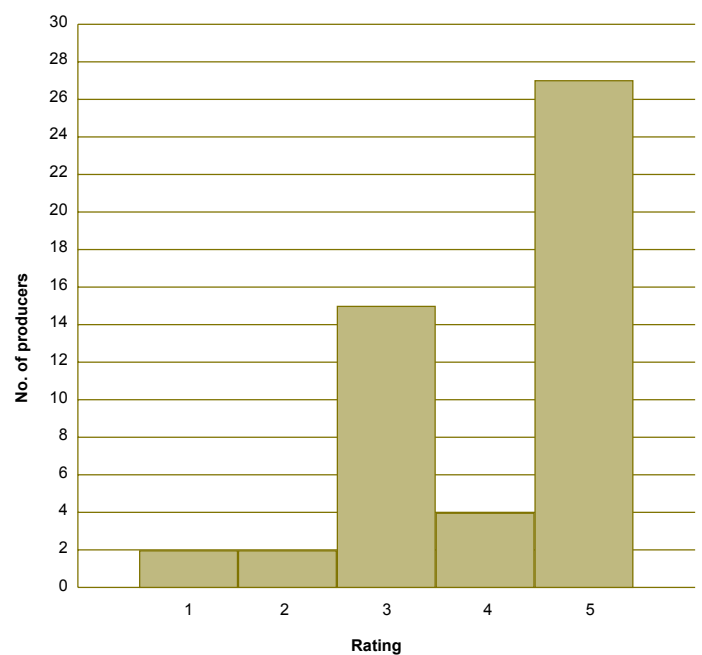
Conformation



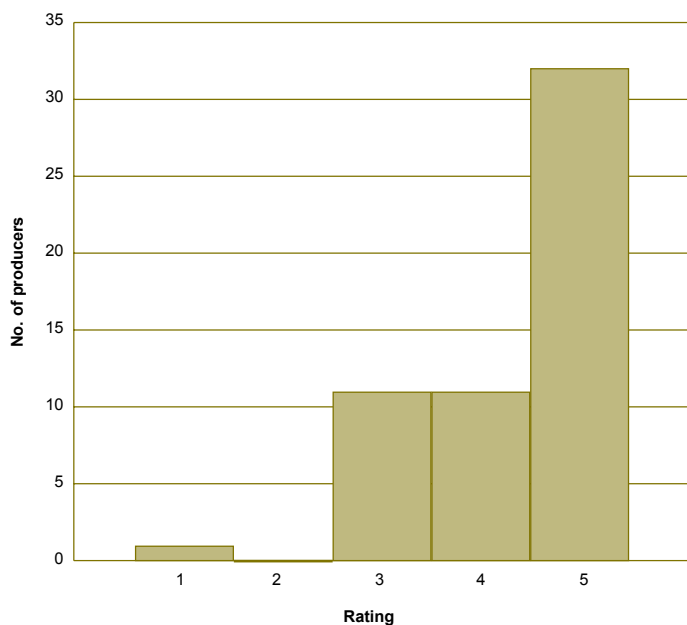
Colour



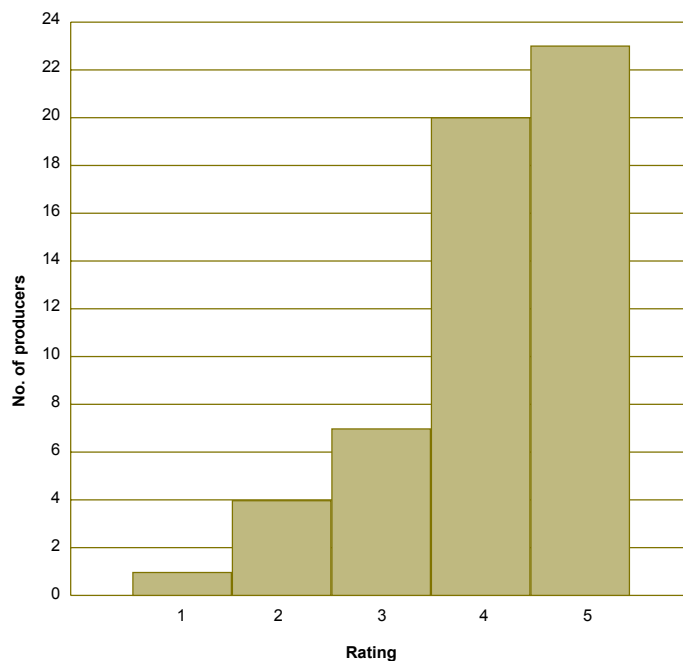
Fertility



Temperament



Type



Appendix 2 - Medical Treatments used on Stock in the Katherine Region

| REASON USED | WORMS | NO. WHO USE | FLIES | NO. WHO USE | LICE | NO. WHO USE | TICKS | NO. WHO USE | WOUND ANTISEPSIS | NO. WHO USE | GROWTH PROMOTANTS | NO. WHO USE |
|-------------|------------|-------------|---------------|-------------|--------------|-------------|--------------|-------------|-------------------|-------------|-------------------|-------------|
| Product | Bayomec | 1 | Barricade | 1 | Bayomax | 1 | Acatak | 8 | Defiance | 33 | Compudose 100 | 2 |
| | Cydectin | 11 | Bayomec | 1 | Bayticol Dip | 3 | Barricade | 1 | Farmers Friend | 1 | Compudose 200 | 11 |
| | Dectomax | 10 | Bayticol Dip | 3 | Brute | 1 | Bayomax | 1 | Hibitane | 12 | Compudose 400 | 30 |
| | Ivermectin | 1 | Brute | 1 | Cydectin | 6 | Bayticol Dip | 14 | Kleendok | 1 | HGP unspecified | 2 |
| | Maximin | 1 | Clout S | 2 | Dectomax | 3 | Brute | 1 | Nucidol | 1 | Revalor | 5 |
| | Paramax | 3 | Cooper Fly | 2 | Demise | 1 | Cydectin | 4 | Stockholm Tar | 6 | Revalor G | 8 |
| | | | Cydectin | 6 | Tiguvon | 1 | Dectomax | 2 | Zeeolite/ Ti-tree | 1 | Synavex | 2 |
| | | | Dectomax | 3 | | | Paramax | 1 | | | | |
| | | | Demise | 5 | | | Spike Tags | 1 | | | | |
| | | | Spike Tags | 3 | | | Ticksafly | 1 | | | | |
| | | | Stockholm Tar | 2 | | | | | | | | |
| | | | Sumafly | 7 | | | | | | | | |
| No. using | | 27 | | 36 | | 16 | | 34 | | 55 | | 67 |

Two producers also used Vitamin A,D and E injections.

Appendix 3 - Impact of Different Weeds According to District

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|----------------------------|----------------|-----|------------|-----|----------------|-----|---------------|-----|------|-----|
| Weeds having a HIGH impact | Hyptis | 2 | Crotalaria | 1 | Bellyache bush | 1 | Crotalaria | 1 | | |
| | Prickly acacia | 1 | Hyptis | 1 | Hyptis | 3 | Senna | 1 | | |
| | Rubber bush | 2 | Sida | 1 | Mission grass | 7 | Sida | 1 | | |
| | Senna | 1 | | | Parkinsonia | 4 | | | | |
| | Sida | 1 | | | Rubber bush | 6 | | | | |
| | | | | | Senna | 2 | | | | |
| | | | | | Sida | 3 | | | | |

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|------------------------------|----------------|-----|----------------|-----|----------------|-----|---------------|-----|------|-----|
| Weeds having a MEDIUM impact | Bellyache bush | 1 | Bellyache bush | 1 | Barleria | 1 | Crotalaria | 1 | Sida | 1 |
| | Devils Claw | 2 | Crotalaria | 1 | Bellyache bush | 1 | Hyptis | 1 | | |
| | Hyptis | 3 | Hyptis | 4 | Chinee apple | 1 | Noogoora burr | 1 | | |
| | Rubber bush | 3 | Mission grass | 2 | Crotaria | 1 | Rubber bush | 1 | | |
| | Senna | 3 | Noogoora burr | 1 | Hyptis | 6 | Sida | 1 | | |
| | Sida | 3 | Parkinsonia | 1 | Lions Tail | 1 | | | | |
| | | | Rubber bush | 3 | Mission grass | 5 | | | | |
| | | | Senna | 2 | Parkinsonia | 12 | | | | |
| | | | | | Rubber bush | 7 | | | | |
| | | | | | Senna | 6 | | | | |
| | | | | | Sida | 6 | | | | |

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|---------------------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| Weeds having a LOW impact | Bellyache bush | 2 | Crotalaria | 3 | Bellyache bush | 1 | Crotalaria | 7 | Crotalaria | 2 |
| | Crotalaria | 3 | Devils claw | 3 | Chinee apple | 3 | Hyptis | 12 | Hyptis | 4 |
| | Devils claw | 1 | Hyptis | 4 | Crotalaria | 8 | Mesquite | 1 | Mission grass | 1 |
| | Hyptis | 1 | Mesquite | 1 | Devils claw | 1 | Mission grass | 1 | Parkinsonia | 2 |
| | Mission grass | 2 | Mimosa bush | 1 | Hyptis | 6 | Noogoora burr | 8 | Prickly acacia | 1 |
| | Noogoora burr | 2 | Mission grass | 5 | Mimosa bush | 3 | Prickly acacia | 1 | Senna | 2 |
| | Parkinsonia | 1 | Noogoora burr | 4 | Mission grass | 7 | Rubber bush | 6 | Sida | 2 |
| | Rubber bush | 2 | Parkinsonia | 3 | Noogoora burr | 5 | Senna | 11 | | |
| | Senna | 1 | Prickly acacia | 2 | Parkinsonia | 6 | Sida | 12 | | |
| | Sida | 1 | Rubber bush | 5 | Prickly acacia | 1 | | | | |
| | | | Senna | 3 | Rubber bush | 10 | | | | |
| | | | Sida | 7 | Senna | 5 | | | | |
| | | | | | Sida | 8 | | | | |

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|------------------------------|----------------|-----|---------------|-----|----------------|----------------|---------------|-------------|---------------|-----|
| UNSURE of weed or its effect | Bellyache bush | 1 | Chinee apple | 1 | Lions Tail | 2 | Chinee apple | 2 | Barleria | 1 |
| | Crotalaria | 1 | Crotalaria | 1 | Mesquite | 2 | Crotalaria | 1 | Chinee apple | 1 |
| | Lions Tail | 4 | Lions Tail | 2 | Mimosa bush | 1 | Devils claw | 2 | Devils claw | 1 |
| | Mesquite | 2 | Mesquite | 1 | Mission grass | 1 | Lions Tail1 | 1 | Lions Tail | 1 |
| | Mimosa bush | 2 | Mimosa bush | 1 | Noogoora burr | 1 | Mesquite | 1 | Mesquite | 1 |
| | Noogoora burr | 1 | Noogoora burr | 1 | Prickly acacia | 1 | Mimosa bush | 1 | Mimosa bush | 1 |
| | Parkinsonia | 1 | Parkinsonia | 1 | | | Mission grass | 1 | Mission grass | 1 |
| | Prickly acacia | 2 | | | | | Parkinsonia | 1 | Noogoora burr | 1 |
| | | | | | | Prickly acacia | 1 | Parkinsonia | 1 | |

Appendix 4 - Impact of Pest Animal Species According to District

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|-----------------------------------|----------------|-----|------------------|-----|-------------------|-----|---------------|-----|------------------|-----|
| Pest animals having a HIGH impact | Buffalo | 1 | Buffalo | 3 | Wild dog | 13 | Wild dog | 4 | Wild dog | 3 |
| | Wild dog | 2 | Wild dog | 2 | Donkey | 6 | Donkey | 1 | Donkey | 1 |
| | Donkey | 3 | Donkey | 2 | Camel | 1 | | | Horse | 1 |
| | | | Kangaroo/Wallaby | 2 | Horse | 3 | | | Kangaroo/Wallaby | 1 |
| | | | Pig | 2 | Kangaroos/Wallaby | 5 | | | Pig | 1 |
| | | | | | Pig | 1 | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|-------------------------------------|------------------|-----|------------------|-----|------------------|-----|------------------|-----|----------|-----|
| Pest animals having a MEDIUM impact | Wild dog | 2 | Buffalo | 1 | Buffalo | 2 | Wild dog | 5 | Wild dog | 1 |
| | Horse | 1 | Wild dog | 4 | Wild dog | 7 | Horse | 1 | Horse | 1 |
| | Kangaroo/Wallaby | 1 | Donkey | 3 | Camel | 5 | Kangaroo/Wallaby | 2 | Pig | 1 |
| | Pig | 3 | Horse | 3 | Donkey | 1 | Pig | 4 | | |
| | | | Kangaroo/Wallaby | 3 | Horse | 4 | | | | |
| | | | Pig | 5 | Kangaroo/Wallaby | 6 | | | | |
| | | | | | Pig | 5 | | | | |
| | | | | | | | | | | |

| DISTRICT | KATHERINE/DALY | NO. | ROPER | NO. | VICTORIA RIVER | NO. | STURT PLATEAU | NO. | GULF | NO. |
|----------------------------------|------------------|-----|------------------|-----|------------------|-----|------------------|-----|------------------|-----|
| Pest animals having a LOW impact | Buffalo | 3 | Buffalo | 5 | Buffalo | 4 | Buffalo | 7 | Buffalo | 3 |
| | Wild dog | 2 | Wild dog | 3 | Wild dog | 4 | Wild dog | 6 | Wild dog | 1 |
| | Donkey | 2 | Donkey | 4 | Donkey | 10 | Donkey | 4 | Donkey | 1 |
| | Horse | 2 | Horse | 5 | Camel | 10 | Horse | 3 | Horse | 2 |
| | Kangaroo/Wallaby | 2 | Kangaroo/Wallaby | 3 | Horse | 10 | Kangaroo/Wallaby | 12 | Kangaroo/Wallaby | 3 |
| | Pig | 1 | Pig | 2 | Kangaroo/Wallaby | 9 | Pig | 6 | Pig | 1 |

Appendix 5 - NLIS Update September 2005

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

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

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

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

Index of scientific names

Native Pasture Species

- Annual sorghum - *Sorghum timorense*
Black speargrass - *Heteropogon contortus*
Kangaroo grass - *Themeda triandra*
Kerosene grass - *Aristida spp*
Limestone grasses - *Enneapogon spp*
Perennial bluegrass - *Dicanthium fecundum*
Perennial sorghum - *Sorghum plumosum*
Ribbon grass - *Chrysopogon fallax*
Silky browntop - *Eulalia fulva*
Soft spinifex - *Triodia spp*
Wanderrie grass - *Eriachne spp*
Wiregrass - *Aristida spp*
White grass - *Sehima nervosum*

Tree Species

- Lancewood - *Acacia shirleyi*

Weed Species

- Barleria - *Barleria prioritis*
Bellyache bush - *Jatropha gossypifolia*
Chinee apple - *Ziziphus mauritiana*
Crotalaria - *Crotalaria spp*
Devils claw - *Martynia annua*
Hyptis - *Hyptis suaveolens*
Khaki burr - *Alternanthera pungens*
Lions tail - *Leonotis nepetifolia*
Mesquite - *Prosopis pallida*
Mimosa - *Mimosa pigra*
Mimosa bush - *Acacia farnesiana*
Mission grass - *Pennisetum polystachion*
Noogoora burr - *Xanthium occidentale*
Parkinsonia - *Parkinsonia aculeata*
Prickly acacia - *Acacia nilotica*
Rubber bush - *Calotropis procera*
Senna - *Senna spp*
Sida - *Sida spp*

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