

final report

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Prepared by: Kristy Howard Inspiring Excellence Lee Beattie Beattie Consulting Services

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A national producer survey of cattle husbandry practices

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Abstract

A lack of accurate information regarding current animal husbandry practices within the Australian cattle industry prompted a comprehensive survey of cattle producers across Australia in 2009/10. This work has been followed up 5 years later to determine what has changed in the intervening period. A sample of 608 Australian cattle producers were surveyed between October 2015 and April 2016 to collect information regarding animal husbandry practices. The likelihood of producers adopting alternative husbandry practices and using pain relief, in addition to knowledge of codes of practice relating to husbandry practices, were also investigated. The following report provides a summary of the data collected and a commentary on important issues. Included is a discussion of the implications of the results for Australian cattle producers and a comparison of this data to relevant data collected in 2009/10. The report concludes with suggestions as to how to best provide information on animal husbandry practices to producers in the future.

Executive summary

The Meat Industry Strategic Plan 2020 (MISP) and the MLA 2020 Strategic Plan identify the need to secure 'consumer and community support' for the red meat industry by demonstrating the continuous improvement of the 'welfare of animals within our care'. In order for industry to measure its performance in improving animal welfare, an accurate snapshot of husbandry practices across Australian sheep and cattle farms is required regularly. A survey was conducted during 2009/10 to measure the use by sheep and cattle producers of various animal husbandry practices and has now been repeated in 2015/16. Inspiring Excellence and Beattie Consulting Services conducted a national telephone survey of 608 beef producers. These results were compared with the results obtained in 2009/10 to assess what has changed in the intervening five years and to provide a new baseline for animal husbandry practices used by Australian beef producers.

The survey, which involved interviewing beef producers with a minimum of 50 breeding cows, was able to obtain reliable estimates on the frequency and nature of a range of animal husbandry practices. Information was collected through over 119 survey questions (refer to Appendix 1) relating to numerous husbandry practices including weaning, identification, castration, dehorning, spaying, method of restraint, the use of drenches and vaccines and time off feed and water prior to transport. In addition, basic demographic information on each survey respondent was captured, as well as producer perceptions towards alternative practices and use of pain relief.

The following report contains much detailed individual property information and although the statistical confidence level for the total survey was 90%, care should be taken with the interpretation of results from a number of the beef regions surveyed. This is because the sample size was relatively small in some regions due to the extensive nature of beef production in these regions and consequently a relatively small number of producers were available for survey.

The average herd size for cattle producers surveyed nationwide was 2,084 head. This ranged from 89% of Northern Territory producers with over 1,000 head, to 50% of Tasmanian producers with less than 250 head. The average number of breeders per farm nationwide was 964 cows, with 78% of Northern Territory producers running over 2,000 breeders and 33% of Tasmanian producers running between 50 and 99 cows. The main cattle breed types in the southern states were Pure Bos Taurus breeds i.e. Angus and Hereford, and Bos Taurus cross, while Bos Indicus (Brahman) and B. Indicus x B. Taurus crosses were most common in the tropical north.

Just over half of all cattle producers (56%) check heifers at least once a day during calving and two in five producers check calving cows at least once a day. There was variation by state in the frequency with which heifers and cows were checked at calving that was mainly due to property and paddock size. Fifty-six percent of producers in the Northern Territory did not check heifers or cows at all during calving relative to 16% of producers nationally.

The majority of calves in Australia are weaned between six and ten months of age (80%) using either the yards and / or a holding paddock (81%) for up to 14 days or into an open paddock (13%). One in twenty producers wean their calves onto a truck for sale (6%) at 8-12 months of age. The average age at weaning was 7.5 months.

Three fifths (62%) of producers permanently identified calves when they were aged between one and six months, with 35% of these calves being between three and six months of age. A relatively large proportion of producers in Victoria permanently identified calves at between one and three months of age (47%), while producers in Queensland were more inclined to identify calves at between three and six months of age (45%), and those in the Northern Territory between six and twelve months of age (41%). The NLIS tag (ear tags or bolus) was by far the most popular way to identify cattle (91%), followed by non-electronic ear tags (63%), ear marks (51%), and a hot iron brand (45%).

Male calves were castrated mainly with rubber rings (51% of producers) or a scalpel (27%). Rubber rings were more predominant in the southern states of South Australia, Victoria and Tasmania, while in the Northern states the Queensland and Northern Territory producers preferred to castrate using a scalpel or knife. Nearly four fifths of bull calves were castrated between the ages of one and six months (82%), with a third between three to four months (37%).

Nationally, 51% of producers run polled cows and 71% use polled bulls. Polled only breeding cows and bulls were used mainly in the Southern states, with Tasmania using only polled bulls and 87% polled cows in their breeding herds compared to the northern states. Queensland and Northern Territory producers were more inclined to have a mix of poll and non-poll breeding cows (69% and 71% respectively versus 43% overall).

Nationally, calves from non-polled herds were dehorned at an average of 4.8 months of age, mainly with cup or scoop dehorners (55% of producers). The majority of calves in Australia (90%) were dehorned under the age of 12 months with 71% dehorned by the time they are 6 months old. Just under half were dehorned between three and six months of age, particularly in Queensland (57%).

Across Australia, only 9% of cattle producers spay cull / surplus heifers / cows and this occurs mainly in the northern states. Heifers and cows were mainly spayed using the Willis Dropped Ovary Technique (91% and 68% respectively). In the Northern Territory, 44% of producers spay cull / surplus heifers and / or cows. The extent of spaying in Tasmania, South Australia, New South Wales and Victoria ranges from 0 to 3% of producers. When asked if producers would use a chemical alternative to surgical spaying, 81% indicated that they would but were reluctant to pay more than the cost of surgical spaying for the injection.

The majority of cattle producers vaccinated / treated their stock for clostridial diseases (excluding Botulism) (71% of producers), endoparasites (75% of producers) and ectoparasites (68% of producers). Producers in New South Wales, Victoria and Tasmania were more inclined to vaccinate for clostridial diseases (excluding Botulism) (86%, 77% and 75% respectively) than producers in the Northern Territory (41%) compared with the national average (71%). Treatment for endoparasites (worms) varied by state. In Victoria, 96% of producers treat cattle for endoparasites, while in the Northern Territory, only 45% of producers treat cattle for endoparasites. Treatment for ectoparasites ranged from 100% of Tasmanian and South Australian producers treating against lice, 69% of Northern Territory producers treating for ticks and 85% of Northern Territory producers providing treatment against buffalo fly. Vaccination / treatment for Botulism, Bovine Ephemeral Fever, Pestivirus and calf scours were regionally specific. For example in the Northern Territory, Queensland and Western Australia, 81%, 46% and 34% of producers respectively vaccinated against Botulism, whereas only 4% of Tasmanian and Victorian producers vaccinated for Botulism. Use of the other vaccines showed similar geographic patterns.

Nationally, 54% of producers applied a feed curfew and 41% applied a water curfew prior to transporting cattle for slaughter. This compares with 78% of Tasmanian producers applying a feed curfew and 66% of South Australian producers applying a water curfew prior to transporting slaughter cattle. The national average feed curfew period on farm was 8.3 hours and the average water curfew was 7.7 hours. The majority of producers apply feed and water curfews of less than 24 hours (96%) with 51% applying a feed and / or water curfew of less than 12 hours. The average transit time for slaughter livestock was 4.8 hours.

Nationally, 55% of producers applied a feed curfew and 43% applied a water curfew prior to transporting cattle for non-slaughter reasons. The national average on farm feed curfew period for non-slaughter stock was 5.7 hours and 7.9 hours for water, with 93% of producers applying a feed curfew and 92% applying a water curfew of between 0 and 24 hours. The average transit time for non-slaughter stock was 4.6 hours.

Cattle were mainly restrained for animal husbandry practices in a head bail / crush (88% of producers) or in a calf cradle for marking and dehorning. A small number of producers use electro-immobilization to restrain animals, mostly for spaying, and this is in the order of 1 to 4% of producers by state who spay using a variety of techniques.

Sixty-nine percent of all producers surveyed were aware of the Land Transport Standards and Guidelines and 56% were aware of the Cattle and Sheep Animal Welfare Standards and Guidelines and / or the Codes of practice.

MLA's three publications relevant to beef producers had a range of awareness among producers surveyed. 'A guide to best practice in husbandry in cattle' had an awareness of 56%, 'A national guide to describing and managing beef cattle in low body condition' had 29% awareness and 'Is it fit to load' had 54% awareness amongst beef producers.

The results of this survey provide a 2016 snapshot that was compared to the baseline of animal husbandry practices across the beef industry of Australia established in 2010. A tabulated summary of the main results is provided in Section 6 with comparisons to 2010. The findings from this survey will underpin and help shape industry policy as well as assist in targeting research and extension / education to continually improve animal husbandry practices. Additional information is provided as to the characteristics of the producers surveyed to help target extension activities in the future. Several recommendations to this end are found in full within the *Conclusions and Recommendations* section of this report and industry bodies will derive more as the report is studied and applied.

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1 Background

For industry to measure its performance in improving animal welfare, an accurate snapshot of husbandry practices across Australian sheep and cattle farms is required regularly. A survey was conducted during 2010 to measure the use by sheep and cattle producers of various animal husbandry practices.

The results of the survey highlighted several issues requiring MLA investment to create awareness and change practices. The cattle and sheep husbandry guides, a revised 'fit to load' guide and 'A national guide to describing and managing beef cattle in low body condition' were developed and released to address these issues.

A survey conducted in 2016 aimed to assess where practices have changed or improved compared to the 2009/2010 survey. This information will provide industry policy makers with the necessary information to make informed decisions about any future changes to animal husbandry practices on farm where animal welfare principles are relevant.

The results and outcomes from this project will be used to guide MLA's development of guidelines and other interventions to enable the industry to improve animal husbandry practices. As the intention was to repeat the survey from 2009/2010 to compare and analyse changes, consistency and repeatability were important elements in the design of the 2016 survey.

This report provides an account of the outcomes for the beef survey. It is accompanied by a separate report of the outcomes from the sheep survey.

2 Project Objectives and Issues

2.1 Project Objective

The **objectives** of this project were:

- 1. To complete a telephone survey of beef producers across Australia that provides, on a regional basis:
 - Information on current animal husbandry practices;
 - Changes in animal husbandry practices since the last survey in 2009/2010.
- 2. To compare the results from the two surveys to identify changes on-farm and their potential drivers.

2.2 Additional Details

The survey covered the following ABARES broadacre regions:

- 1. Far West (NSW);
- 2. North West Slopes and Plains (NSW);
- 3. Central West (NSW);
- 4. Riverina (NSW);
- 5. Tablelands Northern, Central and Southern (NSW);
- 6. Coastal (NSW);
- 7. Mallee (VIC);
- 8. Wimmera (VIC);
- 9. Central North (VIC);
- 10. Southern and Eastern Victoria (VIC);
- 11. Cape York and the Queensland Gulf (QLD);
- 12. West and South West (QLD);
- 13. Central North (QLD);

- 14. Charleville Longreach (QLD);
- 15. Eastern Darling Downs (QLD);
- 16. Darling Downs and Central Highlands of Queensland (QLD);
- 17. South Queensland Coastal Curtis to Moreton (QLD);
- 18. North Queensland Coastal Mackay to Cairns (QLD);
- 19. North Pastoral (SA);
- 20. Eyre Peninsula (SA);
- 21. Murray Lands and Yorke Peninsula (SA);
- 22. South East (SA);
- 23. The Kimberley (WA);
- 24. Pilbara and the Central Pastoral (WA);
- 25. Central and South Wheat Belt (WA);
- 26. North and East Wheat Belt (WA);
- 27. South West Coastal (WA);
- 28. Tasmania (TAS);
- 29. Alice Springs Districts (NT);
- 30. Barkly Tablelands (NT);
- 31. Victoria River District Katherine (NT); and
- 32. Top End Darwin and the Gulf of Northern Territory (NT).

The survey of individual properties across Australia within each of the above regions must result in data that is representative of each region.

Issues to be covered in the survey include:

- Background information on each producer, including principal enterprise, location, livestock breeds, etc;
- Current usage of different animal husbandry procedures;
- Number and age of animals undergoing the various animal husbandry procedures;
- Description of restraining facilities and methods;
- Who carries out the various husbandry procedures;
- Advantages and disadvantages of each procedure;
- Attitude or willingness towards use of pain relief during procedures;
- Willingness to pay for an alternative, less painful procedure;
- Methods of humane destruction and disposal on farm;
- Any changes in husbandry practices over the last 5 years in their business;
- What, if any, information is used to assist with husbandry practices and from whom is it sourced; and
- Perceived need for training and education to improve husbandry.

3 Methodology

3.1 Sample Design

A sample of 608 beef producers were interviewed by telephone by a team of independent agricultural consultants led by Dr Kristy Howard, Inspiring Excellence from October 2015 - April 2016.

The aim was to design a sample to achieve a 90% confidence level with a margin of error of 2.5 - 3% for national level data, 5% - 10% for state level data and as close to 10% as possible for regional level data.

The sample was structured and stratified by ABARES broadacre regions and industry to ensure that:

a. A wide range of production systems were included;

- b. Data could be analysed by each region, each state or territory, northern and southern Australia and nationally;
- c. Results from the project were comparable to previous survey undertaken in 2009/10; and
- d. The methodology could be repeated in three to five years time.

The first two requirements were achieved using a four-step process:

- 1. Meat and Livestock Australia provided the project team with a series of postcodes corresponding to ABARES regions;
- 2. ABARES 2014 Australian Agricultural and Grazing Industries Survey (AAGIS) data was used to calculate the population estimates of beef producers within each Statistical Local Area (SLA the base spatial unit used by ABARES to collect and disseminate statistics other than those collected from the Population Census) and through summation, the population of beef producers within each MLA region;
- 3. The sample of 662 was then stratified by region based on the outcomes of Step 2; and
- 4. Sample results were then weighted to the regional population as given by ABARES to ensure results were representative.

The last two requirements were achieved by developing the survey questionnaire in close consultation with MLA and the Cattle Council of Australia. There were a number of questions that after piloting, were removed from the previous survey due to being considered redundant or of no added value, and new questions were designed to meet the changing needs of MLA.

The redesigned survey was piloted twice, the first time with 5 representatives from the Cattle Council of Australia and the second time with 19 producers from the MLA database. Two pilots were necessary to test the length of the survey and clarity of the questions, with the first pilot survey taking over 45 minutes and the second taking over 30 minutes. The final version of the survey was shortened to achieve the 20 minute average survey time required.

While it was possible to achieve a margin of error less than 5% at the national level for sheep and beef samples, it was difficult to achieve the state level target of less than 10% error for some states.

The ABARES regions by state, the final sample and the AAGIS population estimates for each region are summarised in Table 1.

ABARES Region	Population of Beef Producers (AAGIS)	Sample Quota	Interviews Completed	Relative Standard Error (%)
Far West (NSW)	523	16	16	
North West Slopes and Plains (NSW)	1,835	43	44	
Central West (NSW	1,632	28	27	
Riverina (NSW)	1,479	27	24	
Tablelands – Northern, Central & Southern (NSW)	2,946	53	47	
Coastal (NSW)	1,361	26	24	
New South Wales	9,776	193	182	7.2
Mallee (VIC)	258	7	4	
Wimmera (VIC)	66	6	7	
Central North (VIC)	748	13	17	
Southern & Eastern (VIC)	3,851	47	44	
Victoria	4,923	73	72	12.4
Cape York & the Queensland Gulf (QLD)	93	14	6	
West and South West (QLD)	391	37	30	
Central North (QLD)	472	27	27	
Charleville – Longreach (QLD)	685	17	18	
Eastern Darling Downs (QLD)	826	21	24	
Darling Downs & Central Highlands (QLD)	2,669	62	57	
South Queensland Coastal – Curtis to Moreton	2,198	42	36	
North Queensland Coastal – Mackay to Cairns (QLD)	403	18	19	
Queensland	7,737	238	217	8.7
North Pastoral (SA)	94	6	6	
Eyre Peninsula (SA)	91	3	2	
Murray Lands and Yorke Peninsula (SA)	95	4	4	
South East (SA)	990	22	20	
South Australia	1,270	35	32	21.0
The Kimperley (WA)	43	9	0	
Plibara and the Central Pastoral (WA)	146	11	13	
Central and South wheat Belt (WA)	604	1/	13	
North and East Wheat Belt (WA)	133	5	5	
South West Coastal (WA)	898	20	1/	1 2 F
Tasmania (TAS)	560	20	54 24	12.2
Tasmania (TAS)	569	29	24	19 5
Alice Springs Districts (NT)	A2	2 <i>3</i>	11	10.5
Barkly Tablelands (NT)	26	9	1	
Victoria River District – Katherine (NT)	88	10	14	
Top End Darwin and the Gulf of Northern Territory (NT)	26	4	<u>-</u> 1	
Northern Territory	182	32	27	28.2
TOTAL	26,281	662	608	4.6

Table 1: ABARES Regions and Beef Cattle Sample

3.2 Sample Selection

Producers were selected from the MLA member database that contained 43,560 contact details. The database was sorted based on ABARES region using postal codes and members with complete contact details i.e. contacts needed both a phone number and physical address. Records were selected from this sample frame using an "nth number" random process to shortlist producers for contact.

To ensure the required 662 of producers were surveyed, the following process was followed:

- 1. At least 1,500 MLA members were selected (short-listed) for interview to allow for refusals and non-respondents.
- 2. The short-listed producers were sent a letter (by standard post) on behalf of MLA inviting them to participate. These were staggered by region to ensure each was followed up in a timely manner.
- 3. A team of schedulers followed up each letter with a phone call to schedule a survey timeslot (as nominated by the producer), to engage the producers in the process to get them to agree to be surveyed. To ensure that the correct target audience was interviewed in regards to animal husbandry practices, respondents were required to have at least 50 breeding cows on their property or trade at least 50 cattle annually.
- 4. A team of agricultural consultants conducted the interviews at the nominated time and date with each producer. This was a unique feature of the way we conducted interviews and yielded many positive comments from producer participants as they appreciated being interviewed by someone who knew about agriculture and the industry and 'spoke their language' i.e. knew the correct terminology, including industry slang.

This process yielded 608 of the required 662 interviews with schedulers experiencing a number of issues regarding the quality of the MLA database. The MLA member database has been constructed and maintained over a number of years with no regular process of updating and verifying producer contact details. As a result, 3,353 producers were required for short-listing in order to obtain the 608 interviews, a response rate of only 18%. Of the 82% of produces who did not take part in the survey, 14% had incorrect or out of date contact details including deceased, 36% were un-contactable (i.e. did not answer the phone after at least 3 call backs at different times of the day/week), 6% were retired or not farming and 13% were ineligible i.e. had <50 breeding cows / trading cattle. A further 12% declined to be interviewed.

In addition, some ABARES regions were not represented well by MLA member contacts on the database, so once those contacts were exhausted, there were no more producers to contact. In an effort to overcome the large non-response rate from the MLA database, permission was sought to use the MLA More Beef from Pastures (MBfP) database. This database contains contact details, herd and property size for producers who have attended a MBfP event in the last 6 years. Producers who did not want to be contacted for further evaluation purposes were removed from the database (as per MLA's privacy policy). Producers shortlisted from this database were much more likely to participate in the survey as their details were more likely to be correct and the producer 'MLA friendly' i.e. more disposed to participate in the process. However when this database was searched for more producers to contact to fill gaps, there were none available in the areas where extras were required.

3.3 Statistical Analysis

The results presented in this study are derived from a sample survey as opposed to a census survey when all members of a population are captured. These results are used to make inferences about the total population. As with all surveys, results are subject to sampling errors which depends on the sample size (smaller the sample larger the error) and the resultant percentage obtained i.e. a 50% response has a higher error than a 90% response. Where there are small samples taken, such as regional data, estimates thereof should be treated with caution. For this report all data was summarised to state and any testing thereof has been conducted on the summarised data.

A series of key questions were identified for statistical evaluation based on a combination of having sufficient response numbers at the state level to enable evaluation and perceived importance of question results for MLA. Questions common to both surveys were assessed by fitting General Linear Models for the effect of survey year (with adjustment for states). For the 2016 survey, differences between states were also examined by fitting General Linear Models. For questions with only two response categories i.e. Yes or No, the approach used a logit-transformation and binomial distribution, while for 3 or more category questions the approach used a logit-transformation and a multinomial distribution. The modelling used is only relevant when a response variable can take only one out of a fixed set of possible values (i.e. answer for one response category only). Responses for each category are therefore independent. Thus questions where multiple response categories were allowed were not analysed. All statistical analyses were performed using GenStat (VSN International 2012¹).

All year or state differences presented are at the 5% significance level unless otherwise stated.

3.4 Report Layout

The format of this report is largely based upon the previous report by Solutions Marketing and Research Pty Ltd to enable easy comparisons to be made between reports and data sets.

¹ VSN International (2012) GenStat *for Windows* 15th Edition. VSN International, Hemel Hempstead, UK.

4 Cattle Results and Discussion

4.1 Background to the Analysis

The results and discussion presented in this section summarise the current animal husbandry practices for beef producers in Australia, qualify a range of attributes and prices that could be considered for use of analgesia, and present awareness of industry Codes of Practice and types of training activities undertaken.

4.2 Respondent Demographics

Respondent demographic variables such as region, property size, income, farm type and age are presented in Figures 1 to 9. The purpose of these charts is to provide confidence that the final sample satisfactorily captures the diverse range of demographic characteristics of the beef industry in Australia.

The sample composition for this research project was made up of producers from New South Wales (30%), Queensland (36%), Victoria (12%), Western Australia (9%), South Australia (5%), Tasmania (4%) and the Northern Territory (4%). This sample structure is representative of the cattle farming population of Australia (Figure 1).

Slightly less than half of those surveyed (45%) operated farms that were more than 2,000 hectares in size. Around a fifth (19%) were between 800 – 1,999 hectares, 13% between 400 - 799 ha and 23% less than 400 hectares (Figure 2). Property sizes were larger in the Northern Territory and Western Australia compared with the southern states (Figure 3).

Figure 1: Respondent Demographic - By State

BASE: All beef cattle respondents (n = 608)



Figure 2: Respondent Demographic - By Property Size (hectares)

BASE: All beef cattle respondents (n = 608)



Figure 3: Respondent Demographic - By Property Size (hectares) – by State *BASE: All beef cattle respondents (n = 608)*



Figure 4: Respondent Demographic - By Income from Beef

Q 'Could you tell me in the last financial year, roughly what percentage of your total gross property income, came from beef?' BASE: All beef cattle respondents (n = 608)



Figure 5: Respondent Demographic - By Farm Type

Q 'Could you tell me in the last financial year, roughly what percentage of your total gross property income, that is, only income from your property, came from the following activities?' BASE: All beef cattle respondents (n = 608)



Figure 6: Respondent Demographic - By Education

Q 'What is the highest level of education you've achieved?' BASE: All beef cattle respondents (n = 608)



Figure 7: Respondent Demographic - By Age

Q 'Could you tell me into which of the following age groups you fall' BASE: All beef cattle respondents (n = 608)



Figure 8: Respondent Demographic - By Rainfall

Q 'What is your average rainfall?'

BASE: All beef cattle respondents (n = 608)



Figure 9: Respondent Demographic - By Gender BASE: All beef cattle respondents (n = 608)



4.3 Herd Structure

Nationally, a quarter of all producers (25%) ran between 200 and 499 breeding cows while 18% ran 100 - 199 cows, and 12% between 500 – 999 cows. One in ten producers (10%) ran more than 2,000 cows, 19% ran between 1 and 99 cows and 9% ran 1,000 – 1,999 cows (Figure 10). A small proportion (6%) of producers surveyed were cattle traders and ran no breeders. The average number of breeding cows was 964 per farm.

The average herd size was 2,084 head. A greater proportion of producers in Queensland and the Northern Territory ran larger herds of more than 1,000 head of cattle (47% and 89% respectively, versus 34% overall). Conversely, fewer Victorian producers ran more than 1,000 head of cattle (11%) (Figure 11).

The most common breeds of cattle were pure Bos Taurus breeds such as Angus and Hereford, with 47% of producers nationally running these breeds. Bos Taurus cross breeds and Bos Taurus x Bos Indicus breeds were run by 25% and 28% of producers respectively, with the rest (12%) running pure Bos Indicus breeds such as Brahmans (Figure 12).

Figure 10: Respondent Demographic – by number of cows

Q 'As at 1st July 2015, how many **Breeding cows** did you have on your property?' BASE: All beef cattle respondents (n = 608)



Figure 11: Respondent Demographic- By Herd Size *Q 'As at 1st July 2015, what was your total beef herd?' <i>BASE: All beef cattle respondents (n = 608)*



Figure 12: Respondent Demographic – Breed type *Q* 'What type of cattle do you run on your property?'

Q What type of cattle do you run on your property: BASE: All beef cattle respondents (n = 608)



4.4 Calving and Weaning

Just over half (56%) of cattle producers check heifers at least once a day during calving (Figure 13) and two in five producers check calving cows at least once a day (Figure 14). However, there was variation between states in the frequency with which heifers and cows were checked at calving that was mainly related to size of property and paddocks. Fifty-six percent of producers in the Northern Territory did not check heifers or cows at all during calving (Figure 13 and Figure 14).

The majority of calves in Australia are weaned between six and ten months of age (80%) (Figure 15) using either the yards and / or a holding paddock (81%) or into an open paddock (13%) (Figure 16). One in twenty producers wean their calves onto a truck for sale (6%) mainly at 8 - 10 months of age (Figure 16). The average age at weaning was 7.5 months.

There was a significant state effect for weaning age. In particular, Victorian (27%), South Australian (37%) and Western Australian (39%) producers were much less inclined to wean calves under 8 months of age, while a greater proportion of producers in the Northern Territory (69%) and Queensland (63%) weaned calves under 8 months of age (Figure 15).

Significantly more Queensland producers yard weaned (92%) compared to other states (*P*<0.001) while yard weaning was less common among Victorian producers (66%). Tasmanian producers had the highest rate of weaning onto a truck (14%) compared to other states (Figure 16).

When calves were weaned using yards and / or holding paddocks, they were normally kept in the yards and / or holding paddocks for up to 7 days (53%), 8 – 14 days (36%) or 15 days or more (11%) (Figure 18). There was a statistically significant difference between states, with Victorian and Tasmanian producers tending to keep calves in the yards and / or holding paddock for less than a week (82% and 79% respectively, versus 53% overall) while Queensland producers tended to keep them in the yards / holding paddock for longer, 8 - 14 days (43%). One fifth of Northern Territory producers (20%) kept calves in the yards / holding paddock for 15 days or more (Figure 18).

While in yards and / or holding paddock, calves were generally fed either hay, grain and / or pellets (67%, 11% and 10% respectively) (Figure 19). Hay was preferred by South Australian and Northern Territory producers (80% and 77%, versus 67% overall), with silage being preferred by producers in Victoria and Tasmania (17% and 32% respectively, versus 11% overall) (Figure 20).

Figure 13: Number of times heifers are checked at calving – by state

Q 'How often are heifers checked at calving?'

BASE: All beef cattle respondents who calve heifers (n = 557)



Figure 14: Number of times cows are checked at calving – by state

Q 'How often are cows checked at calving?'

BASE: All beef cattle respondents who calve cows (n = 569)



Figure 15: Average Age of Weaning

Q 'At what age in months do you wean your calves in a normal season?' BASE: All beef cattle respondents who wean calves (n = 569)



Figure 16: Weaning Method

Q 'When you wean your calves, do you keep them in the yards / holding paddock or do you let them out into an open paddock?'

BASE: All beef cattle respondents who wean calves (n = 569)



Figure 17: Age at sale (if not weaned)

Q 'What age do you wean calves in a normal season onto a truck?' BASE: All beef cattle respondents who wean onto a truck (n = 34)



Figure 18: Weaning Method – Time in Yards

Q 'And on average, how many days are the weaners kept in the yards / holding paddocks at weaning?' BASE: All beef cattle respondents who keep weaners in yards (n = 459)





Figure 20: Weaning Method – Feed in Yards by state *Q 'What type of feed is provided to your calves in the yards / holding paddock?' BASE: All beef cattle respondents who keep weaners in yards (n = 459)*



4.5 Identification

It should be noted that this question asked about permanent identification of cattle on farm for management reasons, not for post farm surveillance or monitoring purposes. In practice, some producers will only apply NLIS tags to comply with legal requirements as cattle leave the property.

Three fifths (62%) of calves nationally received permanent identification when they were aged between 1 and 6 months of age, with 35% of these calves being between 3 and 6 months of age. There were significant differences between states, with calves in Victoria more often being between one and three months of age (47%) when identified, while those in Queensland more often being between three and six months of age (45%), and those in the Northern Territory between six and twelve months of age (41%) (Figure 21). Nearly a third of calves in South Australia (28%) were under 1 month old when permanent identification was applied. A relatively larger proportion of producers in Queensland and the Northern Territory reported 'other' for age at permanent identification, with these responses primarily being 'at first muster' where calves would be a range of ages.

The NLIS (ear tags or bolus) was by far the most popular way to identify cattle (91%), followed by nonelectronic ear tags (63%), ear marks (51%), and a hot iron brand (45%) (Figure 22). Of note for the use of various methods of permanently identifying calves was:

- NLIS use was higher in South Australia and lower in the Northern Territory (100% and 81% respectively);
- Ear Tag use was higher in South Australia and lower in Queensland (75% and 48% respectively);
- Earmarks were more common in the Northern Territory and Western Australia and less common in South Australia (78%, 74% and 22% respectively); and
- Hot iron brand use was higher in both Queensland and the Northern Territory (94% and 81% respectively) compared to other states.

For the majority of producers, multiple identification methods were used to 'back up' NLIS tags as they were considered to be unreliable and likely to fall out. In some states, hot iron branding and ear marking are still mandatory for stock being sold off-farm in conjunction with the NLIS tags. It was not uncommon for the cattle in northern states being retained as breeders to receive tags in each ear, an ear mark and a hot iron brand.

Figure 21: Permanent Identification - Age

Q 'At what age in months do you apply permanent identification to your cattle in a normal season?' BASE: All beef cattle respondents (n = 608)



Figure 22: Permanent Identification – Method by State

Q 'And how do you permanently identify your cattle?' BASE: All beef cattle respondents (n = 608)



4.6 Castration

Four in five bull calves were castrated between birth and six months of age (79%) (Figure 23). A third of calves were castrated between two and three months of age (31%), and another third were between four and six months of age (37%). Queensland producers castrated 20% of calves at first muster at various ages and Northern Territory producers had the highest rate of non-castration (22%) compared to the national average. There was a significant difference between states for age at castration, with Northern Territory and Queensland producers tending to castrate at older ages and Tasmanian producers more commonly castrating at three months or less relative to other states.

Rubber rings was the most common technique (51%) used for castration followed by a scalpel (27%) and knife (18%) (Figure 24). There was a significant state effect for castration method. Rubber rings were more predominant in the southern states of South Australia, Victoria and Tasmania (90%, 82% and 83% respectively), while in the northern states, Queensland and Northern Territory producers preferred to castrate using a scalpel (55% and 33% respectively) or knife (18% and 38% respectively). A distinction was made between the use of a knife or scalpel for castration as each can have inherent differences in terms of blade sharpness and surgical hygiene and comments were received regarding changing to scalpels to lessen infection and increase precision.

Figure 23: Castration – Age – by State

Q 'At what age in months do you normally castrate your bull calves?' BASE: All beef cattle respondents (n = 608)



■ birth ■ 1-2 months ■ 3-4 months ■ 5-6 months ■ 6-12 months ■ 12 months or over ■ At first muster ■ Do not castrate



4.6.1 Knife for Bull Calves

The main advantages of using a knife were; better for cattle than alternatives (better recovery / less stress) 34%, all we have ever done / convenient (27%), works / effective (21%), easy and quick (20%), and preserved codbag / appearance (15%) (Figure 25).

Figure 25: Reasons for using a Knife for Castration

Q 'Can you describe the main advantages of using a Knife to castrate your bull calves?' BASE: All beef cattle respondents using a Knife (n = 102)



4.6.2 Scalpel for Bull Calves

The main advantages of using a scalpel were; better for cattle than alternatives (better recovery / less stress) (37%), easy and quick (27%) all we have ever done / convenient (22%), clean and hygienic (20%), works (14%), efficient / certain (13%) and sharper (13%) (Figure 26).

Figure 26: Reasons for using a Scalpel for Castration

Q 'Can you describe the main advantages of using a Scalpel to castrate your bull calves?' BASE: All beef cattle respondents using a Scalpel (n = 153)



4.6.3 Rubber Rings for Bull Calves

Producers reported quite a few advantages to using rubber rings, namely; easy to use (49%), safer and less stress on cattle (25%), hygienic (25%), no bleeding (11%) and quick (10%) (Figure 27).

Figure 27: Reasons for using Rubber Rings for Castration

Q 'Can you describe the main advantages of using a Rubber Rings to castrate your bull calves?' BASE: All beef cattle respondents using Rubber Rings (n = 284)



4.6.4 Burdizzo for Bull Calves

Using a burdizzo was viewed as positive in terms of no infections (64%), no bleeding (36%) and good for weight gain (18%) (Figure 28).

Figure 28: Reasons for using Burdizzo for Castration

Q 'Can you describe the main advantages of using a Burdizzo to castrate your bull calves?' BASE: All beef cattle respondents using a Burdizzo (n = 11)



4.6.5 Tension Bander for Bull Calves

Main benefits of using tension banders were considered to be that it suits labour availability (40%), easy / simple (20%), less stressful to cattle (20%), and no open wound (20%) (Figure 29).

Figure 29: Reasons for using a Tension Bander for Castration

Q 'Can you describe the main advantages of using a Tension Bander to castrate your bull calves?' BASE: All beef cattle respondents using a Tension Bander (n = 5)



4.6.6 Inspection following Castration for Bull Calves

Producers spent quite a lot of time in the first week after castration checking on cattle, with half of producers checking after the first day (57%), 38% after two days and 31% after three days (Figure 30). However one in five (18%) producers do not check on bull calves following castration, with this being more prominent in Queensland, Western Australia and the Northern Territory (21%, 30% and 29% respectively) due to the extensive nature of cattle grazing systems in these states (Figure 31).

Just under one in ten producers (9%) reported losing calves due to castration related complications (Figure 32) with producers from the Northern Territory more frequently reporting losses (24%), however this difference was not significant. Overall, estimated losses were small, with the majority of producers (90%) estimating that they lose less than 5 calves per year due to castration related complications (Figure 33).



Figure 30: Inspection following Castration *Q* 'When do you check on your calves following castration?'



Figure 31: Inspection following Castration - Do Not Check

Q 'When do you check on your calves following castration?' BASE: All beef cattle respondents who do not check calves following castration (n =10

Figure 32: Castration related complications – by state

Q 'Do you lose calves due to castration related complications?' BASE: All beef cattle respondents castrating bull calves (n = 560)





Figure 33: Castration related complications – estimates of losses by state *Q: 'How many calves would you lose to castration related complications?'*

BASE: All beef cattle respondents reporting castration related losses (n = 52)

4.6.7 Castration of Bulls

Only a small proportion of producers surveyed castrate bulls over 12 months of age (15%). There was a significant state effect (*P*<0.001) with a greater proportion of producers in the Northern Territory (48%) castrating bulls over 12 months of age relative to other states (Figure 34). For those producers who do castrate older bulls, the majority use a scalpel (49%), while 25% use a tension bander, 24% use a knife and 23% use rubber rings (Figure 35).

Figure 34: Castration of Bulls

Q 'Do you castrate bulls (entire males over 12 months of age)?' BASE: All beef cattle respondents (n = 608)



Figure 35: Castration of Bulls - Method

Q 'And what method of castration do you use to castrate your bulls?' BASE: All beef cattle respondents who castrate bulls (n = 91)



4.7 Dehorning

4.7.1 Polled Cattle

Over half of producers nationally ran polled breeding cows (51%), 8% run horned and 35% run both polled and horned breeders (Figure 36), while almost three quarters of producers used polled bulls (71%), 8% used horned bulls and 18% used both polled and horned bulls (Figure 37). There was a significant state effect for type of cattle, with polled only breeding cows and bulls used mainly in the Southern states, with Tasmanian producers using only polled bulls and 87% using polled cows in their breeding herds compared to Queensland and the Northern Territory with 36% and 34% polled bulls and cows respectively. Queensland and Northern Territory producers were more inclined to have a mix of poll and non-poll breeding cows (69% and 71% respectively versus 43% overall). These results are not surprising given that Bos Indicus cattle were the predominant breed across the northern states (Figure 12).

The reasons given as to why producers don't use polled bulls were; quality and genetics (32%), growth and size (18%) and can't get Wagyu's without horns (18%) (Figure 38).

Figure 36: Polled Cattle

Q 'Are your breeding cows and bulls Polled or Horned cattle?' BASE: All beef cattle respondents (*n* = 608)


Figure 37: Polled Bulls

Q 'Do you use Polled Bulls?'

BASE: All beef cattle respondents (n = 608)



Figure 38: Horned Bulls

Q 'Why don't you use Polled Bulls?'

BASE: All beef cattle respondents not using polled bulls (n = 28)



4.7.2 Tipping and Dehorning

One third (32%) of producers surveyed did not dehorn or tip cattle, 28% dehorned only, 17% tipped only, and 23% used both techniques (Figure 39). There was a significant state effect for both dehorning and tipping (P<0.001). Dehorning only was less common among producers in Western Australia, who were more inclined to both tip and dehorn (13% and 34% respectively), while dehorning was more common in Queensland (42%), with Tasmanian and Victorian producers tending to do neither (63% and 56%

respectively) (Figure 39). The majority of cattle were over 6 months of age (58%), with only 8% being over 12 months of age when horns are tipped (Figure 40).

Figure 39: Tipping and Dehorning

Q 'Do you dehorn or tip the horns of your cattle?' BASE: All beef cattle respondents (n = 608)



Figure 40: Tipping

Q 'Given a normal season with average rainfall, at what age, in months do you tip the horns of your calves?'

BASE: All beef cattle respondents who tip the horns of calves (n = 107)



4.7.3 Dehorning of Calves

The majority of calves in Australia (96%) are dehorned under the age of twelve months with 69% dehorned by the time they are 6 months old (Figure 41). Just overer half are dehorned between 3 and 6 months of age, particularly in Queensland (67%). The average age was 4.8 months.

The most commonly used technique to dehorn calves was scoop or cup dehorners (55%) followed by a gouging knife (23%) (Figure 42). There was a significant state effect, with scoop and cup dehorners being more predominant in New South Wales (76%), while gouging knives were more commonly used in Queensland and the Northern Territory (42% and 43% respectively).

Figure 41: Dehorning

Q 'Given a normal season with average rainfall, at what age, in months do you dehorn your calves?' BASE: All beef cattle respondents who dehorn their calves (n = 312)



Figure 42: Dehorning - Method

Q 'And what method of dehorning do you use on your calves?' BASE: All beef cattle respondents who dehorn their calves (n = 312)



4.7.3.1 Gouging Knife

Gouging knives were perceived to be; quick (26%), a better / preferable method (21%), easy to use (17%), cleaner and neat (16%) and less stressful to animals (16%) (Figure 43).

Figure 43: Dehorning – Gouging Knife

Q 'Why do you use a Gouging Knife to dehorn your calves?' BASE: All beef cattle respondents using a Gouging Knife to dehorn their calves (n = 93)



4.7.3.2 Scoop or Cup Dehorners

The most commonly reported advantages to using scoop or cup dehorners included; works / effective (38%), easy to use (23%), and quick (17%) (Figure 44).

Figure 44: Dehorning – Scoop or Cup Dehorners

Q 'Why do you use Scoop or Cup Dehorners to dehorn your calves?' BASE: All beef cattle respondents using a Scoop or Cup Dehorners to dehorn their calves (n = 172)



4.7.3.3 Hot Iron / Heat Cauterising

Producers who used hot iron / heat cauterising to dehorn calves reported that; it was safer / less harmful to cattle (45%), less blood (45%), and works / effective (18%) (Figure 45).

Figure 45: Dehorning – Hot Iron / Heat Cauterising

Q 'Why do you use Hot Iron / Heat Cauterising to dehorn your calves?' BASE: All beef cattle respondents using a Hot Iron / Heat Cauterising to dehorn their calves (n = 11)



4.7.3.4 Wire Saw

Producers who used the wire saw for dehorning calves were few and commented that: it was better / preferred method, seals the wound well, and is easy to use.

4.7.3.5 Dehorners (unspecified)

Beef producers identified other dehorners for calf dehorning that had various advantages. The main advantages reported were less stress / harm on cattle (27%); precise / effective (23%); better / preferable method (17%) and always done / tradition (17%) (Figure 46).

Figure 46: Unspecified Dehorners

Q 'Why do you use unspecified dehorners to dehorn your calves?' BASE: All beef cattle respondents using Dehorners to dehorn their calves (n = 10)



4.7.4 Inspection following Dehorning Calves and Losses

Over half of all producers (58%) check calves the day after dehorning, with a further 41% checking calves after two days (Figure 47). However, one in five (17%) producers do not check calves following dehorning (Figure 47). This was more often the case in Western Australia than in other states (Figure 48).

A small proportion of beef producers (7%) lose calves due to dehorning related complications while 7% don't know (Figure 49). Of the producers that lose calves, the majority estimate that they lose less than five per year (Figure 50).

Figure 47: Inspection following DehorningQ 'When do you check on your calves following dehorning?'BASE: All beef cattle respondents dehorning their calves (n = 312)0%10%20%30%40%50%



Figure 48: Inspection following Dehorning - Do Not Check

Q 'When do you check on your calves following dehorning?'



Figure 49: Dehorning – calf losses due to complications

Q 'Do you lose calves due to dehorning related complications?' BASE: All respondents that dehorn calves (n= 312)



Figure 50: Dehorning calves – estimated losses

Q 'How many calves do you lose due to dehorning related complications?'

BASE: All respondents that lose calves (n= 23)



4.7.5 Dehorning of Mature Cattle

The majority of Australian producers do not dehorn mature cattle (85%). There was a significant state effect for responses, in particular Tasmania and New South Wales stood out (100% and 93% respectively) for not dehorning mature cattle (Figure 51). Of those producers who did dehorn mature cattle, in an average year nearly half (47%) dehorned less than 10 cattle, 28% less than 50 cattle, and a further 19% dehorned more than 100 cattle (Figure 52).

The majority of mature cattle dehorning occurred when the stock were under two years of age (64%), 17% between two and three years and 13% for those aged more than three years old (Figure 53).

Scoop dehorners (38%) and unspecified dehorners (17%); Guillotines (15%) and Saws (13%) were the main types of dehorners used (Figure 54).

Figure 51: Dehorning Mature Cattle

Q 'Do you fully dehorn mature cattle (over 12 months of age)?' BASE: All beef cattle respondents with horned breeding cows or bulls (n = 312)



Figure 52: Dehorning Mature Cattle - Number Dehorned

Q 'In an average year, how many mature cattle do you fully dehorn?' BASE: All beef cattle respondents who dehorn mature cattle (n = 47)



Figure 53: Dehorning Mature Cattle - Age Dehorned

Q 'And what age in months, do you typically dehorn mature cattle?' BASE: All beef cattle respondents who dehorn mature cattle (n = 47)





Figure 54: Dehorning Mature Cattle - Method Used

Q 'And what method of fully dehorning do you use on your mature cattle?' BASE: All beef cattle respondents with dehorn mature cattle (n = 47)

4.7.6 Tipping Mature Cattle

Just under a quarter of beef producers (23%) tipped the horns of mature cattle, with Northern Territory producers significantly more likely to do so (56%) (*P*<0.001) (Figure 55). The bulk of producers tip less than 50 mature cattle a year (72%) (Figure 56) and used unspecified dehorners (44%), parrot beak dehorners (17%) and horn tippers (10%) (Figure 57).

Figure 55: Tipping Mature Cattle

Q 'Do you tip the horns of mature cattle (over 12 months of age)?' BASE: All beef cattle respondents (n = 608)



Figure 56: Tipping Mature Cattle - Number Tipped

Q 'In an average year, how many mature cattle do you tip?' BASE: All beef cattle respondents who tip mature cattle (n = 139)



Figure 57: Tipping Mature Cattle – method used

Q 'And what method of tipping do you use on your mature cattle?' BASE: All beef cattle respondents with tip mature cattle (n = 139)



4.8 Pain Relief

The majority (95%) of beef producers do not use pain relief for castration / dehorning / tipping / branding etc., 0.3% use it sometimes and 4% use it regularly (Figure 58). For the very few who use it regularly (4%), they pay on average \$2.35 per head and between \$0.10 and \$10 per head. Methods of pain relief included buccalgesic (14%), local injection (21%) or other (64%), which was primarily a spray to the external area (off-label use of tri-solfen) (Figure 59).

The main reasons reported for not using pain relief for animal husbandry procedures are the belief that it is not necessary or needed for quick procedures (i.e. couple of minutes) (51%), that it is not practical / time consuming (9%) and is another expense / cost (9%) (Figure 60). Some producers have the attitude that they never have / never will use pain relief (10%).

Figure 58: Pain Relief – Use of

Q 'Do you use pain relief for castration/dehorning/tipping/branding etc?' BASE: All beef cattle (n=608)



■ No ■ Sometimes ■ Yes

Figure 59: Pain relief – types used

Q 'What type of pain relief do you use?' BASE: All beef producers using pain relief (n=28)



Figure 60: Pain Relief – Why don't you use it?

Q 'Why don't you use pain relief?'

BASE: All beef cattle respondents who don't use pain relief (n = 580)



4.9 Spaying

4.9.1 Cull/surplus heifers and cows

The vast majority of producers in Australia do not spay cull/surplus heifers and cows; however, there was a significant state effect for this question (P<0.001) with the practice being more common in the vast rangeland states and territories of Queensland, Western Australia and particularly the Northern Territory (15%, 15% and 44% respectively) (Figure 61).

Just over half (53%) of producers spayed less than 250 cull/surplus heifers each year (Figure 62) while 65% spayed more than 100 cows (Figure 63). The average number of cull/surplus heifers spayed each year was 300 and the average number of cows spayed was 178.

Nearly three quarters (73%) of the producers who spay routinely conduct pregnancy tests prior to spaying heifers (Figure 64) and and 77% pregnancy test cows (Figure 65). The main reasons for not conducting pregnancy tests prior to spaying heifers was there was no need/they were kept separate (73%) (Figure 64) and the reasons for not pregnancy testing cows were that it was not practical (29%) or required as cows were not joined (29%) (Figure 67).

The Willis Dropped Ovary Technique of spaying was carried out on 91% of cull/surplus heifers and 68% of cull/surplus cows (Figure 68, Figure 69) as the preferred method of spaying.

Figure 61: Heifer and cow spaying

Q: 'Do you spay your cull/surplus heifers and/or cows?' BASE: All beef cattle respondents (n = 608)



Figure 62: Heifer spaying - number spayed

Q: 'How many heifers do you normally spay?' BASE: All beef cattle respondents who spay cull/surplus heifers (n = 45) (NOTE: Small sample sizes in NSW – 1; WA – 6; and NT – 10)



Figure 63: Cow spaying – number spayed

Q: 'How many cows do you normally spay?' BASE: All beef cattle respondents who spay cull/surplus cows (n = 31) (NOTE: Small sample sizes in NSW – 1; QLD - 13; SA – 1; WA – 7; and NT – 9)



Figure 64: Spaying - pregnancy testing heifers

Q: 'Are cull/surplus heifers routinely pregnancy tested prior to spaying?' BASE: All beef cattle respondents who spay cull/surplus heifers (n = 45) (NOTE: Small sample sizes in NSW – 1; WA – 6; and NT – 10)



Figure 65: Spaying - pregnancy testing cows

Q: 'Are cull/surplus cows routinely pregnancy tested prior to spaying?' BASE: All beef cattle respondents who spay cull/surplus cows (n = 31) (NOTE: Small sample sizes in NSW – 1; QLD - 13; SA – 1; WA – 7; and NT – 9)





Figure 66: Spaying - pregnancy testing heifers – why not?

Q: 'Why don't you routinely pregnancy test cull/surplus heifers prior to spaying?' BASE: All beef cattle respondents who spay cull/surplus heifers and do not pregnancy test (n = 12)



Figure 67: Spaying - pregnancy testing cows – why not?

Q: 'Why don't you routinely pregnancy test cull/surplus cows prior to spaying?' BASE: All beef cattle respondents who spay cull/surplus cows and do not pregnancy test (n = 7)



Figure 68: Heifer spaying methods

Q: 'What methods do you use to spay your heifers?' BASE: All beef cattle respondents who spay cull/surplus heifers (n = 45)



Figure 69: Cow spaying methods

Q: 'What methods do you use to spay your cows?' BASE: All beef cattle respondents who spay cull/surplus cows (n = 31)



4.9.1.1 Willis Dropped Ovary Technique

The average number of heifers spayed using the Willis Dropped Ovary Technique was 365 and the number of cows was 224, with just under three quarters (73%) of producers spaying more than 100 cull/surplus heifers each year (Figure 70) and 67% of producers spaying 100+ cows (Figure 71).

The advantages of using the Willis Dropped Ovary Method to spay heifers were:

- safer
- less painful
- no losses
- better recovery for the heifer
- caused less stress/harm
- more humane (Figure 72 and Figure 73.

Figure 70: Willis Dropped Ovary Technique – number of heifers spayed

Q: 'How many heifers do you normally spay using the Willis Dropped Ovary Technique?' BASE: All beef cattle respondents who spay cull/surplus heifers using the Willis Dropped Ovary Technique (n = 41)



Figure 71: Willis Dropped Ovary Technique – number of cows spayed

Q: 'How many cows do you normally spay using the Willis Dropped Ovary Technique?' BASE: All beef cattle respondents who spay cull/surplus cows using the Willis Dropped Ovary Technique (n = 21)



Figure 72: Willis Dropped Ovary Technique – usage for heifers

Q: 'Why do you use the Willis Dropped Ovary Technique to spay your heifers?' BASE: All beef cattle respondents who spay cull / surplus heifers using the Willis Dropped Ovary Technique (n = 41)



Figure 73: Willis Dropped Ovary Technique – usage for cows

Q: 'Why do you use the Willis Dropped Ovary Technique to spay your cows?' BASE: All beef cattle respondents who spay cull/surplus cows using the Willis Dropped Ovary Technique (n = 21)



4.9.1.1 Flank and Webbed (removal of fallopian tubes)

This method was only used by 19% of beef producers that spay cows, so care must be taken with the interpretation of this data. Two thirds of beef producers that use the Flank and Webbed method spay more than 100 cows and the main reason for using this method is that it was considered to be the best method (50%).

4.9.1.2 Other methods of spaying heifers/cows

As very few producers (<5 per method) use the methods of Flank and Removal of ovaries, Passage and Removal of Ovaries and Passage and Removal of Oviducts (fallopian tubes) for spaying heifers and cows, the results from these methods have not been reported as individual results.

4.9.1.3 Restraint of cull/surplus heifers/cows for spaying

The majority of heifers and cows are restrained in a crush or head bail with only 2% and 3% respectively being electro-immobilised (Figure 74).

Figure 74: Restraint method for spaying cull heifers/cows

Q: 'When you spay your cull/surplus heifers/cows, how do you restrain them?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55)



4.9.1.4 Spaying practitioner

There was nearly a one third split between the different spaying practitioners who perform the spaying. Slightly more non-vet contractors (37%) were used for spaying cull heifers/cows compared to vets (33%) and self or other staff members (30%) (Figure 75). Producers in the Northern Territory were more likely to do the spaying in-house (58%) compared to other states. There were no particular spaying methods that used one type of practitioner over another (results not shown).

Figure 75: Spaying performed by state

Q: 'When you spay your cull/surplus heifers, who performs the spaying?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55) – Note: NSW n=2, SA n=1



4.9.1.5 Inspection following spaying of cull/surplus heifers/cows

When producers did spay a heifer or cow, just over half of the producers checked the animal the next day (51%) and 44% after two days (Figure 76). It should be noted that some producers check heifers more than cows (4%), while 11% of producers do not check them at all.

Nationally, 60% of producers who spay heifers and cows lose some to spaying related complications (Figure 77) with 61% of beef producers who spay losing less than five beasts per year and only 13% losing more than 10 beasts (Figure 78).

Figure 76: Inspection following Spaying

Q: 'When do you check on your heifers following spaying?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55)



Figure 77: Losses of heifers/cows due to spaying related complications

Q: 'Do you lose heifers/cows due to spaying related complications?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55) (NOTE: Small sample sizes in NSW – 2; QLD - 30; WA – 7; and NT – 12; SA - 1)



Figure 78: Losses of heifers/cows due to spaying related complications – numbers lost *Q: 'How many heifers/cows do you lose due to spaying related complications?' BASE: All beef cattle respondents who lose heifers/cows to spaying related complications (n = 33)* (NOTE: Small sample sizes in QLD - 17; WA – 5; and NT – 9)



4.9.1.6 Pain relief for the spaying of cull/surplus heifers and cows

Only one producer uses pain relief for spaying (Figure 79) and pays under a dollar per head for the relief.

The main reasons provided for not using pain relief is the belief that it is not necessary (29%), the current procedure is quick so would not be practical to administer pain relief (21%) and because the vet has not suggested it (13%) (Figure 80).

Beef producers are reluctant to pay for pain relief for spaying, with over half (53%) not prepared to pay for pain relief while 30% would be prepared to pay \$2 or more (Figure 81). The average amount they were prepared to pay was \$1.42 per head.

Figure 79: Pain relief for spaying – usage

Q: 'Do you use pain relief for spaying of heifers/cows?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55)



Figure 80: Pain relief for spaying – reasons for not using

Q: 'Why don't you use pain relief?'

BASE: All beef cattle respondents who spay cull/surplus heifers/cows and don't use pain relief (n = 54)



Figure 81: Pain relief for spaying – willing to pay

Q: 'How much would you be prepared to spend on pain relief per animal?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows and don't use pain relief (n = 54)



4.9.1.7 Alternative chemical spaying of cull/surplus heifers/cows

The cost of conventional (surgical) spaying is between \$0 and \$50/head with the average cost at \$6.35/head. Two fifths (40%) of producers who spay pay \$5–\$9.99/head and 17% pay nothing because they do it themselves (Figure 82).

Beef producers who spay were asked if they would consider chemical spaying and how much they would be prepared to pay. Most producers were in favour of the technique (81%) (Figure 83) but were not prepared to pay the expected cost of \$35–\$45 per head (Figure 84) with only 15% prepared to pay \$45 and another 9% prepared to pay \$35. The reasons why producers would not pay \$35–\$45 are shown in Figure 85 and include 'too expensive' (relative to surgical spaying) and 'would consider at \$10'.

Figure 82: Cost of surgical spaying

Q: 'What does it cost per head to have your heifers/cows spayed? BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55)



Figure 83: Chemical alternative to spaying – willing to use

Q: 'If an alternative chemical injection method was available for the spaying of heifers/cows, would you use it?'

BASE: All beef cattle respondents who spay cull/surplus heifers/cows (n = 55)



Figure 84: Chemical alternative to spaying - willing to pay

Q: 'A non-surgical spaying method that can prevent pregnancy for up to 12 months is currently under development – how much would you be prepared to pay?' BASE: All beef cattle respondents who spay cull/surplus heifers/cows - (n = 55).



Figure 85: Chemical spaying – reasons why producers would not pay \$35-\$45/head

BASE: All beef cattle respondents who spay cull/surplus heifers/cows are not prepared to pay at \$35–\$45/head (n = 43)



4.10 Vaccines / Drenches

4.10.1 Botulism

Only a quarter of all producers (26%) vaccinated against botulism, however there was a significant state effect (*P*<0.001), with those who do vaccinate being concentrated in the northern beef areas of Queensland, Western Australia and particularly the Northern Territory (46%, 34% and 81% respectively) (Figure 86). Of the producers who vaccinate against botulism, most vaccinate all age groups (Figure 87).

Figure 86: Botulism Vaccination

Q 'Do you vaccinate against Botulism?' BASE: All beef cattle respondents (n = 608)



Figure 87: Botulism – classes of stock vaccinated

Q 'In a normal season which stock do you vaccinate against botulism?' BASE: All beef cattle respondents who vaccinate for botulism (n = 159)



4.10.2 Clostridial Diseases

Producers were more likely to vaccinate against clostridial diseases other than Botulism (71%). There was a significant state effect (*P*<0.001) with higher use in New South Wales, Victoria and Tasmania (86%, 77% and 75% respectively), while producers in the Northern Territory and South Australia were less likely to vaccinate (41% and 44% respectively) (Figure 88).

The main vaccines used were 5 in 1 and 7 in 1 (both 49%) (Figure 89). Use of 7 in1 was more common among Western Australian producers (59%), whereas producers in the Northern Territory and Victoria most commonly used 5 in 1 (73% and 60% respectively). Western Australian producers had the highest use of 3 in1 at 6% compared with 1% nationally (Figure 89).

Just under three quarters (72%) of producers administer a follow-up booster vaccination 6 weeks after the initial dose (Figure 90). There was a significant state effect (*P*<0.001) with a greater proportion of South Australian producers giving it (93%) compared to producers from the Northern Territory and Queensland (40% and 52% respectively). The main reasons producers don't give the follow up booster vaccination were that they consider it is not needed / necessary / not important (35%), it is not practical / convenient (31%) and some do give it but later than 6 weeks (14%) (Figure 91).

The majority of producers (90%) vaccinate calves under 1 year of age, 70% vaccinate weaners / heifers 1 to 2 years of age and 56% vaccinate older stock (Figure 92). Northern Territory producers had the lowest vaccination rates in calves under 1 year of age at 55%, but the equal highest rate of weaner vaccination with New South Wales producers at 82%.

Yes No National 71% 29% NSW 86% 14% VIC 77% 23% QLD 66% 34% SA 44% 56% WA 60% 40% TAS 75% 25% NT 41% 59% 0% 20% 40% 60% 80% 100%

Figure 88: Clostridial Diseases

Q 'Do you vaccinate against other clostridial diseases, e.g. tetanus, black leg etc?' BASE: All beef cattle respondents (n = 608)

Figure 89: Clostridial Diseases - Vaccines Used

Q 'What vaccines do you use?'

BASE: All beef cattle respondents who vaccinate against clostridial diseases (n = 433)



Figure 90: Clostridial vaccines – follow-up booster

Q 'Do you give a booster vaccination within 6 weeks of the initial dose?' BASE: All beef cattle respondents who vaccinate against clostridial diseases (n = 433)



Figure 91: Clostridial vaccines – follow-up booster – why not?

Q 'Do you give a booster vaccination within 6 weeks of the initial dose?' BASE: All beef cattle respondents who don't give the follow up vaccine against clostridial diseases (n = 121)



Figure 92: Clostridial vaccines – classes of stock vaccinated – by state

Q 'In a normal season, which stock do you vaccinate?' BASE: All beef cattle respondents who vaccinate against clostridial diseases (n = 433)



4.10.3 Endoparasiticides

Three quarters (75%) of cattle producers drench against internal parasites. There was a significant state effect (*P*<0.001) with producers in Victoria, New South Wales and Tasmania being more inclined to drench (96%, 82% and 92% respectively) and producers in the Northern Territory (48%) less inclined to drench, reflecting the vastness of the industry and low stocking rates which assist in the breaking of the breeding cycle of internal parasites (Figure 93).

The vast majority of producers treating for internal parasites treated young cattle 1 to 2 years of age (89%) and 78% treated calves under one year of age (Figure 94). Cattle producers from South Australia and Tasmania were more likely to also treat older cattle (83% and 82% respectively) (Figure 94).

Use of a pour-on was the preferred method of application (75%), particularly in South Australia and Tasmania (83% and 91% respectively). The use of injectable drenches was highest in the Northern Territory (38%, versus 18% overall) (Figure 95).



Figure 93: Endoparasiticides

Q 'Do you drench against internal parasites?' BASE: All beef cattle respondents (n = 608)

Figure 94: Endoparasiticides - Class of Cattle Treated

Q 'In a normal season, do you drench your cattle....?' BASE: All beef cattle respondents who drench for internal parasites (n = 453)



Figure 95: Endoparasiticides - Method of Application

Q 'And what is your preferred method of application of drenches?' BASE: All beef cattle respondents who drench for internal parasites (n = 453)



4.10.4 Ectoparasiticides

Over two thirds (68%) of producers routinely treat against external parasites, most significantly in Queensland (81%) (*P*<0.001) (Figure 96).

The main external parasites treated for were:

- Lice (73%), particularity in New South Wales, Victoria, South Australia, and Tasmania (93%, 96%, 100%, and 100% respectively);
- Ticks (29%), particularly in Queensland and the Northern Territory (51% and 69% respectively); and
- Buffalo fly (46%), particularly in Queensland and the Northern Territory (81% and 85% respectively) (Figure 97).

The vast majority of producers treating for external parasites, treated young cattle 1 to 2 years of age (92%) and 80% treated calves under one year of age (Figure 94). Cattle producers from South Australia and Queensland were more likely to also treat older cattle (87% and 91% respectively) (Figure 94).

Pour-ons again were the preferred method of treatment (73%) (Figure 99), particularly in the southern states. Use of injectable was more prevalent in Western Australia and the Northern Territory (15% each), while Queensland and Northern Territory producers also used dips (11% and 15% respectively).

Figure 96: Ectoparasiticides

Q 'Do you routinely treat against external parasites?' BASE: All beef cattle respondents (n = 608)


Figure 97: Ectoparasiticides – what types?

Q 'What external parasites do you inspect or treat for?' BASE: All beef cattle respondents who treat for external parasites (n = 412)



Figure 98: Ectoparasites – Class of Cattle Treated

Q 'In you a normal season, which stock do you treat for external parasites' BASE: All beef cattle respondents who drench for internal parasites (n = 412)



Figure 99: Ectoparasiticides - Treatments

Q 'And what is your preferred method of treatment against external parasites?' BASE: All beef cattle respondents who treat for external parasites (n = 412)



4.10.5 Pestivirus

Just under one fifth (17%) of all producers vaccinate against pestivirus. There was a significant state effect (*P*<0.01) with a relatively higher proportion of producers in Tasmania vaccinating compared to other states (33%) with Northern Territory producers not vaccinating at all (Figure 100). The majority (79%) of producers vaccinate heifers (1 to 2 years old) while some vaccinate young heifer calves and older cows (60% and 59% respectively) (Figure 101).

Figure 100: Pestivirus

Q 'Do you vaccinate against the Pestivirus?' BASE: All beef cattle respondents (*n* = 608)



Figure 101: Pestivirus - Class of Cattle Treated

Q 'In you a normal season, which stock do you treat for pestivirus' BASE: All beef cattle respondents who vaccinate for pestivirus (n = 105)



4.10.6 Bovine Ephemeral Fever

A small proportion of all beef producers surveyed (8%) vaccinate against the three-day sickness (BEF). Significantly more producers in Queensland vaccinate for BEF (14%) than in Western Australia, Victoria or South Australia (0%, 1% and 0% respectively) (*P*<0.001) (Figure 102).

Figure 102: Bovine Ephemeral Fever

Q 'Do you vaccinate against the Three Day Sickness (Bovine Ephemeral Fever or BEF)?' BASE: All beef cattle respondents (n = 608)



4.10.7 Calf Scours

Just over a quarter (26%) of all producers treated for scours in calves. There was a significant state effect (P<0.001), in particular the incidence of treatment was relatively high in Victoria (46%) and relatively low in Queensland (14%) and the Northern Territory (11%) (Figure 103).

The main treatments used involved administering antibiotics or fluids (54% and 39% respectively) (Figure 104).

Figure 103: Calf Scours

Q 'Do you treat for scours in calves' BASE: All beef cattle respondents (n = 608)



Figure 104: Calf Scours Treatment

Q 'How do you treat for / prevent scours in calves?' BASE: All beef cattle respondents who treat for scours in calves (n = 160)



4.11Animal Restraint

The majority of beef producers use a crush or head bail (88%) to restrain animals while performing the various animal husbandry practices undertaken on farm (Figure 105). A calf cradle was also popular (42%), especially in Queensland (71%) and the Northern Territory (70%). A small proportion of producers still restrain animals by hand (5%), particularly in Tasmania (25%).

Figure 105: Animal Restraint

Q 'How do you restrain animals when handling cattle i.e. castrating/dehorning/tipping cattle/branding/ear tagging/drenching/vaccination? BASE: All beef respondents (n = 608)



4.12Transport

4.12.1 Slaughter Stock

4.12.1.1 Feed and/or Water Curfew for Slaughter Stock

Just over half (54%) of beef producers apply a feed curfew (Figure 106) and 41% apply a water curfew (Figure 107) prior to the transport of slaughter stock. There was a significant state effect for use of both feed and water curfews. In particular, a relatively high proportion of producers in Tasmania apply a feed curfew (78%), while only 12% of producers in the Northern Territory apply a feed curfew (Figure 106). Similarly, a relatively high proportion of producers in South Australia apply a water curfew (66%), while only 15% of producers in the Northern Territory apply a water curfew (Figure 107).

The main reasons provided for applying a feed and / or water curfew was that stock travel better (66% feed; 69% water) and are less messy (50% feed and water) (Figure 108 and Figure 109). The main reasons feed and / or water curfews were not applied were because of dehydration / stress / condition / weight (19% feed, 30% water), only need to travel a short distance (18% feed, 18% water) or too far to travel (14% feed curfew) (Figure 110), and travel better / long journeys (14% water curfew) (Figure 111).

The average length of curfew was 8.3 hours for feed curfew and 7.7 hours for water curfew. There was a significant state effect for length of both feed and water curfews. Just over half (51%) of beef producers applied a feed and / or water curfew of under 12 hours, especially in Victoria (69% for feed and 76% for water curfews) (Figure 112, Figure 113). Just under half (44%) of producers applied a feed / and or water curfew (Figure 112, Figure 113) of between 12 and 24 hours, in particular in Tasmania (72% feed/100% water curfews). A small proportion of beef producers (4%) applied a feed and / or water curfew of greater than 24 hours (Figure 112, Figure 113), with those in South Australia more inclined to do so (19% feed and/or water curfews).

Figure 106: Feed Curfew for Slaughter Stock

Q 'Before transporting slaughter stock, is a feed curfew applied?' BASE: All beef respondents (n = 608)



Figure 107: Water Curfew for Slaughter Stock

Q 'Before transporting slaughter stock, is a water curfew applied?' BASE: All beef respondents (n = 608)



Figure 108: Feed Curfew for Slaughter Stock - Why

Q 'Why do you apply a feed curfew prior to the transport of slaughter stock?' BASE: All beef respondents who apply a feed curfew (n = 328)



Figure 109: Water Curfew for Slaughter Stock - Why

Q 'Why do you apply a water curfew prior to the transport of slaughter stock?' BASE: All beef respondents who apply a water curfew (n = 249)



Figure 110: Feed Curfew for Slaughter Stock - Why Not

Q 'Why don't you apply a feed and/or water curfew prior to the transport of slaughter stock?' BASE: All beef respondents who don't apply a feed curfew (n = 280 for feed)



Figure 111: Water Curfew for slaughter stock - Why Not

Q 'Why don't you apply a water curfew prior to the transport of slaughter stock?' BASE: All beef respondents who don't apply a water curfew (n=359 for water)



Figure 112: Feed Curfew for slaughter stock - How Long

Q 'How many hours before transport is normal feed curfew applied to slaughter stock?' BASE: All beef respondents who apply a feed curfew (n = 328)



Figure 113: Water Curfew for slaughter stock - How Long

Q 'How many hours before transport is normal water curfew applied to slaughter stock?' BASE: All beef respondents who apply a water curfew (n = 249)



4.12.1.2 Transit Time for Slaughter Stock

There was a significant difference between states for transit time for slaughter stock, with beef producers from the Northern Territory having the longest average transit time of 12.4 hours and Victoria the shortest average transit time of 1.9 hours (Figure 115). Just under a third of producers (30%) had slaughter stock transit times of one hour or less.

The smaller states of Victoria and Tasmania had a larger proportion of stock travelling one hour or less (53% and 45%) respectively reflecting the close proximity to markets in these states, while the Northern Territory had only 4% of producers with transit times of one hour or less. Two fifths (43%) of all producers had stock in transit for two to six hours, while this proportion was higher in New South Wales (52%). Half (50%) of producers had stock in transit for between two and six hours, particularly in South Australia (66%). Nearly one fifth of (17%) producers transport stock between six to twelve hours, particularly in the larger states, with large cattle stations in Queensland, Western Australia and the Northern Territory (22%, 22% and 44% respectively). One quarter of producers (26%) in the Northern Territory transport stock between 12 and 24 hours and 19% transport stock 24 hours or more (Figure 115).

Q 'How many hours are slaughter stock in transit before unloading?' BASE: All beef cattle respondents (n = 608) 14.0 12.4 12.0 10.0 8.0 6.2 6.1 6.0 4.8 4.4 3.3 4.0 3.1 1.9 2.0 0.0 NSW NT QLD SA VIC WA National TAS

Figure 114: Transit time – slaughter stock

Figure 115: Transit time – slaughter stock – by state and time period

Q 'How many hours are slaughter stock in transit before unloading?' BASE: All beef cattle respondents who transport slaughter stock (n = 608)



4.12.2 Non-slaughter Stock

4.12.2.1 Feed and/or Water Curfew for Non-Slaughter Stock

Just over half (55%) of producers apply a feed curfew (Figure 116) and / or water curfew (43%) (Figure 117). prior to the transport of non-slaughter stock (e.g. breeding and trade stock). Feed curfews were more likely to be applied in South Australia (67%) and less likely in the Northern Territory (33%) (Figure 116) and water curfews were more commonly applied in South Australia (56%) and less so in Tasmania (15%) (Figure 117).

The main reasons provided for applying a feed and water curfew was that stock travel better (63% and 70% respectively) and they were cleaner / less mess (44% and 47% respectively) (Figure 118 and Figure 119).

The average length of the feed curfew was 5.7 hours and 7.9 hours for the water curfew for non-slaughter stock. Just over half of beef producers applied a feed (56%) and / or water curfew (44%) of under 12 hours (Figure 120, Figure 121). A greater proportion of producers in Victoria applied a feed curfew (81% Figure 120) and water curfew (72% Figure 121) of under 12 hours. Just over a third of beef producers applied a feed curfew (37%) and nearly half applied a water curfew (48%) of 12 to 24 hours, particularly in Tasmania and the Northern Territory (57% feed curfew) and Western Australia (69% water curfew). Feed curfews of over 24 hours were more common in Tasmania (14% versus 2% overall Figure 120) and a relatively higher proportion of South Australian producers applied a water curfew of over 24 hours (20%, versus 4% overall, (Figure 121).

The main reasons recorded for not applying a feed and / or water curfew for non-slaughter stock were short distance to travel (27% feed Figure 122; 28% water, (Figure 123), concerns about dehydration / stress on animals (21% feed; 22% water) and no discernible need to curfew (22% feed; 22% water).

Figure 116: Feed Curfew non-slaughter stock

Q 'Before transporting non-slaughter stock, is a feed and/or water curfew applied?' BASE: All beef cattle respondents that transport non-slaughter stock (n = 441)



Figure 117: Water Curfew non-slaughter stock Q 'Before transporting non-slaughter stock, is a feed and/or water curfew applied?' BASE: All beef cattle respondents that transport non-slaughter stock (n = 441) Yes



Figure 118: Feed Curfew non-slaughter stock - Why

Q 'Why do you apply a feed and/or water curfew prior to the transport of non-slaughter stock?' BASE: All beef cattle respondents who apply a feed curfew (n = 243)



Figure 119: Water Curfew non-slaughter stock - Why

Q 'Why do you apply a feed and/or water curfew prior to the transport of non-slaughter stock?' BASE: All beef cattle respondents who apply a water curfew (n = 189)



Figure 120: Feed Curfew non-slaughter stock - How Long

Q 'How many hours before transport is a normal feed and/or water curfew applied to non-slaughter stock?'

BASE: All beef respondents who apply a feed curfew (n = 243)



Figure 121: Water Curfew non-slaughter stock - How Long

Q 'How many hours before transport is a normal feed and/or water curfew applied to non-slaughter stock?'

BASE: All beef respondents who apply a water curfew (n = 189)



Figure 122: Feed Curfew non-slaughter stock - Why Not

Q 'Why don't you apply a feed and/or water curfew prior to the transport of non-slaughter stock?' BASE: All beef respondents who don't apply a feed curfew (n = 198)



0% 5% 10% 15% 20% 25% 30% Short Distance / Time To Travel 28% No Need / No Advantage 22% Dehydration / Stress For Animals / Condition / Weight 22% **Travel Better / Long Journeys** 13% Happens At Yard / Market 6% No Requirement 5% The Way We Do It 4% Don't Know 1%

Figure 123: Water Curfew non-slaughter stock - Why Not

Q 'Why don't you apply a feed and/or water curfew prior to the transport of non-slaughter stock?' BASE: All beef respondents who don't apply a water curfew (n = 252)

4.12.2.2 Transit Time for Non-Slaughter Stock

As with slaughter stock transit times, there was also a significant state effect for non-slaughter stock transit times with beef producers from the Northern Territory having the longest average transit time of 11 hours while Tasmania had the shortest average transit time (1.7 hours) (Figure 124).

One third (35%) of producers had stock in transit for under one hour, particularly in Victoria and Tasmania (52% and 54%). New South Wales and Tasmanian producers more commonly transport cattle for two to six hours relative to other states (47% and 46% respectively, versus 39% overall), while those in Western Australia and the Northern Territory had a relatively higher incidence of producers transporting cattle between six and twelve hours (29% and 43% respectively, versus 16% overall all) (Figure 125). Nineteen percent of producers in the Northern Territory transported non-slaughter stock for 24 hours or more compared to 3% nationally.



Figure 124: Transit time for non-slaughter stock – average by state *Q 'How many hours are non-slaughter stock in transit before unloading?' BASE: All beef cattle respondents who transport non-slaughter stock (n = 441)*

Figure 125: Transit time for non-slaughter stock – by state and time period *Q 'How many hours are non-slaughter stock in transit before unloading?' BASE: All beef cattle respondents who transport non-slaughter stock (n = 441)*



4.13 Destruction and Disposal of Sick and Injured Cattle

The vast majority (95%) of beef producers shoot injured or sick cattle, particularly those in Queensland and the Northern Territory (100%) (Figure 126). Victorian beef producers are significantly more likely to call the knackery / outside agent to destroy sick or injured cattle than producers from all other states except South Australia (23%, versus 3% overall).

Burial and burning were the main methods of carcass disposal (40% and 30% respectively) (Figure 127). Beef producers in Western Australia were more likely to bury the carcasses (62%). Northern Territory producers were more likely to dispose of the carcasses by burning (42%) and Victorian producers had a high usage of carcasses on farm for pet food (52%).



Figure 126: Destruction method by State *Q 'How do you destroy injured or sick cattle?'*

BASE: All beef cattle respondents (n = 608)

Figure 127: Carcass Disposal

Q 'How do you dispose of the carcasses?' BASE: All beef cattle respondents who dispose of carcasses on farm (n = 587)



4.14 Wild Predators

Just under half of beef producers (47%) have a problem with predators on their property affecting their cattle (Figure 128). There was a significant state effect (*P*<0.001), with Tasmania having the lowest level of predators (4%) and the Northern Territory the highest (96%). Wild dogs / dingos are the main predators that cause stock losses for 80% of producers (Figure 129) with Tasmania having no foxes or pigs.

Of particular note was the distribution of predator issues across states:

- Wild dogs / dingoes were an issue in the Northern Territory, Queensland and Tasmania (100%, 97% and 100% respectively);
- Foxes were an issue in Victoria, and South Australia (78% and 50% respectively);
- Pigs were an issue in New South Wales and Queensland (46% and 28% respectively);
- Crows / eagles were an issue in Tasmania and South Australia (100% and 17% respectively).

The main control methods for these predators revolved around poisoning, shooting and trapping Figure 130, Figure 131, Figure 132 and Figure 133). Companion animals and fencing also featured. Most birds are protected so there were limited options for their control.

Many producers (35%) don't know how many livestock they lose to predators, while 15% said none but that they worry / bite their stock. One quarter (25%) of respondents lose less than 10 animals a year and 2% lose more than 500 a year on large cattle stations in the Northern Territory (Figure 134).

Figure 128: Predators by State

Q 'Do you have a problem with predators on your property?' BASE: All beef cattle respondents (n = 608)



Figure 129: Top Predators by State

Q 'Name the two most important predators on your property?' BASE: All beef cattle respondents where predators are a problem (n = 287)



Figure 130: Wild Dogs & Dingos – control methods

Q 'How do you control Wild Dogs & Dingoes on your property?' BASE: All beef cattle respondents with Wild Dog & Dingo issues (n = 230)



Figure 131: Pigs – Control methods

Q 'How do you control Pigs on your property?' BASE: All beef cattle respondents with Pig issues (n = 72)



Figure 132: Foxes – Control methods

Q 'How do you control Foxes on your property?' BASE: All beef cattle respondents with Fox issues (n = 51)



Figure 133: Birds (crows, eagles etc) - Control methods

Q 'How do you control birds on your property?' BASE: All beef respondents with crow/eagle issues (n = 28)





Figure 134: Predators – estimated losses *Q* 'How many cattle do you lose to predators a year?'

4.15 Use of electric prodders on cattle

Just over half (51%) of producers do not use electric cattle prodders on any cattle at all, particularly in Victoria, New South Wales and Tasmania (62%, 61% and 65% respectively). Prodders were more commonly used on mature cattle by producers in Western Australia and the Northern Territory (50% and 44% respectively) (Figure 135).

Figure 135: Electric prodders

Q: 'Are electric prodders used on your cattle or calves?' BASE: All beef cattle respondents (n = 608)



4.16 Quarantine

Just under half of beef producers (48%) have a quarantine process for the introduction of new stock, with another 14% having quarantine processes for some classes of stock only, mainly bulls (Figure 136). Victorian producers were least likely to have a quarantine process (29%) compared to the other states. A number of producers (15%) did not require a quarantine process as they ran a closed herd / bred their own replacements.

The majority (94%) of beef producers that have a quarantine process isolate or separate stock for different periods of time, 30% drench / dip stock on arrival and 16% vaccinate stock on arrival (Figure 137).

Figure 136: Quarantine

Q 'Do you have a quarantine process for ALL introduced stock?' BASE: All beef respondents (n = 608)



Figure 137: Quarantine processes used by beef producers

Q 'What is your quarantine process?'

BASE: All beef producers with a quarantine process (n=374)



4.17 Codes of practice and guidelines

Cattle producers were asked a series of questions regarding awareness of industry standards and guidelines and MLA publications.

Nearly one third (30%) of cattle producers had not heard of the *Land Transport Standards and Guidelines* while 36% had heard of them but had not read them, and the remaining 34% had read them (Figure 138). Producers in the Northern Territory were more likely to have heard about them (42%) and read them (93%) while cattle producers in New South Wales were the least likely to have heard of them (39%).

Just under half (45%) of cattle producers were not aware of the new *Cattle and Sheep Welfare Standards and Guidelines* or the existing *Model Codes of Practice*, 35% had heard of them but not read them and 20% had read them (Figure 140). A lower proportion of producers in New South Wales (48%) had heard of the *Cattle and Sheep Welfare Standards and Guidelines* or the existing *Model Codes of Practice* while producers from the Northern Territory were the most likely (35%) to have read them (Figure 140).

Just under half (44%) of cattle producers are not aware of MLA's 'A guide to best practice in husbandry in *cattle*' while 27% have heard of it / seen it but not read it, 14% have read it but don't have a copy and only 16% have a copy and have read it (Figure 141). A relatively higher proportion of cattle producers in the Northern Territory had a copy and had read it (26%) while producers in Victoria had the lowest rate of awareness (56% were not aware of it).

Just under three quarters (71%) of cattle producers are not aware of MLA's '*A national guide to describing and managing beef cattle in low body condition*' while 13% have heard of it / seen it but not read it, 9% have read it but don't have a copy and only 6% have a copy and have read it (Figure 142). There was a significant state effect, with a higher proportion of producers in the Northern Territory and Tasmania having heard about it but not read it (22% and 21% respectively) while producers in Victoria and New South Wales had the lowest rates of awareness (75% and 76% respectively were not aware of it).

The '*Is it fit to load*' publication is more widespread in its awareness. Just under half of cattle producers (46%) are not aware of it, while 21% of cattle producers have a copy and have read it. (Figure 143). Again,

there was a significant state effect, with producers in Western Australia and the Northern Territory having more awareness of the publication with 32% and 44% respectively having a copy and having read it, while only 25% of producers from South Australia had not heard of it. Cattle producers in New South Wales had relatively low awareness with over half (56%) not aware of it and only 16% having a copy / read it (Figure 143).

Copies of the various MLA publications were obtained directly from MLA by 42% of beef producers and 11% were obtained from the internet, while 13% could not recall where they had obtained a copy (Figure 144).

Just under two fifths (38%) of beef producers used other guidelines in their businesses. There was a significant state effect (*P=0.001*) with other guidelines being most commonly used by producers from Tasmania (75%) (Figure 145). The types of guidelines used by producers are MSA guidelines (25%), NVD / LPA/ Cattlecare (24%) and processor QA programs (12%) (Figure 146).

Figure 138: Land Transport Standards and Guidelines – Awareness – by State

Q: The industry has developed Land Transport of Livestock Standards and Guidelines – Are you aware of these?

BASE: All cattle respondents (n = 608)



Figure 139: Land Transport Standards and Guidelines – where obtained?

Q: The industry has developed Land Transport of Livestock Standards and Guidelines – where did you get a copy?

BASE: All cattle respondents who had a copy of the guidelines (n = 225)



Figure 140: Animal welfare standards and guidelines and codes of practice – Awareness – by State *Q: The industry has developed Cattle and Sheep Welfare Standards and Guidelines to replace the Model Codes of Practice – Are you aware of either of these? BASE: All cattle respondents (n = 608)*



Figure 141: A guide to best practice husbandry in cattle– Awareness – by State *Q: MLA developed A guide to best practice in husbandry in cattle – Are you aware of it? BASE: All cattle respondents (n = 608)*



■ Have a copy and have read it ■ Have read it but don't have a copy ■ Heard of it/seen it but haven't read it ■ Not aware

Figure 142: A national guide to describing and managing beef cattle in low body condition – Awareness – by State

Q: MLA developed A national guide to describing and managing beef cattle in low body condition - Are you aware of it?

BASE: All cattle respondents (n = 608)





Figure 143: Is it fit to load – Awareness – by State

Q: MLA developed Is it fit to load – Are you aware of it? BASE: All cattle respondents (n = 608)





Figure 144: MLA publications -where obtained?

Q: MLA has developed – where did you get a copy? BASE: All cattle respondents who had a copy of publications (n = 238)



Figure 145: Other guidelines – by state

Q 'Are there any other codes of practice or guidelines that you use in your beef/sheep business?' BASE: All cattle respondents (n = 608)



Figure 146: Other guidelines – which ones?

Q 'Name the ones you use'

BASE: All cattle respondents who used other guidelines (n = 230)



4.18 Training in animal husbandry practices

This question was not worded well in the 2010 survey. In this survey, a general question was asked around how producers learnt to undertake the various animal husbandry practices performed on farm as well as what groups they belong to, field days attended and how they seek information regarding animal husbandry practices and issues. Finally, they were asked who the decision makers are on their farm regarding animal husbandry practices.

Most producers have learnt to handle stock and perform the various animal husbandry practices undertaken on farm via informal training (someone has taught them on the job) (57%), or a combination of informal and formal training (30%) (Figure 147). Producers in Tasmania had more often taught themselves (13% compared to 7% nationally) and 13% of Victorian producers learnt from a formal course compared to 6% nationally.

The main formal training courses revolved around attending various courses / workshops / field days (48%) and degree / Ag colleges (28%) (Figure 148).

Nearly four fifths (77%) of the producers surveyed had not attended an event (field day, workshop, meeting etc.) that MLA had sponsored in the last 12 months or they didn't know if the event was sponsored by MLA (4%) (Figure 149). There was a significant state effect, with a greater proportion of producers in Western Australia, the Northern Territory and Tasmania having attended an MLA sponsored event (31%, 37% and 38% respectively) with 25% of Tasmanian producers having attended a More Beef from Pastures event and 26% of Northern Territory producers attending another event type that they identified with MLA (Figure 149). A small percentage of producers in Western Australia (2%) and New South Wales had also attended a Making More from Sheep event in the last 12 months.

Only one third (32%) of the beef producers surveyed were members of a producer group (Figure 150) such as production groups, industry groups and Landcare groups (Figure 151). Producers from New South Wales and South Australia were less inclined to be involved in a producer group (26% and 28% respectively) while Northern Territory and Western Australian producers were more inclined (48% and 43% respectively) (Figure 150).

Over half of the cattle producers surveyed seek information / advice on animal husbandry practices from private vets (58%) followed by the internet (41%), government vets and animal health officers (28%), stock agents (23%) and neighbours / other farmers (27%) (Figure 152). On average cattle producers named 2.5 sources of information relating to animal husbandry / health issues and practices.

Three fifths (55% male, 4% female) of cattle producers reported that they were solely responsible for making decisions on farm about animal husbandry practices used (Figure 153). Another one fifth (16% male, 4% female) made decisions with other business partners and family members and 14% made decisions jointly with their spouse / partner (8% male, 6% female).

Figure 147: Training in animal husbandry practices

Q 'How did you learn to perform the various animal husbandry practices undertaken on farm?' BASE: All cattle respondents (n = 608)



Figure 148: Formal Training

Q 'What type of training did they receive?'

BASE: All cattle respondents that have undergone formal training (n = 219)



Figure 149: Attendance at MLA events

Q "Have you attended a MLA sponsored event (field day/workshop/meeting) in the last 12 months? BASE: All cattle respondents (n = 608)



Figure 150: Membership of discussion groups

Q "Are you a member of a farmer discussion group?" BASE: All cattle respondents (n = 608)



Figure 151: Group membership – what groups?

Q "Name of group and program"

BASE: All cattle respondents that are group members (194)



Figure 152: Information seeking

Q" Where do you seek / find out information relating to animal husbandry/health issues and practices?" BASE: All cattle respondents (n = 608)



Figure 153: Decision making on farm

Q" Who is the main person in your business determining what animal husbandry practices are used on farm"

BASE: All cattle respondents (n = 608)



5 Comparison with 2010 results

Where possible, comparisons were made between the data collected in 2010 and the data collected in 2016. These results are shown in Tables 2 - 13 below for both years' data and comments provided as to whether the differences were significant.

A higher proportion of producers used all identification methods in 2016 compared to 2010. This may be in part due to a greater issue with stock security, changed stock management practices and legal requirements.

Table 2: Identification Methods (multiple responses allowed)

	2010	2016
NLIS Tag (electronic)	75%	91%
Management Tag (non electronic)	27%	63%
Earmark	30%	51%
Hot Iron Brand	25%	45%
Freeze Brand	1%	3%
Tattoo	NA	2%

There was no significant state by year effect for castration method, however there was a significant year effect. Male calves were castrated mainly with a knife or rubber rings in 2010, whereas in 2016 a much lower proportion of respondents used a knife for castration, with a higher proportion using a scalpel or rubber rings (Table 3).

	2010	2016
Knife*	41%	18%
Scalpel*	19%	27%
Rubber Rings*	41%	51%
Cryptorchid / Short Scrotum	0%	0%
Burdizzo	3%	2%
Tension Bander	1%	1%
Emasculators	1%	1%

Table 3: Castration Methods

Calves from non-polled herds were dehorned at 4.8 months of age on average in 2010 and this had not changed in 2016 (Table 4). The preferred methods in 2010 were mainly cup or scoop dehorners whereas in 2016 scoop or cup dehorners and gouging knife were the preferred methods of dehorning. This difference was not significant.

Table 4: Dehorning Methods

	2010	2016
Average Age	4.8 months	4.8 months
Scoop or cup dehorners	68%	55%
Gouging knife	23%	30%
Hot iron / heat cauterising	6%	4%
Knife	NA	4%
Dehorners (various)	NA	3%
Guillotine	3%	1%
Tippers / Cutter	3%	1%
Other	NA	1%

Only 7% of cattle producers spayed cull / surplus heifers and only 4% spayed cull / surplus cows in 2010. This proportion had increased slightly to 9% for both heifers and cows in 2016 however the change was not significant (Table 5). Heifers and cows were mainly spayed using the Willis Dropped Ovary Technique (Table 5) in both 2010 and 2016.

Table 5: Spaying				
	2010		2016	
	Heifers	Cows	Heifers	Cows
Number Spayed	7%	4%	9%	
Willis Dropped Method	62%	58%	91%	68%
Flank and removal	22%	18%	2%	0%
Flank and webbed	17%	5%	4%	19%
Passage	NA	20%	2%	13%

Between 29% and 46% of respondents would be willing to pay for the application of a method of pain relief to be used at the time of certain animal husbandry operations in 2010 (Table 6). Cattle producers were willing to pay between \$1.10 to \$2.40 per animal on average (Table 6) in 2010. In 2016 this question was altered to look at the actual use of pain relief and found only 4% were using it for castration / dehorning and 2% for spaying (Table 6). In 2016 producers paid on average \$2.35 per head for pain relief for castration / dehorning and were willing to pay \$1.42 per animal for spaying.
		Castration	Dehorning	Spay Heifers	Spay Cows
2010	Willingness to Use	29%	43%	46%	42%
	Willingness to Pay (per animal)	\$1.10	\$1.40	\$2.40	\$2.00
16	Do you Use Pain Relief?	4%		25	%
20:	Willingness to Pay (per animal)	\$2.35		\$1.	42

Table 6: Willingness to use Pain Relief

Between 22% and 53% of respondents were willing to pay for an alternative chemical injection to replace certain animal husbandry operations in 2010. Respondents were willing to pay between \$2.10 and \$4.70 per animal on average in 2010 (Table 7). This question was not asked for castration in 2016 but was again asked for spaying, with 81% of respondents willing to use a chemical alternative (Table 7). The question about willingness to pay was not asked in a way that allowed it to be reported in this format.

Table 7: Willingness to use Chemical Alternatives

	2010	2016
Castration:		
Willingness to Use	39%	NA
Willingness to Pay (per animal)	\$2.10	
Spay Heifers:		
Willingness to Use	53%	81%
Willingness to Pay (per animal)	\$4.70	NA
Spay Cows:		
Willingness to Use	38%	81%
Willingness to Pay (per animal)	\$3.10	NA

Only a quarter of all producers surveyed were aware of any industry Codes of Practice relating to certain animal husbandry procedures in 2010 (Table 8). In 2016, 70% were aware of, or had read the *Land Transport of Livestock Standards and Guidelines* and 55% had heard or read the *Cattle and Sheep Welfare Standards and Guidelines/Model Codes of Practice* (Table 8).

Table 8: Awareness of Industry Codes of Practice

	2010	2016
Castration	26%	NA
Dehorning	22%	NA
Spay Heifers	26%	NA
Spay Cows	27%	NA
Land transport of Livestock Standards and Guidelines	N/A	70%
Cattle and Sheep Welfare Standards and Guidelines/Model	N/A	55%
Codes of Practice		

The majority of cattle producers treated their stock for clostridial diseases, endoparasites and ectoparasites in 2010 and these figures have not altered significantly in 2016 (Table 9). Treatment for Botulism, Bovine Ephemeral Fever and calf scours were regionally specific in 2010 and stayed the same in 2016, with Pestivirus vaccination being specific to the southern states (Table 9).

	2010	2016
Botulism	23%	26%
Clostridial Vaccines	74%	71%
Endoparasiticides	79%	75%
Ectoparasiticides	70%	68%
Bovine Ephemeral Fever	8%	8%
Calf Scours	29%	26%
Pestivirus	NA	17%

Table 9: Drenches / Vaccines

Feed and water curfews applied varied for cattle, for both slaughter and non-slaughter stock (Table 10) in 2010 and 2016. The difference between proportions of producers applying a feed and water curfew for transport of both slaughter and non-slaughter stock was significant between years. There was also a significant difference in the length of feed curfews applied for both slaughter and non-slaughter stock between years with curfew times significantly lower in 2016. There was no significant difference between years for length of water curfews. There was a significant difference between years for transit time of non-slaughter stock, but not for slaughter stock.

Table 10: Transport

	2010	2016
Slaughter Stock		
Feed Curfew – applied*	67%	54%
Feed Curfew – time*	10.5 hours	8.3 hours
Water Curfew – applied*	47%	41%
Water Curfew – time	9.5 hours	7.7 hours
Transport time	3.4 hours	4.8 hours
Non - Slaughter Stock		
Feed Curfew – applied*	45%	55%
Feed Curfew – time*	9.9 hours	5.7 hours
Water Curfew – applied*	36%	43%
Water Curfew – time	9.7 hours	7.9 hours
Transport time*	2.9 hours	4.6 hours

* Indicates significant difference between years.

The majority of cattle producers shoot injured and sick livestock, with burial and fire being the preferred methods of disposal (Table 11 and Table 12) in both 2010 and 2016.

Table 11: Destruction of Sick / Injured Animals (multiple responses allowed in 2010)

	2010	2016
Shoot	95%	95%
Vet	5%	2%
Knackery / Outside Agent	1%	3%

	2010	2016
Bury	46%	40%
Burn	44%	30%
Pet Food	14%	9%
Leave / Natural Decomposition	6%	13%
Local Council Tip	3%	0%
Grave yard / Carcass Dump	2%	5%
Use as bait	2%	1%
Depends on time of year/cause of death	NA	1%

Table 12: Disposal of Sick / Injured Animals (multiple responses allowed in 2010)

Foxes were the main predator for cattle producers (Table 13) in 2010 but had changed to wild dogs / dingos in 2016 reflecting the spread of these as predators across Australia.

Table 13: Wild Predators (multiple responses allowed) 2010 2016 Dingoes 27% 80% Wild Dogs 15% Foxes 33% 18% Crows 5% 10% **Eagles / Hawks** 4% Pigs 16% 25% **Feral Cats** 0% NA

6 Conclusions and Recommendations

A quantitative telephone study of 608 beef producers across Australia in 2016 examined the extent and nature of particular animal husbandry procedures across the beef industry.

A number of practices had changed in their use significantly since the first time this survey was undertaken and some have stayed the same. These practices can be considered to be:

- 1. Decreasing practices where use has significantly decreased since 2010;
- 2. Maintaining practices where use has not altered since 2010 and;
- 3. Emerging or new practices where use is on the increase or first observed in this survey.

6.1 Decreasing practices

- <u>Use of the knife for castration.</u> This has significantly decreased from 2010 to 2016 from 41% to 18%, with the use of scalpels and rubber rings on the increase. Many producers commented that the knife was not as sharp or hygienic as the scalpel and others commented that rings were easier to use with inexperienced operators.
- 2. <u>Curfew times for slaughter and non-slaughter stock</u>. These have decreased significantly from 2010 to 2016 for water and feed by on average 2 hours. There is no discernible explanation for why this has occurred.
- 3. <u>Use of some spaying techniques</u>. Use of flank and removal of ovaries and passage spaying techniques has decreased since 2010 in favour of the Willis dropped ovary method of spaying, especially for heifers.

6.2 Maintaining practices

The practices that have stayed the same in their use between the two surveys are:

- 1. Dehorning methods, age of dehorning, use of poll breeds;
- 2. Destruction of injured / sick livestock methods;
- 3. Use of clostridial vaccines;
- 4. Use of botulism vaccines;
- 5. Treatment for lice (Ectoparasites);
- 6. Treatment for worms (Endoparasites);
- 7. Treatment of calf scours; and
- 8. Use of spaying (although methods have changed)

6.3 Emerging practices

The practices that are emerging or increasing in their use are:

- <u>Castration.</u> Rubber rings and scalpels are the preferred methods of castrating male calves in 2016 and their use has significantly increased since 2010 from 41% to 51% for use of rings and 19% to 27% for use of scalpels. The use of rubber rings for castration is increasing because it is easy to use, bloodless and perceived as being more humane. In the north where other forms of castration are used, the change has been from knife to scalpel because it is considered to be more hygienic and the blade is sharper.
- 2. <u>Permanent Identification</u>. NLIS tags electronic and breeder tags. The use of these as the main form of identification in cattle has increased from 2010 in line with the push for increased traceability in cattle but also as a means of protection in the north from stock losses in conjunction with hot iron branding (mandatory in most northern states) and earmarking.
- 3. <u>Willis dropped ovary method of spaying</u>. This method of spaying has become the preferred method for spaying both heifers and cows in 2016 and is considered to be safe, quick and effective.
- 4. <u>Chemical alternatives to spaying</u>. Four fifths of the producers who spay would consider the use of a chemical alternative to surgical spaying. However only 21% of producers would be prepared to pay the expected cost of \$45 \$35 per animal citing that it would need to be closer to the cost of surgical spaying for them to consider using it.
- 5. <u>Pestivirus vaccination</u>. Use of this vaccination was not asked in 2010 so it is not known if the use of this vaccination is increasing. However, it is emerging as an issue in southern herds so a baseline was established this year for future reference. It was used mainly in New South Wales and Tasmania. Queensland and Victorian producers are less inclined to vaccinate for pestivirus and Northern Territory producers do not vaccinate for this at all.
- 6. <u>Predation.</u> A greater proportion of producers in 2016 reported that predators are having an impact on their herds. Dingos, wild dogs and birds (eagles / crows) in particular seem to be on the increase. With less sheep in the north, it is not surprising that dingos and wild dogs are having an impact on calves and cows.
- 7. <u>Checking calves after marking and dehorning</u>. The frequency of checking calves after castration and dehorning has increased from 2010 to 2016.
- 8. <u>Use of electric prodders on cattle</u>. This has increased from 38% of producers who frequently or sometimes used them on cattle and calves in 2010 to 63% of beef producers using them in 2016, especially for loading cattle or working with animals in yards.
- 9. <u>Pain relief</u>. Use of pain relief for castration and dehorning is still not very widespread but producers are more aware of the need and are prepared to pay more for it than in 2010. However, there are still many producers who currently would not consider using pain relief as it is considered to add unnecessary cost, time and stress to practices that they consider have little pain or short lived pain associated with them.

- 10. <u>Transit times for non-slaughter stock</u>. The transit times for non-slaughter stock have increased significantly by at least 2 hours since 2010. This is presumably because of changes in markets and more direct sale to feedlots involving more travel.
- 11. <u>Codes of practice</u>. Awareness of Industry Codes of Practice relating to transport and welfare have increased, however while this has improved since 2010, some work is still required to create greater industry wide awareness.

6.4 Recommendations for extension

The demographic information combined with the additional training / information seeking data collected in the 2016 survey provides some useful data as to how beef producers seek information and learn new skills. The key information gathered shows that:

- 1. Most producers learn how to perform various animal husbandry practices from their family or on the job (57%) or in combination with on the job and formal training (further 30%).
- 2. When producers do undertake formal learning, it is most often through field days / workshops / courses (48%). However just over three-quarters of producers (77%) have not attended an event that they identify with MLA in the last 12 months.
- 3. One third (32%) of the producers surveyed were members of a producer group, with most of these being local production groups.
- 4. Private vets (58%) followed by the internet (41%); government vets / animal health officers (28%), stock agents (23%) and neighbours / other farmers (27%) were producers' main sources of information or advice relating to animal health and welfare.
- 5. Over half of producers surveyed reported that they were solely responsible for decision making relating to animal health and animal husbandry practices, while the rest made these decisions in conjunction with various family or business members.
- 6. Most producers surveyed were male and over 55 years of age.

The results in this section indicate that in order for MLA to influence animal husbandry practices on farms they need to target:

- Private vets, government vets / animal health officers and stock agents and back this up with information on the internet linked to the MLA website.
- Farmer groups directly through using many different delivery methods including field days and workshops, with multiple delivery partners, but also considering online learning.
- Multiple farming partners (male / female, offspring, parents, siblings, farm workers / managers) including the younger business members.
- Specific regions depending on the practice.

The results of this project have provided MLA and industry with a snapshot of current industry practices and degrees of use of key animal husbandry practices within the Australian beef industry in 2016 and a comparison with those measured in 2010. It also highlights potential areas for consideration in terms of producer willingness to use and pay for alternative methods of animal husbandry practices in beef herds. This information will assist the beef industry to make more informed policy decisions regarding animal husbandry practices and allow more detailed consideration of the next steps in terms of research and extension investment strategies.

The project has also provided the beef industry with an on-going benchmark which can be used to gauge the effectiveness of any new technologies that may be developed and made commercially available to the industry in the future.

6.5 Acknowledgements

The authors would like to gratefully acknowledge the co-operation provided by the 608 Australian beef producers who took the time to participate in this survey, and the diligent efforts of the team of agricultural consultants who conducted the surveys.

7 Appendices

7.1 Survey questions

1. INTRODUCTION

INTRODUCTION

Hello<name>,

I am <insert your name> and I am calling on behalf of MLA as per arrangements made by <Rina/Robyn> last week.

Thank you for agreeing to be part of MLA's Animal Husbandry Survey. Reiterate the confidentiality i.e. no one will be identifiable in the results and the results are confidential i.e. will only be shared with MLA's approval.

Can I please check that I have the right person for this survey and the details I have for your enterprise size and location are correct (cross check with interview schedule)

1. Basic interview demographics

Name of interviewer	
Date/time of interview	
Name of farmer	
phonenumber	
Town	
State	
postcode	
MLA MEMBER	
number (if known	
from pre-interview	
info)	

2. So that we can be sure we are interviewing a cross section of rural producers, in the last financial year, roughly what percentage of your gross farm income, that is, only income from your property, came from the following activities?

Beef Cattle

sheep including Wool & Prime Lambs	
Dairy	
Ninter Cereal Grain crops (e.g. Wheat, Barley, Oats, Triticale)	

		1
Winter Legume Crops (e.g. Li	upins. Chickpeas. Lentils. Beans. Peas etc)	
]
Winter Oilseeds (e.g. Canola	, Mustard etc.)]
Summer Cereals (e.g. Sorghu	ım, Maize and Corn etc)	
Summer Legumes (e.g. Soybo	eans, mungbeans)	7
Summer Oilseeds (e.g. Sunflo	owers)	7
Sugar Cane		7
Cotton		7
Rice		7
Horticultural / Vegetable Cro	ps	7
Other Crops		1
Other Livestock		1
]
a. And what is the land? PLEASE ONLY FI	le total area of your property, includir ILL IN ONE BOX	ig all leased land and any unused
Hectares		
Acres		

Square Kilometres

Square Miles

* 4. WHAT TYPE OF INTERVIEW IS THIS?

 \bigcirc cattle interview \bigcirc sheep interview

2. CATTLE SECTION - CALVING/WEANING

CATTLESECTION

5. As at 1stJuly 2015 how many (READ OUT CLASS) did you have on your property?

READ OUT CLASS AND WRITE IN NUMBER - IF UNSURE ASK FOR EDUCATED GUESS

Breedingcows	
Total Herd numbers	

6. What type of cattle do you run on your property?

Bos Indicus (Brahman)
Bos Taurus – pure breeds (British breeds i.e. Angus,
Bos Taurus x Bos Indicus
Bos Taurus cross breeds

CALVING/WEANING

7. Do you have a cattle breeding operation?

NOT NECESSARY TO ASK THIS IF THE ANSWER IS OBVIOUS - JUST CHOOSE THE RIGHT ANSWER TO CLICK FORWARD

Hereford etc.)

Yes

🔵 No - trading only

8. How often do you check heifers and cows at calving? DO NOT READ OUT

	3 x per day	twice a day	daily	twice a week	weekly	every two weeks	monthly	greater than once a month	don't check
Heifers	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Cowss	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

9. Now thinking about your beef operation and specifically, weaning, at what age in months do you wean your calves in a normal season. By normal season, we mean average rainfall.

RECORD IN MONTHS	
Age at weaning (months)	
Age sold (if not weaned)	

 10. When you wean your calves, do you keep them in the yards / holding paddock or do you let them out into an open paddock? (Holding paddocks are those beside the yards - often used to train weaners Open paddocks refer to paddocks away from the yards -
from the yards.)
Yards / Holding Paddock
Open Paddock
Wean onto the truck for sale
11. And on average how many days are the weaners kept in the yards / holding paddocks at weaning?
12 What type of feed is provided to your calves in the yards / holding
paddock? DO NOT READ OUT - MULTIPLE RESPONSE OK
Hay Grain Lick blocks Molasses Pellets Silage
3. IDENTIFICATION

- IDENTIFICATION
- 13. Now thinking of permanent identification at what age (months) is permanent identification applied to your cattle in a normal season?

14. And how do you permanently identify your

cattle? READ OUT

Assume that ALL Tags are permanent! MULTIPLES OK



15. Why do you use this method to permanently identify your cattle? RECORD VERBATIM

4. CASTRATION - CATTLE

CASTRATION

16.	Do you castrate calve	es? DO	NOT	READ	OUT

YES NO

If no, why not?

17. At what age to do you castrate calves? CHOOSE FROM DROP DOWN OPTIONS

18. And what method of castration do you use to castrate your bull calves? READ OUT

\bigcirc	Knife	\bigcirc	Scalpel
\bigcirc	Rubber rings	\bigcirc	Burdizzo
\bigcirc	Tension bander, e.g. Callicrate	\bigcirc	Short scrotum/cryptorchid using rubber ring
\bigcirc	Other (please specify)		
19.	Why do you use this method to cas	trate	calves? RECORD VERBATIM
20.	When do you check your calves foll	owing	g castration?
DO	NOT READ OUT - MULTIPLES OK - CHE	CK ALI	THAT APPLY
	1 day		1 week
	2 days		2 weeks
	3 days		3 weeks
	4 days		1 month or longer
	5 days		Don't check
	6 days		
Othe	r (please specify)		
1			

21. Do you lose calves due to castration related complications? DO NOT READ OUT
No Don't know
Yes (please specify as total number of calves)
22. Do you castrate bulls (entire males over 12 months of age)?
YES NO
23. And what method of castration do you use to castrate your
bulls? READ OUT
Knife Scalpel
Rubber rings
Burdizzo
Tension bander, e.g. Callicrate
Emasculator
Other (please specify)

5. DEHORNING

DEHORNING

24.	Are you	ur breeding cows	Polled or Horr	ed cattle? DO	NOT READ OUT
\bigcirc	Polled	Horned	⊖ Both ⊖	Don't breed cattle	e (trade only)
25.	Do you	use polled bulls?	DO NOT REAL	D OUT	
\bigcirc	Yes	No	O Both	Don't breed cattle	e (trade only)
26.	Why don'	t you use Polled B	Bulls? (or <u>all</u> po	olled bulls) REC	ORD VERBATIM
27.	Do you tij	p the horns of cat	tle?		
\bigcirc	Yes	O No			

28. Do you tip the horns of mature cattle (over 12 months of age)?

-	\	\frown			
() Yes	() No	(calves	only)

Age of calves (months)

29. At what age in months, do you typically tip the horns of mature cattle? RECORD IN MONTHS

30. In an average year, how many mature cattle do you tip? RECORD AS A WHOLE NUMBER

31. What method do you use to tip the horns of your mature cattle? RECORD VERBATIM

32. Do you dehorn cattle?

Yes	🔵 No
-----	------

33. Given a normal season with average rainfall, at what age, in months do you DEHORN of your calves? RECORD IN MONTHS

34. What method of dehorning do you use on your calves? READ OUT

Gouging knife Scoop or cup dehorners Hot iron/heat cauterizing Wire saw

Caustic treatments

Other (please specify)

35. Why do you use this method to dehorn your calves? RECORD VERBATIM

36. When do you check on your calves following	dehorning?
DO NOT READ OUT - MULTIPLE RESPONSE OK - C	HECK ALL THAT APPLY
2 day	1 week
2 days	2 weeks
3 days	3 weeks
4 days	1 month or longer
5 days	Don't check
6 days	
Other (please specify)	
37. Do you lose calves due to dehorning related of	complications?
DO NOT READ (RECORD AS % OF CALVES BORN IN	NANY YEAR)
	any?)
38. Do you fully dehorn mature cattle (over 12	months of age)?
Yes No	
39. In an average year, how many mature ca	attle do you fully dehorn? RECORD AS A NUMBER ONLY
40. At what age in months, do you typically	fully dehorn mature cattle? RECORD IN MONTHS
41. What method of fully dehorning do you	use on your mature cattle? DO NOT READ OUT
Gouging knife Scoop or cup dehorners	ot iron/heat cauterizing O Wire saw
Other (please specify)	

6. SPAYING

SPAYING

42. We would like to capture your use on spaying in your herd. In a normal year with average rainfall do you spay cull heifers/cows?

Yes N	lo	Don't run cows/he	ifers		
43. How many heifers	s and cows do you n	ormally spay?			
Number of Heifers					
Number of Cows					
44. Are cull/surplus	heifers routinely pre	egnancy tested prio	or to spaying?		
Yes heifers and cows	Yes heifers only	(not cows)	Yes cows only (no	t heifers)) No
45. Why don't you r spaying? DO NOT RE	routinely pregnancy- EAD OUT	test cull / surplus I	heifers/cows prior	to	
Not enough time (Do not have the exp	oertise Too co	ostly ONot prac	tical Oo not th	ink is important
Other (please specify)					
46. What spaying	methods do you use Flank and removal of ovaries	e to spay your heif Willis dropped ovary and removal of ovaries	ers and cows? Flank and webbed (removal of fallopian tubules)	Passage and removal of ovaries	Passage and removal of oviducts (fallopian tubes)
Cows	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Heifers	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Other (please specify)

47. Why do you use this method to spay your heifers and cows? RECORD VERBATIM

Reasons for heifers	
Reason for cows (if different method from heifers)	

48. When you spay your cull / surplus heifers and cows how do you restrain them? DO NOT READ OUT - MULTIPLE RESPONSE OK

	Crush/head bail	Electro-immobilisation	Rope
Heifers	\bigcirc	\bigcirc	\bigcirc
Cows	\bigcirc	\bigcirc	\bigcirc
Other (please specify)			
49. When you spay your cull / spaying? DO NOT READ OUT	surplus heifers/cows w	ho performs the	
○ Vot			
) ver			
Non-vet contractor			
Self or other staff members			
Other (please specify)			
50. When do you check on you	ur heifers/cows followir	ng spaying?	
DO NOT READ OUT - MULTIPLE	RESPONSE OK - CHECK	ALL THAT APPLY	
3 day		1 week	
2 days		2 weeks	
3 days		3 weeks	
4 days		1 month or longer	
5 days		Don't check	
6 days		check heifers more frequently than co	ws
comment			
51. Do you lose Heifers/cows	s due to spaying related	complications? DO NOT REA	D (RECORD AS WHOLE
NUMBER)			
O NO			

52. Do you use pain relief for SPAYING heifers or cows? DO NOT READ C)UT
---	-----

Yes No Sometimes

53. How much do you currently pay for pain relief? RECORD IN \$ PER HEAD

54. What product do you use? DO NOT READ OUT

Gel applied to the gum Injection given locally Other (please specify)

55. Why don't you use pain relief? RECORD VERBATIM

56. How much would you be prepared to spend on pain relief per animal? RECORD PER ANIMAL IN \$ OR 0 IF NOT PREPARED TO PAY

57. What does it cost per head to have your heifers or cows spayed? RECORD in \$

58. If a non-surgical spaying method was available, would you use it? DO NOT READ OUT

\bigcirc	Yes	Maybe) No

why not?

59. A non-surgical spaying product that can prevent pregnancy for up to 12 months is currently under development - would you be prepared to pay.... for it (ASK \$45 FIRST, IF NO ASK \$35 IF NO ASK WHY NOT)

	YES	NO
\$45	\bigcirc	\bigcirc
\$35	\bigcirc	\bigcirc
IF NOT \$45 OR \$35, WHY NO	T?	

7. VACCINES/DRENCHES - CATTLE

VACCINES/DRENCHES-CATTLE

60. We would like to capture your use of vaccines and drenches in your herd, in a normal season. Do you vaccinate against botulism?

Yes No
61. Do you give the follow-up booster for botulism? DO NOT READ OUT
Yes No Sometimes
62. In a normal season which stock do you vaccinate against botulism? READ OUT- MULTIPLE RESPONSE OK
Calves Under 1 year of age Weaners/heifers 1 to 2 years of age Older than 2 years
63. Do you vaccinate against other clostridial diseases, e.g. tetanus, blackleg etc
Ves No
64. What vaccines do you use? DO NOT READ OUT
○ 7 in 1
○ 5 in 1
○ 3 in 1
O Don't Know
65. Do you give a booster vaccination within 6 weeks of the initial dose?
Yes No - why not?
66. In a normal season which stock do you vaccinate? READ OUT- MULTIPLE RESPONSE OK
Calves Under 1 year of age
Weaners/heifers 1 to 2 years of age
Older than 2 years
67. Do you drench for internal parasites (worms fluke)?
Yes No

68. In a	normal season	which stock do you	drench? READ	OUT- MULTIPLE	RESPONSE OK
----------	---------------	--------------------	--------------	---------------	--------------------

00.	In a normal season which stock do you drench? READ OUT- MULTIPLE RESPONSE OK
	Calves Under 1 year of age
	Weaners/heifers 1 to 2 years of age
	Older than 2 years
69.	And what is your preferred method of application of drenches? READ OUT
\bigcirc	Injectable Capsule Pour On Bolus Oral
Othe	r (please specify)
70.	Do you routinely treat for <u>external parasites?</u>
\bigcirc	Yes No
71.	What external parasites do you inspect for or treat for? MULTIPLE ANSWERS OK
	Lice
	Ticks
	Buffalo Fly
72.	And what is your preferred method of treatment against external parasites? READ OUT
\bigcirc	Pour On Dip Spray Rubbers / Scratchers Ear Tags Injectable
73.	In a normal season which stock do you treat for <u>EXTERNAL PARASITES?</u> READ OUT- MULTIPLE RESPONSE OK
	Calves Under 1 year of age
	Weaners/heifers 1 to 2 years
	of age Older than 2 years
74.	Do you vaccinate against BVDV (PESTIVIRUS?)
\bigcirc	Yes
75.	In a normal season which stock do you treat for <u>BVDV (PESTIVIRUS)?</u> READ OUT- MULTIPLE RESPONSE OK
	HEIFER Calves Under 1 year of age
	Weaners/heifers 1 to 2 years of age COWS
	Older than 2 years

76.	Do you vaccinate against the THREE DAY SICKNESS (Boy	vine Ephemeral Fever or BEF?)
O Yes	Νο	
77.	Do you treat for SCOURS IN CALVES?	
O Yes	Νο	
78.	How do you treat for/ prevent scours in calves? DO NO	DT READ OUT
Calf sco	urs is defined as loose or watery faeces (any colour). Ca	ves may remain well or become sick
with cal	f scours	
Vac	cinate cows to prevent scours from Salmonella	Vaccinate cows to prevent scours from E coli
O Ant	ibiotic Treatment of calf	Fluids to calf
O Dor	't Know	
8. PAI	NRELIEF	

RESTRAINT METHODS & PAIN RELIEF - CATTLE

79. What type of restraint do you use when handling cattle i.e. castrating/dehorning/tipping cattle/branding/ear t a g g i n g /drenching/vaccination?

DO NOT READ OUT (MULTIPLES OK)

	Calf cradle
	Crush / Head bail
	Electro-immobilisation
	By hand
Other (please specify)
80.	Do you use pain relief for castration/dehorning/tipping/branding? DO NOT READ OUT
() Y	es No Sometimes
Name	the practices they use pain relief for
81.	How much would you spend on pain relief per animal? RECORD PER ANIMAL IN $\$$

82.	What type	of pain relief? DO NO	DT READ OUT
$\bigcirc $	Gel to the gums	O Local injection	Other (please sp
\bigcirc			
83.	Why don't	you use pain relief? F	RECORD VERBATIM

9. TRANSPORT - CATTLE & SHEEP

TRANSPORT

84. We would like to capture your attitudes and issues surrounding the transport of livestock Before transporting <u>slaughter stock</u>, is a FEED OR WATER curfew applied?

Feed curfew only	\bigcirc	Feed and water curfew	O Non	е
why don't you curfew stock?				
]

85. How many hours before transport are normal FEED OR WATER curfews applied to <u>slaughter</u> stock? RECORD IN HOURS

Time off feed	
Time off water	

86. Why do you apply a WATER or FEED curfew prior to the transport of slaughter stock? DO NOT READ

OUT - multiple answers ok

	Stock travel better	The agent or receiver of the stock demands a curfew	The truck driver demands a curfew	Keep animals clean of faeces	Don't know
Feed					
Water					
Other (please specify)					

87. On average, how many hours are <u>slaughter</u> stock in transit before unloading? RECORD IN HOURS

88. Before transporting non-slaughter stock (store or breeding stock) is a FEED OR WATER curfew

applied?			
Feed curfew only you curfew?	Feed and water curfew	○ None	Don't transport non-slaughter stock Why don't
89. How many l	hours before transport is norm	nal FEED C	R WATER curfews applied to <u>non-</u>
<u>slaughter</u> (breeding	<u>or store)</u> stock?		

RECORD IN HOURS

Time off feed	
Time off water	

90. Why do you apply a WATER or FEED curfew prior to the transport of non-slaughter

stock? DO NOT READ OUT - multiple answers ok

		The agent or receive	~		
		of the stock	The truck driver	Keep animals clean of	
	Stock travel better	demands a curfew	demands a curfew	faeces	Don't know
Feed					
Water					
Other (please specify)					

91. On average, how many hours are <u>non-slaughter (breeding or store)</u> stock in transit before unloading? RECORD IN HOURS

92. The industry has developed <u>Land Transport of Livestock Standards and Guidelines</u>. Are you aware of these?

	READ OUT -	CHOOSE	BEST FIT
DO NOT	READ OUT -	CHOOSE	DEDITI

O No	Yes - but have not read them	Yes - have read them
Where did you	obtain a copy?	

10. OTHER – DESTRUCTION & PREDATORS

OTHER-DESTRUCTION & PREDATORS

93. Now thinking about the humane destruction of LIVESTOCK. How do you destroy injured or sick LIVESTOCK?

Shoot Vet Captive bolt Knife Knackery

94. How do you dispose of the carcasses? DO NOT READ OUT
Burn Bury Pet food Don't dispose (leave in paddock)
Other (please specify)
95. Are predators a problem on your property?
O Yes O No
96. How many livestock do you lose to predators a year? RECORD AS STOCK NUMBERS OR PUT 'DON'T KNOW'
97. Name the 2 most important predators on your property? 2 ONLY
Wild dogs & Dingoes Pigs Foxes Birds i.e. crows, eagles
98. How do you control <u>Wild dogs & Dingoes on your property</u> ? RECORD VERBATIM
Didn't choose as top 2 Don't control Control
method Please specify
99. How do you control <u>PIGS</u> on your property? RECORD VERBATIM
Didn't choose as top 2 Don't control Control method Please specify
100. How do you control <u>FOXES</u> on your property? RECORD VERBATIM
Didn't choose as top 2 Don't control Control method Please specify
101. How do you control <u>BIRDS</u> on your property? RECORD VERBATIM
Didn't choose as top 2 Don't control Control method Please specify
102. Are electric prodders used on livestock? DO NOT READ OUT - MULTIPLES OK
Cattle Calves Lambs Sheep Not used

QUARANTINE PROCESSES

103.	Do vou have a	quarantine	process for	ALL introduced	stock?
		9	p. 00000 . 0.		

\bigcirc	Yes	Νο	No - don't buy in animals (closed herd/flock)
\bigcirc	For some classes of stock only (name them)		
104	. What is your quarantine process? RI	ECORD VERBATIM	

12. CODES OF PRACTICE

CODES OF PRACTICE

105. The industry has developed 'Cattle and Sheep Welfare Standards and Guidelines' to replace the Model Codes of Practice– are you aware of either of these?

DO NOT READ OUT - CHOOSE ONE

Νο	\bigcirc	Yes – know they exist but have not read them 🔵	Yes – have read them
Where did you obta	in a cop	y?	

106. MLA has developed and published in the last 5 years a number of guides for sheep and

beef producers. Which of the following documents are you aware of?

READ OUT NAMES OF GUIDES BUT NOT RESPONSES - CHOOSE ALL THAT APPLY

		Notaware	Heard of it/seen it but haven't read it	Have read it but don't have a copy	Have a copy and have read it	N/A
A guide to best practice husbandry in cattle		\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
A producers guide to sheep husbandry practices	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
A national guide to describing and managing beef cattle in low body condition	e	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is it fit to load?	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
Where have you obtained copies from?						

107. Are there any other codes of practice or guidelines that you use in your beef/sheep business?

No	Yes
Name them and where they came from	

13. TRAINING & FINAL DEMOGRAPHICS

Self and Female partner/spouse – equally

Self (Male) and other family/business members

Female partner/spouse

Staff Member – Female

Other family member - Female

TRAINING

108. How did you learn to perfor	m the various animal husbandry practices undertaken on farm (NAME THE
ONES DISCUSSED i.e. drenching etc	.?)
DO NOT READ OUT	
Informal (someone showed me)	Informal (I taught myself) Formal (course/workshop)
Both formal and informal	I don't perform these (use contractors)
what courses/workshops?	
109. Who is the main person in your on farm?	business determining what animal husbandry practices are used
DO NOT READ OUT – CHOOSE ONE	
Self - male	Self – female

Self and Male partner/spouse - equally

Other family member - Male

Staff Member – Male

MalePartner/spouse Other (please specify)

Self (female) and other family/business members

FINAL	DEMOGRAPHICS		
110. What is highest level of education you've achieved? DO NOT READ OUT			
() U	p to and including school certificate or equivalent	\bigcirc	TAFE Trade Course
<u></u> Т	AFE Certificate Level	\bigcirc	Year 12 / HSC / Leaving Certificate
() т	ertiary Graduate	\bigcirc	Post Graduate
C Re	efused		
111.	Could you tell me into which of the following age fall? READ OUT	groups	you
1	8 - 24		
2	5 - 34		
3	5 - 44		
4	5 - 54		
5	5 - 64		
6	5 and over		
R	efused (DO NOT READ OUT)		
112.4	Are you a member of a farmer discussion group?		
() N	0	\bigcirc	Yes
Name c	of group and program (if known)		
113. Have you attended a MLA sponsored event in the last 12			
	months? DO NOT READ OUT - RECORD VERBATIN	l	
() Y	es - More Beef from Pastures event 🚫 Yes - Making more fro	omSheep	o event Yes – other No Don't know
Namet	he event/activity/date if known		

114. Where do you seek/find out information relating to animal husbandry/health issues and practices? DO NOT READ OUT - MULTIPLE ANSWERS OK

Rural Newspapers	
Rural Magazines i.e. Kondinin group etc.	
Internet - what websites?	
Books Newsletters	
Other (please specify)	
Government vets and animal health officers	
Private vets	
StockAgents Consultants	
Neighbours/other farmers	
Sales staff	
]
115. Which category do you fit into for average rainfall? Under 250 mm 250-500 mm 500-750 mm Over 750 mr	n ODn't know
116. Thank you for your time and we appreciate your input the season.GENDER	out and views. Best of luck with the rest of
Male	Female
* 161. FOR INTERVIEWER ONLY - Is this interview finished?	
yes	O no - need to come back to it later
162. How long did this interview take? IN MINUTES	_