# final report

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# Calf scours: A survey of producers in southern Australia

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# Abstract

The incidence, significance and some costs of calf scours in Southern Australia was examined by a representative telephone survey of 376 beef producers across four regions in December 2005. The research identified that 16% of beef producers consider the condition either a significant or very significant issue. Incidence of scours in calves under 16 weeks was estimated by producers to vary with age, but peaked at around 8% of calves in the 6 day to 20 day old age group. Mortality was estimated to be 1.5% in this group of calves. Producers estimated that they spent an average of $212 on products and services to treat calves for scours, an average of 85 minutes per treated calf and estimated that 8% of calves failed to thrive after scouring. These appear to represent significant costs to industry. The results of this study will benefit the meat and livestock industry by providing base data to examine associations between estimated incidence of scours and possible risk factors that were surveyed. This may provide data that will allow the development of strategies to reduce the incidence and cost of the condition. The study also provides a benchmark for the condition in 2005 and when repeated, will allow the industry to reassess its position and change strategies if needed.

# Executive summary

Due to a lack of information on the extent of calf scours in the Australian beef industry, Solutions conducted a telephone survey of 376 beef producers to estimate the incidence of serious calf scours in beef herds in Southern Australia and obtain estimates of the significance and cost of the condition from producers.

The research identified that 16% of beef producers considered calf scours either a significant (7%) or very significant (9%) issue on their properties. The incidence and mortality from calf scours was estimated to vary with age of the calf. More specifically, producers estimated that:

- At 0 – 5 days old, 4.1% of calves were affected and 1.2% die
- At 6 – 20 days, 8% were affected and 1.5% die
- At 3 – 6 weeks, 5.7% were affected and 1.5% die
- At 7 – 16 weeks, 1.3% were affected and 0.3% die.

Consequently, producers surveyed estimated that approximately 4.5% of calves born died from scours. This loss represents a major area of production inefficiency. Lack of awareness of the condition, however was identified as a major issue with 23% of all producers unable to estimate the incidence of calf scours in their herd. Lack of awareness was also identified for other animal health problems with around 25% of producers unable to nominate the major cause of death or illness in calves under 16 weeks of age. The research has therefore flagged a producer education issue that could be addressed by MLA.

The cost of calf scours to producers was estimated in terms of dollars spent on treatment services and products, time management and lost productivity. More specifically:

- Producers with scouring calves spent $481 on average in 2005 on treatment costs
- For all producers, the average was $212 spent on treatment
- Each calf treated required an average of 85 minutes to be looked after
- While 84% of calves made a full recovery, 8% made a partial recovery and 8% were considered "poor doers".

These data have been made available to Strategic Bovine Services for further evaluation of factors that may be associated with a higher incidence of scours in herds, such as region, cow and calf management practices, pasture dominance, water management, calf trading, and stocking rate. This analysis should assist MLA in the development of animal husbandry and communication strategies to prevent losses and improve farm profitability.

The survey methodology has been designed to be replicable so that in one, two or five years time, MLA will be able to repeat the study and identify any shifts in the prevalence of the condition and ultimately the effectiveness of MLA's response to the results of the current benchmarking project.

# Contents

# 1 Background

## 1.1 Background

Meat and Livestock Australia ("MLA") have been working closely with Strategic Bovine Services to investigate the incidence calf scours in beef herds of southern Australia. There is a dearth of data available on calf scours in Australia and MLA required accurate information to develop effective producer education and response strategies. Following initial discussions between the organisations, Strategic Bovine Services prepared a draft questionnaire that addressed the information needs surrounding this important animal health issue. MLA approached Solutions Marketing and Research ("Solutions") to develop a methodological approach and costing for the research. Following approval, Solutions conducted the research in December 2005. The following report summarises the objective, issues, methodology and major findings for the MLA's Calf Scours Study.

# 2 Project objectives and issues

## 2.1 Project objective

The primary objective of the project was as follows (taken verbatim from the Research Brief):

*"To evaluate the incidence of serious calf scours in beef herds in Southern Australia and obtain estimates of the significance and cost of the condition from producers".*

## 2.2 Project issues

To achieve the project objective, the following project issues were quantified in the study:

- Months most of the cows calved in the last calving;
- Months of greatest pasture growth;
- Type of pastures cows calve on;
- Used the same paddock/s for calving this year as last;
- Main sources of water in the calving paddock/s;
- Approximate stocking rate of the calving group;
- Average number of calves born or reared on the property in the last calving;
- Average number of calves purchased from outside the property;
- Purchases of calves from saleyards and dairy and beef farms;
- Number of different saleyards, dairy farms and beef farms used;
- Average age of calves when purchased;
- Frequency of inspecting for sick calves;
- Rating of calf scours as a problem on property;
- Respondents who consider calf scours a major problem on property;
- The significance of calf scours and other animal health problems on property;
- Major causes and most costly cause of death in calves less than 16 weeks old (excluding calf scours);

- Major causes and most costly cause of illness in calves less than 16 weeks old (excluding calf scours);
- Percentage of calves that are affected by scours;
- Type of recovery (Of those who have calves affected by scours);
- Respondents who treat calves with scours (Of those who have calves affected by scours);
- Average time it takes to look after a scouring calf;
- Respondents who vaccinate their cows to prevent scours from Salmonella;
- Respondents who vaccinate their cows to prevent scours from E coli;
- Estimate total health costs spent on scours in 2005;
- Estimate average dollars spent on scours in 2005; and
- Certainty of this estimate.

# 3 Methodology

## 3.1 Sample design

A sample of 376 beef producers was interviewed by telephone from Solutions call centre in Sydney in December 2005.

Two primary requirements of MLA for sample design were that:

1. The sample had to be designed to allow interpretation at the 95% confidence level with a margin of error of plus/minus 5% for the sample frame, ie herds in the regions of southern Australia sampled and

2. Interviewing be conducted and results interpreted across four calf scours regions in Australia including Coastal Temperate, Temperate Highland, Riverland and Temperate Slopes and Plains.

A sample of 376 beef producers was sufficient to meet the first requirement.

The second requirement was achieved using a six step process:

1. Strategic Bovine Services provided Solutions with a series of postcode maps of New South Wales, Victoria, South Australia and Western Australia highlighting the boundaries of the four calf regions within each state
2. Solutions then mapped the region boundaries electronically using MapInfo
3. Statistical Local Areas (SLA's) were identified within each calf scours region in each state, again using MapInfo
4. Australian Bureau of Statistics ("ABS") census data was used to calculate the population of beef producers within each SLA and through summation, the population of beef producers within each region in each state
5. The sample of 376 was then stratified by state and region based on the outcomes of Step 4. Rather than strict proportional sampling across regions, the smaller beef producer population in the Riverland region was over sampled to generate a sufficient sample size for cross regional comparisons.

6. Sample results were then weighted to the state and regional population as given by the ABS to ensure results were representative.

The MLA calf regions by state and SLA are presented in Figure 1. The final sample and ABS population for each region is summarised in Table 1.

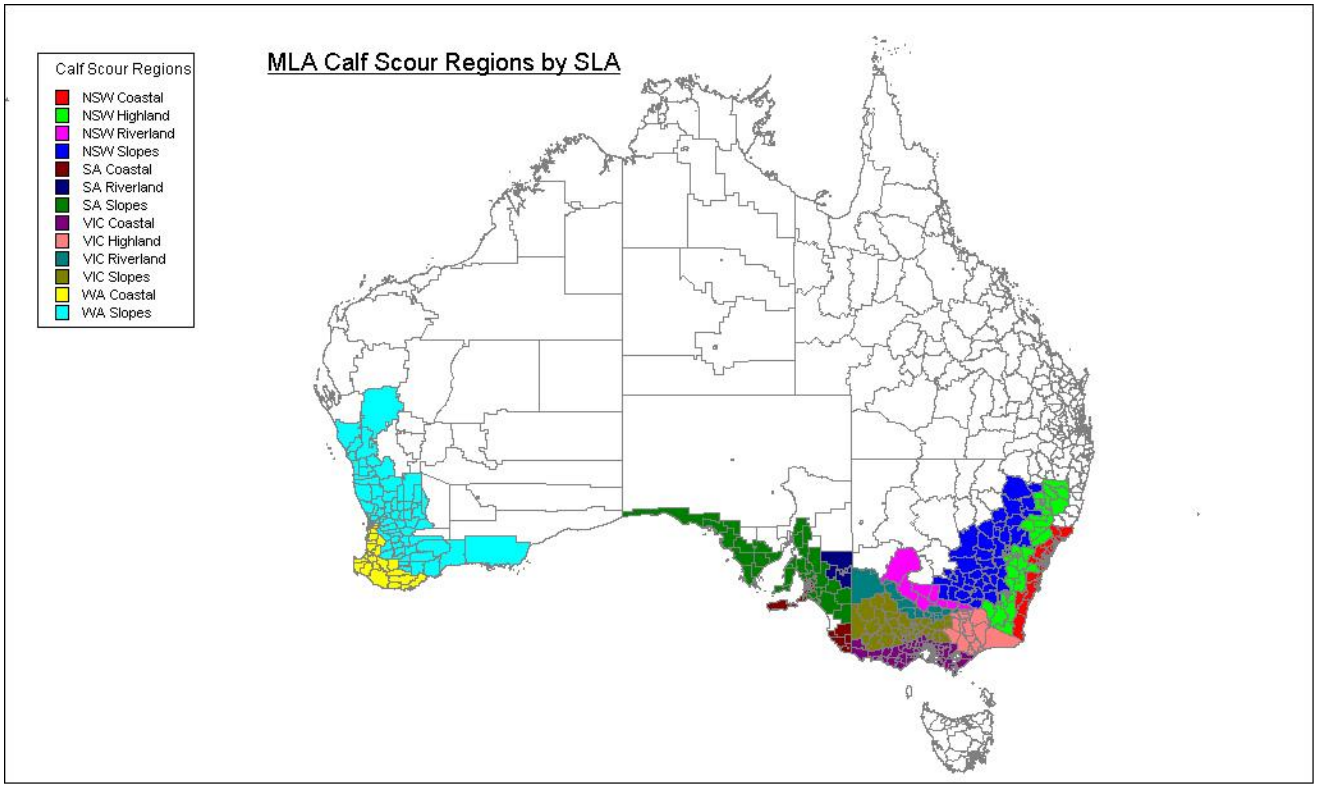


**Figure 1: MLA calf scour regions**

**Table 1: Final sample and ABS producer population in MLA's calf scours regions**

| Region | Final Sample | ABS Population |
|---|---|---|
| Coastal Temperate | 107 | 9,542 |
| Temperate Highland | 99 | 6,778 |
| Riverland | 54 | 1,152 |
| Temperate Slopes and Plains | 116 | 6,840 |
| Total | 376 | 24,312 |

## 3.2 Sample selection

Respondents were selected from Solution Rural Database which contains 90,000 rural producers profiled by postcode, ANZSIC farm type, farm size and full contact details. The database resides within an IBM AS400 mainframe for which Solutions have written customised enquiry software. Records were selected from the overall sample frame using an "nth number" random process. Where a selected record from the database was exhausted, it was replaced with a similar record from that state, region and farm type.

Non response bias, whereby non respondents differ to respondents in key variables of interest, can be an issue with any survey. Solutions minimised non response bias using multiple approaches:

- Achieving a high response rate of around 40% (given the high relevance of the topic to respondents);
- Multiple call backs to maximise inclusion of respondents initially selected;
- Call backs conducted in both day time and evening;
- Interviewing staff are trained to overcome respondent objections and encourage survey completion; and
- The use of a well designed and scripted questionnaire.

It is possible however that a percentage of non-respondents may differ from respondents for the variables of interest. Responses gained via call-backs can be used to make inferences about the responses of the remaining non respondents (this assumes that non-respondents do indeed differ from respondents interviewed on first contact). Solutions therefore conducted a non response analysis on the results of the survey. This involved analysing all tabular results by "follow up required" (ie interviewed on either one, two or three and more contacts) to identify any differences between willing and recalcitrant respondents. No significant differences were identified between the groups suggesting minimal non response bias in the results.

## 3.3 Interpretation of results

It should be noted that the results presented in this study are derived from a survey (as opposed to a census when all members of a population are captured). The survey results are used to make inferences about the total population. As all surveys are subject to errors, a survey result should not be treated as a single value but rather as the midpoint of the likely range that the true population result would lie within. The range around the survey result is the "margin of error". For example, a survey result of 50% may have a margin of error of plus or minus 3% ie 47% - 53%. The margin of error depends on the sample size (smaller sample sizes have larger errors) and the actual sample result (a result closer to 50% has a larger error). Due to a high margin of error associated with a small sample, results based on a small sample in the analysis should be treated with caution.

The following matrix (Table 2) summarises the margin of errors for different sample sizes and different survey results. The matrix is based on a 95% confidence level, that is, you are 95% confident that the true result (the result derived from interviewing the entire population) would be in the range specified in the table.

**Table 2: Margin of errors for different sample sizes and survey results**

| | Survey Result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Size** | **5% or 95%** | **10% or 90%** | **15% or 85%** | **20% or 80%** | **25% or 75%** | **30% or 70%** | **35% or 65%** | **40% or 60%** | **45% or 55%** | **50%** |
| **25** | 9 | 12 | 14 | 16 | 17 | 18 | 19 | 19 | 20 | 20 |
| **50** | 6 | 8 | 10 | 11 | 12 | 13 | 14 | 13 | 14 | 14 |
| **75** | 5 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 11 | 11 |
| **100** | 4 | 6 | 7 | 8 | 9 | 9 | 10 | 10 | 10 | 10 |
| **150** | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 |
| **200** | 3 | 4 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| **250** | 3 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| **300** | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 6 |
| **400** | 2 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 |
| **500** | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| **600** | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| **700** | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| **800** | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **900** | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **1,000** | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |

As a guide to interpretation, a survey result of 30% (or 70%) from a sample of 500 respondents would have margin of error of 4%, that is, you are 95% confident that the true answer would lie between 26% and 34%.

Results for the research have been analysed using both graphic (as contained in this report) and tabular formats (as contained in the Appendix). Note that results in the unweighted computer tables have been analysed by a range of demographic variables including region, farm size, herd size, gender, etc. Where the result for one demographic level (eg larger herds) is significantly different from the other level (eg older members), this has been highlighted with a "+" or "-" notation as follows:

"+++" Significantly higher at the 99.9% confidence level
"++" Significantly higher at the 99% confidence level
"+" Significantly higher at the 95% confidence level
"- - -" Significantly lower at the 99.9% confidence level
"- -" Significantly lower at the 99% confidence level
"-" Significantly lower at the 95% confidence level

If no notation appears below a result in the tabular analysis, it means that the result for that group is not significantly higher or lower than the results for the remainder of the sample. No notation appears in the weighted tables as this analysis cannot be run on weighted data.

# 4 Results and discussion

## 4.1 Background to the analysis

The results and discussion presented in this section summarise not only the incidence, significance and cost of calf scours in Australia but also quantify a range of cow and calf management, pasture and watering practices used in the regions of interest. These practices have been quantified as MLA and Strategic Bovine Services intend to conduct further analysis of the results based on a "raw data" file provided by Solutions using a number of specialist software packages. This further analysis will assist in development of strategy by MLA to address calf scours management. The results presented in this report, therefore evaluate producer estimates of the magnitude and costs of calf scours, rather than provide an in-depth assessment of factors associated with calf scours (to be conducted by MLA and Strategic Bovine Services at a later date).

Results in this section have been segmented into four key areas including Respondent Demographics, Calving Management, Calf Management and finally Calf Scours. Note that most analysis is based on survey estimates, not recorded data ie field trial data. This has been noted on relevant charts and tables.

## 4.2 Respondent demographics

Respondent demographics by a range of demographic variables such as region, farm size, herd size, gender, and herd breed composition are presented in Figures 2 - 10. The purpose of these charts is to provide confidence that the final sample satisfactorily captures the diverse range of demographic characteristics within the beef industry.

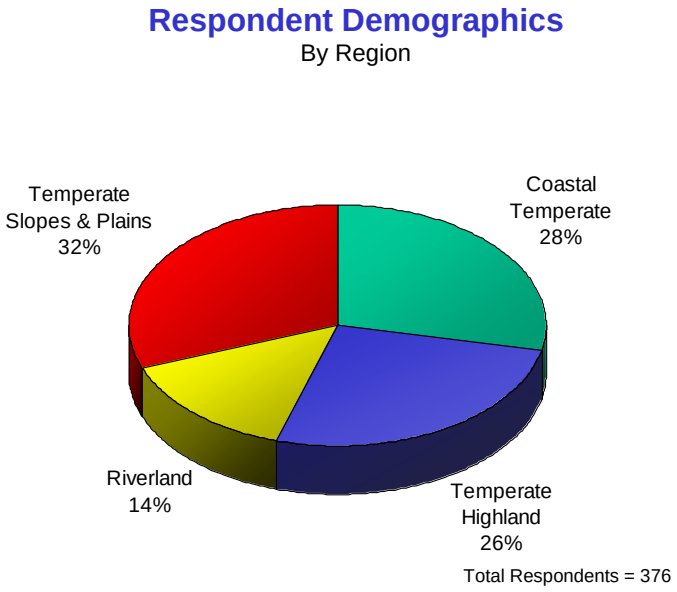


**Figure 2**

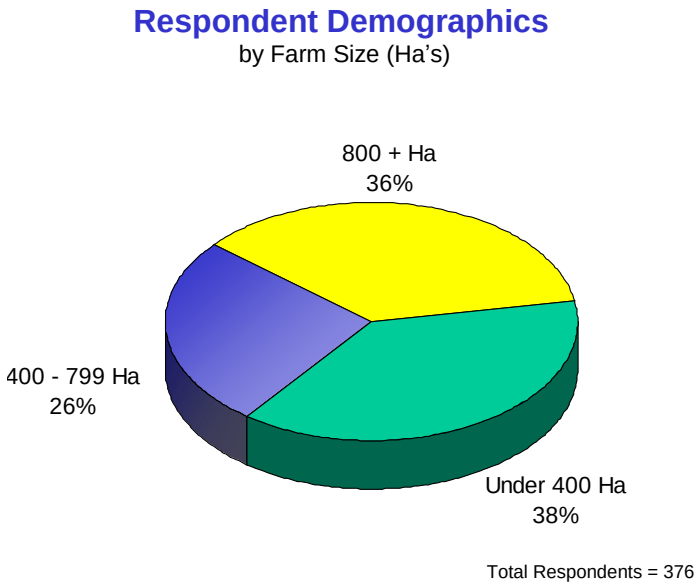


**Figure 3**

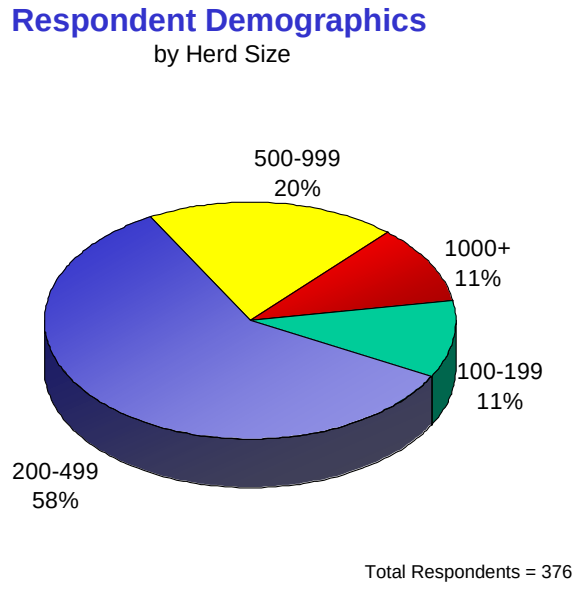


**Figure 4**

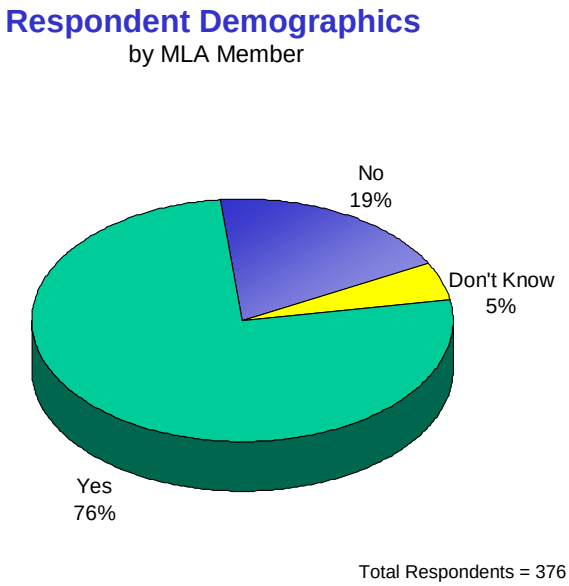


**Figure 5**

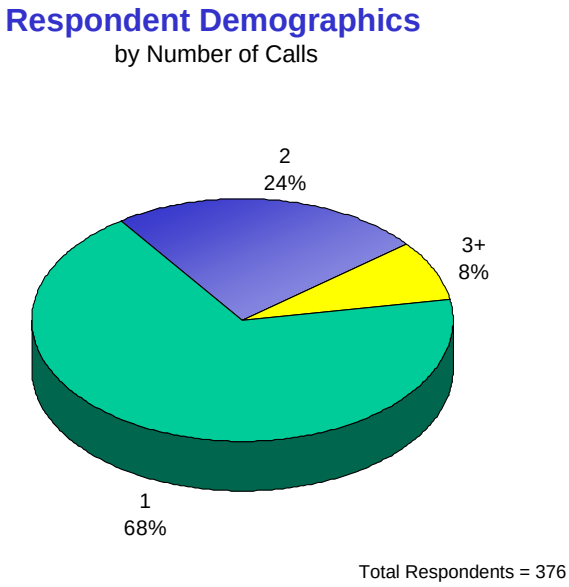


**Figure 6**

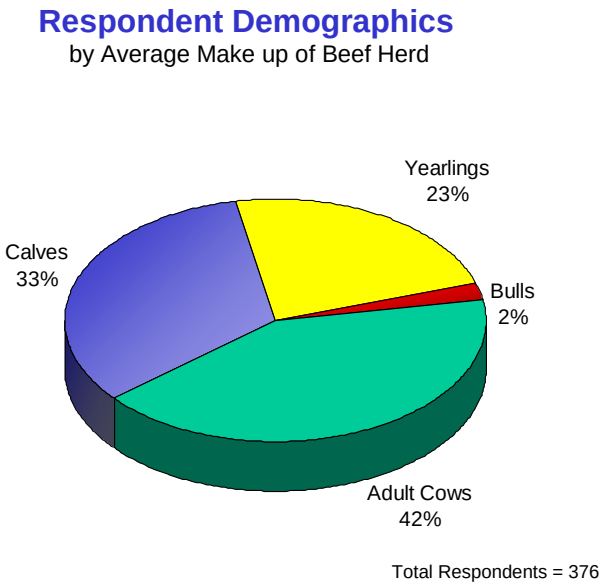


**Figure 7**

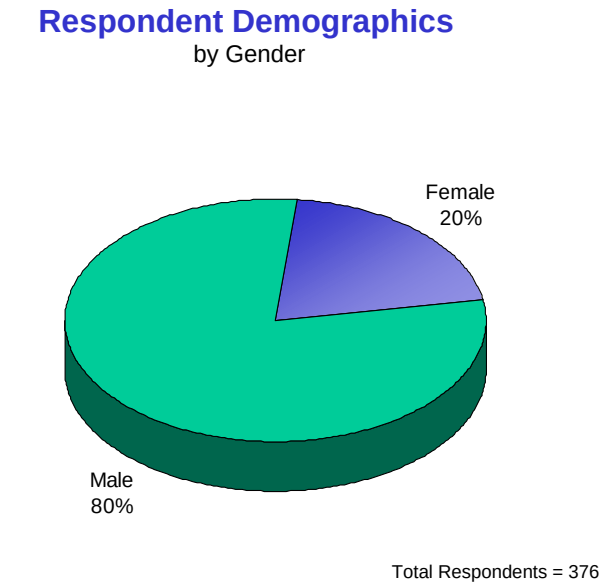


**Figure 8**

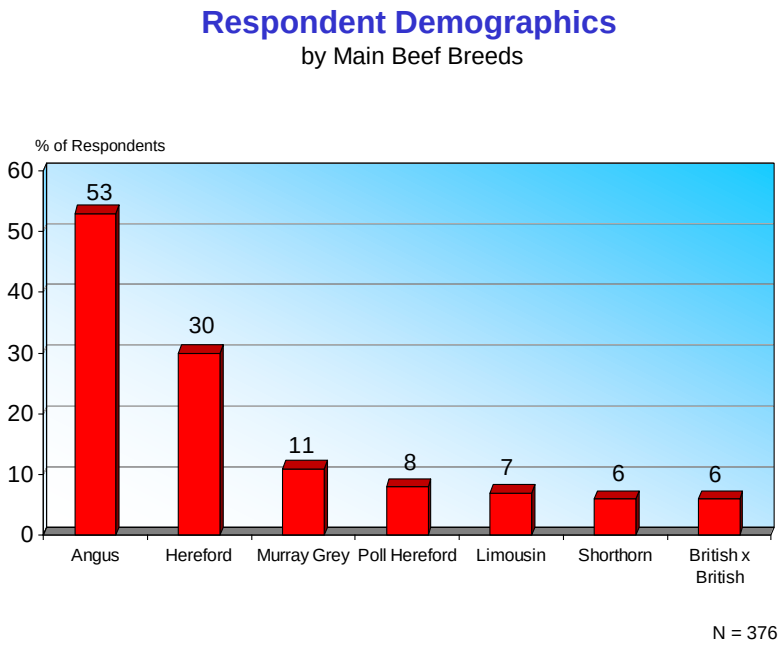


**Figure 9**

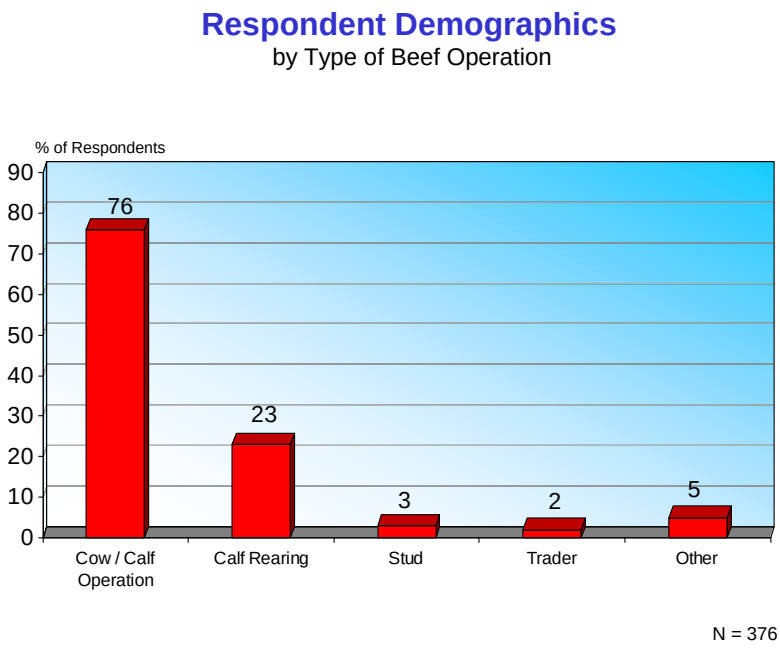


**Figure 10**

## 4.3 Calving management

### 4.3.1 Months of cows calving

All respondents were asked:

*"Thinking only about the **last calving**, in which months did most of your cows calve"?*

Calving most frequently occurred in the months of September (30%), August (27%), March (24%) and April (20%) (Figure 11). This is in line with the spring and autumn calving peak periods typical in the Australian beef industry.

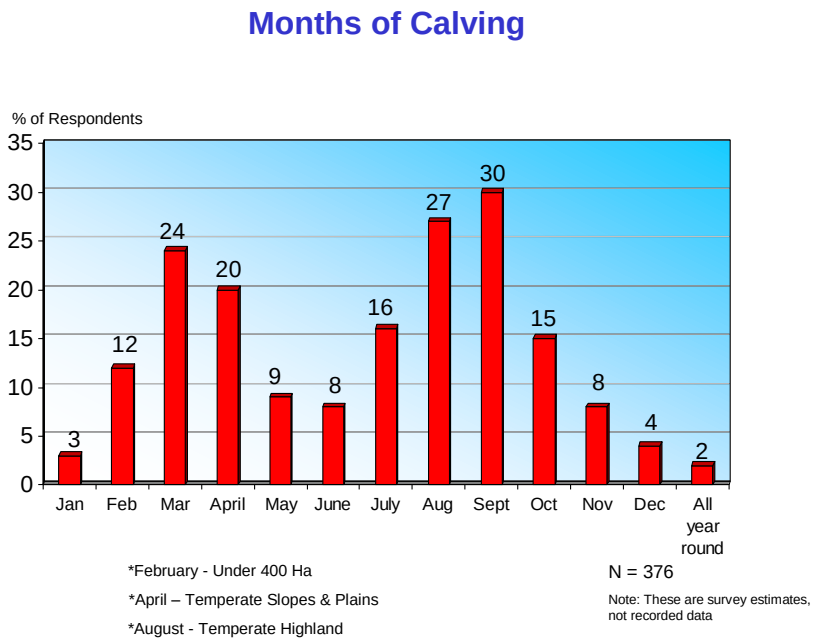


**Figure 11**

### 4.3.2 Months of greatest pasture growth

All respondents were asked:

*"In which months is pasture growth on your property the greatest"?*

In line the spring flush, the majority of respondents (69%) experienced their largest pasture growth between the period of August and October (Figure 12).

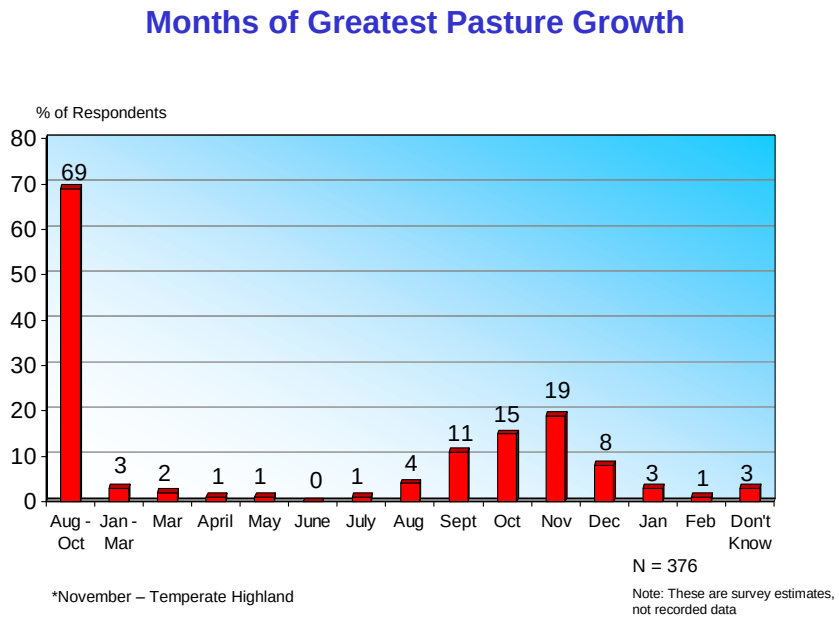


**Figure 12**

### 4.3.3 Type of pasture used for calving

All respondents were asked:

*"What type of pasture do your cows calve on"?*

The type of pastures that cows calve on tended to be either Ryegrass Dominant (41%), Clover Dominant (37%) and Mixed Species (36%) (Figure 13).

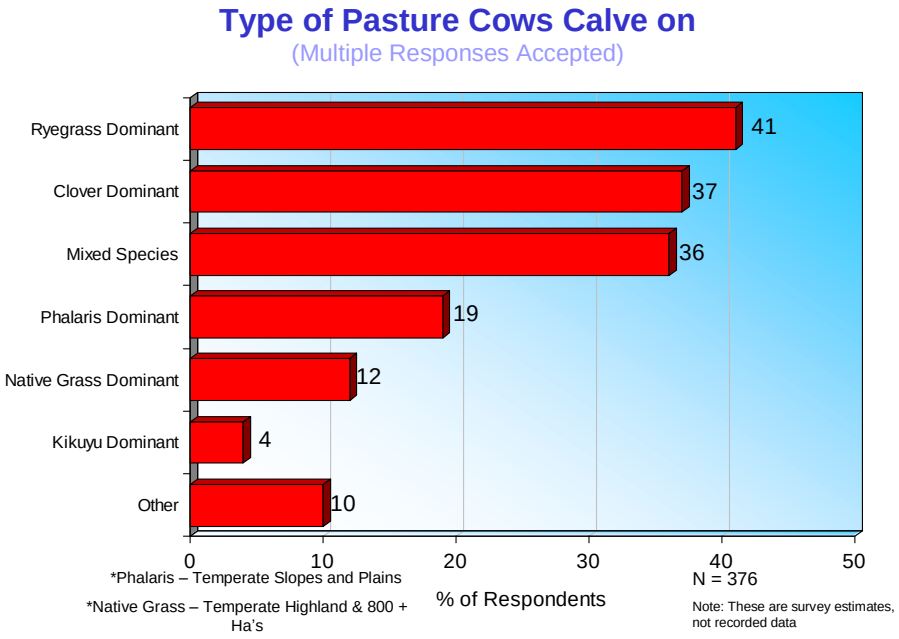


**Figure 13**

### 4.3.4 Paddock used for calving

All respondents were asked:

*"Did you use the same paddock/s for calving this year as last year*

The majority of respondents used the same paddock/s for calving this year as last (71%) (Figure 14). Results were consistent across a range of demographic variables including region, farm size, herd size and MLA membership.

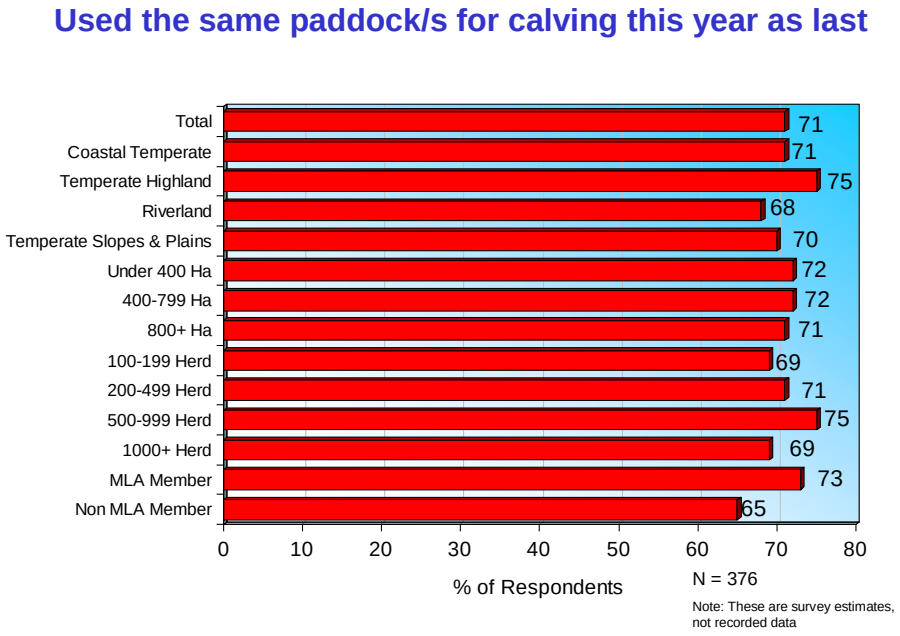


**Figure 14**

### 4.3.5 Main sources of water in the calving paddocks

All respondents were asked:

*"What are the main sources of water in your calving paddock/s"?*

Over half of all respondents gain their main water source in calving paddock/s from a dam (59%) (Figure 15). In addition, just under one-third obtain their main water from rivers, creeks and channels (32%).

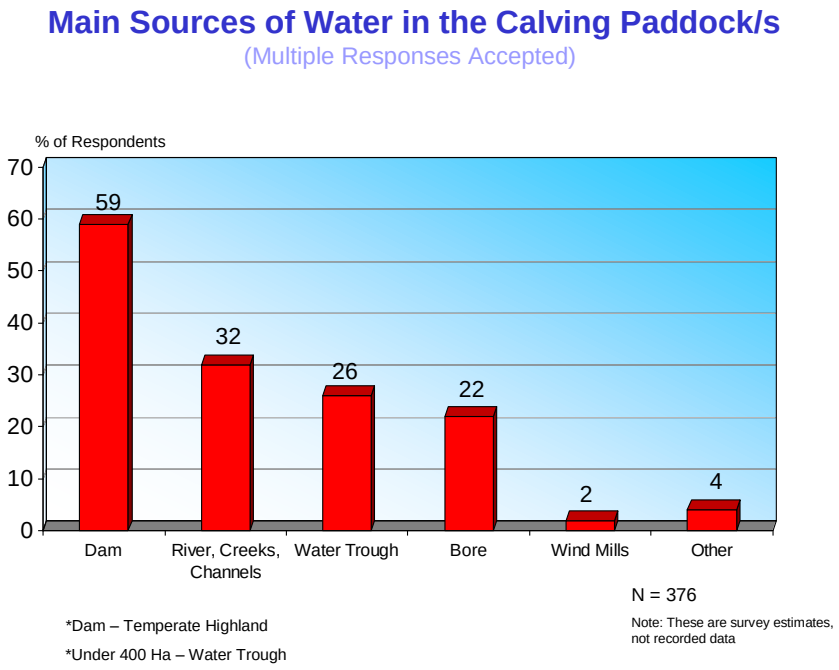


**Figure 15**

### 4.3.6 Stocking rate of the calving group

All respondents were asked:

*"What is the approximate stocking rate of the calving group, that is, how many cows per ha (or acre) do you generally run for your calving group"?*

The average stocking rate of the calving group for all respondents was 3.9 cows per hectare (Figure 16). Those respondents with smaller total herd sizes of between 100 - 199 head had larger stocking rates of 7.9 cows per hectare, most likely reflecting the more intensive nature of their beef operation. It should be noted however that nearly one in three respondents (34%) did not know the stocking rate of cows in the calving group.

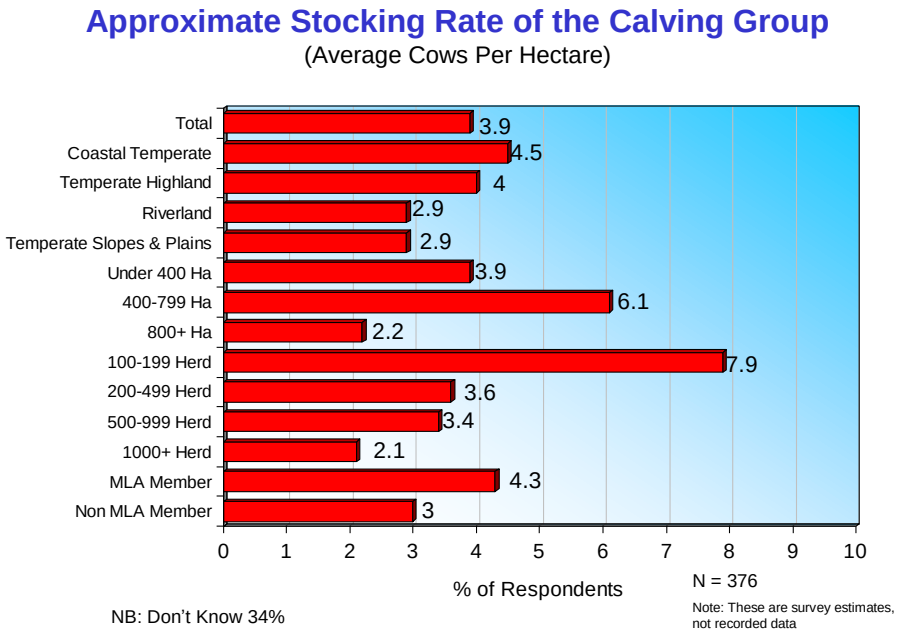


**Figure 16**

## 4.4 Calf Management

### 4.4.1 Average number of calves born or reared on property

All respondents were asked:

*"For the last calving only, how many calves were born / and / or reared on your property? This would include all calves born and sold or calves purchased to be raised".*

The average number of calves born / reared on the property was 181 (Figure 17). Further analysis revealed that the highest averages came from respondents in the Temperate Slopes and Plains (206 calves), 800 or more hectares (256 calves) and those with herd sizes of 1000 head or more (513 calves).

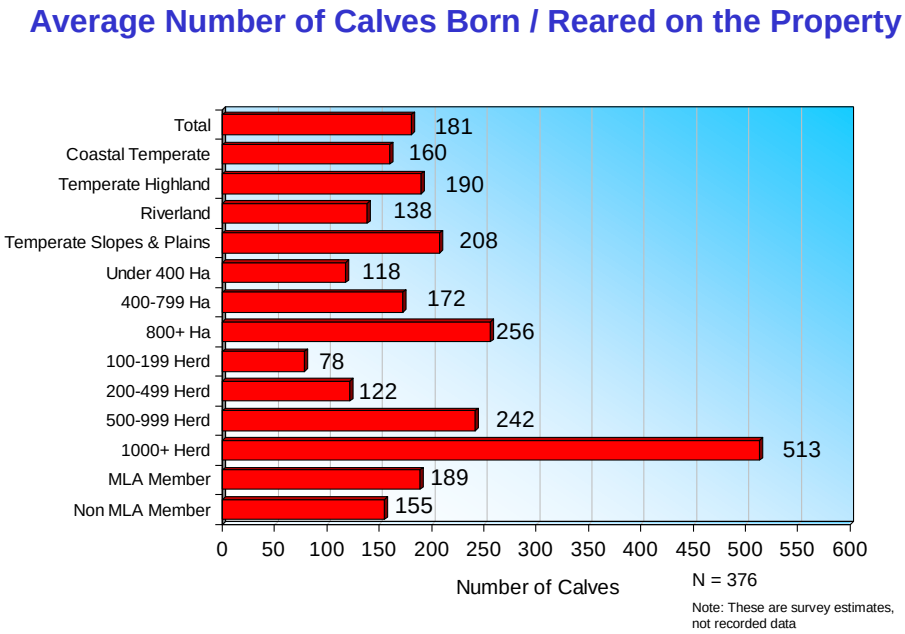


**Figure 17**

### 4.4.2 Average number of calves purchased from outside the property

All respondents were asked:

*"How many of these calves were purchased from outside the property"?*

Of the 376 respondents, only 56 or 15% had purchased calves from outside the property with the average purchases being 71 calves (Figure 18). Respondents from the Temperate Highlands
(129 calves), 800 or more hectares (173 calves) and 1,000 head or more herd size (467 calves) on average purchased more calves from outside the property than other groups in the sample.

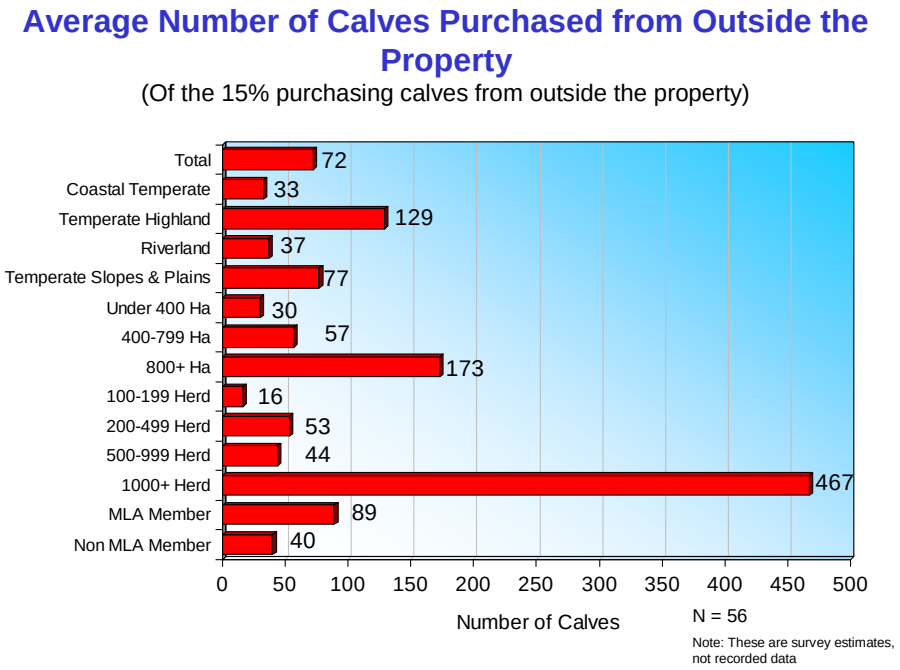


**Figure 18**

### 4.4.3 Sources of calf purchases

Respondents who purchased calves from outside the property were asked:

*"How many calves did you buy from the following sources?"*

- *Saleyards*
- *Dairy farms*
- *Beef farms*

Saleyards were clearly the dominant source of calf purchased (62%). A further 29% purchased their calves from beef farms and 7% from dairy farms. Results are summarised in Figure 19. Note that results at the different demographic levels (eg region, farm size, etc) should be treated with caution due to the small sample size.

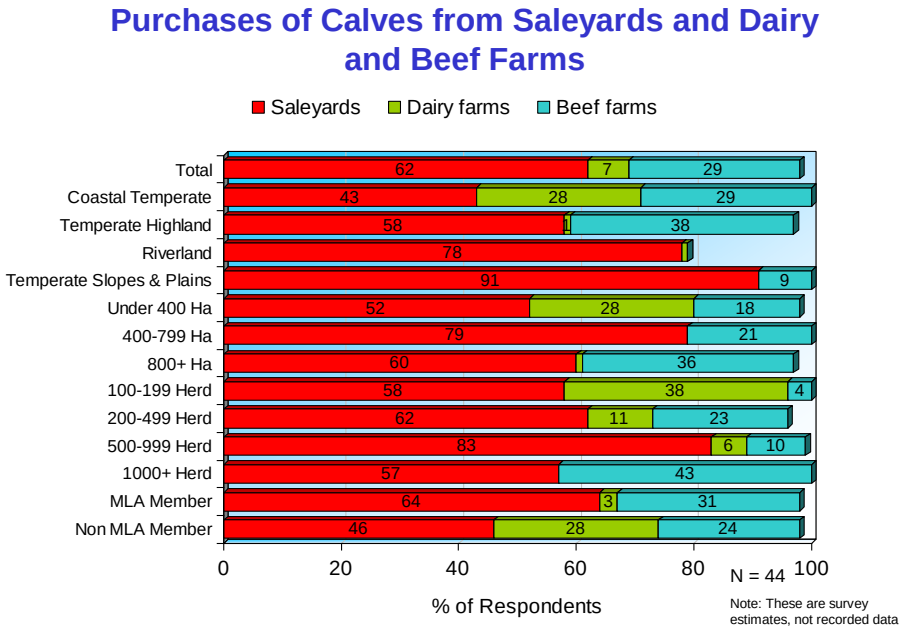


**Figure 19**

### 4.4.4 Number of different sources used

Respondents who purchased calves from outside the property were then asked:

*"How many different sources did you use to buy these calves"?*

The average number of saleyards used was 1.7 and the average number of dairy and beef farms was 1.3 and 1.2. Again, results at the different demographic levels should be treated with caution due to the small sample size (Figure 20).

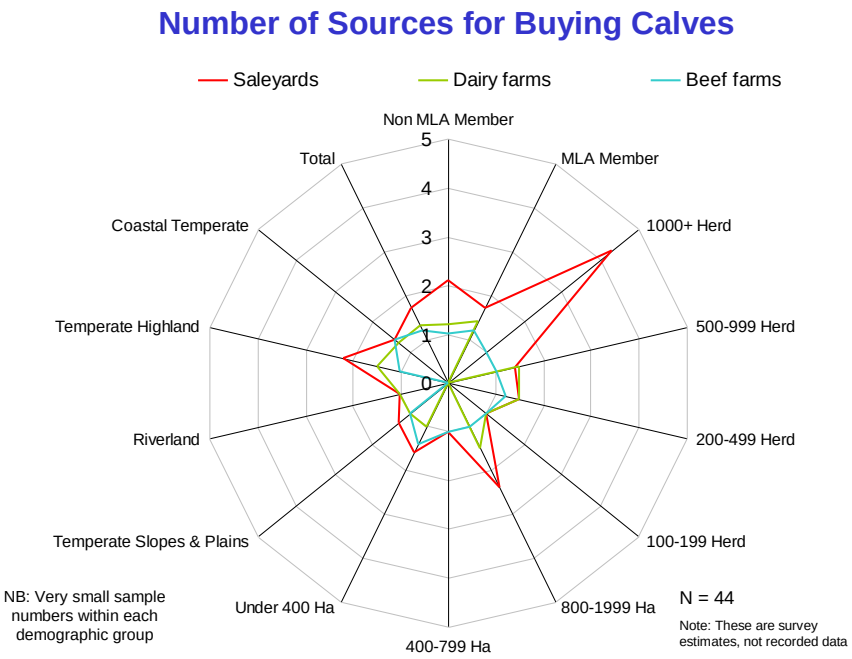


**Figure 20**

### 4.4.5 Average age of calves when purchased

Respondents who purchased calves from outside the property were then asked:

*"When you purchased your calves, what percentage of them were …"?*

- *Less than 7 days*
- *7 – 14 days*
- *Over 14 days*

The majority of the subset of producers (61%) purchased calves that were over 14 days old. The percentage of respondents who purchased calves at less than 7 days and 7-14 days were similar (20% and19% respectively) (Figure 21).

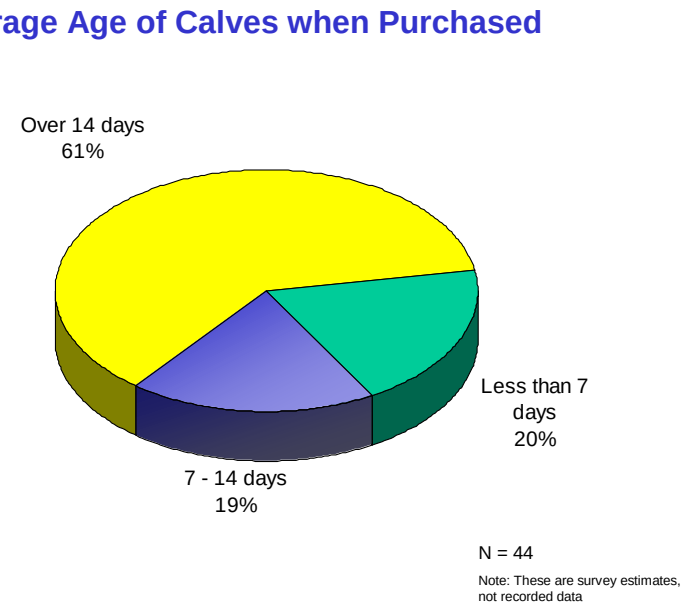


**Figure 21**

### 4.4.6 Frequency of inspecting for sick calves

All respondents were asked:

*"How often do you look for sick calves"?*

Nearly half of all respondents inspect for sick calves at least once a day (44%) (Figure 22). Respondents on smaller farm sizes (ie under 400 ha's) tended to inspect more frequently and those on larger properties (800 ha's and above) tended to inspect less frequently.

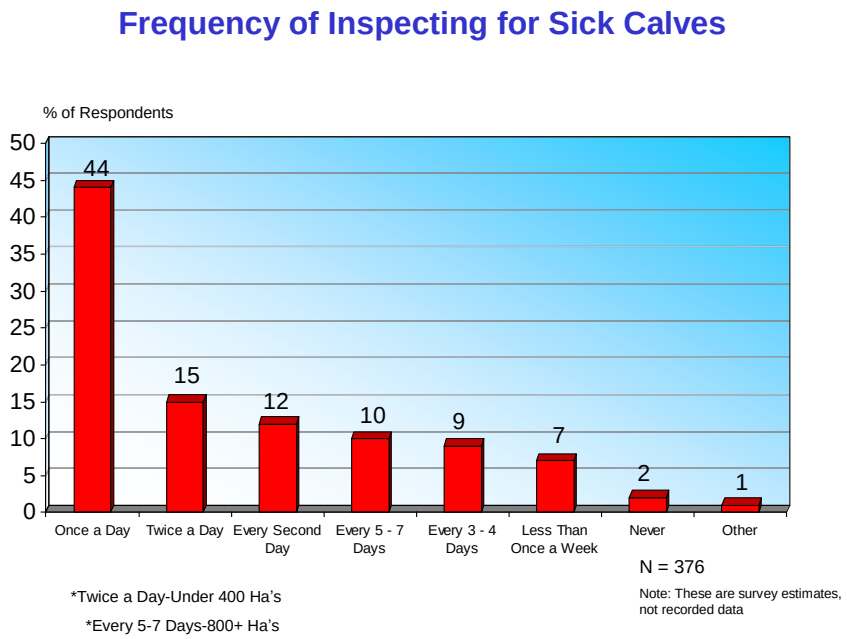


**Figure 22**

## 4.5 Calf scours

### 4.5.1 Rating of calf scours as a problem

To introduce the issue of calf scours, all respondents were asked:

*"How would you rate calf scours as a problem on your property. Would you say it was a "major problem", a "minor problem", "used to be a problem" or "don't see it all"?*

Fifteen percent (15%) of respondents considered calf scours as a major problem with around half (53%) considering it a minor problem (Figure 23).

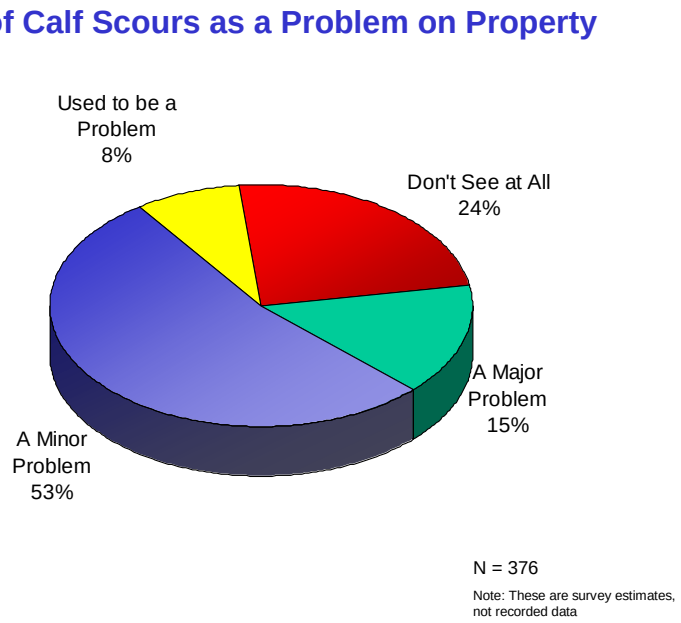


**Figure 23**

The 60 respondents who considered calf scours as a major problem on their property were segmented into various demographic groups (Figure 24). It should be noted however that while there are differences in the percentages between groups, no statistically significant variation among groups was identified.

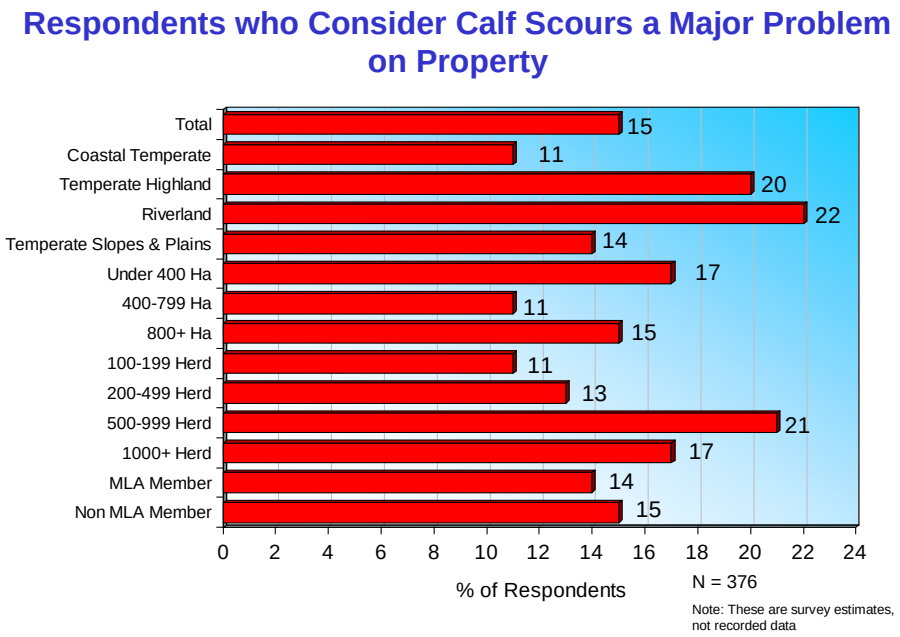


**Figure 24**

### 4.5.2 Significance of calf scours and other animal health problems

To establish the significance of calf scours relative to other animal health problems on the beef property, all respondents were asked:

*"How significant are animal health problems **other than scours** on your property? Could you rate other health problems on a scale of 1 to 5 where 1 is very insignificant and 5 is very significant"?*

All respondents were then asked:

*"And on the same scale, how would you rate the significance of calf scours on your property"?*

Results to both questions are presented in Figure 25 for comparative purposes. The majority of respondents considered both calf scours and other animal health problems as either insignificant or very insignificant (73%). Sixteen percent (16%) considered calf scours a significant or very significant problem, a similar level to other animal health problems.

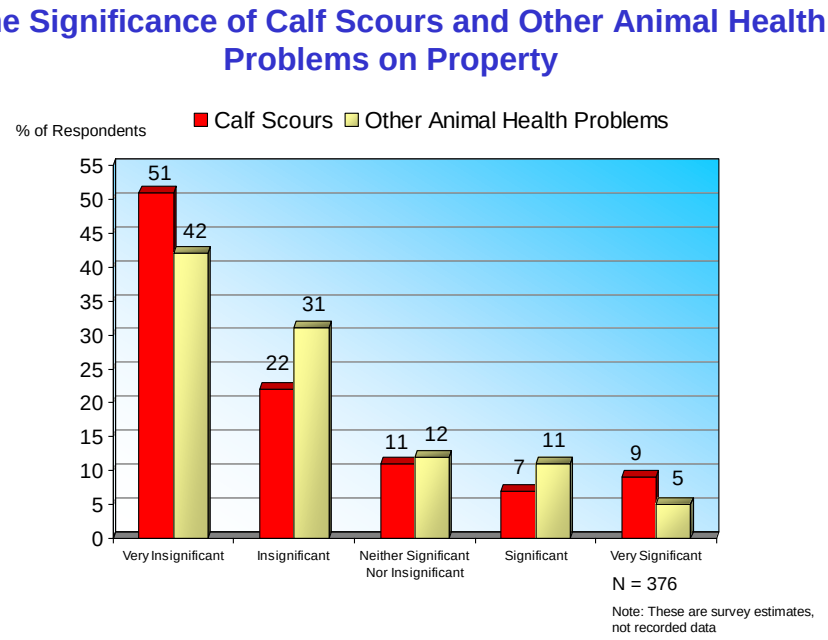


**Figure 25**

### 4.5.3 Major causes and most costly cause of death in calves

Again, to place the effects of calf scours in context relative to other diseases, all respondents were asked:

*"Apart from calf scours, what are the major causes of **death** in calves less than 16 weeks old"?*

All respondents were then asked:

*"Which of these is the most costly to you"?*

Responses were not prompted.

Birthing problems was stated as the major cause of death (excluding calf scours) in calves less than 16 weeks old and the most costly to the producer (20% and 15% respectively) (Figure 26). Of concern however was that at least one in three respondents (35%) could not nominate the major causes of death in calves less than 16 weeks old and nearly half (45%) could not nominate the most costly cause of death in calves.

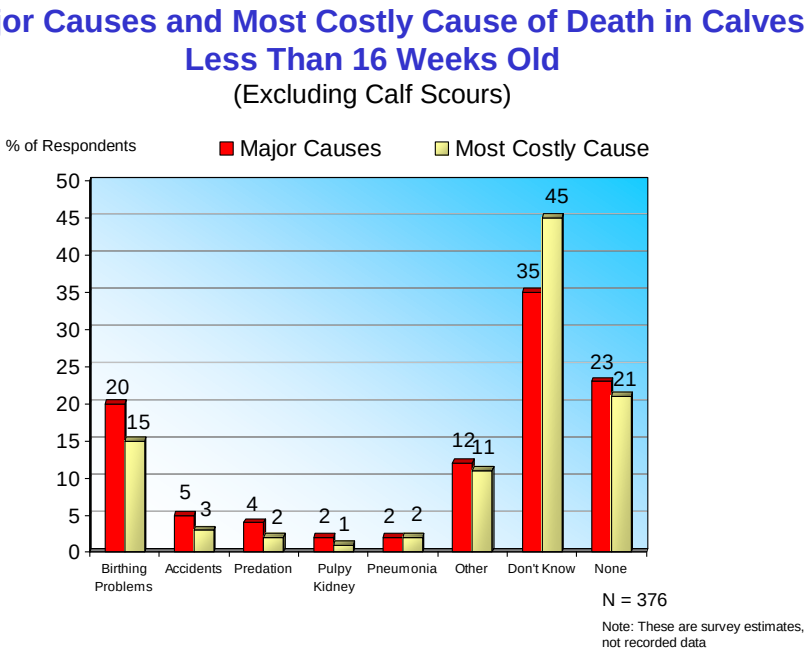


**Figure 26**

### 4.5.4 Major causes and most costly cause of illness in calves

In addition to the causes of death, it was important to identify the major causes of illness in calves, again to place calf scours in perspective. All respondents therefore asked:

*"Apart from calf scours, what are the major causes of **illness** in calves less than 16 weeks"?*

All respondents were then asked:

*"Which of these is the most costly to you"?*

Responses were not prompted.

While a number of illnesses were mentioned, their frequency of mentions were all less than 10% with highest nominated being pink eye (6% for both cause and cost of illness). Lack of awareness among producers was again an issue with around half of all respondents not knowing the major causes and most costly cause of illness (excluding calf scours) in calves less than 16 weeks old (48% and 56% respectively) (Figure 27).

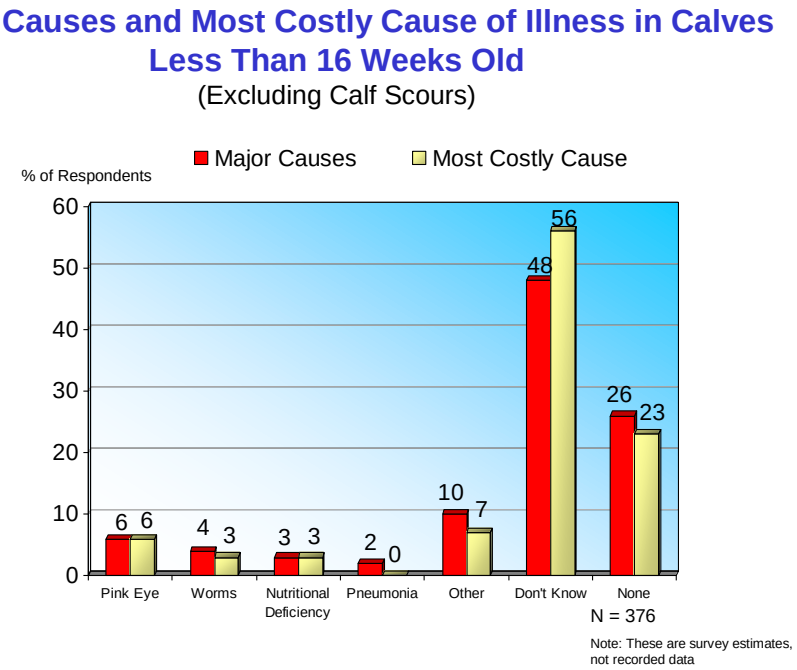


**Figure 27**

### 4.5.5 Percentage of calves affected by scours

To evaluate the incidence of serious calf scours (in line with the Project Objective), the frequency of the condition was quantified both in terms of the percent of calves affected and percent mortality. To achieve this, all respondents were first asked:

*"What percentage of your calves are affected by scours in the following age groups"?*

- 0 – 5 days
- 6 – 20 days
- 3 – 6 weeks
- 7 – 16 weeks

Respondents were then asked:

*"What percentage of your calves die from scours in the following age groups"?*

- 0 – 5 days
- 6 – 20 days
- 3 – 6 weeks
- 7 – 16 weeks

Results across all regions are presented in Figure 28. The percentage of calves affected by scours varied with age but was highest, at 8%, when calves were between 6 and 20 days old. Death from scours was generally between 1.2% - 1.5% in calves less than six weeks old and fell to only 0.3% for calves between 7 and 16 weeks old.

As with other animal health problems, a significant portion of producers (23%) did not know the percentage of calves affected by calf scours, flagging an important producer education issue.

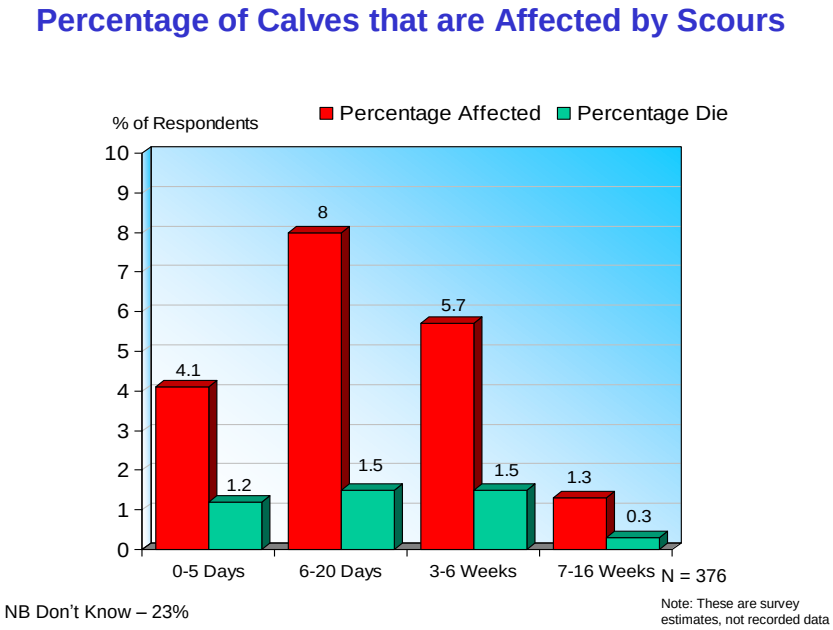


**Figure 28**

The results for the estimated incidence and mortality from calf scours by region and age are presented in Table 3. Note the lack of awareness of the incidence in both the Coastal Temperate region (27%) and Temperate Highland (26%).

**Table 3**

**Percentage of Calves that are Affected by Scours**
by Region

| | Coastal Temperate | Temperate Highland | Riverland | Temperate Slopes & Plains |
|---|---|---|---|---|
| 0 - 5 Days | | | | |
| % Affected | 3.0 | 5.1 | 5.1 | 4.5 |
| % Die | 0.6 | 1.3 | 1.8 | 1.7 |
| 6 - 20 Days | | | | |
| % Affected | 7.1 | 11.9 | 9.9 | 5.3 |
| % Die | 1.0 | 2.1 | 3.8 | 1.2 |
| 3 - 6 Weeks | | | | |
| % Affected | 5.8 | 5.9 | 6.8 | 5.2 |
| % Die | 1.8 | 0.4 | 1.7 | 2.0 |
| 7 - 16 Weeks | | | | |
| % Affected | 1.7 | 0.5 | 0.8 | 1.7 |
| % Die | 0.5 | 0.1 | 0.0 | 0.1 |
| Don't Know | 27 | 26 | 12 | 15 |

N = 376 Note: These are survey estimates, not recorded data

### 4.5.6 Type of recovery

To examine the longer term effects of calf scours on the productivity of affected calves, those respondents who have had calves affected by scours were asked:

*"For calves that have had scours, what percentage would"……*

- *"Be a poor doer, that is, have noticeably and markedly lower weight gain and health"*
- *"Have partial recovery, that is, not quite as good as the rest of the mob"*
- *"Have full recovery, that is, no detectable effects in later life on weight gain or performance"*

The respondents estimated that the overwhelming majority of calves affected by scours make a full recovery (84%) (Figure 29).

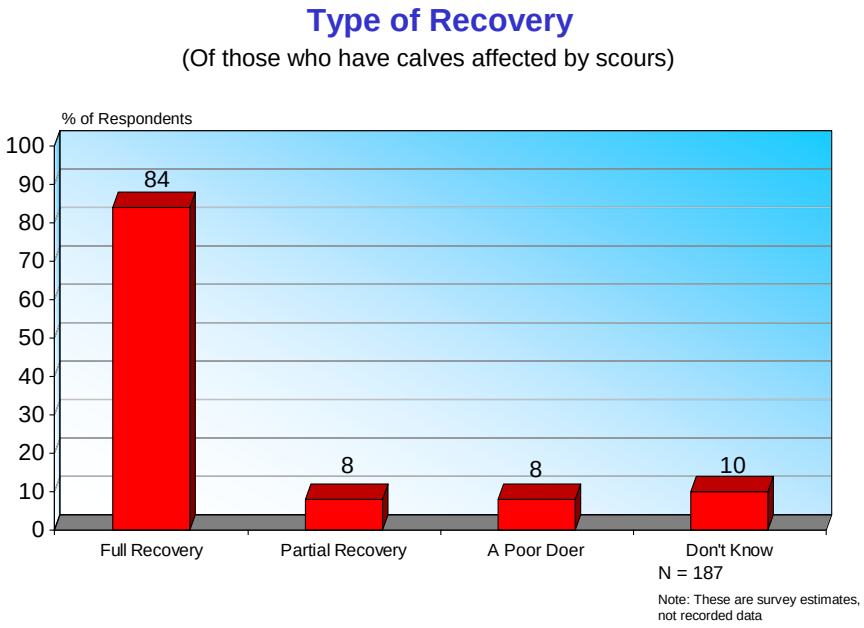
Type of Recovery
(Of those who have calves affected by scours)
% of Respondents
100
90
80
70
60
50
40
30
20
10
0
84
8
8
10
Full Recovery
Partial Recovery
A Poor Doer
Don't Know
N = 187
Note: These are survey estimates, not recorded data

**Figure 29**

### 4.5.7 Treatment for scours

To quantify the extent of treatment practices for scours, those respondents who have had calves affected by scours were asked:

*"Do you treat calves with scours"?*

An overwhelming majority of respondents who have calves affected by scours use treatments (80%) (Figure 30). This figure was consistently high among all demographic groups.

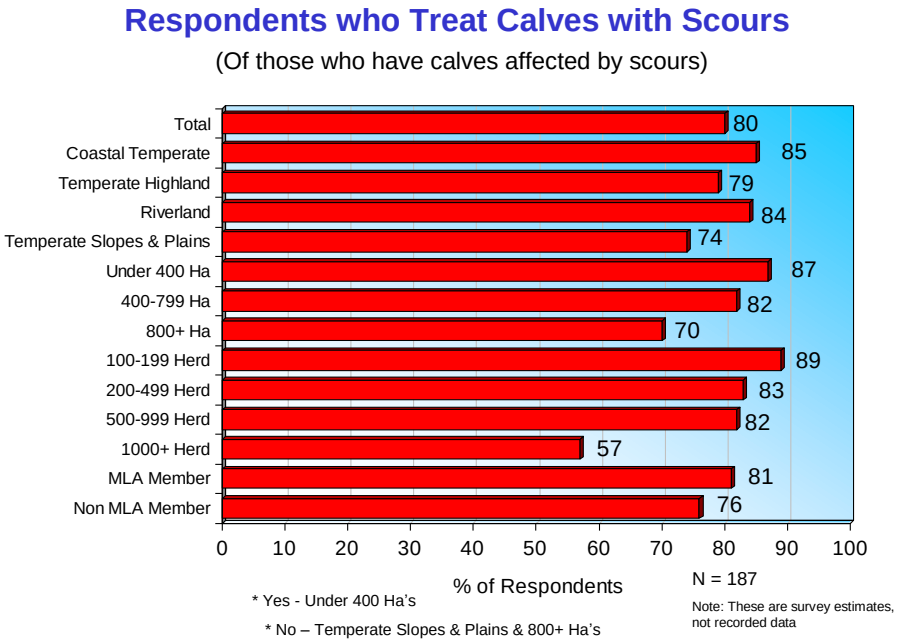


**Figure 30**

### 4.5.8 Time taken to manage scouring calves

Those respondents who have calves affected by scours were asked:

*"How much time, on average, does it take to look after a scouring calf"?*

The average time it takes to look after a scouring calf was estimated at 85 minutes (Figure 31), a significant management burden, in terms of time and opportunity cost, if the percent incidence of scours is extrapolated across an entire herd.

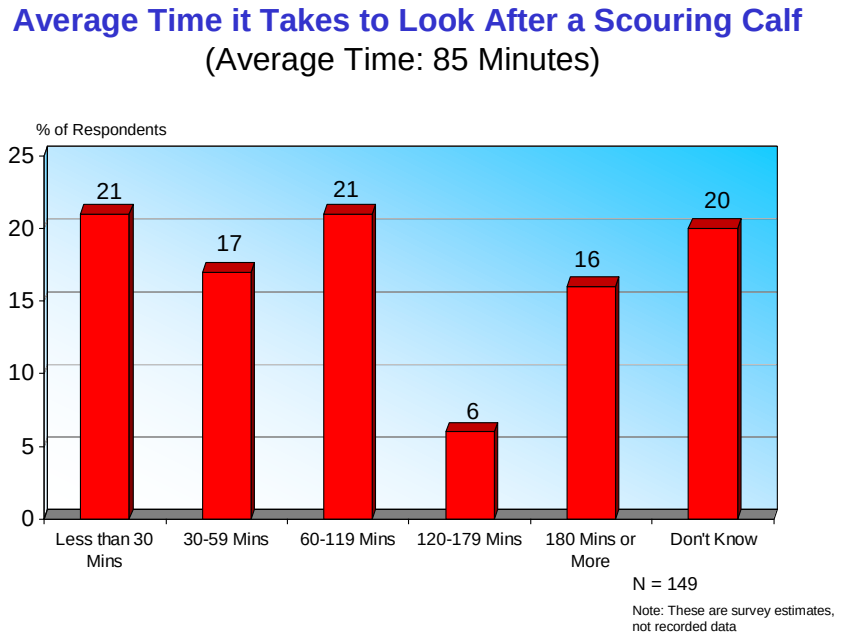


**Figure 31**

### 4.5.9 Vaccination to prevent scours from salmonella

Questions on the use of vaccination to prevent scours were fielded to all 376 respondents, not just the subset of producers who have had calves with scours. This was important as it could well have been the case that those who did not have calves with scours had actually used a vaccination to prevent scours. Use of vaccinations therefore had to be established across the entire sample.

All respondents were asked:

*"Do you vaccinate your cows to prevent scours from Salmonella"?*

Only 12% of all respondents vaccinated their cows to prevent scours from Salmonella (Figure 32). Vaccinations were significantly higher in the Riverland region (25%) and lower in the Temperate Slopes and Plains (4%).

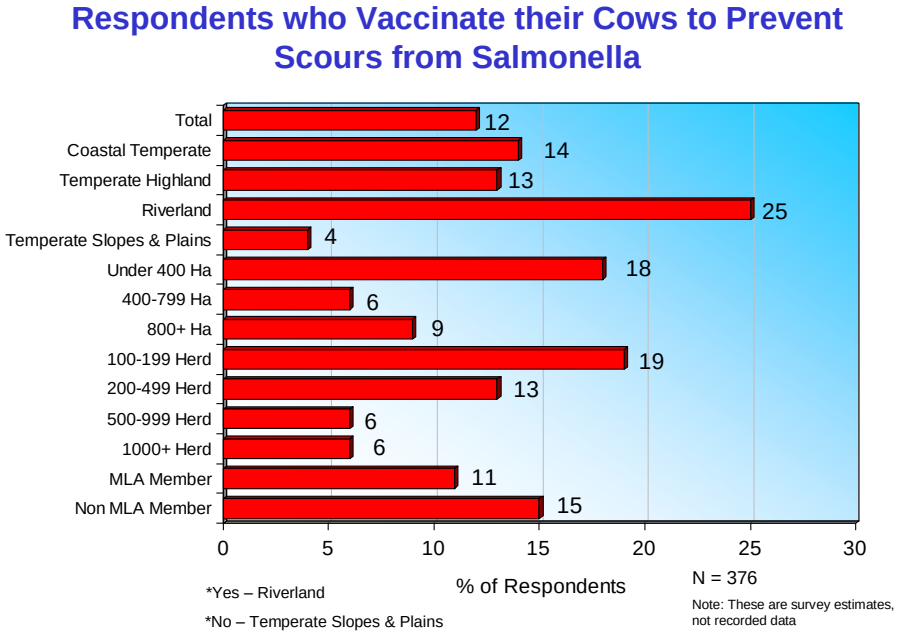


**Figure 32**

### 4.5.10 Vaccination to prevent scours from E-Coli

Again, all respondents were asked:

*"Do you vaccinate your cows to prevent scours from E coli"?*

Only 12% of all respondents vaccinate their cows to prevent scours from E coli (Figure 33). No significant differences were identified for different demographic groups.

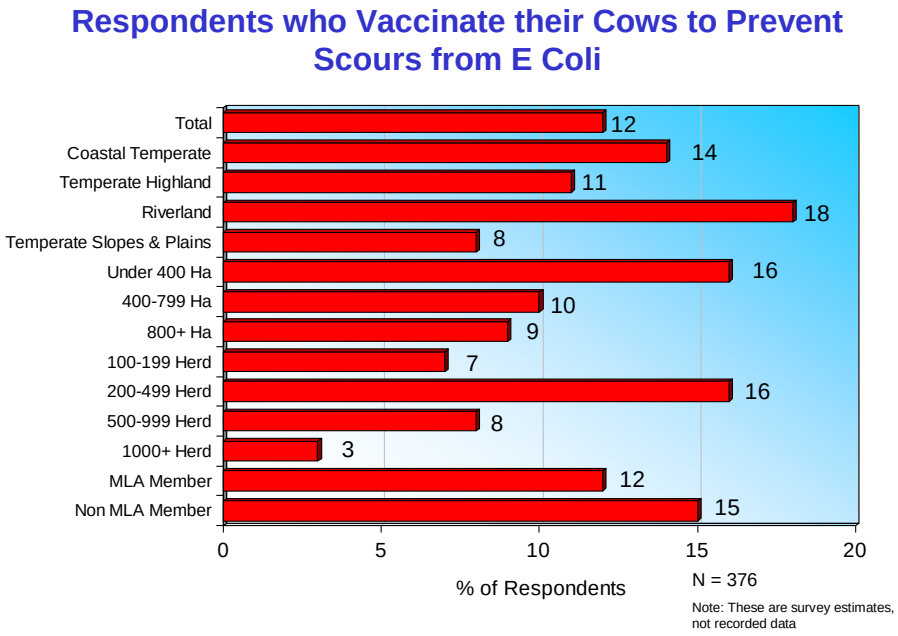


**Figure 33**

### 4.5.11 Total health costs spent on scours

To quantify the cost of the calf scours condition, all respondents were asked:

*"Other than your time, could you estimate the total health costs spent on scours this year. This would include treatment costs, vet fees, vaccines to prevent scours, etc"?*

One half of all respondents spent "nothing" on scours in 2005 (49%) (Figure 34). The average expenditure was calculated using two methods. First, an average calculated by including all respondents in the sample (whether they had treated for calf scours or not. Second, an average calculated by including only those respondents who had treated for calf scours. Results were as follows:

| | |
|---|---|
| Method 1 (All respondents) | $212 spent on average in 2005 |
| Method 2 (Only those treating for scours) | $481 spent on average in 2005 |

Based on ABS population statistics, there are approximately 24,300 beef producers in the calf scours regions. Using Method One, the total expenditure on calf scours for the farm type and regions of interest would be in the order of $5.2 million. Note however this estimate does not take account of the significant costs in terms of time forgone looking after scouring calves or any longer term productivity losses.

Total and average health care costs (for Method 2) are presented in Figure 35. Riverland and Temperate Highland recorded the highest average expenditure at $822 and $747 respectively.

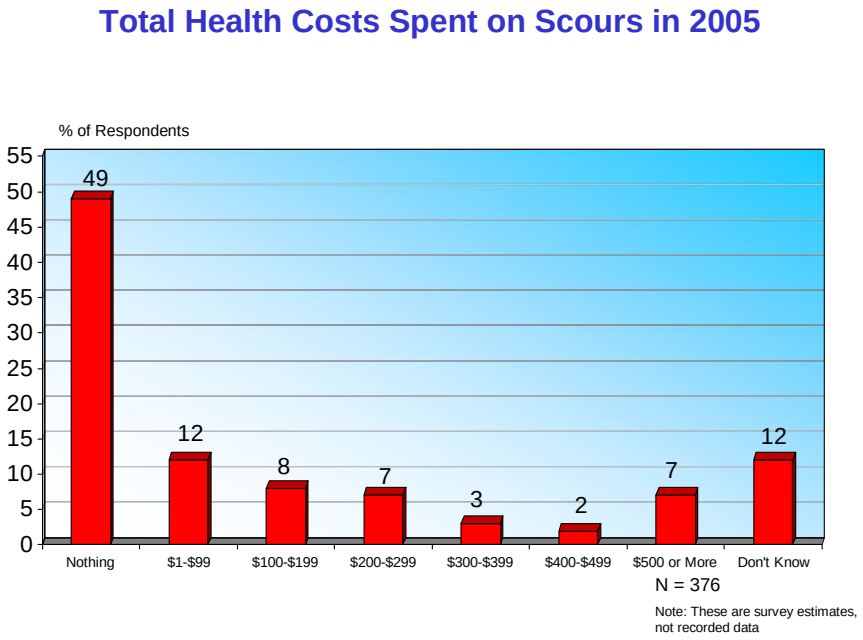


**Figure 34**

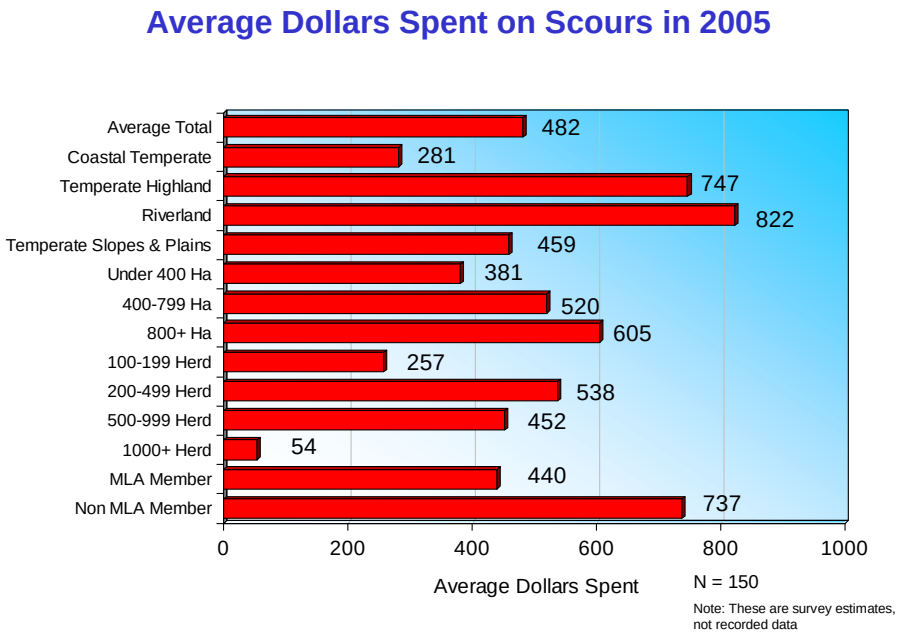


**Figure 35**

### 4.5.12 Certainty of the cost estimate

To provide some guidance as to the accuracy of the cost estimate for scours treatments, all respondents were asked:

*"How sure you are about this estimate on a scale of 1 to 5 where 1 is not sure at all and 5 is very certain"?*

Encouragingly, two-thirds of respondents (65%) were either certain or very certain of their estimate for calf scours expenditure in 2005 (Figure 36). Only 12% were not sure at all or unsure.

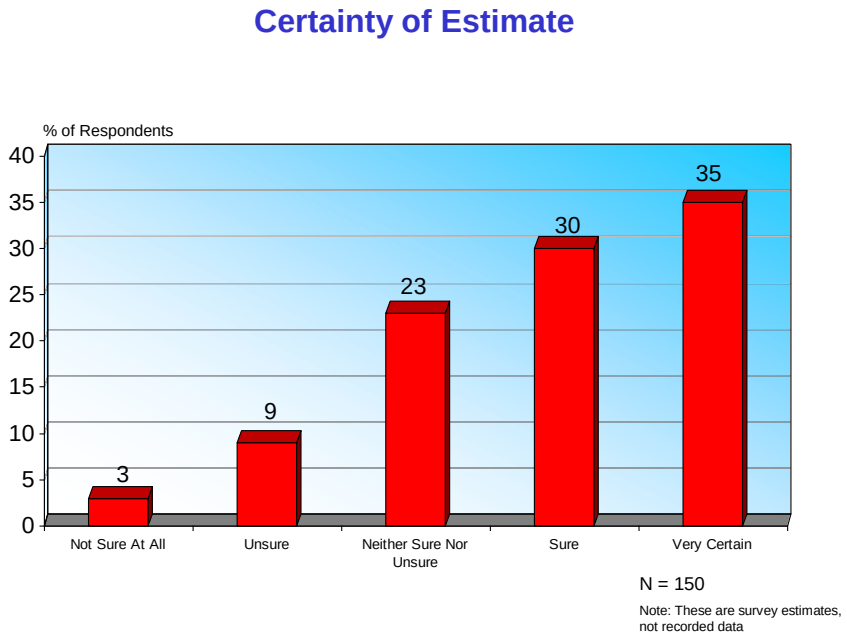


**Figure 36**

# 5 Success in achieving objectives

## 5.1 Success in achieving objectives

The objective for the current project was very succinct:

*"To evaluate incidence of serious calf scours in beef herds in Southern Australia and obtain estimates of the significance and cost of the condition from producers".*

The research has provided estimates from producers of both the incidence (%) and mortality (%) of calf scours in four different calf age groups across four regions in Southern Australia. Survey results were weighted using ABS population census data so that results were, as much as statistically possible, representative for beef herds in the selected regions of Southern Australia.

Some of the estimates of costs of the condition were also identified both in terms of average dollars and average time spent managing a scouring calf. The majority of producers had a high degree of confidence in their estimate of costs of treatment and services.

Given the above, the researchers are confident that they have been successful in achieving the project objective.

# 6 Impact on meat and livestock industry – Now and in five years time

## 6.1 Impact on meat and livestock industry

The current project has provided MLA with a "starting point" on the incidence and cost of calf scours. It has also provided MLA with a benchmark from which to gauge the effectiveness of any strategies implemented to address calf scours, including the recently released calf scours Tips & Tools and veterinary information pack. The project will positively impact on the meat and livestock industry as it will allow MLA to monitor the effectiveness of strategies developed to address the calf scours condition, reduce the incidence and cost and ultimately improve the financial and animal welfare position of Australian beef producers. Ongoing tracking projects to measure the impact of strategies could be repeated at either at yearly, biennial or five year intervals**.**

# 7 Conclusions and recommendations

## 7.1 Conclusions and recommendations

A quantitative telephone survey of 376 beef producers across Southern Australia in December 2005 examined producer estimates of the incidence, mortality and cost of calf scours. In addition, key cow, calf and pasture management were quantified to allow additional cross tabular analysis of the condition.

The percentage of calves estimated to be affected by scours varied with age but was highest, at 8%, when calves were between 6 and 20 days old. Death from scours was generally between 1.2% - 1.5% in calves less than six weeks old and fell to only 0.3% for calves between 7 and 16 weeks old. Nearly one in four producers (23%) could not estimate the proportion of calves affected by scours, indicating a significant need to more deeply examine producer attitudes to the effects of neonatal mortality on farm profit .

Health costs of treating calf scours in 2005 included all treatment costs, vet fees and vaccines to prevent scours were estimated at an average of $481 for a producer who treated calves with scours or $212 per producer across all 24,300 beef producers in Southern Australia. These costs however do not include the significant cost in terms of time spent managing sick calves which was estimated at 85 minutes per sick calf (on average). Further, these costs do not include the opportunity and real costs of maintaining an under-producing dam (ie dam of a calf that dies) in the herd for a year. Longer term effects of calf scours were also identified for although 84% of calves were estimated to make a full recovery, 16% either made only a partial recovery or were considered "poor doers". These conditions may be associated with further productivity losses.

A benchmark for the incidence, mortality and cost of calf scours in Southern Australia has now been established. The researchers recommend that:

1. Further analysis be undertaken by MLA and Strategic Bovine Services to identify the causal factors and underlying inter-relationships between the incidence of calf scours and the wealth of producer and herd demographic data collected with the scours data. This would include herd type, pasture type, region, calf and calf management practices and use of vaccinations. Solutions will provide MLA with the data file for this additional analysis.

2. MLA repeat the study again in 2007 or 2008 (or other suitable intervals) to track the incidence of calf scours and identify the effectiveness of MLA strategies developed to address the issue following the 2006 benchmark study.

# 8 Acknowledgements

Dr. K. Reed, Reed Pasture Science, Hamilton.

# 9 Appendices - Confidential

## 9.1 Appendix 1 – Computer Tabulations - Weighted

## 9.2 Appendix 2 – Computer Tabulations Unweighted