Final report

National Beef Producer Survey of Sustainability Practices

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Abstract

The Australian Beef Sustainability Framework (ABSF) was launched in 2017. The ABSF is constructed around the key themes of caring for cattle, enhancing the environment and climate, looking after people, customers and the community and ensuring a financially resilient industry. Quantitative studies were conducted by MLA in the years preceding the ABSF launch. Post launch, more comprehensive surveys were conducted in 2021 and 2024 to track previous metrics and establish benchmarks for new ABSF metrics. To track change and how producers can be better targeted by further profiling, an online and telephone survey of 813 cattle producers was conducted in March and April 2024. The research identified that cattle producers have adopted, to different degrees, many of the animal husbandry, management and environmental practices that form part of a sustainable operation. Adoption of some practices however varies for different demographic groups such as state / geography. Recommendations have been made on how to better track change and how producers can be better targeted by further profiling. The industry will benefit from the research as it will help guide MLA in identifying key sustainability priorities for future industry levy investment.

Executive summary

Background

The Australian beef industry has developed four key themes of best animal care, environmental stewardship, people & community, and economic resilience. These themes form the Australian Beef Sustainability Framework (ABSF) that guides beef production to ensure that the industry operates sustainably. Regular tracking of cattle producers' attitudes and behaviours via survey-based methodologies helps ensure that progress against these themes can be measured and that industry initiatives to drive change can be developed and adapted.

Objectives

The primary objective was to track key metrics and practices against the benchmark that underline the ABSF to help guide Meat & Livestock Australia's (MLA) investment and project planning and provide transparency of production to consumer markets both domestically and internationally.

Methodology

The methodology for this project involved a survey of 813 beef producers in March and April 2024. A mixed methodology was employed involving a 29-minute Online survey with 779 producers and a 29-minute survey with 34 producers via Computer Assisted Telephone Interviews (CATI). Producers were incentivised to participate in the survey through a prize draw. Producer contact details were sourced from MLA's member database.

The sample was stratified, and results weighted by state and herd size categories based on producer population data from the Australian Bureau of Statistics (ABS) for representativeness. As the results are based on a survey, they are subject to margins of error and should be viewed as the midpoint of the likely range, rather than a single value. For example, based on the national sample of 813 cattle producers, 33% of producers tip the horns of their cattle. This result has a margin of error of +/- 2.7% at a 90% confidence level so the national result of 33% has a range of between 30.3% and 35.7%.

Results

The survey for this research project represents cattle producers from New South Wales (34%), Victoria (23%), Queensland (28%), South Australia (6%), Western Australia (6%), Tasmania (3%) and the Northern Territory (<1%).

Slightly less than two thirds of producers (60%) operated farms that were 499 hectares or less in size. Around a fifth (22%) were between 500 – 1,499 hectares, with 7% between 1,500 – 2,999 ha and 11% 3,000 hectares or more.

Nearly three quarters of all interviewed producers (71%) ran between 50 and 199 breeding cows.

Around half (49%) of cattle producers are tertiary or post-graduate educated. Almost half (46%) have been farming for fifty years or more with over one third (39%) farming for a quarter to half a

century. The largest age segment of interviewed producers was those 65 and over (51%), and almost all producers were 35 and over.

Nationally, producers earned 86% of their income from beef cattle. The average herd size was 480 head with 62% of producers having a herd size of between 50 – 199 head.

The majority of producers (76%) use seasonal joining and over three quarters (77%) of cattle producers check heifers at least once a day during calving. Slightly less than two thirds (60%) of cattle producers check cows at least once a day during calving.

The average age of weaning in Australia is 8.8 months, with the majority of producers preferring to wean calves in a holding paddock (82%). 52% hold weaners for 7 days or fewer.

Almost three quarters (74%) of calves nationally received permanent identification when they were up to 6 months of age. The NLIS (ear tags or bolus) was the most common way to identify cattle (85%). Producers cite legal requirements as the most common reason they use the NLIS (97%).

When applying permanent identification, 12% use pain management. The most common pain management product was anesthetic and antiseptic spray applied to the surgery site (65% nationally).

Producers who did not use pain management gave a variety of reasons for this choice, but most commonly, it was thought to be impractical (50%) or unnecessary (40%).

Nationally, 87% of producers castrate bull calves, with two fifths castrated between birth and two months of age (40%). An average of 97 bull calves were castrated by each producer in 2023. Nearly half (48%) of calves were castrated between three and four months of age.

Rubber rings was the most common technique (69%) used for calf castration followed by a knife or scalpel (33%). Producers who used rubber rings did so because it was simple (73%), causes no bleeding (70%), and efficient (68%).

Producers who used a knife or scalpel said that it was efficient or quick (62%) and that it was effective (55%).

Those who used burdizzo for calf castration chose this method because they caused no bleeding (82%) and has a lower risk of infection (82%). Producers who chose to use the short scrotum method using rubber rings stated that it is simple (65%) and causes less infection (55%).

Nationally, 24% of producers use pain management at calf castration across all methods. The proportion of calves that are castrated with pain management is higher at 36%. Anesthetic and antiseptic spray at the site was by far the most commonly used pain management (61%) followed by analgesic injection (23%) and analgesic oral gel (11%). When castrating calves with rubber rings, the majority of producers who used pain management used an inappropriate anesthetic and antiseptic spray (41%). When castrating with knife or scalpel, 5% used an inappropriate anaesthetic injection. Where producers did not use pain management, they said that it is not practical (50%) and that it is unnecessary (43%). The majority of producers (51%) check calves the day after castration.

Only a small proportion of producers surveyed castrate bulls over 12 months of age (6%), with an average of 19 bulls castrated per producer. At the national level 40% of those castrating bulls use pain management. The proportion of bulls that are castrated with pain management is lower at 33%. The majority of producers (72%) use anaesthetic and antiseptic spray. The most common

reasons given for not using pain management is that pain management is not necessary (40%) and not practical (30%).

Horn tipping is practiced by 33% of producers and of producers who did this, 70% dehorned calves while 51% dehorned mature cattle over twelve months of age.

Producers tipped an average of 78 calves, with the majority tipped between three and six months of age (75%). Nationally, 43% of producers use pain management for calf horn tipping and, of these, the vast majority (87%) use anesthetic and antiseptic spray at the surgery site. Where producers did not use pain management, they gave a variety of reasons for so doing. The largest portion (43%) stated that it was a quick procedure and not practical to use pain management.

On average, producers tipped the horns of 36 mature cattle. Two thirds of mature cattle had their horns tipped between 12 and less than 24 months (66%). On the national level, one third of producers use pain management (32%). The vast majority choose to use anesthetic and antiseptic spray at the surgery site (87%). Where producers do not use pain management, 43% thought it was not practical for a quick procedure and 43% thought it was unnecessary.

Nationally, 33% of producers dehorn or disbud cattle. Producers much more commonly dehorn or disbud calves (96%) while 9% dehorn or disbud mature cattle over twelve months of age. Three quarters of producers who dehorned or disbudded calves do this when the calf is between one and four months of age (76%) and disbud or dehorn an average of 127 calves. The most commonly used technique to dehorn calves was scoop or cup dehorners (55%) followed by a knife (14%). Methods producers chose were perceived to be effective (65%), quick (59%), clean and neat (45%), precise and efficient (43%) and easy to use (41%). More than half of producers (55%) use pain management for dehorning or disbudding calves. The proportion of calves that are dehorned or disbudded with pain management is similar at 54%. The vast majority of these producers use anesthetic and antiseptic spray at the site (83%). Where producers dehorned or disbudded without pain management, more than one third felt that it was not practical for a quick procedure (53%) and 30% had not considered it. Half of producers who dehorn or disbud (52%) check calves one day following the procedure.

Around half (54%) of interviewed producers who knew the age at which they dehorned mature cattle report dehorning between twelve months and twenty-four months with nearly half (48%) using scoop or cup dehorners. One quarter of producers who dehorn mature cattle use pain management products (25%). The proportion of mature cattle that are dehorned with pain management is 18%. Producers who don't use products for pain management cite it being impractical for a quick procedure (45%), or not necessary (30%).

At the national level, most producers do not spay cull heifers, with only 2% of producers choosing to do so and 77% of these pregnancy test heifers before spaying. Only 2% spay cull cows and most of these pregnancy test the cull cows (75%).

When producers spay heifers and cows, they spay an average of 234 heifers and 84 cows. These producers prefer to use the Willis dropped ovary and removal of ovaries method (79% of heifers and 42% of cows). The most common reason given for using this method is that it is on the advice of veterinarians (heifers 48% and cows 44%). When producers spay their cull heifers and cows, less than a third of producers use the services of a vet (29%) producers more commonly using a non-vet contractor (39%). Over half of producers check heifers and cows one day after spaying (54%) and 14% of producers lost animals due to spaying complications. Pain management is used by 22% of producers who spay heifers and 16% of producers who spay cows. The proportion of heifers that are

spayed with pain management is 15% with the proportion of cows at 17%. Of producers who chose not to use pain management, one quarter nominate that they do not use any because their vet has not suggested it (25%). Half of producers (50%) who spay their cows and heifers state that they feel likely or very likely to use a non-surgical sterilisation method if it was available.

Almost one quarter of producers vaccinate against botulism (23%). When producers do vaccinate for botulism, nearly three quarters (76%) always follow up with a booster. Nationally, rates of vaccination for botulism are similar for age groups with calves 67%, weaners 59% and cattle 48%.

At the national level, 76% of producers vaccinate against other clostridial diseases such as tetanus and blackleg. Half of producers use 5 in 1 vaccines (52%). 68% use 7 in 1 vaccines. 80% of producers give booster vaccines within six weeks. Producers who did not gave a variety of reasons for not giving booster vaccines. Most commonly, they state that they never have (27%) or that they do give a booster outside of the 6-week window (25%). Producers vaccinate all classes of cattle at high rates (92% for calves under one year, 63% of weaners and 51% cattle over two years of age).

At the national level, 23% of producers vaccinate against BVDV. Three quarters of producers vaccinated weaners or heifers from one to two years of age (75%), with more than half vaccinating cows older than two years (54%) and slightly under half vaccinating calves under one year (46%).

9% of producers vaccinate against Three-Day Sickness (Bovine Ephemeral Fever or BEF).

When asked about their awareness of the ParaBoss, WormBoss, TickBoss, LiceBoss and FlyBoss websites, nearly two thirds (64%) of producers had not heard of any of them. Two fifths of producers (20%) are aware of the 'Immune Ready Guidelines'.

55% of producers interviewed apply feed curfews before transporting slaughter cattle and 28% of producers applied a water curfew. When producers did not apply a feed curfew, they elected not to so as to minimise stress and ensure the cattle stay in better condition (44%). More than half of producers declined to apply a water curfew to slaughter cattle to reduce stress and improve condition (52%). On average, producers impose feed curfews 8.5 hours, and 7.5 hours off water prior to transport. Most cattle reach their destinations in 6 or fewer hours (87%).

At the national level, 78% of producers transport non-slaughter cattle and 41% of these producers applying feed curfews and 27% applying water curfews. The most common reason producers gave against imposing a feed curfew was that not doing so places less stress on the animals and ensures they arrive in better condition (53%). Producers gave the same reason for not applying a water curfew (55%). On average, producers impose feed curfews to non-slaughter cattle 7.5 hours and water curfews 8.4 hours prior to transport. Nationally, the majority of non-slaughter cattle are in transit 6 or fewer hours (89%).

Most producers (86%) euthanise cattle by shooting them. Producers used a variety of carcass disposal methods with the most frequent being burying (43%), burning (32%) and dumping the carcass (28%).

The majority of producers (82%) quarantine sick or injured cattle. 65% of all producers introduce new stock to their farms and 84% of these have a quarantine process for all of these introduced animals. Of the producers who did have a quarantine process in place, most chose to quarantine cattle older than 2 years (79%), with 39% quarantining weaners aged 1-2 years of age. The most common quarantine process used in all states is isolation (88% nationally).

Half (50%) of producers generate and use renewable energy. A further 14% of producers stated that they use renewable energy bought from their energy retailer with 42% not generating or buying any renewable energy. Of the producers who generate their own renewable energy, the majority (78%) have solar without batteries. Producers interviewed had generally not taken carbon accounting training study (82%) and did not measure their emissions (89%), however 36% did implement carbons emissions measures. Of those who did, most (86%) used pasture management methods. Of the producers who had measured their greenhouse gas emissions, a third (27%) had undertaken a second or subsequent account with around half (51%) reporting a decrease in emissions of an average of 21%.

The most common land management activities practices by producers were weed control (88%), pest control (65%) and destocking (55%), with activities carried out on 80-100% of land area for 55% of producers. The average land area these activities are conducted on is 3,614 hectares. 47% of producers carry out grazing management activities, with the top activity fencing areas to prevent livestock access (71%).

Surface water from dams, creeks and rivers is the top source of water for cattle (78%) followed by groundwater (57%). Almost all producers (91%) have a plan for managing their farms and cattle during extreme weather events, with 96% confident their water supply can withstand prolonged dry periods. 78% of producers are able to increase stock water supply if needed and two thirds (66%) manage pastures to have diverse, drought resistant species.

Around two thirds (61%) of producers test and monitor their soil health, with the majority of these (75%) conducting laboratory tests. Producers who test often change their practices based on the monitoring of their soil health (69%). 81% of producers undertake practices to improve their soil water retention.

Half of producers manage waste on site for beneficial reuse (50%), with 48% managing on site without benefit. Plastic waste is mostly managed through official collection for landfill (61%) or recycled (45%). Workshop waste is also managed through recycling (64%) or official collection for landfill (51%).

Producers cited a combination of sources for their animal husbandry training. The overwhelming majority have had informal training where the practice/s had either been shown to them by someone else (83%) or were self-taught (52%). 48% stated that they had attended formal training with the majority of these (83%) consisting of various courses, workshops and field days. Producers had also attended a low stress livestock handling course (38%), obtained a degree or attended an Ag college (39%) or taken specific courses on AI, pregnancy testing or spaying (31%) with 28% completing an TAFE / Ag Certificate.

Around half of producers have a Work Health and Safety (WHS) plan (51%), 63% have undertaken a WHS risk assessment, 47% induct workers in WHS obligations and 42% induct visitors. The majority encourage workers to identify safety concerns (70%) and have roll bars where appropriate (73%). Less than half (48%) exclude children under the age of 16 from farming activities.

Benefits to industry

The benefits to industry of this research are that it has demonstrated that cattle producers have adopted, to different degrees, a wide range of sustainability practices and strategies in relation to animal husbandry, management and the environment.

The industry will benefit as the comparison of the benchmark and tracking data collected will guide MLA in investment and planning to continue to improve the sustainability of cattle producers' operations and maximise the value gained from industry levies.

Future research and recommendations

Three recommendations have been made from this research:

1. Develop strategies to address the main barriers to adoption of sustainable practices
2. Repeat the full survey every two years to track industry progress
3. Expand the profile of MLA's Member database to improve communication and extension initiatives.

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1. Background

1.1 Sustainability framework and need for research

Sustainability and sustainability initiatives is a movement that has been gathering pace in recent times. The genesis of the movement in its current form can largely be attributed to the ground-breaking leadership of European leaders and has now become a mainstay in business globally. Environmental, social and governance reporting is commonplace in leading global businesses and mandatory for some. It is an initiative that consumers relate to strongly and has driven consumer choice not only for product selection but with investment. Companies that lack a framework to reduce their environmental and social impact are finding it increasing difficult to source capital to support the viability of their business. It's a movement that has become so deeply ingrained in the global community that no industry can afford to be left behind with adoption.

Agriculture and agricultural production are essential for life as we know it, but that production too leaves an environmental footprint. Greenhouse gas emissions, pollution, chemical residues and animal welfare are some of the key areas that need to be tackled to reduce agriculture's impact. It is a topic that has at times been a divisive issue in Australia between government, industry and consumers. The removal of certain chemicals from the market, the increase in traceability in the supply chain and regular discussion on emissions trading schemes are some examples of sustainability driven initiatives.

Leaders in the beef industry have recognised that sustainability holds huge importance with regards to Australia both in maintaining its presence in global markets but also grow its presence in other markets in the future. It is for this reason sustainability frameworks have been constructed with heavy consultation with industry organisations, leaders and producers.

A key requirement for sustainability is the ability to track development and placing increased focus on driving adoption and improvements. It is essential to quantify and profile current practices and measure changes over time to allow continual refinement of industry sustainability initiatives, investment and program development. Sustainability tracking is also essential for reporting, providing evidence for market access negotiations and for wider transparency for consumers. It is for these needs that MLA and others have sort to construct a robust and integrated tracking system to measure key metrics and trends over time.

Kynetec conducted a producer sustainability survey for MLA in 2021 (E.SUS.0005) to track animal husbandry practices of beef producers and also benchmark new behavioural measures. Repeating the survey in 2024, as reported here, identifies any shifts in producers' behaviour over the previous two years and also provides benchmarks for new practices not covered in 2021. This provides guidance for MLA to fulfill their sustainability commitments.

2. Project objectives

The primary objective of this project was to identify key metrics and practices that underline the ABSF.This will help guide MLA's investment and project planning and provide transparency of production to consumer markets both domestically and internationally. These metrics and practices were then compared to the benchmark results obtained in 2021.

To meet with these project objectives, the following research topics were addressed:

1. Husbandry practices, management strategies and standards

Identifying the incidence and levels of key husbandry practices related to pest and disease control measures, and breeding practices. Highlight the use and understanding of specific management strategies and standards related to predators, insect pests and animal welfare

2. Environmental profile

Understand the level of environmental on-farm management activities such as carbon activities, biodiversity, water and land management, and soil and waste management.

3. Technology

Ascertain producers' attitudes towards and use of tools, new technology and resources assisting them in their business.

4. Attitudes, drivers, barriers and pain points

Investigate and highlight producers' views towards sustainability initiatives and practices and the driving force behind current adoption as well as identifying any headwinds present that are inhibiting adoption

5. Producer profile

Profiling producers by age, gender, education and years in farming to form a clear picture of producers in the industries.

3. Methodology

3.1 Questionnaire

A fully structured questionnaire to address the research objectives and issues was developed in conjunction with MLA using selected questions from previous surveys to maximise tracking of any demographic or behavioural change for comparison and validation purposes. The current survey also needed to address topics and practices that were not covered in previous surveys.

All questions for analysis were closed format with a list of pre-populated responses for respondents to select during online completion or interviewers to select during telephone completion. An option for 'other specify' responses was also provided for some questions with these open responses provided to MLA for future internal reference.

The online questionnaire was piloted with 9 beef producers on from 29 January – 5 February 2024. The average survey length was 27:44 minutes. As the interview length was around the budgeted 20 - 25 minutes and the programmed survey captured all required data, the survey was fully launched on 6 February 2024.

A copy of the questionnaire is provided in the Appendix.

3.2 Sample design

A sample of 800 beef producers was chosen for this study. This was designed to achieve national results with a 90% confidence level and +/- 2.9% margin of error. This confidence level was consistent with MLA's 2021 producer sustainability survey, in which 803 producers were interviewed.

The total sample was stratified into 7 state / territory and 3 herd size quotas (50 – 399, 400 – 1,599 and 1,600 head +, one quota only for NT given the low producer population) based on ABS producer population data. The samples achieved for each quota is provided in **Table 14** in the Appendix.

The final sample achieved was 813 beef producers.

Results were weighted by state and herd size categories based on data from the ABS for representativeness. Due to the reasonably close alignment of the final sample with the quotas and population distribution of producers, weighting the data to the population did not result in any major differences between unweighted and weighted data (as unweighted data was very representative). Weighting however did correct for some over and under sampling in some state and herd size categories.

3.3 Sample selection

MLA provided Kynetec with a database of 37,240 beef producer members of who 36,378 had a phone number and 27,183 had an email address. These records were used for the soft launch, full launch and reminders for the online survey, and for telephone interviewing.

At the beginning of the survey, all respondents were screened to ensure that they qualified for the survey based on the following requirements:

1. Be the primary / joint decision maker regarding cattle husbandry practices on their property

2. Have farm income from beef in the previous three financial years
3. For commercial breeding operations, must have a minimum herd size of 50 head as at 31 December 2023
4. For Traders buying and selling cattle, must trade at least 50 cattle in a typical year.

3.4 Data collection

Data was collected via a mixed methodology approach using both Online and CATI methodologies. The methodological split was proposed to be 720 Online and 80 CATI. The Online methodology allowed the large scale, extended length survey to be conducted very cost effectively with the CATI component being an alternative method of following up non-respondents to the email survey or contacting producers who did not have an email address. A number of factors point towards the increasing adoption of online surveys to collect data in the future. These include the high prevalence of producers with email addresses, an increasing familiarity with digital technologies such as smart phones and online surveys, the increasing labour costs of CATI and an anecdotal trend in more producers screening incoming calls on their mobiles due to inconvenience, unknown callers and concerns around scams.

A pilot (soft launch) for the Online survey was survey was conducted from 29 January – 5 February and following the successful pilot, the Online survey was fully launched to 21,168 producers from MLA's Member database by providing each a unique link to the Online survey. Four reminder emails were sent to non-respondents throughout February and March.

Following the closure of the Online survey on 27 March with 779 completes, the CATI component of 34 surveys was completed by contacting non-respondents to the Online survey and also MLA members who were only contactable by phone, not email.

Average survey length was 26:30 minutes for Online and 26:46 for CATI.

The breakdown of the sample by methodology is shown in **Table 1**.

Table 1: Sample methodology

Methodology	Total
Online	779
CATI	34
Total	**813**

For the Online survey, of the 20,425 producers sent a unique link by email, 315 screened out because they did not meet the minimum requirements to qualify, 31 could not continue because the quota for their state and herd size was full, and 779 were completed.

For the CATI survey, a total of 212 conversations were held with individual in-scope producers. Of these, there were 34 completes, and 112 refusals giving a response rate of 23%. 66 producers were initially willing to participate in the survey, but were unavailable or uncontactable when called back. A further 1,264 numbers contacted were no response or engaged and 312 were disconnected.

3.5 Statistical analysis

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). 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 5 percentage points i.e., 45% - 55%. The margin of error depends on the sample size (smaller sample sizes have larger errors), the actual sample result (a result closer to 50% has a larger percentage error) and the confidence level required. Due to a high margin of error associated with a small sample, results based on a small sample in the report should be treated with caution. Care should be taken with any results from a sample of less than 30.

A summary of the expected margins of error based on different sample sizes (from 25 – 800) and different survey results (from 5% to 95%) assuming a 90% confidence level is contained in **Table 15** in the Appendix. For example, based on the national sample of 813 cattle producers, 33% of producers tip the horns of their cattle. This result has a margin of error of +/- 2.7% at a 90% confidence level so the national result of 33% has a range of between 30.3% and 35.7%.

The main statistically significant differences in results between states are highlighted throughout this report. If a result for one state is significantly higher or lower than the national result, this will be shown in graphs throughout the report with up (↑) or down arrow (↓) respectively. Based on a 90% confidence level.

4. Cattle results and discussion

4.1 Background to the analysis

This section presents the results and discussion summarising the current practices of Australian cattle producers. Results are presented at the national and state level.

4.2 Respondent demographics

Producer demographics such as region, property size, income, farm type and age are presented below in **Figure 1** to **Figure 8**. These charts illustrate the diverse demographic range of the cattle producers in Australia.

The results comprise producers from New South Wales (34%), Victoria (23%), Queensland (28%), South Australia (6%), Western Australia (6%), Tasmania (3%) and the Northern Territory (fewer than 1%) (**Figure 1**).

Slightly less than two thirds of cattle producers (60%) operated farms that were 100- 499 hectares in size. Around a fifth (22%) were between 500 – 1,499 ha, 7% were between 1,500 – 2,999 hectares, and 11% 3,000 hectares or greater (**Figure 2**). There was a large state effect on farm size, with Northern Territory producers entirely reporting properties over 3,000 ha (100%), while Victorian and Tasmanian producers tended towards properties under 500 ha (83% and 66% respectively) (**Figure 3**).

On average, producers earn 86% of their income from cattle (**Figure 4**).

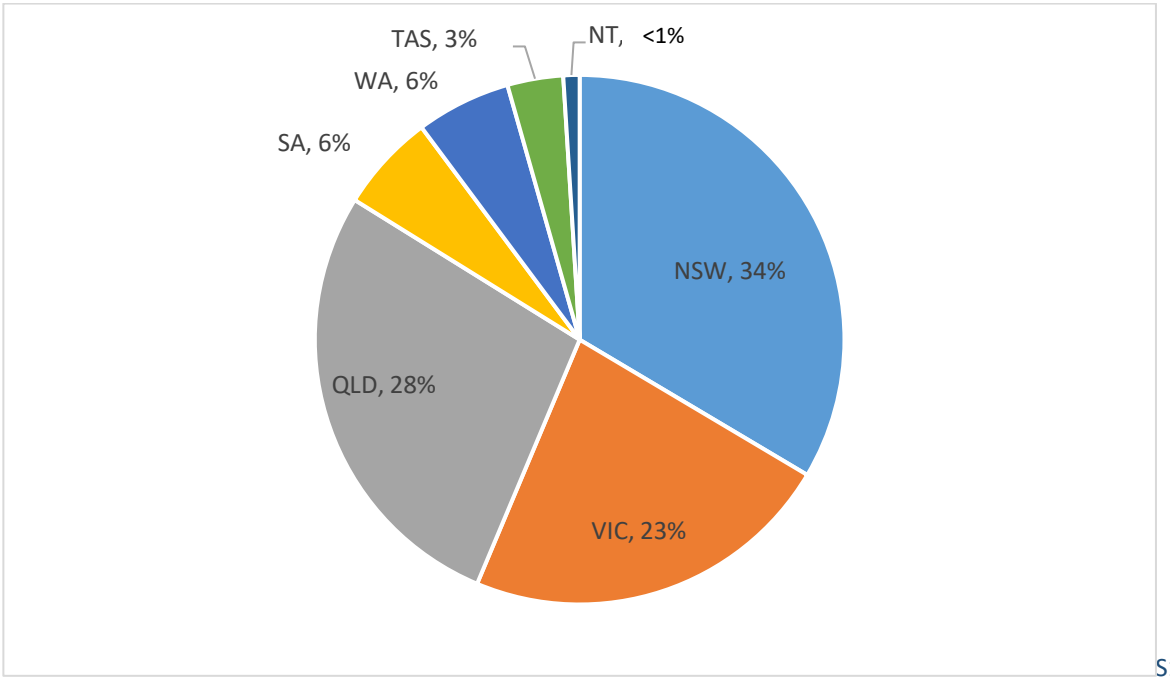
The majority (63%) of producers are tertiary educated (**Figure 6**).

The largest age segment of producers was those 65 and over (51%) with almost all producers being thirty-five and over, and 2% 25 – 34. One percent of producers declined to state their age (**Figure 7**). Almost one third (29%) have been farming for fifty years or more with almost half (45%) farming for a quarter to half a century.

The majority (78%) of producers identified as male. Slightly over one fifth (21%) identified themselves as female with 1% preferring not to identify themselves (**Figure 8**).

Figure 1: Respondent demographic by state

Base: All producers n = 813

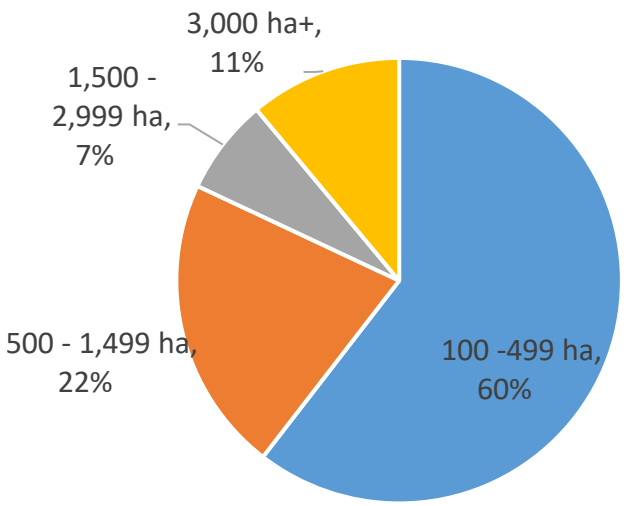


S1: Which state is your main cattle enterprise located?

NB: There were 9 producers in the Northern Territory (fewer than 1% of the sample)

Figure 2: Respondent demographics by property size (hectares)

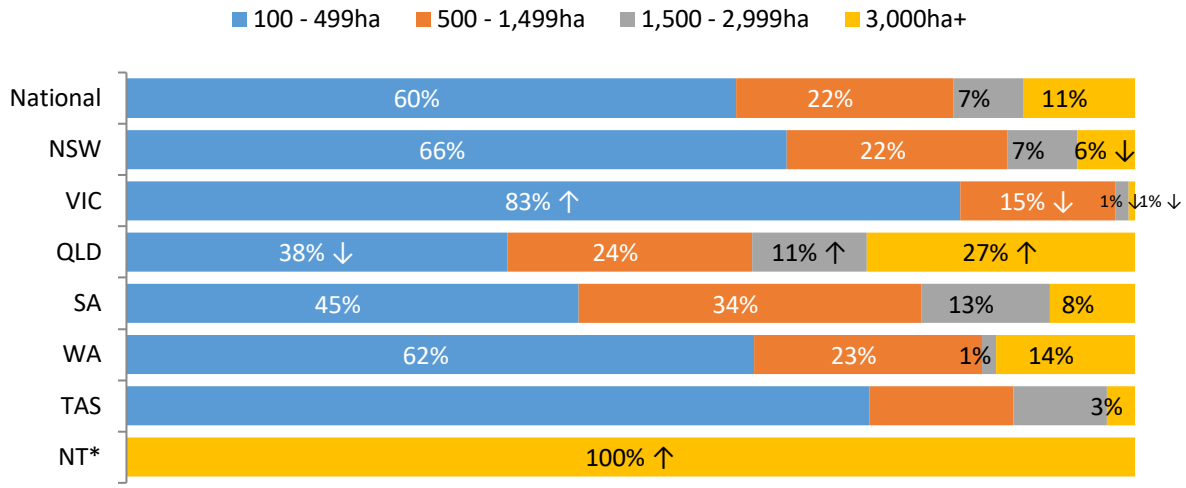
Base: All producers n = 813



S4: What is the total area of your property, including all leased land and any unused land?

Figure 3: Respondent demographic by property size by state

Base: All producers n = 813

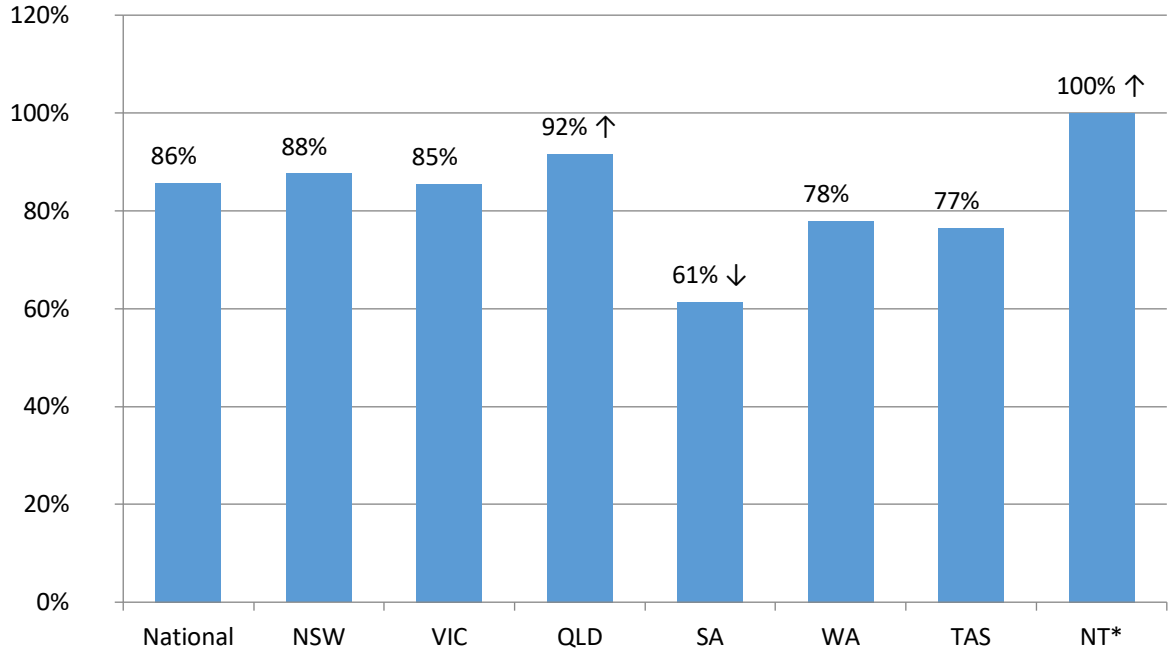


S4: What is the total area of your property, including all leased land and any unused land?

* Small sample (less than 20 producers)

Figure 4: Percentage of gross farm income from beef by state

Base: All producers n = 813

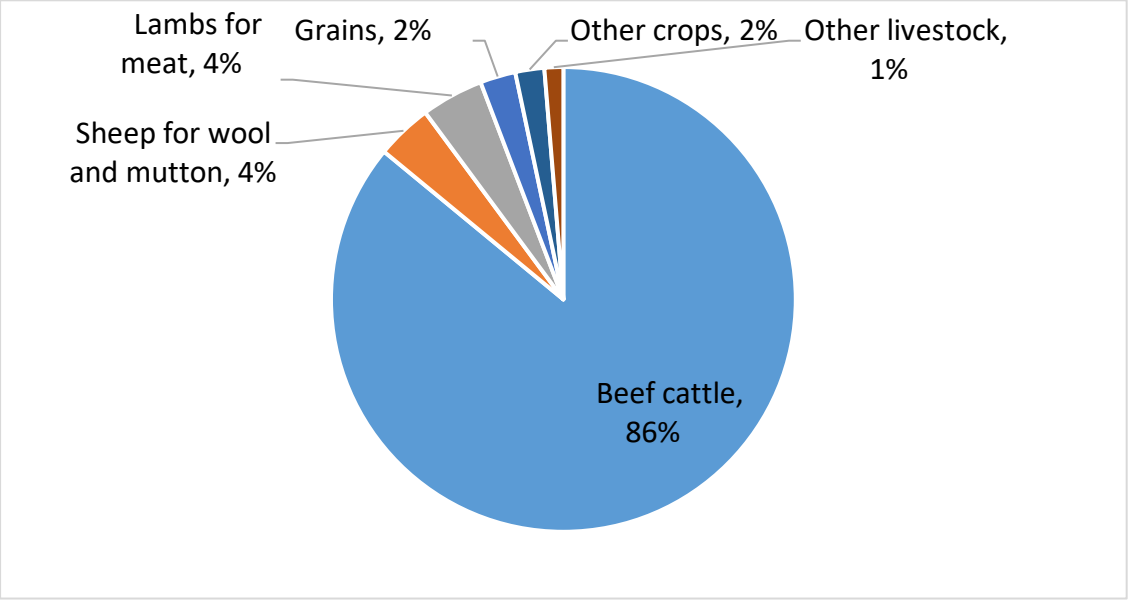


S3: Over the last 3 full financial years, what percentage of your gross farm income, that is, only income from your property, came from the following activities?

* Small sample (less than 20 producers)

Figure 5: Percentage of gross farm income by enterprise type

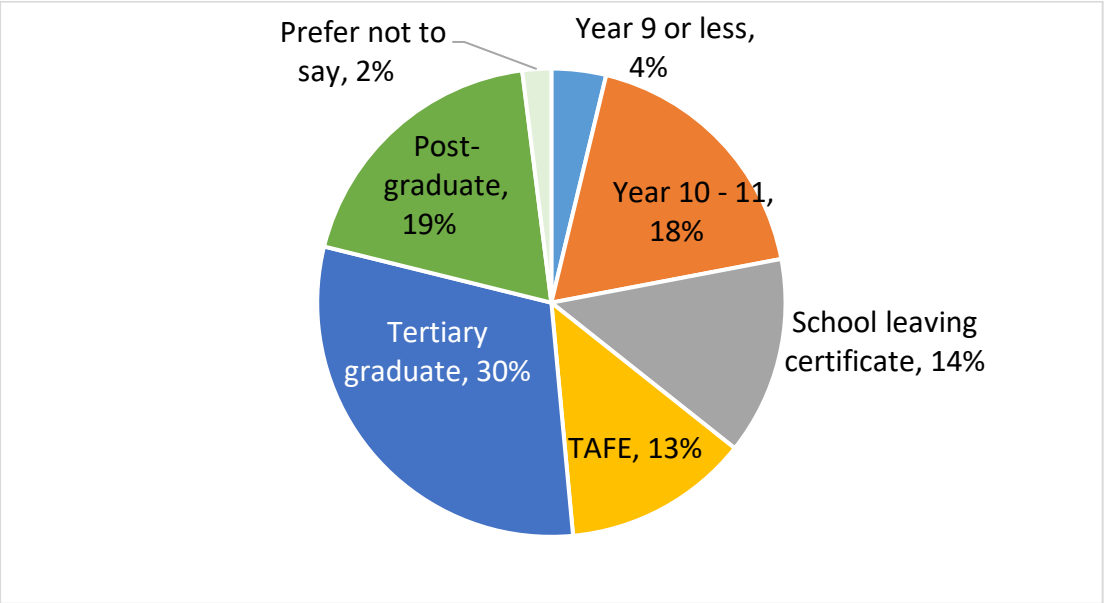
Base: All producers n = 813



S3: Over the last 3 full financial years, what percentage of your gross farm income, that is, only income from your property, came from the following activities?

Figure 6: Respondent demographic by education

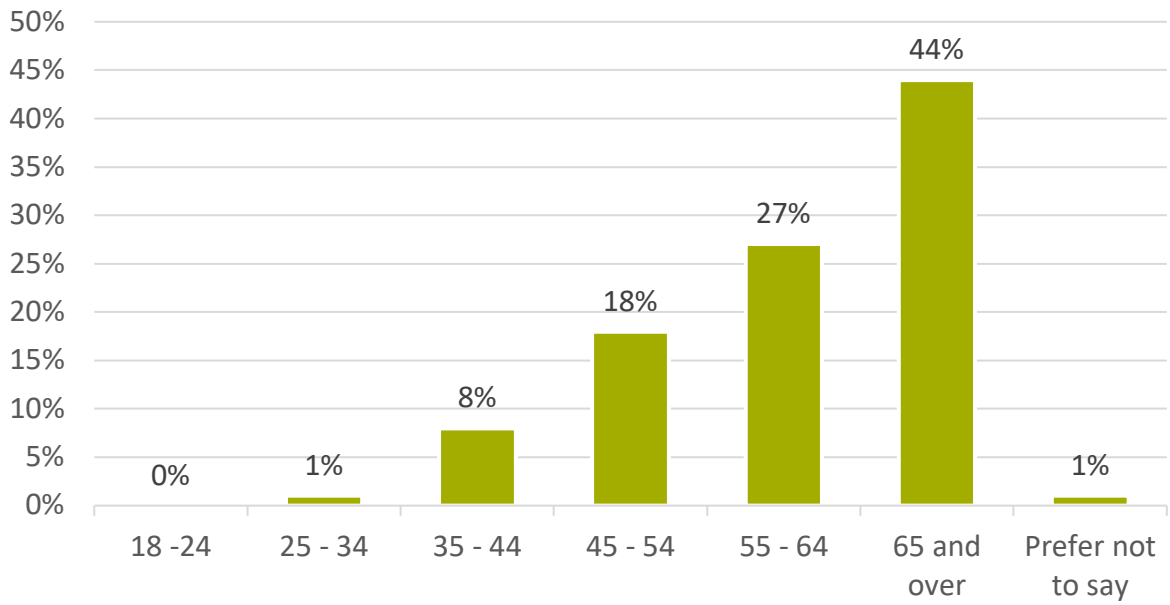
Base: All producers n = 813



16.2: What is the highest level of education you have achieved?

Figure 7: Respondent demographic by age

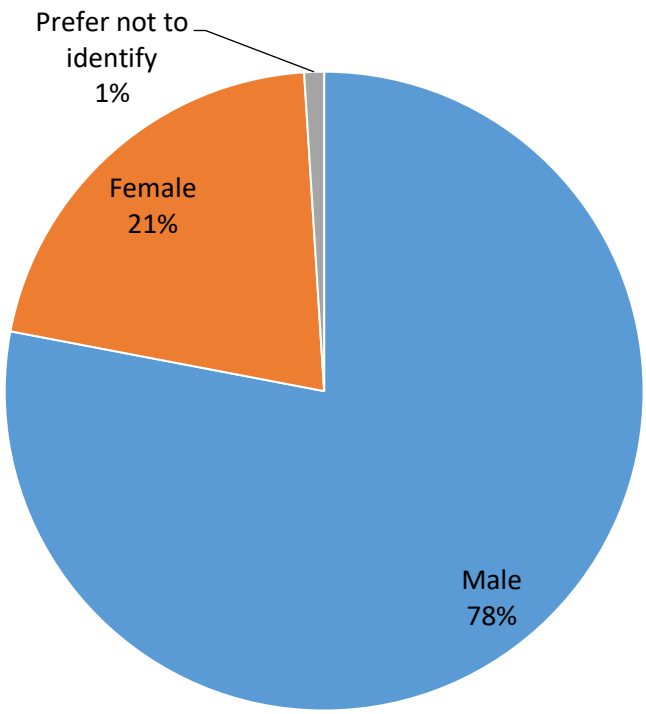
Base: All producers n = 813



16.3: Into which of the following age groups you fall?

Figure 8: Respondent demographics by gender

Base: All producers n = 813



16.4: What is your gender?

4.3 Herd structure

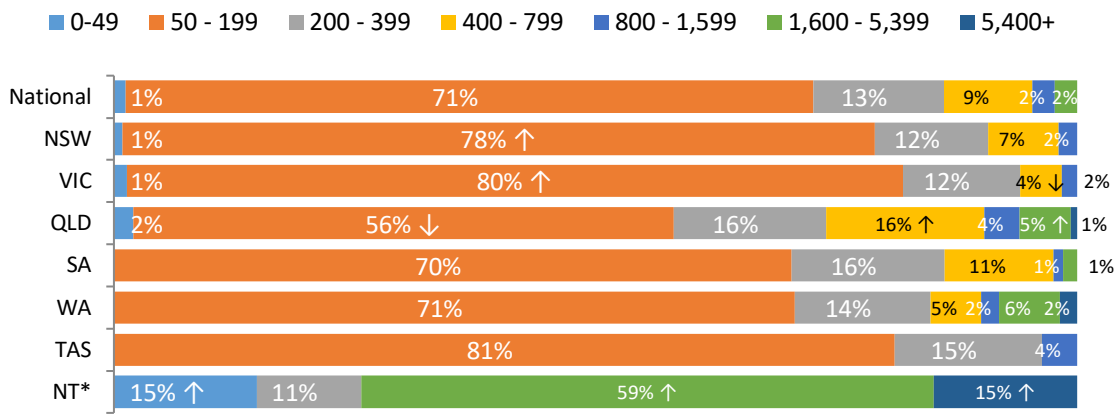
Nationally, nearly 3 in 4 of all producers (71%) ran between 50 and 199 breeding cows while 1% ran 49 or less and were cattle traders rather than breeders. 13% ran 200 - 399 cows, and 9% between 400 – 799 cows. 2% of producers ran between 800 – 1,599 cows, 2% ran between 1,600 and 5,399 cows and less than 1% ran 5,400 or more cows (**Figure 9**). The average number of breeding cows was 272 per farm.

The average herd size was 480 head. A greater proportion of producers in the Northern Territory ran larger herds of more than 5,400 head of cattle (59% compared to 1% overall). Conversely, fewer Victorian producers ran more than 800 head of cattle (4%) (**Figure 10**).

The most common breeds of cattle were pure Bos Taurus breeds such as Angus and Hereford, with 66% of producers nationally running these breeds. Bos Taurus cross breeds and Bos Taurus x Bos Indicus breeds were run by 25% and 24% of producers respectively, with (7%) running pure Bos Indicus breeds such as Brahmans with the rest (3%) running beef/dairy cross breeds (**Figure 11**).

Figure 9: Respondent demographic by number of cows

Base: All producers n = 813

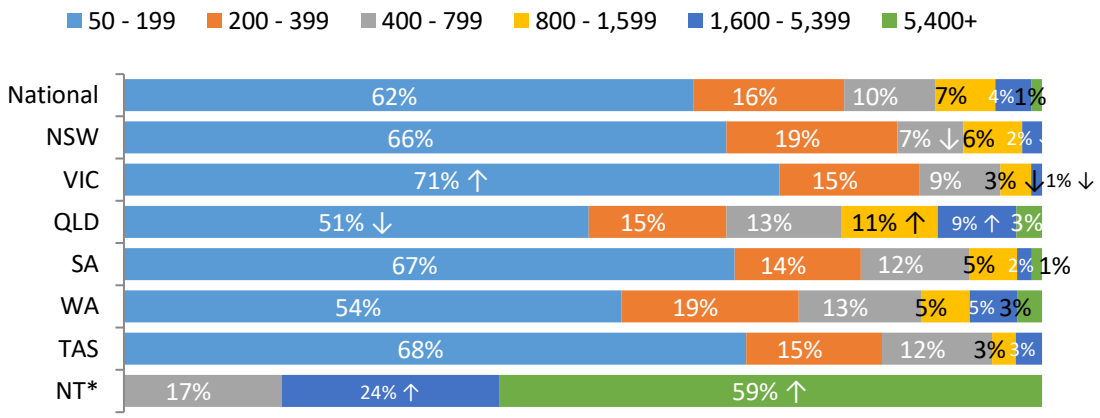


S6.1: As at 31 December 2023, how many breeding cattle did you have on your property?

* Small sample (less than 20 producers)

Figure 10: Respondent demographic by number of cattle

Base: All producers n = 813

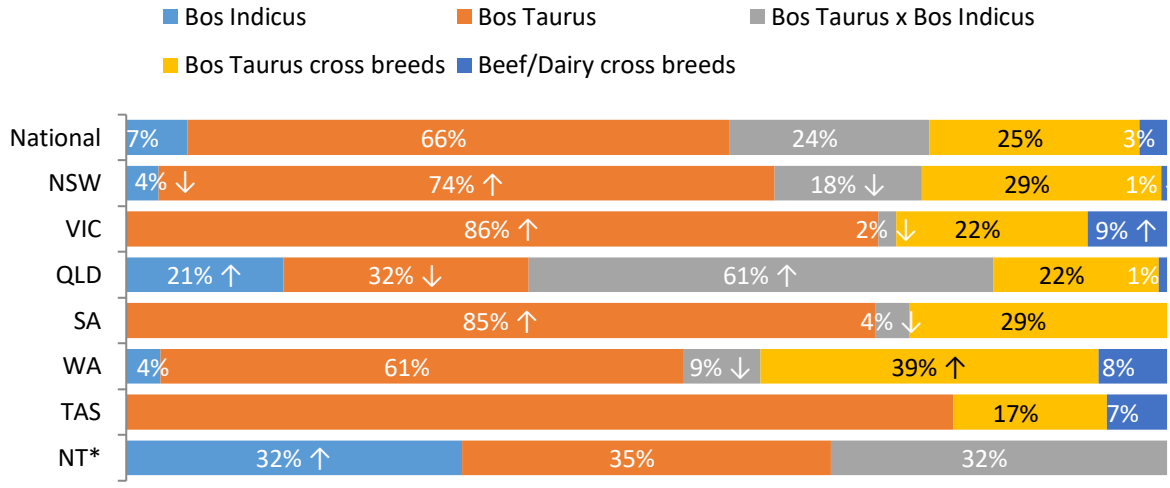


S6.3: As at 31 December 2023, how many cattle did you have in total on your property?

* Small sample (less than 20 producers)

Figure 11: Respondent demographic by breed

Base: All producers n = 813



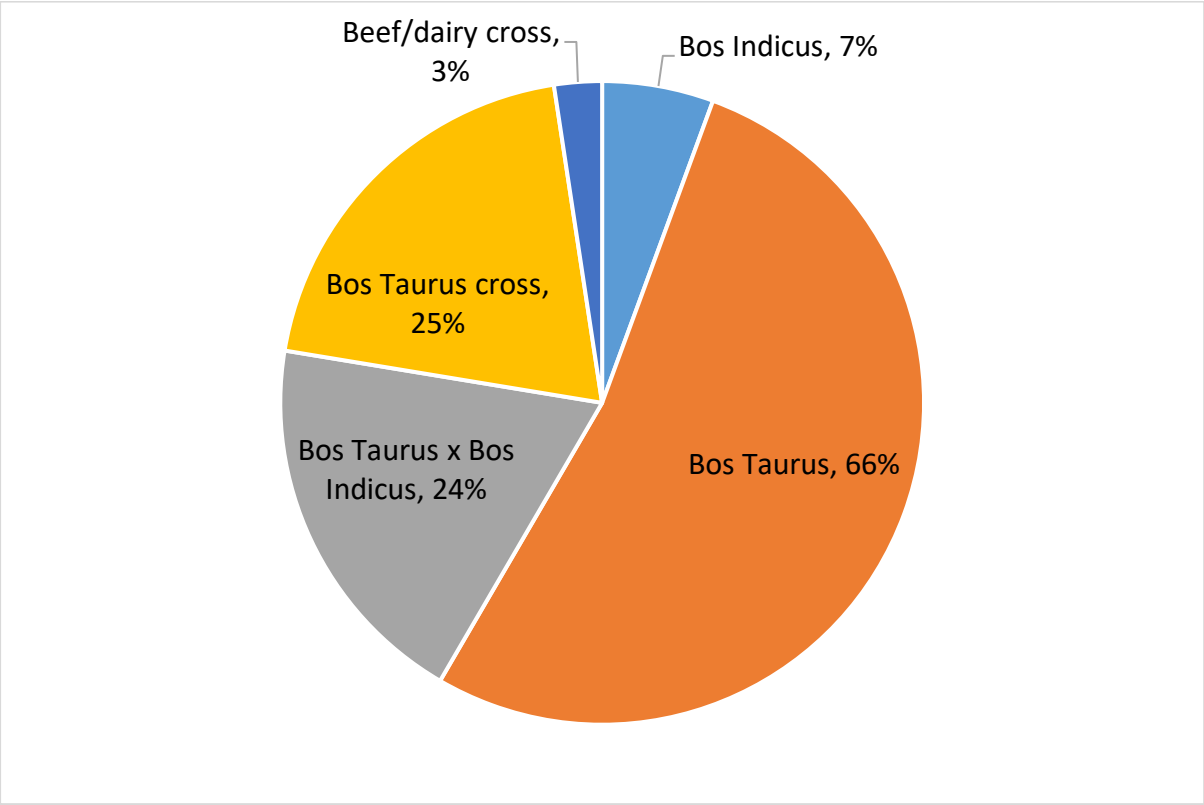
S7: Which of the following types of cattle do you run on your property?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 12: Respondent demographic by breed (national only)

Base: All producers n = 813



S7: Which of the following types of cattle do you run on your property?

NB. Multiple responses allowed

4.4 Calving and weaning

In line with 2021, the majority of producers (76% compared to 77% in 2021) continue to use seasonal joining with 22% using continuous joining. However, there was variation between states with Northern Territory producers (74%) preferring to use continuous joining (**Figure 13**). Nationally, relatively few producers report they do not use bulls for joining, with 1% of producers using alternative methods rather than seasonal or continuous joining.

Three quarters (77% compared to 71% in 2021) of cattle producers check heifers at least once a day during calving. However, there was variation between states in the frequency with which heifers were checked at calving that was mainly related to size of property and paddocks. The majority (59%) of producers in the Northern Territory did not check heifers at all during calving (**Figure 14**). Likewise, the majority (77%) of cattle producers check cows at least once a day during calving. As with heifers, there was state based variations in checking frequency. Fifty-nine percent of producers in the Northern Territory did not check heifers or cows at all during calving (**Figure 15**).

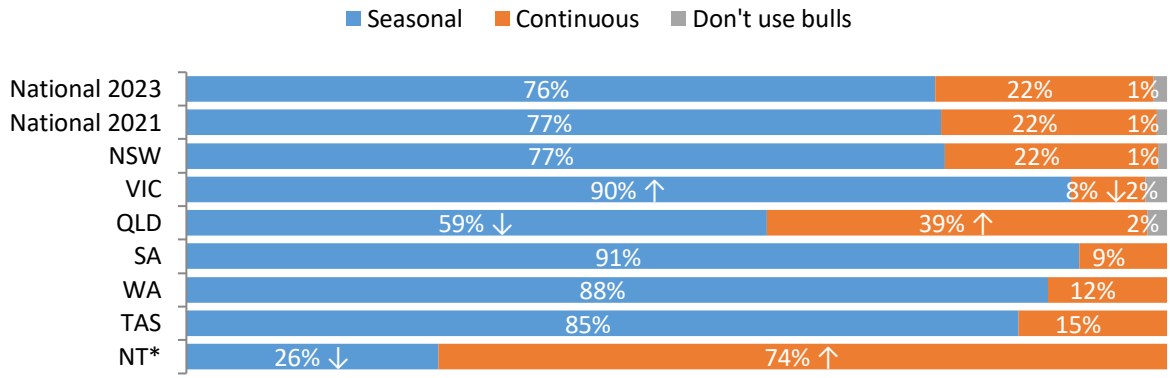
Among respondents, the average age of weaning in Australia is 8.8 months (up from 7.1 in 2021). Victorian producers (24%) were significantly more likely to wean calves between 10 and 12 months of age compared to the national average (33%) (**Figure 16**). On average, if calves are not weaned, they are sold at 12.3 months.

The majority of producers surveyed continue to prefer to wean calves in a holding paddock (82%, in line with 85% in 2021). Open paddock weaning and onto trucks for sale were less favoured at 16% and 17% respectively (**Figure 17**).

About half of producers (52% versus 51% in 2021) held weaners seven days or less. 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 (72% and 89% respectively). Queensland producers tended to keep them in the yards / holding paddock for longer, 8 - 14 days (42%) and 15+ days (23%) (**Figure 18**).

Figure 13: Joining period

Base: Producers with breeding cattle n = 695

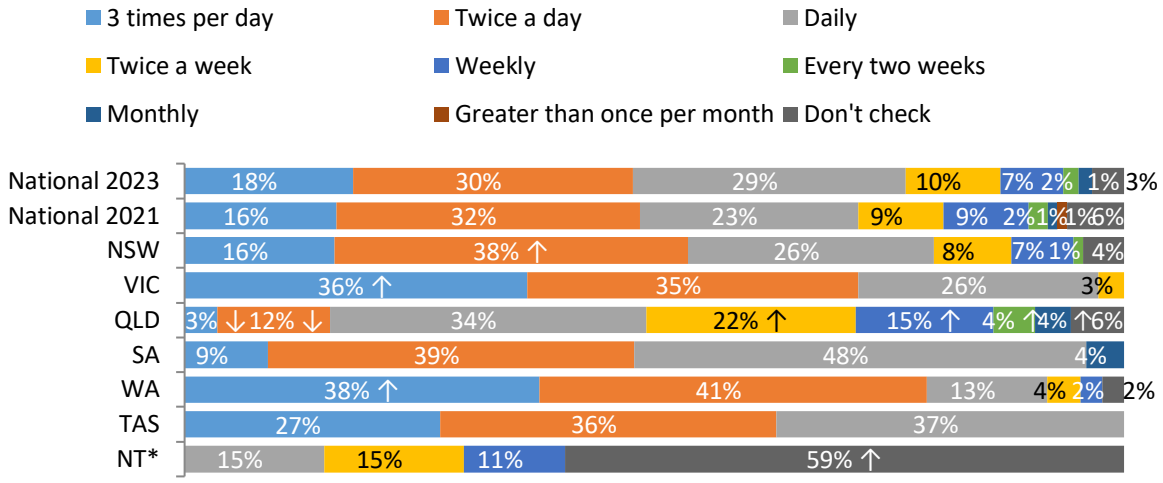


2.1: Which of the following best describes the joining period for your breeding operation?

* Small sample (less than 20 producers)

Figure 14: Frequency of checks of heifers at calving

Base: Producers with breeding heifers and or cows n = 695

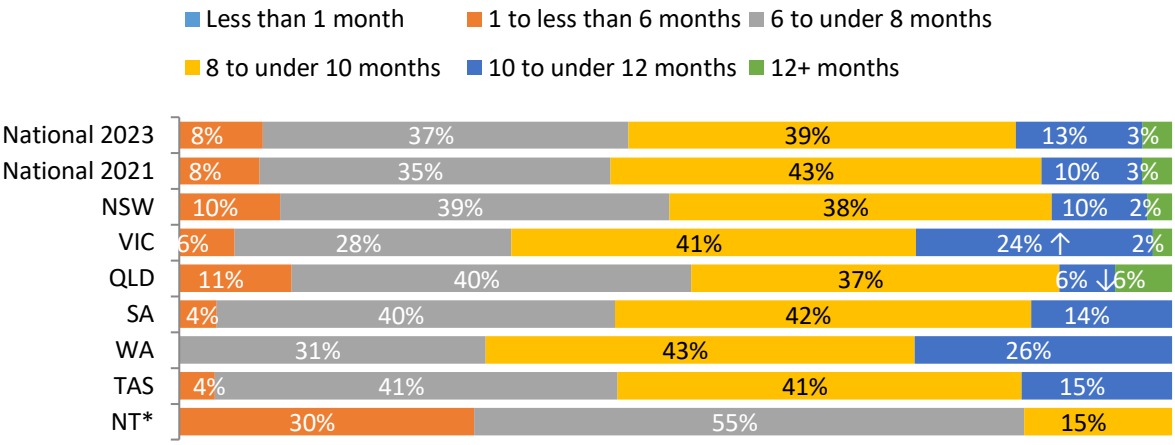


2.2: How often do you check heifers and cows at calving?

* Small sample (less than 20 producers)

Figure 15: Average age of weaning

Base: Producers with breeding cows who wean calves n = 678



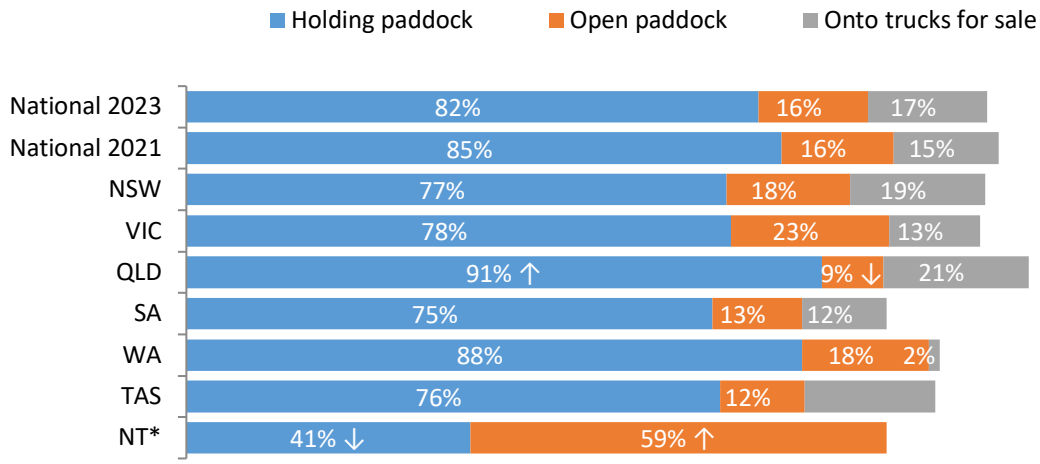
2.3: At what age in months did you wean your calves in 2023?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 16: Weaning method

Base: Producers with breeding cows who wean calves n = 678



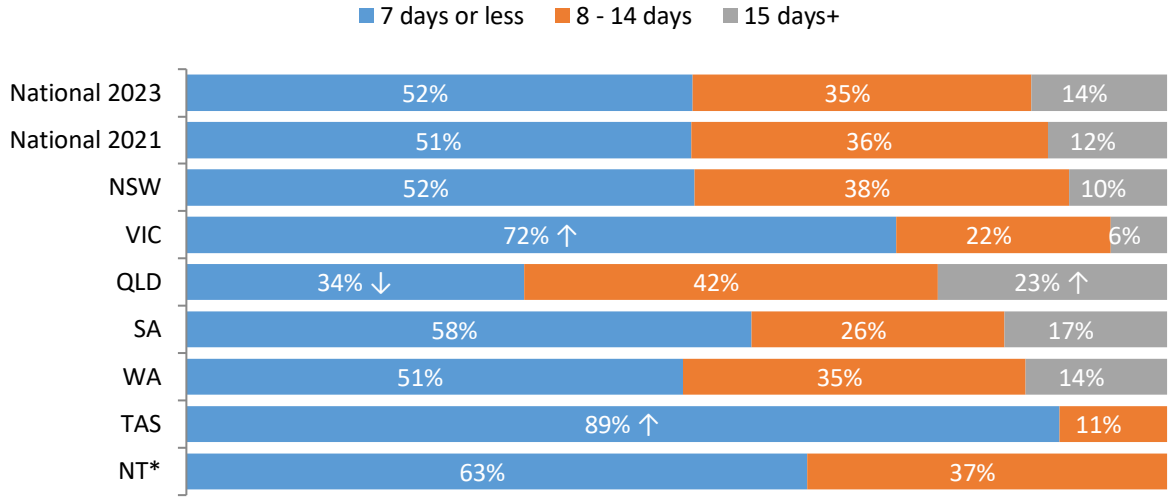
2.4: Which of the following best describes how you wean your calves?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 17: Average number of days weaners are held

Base: Producers with breeding cows who wean calves using holding paddocks: n = 572



2.5: On average, how many days are the weaners kept in the yards / holding paddocks at weaning?

* Small sample (less than 20 producers)

4.5 Identification

Around two thirds (59% down from 71% in 2021) of calves nationally received permanent identification when they were aged between 1 and 6 months of age. There were significant differences between states, with calves in Victoria more often being between under one month old (27%) when identified. Calves in the Northern Territory were most commonly identified between five and six months of age (59%). Two fifths of calves in Queensland (41%) were 3 to 4 months old when permanent identification was applied. A relatively larger proportion of producers in Queensland (7%) reported that the applied identification at first muster where calves would be a range of ages (**Figure 19**).

The NLIS (ear tags or bolus) was the most common way to identify cattle, both nationally (85%, in line with 2021 at 86%), and in the states (**Figure 20**). Next was non-electronic ear tags (67%), ear marks (32%), hot iron brand (28%) and freeze brand (3%).

- NLIS use was most common in Tasmania and Victoria (90% and 89% respectively) and lowest in Queensland (81%).
- There was no significant difference in Ear Tag use by state.
- Earmarks were more common in the Northern Territory (80%) and less common in Victoria, South Australia, Tasmania (all 17%).
- Hot iron brand use was more common in Queensland and the Northern Territory (86% and 88% respectively).
- Freeze brands were most common in South Australia (5%).

Producers cite legal requirements as the most common reason they use the NLIS (97% unchanged from 2021). Victoria producers are significantly more likely to use NLIS for legal reasons (100%).

Non-electronic ear tags are primarily used for ease of identification (39%) and herd management (26%).

Reasons for using an ear mark varied by state too, with 45% of producers stating that they allow for ease of identification (**Figure 21**). 100% of Northern Territory users nominated the legal requirement as their reason for use.

Similarly, there is a state effect on hot iron brand use, with Queenslanders using it because it is mandatory (79%) and New South Wales producers citing ease of identification (47%).

Freeze brands are used for ease of identification (64%).

At the national level, 12% (19% in 2021) of producers use pain management when applying permanent identification (**Figure 22**). The highest rates of pain management use are in the Northern Territory (44%) and Queensland (27%). Pain management use was least frequent in South Australia, with only 4% of producers reporting using it when permanently identifying cattle.

Pain management use was highest for Hot iron brand (54%) and NLIS (41%) followed by ear mark (31%) and ear tag (24%).

Where producers did use pain management products, the most commonly used product was anesthetic and antiseptic spray applied to the surgery site (65% nationally down from 77% in 2021) (**Error! Reference source not found.**).

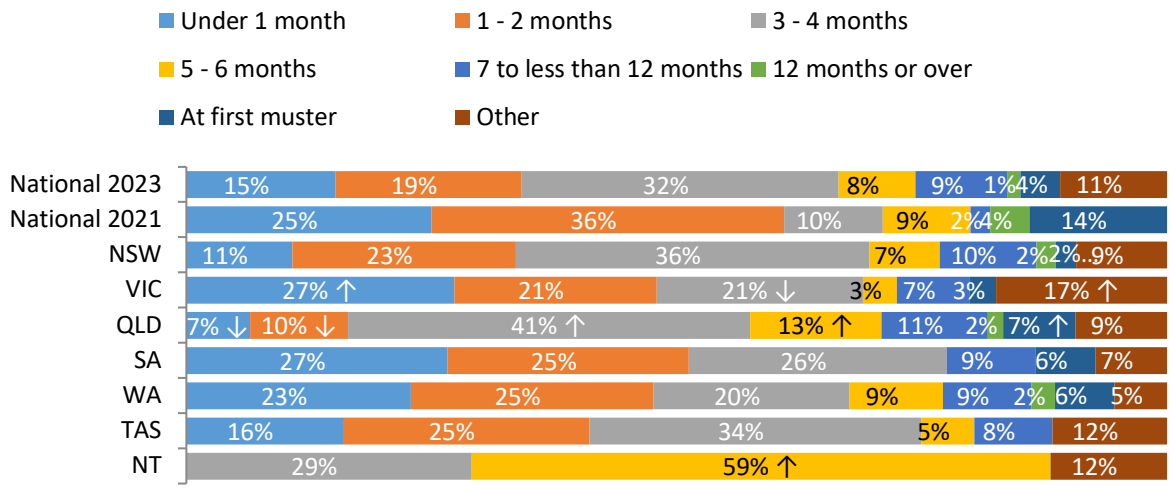
Anesthetic alone was most common in Western Australia (25%), while analgesic injection is most commonly used in Tasmania (50%).

Conversely analgesic in an oral gel is most common in Victoria (50%).

For producers who did not use pain management, the reasons they gave were varied but, most commonly, it was thought to be impractical (50% - similar to 56% in 2021) or unnecessary (40%). Less commonly, producers declined to use pain management because the vet has not suggested it (5%), there was nothing readily available (4%), they did not know what to use (4%) or pain management was too expensive (7%) (**Figure 24**).

Figure 18: Age of permanent identification

Base: All producers n = 813

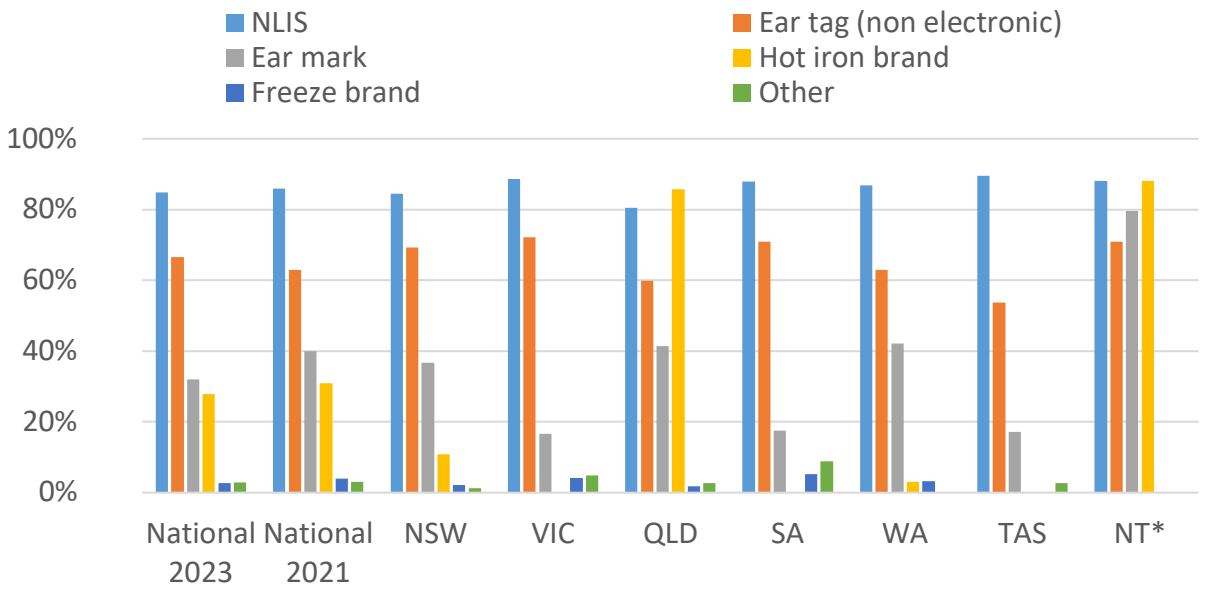


3.1: At what age in months is permanent identification applied to your cattle?

* Small sample (less than 20 producers)

Figure 19: Permanent identification method by state

Base: All producers n = 813



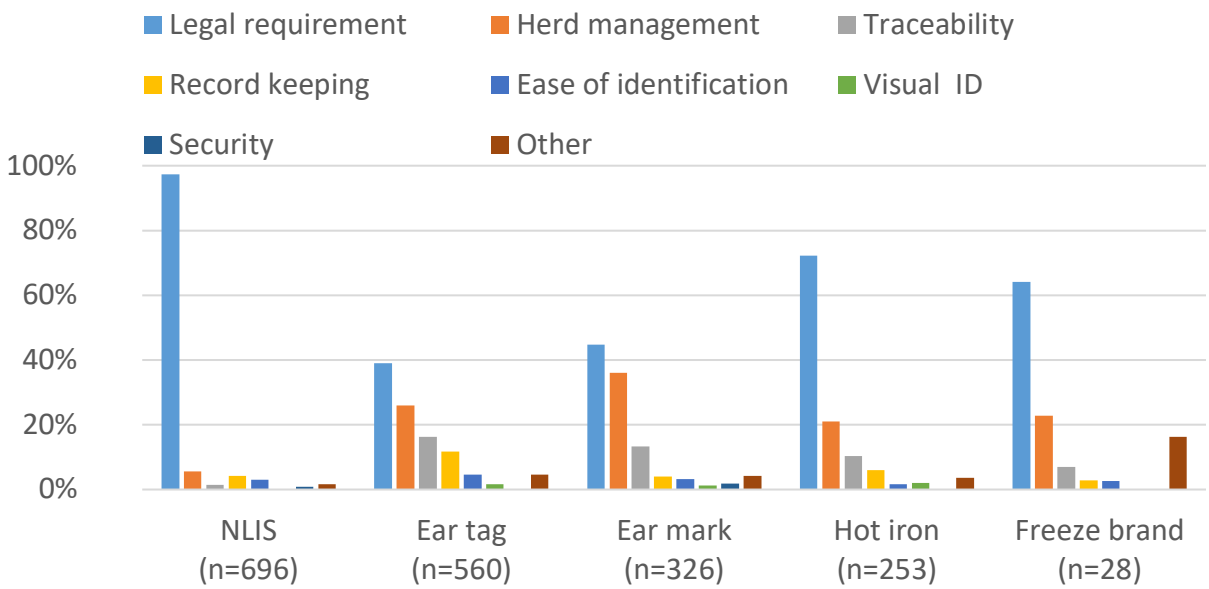
3.2: How do you permanently identify your cattle? Please assume that all tags are permanent.

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 20: Reason for using types of permanent identification

Base: Users of each identification type n = various

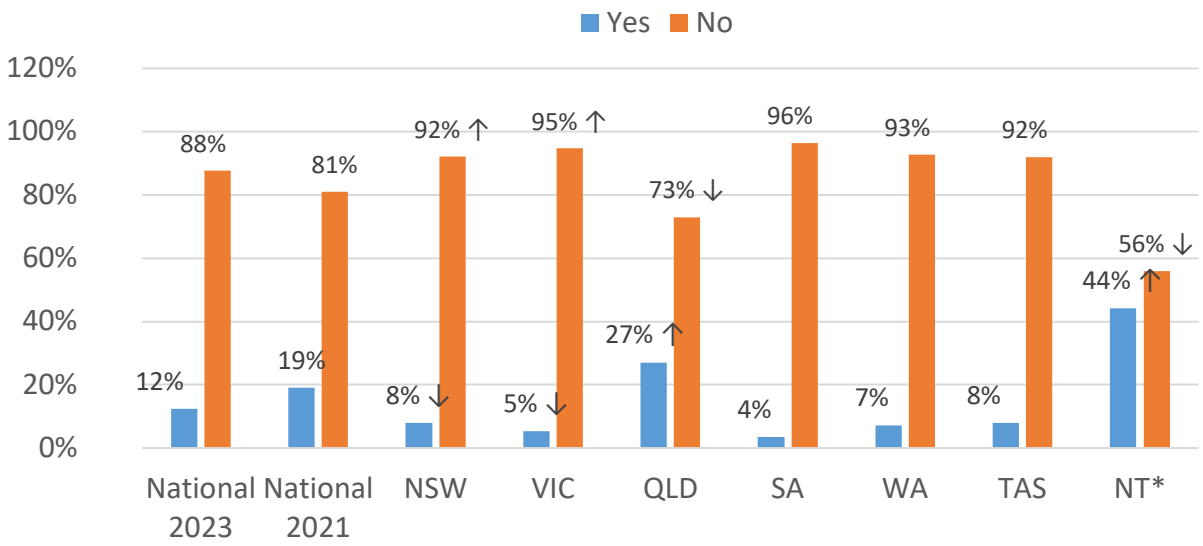


3.3: Why do you use this method to permanently identify your cattle?

NB. Multiple responses allowed

Figure 21: Use of pain management at permanent identification

Base: n = 813

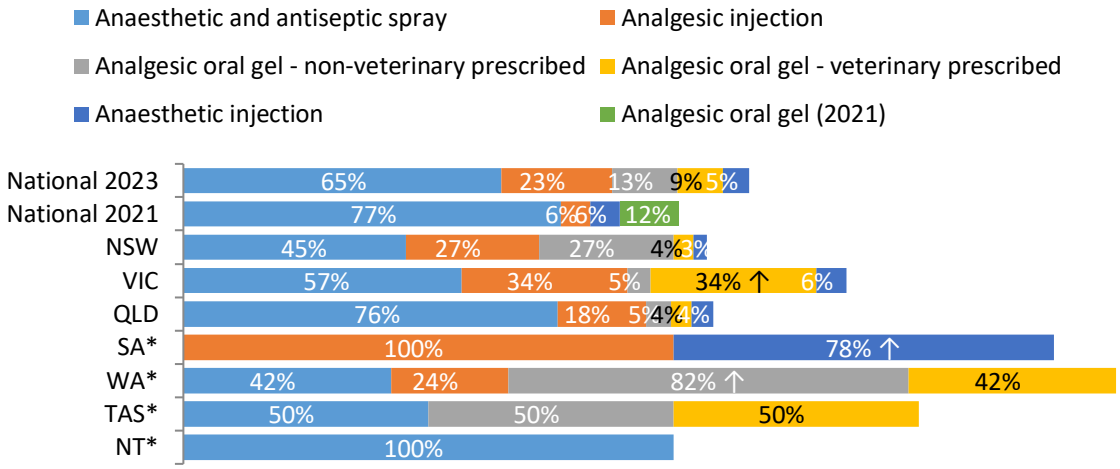


3.5: Did you use any products for pain management when permanently identifying your cattle in 2023?

* Small sample (less than 20 producers)

Figure 22: Pain management used for permanent identification

Base: Producers who do use pain management at permanent identification n = 119



3.6: What type of pain management product/s did you use?

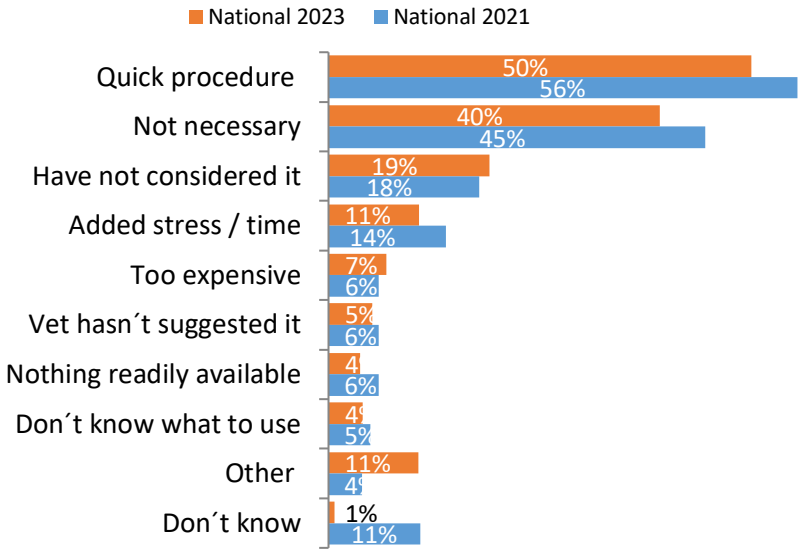
* Small sample (less than 20 producers)

NB. Analgesic oral gel was separated into veterinary prescribed and non-veterinary prescribed in 2023

Multiple responses allowed

Figure 23: Reasons not to use pain management

Base: Producers who do not use pain management at permanent identification n = 694



3.7: Why didn't you use pain management?

NB. Multiple responses allowed

4.6 Castration

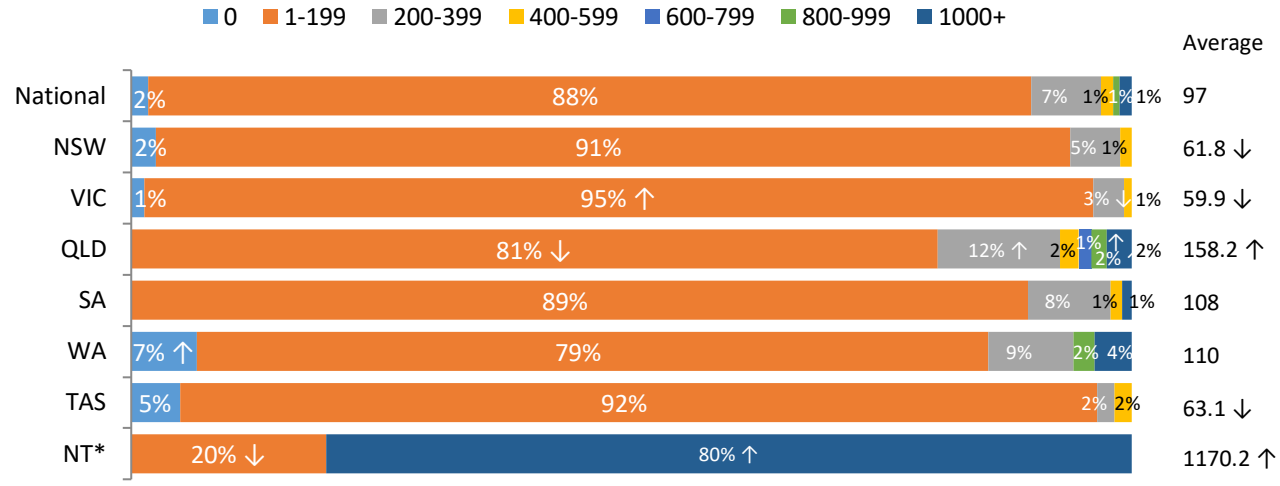
Nationally, 87% (89% in 2021) of producers castrate bull calves. On average, those who do castrate, castrated 97 bull calves in 2023 (**Figure 25**). One third of producers castrated between birth and two months of age (33%). Nearly half (48% - similar to 49% in 2021) of calves were castrated bull calves between three and four months of age. Queensland producers were significantly more likely to wait until first muster (6%) than other states (**Figure 26**).

As in 2021, rubber rings were the most common technique (69% compared to 65% in 2021) used for castration followed by a knife or scalpel (33% versus 40%) (**Figure 28**). There was a significant state effect for castration method. Rubber rings were more predominant in most states, while in the northern states, Queensland and Northern Territory producers preferred to castrate using a knife or scalpel (65% and 87% respectively).

Where producers delay castration of bull calves until they are 5-6 months of age, it is most often to do all procedures at the same time (34%), to reduce calf struggling and promote recovery (32%) or to wait until the size of the testes suits rings (where used) (27%) (**Figure 27**). Producers who wait for 7 to less than 12 months primarily do so to give time for growth (56%) or to see if they grow to be good bulls (41%).

Figure 24: Number of bull calves castrated in 2023

Base: Producers who castrated bull calves in 2023 n = 729

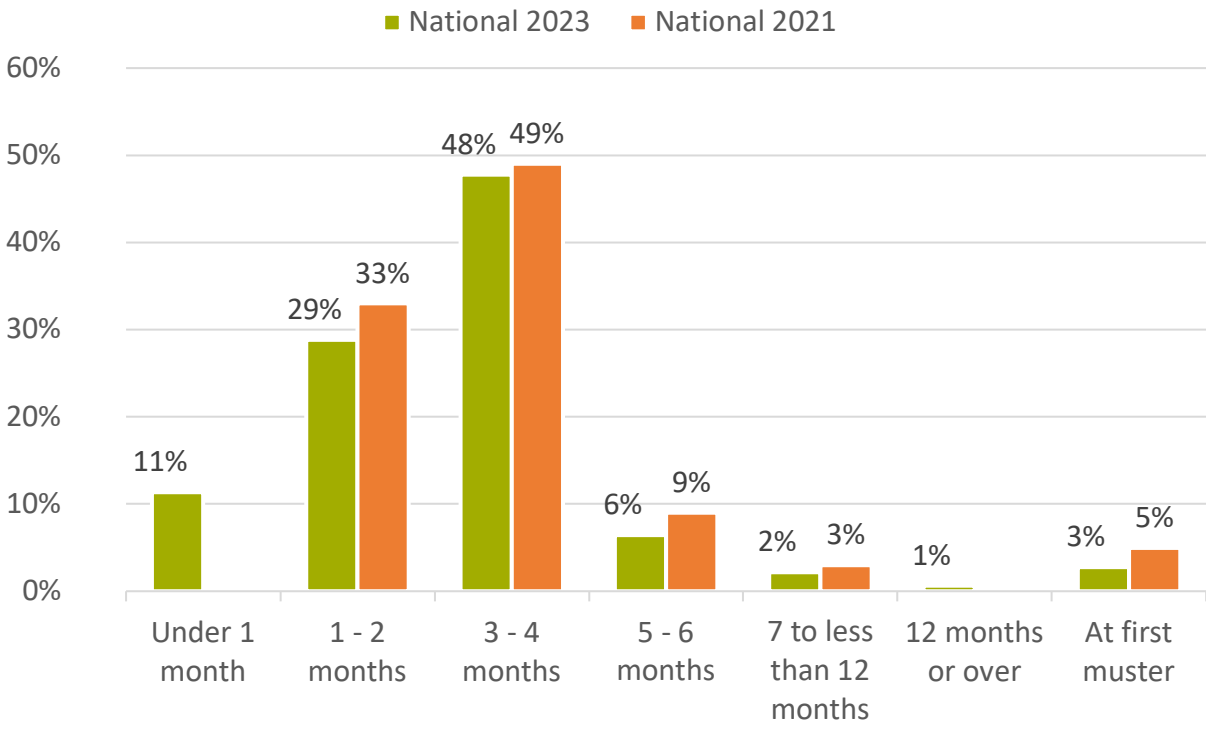


4.2: How many bull calves did you castrate in 2023?

* Small sample (less than 20 producers)

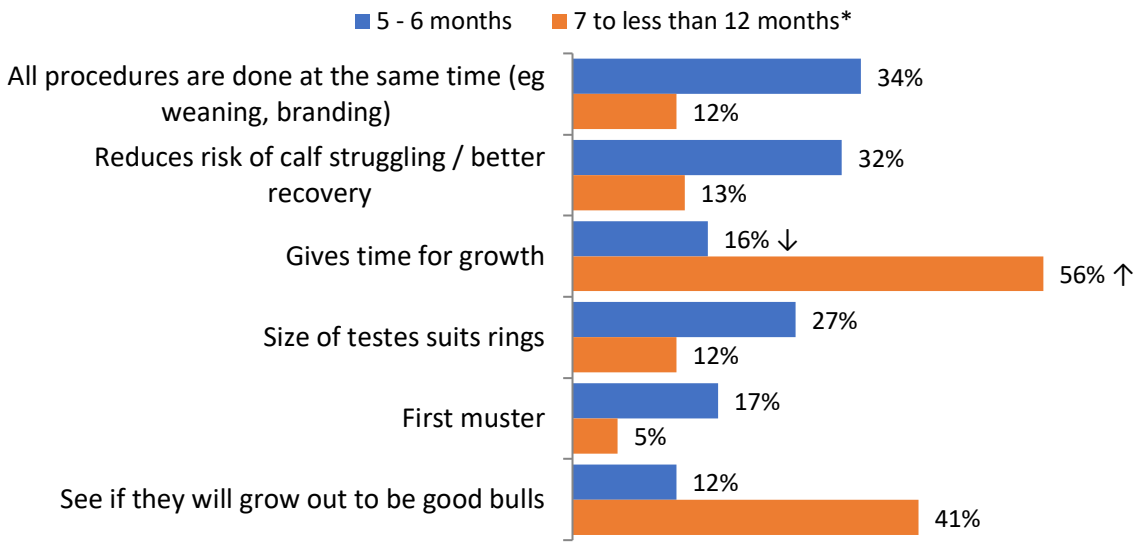
Figure 25: Age of castration

Base: Producers who castrate bull calves n = 729



4.3: At what age do you castrate bull calves?

Figure 26: Reasons for castrating between 5 and under 12 months



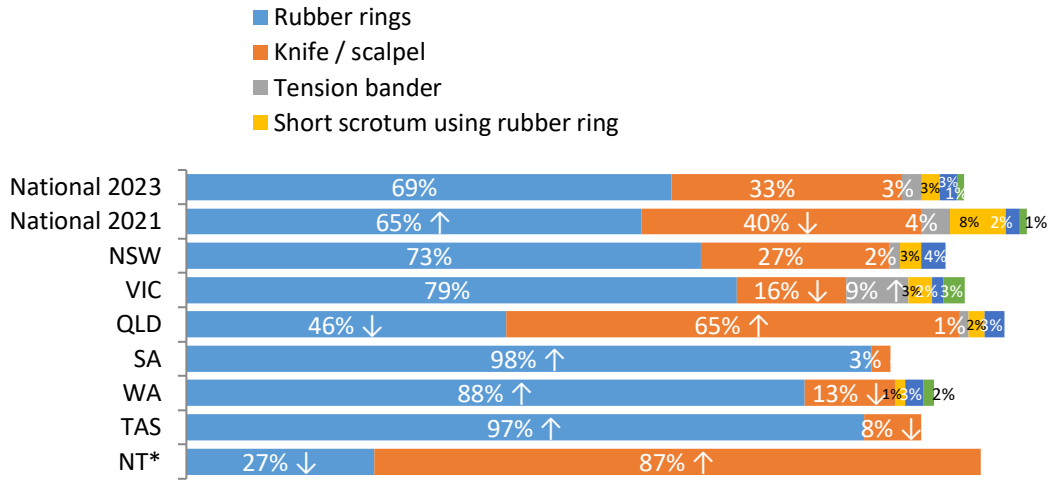
4.4: Why did you castrate your bull calves at this age?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 27: Calf castration methods by state

Base: Producers who castrate bull calves n = 729



4.5: What method of castration do you use to castrate your bull calves?

* Small sample (less than 20 producers)

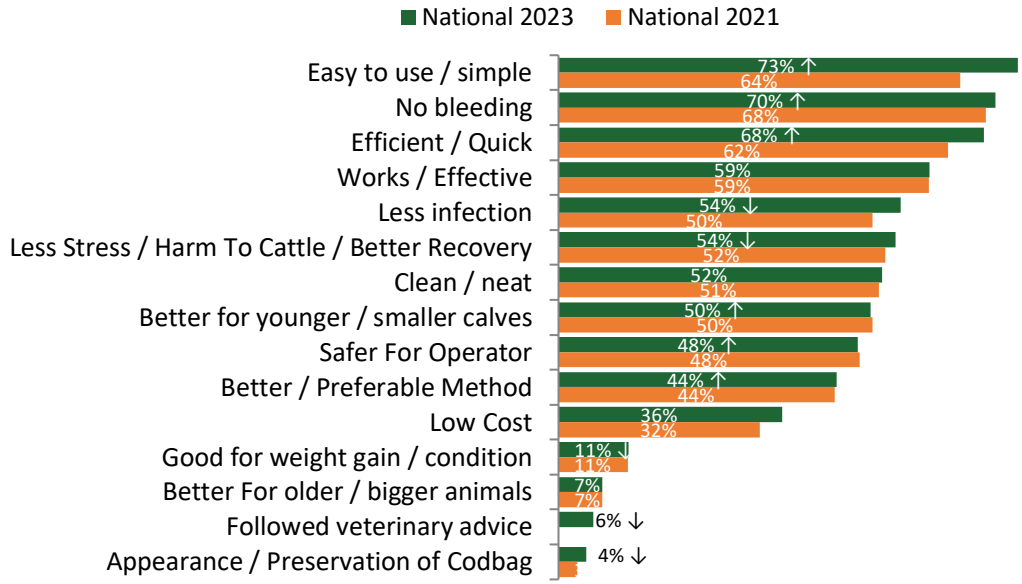
NB. Multiple responses allowed

4.6.1 Rubber rings

The most common reasons cited for using rubber rings was that it was simple (73% compared to 64% in 2021) that it causes no bleeding (70%), and efficient (68%) (**Figure 29**).

Figure 28: Reasons for using rubber rings at calf castration

Base: Producers who castrate calves using rubber rings n = 482



4.6: Why do you use this method to castrate your calves?

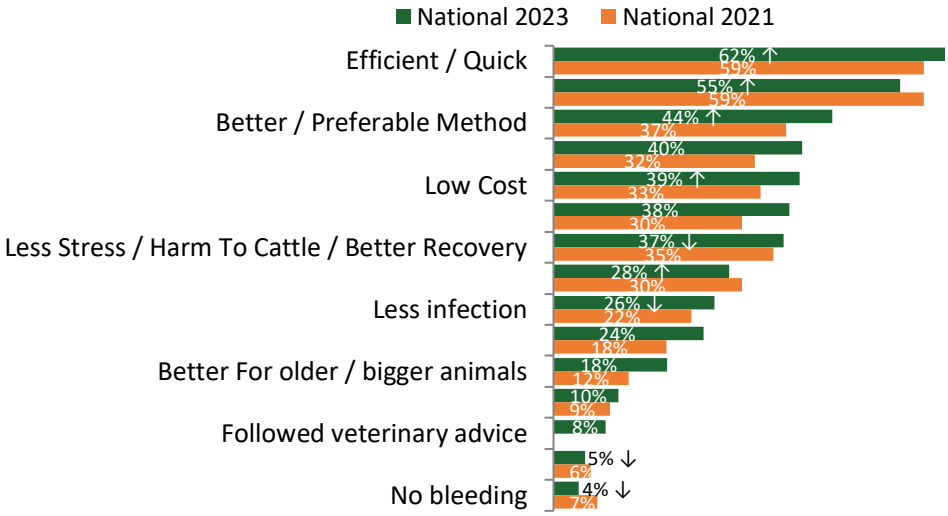
NB. Multiple responses allowed

4.6.2 Knives or scalpel

Producers cited using a knife or scalpel because it is efficient or quick (62%, in line with 59% in 2021) and that it was effective (55%) (**Figure 30**).

Figure 29: Reason to castrate calves using a knife or scalpel

Base Producers who castrate calves using a knife or scalpel: n = 268



4.6: Why do you use this method to castrate your calves?

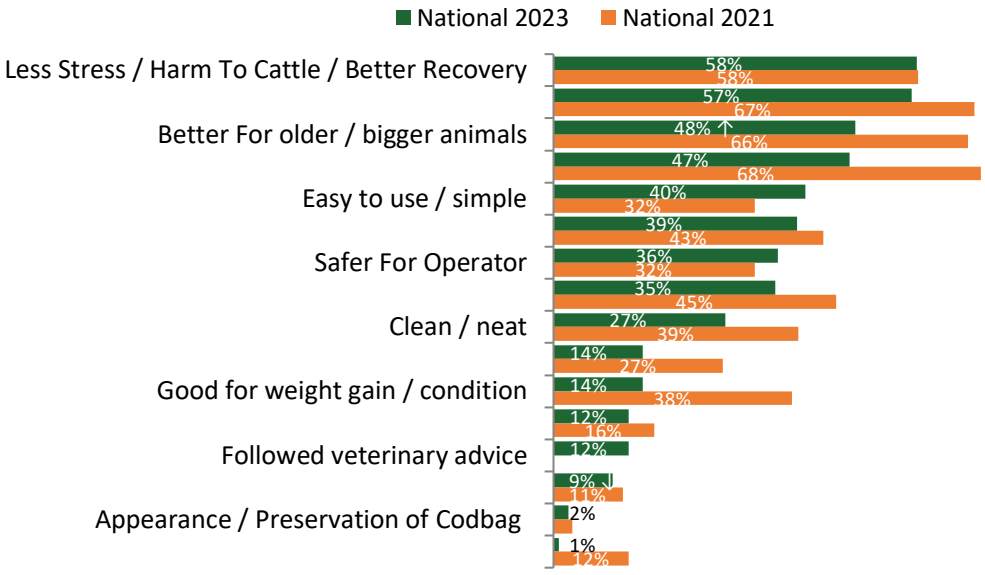
NB. Multiple responses allowed

4.6.3 Tension banders

The most common reasons cited for using tension banders were that it causes less stress (58% compared to 58% in 2021), that it is effective (57%) and better for older animals (48%) (**Figure 31**).

Figure 30: Reasons to castrate calves using a tension bander

Base: Producers who castrate calves using tension banders n = 20



4.6: Why do you use this method to castrate your calves?

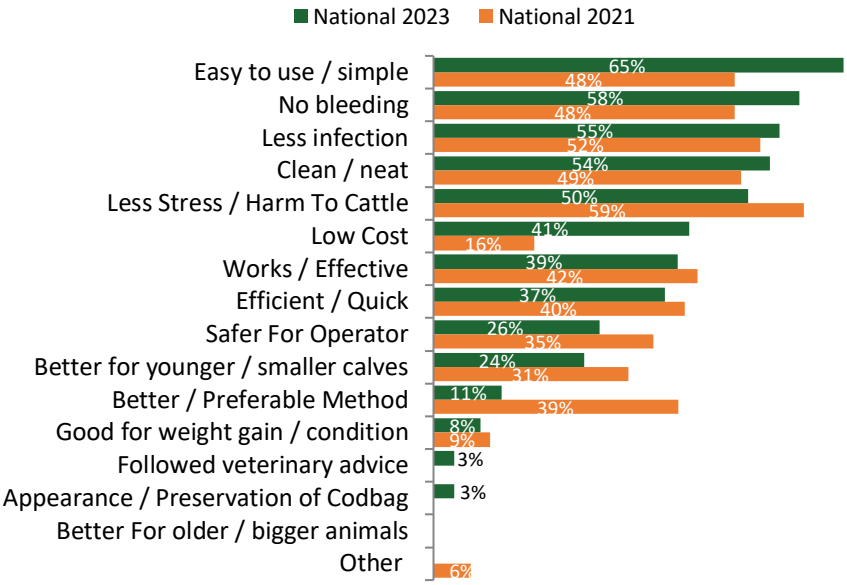
NB. Multiple responses allowed

4.6.4 Short scrotum / cryptorchid

A small number of producers reported using short scrotum / cryptorchid (3%). The most common reasons cited for using the short scrotum method using rubber rings were that it was simple to use (65%) and causes no bleeding (58%) (**Figure 32**).

Figure 31: Reason for using short scrotum / cryptorchid

*Base: n = 19**



4.6: Why do you use this method to castrate your calves?

* Small sample (less than 20 producers)

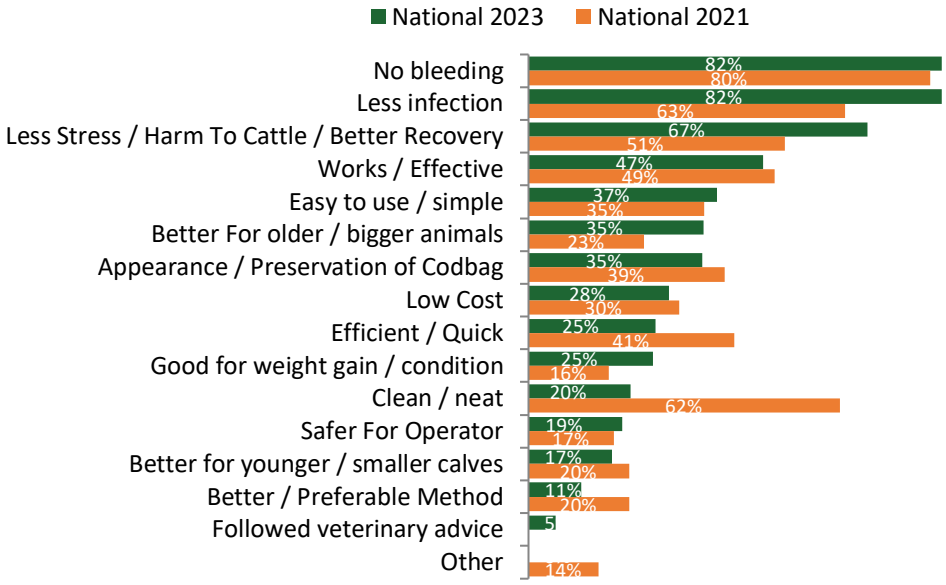
NB. Multiple responses allowed

4.6.5 Burdizzo

16 producers report using this method of castration nationally – 10 producers in NSW, 5 in Queensland and 1 in WA. The most common reason cited was that it causes no bleeding (82%, in line with 80% in 2021) (**Figure 33**).

Figure 32: Reasons for using burdizzo

*Base: Producers who use burdizzo n = 16**



4.6: Why do you use this method to castrate your calves?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Calf castration

4.6.6 Pain management

Similar to 26% in 2021, 24% of producers use pain management at calf castration. The proportion of calves that are castrated with pain management is higher at 36%. Pain management is most commonly used by producers in the Northern Territory (60%) and Tasmania (45%). It is relatively rarely used in New South Wales (14%) (**Figure 34**). Use of pain management was highest for those who use knife / scalpel to castrate calves (47%) (**Figure 35**). On average, producers used pain management on 149 bull calves at castration in 2023. Use of pain management was highest among producers who use knife / scalpel (47%). 80% of producers use pain management on up to 199 bull calves in 2023 (**Figure 36**).

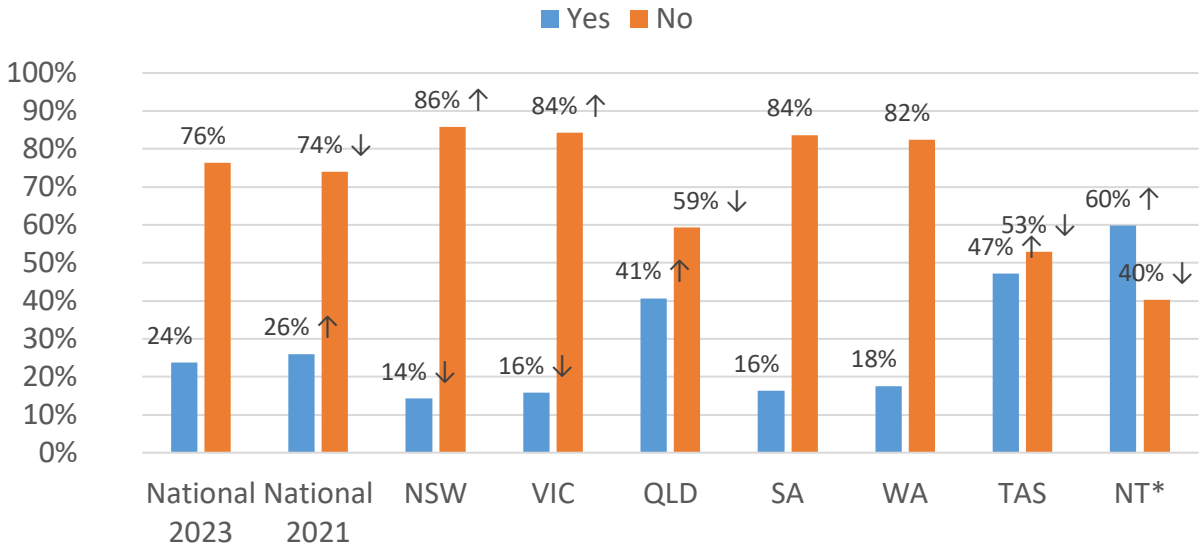
Anesthetic and antiseptic spray at the site was by far the most commonly used pain management (61%) and is used most in Queensland (both 81%). Analgesic injections were the second most popular pain management (23%) (**Figure 37**).

Where producers did not use pain management, they stated that it is not practical (50% in line with 47% in 2021) and that it is unnecessary (43% versus 41%). Almost one quarter of producers have not considered it (23% compared to 24%), while almost one fifth (19%- unchanged from 2021) think that it adds stress and time to procedures (**Figure 38**).

Products that are inappropriate for a specific method of castration are highlighted with an asterisk. These include using an anaesthetic and antiseptic spray at the surgery site (e.g., Tri-Solfen) for rings or using anaesthetic injection at the surgery site (e.g., Lignocaine) for knife or scalpel. This could reflect a misunderstanding around the appropriate pain management type for castration.

Figure 33: Use of pain management at calf castration

Base: Producers who castrate calves n = 721

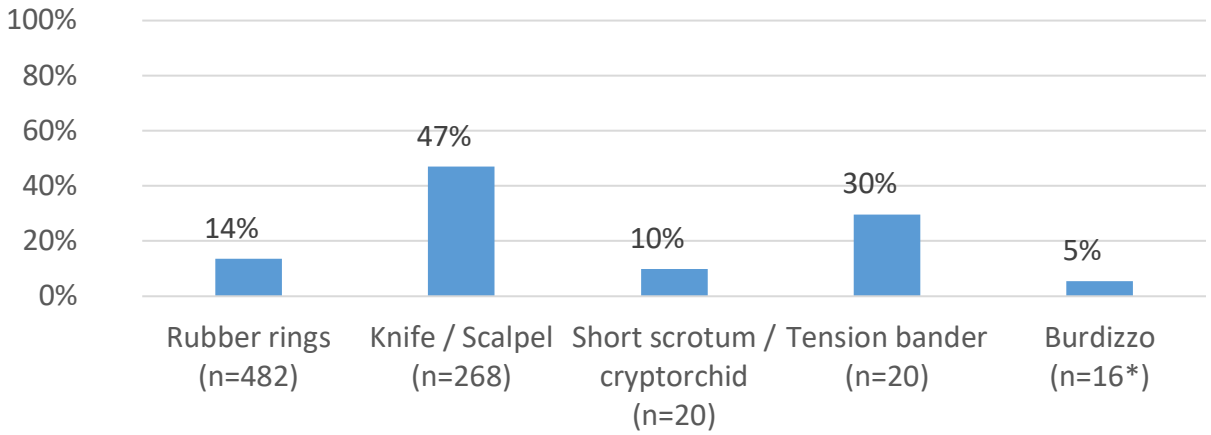


4.11: Did you use any product for pain management for castrating your bull calves in 2023?

* Small sample (less than 20 producers)

Figure 34: Use of pain management at calf castration by method

Base: Producers who castrate calves by each method (n= various)

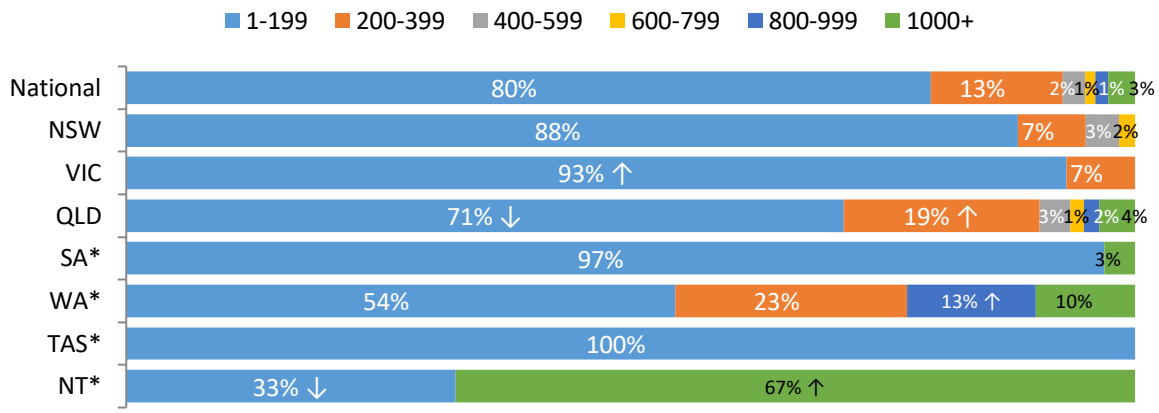


4.11: Did you use any product for pain management for castrating your bull calves in 2023?

* Small sample (less than 20 producers)

Figure 35: Number of bull calves castrated in 2023

Base: Producers who castrate calves and use pain management (n= 202)

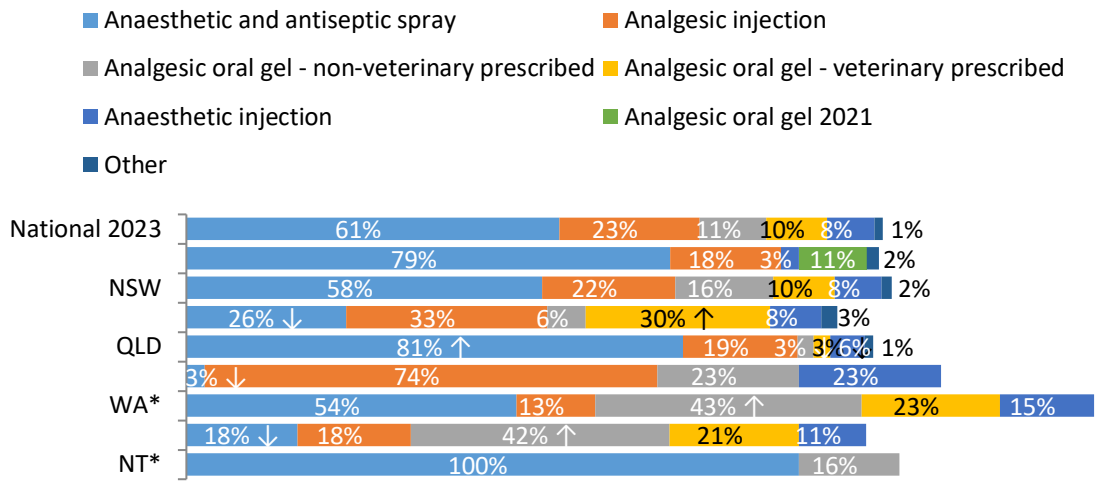


4.11.1: Of the bull calves you castrated in 2023, how many did you use pain management on for castrating?

* Small sample (less than 20 producers)

Figure 36: Pain management for calf castration

Base: Producers who use pain management for calf castration n = 186



4.12: What type of product/s did you use?

NB: Analgesic oral gel was considered as a single group in 2021 (11%), but has been split into veterinary and non-veterinary prescribed oral gel in 2023

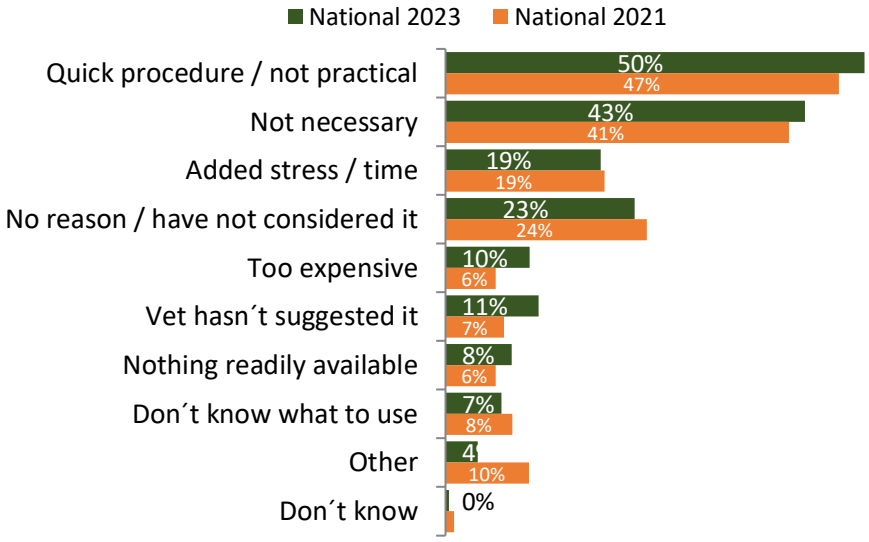
* Small sample (less than 20 producers)

NB. Multiple responses allowed

NB. Analgesic oral gel was separated into veterinary prescribed and non-veterinary prescribed in 2023

Figure 37: Reasons not to use pain management at calf castration

Base: Producers who do not use pain management at calf castration n = 527



4.13: Why didn't you use pain management?

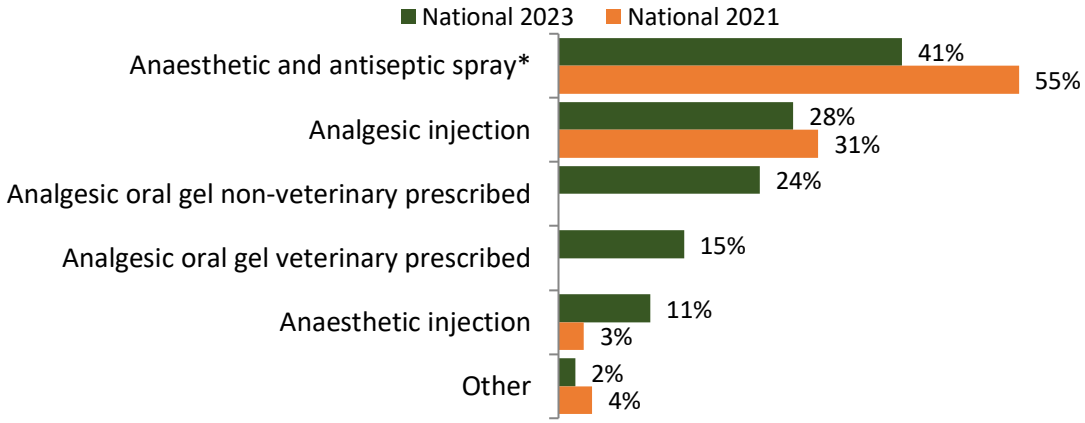
NB. Multiple responses allowed

4.6.7 Rubber rings

The majority of producers who used rubber rings (85%, similar to 87% in 2021) did not use pain management. Of those who did, two fifths favoured anaesthetic and antiseptic spray (41% down from 55%), with analgesic injection (28%, compared to 31% in 2021) and non-veterinary prescribed analgesic oral gel 24% also popular (**Figure 39**).

Figure 38: Pain management products used when castrating calves with rubber rings

Base: Producers who use pain management with rubber rings n = 74



* Inappropriate pain management product

4.12: What type of product/s did you use?

NB: Analgesic oral gel was considered as a single group in 2021 (23%), but has been split into veterinary and non-veterinary prescribed oral gel in 2023

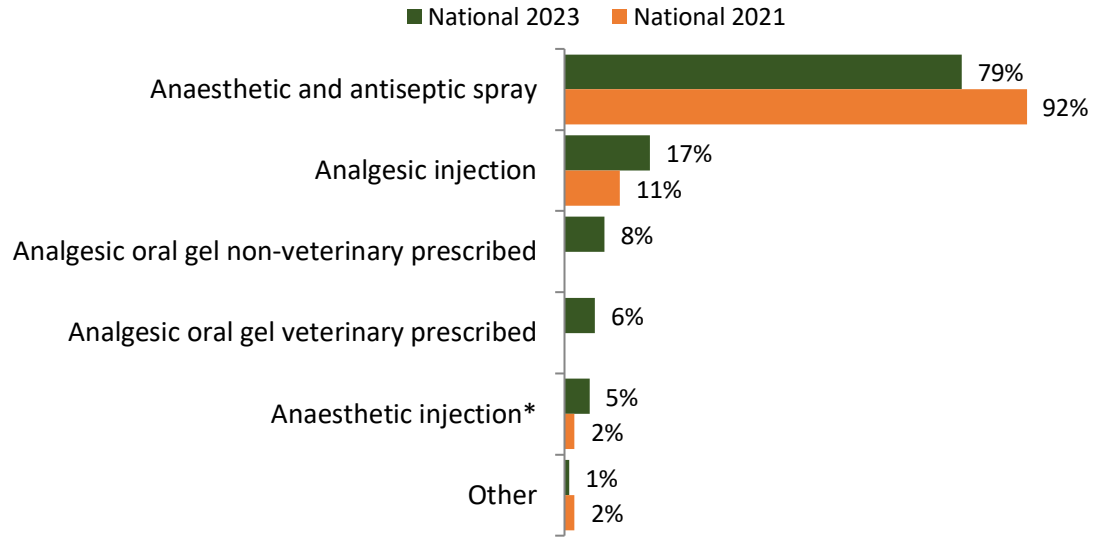
NB. Multiple responses allowed

4.6.8 Knife or scalpel

Producers who reported using a knife or scalpel when castrating calves, 47% (similar to 52% in 2021) also used pain management. The most popular method of pain management used was anaesthetic and antiseptic spray at the surgery site (**Figure 40**), which was used by 79% (down from 92%) of producers.

Figure 39: Pain management products used when castrating calves with knife or scalpel

Base: Producers who use pain management with knife or scalpel n = 142



* Inappropriate pain management product

4.12: What type of product/s did you use?

NB: Analgesic oral gel was considered as a single group in 2021 (6%), but has been split into veterinary and non-veterinary prescribed oral gel in 2023

NB. Multiple responses allowed

4.6.9 Tension bander

Of producers who castrated calves using tension banders (n = 20) the vast majority (70% from 83% in 2021) did not use pain management products.

4.6.10 Short scrotum / cryptorchid

Of the small number of producers who do use the short scrotum / cryptorchid (n = 19), virtually all did not use pain management products (90% from 94%).

4.6.11 Burdizzo

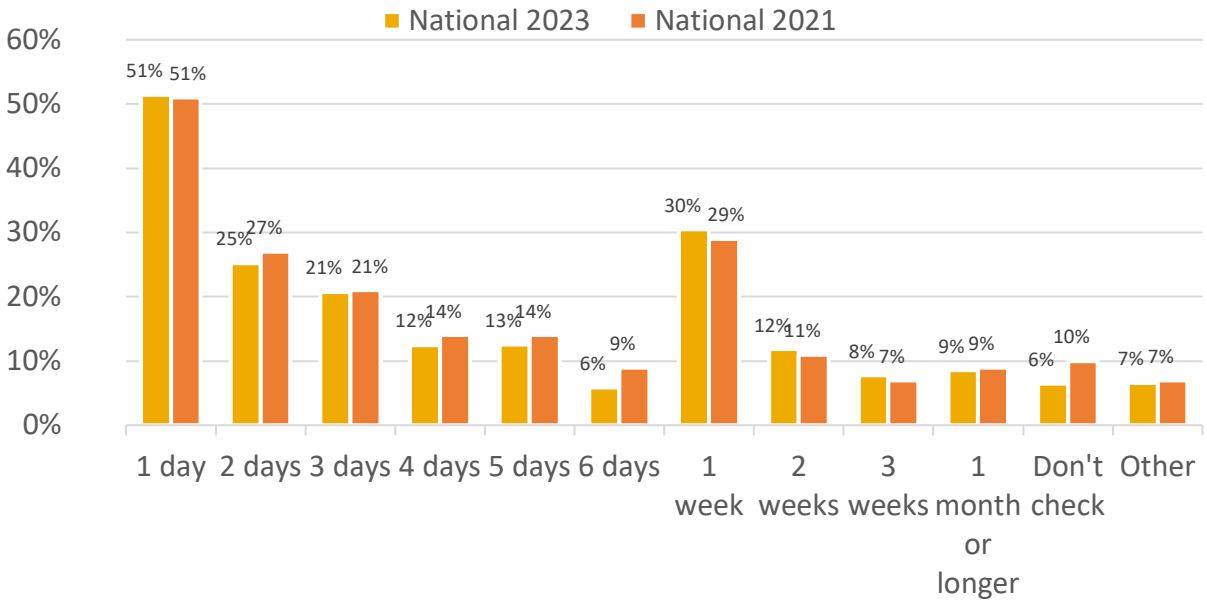
Where producers used burdizzo as the castration method for calves (n = 16), virtually all (95%, compared to 97% in 2021) did not use pain management products.

4.6.12 Checks

For all states, the majority of producers (51% - unchanged from 2021) check calves the day after castration. 27% (25%) check after two days, with a further 29% (31%) checking within one week (**Figure 41**).

Figure 40: Frequency of checking calves following castration

Base: Producers who castrate calves n = 729



4.14: When do you check your calves following castration?

NB. Multiple responses allowed

Bull castration

4.6.13 Overview

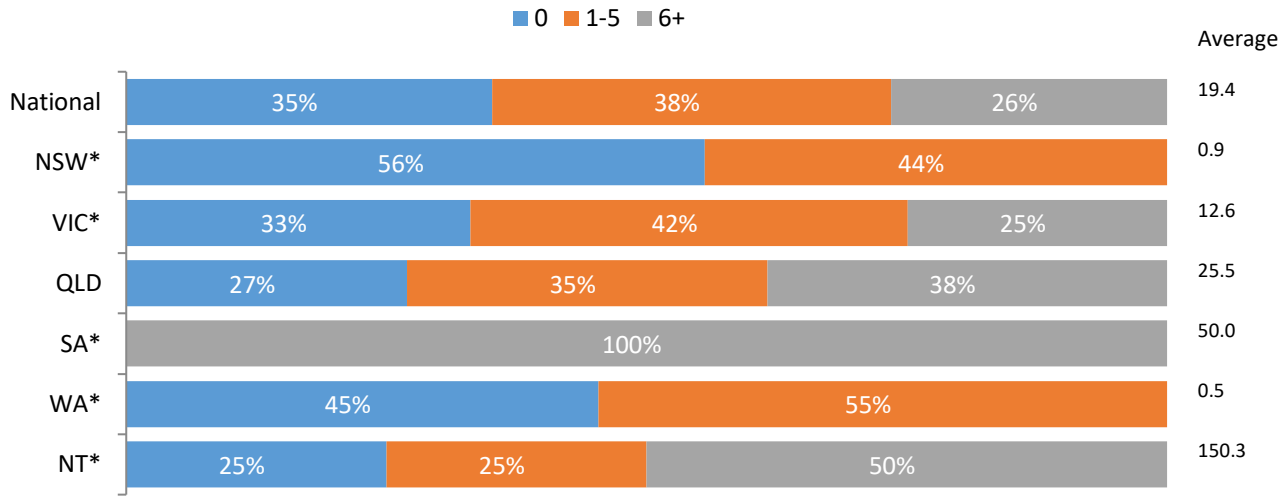
Only a small proportion of producers surveyed castrate bulls over 12 months of age (6%), with an average of 19.4 bulls being castrated (**Figure 42**). When they did, knives or scalpels were the most common technique (52% versus 53% in 2021) used for castration followed by rubber rings (16% down from 26% 2021). A minority of producers report using the short scrotum / cryptorchid using a rubber ring method and emasculators (both 1%). No producers from Tasmania report castrating their bulls (**Figure 43**).

Of those castrating bulls, 40% (down from 55%) use pain management at the national level (**Figure 44**). The proportion of bulls that are castrated with pain management is lower at 33% Pain management is used on an average of 19.8 bulls at castration (**Figure 45**).

The most common reason given for not using pain management is that it is not necessary (40% from 20%), the procedure is quick and pain management is not practical (30% from 49%). Added stress was also a concern (18% in line with 15% in 2021) (**Figure 46**).

Figure 41: Number of bulls castrated state

Base: Producers who castrate bulls n = 55

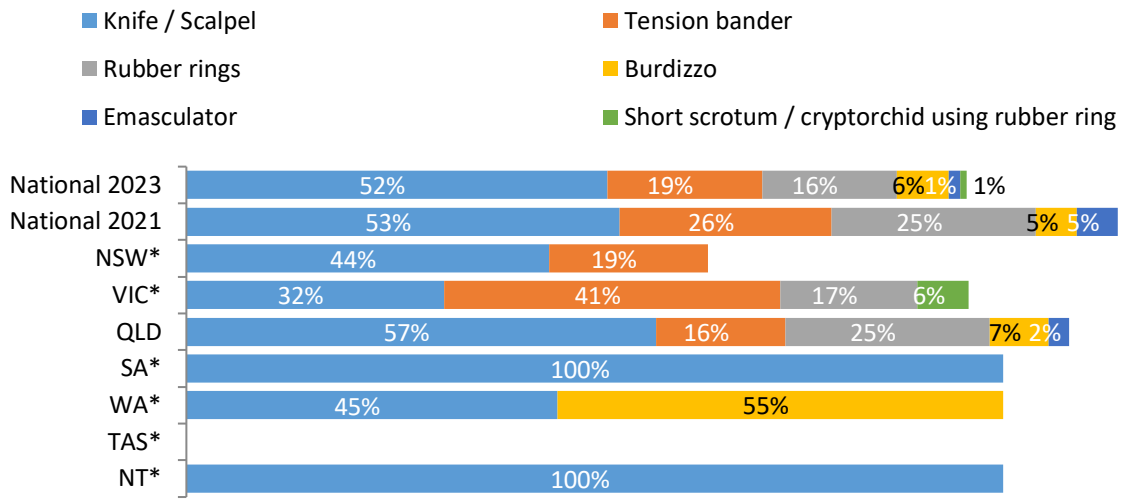


4.17.1: How many bulls (entire males over 12 months of age) did you castrate in 2023?

* Small sample (less than 20 producers)

Figure 42: Bull castration methods by state

Base: Producers who castrate bulls n = 55



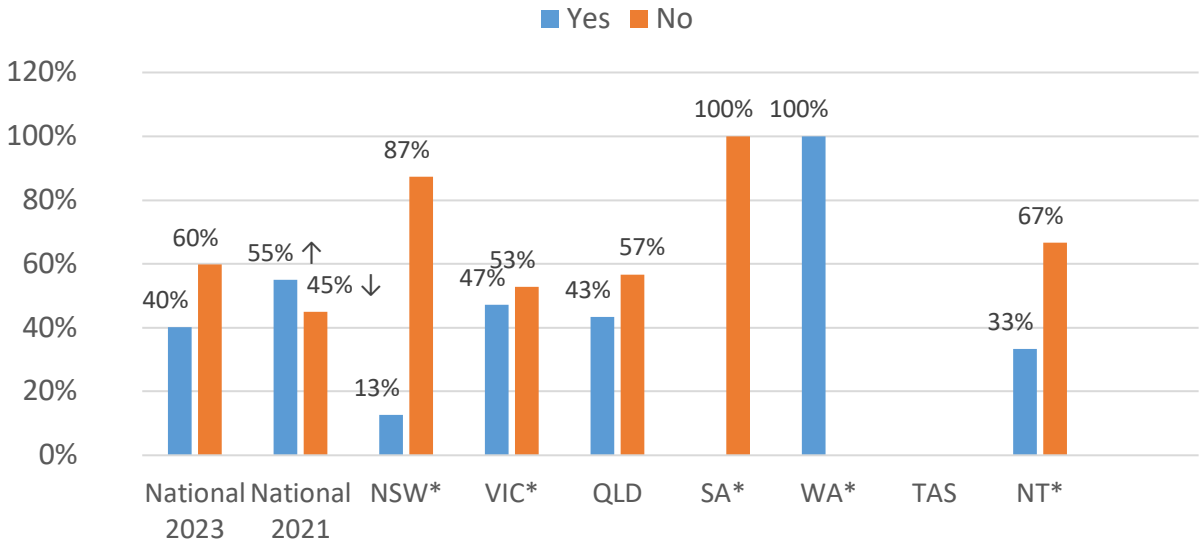
4.18: What method of castration do you use to castrate your bulls?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 43: Use of pain products for bull castration

Base: Producers who castrate bulls n = 55

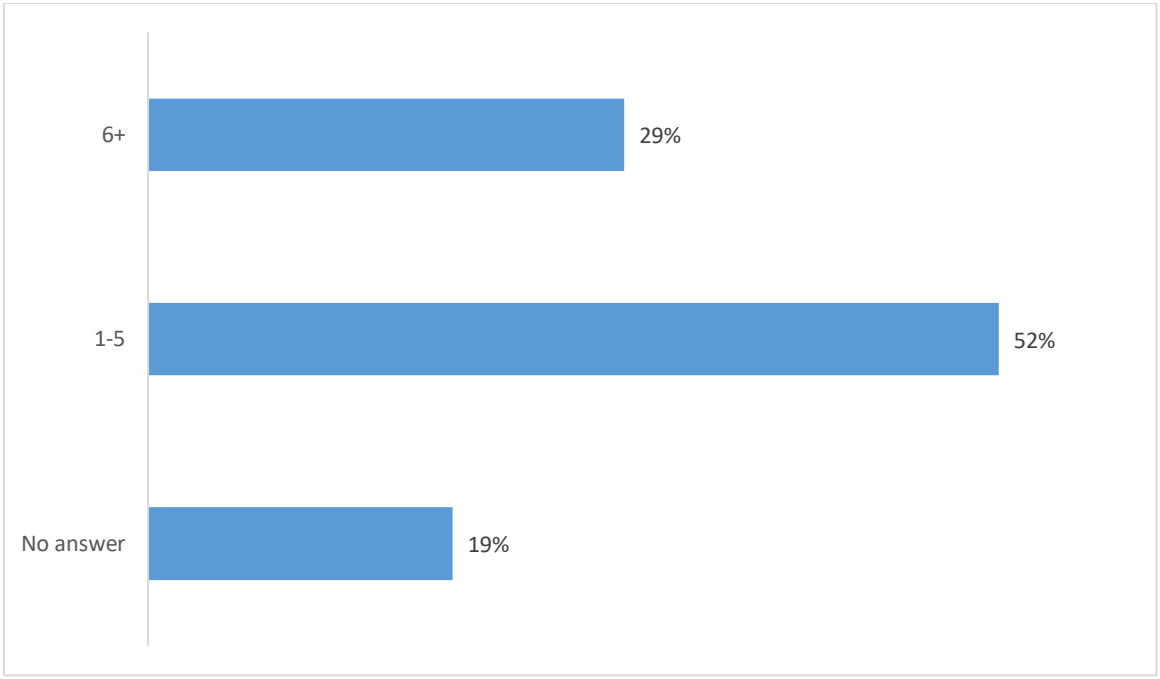


4.20: Did you use any products for pain management for castrating your bulls in 2023?

* Small sample (less than 20 producers)

Figure 44: Number of bulls on which pain products are used at castration

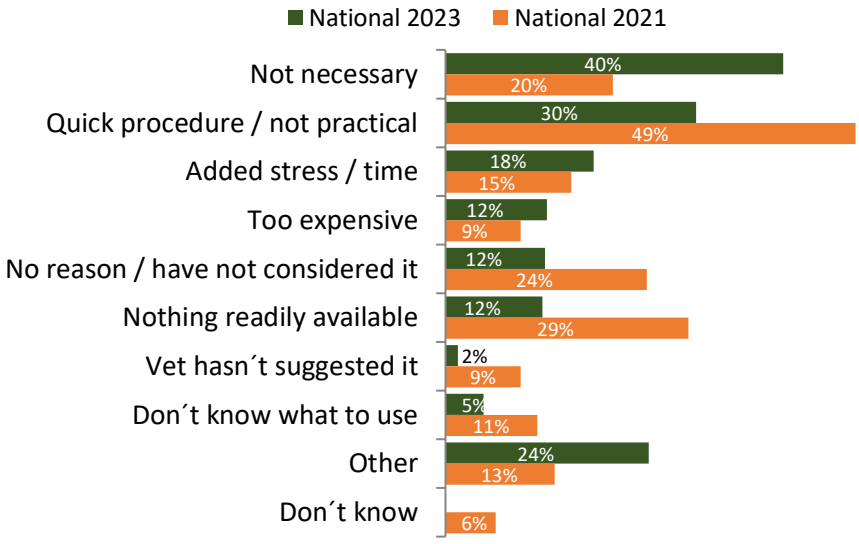
Base: Producers who castrate bulls n = 20



4.20.1: Of the bulls you castrated in 2023, how many did you use pain management on?

Figure 45: Reasons not to use pain management at bull castration

Base: Producers who did not use pain management at bull castration n = 35



4.22: Why didn't you use any products for pain management?

NB. Multiple responses allowed

4.6.14 Rubber rings

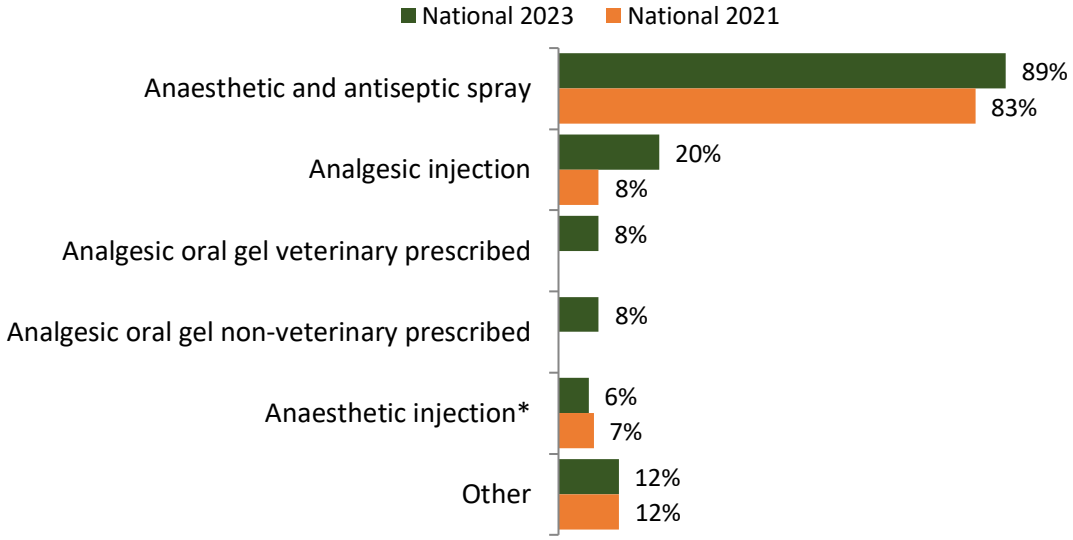
Of producers using rubber rings to castrate their bulls (n = 10), none use pain management.

4.6.15 Knife or scalpel

Of producers who reported using a knife or scalpel when castrating calves, 45% also used pain management. The most common product used for pain management was anaesthetic and antiseptic spray at the surgery site (**Figure 47**), which was used by 89% (83% in 2021) of producers.

Figure 46: Pain management products used when castrating bulls with knife or scalpel

*Base: Producers who use pain management with knife or scalpel n = 14***



* Inappropriate pain management product

4.21: What type of product/s did you use?

Notes: Analgesic oral gel was considered as a single group in 2021 (3%), but has been split into veterinary and non-veterinary prescribed oral gel in 2023

** Small sample (less than 20 producers)

NB. Multiple responses allowed

4.6.16 Tension bander

For those using tension banders (n = 10), one in four (21%) used a pain management product.

4.7 Dehorning

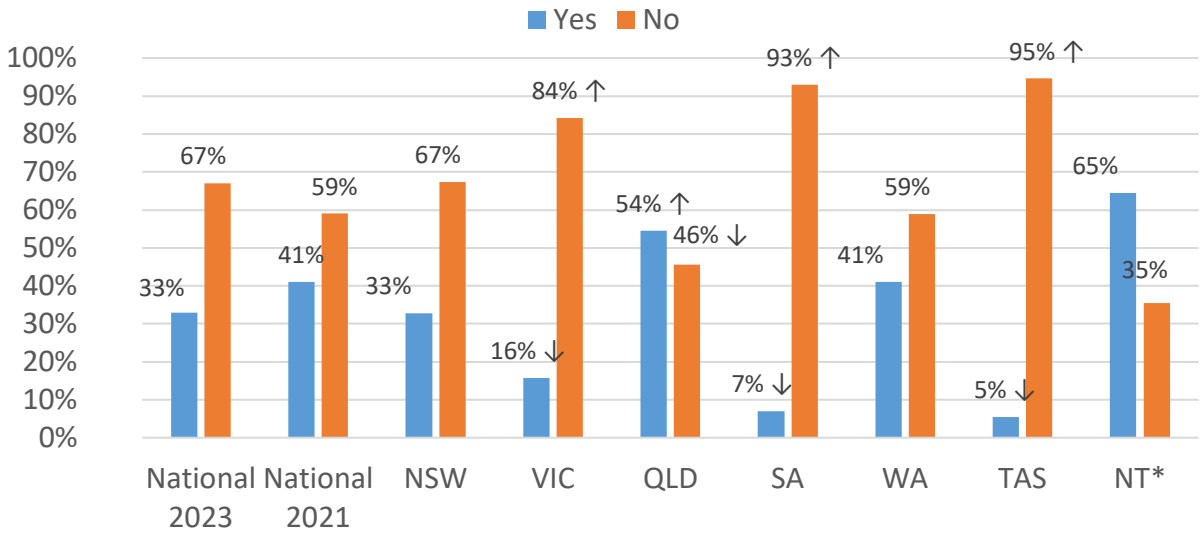
4.7.1 Tipping and dehorning

Horn tipping is reported by a third (compared to 41% in 2021) of producers (**Figure 48**). There is a significant state effect, with Queensland producers more likely to tip horns than other states (54% from 68% in 2021).

Where producers did tip horns, 70% (60%) tipped calves while 51% (58%) tipped mature cattle over 12 months of age (**Figure 49**).

Figure 47: Producers who tip the horns of cattle

Base: n = 813

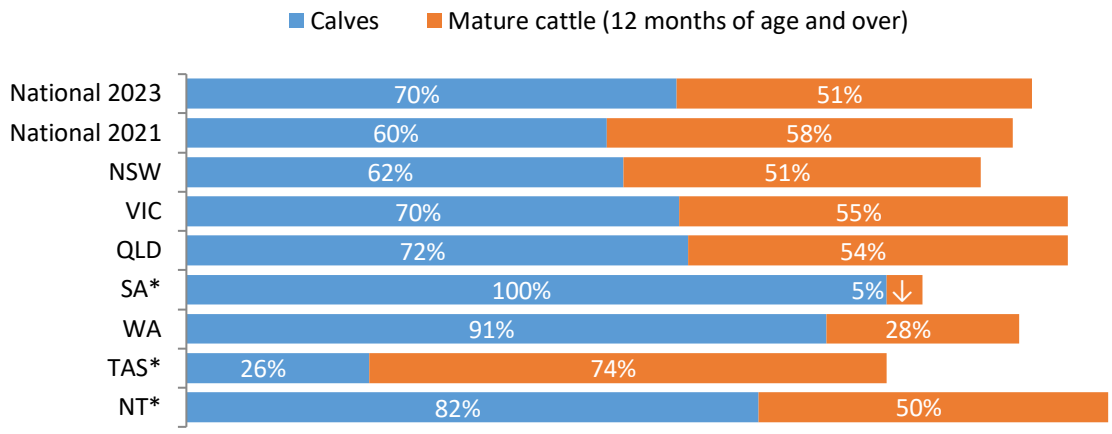


5.4: Do you tip the horns of cattle?

* Small sample (less than 20 producers)

Figure 48: Classes of cattle tipped

Base: Producers who tip cattle horns n = 287



5.5: Which of the following classes of cattle do you tip the horns of?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

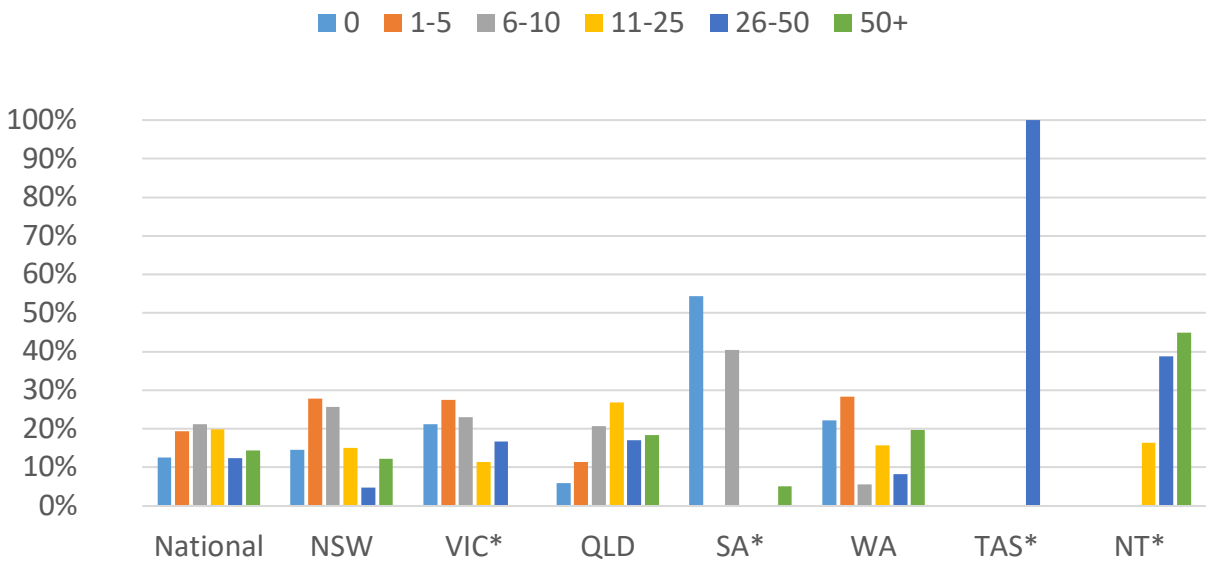
4.7.2 Calf horn tipping

On average, producers tip the horns of 78 calves, with most tipping between 1 to 25 calves (**Figure 50**). The majority of calves were between three and six months of age (75%, similar to 65% in 2021), with only 3% being over twelve months of age when horns are tipped (**Figure 51**).

Nationally, 43% (42%) of producers use pain management for calf horn tipping on an average of 155.1 calves. Of these, the vast majority (87% in line with 90% in 2021) use anesthetic and antiseptic spray at the surgery site (**Figure 52**). Where producers did not use pain management, they gave a variety of reasons for so doing. The largest portion (43% unchanged from 2021) stated that it was a quick procedure and not practical to use pain management (**Figure 53**).

Figure 49: Number of calves' horns tipped in 2023

Base: Producers who tip the horns of calves n = 201

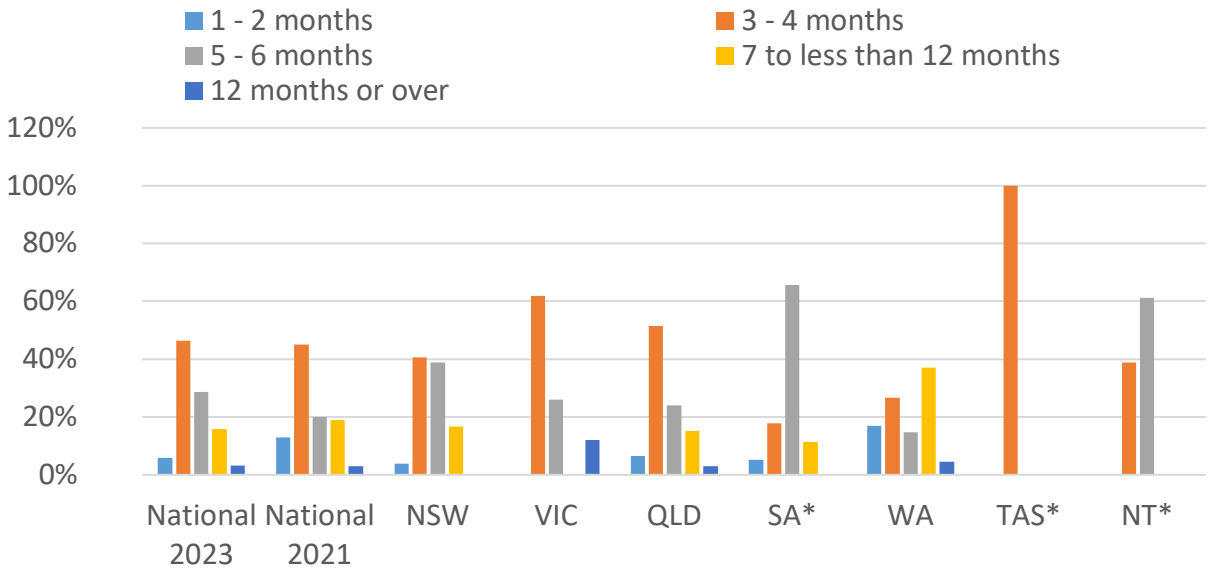


5.6.0: How many calves did you tip the horns of in 2023?

* Small sample (less than 20 producers)

Figure 50: Age of horn tipping in calves by state

Base: Producers who tip the horns of calves n = 201

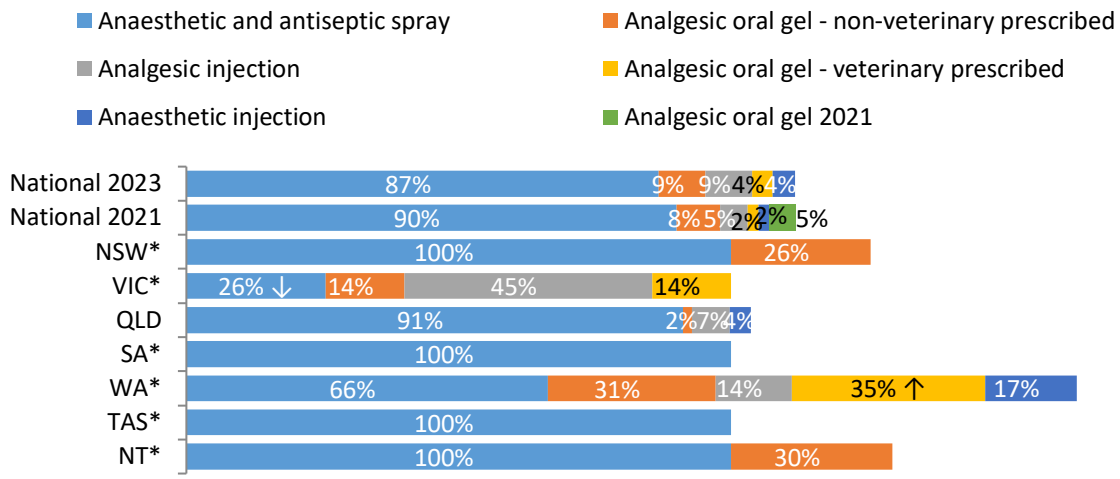


5.6: At what age, in months, do you tip the horns of your calves?

* Small sample (less than 20 producers)

Figure 51: Pain management for calf horn tipping

Base: Producers who tip calves horns and use pain management n = 81



5.9: What type of product/s did you use?

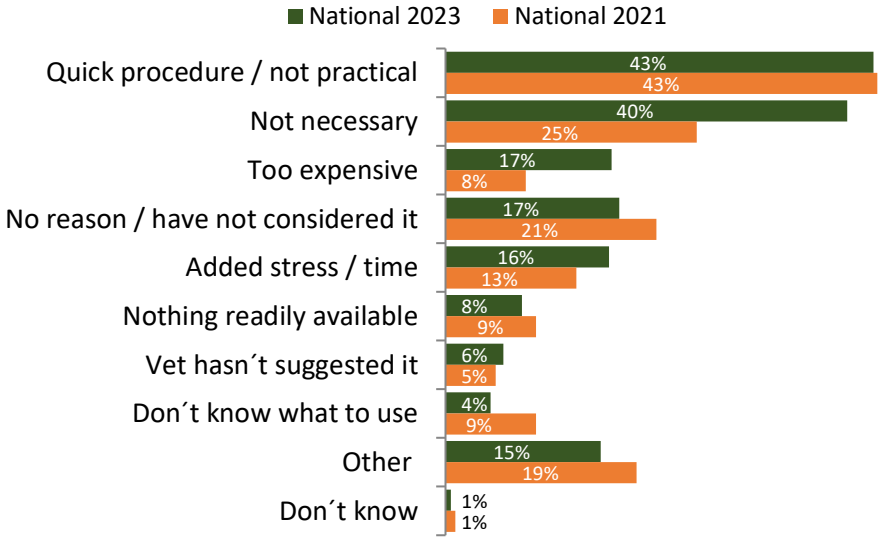
NB. Analgesic oral gel was separated into veterinary prescribed and non-veterinary prescribed in 2023

Multiple responses allowed

* Small sample (less than 20 producers)

Figure 52: Reasons not to use pain management at calf horn tipping

Base: Producers who tip calves horns but do not use pain management n = 120



5.10: Why didn't you use pain management?

NB. Multiple responses allowed

4.7.3 Mature cattle horn tipping

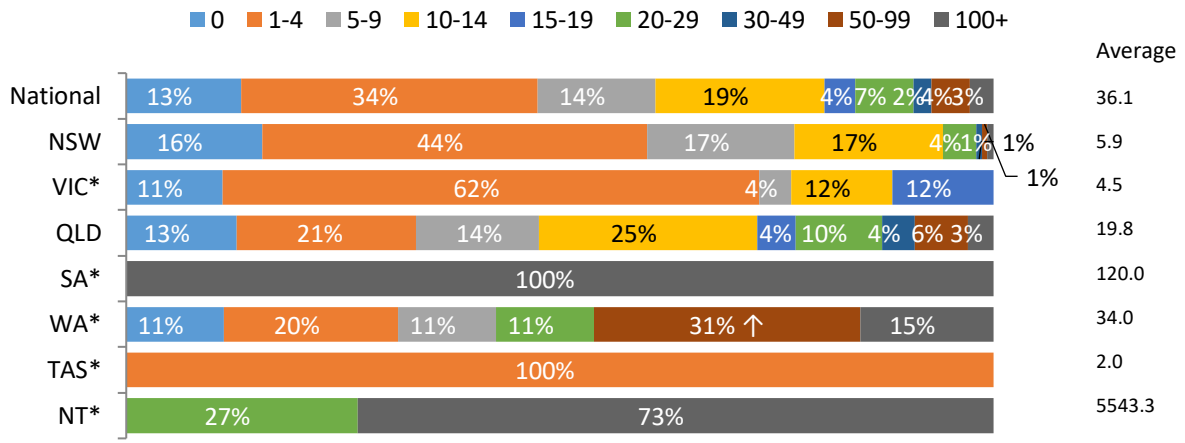
Nationally, producers tip the horns of 36 (up from 22 in 2021) mature cattle on average (**Figure 54**). The majority of mature cattle had their horns tipped between 12 and less than 24 months (66% compared to 80% in 2021). One fifth of producers waited 36 months or longer (19%) (**Figure 55**).

The most common method used to top the horns of mature cattle was guillotine dehorning (49%) (**Figure 56**).

On the national level, one third of producers use pain management (32% in line with 30% in 2021) on an average of 20 mature cattle (**Figure 57**). The vast majority choose to use anesthetic and antiseptic spray at the surgery site (87% versus 92%) (**Figure 58**). Producers cite a variety of reasons for not using pain management while tipping the horns of mature cattle. Nationally, 43% (38%) thought it was not practical for a quick procedure and 43% (34%) thought it was unnecessary. Victorians were significantly more likely to say that they did not use pain management because it was too expensive (28% compared to the national average of 6%) (**Figure 59**).

Figure 53: Number of mature cattle producers tipped the horns of in 2023

Base: Producers who tip the horns of mature cattle n = 156

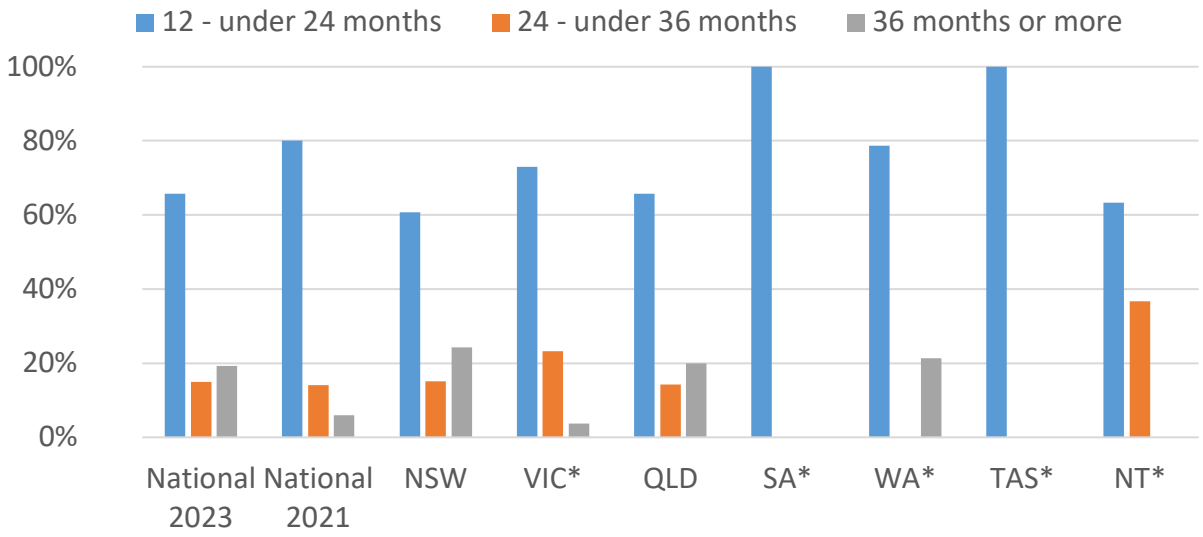


5.11.0: How many mature cattle (12 months of age and over) did you tip the horns of in 2023?

* Small sample (less than 20 producers)

Figure 54: Age of horn tipping in mature cattle

Base: Producers who tip the horns of mature cattle n = 156

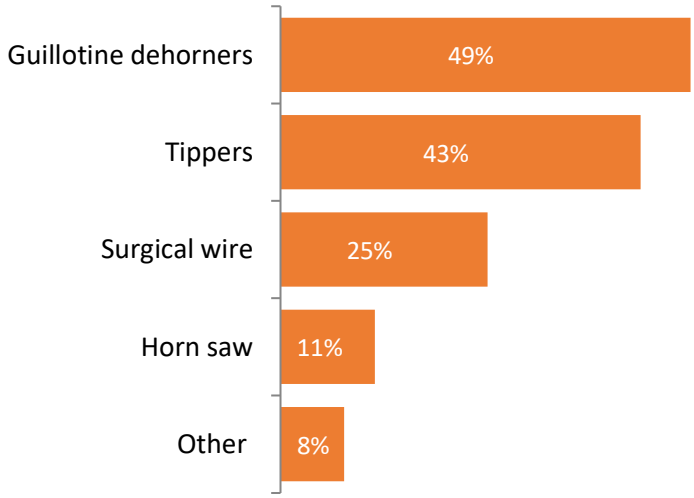


5.11: At what age in months, do you typically tip the horns of mature cattle (12 months of age and over)?

* Small sample (less than 20 producers)

Figure 55: Method of horn tipping in mature cattle

Base: Producers who tip the horns of mature cattle n = 156

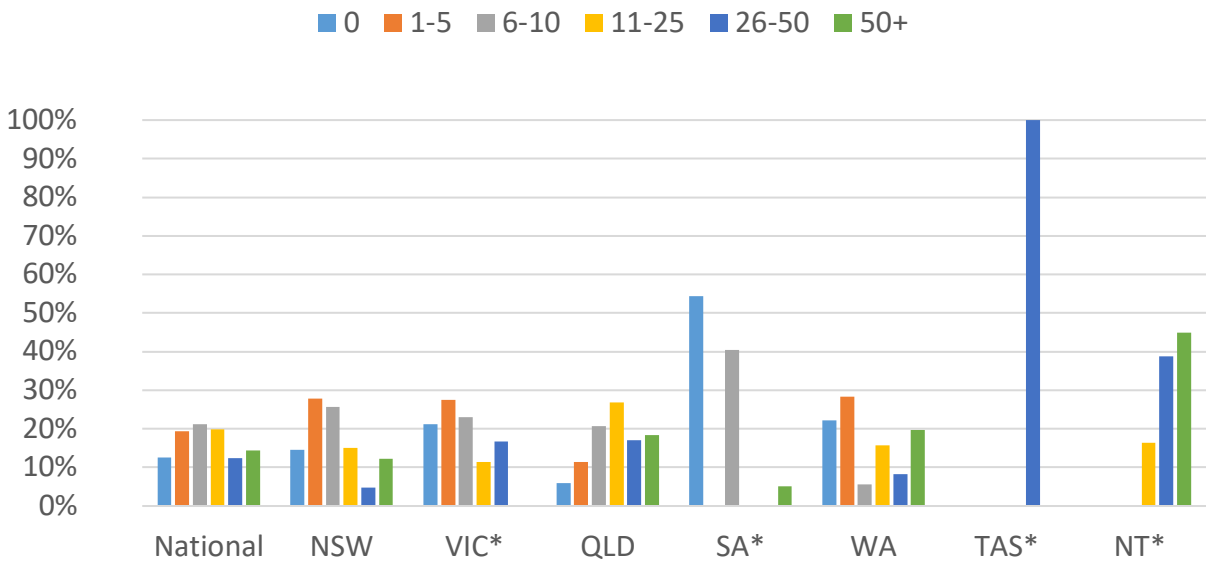


5.13: What method do you use to tip the horns of your mature cattle?

NB. Multiple responses allowed

Figure 56: Number of mature cattle horns tipped in 2023

Base: Producers who tip the horns of mature cattle n = 60

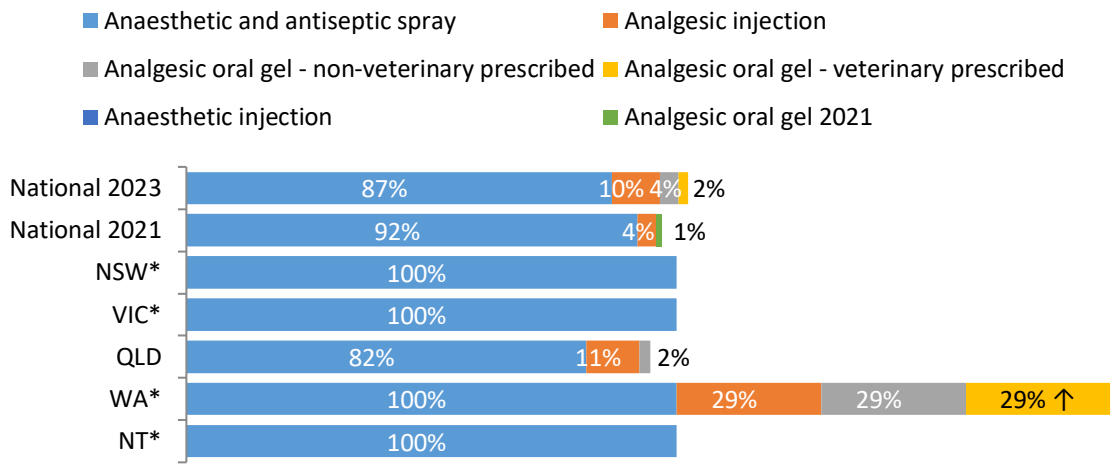


5.6.0: How many calves did you tip the horns of in 2023?

* Small sample (less than 20 producers)

Figure 57: Pain management for horn tipping in mature cattle

Base: Producers who tip the horns of mature cattle and use pain management n = 54



5.16: What type of product/s did you use?

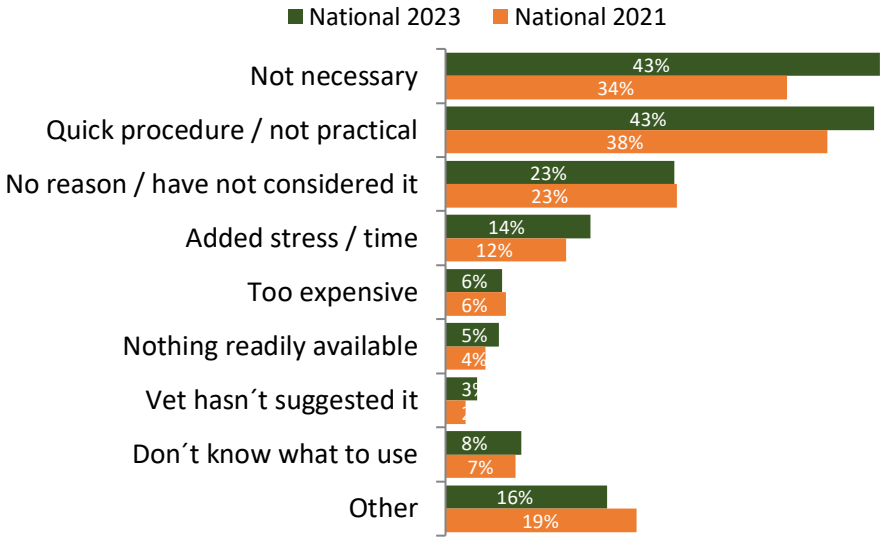
* Small sample (less than 20 producers)

NB. Analgesic oral gel was separated into veterinary prescribed and non-veterinary prescribed in 2023

NB. Multiple responses allowed

Figure 58: Reasons not to use pain management at mature cattle horn tipping

Base: Producers who tip the horns of mature cattle and do not use pain management products n = 96



5.17: Why didn't you use pain management?

NB. Multiple responses allowed

4.7.4 Calf dehorning or disbudding

Nationally, 32% (39% in 2021) of producers dehorn or disbud cattle. These producers much more commonly dehorn or disbud calves (96% compared to 92%) while 9% dehorn or disbud mature cattle over twelve months of age (**Figure 60**). On average, producers dehorned or disbudded 126.6 calves in 2023.

Three thirds of calves are dehorned or disbudded between one and four months of age (76% in line with 75% in 2021) (**Figure 61**).

The most commonly used technique to dehorn calves was scoop or cup dehorners (55% - unchanged from 2021) followed by a knife (14%) (**Figure 62**). There was a significant state effect, with guillotines being more predominant in Western Australia (38%), while knives were more commonly used in Queensland (24%). Victorian producers were significantly more likely to use hot iron or heat cauterisers (38%). Producers chose scoop or cup dehorners because they were perceived to be effective (65%) (**Figure 63**), knives because they are effective (57%) (**Figure 65**), hot iron because there is less blood and is effective (both 65%) (**Figure 66**) and gouging knives because they are quick (78%) (**Figure 64**).

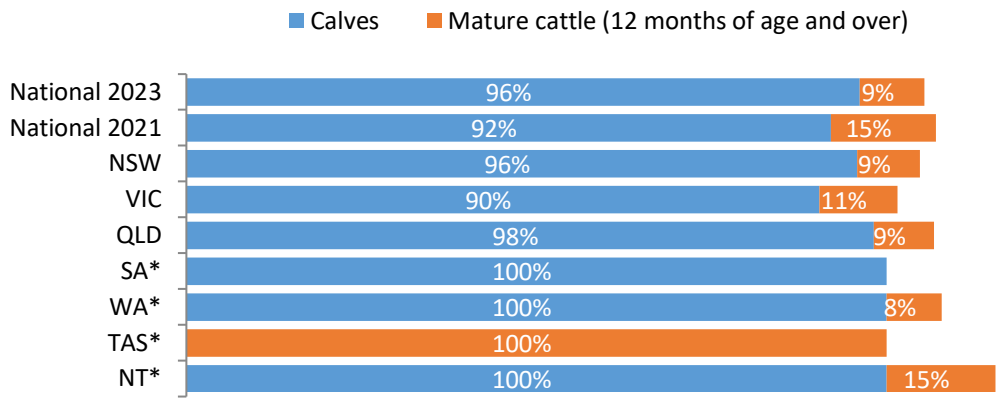
More than half of producers (55% unchanged) use pain management for dehorning or disbudding calves on an average of 137 calves (**Figure 67**). The proportion of calves that are dehorned or disbudded with pain management is similar at 54%. The majority of these producers use anesthetic and antiseptic spray at the site (83% down from 94%). South Australian and Western Australian producers were significantly more likely to use veterinary prescribed analgesic oral gel (61% and 60% respectively) (**Figure 68**). Producers gave multiple reasons for not using pain management during calf dehorning or disbudding. More than half felt that it was not practical for a quick procedure (53%

compared to 38%) and 30% had not considered it. 27% cited an added stress / time (**Figure 69**). These other reasons varied, but included the expense, lack of vet recommendation and lack of availability.

More than half of producers checked calves in the day following dehorning or disbudding (52% compared to 47% in 2021) (**Figure 70**).

Figure 59: Classes of cattle dehorned or disbudded

Base: Producers who dehorn or disbud cattle n = 299



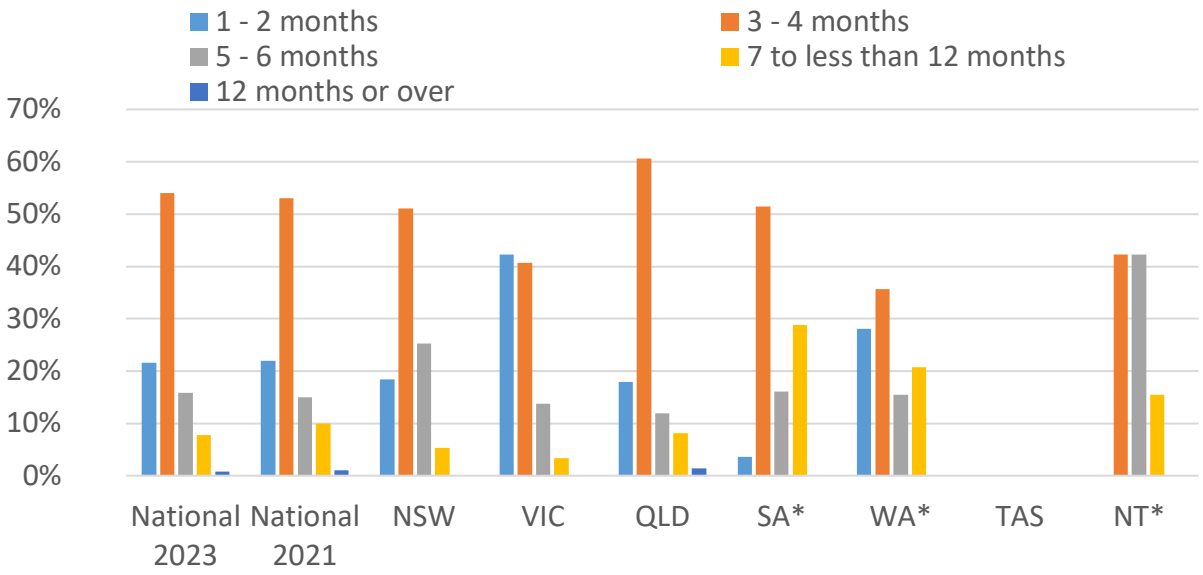
5.19: Which of the following classes of cattle do you dehorn or disbud?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 60: Age of dehorning or disbudding in calves

Base: Producers who dehorn or disbud calves n = 292

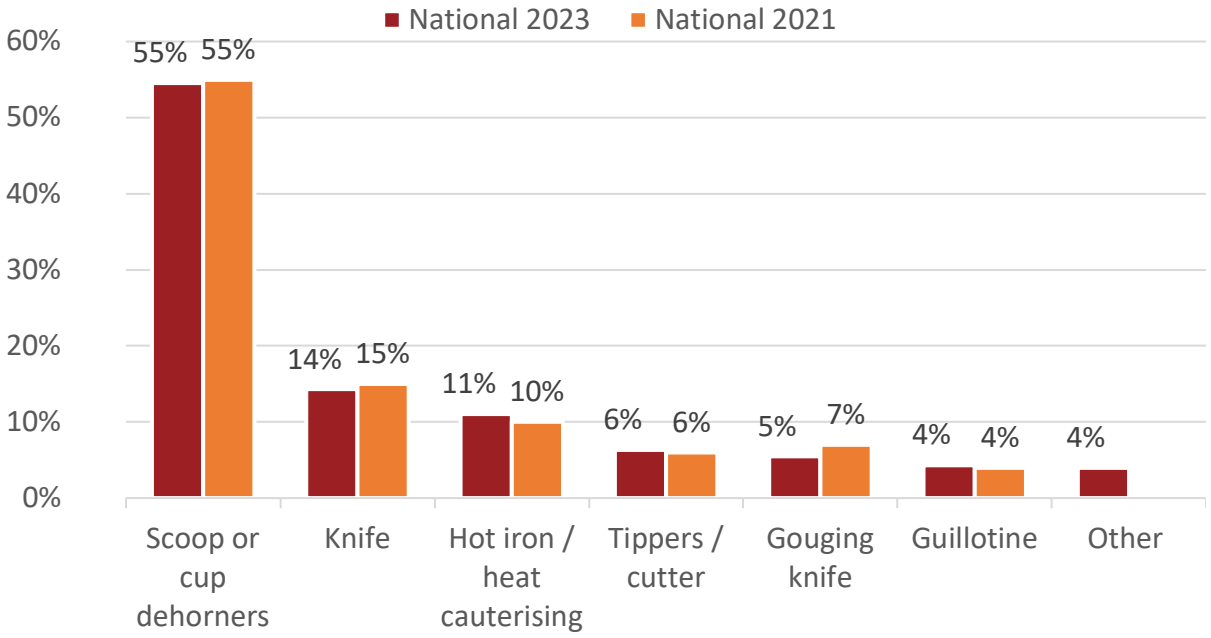


5.20: At what age, in months, do you dehorn or disbud your calves?

* Small sample (less than 20 producers)

Figure 61: Method of dehorning or disbudding in calves

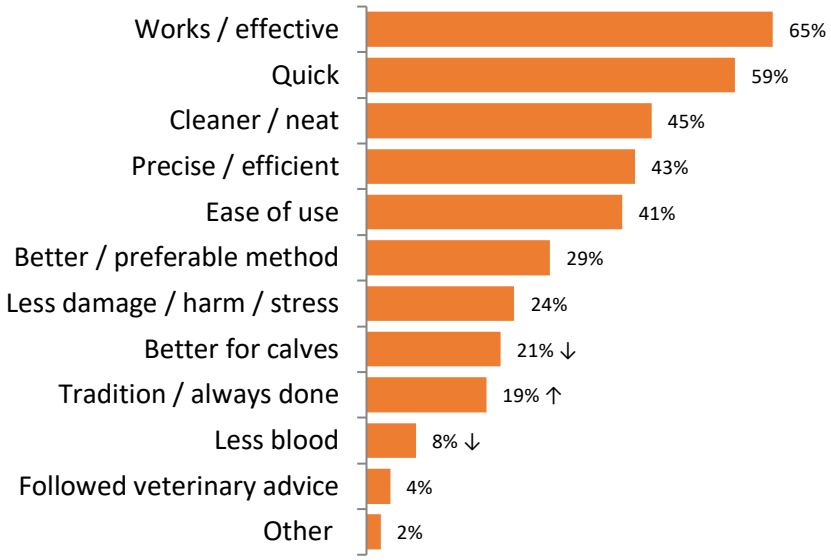
Base: n = Producers who dehorn or disbud calves n = 292



5.21: What method of dehorning or disbudding do you use on your calves?

Figure 62: Reasons for using scoop or cup dehorners for dehorning or disbudding

Base: n = Producers who dehorn or disbud calves with scoop or cup dehorners n = 156

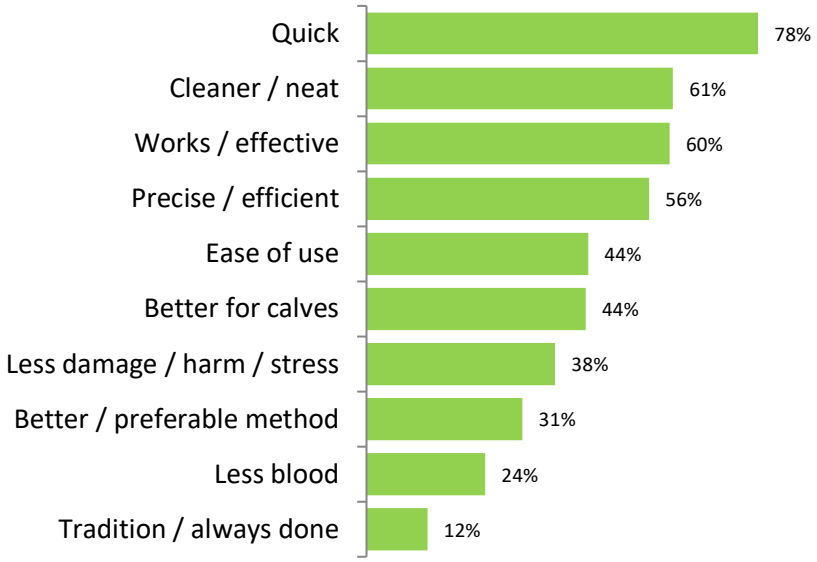


5.22: Why do you use this method to dehorn or disbud your calves?

NB. Multiple responses allowed

Figure 63: Reasons for using gouging knives for dehorning or disbudding

*Base: n = Producers who dehorn or disbud calves with gouging knives n = 19**



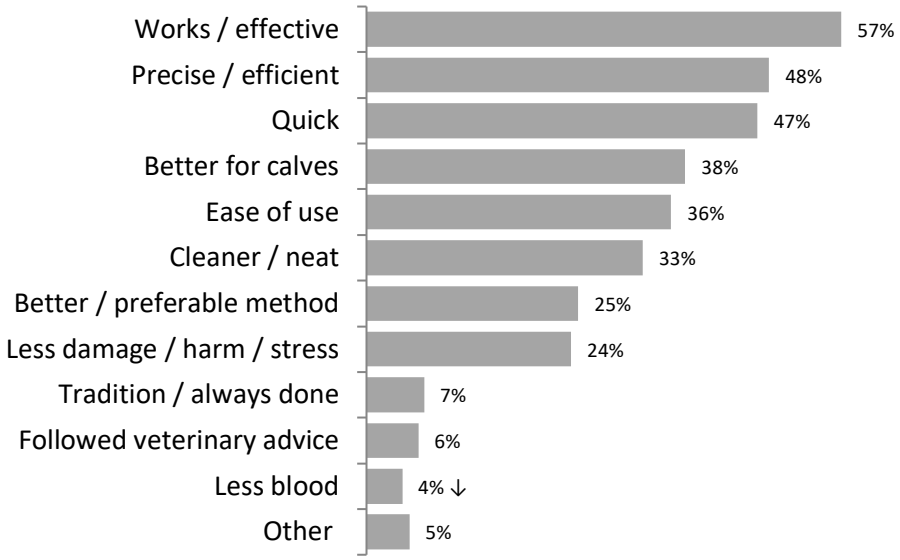
5.22: Why do you use this method to dehorn or disbud your calves?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 64: Reasons for using knives for dehorning or disbudding

Base: n = Producers who dehorn or disbud calves using knives n = 50

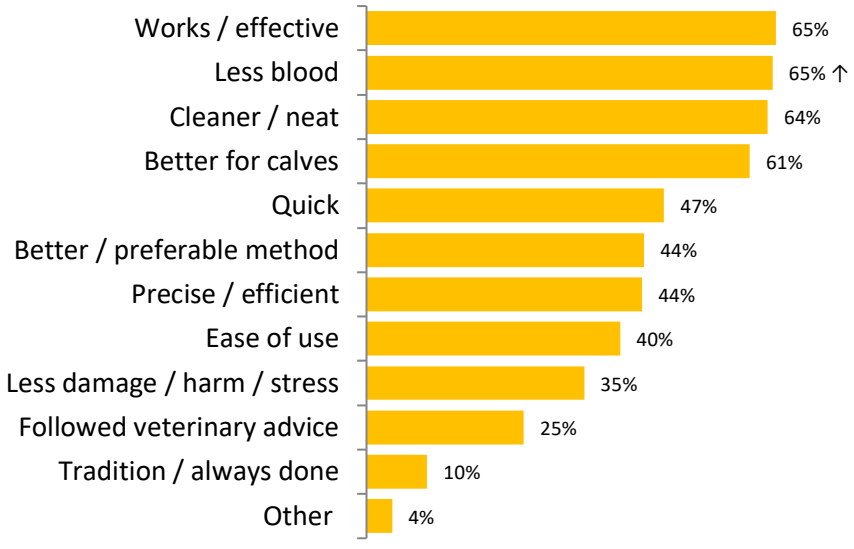


5.22: Why do you use this method to dehorn or disbud your calves?

NB. Multiple responses allowed

Figure 65: Reasons for using hot iron for dehorning or disbudding

Base: n = Producers who dehorn or disbud calves with hot iron n = 28

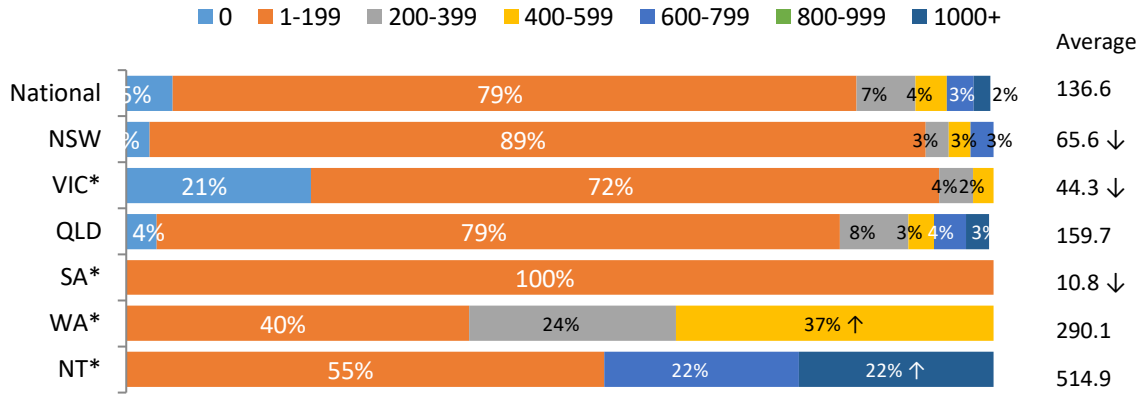


5.22: Why do you use this method to dehorn or disbud your calves?

NB. Multiple responses allowed

Figure 66: Number of calves dehorned or disbudded in 2023

Base: Producers who dehorn or disbud cattle n = 166

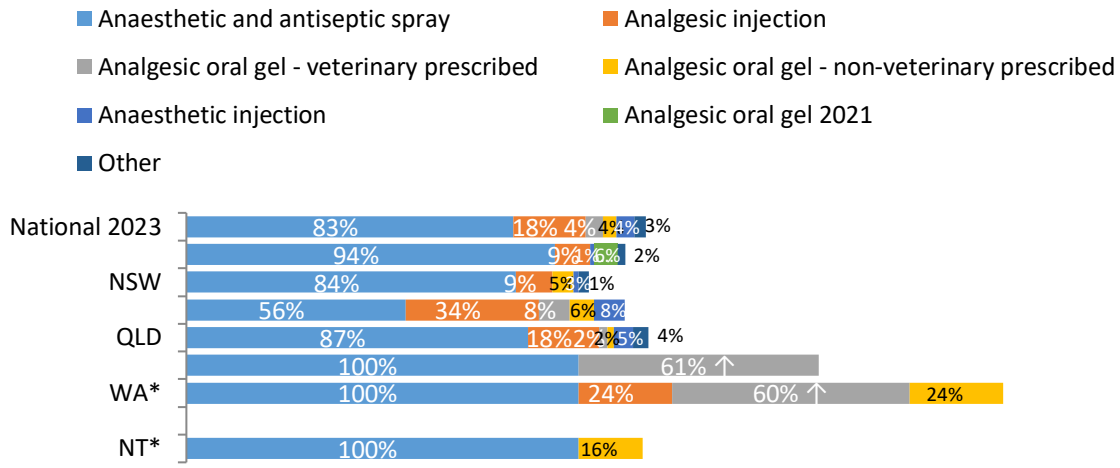


5.27.1: How many calves did you dehorn or disbud in 2023?

* Small sample (less than 20 producers)

Figure 67: Pain management for dehorning or disbudding calves

Base: Producers who dehorn or disbud calves and use pain management n = 166



5.28: What type of product/s did you use?

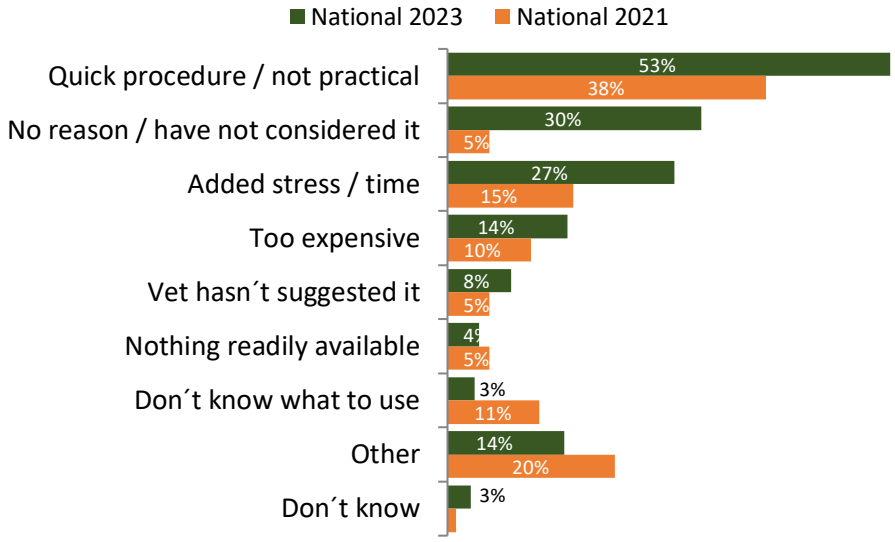
NB. Analgesic oral gel was separated into veterinary prescribed and non-veterinary prescribed in 2023

* Small sample (less than 20 producers, e.g. VIC 19, SA 2, WA 5, NT 5)

NB. Multiple responses allowed

Figure 68: Reasons not to use pain management at calf dehorning or disbudding

Base: Producers who dehorn or disbud calves and do not use pain management n = 126

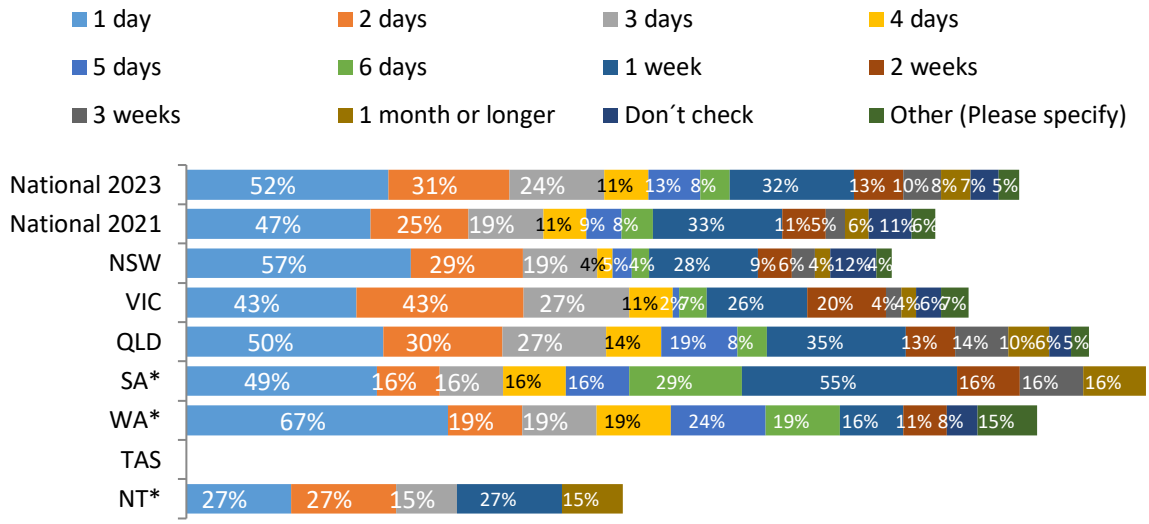


5.29: Why didn't you use pain management?

NB. Multiple responses allowed

Figure 69: Frequency of checking calves following dehorning or disbudding by state

Base: Producers who dehorn or disbud calves n = 292



5.30: When you do you check your calves following dehorning or disbudding?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

4.7.5 Mature cattle dehorning

On average, producers dehorned 68 cattle in 2023. All producers who knew the age at which they dehorned mature cattle report dehorning between 12 months and 36 months. 54% (59% in 2021) report dehorning before 24 months with 21% (37%) dehorning between 24 and 36 months (**Figure 71**).

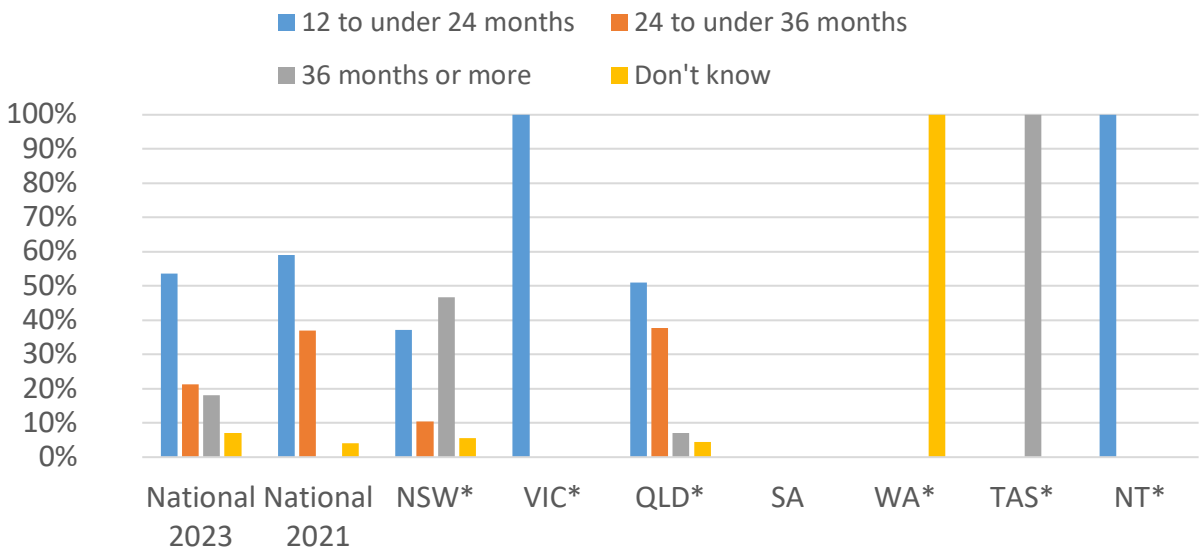
Producers use several types of dehorning methods on mature cattle. Around 1 in 10 (12% down from 46% in 2021) of producers use tippers or cutters, with 29% (30%) using the guillotine method. Around half use scoop or cup dehorners (48% up from 6% in 2021) (**Figure 72**).

One quarter of producers who dehorn mature cattle use pain management products (25% down from 33%). The proportion of mature cattle that are dehorned with pain management is 18%. Half prefer to use anaesthetic and antiseptic spray at the site (50% down from 95%) (**Figure 73**).

Producers who do not use products for pain management cite it being impractical for a quick procedure (45% from 41%), or not necessary (30% in line with 31% in 2021) (**Figure 74**).

Figure 70: Age of full dehorning in mature cattle

Base: Producers who dehorn mature cattle n = 27

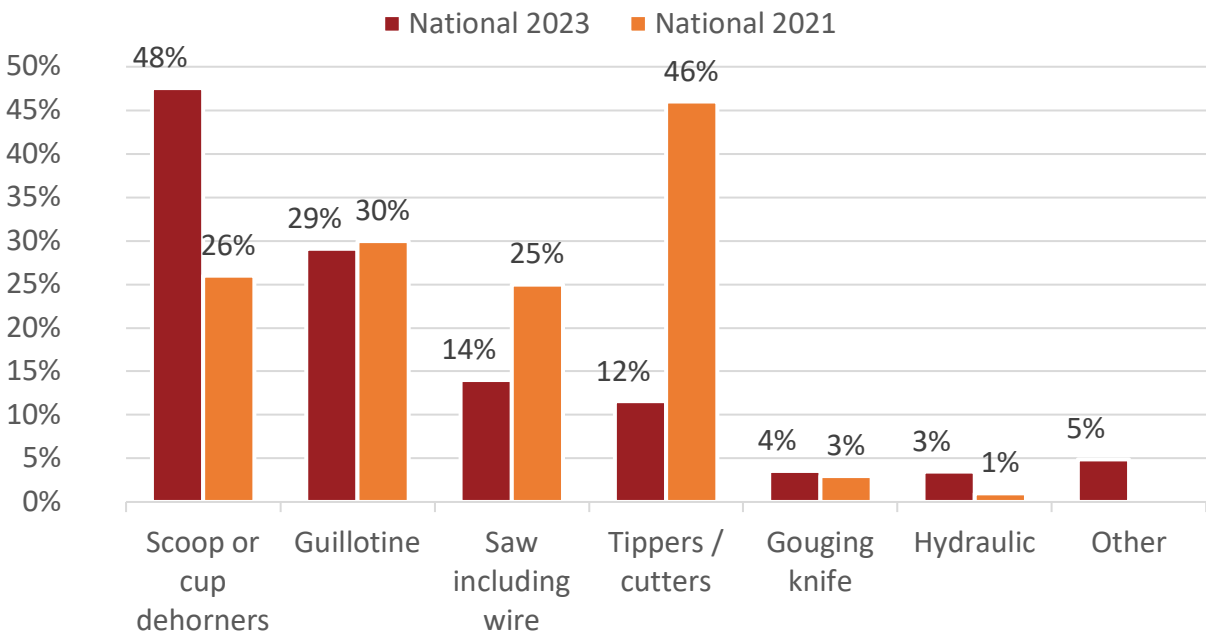


5.34: At what age in months, do you typically fully dehorn mature cattle?

* Small sample size less than 20

Figure 71: Method of dehorning mature cattle

Base: Producers who dehorn mature cattle n = 27

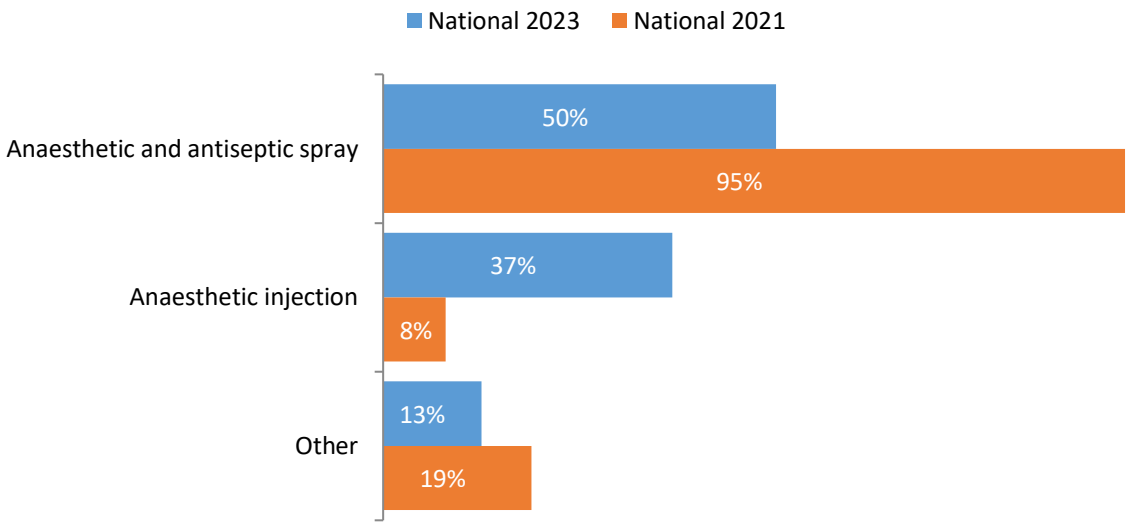


5.35: What method of fully dehorning do you use on your mature cattle?

NB. Multiple responses allowed

Figure 72: Pain management for dehorning mature cattle

*Base: Producers who dehorn mature cattle and use pain management n = 6**



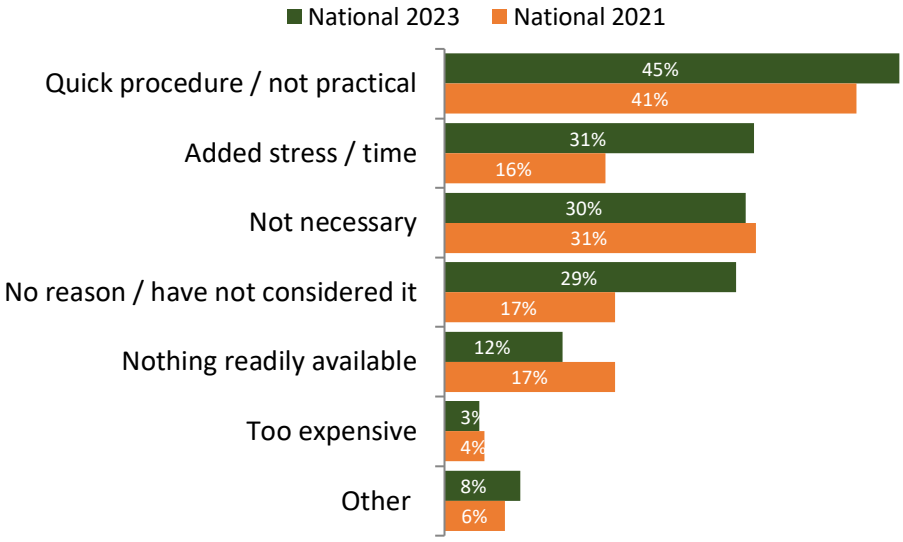
5.38: What type of product/s did you use?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 73: Reasons not to use pain management at mature cattle dehorning

Base: Producers who dehorn mature cattle and do not use pain management n = 21



5.39: Why didn't you use pain management?

NB. Multiple responses allowed

4.8 Spaying

Most producers do not spay cull heifers, with only 2% (3% in 2021) of producers choosing to do so (**Figure 75**). Of these, around one third spay less than 100 cull heifers per year (32%), with 234 spayed on average by producers who do spay. Likewise, most producers do not spay cull cows, with only 2% (5%) of producers choosing to do so. Almost half spay less than 49 cull cows per year (47% up from 31% in 2021) (**Figure 76**).

At the national level, three quarters of producers who do spay cull heifers consider it unnecessary to pregnancy test cull heifers prior to spaying (75%, similar to 72% in 2021). Conversely, most producers pregnancy test cull cows (82% in line with 81% in 2021).

When producers spay, they prefer to use the Willis dropped ovary and removal of ovaries method for both heifers (79%) and cows (42%) (compared to 77% of heifers and 56% of cows in 2021) (**Figure 77**). Producers who did said that they did so following veterinary advice and that the process is clean and neat, efficient, and successful (**Figure 78**).

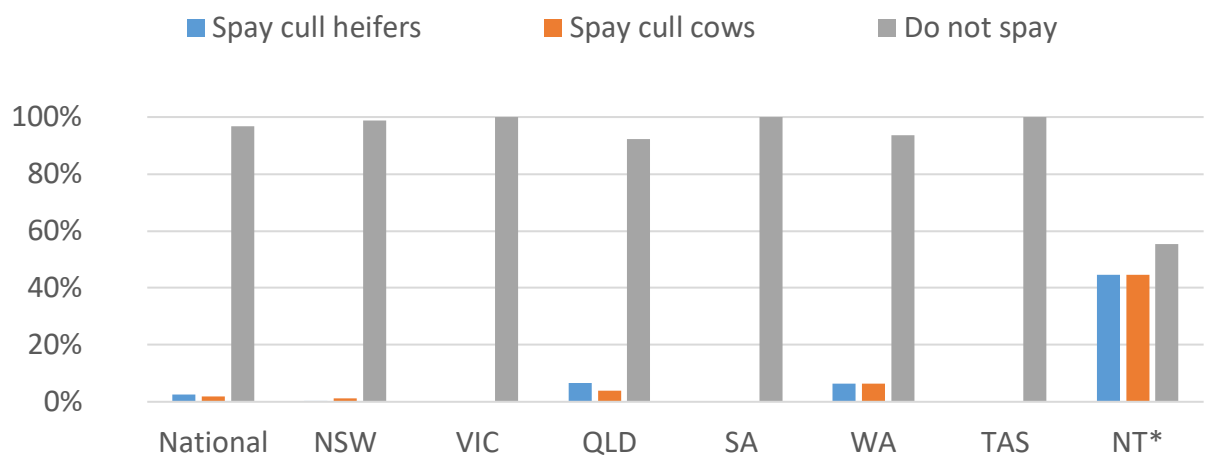
Producers favour the use of non-veterinarian contractors to perform spaying (39%), although doing it themselves or using other staff members (30%) or using a veterinarian (29%) were also popular (**Figure 79**).

Over half of producers check heifers and cows one day after spaying (54% similar to 48% in 2021) (**Figure 80**). At the national level, 22% of producers use pain management for spaying heifers and 16% of cows, with an average of 158 heifers treated and 89 cows treated. The proportion of heifers that are spayed with pain management is 15% with the proportion of cows at 17%. Producers chose not to use pain management for an array of reasons (**Figure 81**), with one quarter agreeing that they do not use any because their vet has not suggested it (25%, similar to 31% in 2021).

Half of producers who spay their cows and heifers state that they feel likely or very likely to use a non-surgical sterilisation method if available (50% compared to 59%) (**Figure 82**).

Figure 74: Spaying of cull heifers and cull cows by state

Base: Producers with a breeding operation n = 695

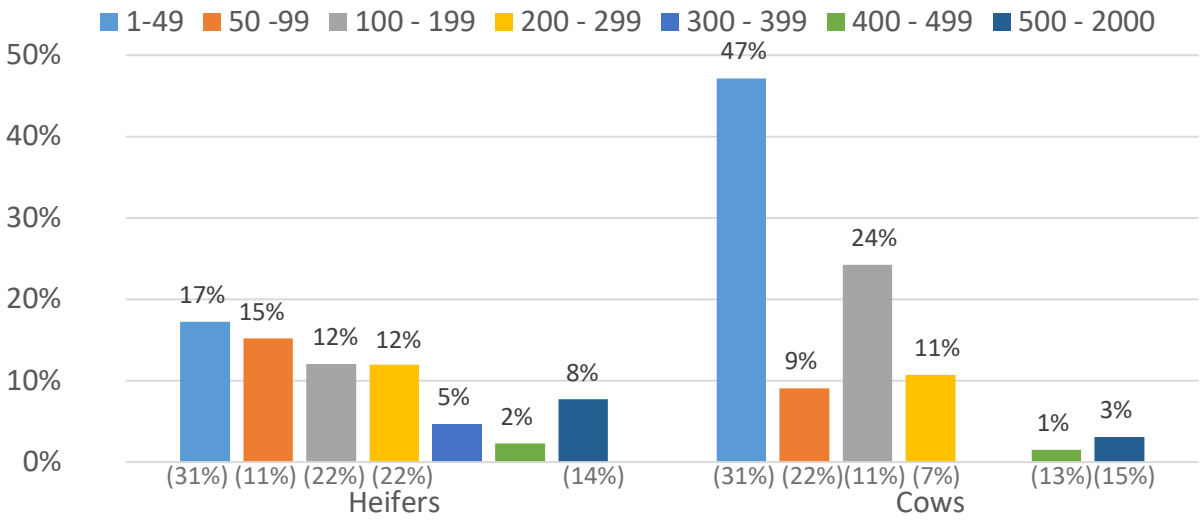


6.1: Do you spay cull heifers and / or cows?

* Small sample (less than 20 producers)

Figure 75: Percentage of producers spaying cull cows and heifers by number spayed

*Base: Producers who spay heifers n = 27, Producers who spay cows n = 17**



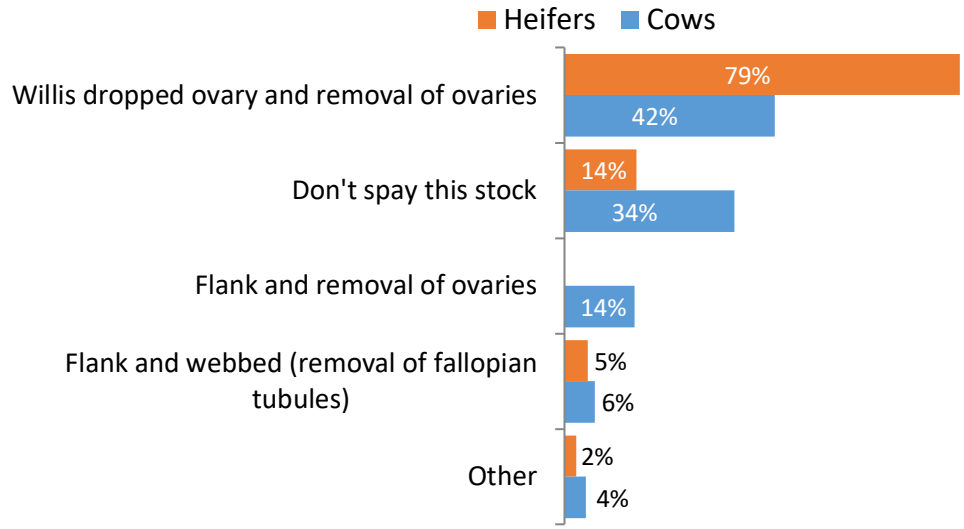
6.1: Do you spay cull heifers and / or cows?

NB: 2021 results in brackets

* Small sample (less than 20 producers)

Figure 76: Spaying method

*Base: Producers who spay heifers n = 27, Producers who spay cows n = 17**

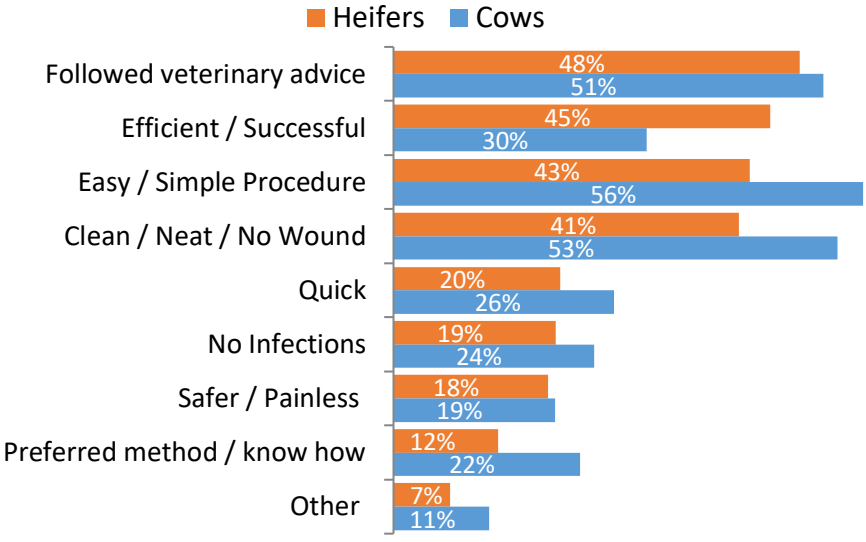


6.6: What spaying methods do you use to spay your heifers and / or cows?

* Small sample (less than 20 producers)

Figure 77: Reason for using Willis dropped ovary spaying method

*Base: Producers who use the Willis dropped ovary method to spay heifers n = 23, and to spay cows n = 11**



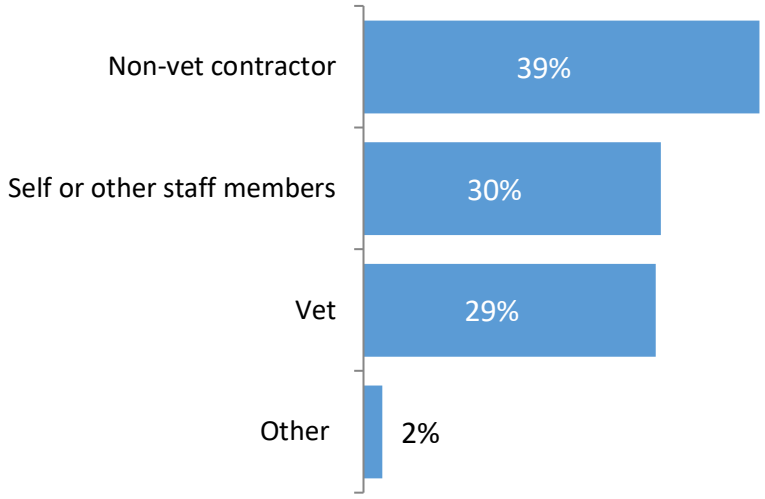
6.7: Why do you use this method to spay your heifers?

6.8: Why do you use this method to spay your cows?

* Small sample (less than 20 producers)

Figure 78: Spaying personnel

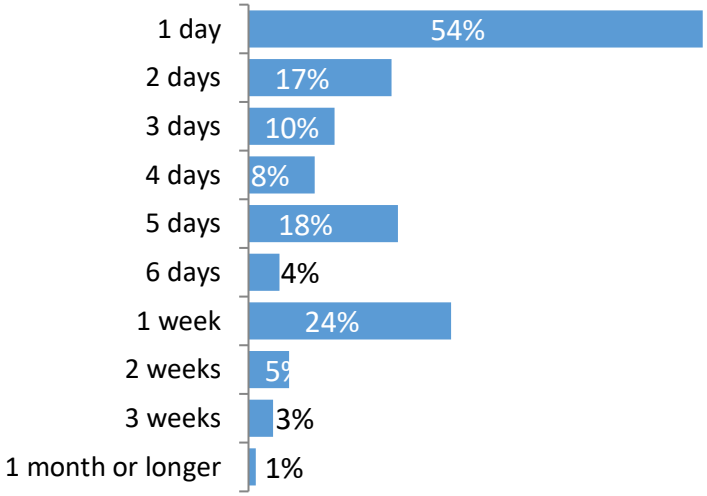
Base: Producers who spay heifers or cows n = 30



6.10: When you spay your cull heifers / cows who performs the spaying?

Figure 79: Frequency of checking on heifers and cows following spaying

Base: Producers who spay heifers or cows n = 30

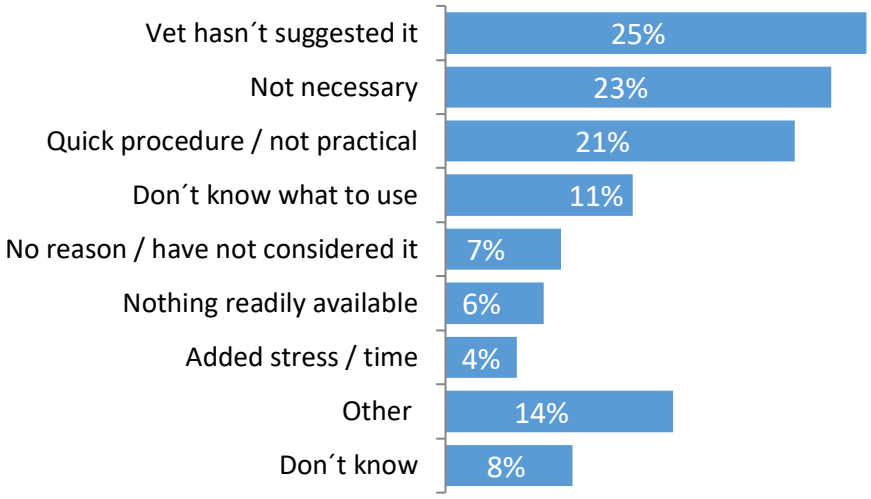


6.11: When do you check on your heifers / cows following spaying?

NB. Multiple responses allowed

Figure 80: Reasons for not using pain management

Base: Producers who spay heifers or cows and do not use pain management n = 25

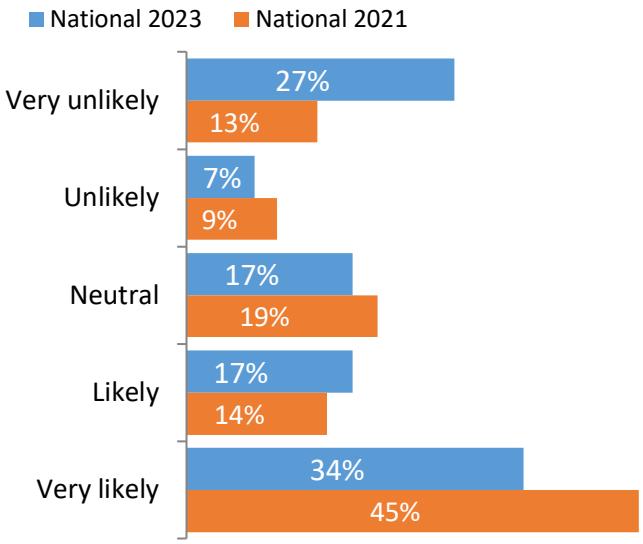


6.16: Why didn't you use pain management?

NB. Multiple responses allowed

Figure 81: Likelihood to use a non-surgical sterilisation method

Base: Producers who spay heifers or cows n = 30



6.17: If a non-surgical sterilisation method was available (like a single-dose, 12 month-acting, vaccine), how likely would you be to use it?

4.9 Vaccines

Almost one quarter of producers vaccinate against botulism (23% in line with 27% in 2021). Queensland and Northern Territory producers were significantly more likely to vaccinate (35% and 65% respectively). When producers do vaccinate for botulism, three quarters (76% versus 64%) always follow up with a booster. More than one tenth (12% compared to 23%) do not ever give a booster. Producers vaccinate at similar rates across age classes however Queenslanders are significantly less likely to vaccinate cattle under one year of age (**Figure 83**).

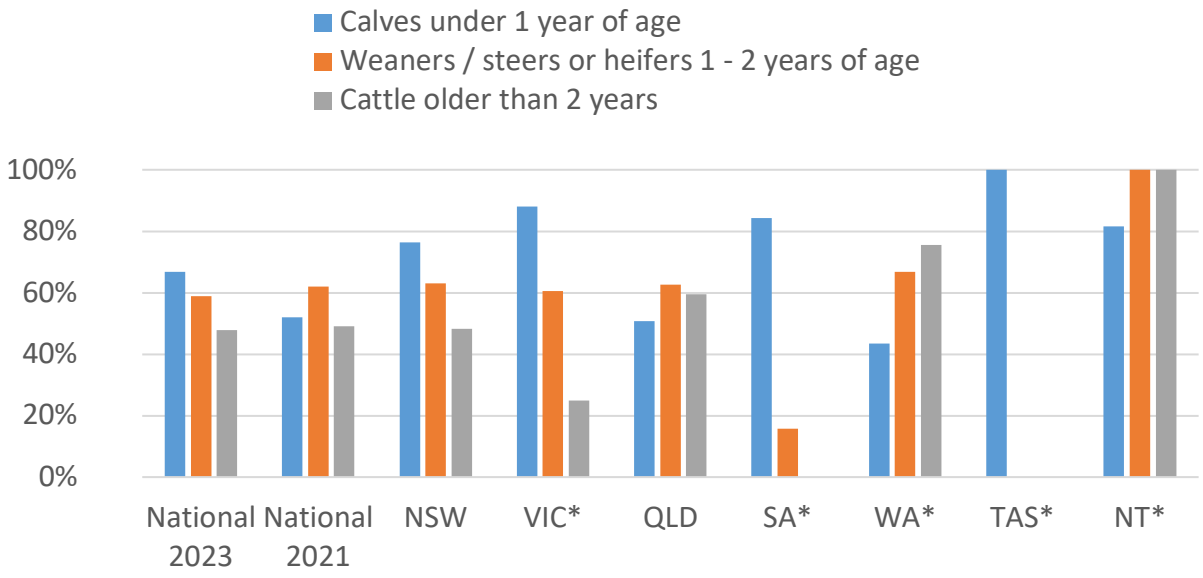
At the national level, 76% (unchanged since 2021) of producers vaccinate against other clostridial diseases such as tetanus and blackleg. Half of producers use a 5 in 1 vaccine (52% compared to 57%) and 68% (63%) use a 7 in 1 vaccine (**Figure 84**).

Four fifths (80% versus 74% in 2021) of producers give booster vaccines within six weeks. Producers who did not gave a variety of reasons for not giving booster vaccines. Most commonly, they state that they never have (27%- 19% in 2021) or that they do give a booster outside of the six-week window (25% in line with 27% in 2021) **Figure 85**.

Producers vaccinate all classes of cattle at high rates (92% (89% in 2021) for calves under one year, 63% (65%) of weaners and 51% (50%) cattle over two years of age) (**Figure 86**). New South Wales producers were significantly more likely to vaccinate calves under one year and cattle over two years (97% and 60%, respectively). At the national level, 23% (unchanged from 2021) of producers vaccinate against BVDV (**Figure 87**)., with weaners the class most commonly vaccinated (75%). Nine percent (10% in 2021) vaccinate against BEF.

Figure 82: Classes of cattle vaccinated against botulism by state

Base: Producers who vaccinate against botulism n = 186



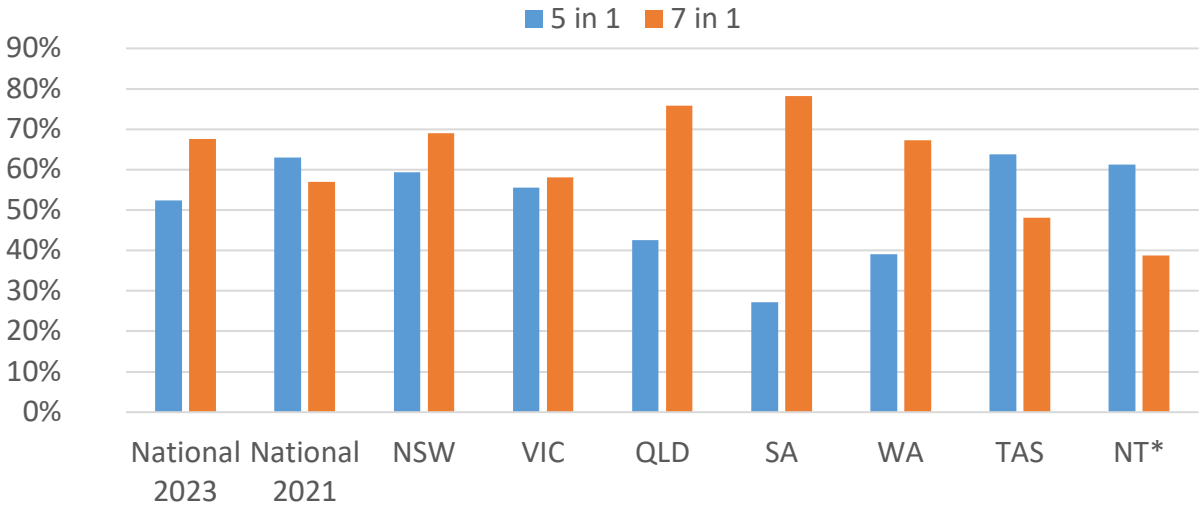
7.4: Which cattle do you vaccinate against botulism?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 83: Use of clostridial vaccines

Base: Producers who vaccination against clostridial diseases n = 625



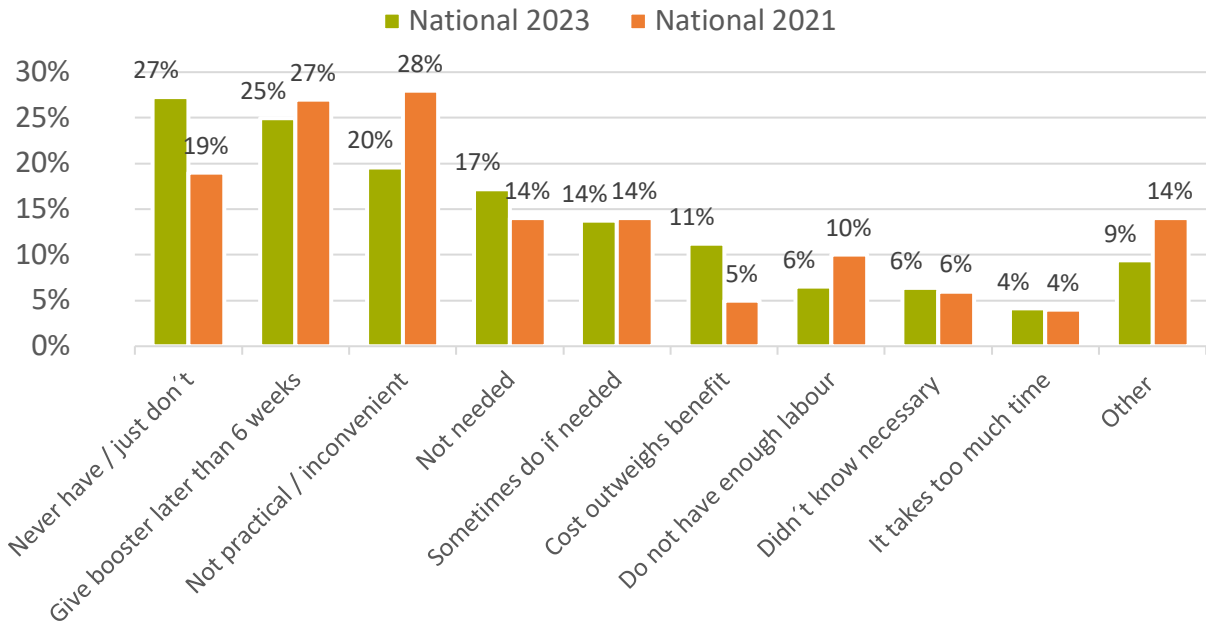
7.6: What vaccines do you use?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 84: Reasons not to give booster vaccination

Base: Producers who vaccinate but do not give a booster within six weeks n = 144

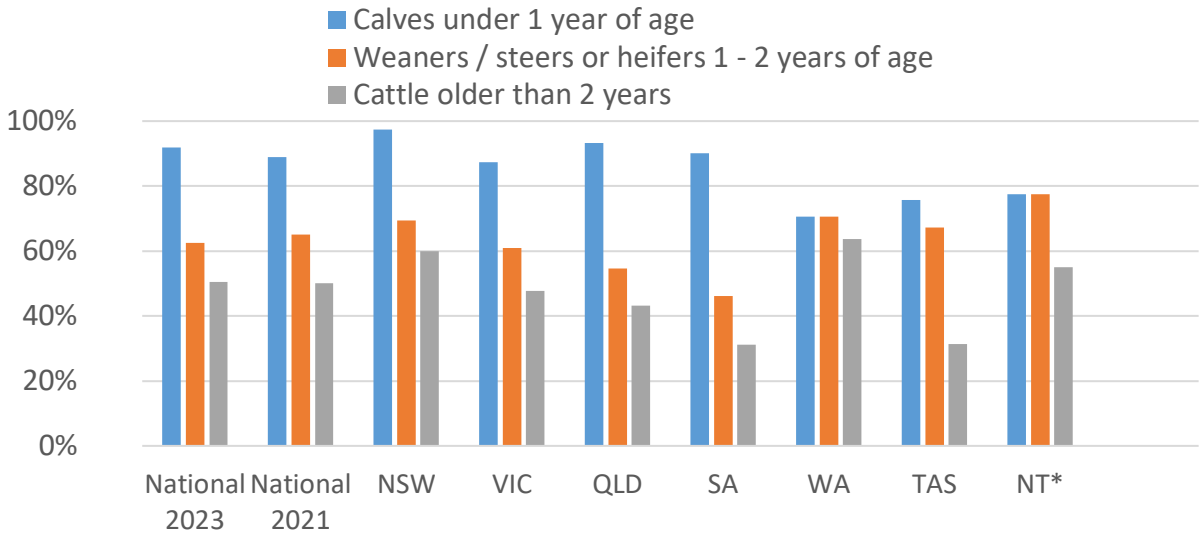


7.8: Why don't you give a booster vaccination within 6 weeks of the initial dose?

NB. Multiple responses allowed

Figure 85: Classes of cattle vaccinated against other clostridial diseases

Base: Producers who vaccinate against other clostridial diseases n = 625



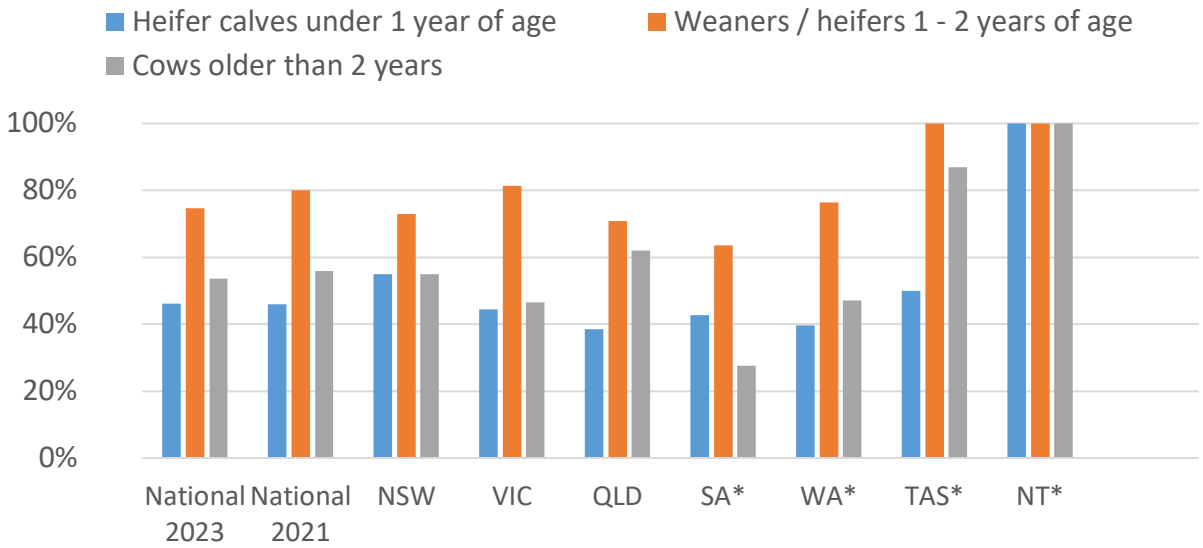
7.9: Which cattle do you vaccinate?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 86: Classes of cattle vaccinated against BVDV

Base: Producers who vaccinate against BVDV n = 207



7.11: Which cattle do you vaccinate against BVDV (Pestivirus)?

NB. Multiple responses allowed

* Small sample (less than 20 producers)

4.9.1 Parasite websites and guidelines

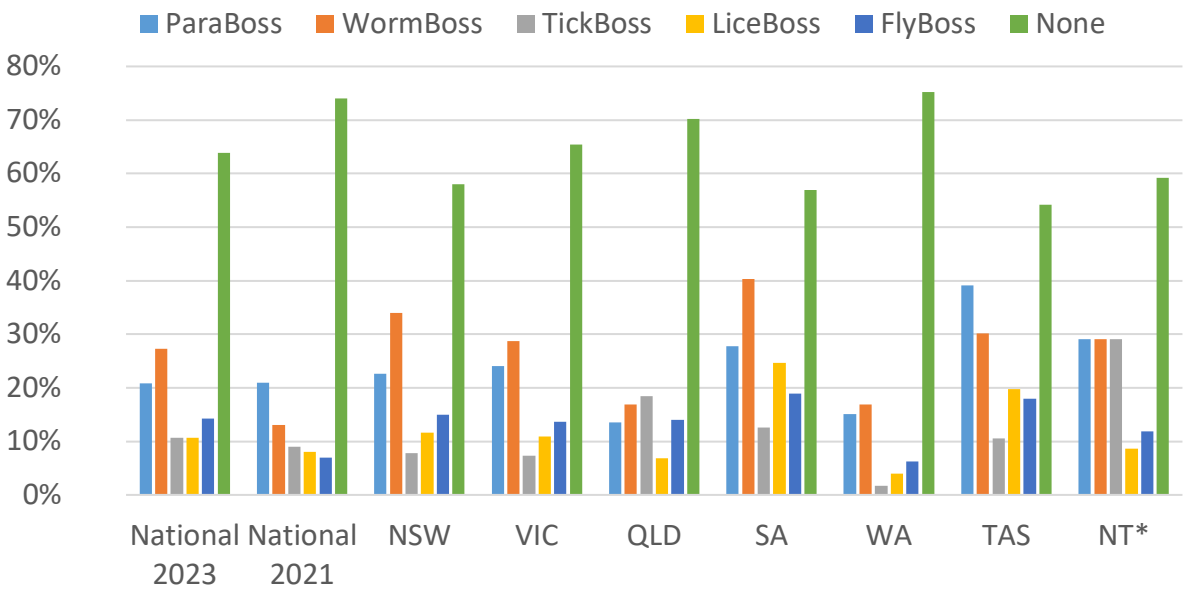
When asked about their awareness of the ParaBoss, WormBoss, TickBoss, LiceBoss and FlyBoss websites, nearly two thirds (64%) of producers had not heard of any of them, with 36% aware nationally. Awareness has increased from 26% in 2021. Nationally, for particular websites, WormBoss and ParaBoss have the highest awareness levels at 27% and 21% respectively.

Queensland producers were significantly more likely than those in other states to have heard of TickBoss (18% up from 15% in 2021) and less likely to know of WormBoss (14% compared to 21% nationally- both unchanged from 2021) or ParaBoss (17%, compared to 10% in 2021). Awareness of WormBoss was highest in NSW (34% up from 25% in 2021) and awareness of LiceBoss was highest in South Australia (25% up from 10% in 2021) (**Figure 88**).

20% of producers were aware of the 'Immune Ready Guidelines' (**Figure 89**).

Figure 87: Website awareness

Base: All producers n = 813



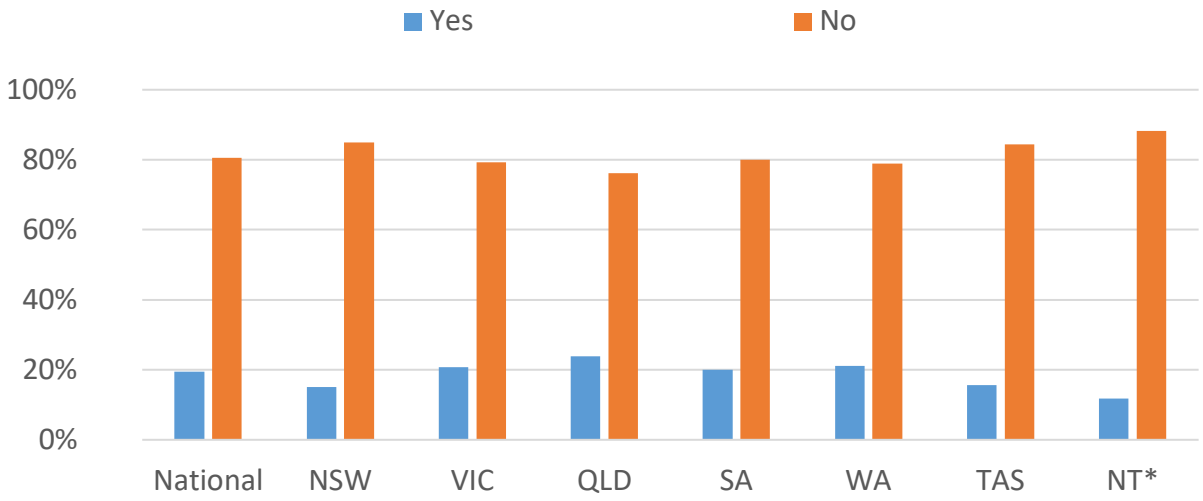
7.25: There are a number of online parasite management information resources available to producers. Which of the following websites have you heard of?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 88: 'Immunity Ready Guidelines' awareness

Base: All producers n = 813



7.26: Are you aware of the ´Immune Ready Guidelines´ for cattle?

* Small sample (less than 20 producers)

4.10 Transport

4.10.1 Slaughter stock

More than half (55%, in line with 54% in 2021) of producers interviewed apply feed curfews before transporting slaughter cattle and almost a third (28% versus 29% in 2021) of producers applied a water curfew, with South Australians significantly more likely to apply water curfews (51% compared to 47%). 42% (41%) of producers stated they applied no curfews (**Figure 90**).

Producers cited a variety of reasons for not imposing feed curfews for slaughter cattle. Most commonly, they elected not to impose a curfew to minimise stress and improve the condition of cattle (44% - similar to 49% in 2021). New South Wales producers were significantly more likely to leave curfew to saleyards or abattoirs (50% compared to 47%) (**Figure 91**).

More than half of producers declined to apply a water curfew to slaughter cattle to reduce stress and improve condition (52% in line with 53% in 2021). Western Australian producers were significantly more likely to decline to impose a water curfew due to non-veterinary advice (8%) (**Figure 92**).

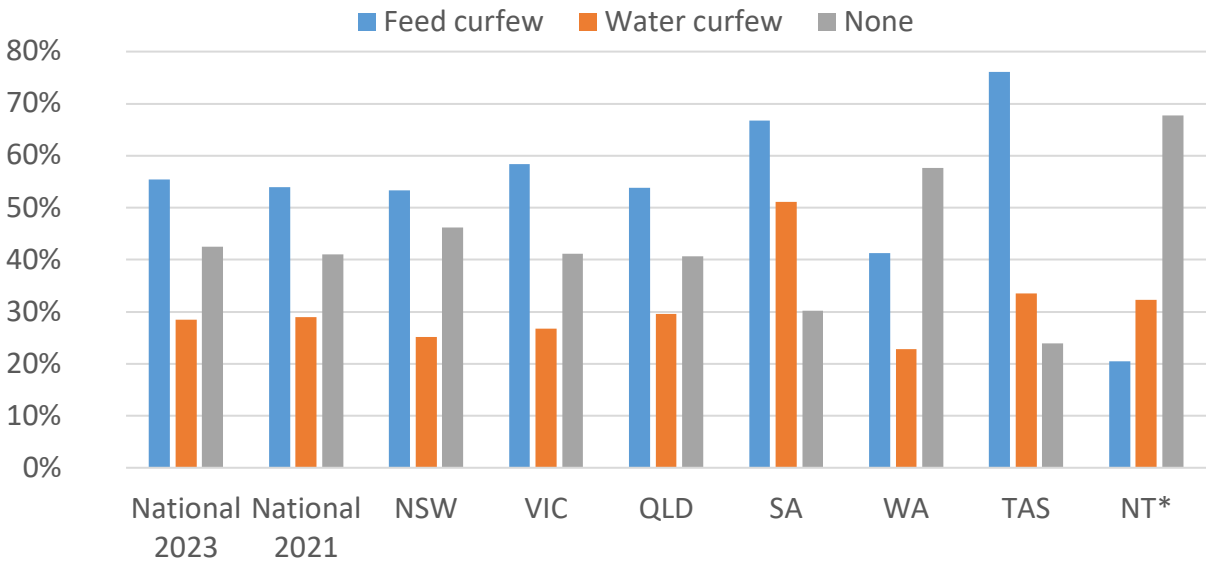
On average, producers impose feed curfews off 8.5 (8.3) hours and 7.5 (8.7) hours off water prior to transport. South Australian producers impose significantly longer feed curfews and water curfews (on average 13.5 hours before transport and 13.3 hours, respectively), while Northern Territory, New South Wales and Victorian producers impose significantly shorter feed curfews (2.6, 7.6 and 6.7 hours respectively). (**Figure 93**).

Most cattle reach their destinations in 6 or fewer hours (89%, similar to 87% in 2021). Northern Territory producers report significantly longer transit times than other states, with 80% (77%) of producers saying transit times are more than six hours, including 32% twenty-four hours or more. 51% of New South Wales producers were significantly more likely to transport for an hour or less, while Queensland producers were more likely than other states to transport for six to less than twelve hours (13%) (**Figure 94**).

Very few producers (4%) are aware that their cattle are given rest stops during transit. 12% do not know if their cattle are given rest stops, with 83% saying they are not (**Figure 95**).

Figure 89: Curfews for slaughter cattle

Base: All producers n = 813



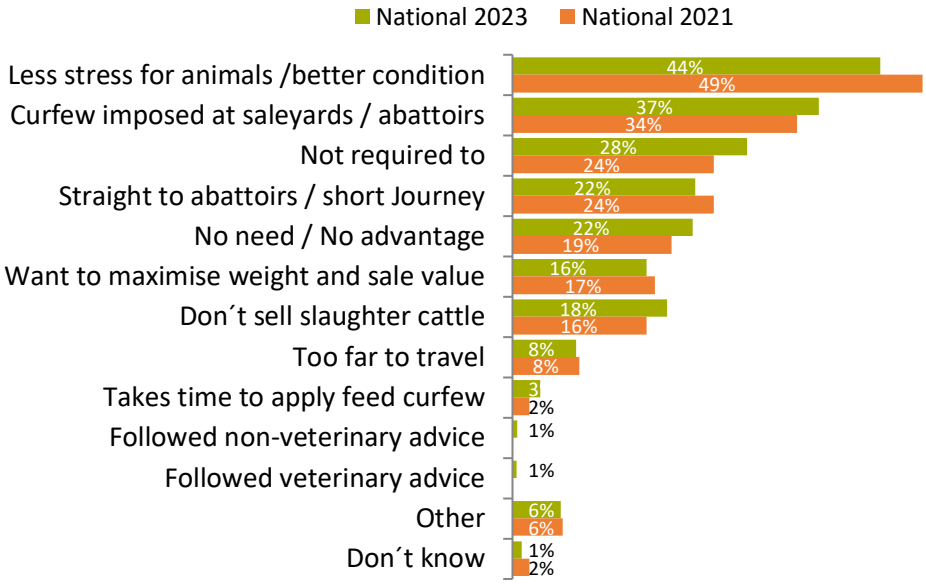
8.1: Before transporting slaughter cattle, which of the following curfews are applied to your cattle?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 90: Reasons not to apply a feed curfew

Base: Producers who do not apply a feed curfew n = 353

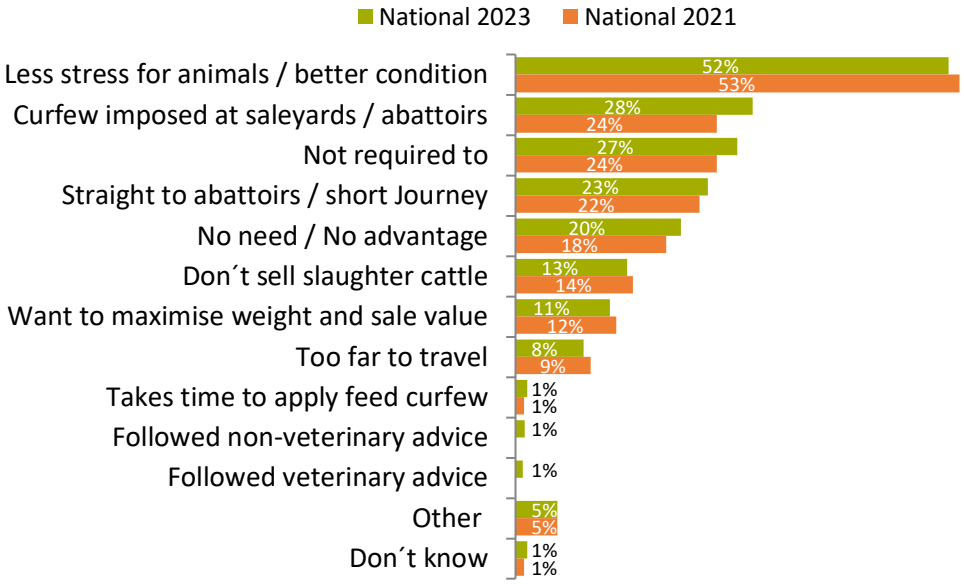


8.2: Why don't you apply a feed curfew for slaughter cattle?

NB. Multiple responses allowed

Figure 91: Reasons not to apply a water curfew

Base: Producers who do not apply a water curfew n = 574

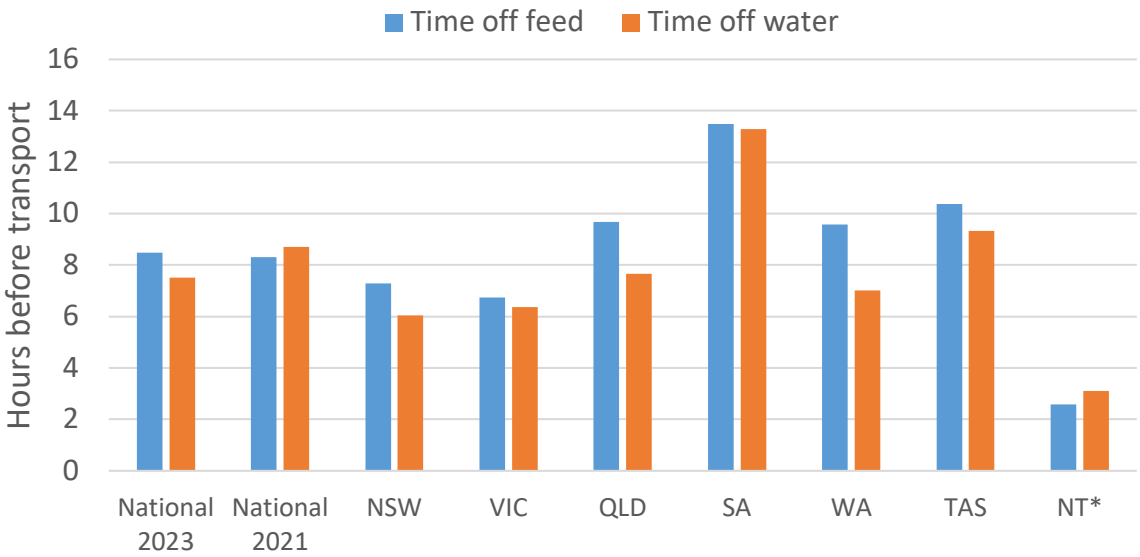


8.3: Why don't you apply a water curfew for slaughter cattle?

NB. Multiple responses allowed

Figure 92: Hours before transport curfews are applied to slaughter cattle by state

Base: Producers who apply a feed n= 460 or water curfew to slaughter cattle n = 230

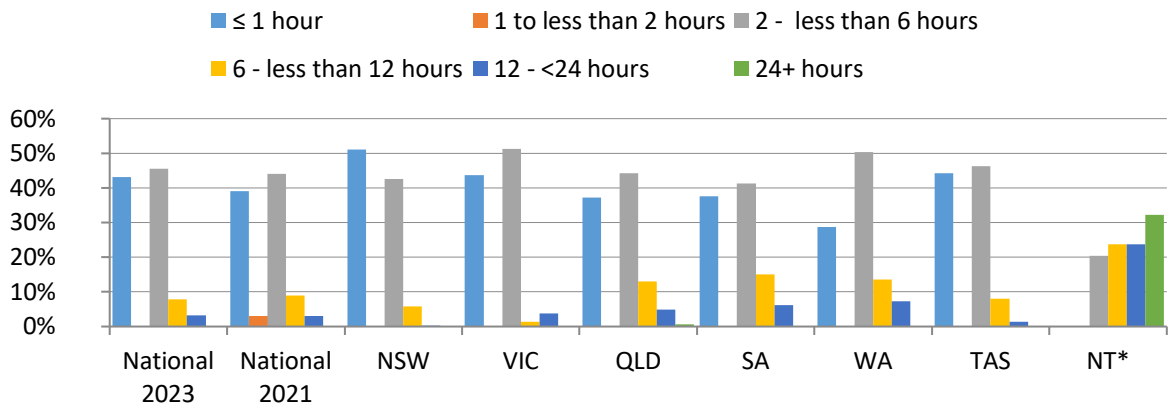


8.4: How many hours before transport are normal feed or water curfews applied to slaughter cattle?

* Small sample (less than 20 producers)

Figure 93: Average transit time for slaughter cattle by state

Base: All producers n =813

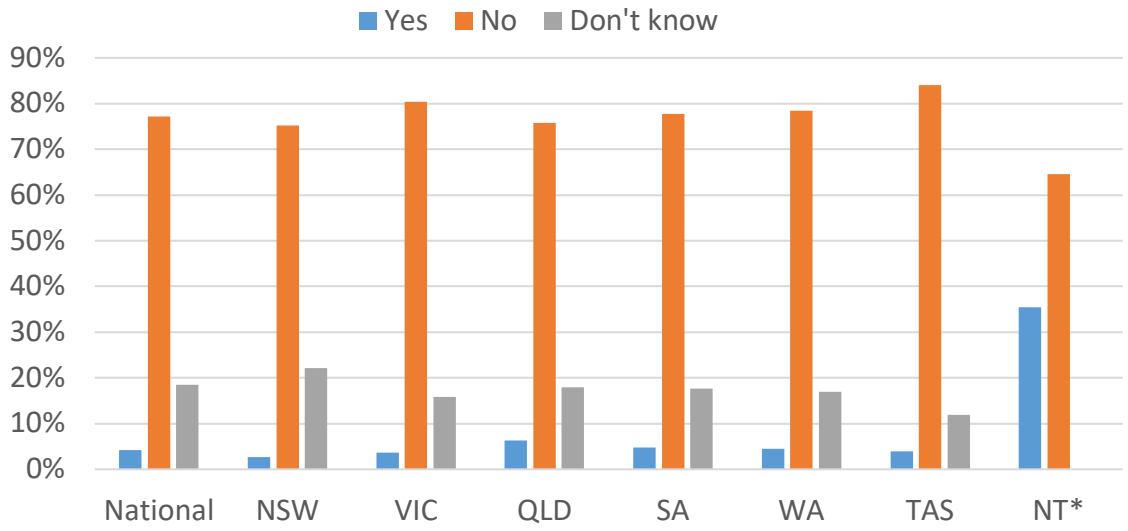


8.7: On average, how many hours are your slaughter cattle in transit before unloading?

* Small sample (less than 20 producers)

Figure 94: Rest stops for slaughter cattle by state

Base: All producers n =813



8.7.1: Are your slaughter cattle being given rest stops during transit?

* Small sample (less than 20 producers)

4.10.2 Non-slaughter stock

At the national level, 73% (similar to 78% in 2021) of producers transport non-slaughter cattle (**Figure 96**). Nationally, 41% (unchanged from 2021) of producers apply feed curfews. Water curfews

are applied by 23% (27%) of producers nationally, with South Australians significantly more likely to introduce water curfew (52% down from 60% in 2021).

The most common reason producers gave against imposing a feed curfew was that it was unnecessary for a short journey (47% up from 5% in 2021) (**Figure 97**). The most common reason producers gave against imposing a water curfew was that not doing so places less stress on the animals and ensures they arrive in better condition (45%, similar to 55% in 2021 (**Figure 98**).

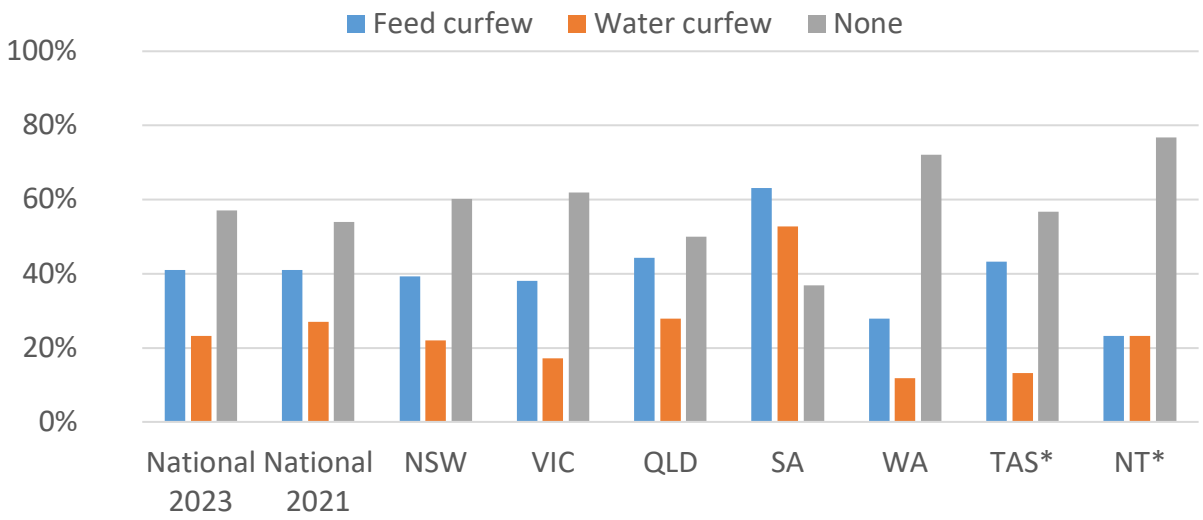
On average, producers impose feed curfews to non-slaughter cattle of 7.8 (7.5) hours and water curfews of 6.5 (8.4) hours prior to transport. Western Australians are significantly more likely to impose both longer feed curfews (11.8 hours) and New South Wales producers had significantly shorter water curfews (4.6 hours) (**Figure 99**).

Nationally, most non-slaughter cattle are in transit 6 or fewer hours (92%, in line with 87% in 2021) (**Figure 100**). Producers in the Northern Territory tended to have cattle in transit significantly longer than other states, with cattle in transit for between six and twenty-four hours (40% and 37% respectively).

Only 5% of non-slaughter cattle are given rest stops during transit (**Figure 101**), with cattle from the Northern Territory and Queensland more likely to be given rest stops (41% and 11% respectively).

Figure 95: Application of curfews for non-slaughter cattle

Base: Producers who apply feed or water curfews n = 617



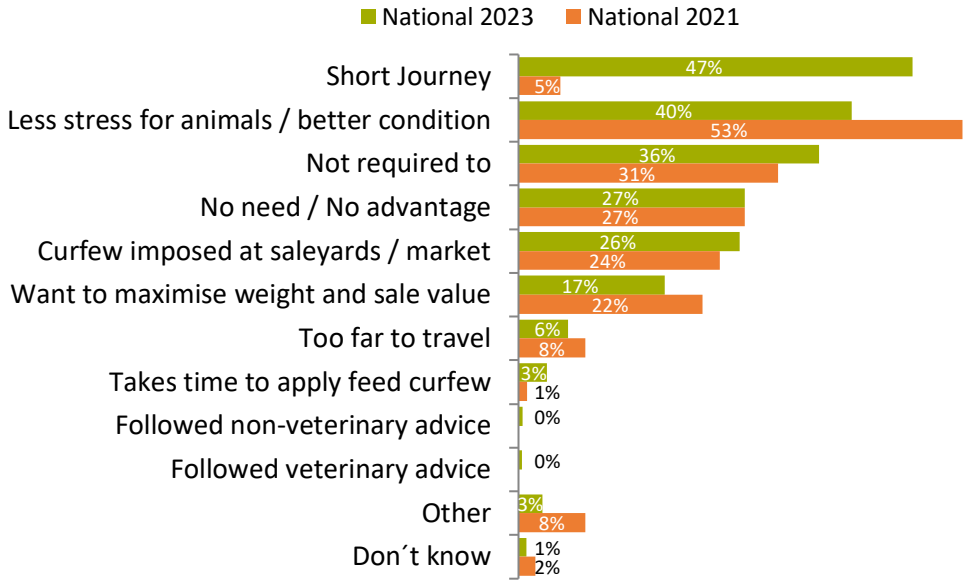
8.8.2: Before transporting non-slaughter cattle, which of the following curfews are applied to your cattle?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 96: Reasons not to apply a feed curfew

Base: Producers who do not apply a feed curfew n = 354

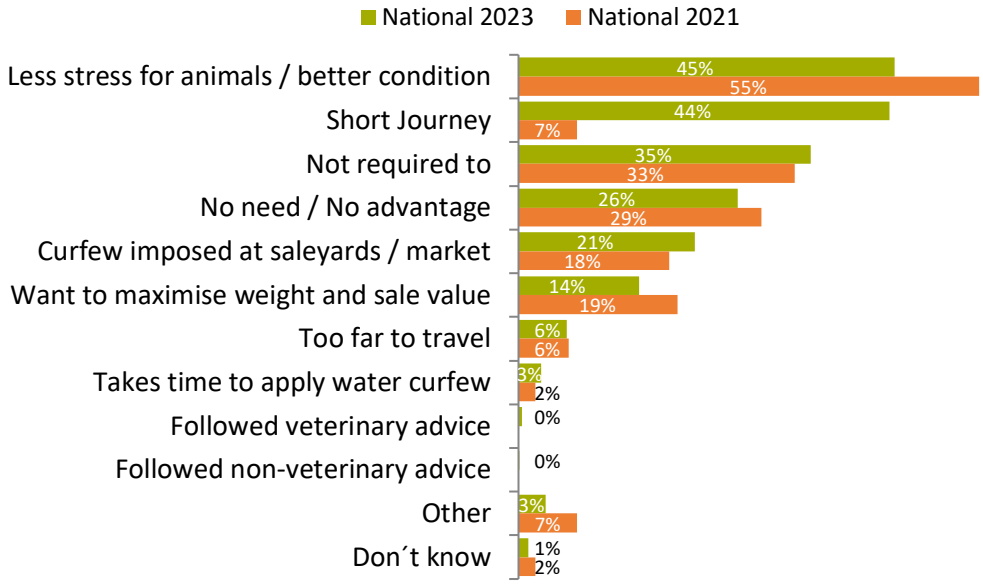


8.9: Why don't you apply a feed curfew for non-slaughter cattle?

NB. Multiple responses allowed

Figure 97: Reasons not to apply a water curfew

Base: Producers who do not apply a water curfew n = 473

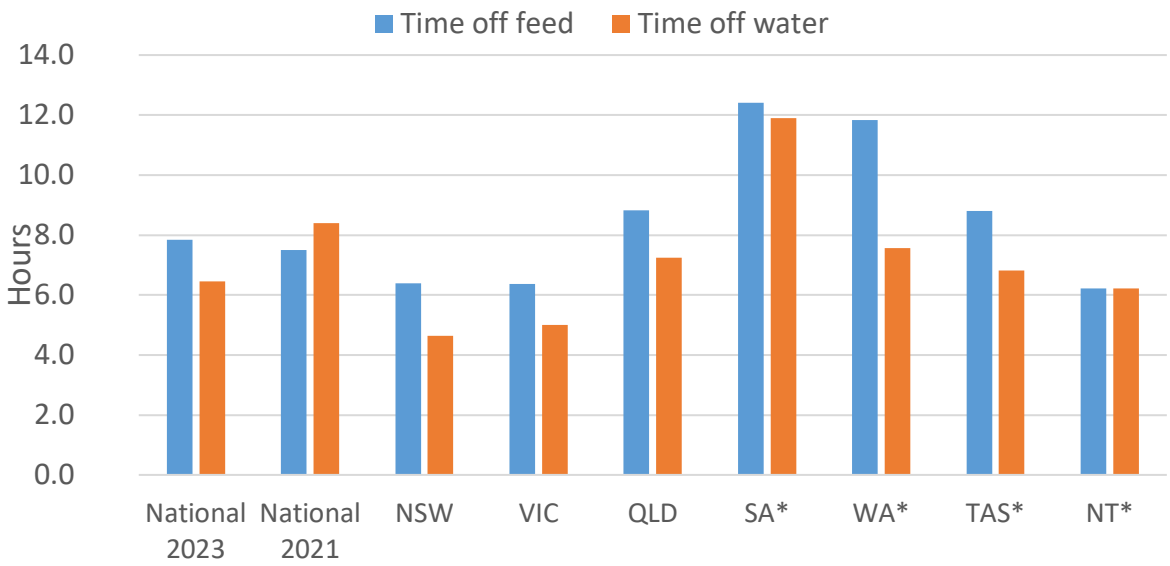


8.10: Why don't you apply a water curfew for non-slaughter cattle?

NB. Multiple responses allowed

Figure 98: Hours before transport feed and water curfews are applied

Base: Producers who apply feed or water curfews n = 263

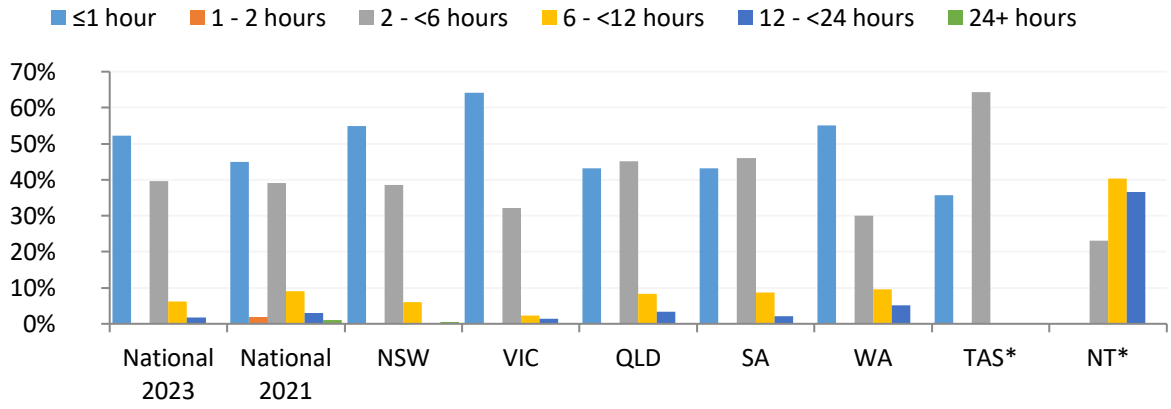


8.11: How many hours before transport are normal feed or water curfews applied to your non-slaughter (breeding or store) cattle?

* Small sample (less than 20 producers)

Figure 99: Transit times for non-slaughter cattle

Base: Producers who transport non-slaughter cattle n = 617

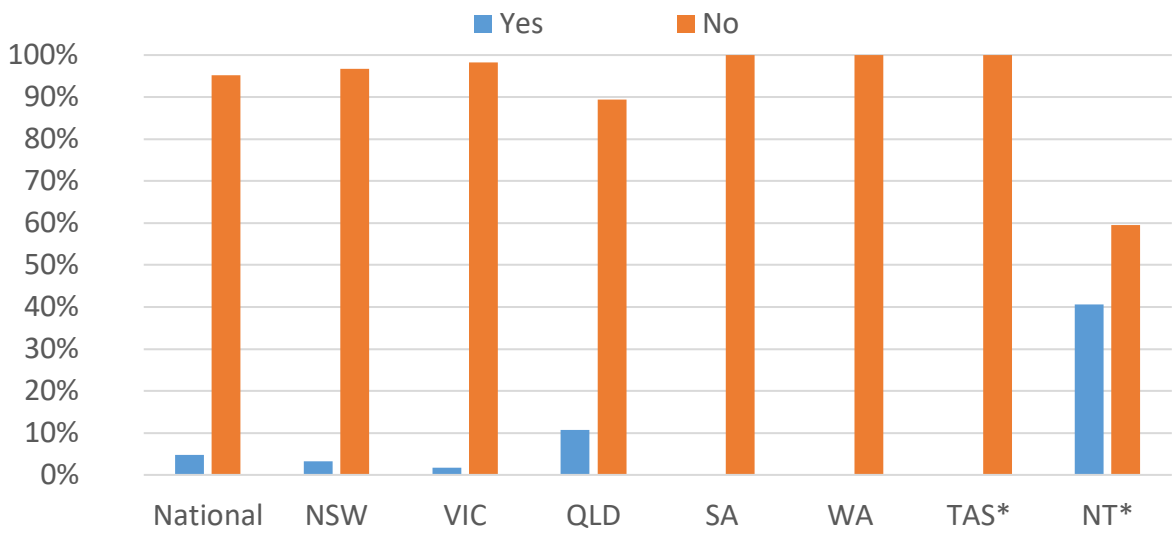


8.14: On average, how many hours are your non-slaughter (breeding or store) cattle in transit before unloading?

* Small sample (less than 20 producers)

Figure 100: Rest stops for non-slaughter cattle

Base: Producers who transport non-slaughter cattle n = 549



8.15: Are your non-slaughter cattle being given rest stops during transit?

* Small sample (less than 20 producers)

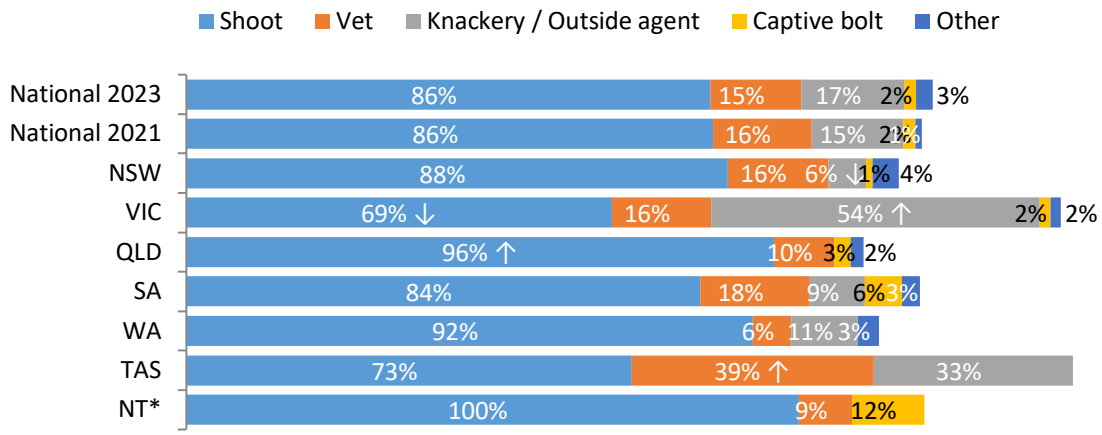
4.11 Euthanasia and disposal of sick and injured cattle

Most producers (86% - unchanged from 2021) euthanise cattle by shooting them, with Queensland producers more likely to use this method (95%, similar to 96% in 2021). Victorians are significantly less likely to use this method (69% compared to 67%) and more likely to use an outside agent (54% versus 48%). Tasmanian producers are significantly more likely to use a veterinarian (39% up from 24% in 2021) (**Figure 102**).

As in 2021, producers used a variety of carcass disposal methods with the most frequent being burying (43%, in line with 38%), burning (32%, compared to 37%), and dumping the carcass (28% versus 32%). Burying was most frequent in Western Australia (61%). Tasmanian and Victorian producers were significantly more likely to use carcasses as pet food (37% and 27% respectively), with New South Wales producers more likely to burn (39%) or leave for decomposition (22%), while Queensland producers are more likely to use carcasses as bait (14%). (**Figure 103**).

Figure 101: Euthanasia methods by state

Base: All producers n = 813



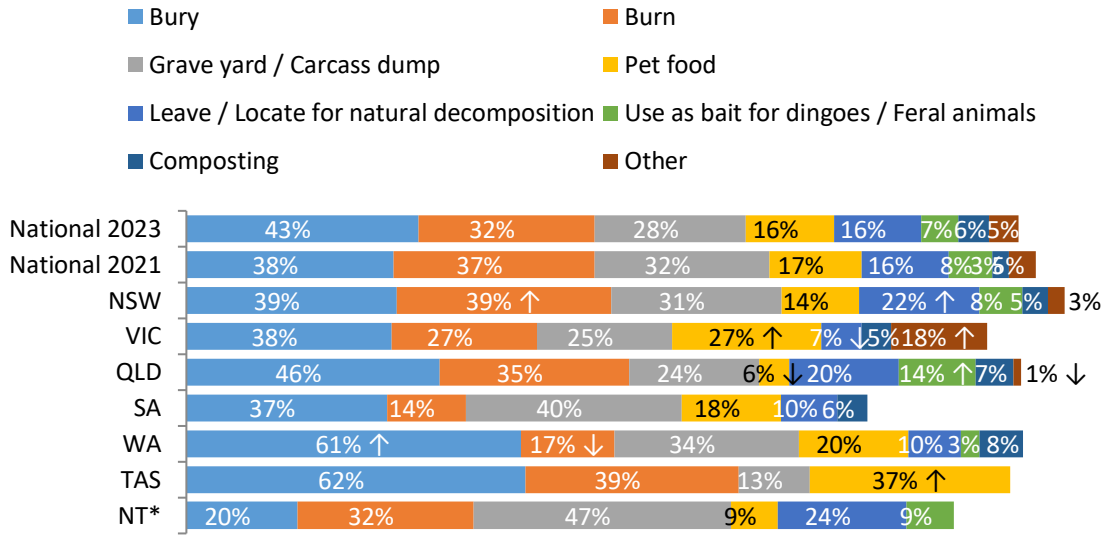
9.1: How do you euthanise injured or sick cattle?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 102: Carcass disposal methods by state

Base: All producers n = 813



9.2: How do you dispose of the carcasses?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

4.12 Quarantine process

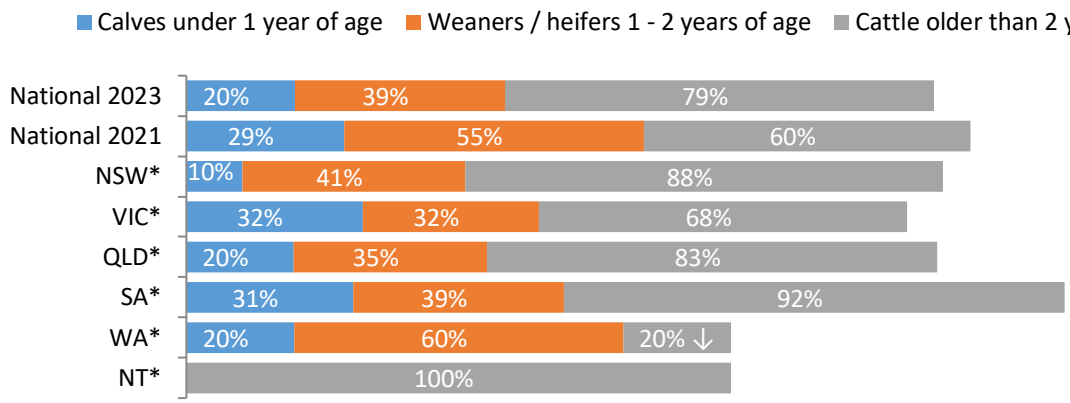
The majority of producers (82%, in line with 78% in 2021) quarantine sick or injured cattle. 65% (69%) of producers introduce new stock to their farms and 84% (82%) of these producers have a quarantine process for all of these introduced animals.

For producers who had a quarantine process in place, most chose to quarantine animals 1 -2 years old and cattle older than 2 (39% (55%) and 79% (60%) respectively). One fifth (20% versus 29% in 2021) also chose to quarantine calves under one year old (**Figure 104**).

The most common quarantine process used in all states is isolation (88% nationally, unchanged from 2021). Northern Territory producers were significantly less likely to isolate (48%), while Western Australian and Victorian producers were less likely to tag or brand cattle (20% and 25% respectively). Queenslanders were more likely to check for lice and ticks (47%), while Victorians were less likely to do so (16%). New South Wales producers were more likely to vaccinate (60% compared to 49% nationally) (**Figure 105**).

Figure 103: Introduced classes with a quarantine process

Base: Producers who have a quarantine process for only some classes of cattle n = 53



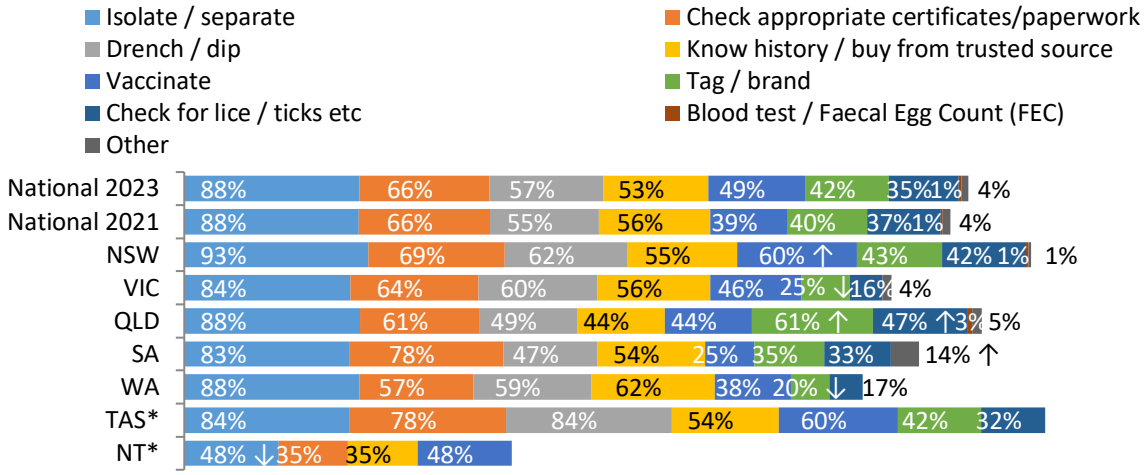
10.4: What classes of introduced cattle do you have a quarantine process for?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 104: Quarantine practices by state

Base: Producers who have a quarantine process in place n = 499



10.5: Which of the following quarantine processes do you use for introduced livestock?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

4.13 Carbon activities

Half (50%, compared to 47% in 2021) of producers generate and use renewable energy. A further 14% (12%) of producers nationally stated that they use renewable energy bought from their energy retailer with 42% (45%) not generating or buying any renewable energy. Producers were allowed to select multiple responses and may use a combination of these (**Figure 106**).

Where producers who generate their own renewable energy, the majority (78%, similar to 81% in 2021) have solar without batteries. Slightly under a third (30% versus 26%) generated solar with a battery. A small portion (5%, compared to 7%) use wind energy. No producers use geothermal energy. 8% of producers in Tasmania use hydroelectric and 1% in Victoria use biomass. 2% of producers nationally generate and use another type of renewable energy (**Figure 107**).

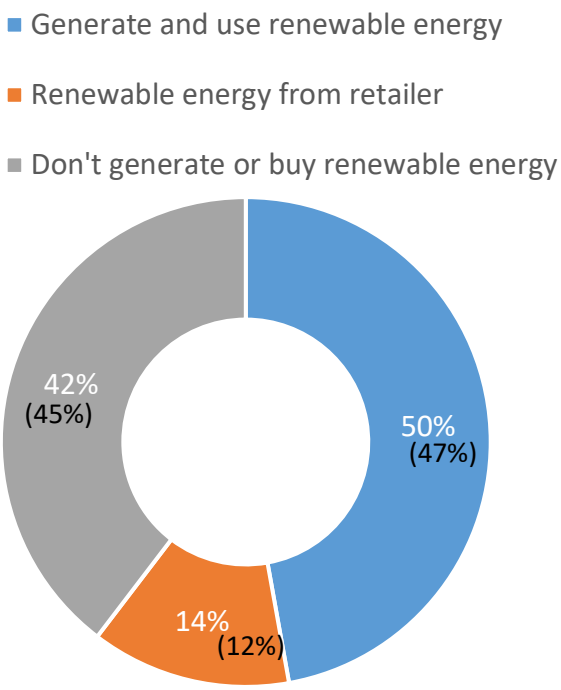
Producers had generally not taken carbon accounting training study (82%, similar to 88% in 2021) and did not measure their net greenhouse gas emissions produced in their operation using carbon calculator or another process (89% versus 96%) (**Figure 108**), however 64% (74%) did implement measures to reduce emissions.

Producers who did conduct emission reduction activities often selected more than one measure. Most producers (86%, very similar to 87% in 2021) used pasture management methods, but management systems and herd management were both popular techniques (69% and 67% respectively). Notably, Queensland producers used savanna burning management systems significantly more often than other states (13% compared to the national average of 4%) (**Figure 109**).

27% of producers who had undertaken an initial carbon account on their properties went on to take a second or subsequent account, with around half (51%) finding their emissions had decreased by an average of 21%. 46% found their emissions remained unchanged (**Figure 110**).

Figure 105: Renewable energy generation and use

Base: All producers n = 813



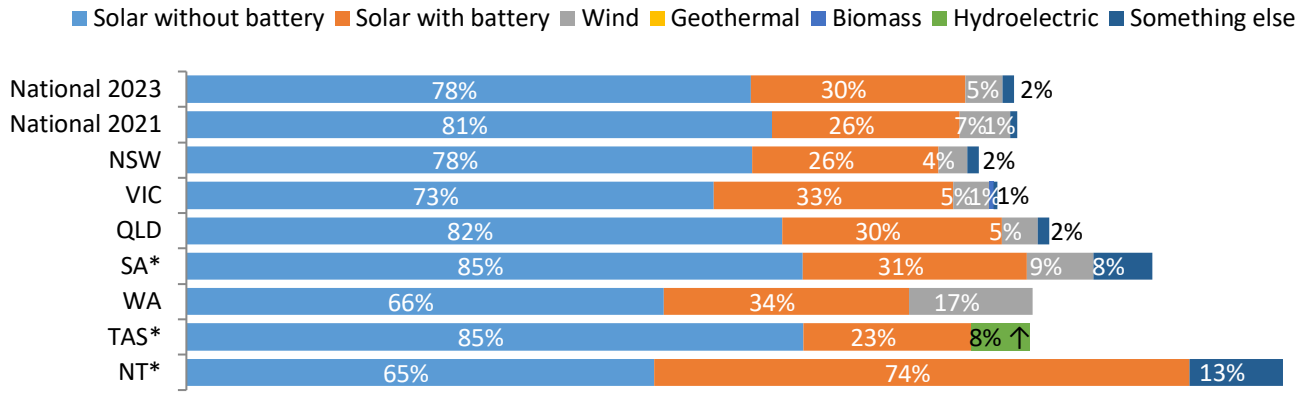
11.1: Which of the following best describes your use of renewable energy on your farm?

2021 results in brackets

NB. Multiple responses allowed

Figure 106: Renewable energy generation methods

Base: Producers who generate their own renewable energy n = 140



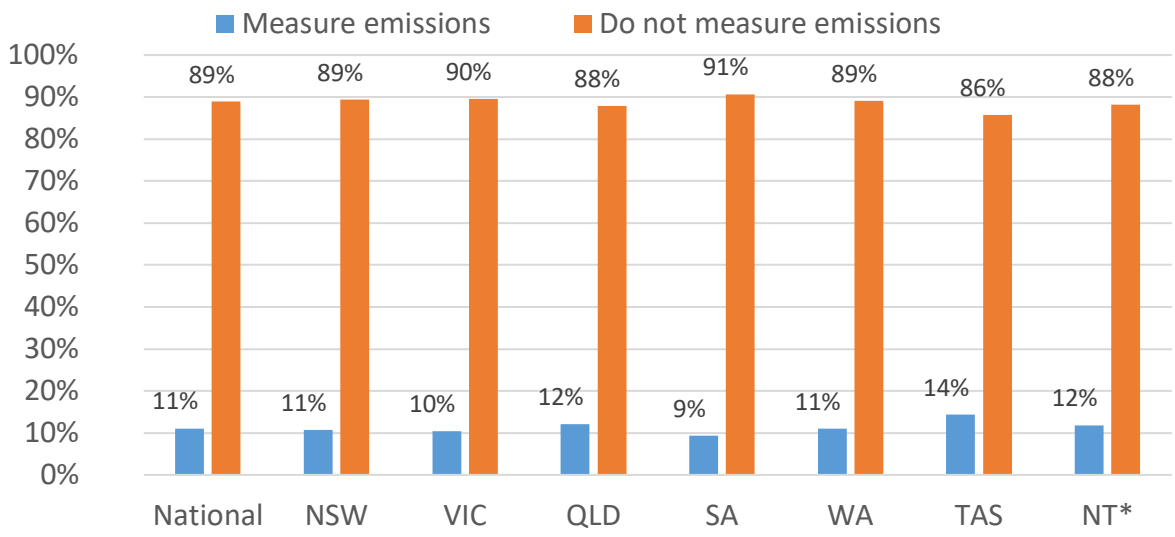
11.2: Which of the following types of renewable energy do you generate and use on your farm?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 107: Estimation of net GHG emissions

Base: All producers n = 813

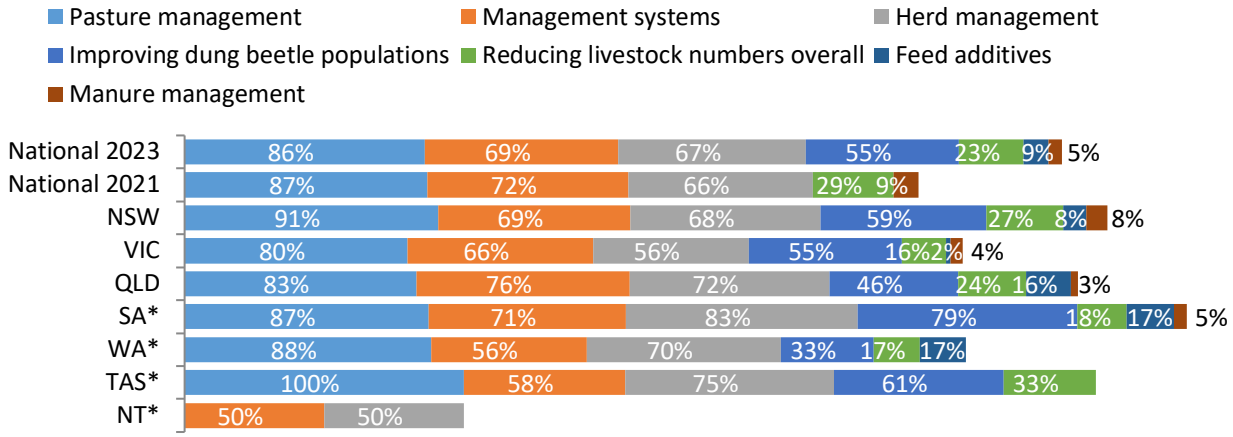


11.4 Do you estimate the net greenhouse gas emissions produced in your operation using carbon calculator or another process?

* Small sample (less than 20 producers)

Figure 108: Implementation of emissions reduction measures

Base: Producers who implement emissions reduction measures n = 293



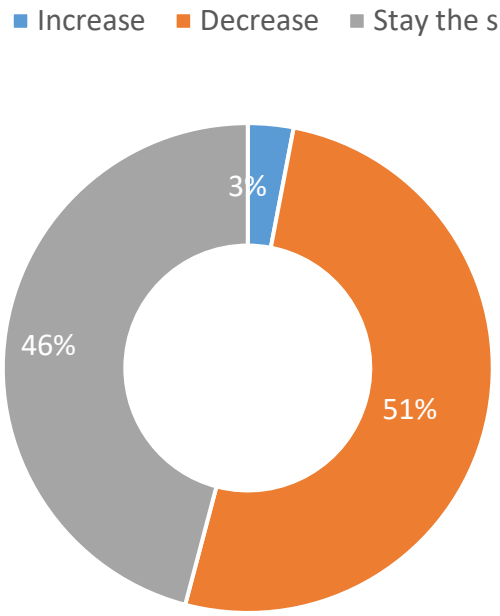
11.6: Which of the following activities have you implemented?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 109: Change in GHG emissions

Base: Producers who measured GHG emissions n = 30



11.8: Did your net GHG emissions increase, decrease or stay the same from your initial measurement?

4.14 Biodiversity and land and water management

Producers undertake an array of land management activities on their properties across an average of 3,614 hectares, with weed control (88%), control of pest animals (65%) and destocking (55%) undertaken by the majority of respondents (**Figure 111**). There were many significant differences by state (refer to the Details of land management activities appendix for details).

Nationally, 55% of producers undertook land management activities across 80% to 100% on their properties (**Figure 112**). South Australian and Northern Territory producers were significantly more likely than other states to undertake these activities on 0 to 19% of their land (33% and 68% respectively, compared to 15% nationally).

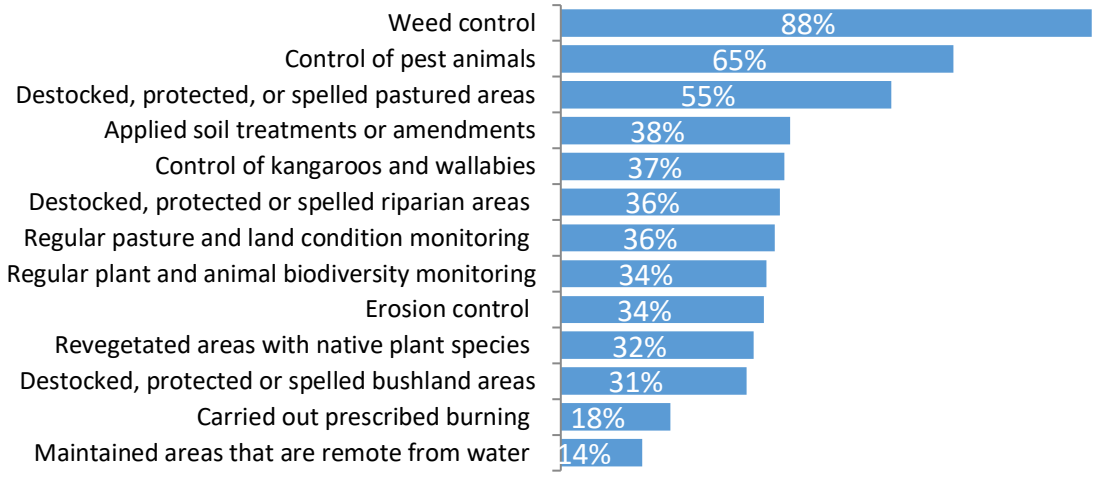
Most producers undertake grazing management activities such as fencing for spelling (71%), fencing by land type (64%), providing water away from natural water features (61%) and fencing off waterways (50%) (**Figure 113**). Victorian producers (63%) are significantly more likely to fence waterways compared to the national average. These activities are undertaken on an average of 2,659 hectares, with 47% of producers undertaking these practices across 80% to 100% of their land (**Figure 114**). Northern Territory based producers were significantly more likely to undertake these practices on 0 -19% of their land (80%).

Over three quarters (78%) of producers source water for their cattle from surface water such as dams (**Figure 115**), with South Australian producers significantly less likely to use this source (45%). Groundwater is also commonly used, with 57% of producers using this source. Groundwater use was most prevalent in Queensland (75%) and less common in New South Wales (49%) and Victoria (44%). Use of scheme water was low nationally (5%) and most common in South Australia (19%).

The vast majority (91%) of producers had a plan for managing their farm and cattle during extreme weather (**Figure 116**), although Western Australian producers were significantly less likely to have a plan (78%). Almost all producers (96%) stated that their stock water supplies can withstand prolonged dry periods (**Figure 117**), although only three quarters (78%) were able to increase stock water if needed (**Figure 118**). Nationally, two thirds (66%) of producers said they managed their pastures to have diverse, drought resistant species (**Figure 119**), and this increased to 73% of New South Wales producers. Victorian producers were less likely to use this management practice, with only 53% doing so.

Figure 110: Land management activities undertaken

Base: All producers n = 813

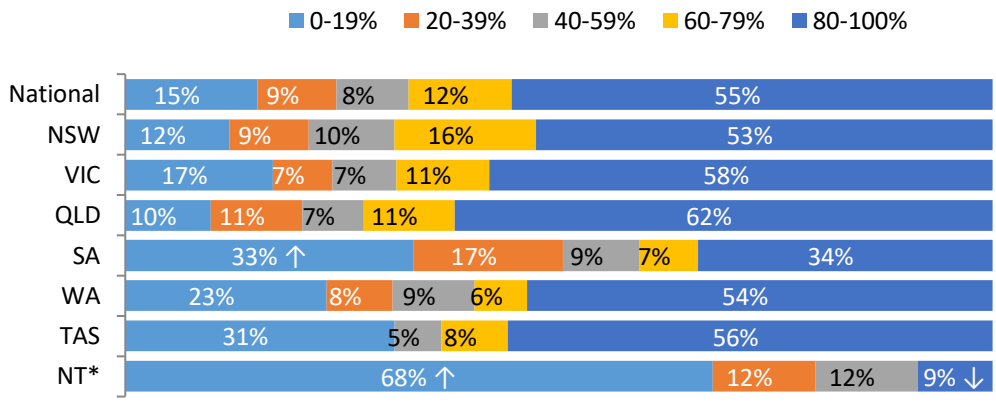


12.1: Which of the following land management activities did you undertake on your property/ies in 2023?

NB. Multiple responses allowed

Figure 111: Land area on which land management activities are undertaken

Base: All producers n = 813

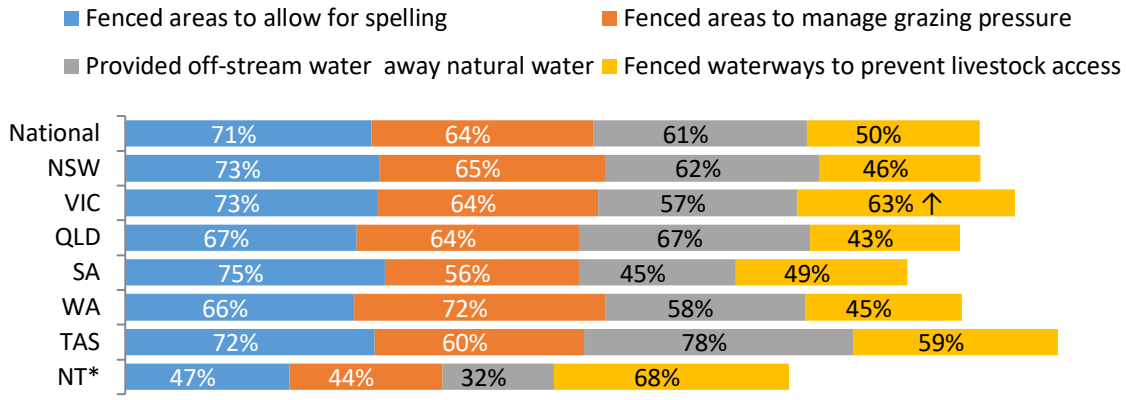


12.2: Of the total area of your property, what is the total area that you carried out these land management activities on, or the area that directly benefited from these activities?

* Small sample (less than 20 producers)

Figure 112: Grazing management activities undertaken

Base: All producers n = 813



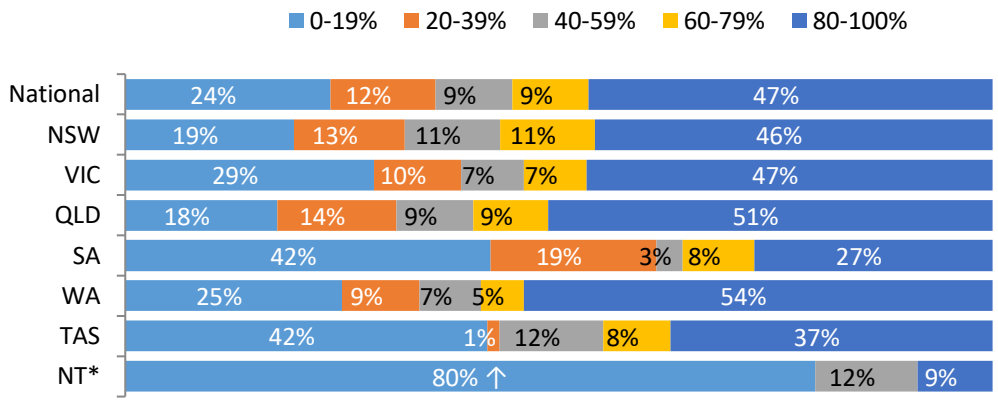
12.3: Have you previously (in 2023 or earlier) undertaken any of the following grazing management activities on your property/ies?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 113: Total area on which grazing management activities undertaken

Base: All producers n = 813

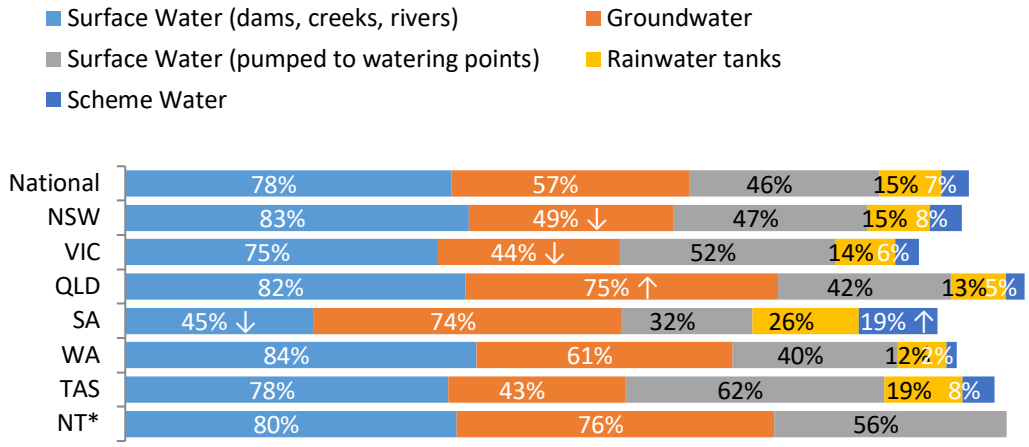


12.4: Of the total area of your property, what is the total area that you carried out these grazing management activities on, or the area that directly benefited from these grazing management activities?

* Small sample (less than 20 producers)

Figure 114: Cattle water source

Base: All producers n = 813



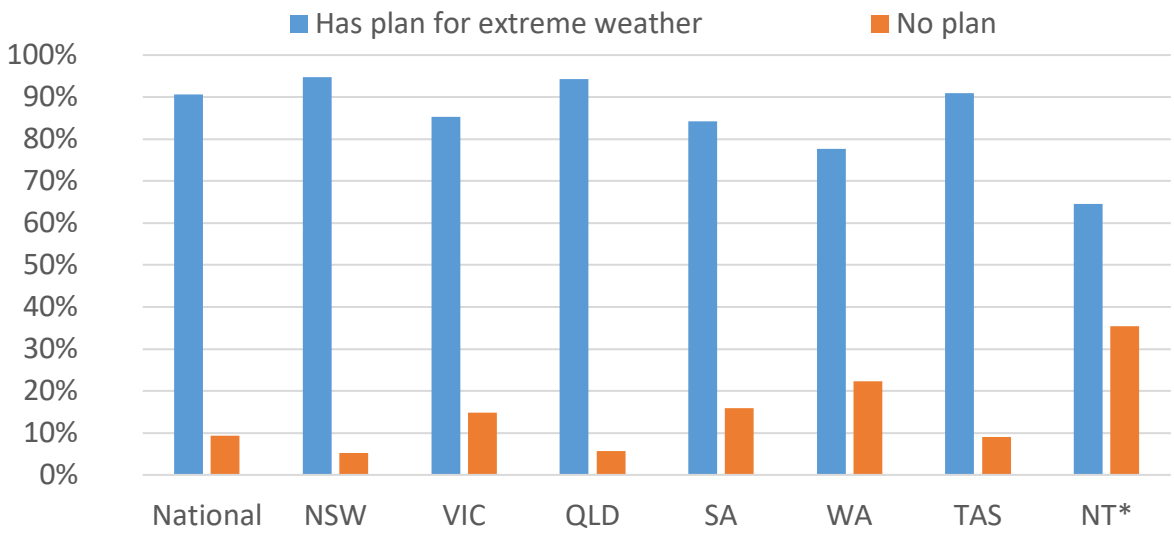
12.5: What is the source of water for your cattle?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 115: Plans for managing farm and cattle in extreme weather

Base: All producers n = 813

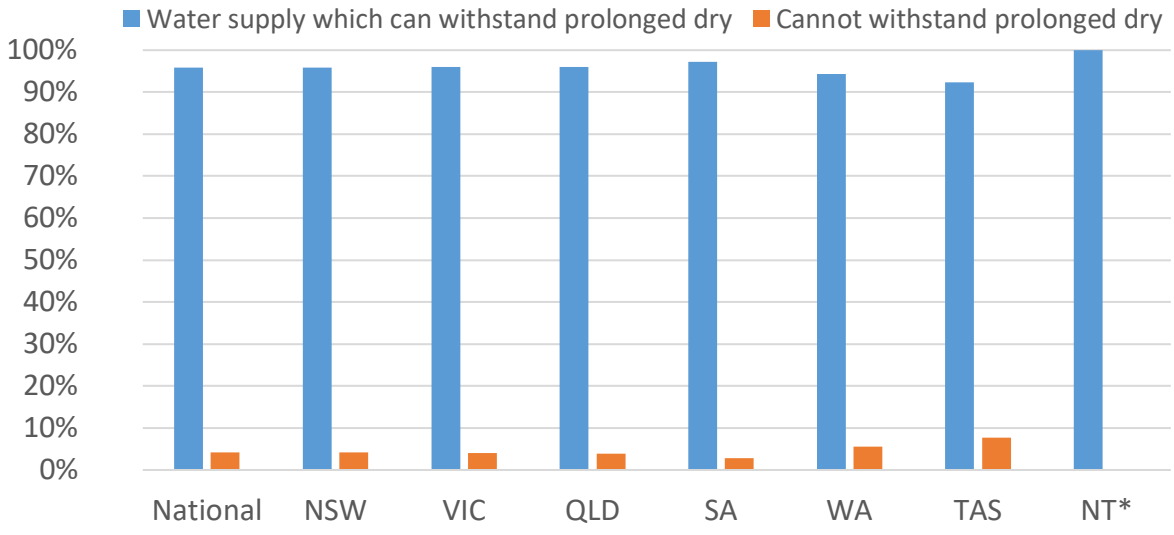


12.6: Do you have a plan for managing the farm and your cattle during extreme weather e.g. droughts, extreme heat events and floods?

* Small sample (less than 20 producers)

Figure 116: Ability of stock water supply to withstand prolonged dry periods

Base: All producers n = 813

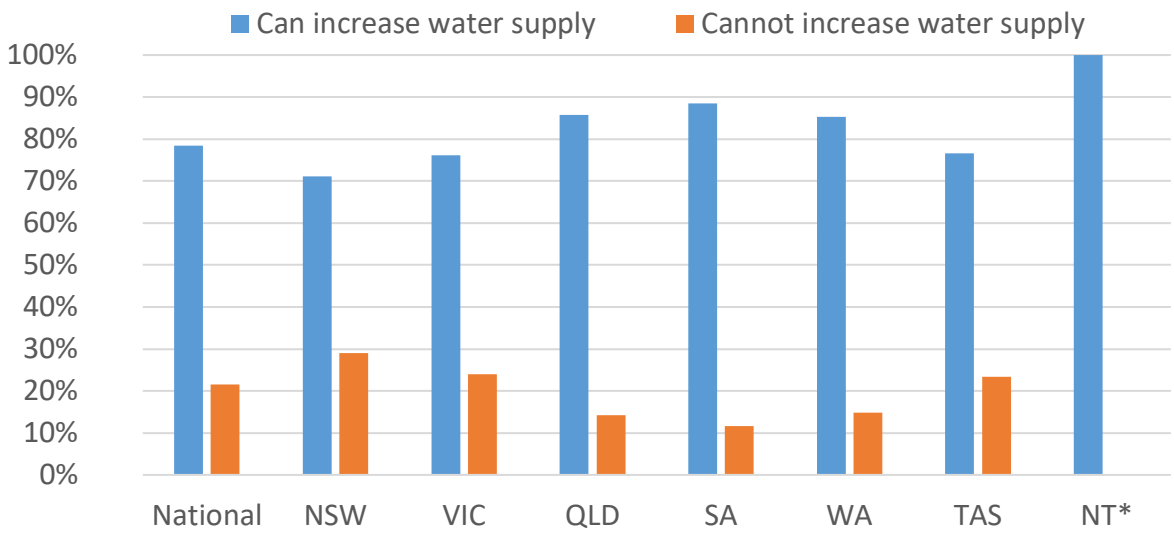


12.7: Can your stock water supply withstand prolonged dry periods?

* Small sample (less than 20 producers)

Figure 117: Ability to increase stock water supply

Base: All producers n = 813

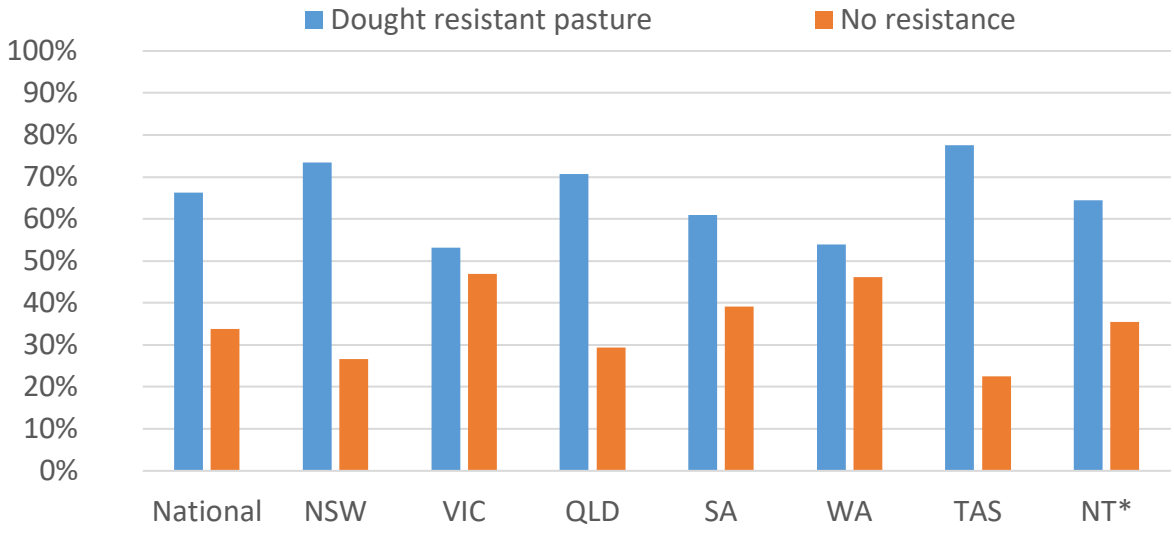


12.8: Can you increase stock water supply if needed?

* Small sample (less than 20 producers)

Figure 118: Pastures managed to have diverse, drought resistant species

Base: All producers n = 813



12.9: Do you manage your pastures to have diverse drought resistant species?

* Small sample (less than 20 producers)

4.15 Soil management

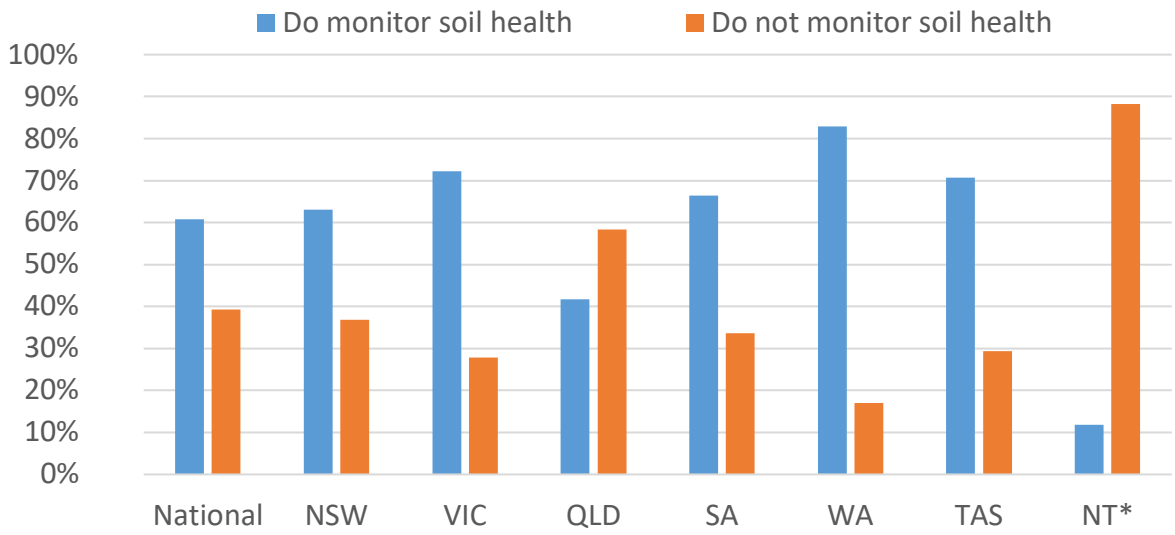
Nearly two thirds (61%) of producers test and monitor their soil health, with significantly more Victorian and Western Australian (72% and 83% respectively), and significantly fewer Queensland producers doing so (42%) (**Figure 120**).

Among producers who do test and monitor soil health, three quarters (75%) utilise lab tests, 41% test on-farm and 31% measure groundcover percentages (**Figure 121**). However, significantly fewer Western Australian producers measure groundcover percentages (13%).

More than two thirds (69%) of producers have changed practices based on monitoring of their soil health (**Figure 122**), and the majority of producers (81%) undertake practices to improve soil water retention (**Figure 123**).

Figure 119: Testing and monitoring of soil health

Base: All producers n = 813

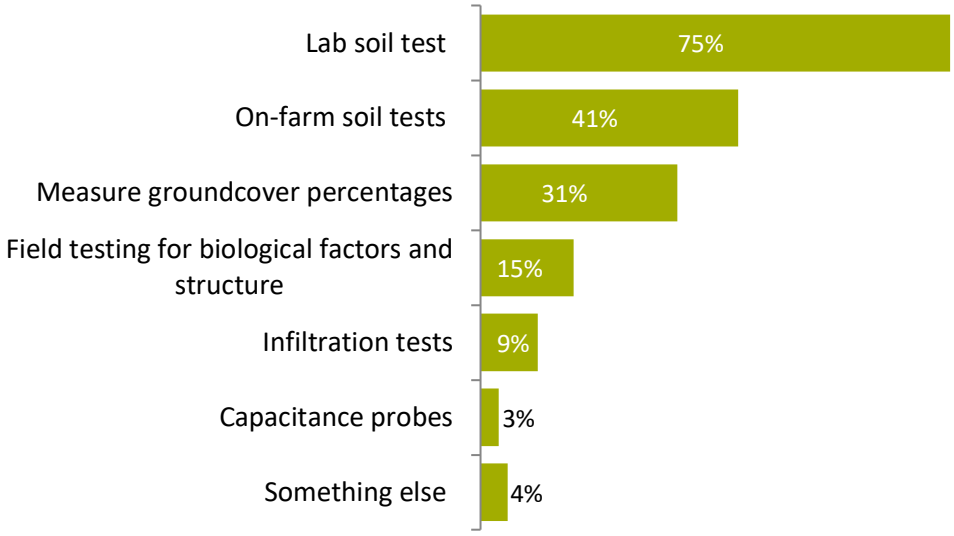


13.1: Do you test and monitor your soil health (excluding soil carbon)?

* Small sample (less than 20 producers)

Figure 120: Method of testing and monitoring of soil health

Base: Producers who test and monitor soil health n = 504

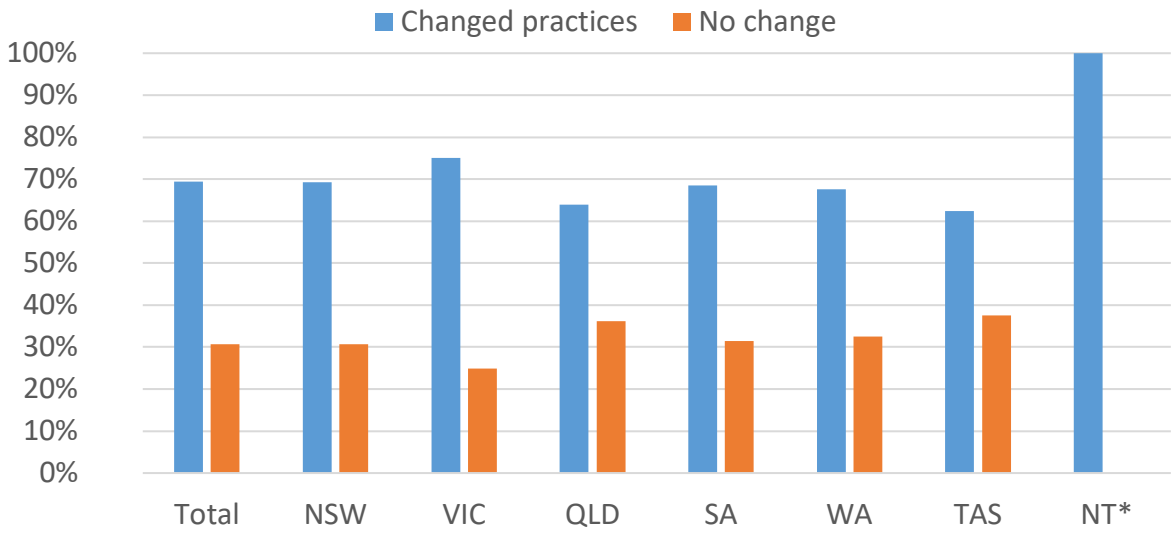


13.2: How do you test and monitor your soil health?

NB. Multiple responses allowed

Figure 121: Changes in practices following testing and monitoring of soil health

Base: Producers who test and monitor soil health n = 504

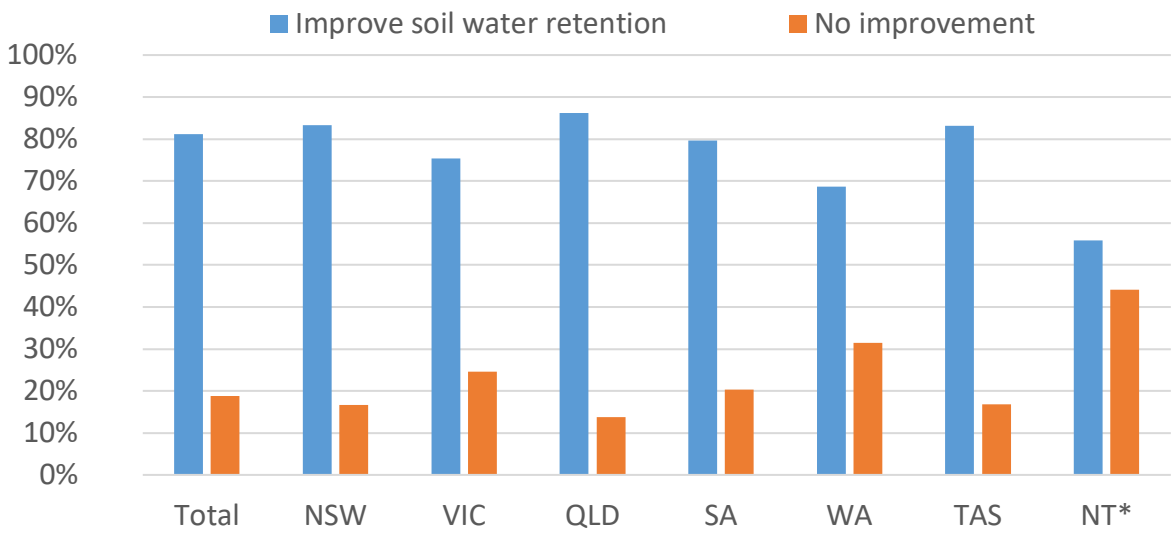


13.3: Have you changed practices based on the monitoring of your soil health?

* Small sample (less than 20 producers)

Figure 122: Improvements to soil water retention

Base: All producers n = 813



13.4: Did you undertake practices to improve your soil water retention?

* Small sample (less than 20 producers)

4.16 Waste management

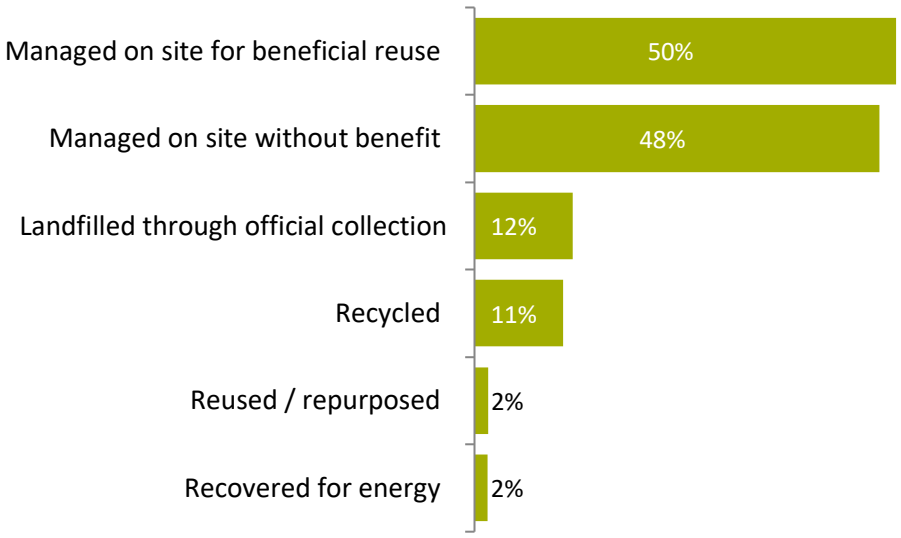
Waste management strategies were dependant on the type of waste, with little variation between states. Organic waste was primarily managed on site, both for beneficial reuse (50%) and without benefit (48%) (**Figure 124**).

Plastic waste (**Figure 125**) was often sent to landfill (61%) or recycled (45%), with one-fifth (20%) of producers saying they managed plastic waste on site. South Australian producers were significantly less likely to send plastic waste to landfill (35%) compared to other states.

The majority of producers sent workshop waste for disposal offsite, with 64% sending it for recycling and 51% sending it to official landfill (**Figure 126**). Slightly under a quarter (22%) managed workshop waste onsite. Victorian producers were more likely to recycle workshop waste (76%) than other states.

Figure 123: Management of organic waste

Base: All producers n = 813

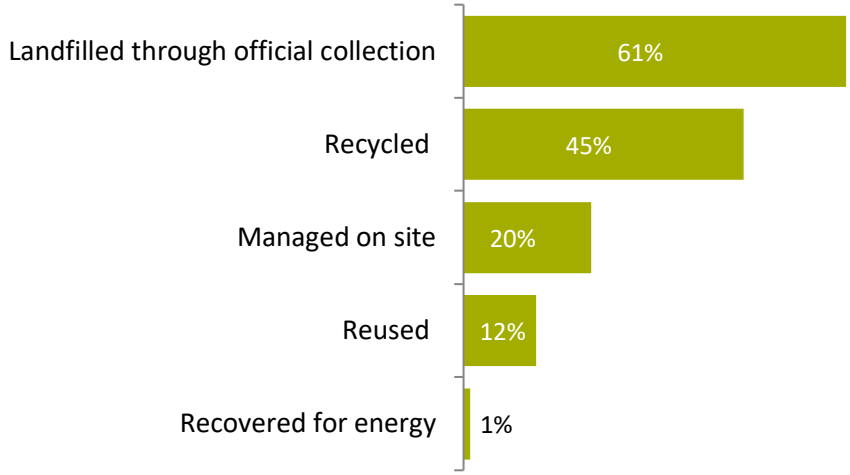


14.1: For waste on your property, which of the following best describes your management of organic waste

NB. Multiple responses allowed

Figure 124: Management of plastic waste

Base: All producers n = 813

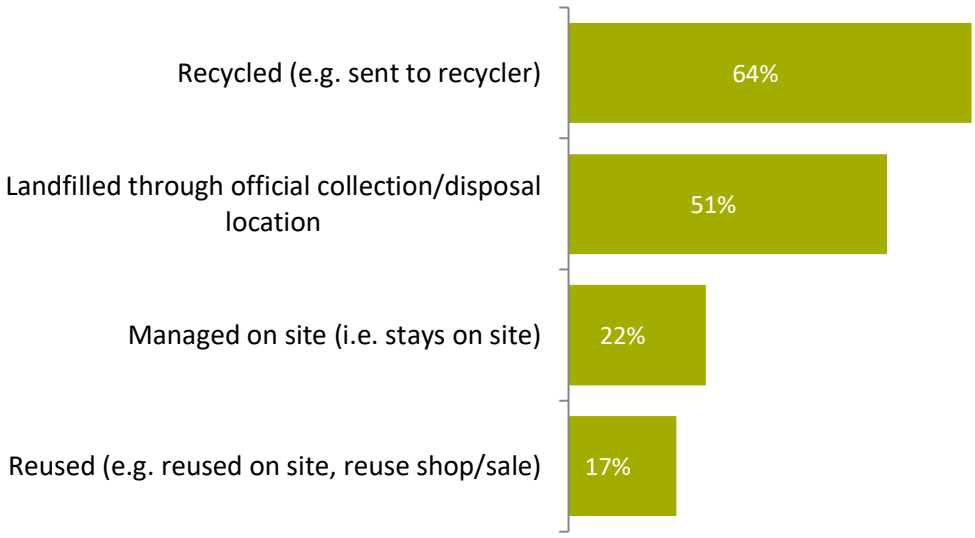


14.2: For waste on your property, which of the below best describes your management of plastic waste

NB. Multiple responses allowed

Figure 125: Management of workshop waste

Base: All producers n = 813



14.3: For waste on your property, which of the below best describes your management of workshop waste

NB. Multiple responses allowed

4.17 Training and Workplace Health and Safety (WHS)

Producers cited a combination of sources for their animal husbandry training. The majority of producers have had informal training with 83% (80% in 2021) citing that this had been shown to them by someone else and 52% (unchanged) saying they had been self-taught. 48% (unchanged) also stated that they had attended formal training. An additional 2% circumvented a lack of knowledge by using contractors (**Figure 127**).

Most producers interviewed (83% similar to 80% in 2021) stated that they obtained formal animal husbandry training through a variety of courses, workshops, and field days (**Figure 128**). 39% (31%) obtained a degree or attended an Ag college with 28% (25%) holding a TAFE or Ag Certification. 31% (unchanged) of producers took specific courses on AI, pregnancy testing or spaying, with 38% (37%) attending a low stress livestock handling course. 5% (8%) of producers had completed a farm apprenticeship and a further 12% (unchanged) stated that they had had other formal training.

Around half of producers (51%) have a WHS plan (**Figure 129**), with Tasmanian and Queensland producers significantly more likely to have a plan (78% and 60% respectively) and Victorian producers significantly less likely (40%).

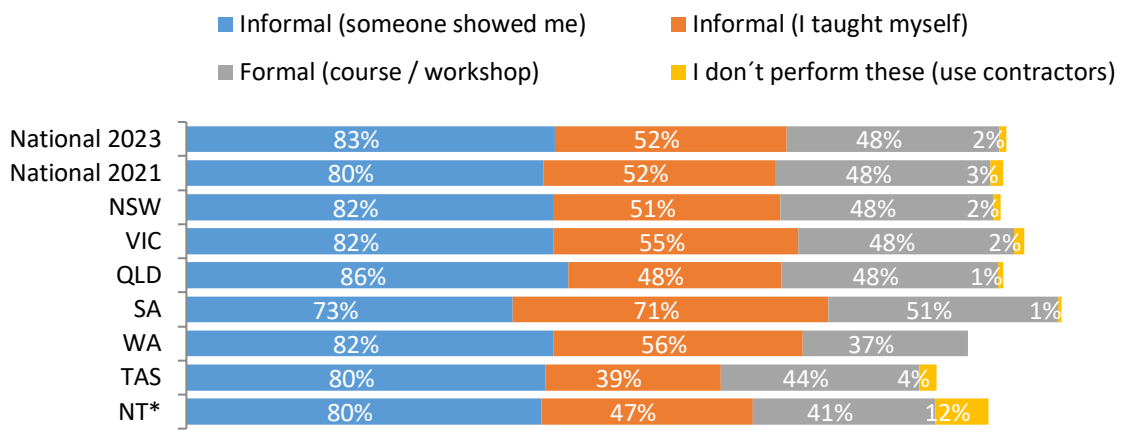
Almost two thirds (63%) of producers undertake WHS risk assessments, and almost half (47%) induct their workers in WHS obligations. Queensland producers were significantly more likely to induct workers (54%). 42% induct visitors in WHS obligations.

More than two thirds (70%) of producers encourage workers to identify safety concerns, although Victorians are significantly less likely to do this (60%).

Almost half (48%) of producers exclude children from farming activities. Almost three quarters (73%) have roll over bars on appropriate vehicles, with Victorian producers significantly more likely to use these (84%) and South Australian and Northern Territory producers significantly less likely to use roll bars (54% and 32%, respectively).

Figure 126: Animal husbandry education

Base: All producers n = 813



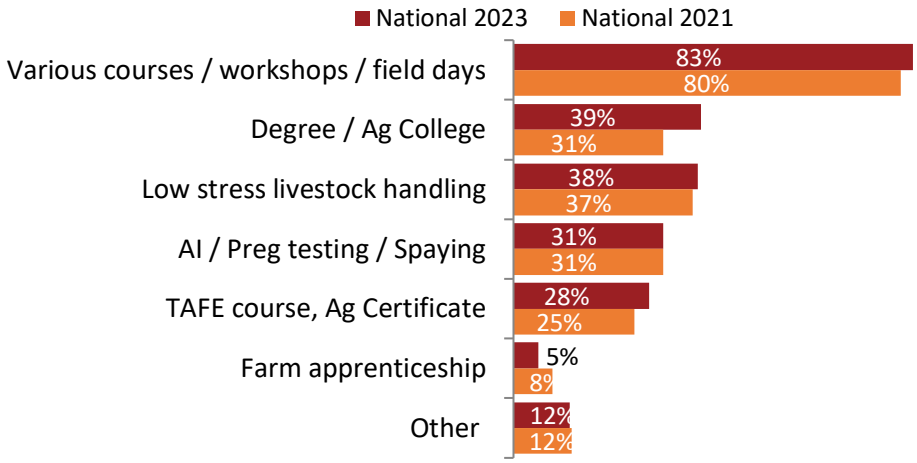
15.1: How did you learn to perform the various animal husbandry practices undertaken on farm?

* Small sample (less than 20 producers)

NB. Multiple responses allowed

Figure 127: Courses in animal husbandry taken

Base: Producers who undertook formal husbandry training n = 409

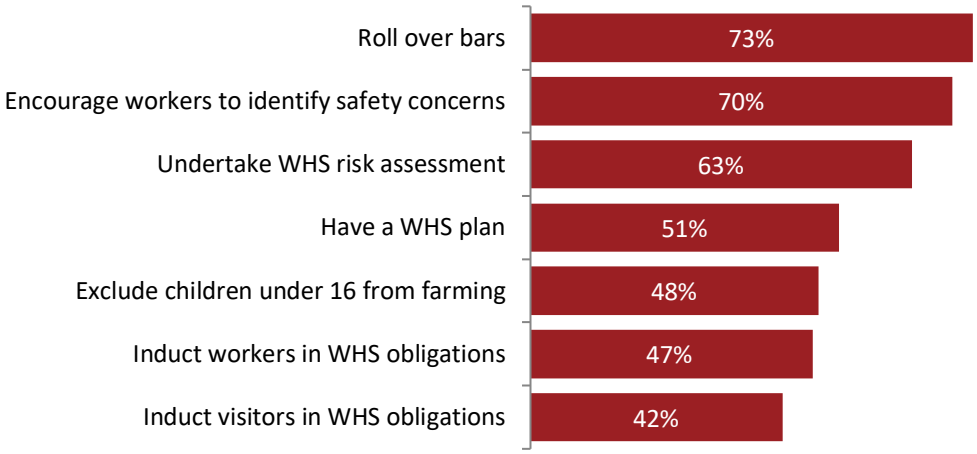


15.2: What course or workshops did you attend to learn about these practices?

NB. Multiple responses allowed

Figure 128: Workplace Health and Safety (WHS) practice implementation

Base: All producer n = 813



15.3: Do you have, or are you doing, any of the following in regards to Workplace Health and Safety (WHS) on your farm?

5. Comparison with 2010, 2016 and 2021 Results

Where relevant, comparisons have been made between the survey results in 2010, 2016, 2021 and 2023. These results are shown in tables **Table 2** to **Table 12** below.

Calving and Weaning
In the 2023 survey, 96% of breeding cattle producers checked their heifers following calving and 97% checked their cows. This is up from 94% and 91% respectively in 2021 and 84% and 79% respectively in 2016 (**Table 2**). The incidence of checking heifers daily has increased from 26% to 29% and checking cows from 29% to 38%.

Table 2: Checking heifers and cows after calving

	2010		**2016**		**2021**		**2023**	
	Heifers	Cows	Heifers	Cows	Heifers	Cows	Heifers	Cows
Producers checking cattle following calving	NA	NA	84%	79%	94%	91%	96%	97%
3 times per day	NA	NA	8%	3%	16%	6%	16%	5%
Twice a day	NA	NA	21%	9%	32%	16%	38%	13%
Daily	NA	NA	27%	26%	23%	29%	26%	38%
Twice a week	NA	NA	16%	20%	9%	17%	8%	20%
Weekly	NA	NA	9%	16%	9%	17%	7%	14%
Every two weeks	NA	NA	2%	3%	2%	4%	1%	4%
Monthly	NA	NA	-	1%	1%	3%	NA	2%
Greater than once per month	NA	NA	1%	1%	1%	1%	NA	NA
Don’t check	NA	NA	16%	21%	6%	9%	4%	3%

Weaning

Weaning methods used in 2023 are consistent with 2021. In addition, average days for stock kept in a holding paddock or yard remained stable between 2016 and 2023 **(Table 3)**.

Table 3: Weaning method and time

	2010	2016	2021	2023
Method				
Holding paddock / yard	NA	81%*	85%	82%
Open paddock	NA	13%*	16%	16%
Onto truck for sale	NA	6%*	15%	17%
Average days kept in holding paddock / yard				
Up to 7 days	NA	53%	51%	52%
8 – 14 days	NA	36%	36%	35%
15 days or more	NA	11%	12%	14%

*Single response in 2016

Identification

Use of NLIS (85%) and non-electronic management tags (67%) in 2023 remained stable at 2021 levels. Use of earmarking (32%) and hot iron branding (28%) continues to trend downwards but were still above 2010 levels (30% and 25% respectively) **(Table 4)**.

Table 4: Identification methods

	2010	2016	2021	2023
NLIS Tag (electronic)	75%	91%	86%	85%
Management Tag (non-electronic)	27%	63%	62%	67%
Earmark	30%	51%	40%	32%
Hot Iron Brand	25%	45%	31%	28%
Freeze Brand	1%	3%	4%	3%

Castration

The use of rubber rings for castrating calves has increased consistently from 41% in 2010 to reach 69% in 2023. In contrast, the use of knife and scalpel has declined from 60% in 2010 to 33% in 2023 (**Table 5**).

Table 5: Calf castration methods

	2010	2016**	2021	2023
Knife*	41%	18%	40%*	33%
Scalpel*	19%	27%		
Rubber Rings	41%	51%	65%	69%
Cryptorchid / Short Scrotum	0%	0%	3%	3%
Burdizzo	3%	2%	2%	3%
Tension Bander	1%	1%	4%	3%

*Knife and Scalpel have been combined since 2021

**Single responses in 2016

Dehorning

Scoop or cup dehorners remained the main calf dehorning method in 2023 (55%), a level consistent with 2021 and 2016 (**Table 6**).

Table 6: Calf dehorning methods

	2010	2016	2021	2023
Scoop or cup dehorners	68%	55%	55%	55%
Gouging knife	23%	30%	7%	5%
Hot iron / heat cauterising	6%	4%	10%	11%
Knife	NA	4%	15%	14%
Guillotine	3%	1%	4%	4%
Tippers / Cutter	3%	1%	6%	6%
Dehorners (various)	NA	3%	-	-
Other	NA	1%	3%	4%

Spaying

The incidence of spaying remained low, with only 2% for heifers and 2% for cows spayed in 2023 (**Table 7**). Spaying sample sizes are small however and this difference is not likely to be significant. The Willis Dropped technique remained the primary method in 2023.

Table 7: Spaying incidence and methods

	2010		2016		2021*		2023*	
	Heifers	Cows	Heifers	Cows	Heifers	Cows	Heifers	Cows
Producers Spaying	7%	4%	9%		3%	2%	2%	2%
Willis Dropped Method*	62%	58%	91%	68%	77%	56%	79%	42%
Flank and removal*	22%	18%	2%	0%	5%	15%	14%	14%
Flank and webbed*	17%	5%	4%	19%	8%	15%	5%	6%
Passage*	NA	20%	2%	13%	NA	NA	NA	NA
Use pain management	NA	NA	2%		9%		15%	

*Small sample sizes

Drenches and Vaccines

The overwhelming majority of producers (over 75%) treated their cattle for clostridial diseases in 2023, similar to the levels in previous years (**Table 8**). Treatment for other diseases such as Botulism and Bovine Ephemeral Fever were lower at the national level however as these diseases largely vary with geography, treatment levels in particular states and regions were higher.

Table 8: Drenches and vaccines

	2010	2016	2021	2023
Botulism	23%	26%	27%	23%
Clostridial Vaccines	74%	71%	76%	76%
Endoparasiticides	79%	75%	85%	NA
Ectoparasiticides	70%	68%	77%	NA
Bovine Ephemeral Fever (Three-Day Sickness)	8%	8%	10%	9%
Pestivirus (BVDV)	NA%	17%	23%	23%

Transport

The proportions of producers in 2023 applying a feed curfew to slaughter and non-slaughter stock and the length of time that the feed curfew is applied were consistent with 2021 (**Table 9**). For both slaughter and non-slaughter stock, the time that water curfews are applied for have decreased since 2021.

Table 9: Transport

	2010	2016	2021	2023
Slaughter Stock				
Feed Curfew – applied	67%	54%	54%	55%
Feed Curfew – time	10.5 hours	8.3 hours	8.3 hours	8.5 hours
Water Curfew – applied	47%	41%	29%	28%
Water Curfew – time	9.5 hours	7.7 hours	8.7 hours	7.5 hours
Transport time	3.4 hours	4.8 hours	3 hours	2.9 hours
Non - Slaughter Stock				
Feed Curfew – applied	45%	55%	41%	41%
Feed Curfew – time	9.9 hours	5.7 hours	7.5 hours	7.8 hours
Water Curfew – applied	36%	43%	27%	23%
Water Curfew – time	9.7 hours	7.9 hours	8.4 hours	6.5 hours
Transport time	2.9 hours	4.6 hours	2.9 hours	2.4 hours

Euthanasia and Disposal

The use of euthanise methods for injured and sick livestock is consistent with rates of use in 2021. As in previous years, the main disposal methods remain burial and burning (**Table 10** and **Table 11**).

Table 10: Euthanasia

	2010	2016*	2021	2023
Shoot	95%	95%	86%	86%
Vet	5%	2%	15%	16%
Knackery / Outside Agent	1%	3%	16%	17%
Captive Bolt	NA	NA	2%	2%

*Single response in 2016

Table 11: Disposal

	2010	2016*	2021	2023
Bury	46%	40%	38%	43%
Burn	44%	30%	37%	32%
Pet Food	14%	9%	17%	16%
Leave / Natural Decomposition	6%	13%	16%	16%
Local Council Tip	3%	NA	NA	NA
Graveyard / Carcass Dump	2%	5%	32%	28%
Use as bait	2%	1%	8%	7%
Depends on time of year/cause of death	NA	1%	NA	NA

*Single response in 2016

Quarantine

The proportion of cattle producers who quarantine all classes of cattle coming onto the farm has slightly increased from 2021 to 2023. There has been a corresponding decline in the percentage of producers who do not quarantine at all or who quarantine only some classes of cattle (**Table 12**).

Table 12: Quarantine

	2010	**2016**	**2021**	**2023**
Producers buying in cattle	NA	77%	69%	65%
Quarantine all classes of cattle	NA	56%	82%	84%
Quarantine some classes of cattle	NA	16%	9%	8%
No quarantine	NA	27%	10%	8%

6. Conclusion and recommendations

6.1 Conclusions

The conclusion from the research is that cattle producers are adopting a range of practices and behaviours that contribute towards the sustainability of the Australian beef industry. These include:

1. Cattle husbandry practices such as identification, castration, dehorning, spaying, vaccination and drenching;
2. Management strategies and standards related to animal welfare, quarantine processes, land and water management, training; and
3. Environmental strategies including renewable energy, soil monitoring, waste management, carbon accounting and emissions measurement and reduction.

While the researchers cannot conclude whether the adoption of relevant behaviours and strategies identified in this survey are at an acceptable level to meet the cattle industry's specific sustainability objectives, the research has provided the tracking data and compared it to the data obtained in 2021 and earlier surveys to guide MLA's investment and project planning initiatives targeted at cattle producers.

6.2 Recommendations

1. Develop strategies to address the main barriers to adoption of sustainable practices

The research has identified the main reasons why producers are not adopting a range of practices covered by the ABSF. These include barriers to the use of pain management for various animal husbandry practices, booster vaccinations and feed and water curfews among others. The research has also identified the reasons why producers chose many of the practices they employ. The reasons given may indicate attitudes and misconceptions about particular practices. These barriers and reasons that prevent adoption of sustainable practices can be used by MLA to develop message content and message delivery strategies to improve uptake of sustainable industry practices and meet the objectives of the ABSF.

2. Repeat the full survey every two years to track industry progress

It is recommended to continue to repeat the comprehensive, large-scale survey every two years. This will provide an accurate assessment of change across different groups of cattle producers and better guidance for MLA's strategy refinement.

3. Expand the profile of MLA's Member database

The effectiveness of MLA's communication and extension activities could be enhanced by continuing to target specific demographic groups within the industry. This could be achieved by continuing to add more fields to MLA's Member database (to be populated over time) that record key metrics of members. While these variables change over time, if they are regularly updated through MLA correspondence and surveys, they will provide a useful means of identifying and targeting particular groups or segments for communication, for example, herd size and farm size. Age and education could also be considered.

Appendices

Details of land management activities

	Total	NSW	VIC	QLD	SA	WA	TAS	NT
Weed Control	88%	93% ↑	89%	85%	75% ↓	86%	88%	88%
Control of pest animals (e.g. wild dogs, dingoes, foxes, cats, pigs, horses, cane toads)	65%	70%	52% ↓	74% ↑	58%	68%	44%	47%
Destocked, protected, or spelled pastured areas	55%	62% ↑	39% ↓	68% ↑	44%	34% ↓	41%	35%
Control of kangaroos and wallabies to better manage total grazing pressure	37%	37%	32%	33%	35%	69% ↑	65% ↑	12%
Applied soil treatments or amendments other than fertilisers (e.g. lime, dolomite, gypsum, compost, green manure crops, biochar)	38%	39%	50% ↑	21% ↓	42%	58% ↑	49%	0%
Destocked, protected or spelled riparian areas and other natural water features	36%	37%	33%	42%	33%	19% ↓	33%	56%
Regular pasture and land condition monitoring (through photos or documenting change)	36%	34%	33%	41%	39%	26%	36%	12%
Regular plant and animal biodiversity monitoring	34%	31%	27%	42% ↑	42%	26%	46%	12%
Erosion control such as construction of contour banks, deep ripping etc	34%	33%	26%	51% ↑	9% ↓	23%	13% ↓	0%
Destocked, protected or spelled bushland areas	31%	27%	28%	38% ↑	31%	31%	24%	12%
Revegetated areas with native or indigenous plant species by either direct seeding of plating seedlings (including windbreaks, shelterbelts, around dams, or within pastures)	32%	31%	47% ↑	15% ↓	58% ↑	23%	48%	0%
Carried out prescribed burning to reduce weeds, control regrowth, or improve pasture condition	18%	22%	5% ↓	29% ↑	6%	11%	11%	35%
Maintained areas that are remote from reliable sources of water for livestock	14%	13%	10%	14%	20%	17%	22%	12%

Sampling

Table 13: State and herd size quotas and samples

	50 – 399 head		400 – 1,599 head		1,600 + head		Total	
State	Quota	Sample	Quota	Sample	Quota	Sample	Quota	Sample
NSW	205	223	51	36	7	6	263	265
VIC	146	147	19	21	3	2	168	170
QLD	105	154	48	54	64	27	217	235
SA	13	35	24	7	13	1	50	43
WA	28	46	13	12	5	5	46	63
TAS	25	23	4	4	2	1	31	28
NT	-	-	-2	2	24-	7	25	9
Total							**800**	**813**

Due to the small number of producers in the NT and the difficulty in contacting them and gaining their participation (despite multiple contacts), a final sample of only 9 NT producers was possible. Results for the NT should therefore be treated with caution.

Table 15: Margin of error for survey results based on different sample sizes*

	Survey Result									
Sample	**5%/95%**	**10%/90%**	**15%/85%**	**20%/80%**	**25%/75%**	**30%/70%**	**35%/65%**	**40%/60%**	**45%/55%**	**50%**
25	7	10	12	13	14	15	16	16	16	16
50	5	7	8	9	10	11	11	11	12	12
75	4	6	7	8	8	9	9	9	9	9
100	4	5	6	7	7	8	8	8	8	8
200	3	3	4	5	5	5	6	6	6	6
300	2	3	3	4	4	4	5	5	5	5
400	2	2	3	3	4	4	4	4	4	4
500	2	2	3	3	3	3	3	4	4	4
600	1	2	2	3	3	3	3	3	3	3
700	1	2	2	2	3	3	3	3	3	3
800	1	2	2	2	2	3	3	3	3	3

*Based on 90% confidence level, consistent with MLA's 2021 and 2016 surveys

As a guide to interpretation, a survey result of 30% from a sample of 813 respondents (eg National) would have a margin of error of 3 percentage points, that is, you are 90% confident that the true answer would lie between 27% and 33%. A result of 30% from a sample of 235 respondents (eg Queensland) would have a higher error of plus / minus 5% (ie 25% - 35%).

Survey questions

Section 1: Demographic Screeners

S1	Which state is your main cattle enterprise located?		
	NSW	1	***CHECK QUOTA***
	VIC	2	
	QLD	3	
	SA	4	
	WA	5	
	TAS	6	
	NT	7	

S2	What is the postcode of your main cattle enterprise? **Postcode** ☐☐☐☐

S3	To make sure we are interviewing a representative cross section of producers, over the last 3 full financial years, what percentage of your gross farm income, that is, only income from your property, came from the following activities? *STOP WHEN TOTAL REACHES 100%*	Record %	
	Beef cattle		
	Sheep for wool and mutton		
	Lambs for meat		
	Lambs for wool		
	Grains		
	Sugar cane		
	Other crops		
	Other livestock		

TO CONTINUE, RESPONDENT MUST HAVE BEEF INCOME IE IF BEEF CATTLE ZERO AT S3, CLOSE

S4	What is the total area of your property, including all leased land and any unused land? SHOW. SINGLE	
		Hectares
		Square kilometres

S5	Which of the following describes the business purpose or purposes of your beef operation? SHOW. MULTIPLE	
	Commercial breeding operation	1
	Trade cattle: buy and sell cattle	2

S6.1	ASK IF CODE 1, AT S5 As at 31 December 2023, how many breeding cattle did you have on your property? SHOW	Number
	Breeding cows	

S6.2	ASK IF CODE 2 AT S5 How many cattle do you trade (buy and sell) in a typical year? SHOW	Number
	Cattle traded annually	

S6.3	As at 31 December 2023, how many of cattle did you have in total on your property? SHOW	Number
	Total herd	

S7	Which of the following types of cattle do you run on your property? SHOW. MULTIPLE	
	Bos Indicus (Brahman)	1
	Bos Taurus – pure breeds (British breeds i.e. Angus, Hereford or Euro breeds i.e. Charolais, Limousin.)	2
	Bos Taurus x Bos Indicus	3
	Bos Taurus cross breeds (e.g. Angus x Hereford)	4
	Beef/Dairy cross breeds (beef from dairy cows)	5

Section 2: Joining / Calving / Weaning

2.1	Which of the following best describes the joining period for your breeding operation? SHOW. SINGLE	
	Seasonal joining – heifers / cows are joined with bull/s for a set number of weeks per year	1
	Continuous joining - heifers / cows are joined with bull/s all year round	2
	Don't use bulls for joining – use other methods	3

2.2	How often do you check heifers and cows at calving? SHOW. SINGLE FOR HEIFRS AND COWS		
		Heifers	Cows
	3 times per day	1	1
	Twice a day	2	2
	Daily	3	3
	Twice a week	4	4
	Weekly	5	5
	Every 2 weeks	6	6
	Monthly	7	7
	Greater than once per month	8	8
	Don't check	9	9

2.3	At what age in months did you wean your calves in 2023? SHOW. MULTIPLE	Months
	Age at weaning	
	Age sold (if not weaned)	

2.4	ASK IF AGE AT WEANING IS ENTERED AT 2.3. Which of the following best describes how you wean your calves? SHOW. MULTIPLE	
1	Keep calves in the yards / holding paddock	1
2	Let calves out into the open paddock	2
3	Wean onto the truck for sale	3

2.5	ASK IF CODE 1 AT 2.4 On average, how many days are the weaners kept in the yards / holding paddocks at weaning?	
		Days

Section 3: Identification

3.1	At what age in months is permanent identification applied to your cattle? SHOW. SINGLE	Months
	Under 1 month	1
	1 – 2 months	2
	3 – 4 months	3
	5 – 6 months	4
	7 to less than 12 months	5
	12 months or over	6
	At first muster	7
	Other (Please specify)	98

3.2	How do you permanently identify your cattle? Please assume that all tags are permanent SHOW. MULTIPLE	
	NLIS (National Livestock Identification System) – electronic ear tag or bolus	1
	Ear tag – non-electronic (management tag)	2
	Ear mark	3
	Hot iron brand	4
	Freeze brand	5
	Other (Please specify)	6

3.3	Why do you use (INSERT METHOD FROM 3.2) to permanently identify your cattle? MULTIPLE	
	Legal requirement / mandatory	1
	Other (Please specify)	98

3.5	Did you use any products for pain management when permanently identifying your cattle in 2023? SHOW. SINGLE. DO NOT RANDOMISE	
	Yes	1
	No	2

3.5.1	Which permanent identification methods did you use pain management for? SHOW METHODS SELECTED AT 3.2. MULTIPLE	
	NLIS (National Livestock Identification System) – electronic ear tag or bolus	1
	Ear tag – non-electronic (management tag)	2
	Ear mark	3
	Hot iron brand	4
	Freeze brand	5
	Other (Please specify)	6

3.6	What type of pain management product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g Tri-Solfen)	2
	Analgesic / pain killing injection (e.g Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

3.7	ASK IF CODE 2 AT 3.5 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

Section 4: Castration

4.1	Do you castrate bull calves? SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO 4.17.0***

4.2	How many bull calves did you castrate in 2023?	Number

4.3	At what age do you castrate bull calves? SHOW. SINGLE	
	Under 1 month	1
	1 – 2 months	2
	3 – 4 months	3
	5 – 6 months	4
	7 to less than 12 months	5
	12 months or over	6
	At first muster	7

4.4	ASK IF CODES 4 OR 5 AT 4.3 Why did you castrate your bull calves at (INSERT CODE 4 OR 5 RESPONSE AT 4.3)? SHOW. MULTIPLE. RANDOMISE	
	All procedures are done at the same time (eg weaning, branding)	1
	First muster	2
	Gives time for growth	3
	Reduces risk of calf struggling / better recovery	4
	See if they will grow out to be good bulls	5
	Size of testes suits rings	6
	Other (Please specify)	98

4.5	What method of castration do you use to castrate your bull calves? SHOW. MULTIPLE. RANDOMISE	
	Burdizzo	1
	Knife / Scalpel	2
	Rubber rings	3
	Short scrotum / cryptorchid using rubber ring	4
	Tension bander eg Callicrate	5
	Other (Please specify)	98

4.6	ASK FOR CODES 1 – 5 SELECTED AT 4.5 Why do you use (SHOW METHOD SELECTED AT 4.5) to castrate your calves? SHOW. MULTIPLE. RANDOMISE	
	Appearance / Preservation of Codbag / Selling Point	1
	Better / Preferable Method, Suits My Operation / Program	2
	Better For older / bigger animals	3
	Better for younger / smaller calves	4
	Clean / neat	5
	Easy to use / simple	6
	Efficient / Quick	7
	Followed veterinary advice	8
	Good for weight gain / condition	9
	Less infection	10
	Less Stress / Harm To Cattle / Better Recovery	11
	Low Cost	12
	No bleeding	13
	Safer For Operator	14
	Works / Effective	15
	Other (Please specify)	98

4.11	Did you use any product for pain management for castrating your bull calves in 2023? SHOW. SINGLE	
	Yes	1
	No	2

4.11.1	ASK IF CODE 1 AT 4.11 Of the (SHOW NUMBER AT 4.2) bull calves you castrated in 2023, how many did you use pain management on for castrating? NUMBER CANNOT BE GREATER THAN 4.2	Number

4.12	ASK IF CODE 1 AT 4.11 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g Tri-Solfen)	2
	Analgesic / pain killing injection (e.g Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

4.13	ASK IF CODE 2 AT 4.11 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

4.14	When do you check your calves following castration? SHOW. MULTIPLE. DO NOT RANDOMISE	
	1 day	1
	2 days	2
	3 days	3
	4 days	4
	5 days	5
	6 days	6
	1 week	7
	2 weeks	8
	3 weeks	9
	1 month or longer	10
	Don't check	11
	Other (Please specify)	98

4.17	Do you castrate bulls (entire males over 12 months of age)? SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO SECTION 5***

ASK 4.17.1 – 4.22 IF CODE 1 AT 4.17

4.17.1	How many bulls (entire males over 12 months of age) did you castrate in 2023?	Number

4.18	What method of castration do you use to castrate your bulls? SHOW. MULTIPLE. RANDOMISE	
	Burdizzo	1
	Knife / Scalpel	2
	Rubber rings	3
	Short scrotum / cryptorchid using rubber ring	4
	Tension bander eg Callicrate	5
	Emasculator	6
	Other (Please specify)	98

4.20	Did you use any products for pain management for castrating your bulls in 2023? SHOW. SINGLE. DO NOT RANDOMISE	
	Yes	1
	No	2

4.20.1	ASK IF CODE 1 AT 4.20 Of the (SHOW NUMBER AT 4.17.1) bulls you castrated in 2023, how many did you use pain management on for castrating? NUMBER CANNOT BE GREATER THAN 4.17.1	Number

4.21	ASK IF CODE 1 AT 4.20 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g Tri-Solfen)	2
	Analgesic / pain killing injection (e.g Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

4.22	ASK IF CODE 2 AT 4.20 Why didn't you use any products for pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

Section 5: Dehorning & Tipping

5.4	Do you tip the horns of cattle? SHOW. SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO 5.18***

5.5	Which of the following classes of cattle do you tip the horns of? SHOW. MULTIPLE	
	Calves	1
	Mature cattle (12 months of age and over)	2

ASK 5.6.0 – 5.10 IF CODE 1 AT 5.5

5.6.0	How many calves did you tip the horns of in 2023?	Number

5.6	At what age, in months, do you tip the horns of your calves?	
	1 – 2 months	1
	3 – 4 months	2
	5 – 6 months	3
	7 to less than 12 months	4
	12 months or over	5

5.8	Did you use any products for pain management for tipping the horns of your calves in 2023? SHOW. SINGLE. DO NOT RANDOMISE	
	Yes	1
	No	2

5.8.1	ASK IF CODE 1 AT 5.8 Of the (SHOW NUMBER AT 5.6.0) calves you tipped the horns of in 2023, how many did you use pain management on for tipping? NUMBER CANNOT BE GREATER THAN 5.6.0	Number

5.9	ASK IF CODE 1 AT 5.8 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE

	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g Tri-Solfen)	2
	Analgesic / pain killing injection (e.g Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

5.10	ASK IF CODE 2 AT 5.8 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

ASK 5.11.0 – 5.17 IF CODE 2 AT 5.5

5.11.0	How many mature cattle (12 months of age and over) did you tip the horns of in 2023?	Number

5.11	At what age in months, do you typically tip the horns of mature cattle (12 months of age and over)?	
		months

5.13	What method do you use to tip the horns of your mature cattle? SHOW. MULTIPLE. RANDOMISE	
	Guillotine dehorners	1
	Horn saw	2
	Surgical wire	3
	Tippers	4
	Other (Please specify)	98

5.15	Did you use any products for pain management for tipping the horns of your mature cattle in 2023? SHOW. SINGLE	
	Yes	1
	No	2

5.15.1	ASK IF CODE 1 AT 5.15 Of the (SHOW NUMBER AT 5.11.0) mature cattle you tipped the horns of in 2023, how many did you use pain management on for tipping? NUMBER CANNOT BE GREATER THAN 5.11.0	Number

5.16	ASK IF CODE 1 AT 5.15 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g. Tri-Solfen)	2
	Analgesic / pain killing injection (e.g. Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

5.17	ASK IF CODE 2 AT 5.15 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

5.18	Do you dehorn or disbud cattle? SHOW. SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO SECTION 6***

5.19	Which of the following classes of cattle do you dehorn or disbud? SHOW. MULTIPLE	
	Calves	1
	Mature cattle (12 months of age and over)	2

5.20.0	How many calves did you dehorn or disbud in 2023?	Number

5.20	At what age, in months, do you dehorn or disbud your calves?	
	1 – 2 months	1
	3 – 4 months	2
	5 – 6 months	3
	7 to less than 12 months	4
	12 months or over	5

5.21	What method of dehorning or disbudding do you use on your calves? SHOW. SINGLE. RANDOMISE	
	Scoop or cup dehorners	1
	Gouging knife	2
	Knife	3
	Hot iron / heat cauterising	4
	Embryotic	6
	Guillotine	7
	Tippers / cutter	8
	Other (Please specify)	98

5.22	ASK FOR CODES 1 – 5 SELECTED AT 5.21 Why do you use (SHOW METHOD SELECTED AT 5.21) to dehorn or disbud your calves? SHOW. MULTIPLE. RANDOMISE	
	Better / preferable method	1
	Better for calves	2
	Cleaner / neat	3
	Ease of use	4
	Followed veterinary advice	5
	Less blood	6
	Less damage / harm / stress	7
	Precise / efficient	8
	Quick	9
	Tradition / always done	10
	Works / effective	11
	Other (Please specify)	98
	Don’t know	99

5.27	Did you use any products for pain management for dehorning or disbudding your calves in 2021? SHOW. SINGLE	
	Yes	1
	No	2

5.27.1	ASK IF CODE 1 AT 5.27 Of the (SHOW NUMBER AT 5.20.0) calves you dehorned or disbudded in 2023, how many did you use pain management on for dehorning or disbudding? NUMBER CANNOT BE GREATER THAN 5.11.0	Number

5.28	ASK IF CODE 1 AT 5.27 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g. Tri-Solfen)	2
	Analgesic / pain killing injection (e.g. Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

5.29	ASK IF CODE 2 AT 5.27 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

5.30	When you do you check your calves following dehorning or disbudding? SHOW. MULTIPLE. DO NOT RANDOMISE	
	1 day	1
	2 days	2
	3 days	3
	4 days	4
	5 days	5
	6 days	6
	1 week	7
	2 weeks	8
	3 weeks	9
	1 month or longer	10
	Don't check	11
	Other (Please specify)	98

5.33.0	How many mature cattle did you fully dehorn in 2023?	Number

5.34	At what age in months, do you typically fully dehorn mature cattle?	
	12 to under 24 months	1
	24 to under 36 months	2
	36 months or more	3
	Don't know	4

5.35	What method of fully dehorning do you use on your mature cattle? SHOW. MULTIPLE. RANDOMISE	
	Scoop or cup dehorners	1
	Gouging knife	2
	Hot iron / heat cauterising	3
	Saw including wire	4
	Guillotine	5
	Tippers / cutters	6
	Hydraulic	7
	Other (Please specify)	98

5.37	Did you use any products for pain management for dehorning mature cattle in 2023? SHOW. SINGLE. DO NOT RANDOMISE	
	Yes	1
	No	2

5.37.1	ASK IF CODE 1 AT 5.37 Of the (SHOW NUMBER AT 5.33.0) mature cattle you fully dehorned in 2023, how many did you use pain management on for dehorning? NUMBER CANNOT BE GREATER THAN 5.33.0	Number

5.38	ASK IF CODE 1 AT 5.37 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g. Tri-Solfen)	2
	Analgesic / pain killing injection (e.g. Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

5.39	ASK IF CODE 2 AT 5.37 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

Section 6: Spaying

6.1	Do you spay cull heifers and / or cows? SHOW. SINGLE		
	Yes – cull heifers	1	***CONTINUE***
	Yes – cull cows	2	***CONTINUE***
	No	3	***GO TO SECTION 7***

6.2	How many cull heifers and / or cows did you spay in 2023?	Number
1	(SHOW IF CODE 1 AT 6.1) Cull heifers	
2	(SHOW IF CODE 2 AT 6.1) Cull cows	

6.3	ASK IF CODE 1 AT 6.1 Are cull heifers routinely pregnancy tested prior to spaying? SHOW. SINGLE	
	Yes	1
	No	2

6.4	ASK IF CODE 2 AT 6.3 Why don't you routinely pregnancy test cull / surplus heifers prior to spaying? SHOW. MULTIPLE. RANDOMISE	
	No need / keep separate	1
	Not enough time	2
	Not practical	3
	Do not think it's important	4
	Other (Please specify)	98

6.5.0	ASK IF CODE 2 AT 6.1 Are cull cows routinely pregnancy tested prior to spaying? SHOW. SINGLE	
	Yes	1
	No	2

6.5	ASK IF CODE 2 SELECTED AT 6.5.0 Why don't you routinely pregnancy test cull / surplus cows prior to spaying? SHOW. SINGLE. RANDOMISE	
	No need / keep separate	1
	Not enough time	2
	Not practical	3
	Not required due to time of year / not joined	4
	Do not have the expertise	5
	Do not think it's important	6
	Other (Please specify)	98

6.6	What spaying methods do you use to spay your heifers and / or cows? SHOW HEIFERS IF CODE 1 AND 6.1. SHOW COWS IF CODE 2 AT 6.1. SINGLE FOR HEIFERS; SINGLE FOR COWS		
		Heifers	Cows
	Flank and removal of ovaries	1	4
	Willis dropped ovary and removal of ovaries	2	5
	Flank and webbed (removal of fallopian tubules)	3	6
	Other (Please specify)	98	98
	Don't spay this stock	00	00

6.7	ASK IF CODE 1, 2 OR 3 SELECTED AT 6.6 Why do you use this method to spay your heifers? SHOW. MULITPLE. RANDOMISE	
	Clean / Neat / No Wound	1
	Easy / Simple Procedure	2
	Efficient / Successful	3
	Followed veterinary advice	4
	No Infections	5
	Preferred method / know how	6
	Quick	7
	Safer / Painless / / No Losses / Recovery	8
	Other (Please specify)	98

6.8	ASK IF CODE 4, 5 OR 6 SELECTED AT 6.6 Why do you use this method to spay your cows? SHOW. MULITPLE. RANDOMISE	
	Clean / Neat / No Wound	1
	Easy / Simple Procedure	2
	Efficient / Successful	3
	Followed veterinary advice	4
	No Infections	5
	Preferred method / know how	6
	Quick	7
	Safer / Painless / / No Losses / Recovery	8
	Other (Please specify)	98

6.10	When you spay your cull heifers / cows who performs the spaying? SHOW. SINGLE. DO NOT RANDOMISE	
	Vet	1
	Non-vet contractor	2
	Self or other staff members	3
	Other (Please specify)	98

6.11	When do you check on your heifers / cows following spaying? SHOW. MULTIPLE. DO NOT RANDOMISE	
	1 day	1
	2 days	2
	3 days	3
	4 days	4
	5 days	5
	6 days	6
	1 week	7
	2 weeks	8
	3 weeks	9
	1 month or longer	10
	Don’t check	11
	Other (Please specify)	98

6.14	Did you use any products for pain management for spaying heifers or cows in 2023? SHOW. SINGLE. DO NOT RANDOMISE	
	Yes	1
	No	2

6.14.1	ASK IF CODE 1 AT 6.14 AND IF CODE 1 AT 6.1 Of the (SHOW NUMBER AT 6.2 CODE 1) cull heifers you spayed in 2023, how many did you use pain management on for spaying? NUMBER CANNOT BE GREATER THAN 6.2 CODE 1	Number

6.14.2	ASK IF CODE 2 AT 6.14 AND IF CODE 2 AT 6.1 Of the (SHOW NUMBER AT 6.2 CODE 2) cull cows you spayed in 2023, how many did you use pain management on for spaying? NUMBER CANNOT BE GREATER THAN 6.2 CODE 2	Number

6.15	ASK IF CODE 1 AT 6.14 What type of product/s did you use? Examples of product types are shown in brackets SHOW. MULTIPLE	
	Anaesthetic injection at the surgery site (e.g. Lignocaine)	1
	Anaesthetic and antiseptic spray at the surgery site (e.g. Tri-Solfen)	2
	Analgesic / pain killing injection (e.g. Meloxicam)	3
	Analgesic / pain killing oral gel – veterinary prescribed (e.g. Buccalgesic)	4
	Analgesic / pain killing oral gel – non-veterinary prescribed (e.g. Butec)	5
	Other (Please specify)	98

6.16	ASK IF CODE 2 AT 6.14 Why didn't you use pain management? SHOW. MULTIPLE. RANDOMISE	
	Not necessary	1
	Quick procedure / not practical	2
	Vet hasn't suggested it	3
	Added stress / time	4
	Too expensive	5
	Don't know what to use	6
	No reason / have not considered it	7
	Nothing readily available	8
	Other (Please specify)	98
	Don't know	99

6.17	If a non-surgical sterilisation method was available (like a single-dose, 12 month-acting, vaccine), how likely would you be to use it? SHOW. SINGLE	
	Very unlikely	1
	Unlikely	2
	Neutral	3
	Likely	4
	Very likely	5

Section 7: Vaccines

We would like to capture your use of vaccines and drenches in your herd.

7.1	Do you vaccinate against botulism? SHOW. SINGLE	
	Yes	1
	No	2

ASK 7.3 – 7.4 if CODE 1 AT 7.1

7.3	Do you give the follow-up booster for botulism? SHOW. SINGLE	
	Yes - always	1
	Yes - sometimes	
	No	2

7.4	Which cattle do you vaccinate against botulism? SHOW. MULTIPLE	
	Calves under 1 year of age	1
	Weaners / steers or heifers 1 – 2 years of age	2
	Cattle older than 2 years	3

7.5	Do you vaccinate against other clostridial diseases, e.g. tetanus, blackleg etc? SHOW. SINGLE	
	Yes	1
	No	2

ASK 7.6 – 7.9 IF CODE 1 AT 7.5

7.6	What vaccines do you use? SHOW. MULTIPLE	
	5 in 1	1
	7 in 1	2
	Don’t know	99

7.7	Do you give a booster vaccination within 6 weeks of the initial dose? SHOW. SINGLE	
	Yes	1
	No	2

7.8	ASK IF CODE 2 AT 7.7 Why don't you give a booster vaccination within 6 weeks of the initial dose? SHOW. MULTIPLE. RANDOMISE	
	Not needed / not necessary / not important	1
	Not practical / inconvenient	2
	Give booster but later than 6 weeks	3
	Do not have enough labour	4
	It takes too much time	5
	Never have / just don't	6
	Didn't know necessary / lack of awareness	7
	Sometimes do if needed	8
	Cost outweighs the perceived benefit	9
	Other (Please specify)	98

7.9	Which cattle do you vaccinate? SHOW. MULTIPLE	
	Calves under 1 year of age	1
	Weaners / steers or heifers 1 – 2 years of age	2
	Cattle older than 2 years	3

7.10	Do you vaccinate against BVDV (Pestivirus)? SHOW. SINGLE	
	Yes	1
	No	2

7.11	ASK IF CODE 1 AT 7.10 Which cattle do you vaccinate against BVDV (Pestivirus)? SHOW. MULTIPLE	
	Heifer calves under 1 year of age	1
	Weaners / heifers 1 – 2 years of age	2
	Cows older than 2 years	3

7.12	Do you vaccinate against the Three-Day Sickness (Bovine Ephemeral Fever or BEF)? SHOW. SINGLE	
	Yes	1
	No	2

7.25	There are a number of online parasite management information resources available to producers. Which of the following websites have you heard of? SHOW. MULTIPLE	
	ParaBoss	1
	WormBoss	2
	TickBoss	*3*
	LiceBoss	4
	FlyBoss	5
	None	0

7.26	Are you aware of the 'Immune Ready Guidelines' for cattle? SHOW. SINGLE	
	Yes	1
	No	2

Section 8: Transport

8.1	Before transporting slaughter cattle, which of the following curfews are applied to your cattle? SHOW. MULTIPLE	
	Feed curfew	1
	Water curfew	2
	None	0

8.2	ASK IF CODE 1 NOT SELECTED, OR CODE 0 SELECTED, AT 8.1 Why don't you apply a feed curfew for slaughter cattle? SHOW. MULTIPLE. RANDOMISE	
	Curfew imposed at saleyards / abattoirs	1
	Followed non-veterinary advice	2
	Followed veterinary advice	3
	Less stress for animals / Cattle stay in better condition	4
	No need / No advantage	5
	Not required to	6
	Straight to abattoirs / short Journey	7
	Takes time to apply feed curfew / it's inconvenient	8
	Too far to travel	9
	Want to maximise weight and sale value	10
	Don't sell slaughter cattle	11
	Other (Please specify)	98
	Don't know	99

8.3	ASK IF CODE 2 NOT SELECTED, OR CODE 0 SELECTED, AT 8.1 Why don't you apply a water curfew for slaughter cattle? SHOW. MULTIPLE. RANDOMISE	
	Curfew imposed at saleyards / abattoirs	1
	Followed non-veterinary advice	2
	Followed veterinary advice	3
	Less stress for animals / Cattle stay in better condition	4
	No need / No advantage	5
	Not required to	6
	Straight to abattoirs / short Journey	7
	Takes time to apply feed curfew / it's inconvenient	8
	Too far to travel	9
	Want to maximise weight and sale value	10
	Don't sell slaughter cattle	11
	Other (Please specify)	98
	Don't know	99

8.4	ASK IF CODE 1 OR 2 AT 8.1 How many hours before transport are normal feed or water curfews applied to slaughter cattle? SHOW	
		Hours
	(SHOW IF CODE 1 AT 8.1) Time off feed	
	(SHOW IF CODE 2 AT 8.1) Time off water	

8.7	On average, how many hours are your slaughter cattle in transit before unloading?	
		hours

8.7.1	Are your slaughter cattle being given rest stops during transit? SHOW. SINGLE	
	Yes	1
	No	2
	Don't know	99

8.8.1	Do you transport non-slaughter cattle (store or breeding cattle)? SHOW. SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO SECTION 9***

8.8.2	ASK IF CODE 1 SELECTED AT 8.8.1 Before transporting non-slaughter cattle which of the following curfews are applied to your cattle? SHOW. MULTIPLE	
	Feed curfew	1
	Water curfew	2
	None	0

8.9	ASK IF CODE 1 NOT SELECTED, OR CODE 0 SELECTED, AT 8.8.2 Why don't you apply a feed curfew for non-slaughter cattle? SHOW. MULTIPLE. RANDOMISE	
	Curfew imposed at saleyards / market	1
	Followed non-veterinary advice	2
	Followed veterinary advice	3
	Less stress for animals / Cattle stay in better condition	4
	No need / No advantage	5
	Not required to	6
	Short Journey	7
	Takes time to apply feed curfew / it's inconvenient	8
	Too far to travel	9
	Want to maximise weight and sale value	10
	Other (Please specify)	98
	Don't know	99

8.10	ASK IF CODE 2 NOT SELECTED, OR CODE 0 SELECTED, AT 8.8.2 Why don't you apply a water curfew for non-slaughter cattle? SHOW. MULTIPLE. RANDOMISE	
	Curfew imposed at saleyards / market	1
	Followed non-veterinary advice	2
	Followed veterinary advice	3
	Less stress for animals / Cattle stay in better condition	4
	No need / No advantage	5
	Not required to	6
	Short Journey	7
	Takes time to apply water curfew / it's inconvenient	8
	Too far to travel	9
	Want to maximise weight and sale value	10
	Other (Please specify)	98
	Don't know	99

8.11	How many hours before transport are normal feed or water curfews applied to your non-slaughter (breeding or store) cattle? SHOW	
		Hours
	(SHOW IF CODE 1 AT 8.8.2) Time off feed	
	(SHOW IF CODE 2 AT 8.8.2) Time off water	

8.14	On average, how many hours are your non-slaughter (breeding or store) cattle in transit before unloading?	
		hours

8.15	Are your non-slaughter cattle being given rest stops during transit? SHOW. SINGLE	
	Yes	1
	No	2
	Don't know	99

Section 9: Euthanasia and Disposal

9.1	How do you euthanise injured or sick cattle? SHOW. MULTIPLE. RANDOMISE	
	Shoot	1
	Vet	2
	Knackery / Outside agent	3
	Captive bolt	4
	Other (Please specify)	98

9.2	How do you dispose of the carcasses? SHOW. MULTIPLE. RANDOMISE	
	Bury	1
	Burn	2
	Leave / Locate for natural decomposition	3
	Pet food	4
	Grave yard / Carcass dump	5
	Use as bait for dingoes / Feral animals	6
	Composting	7
	Other (Please specify)	98

Section 10: Quarantine Process

10.1	Do you have quarantine process for sick and injured cattle? SHOW. SINGLE	
	Yes	1
	No	2

10.2	Do you buy in cattle, that is, introduce new cattle from outside your property? SHOW. SINGLE		
	Yes	1	***CONTINUE***
	No	2	***GO TO SECTION 11***

10.3	ASK IF CODE 1 AT 10.2 Do you have a quarantine process for all classes, some classes or none of your introduced cattle? SHOW. SINGLE	
	All introduced cattle	1
	Some classes of introduced cattle	2
	None	3

10.4	ASK IF CODE 2 AT 10.3 What classes of introduced cattle do you have a quarantine process for? SHOW. MULTIPLE	
	Calves under 1 year of age	1
	Weaners / heifers 1 – 2 years of age	2
	Cattle older than 2 years	3

10.5	ASK IF CODE 1 OR 2 AT 10.3 Which of the following quarantine processes do you use for introduced livestock? SHOW. MULTIPLE. RANDOMISE	
	Blood test / Faecal Egg Count (FEC)	1
	Check appropriate certificates/paperwork	2
	Check for lice / ticks etc	3
	Drench / dip	4
	Isolate / separate	5
	Vaccinate	6
	Know history / buy from trusted source	7
	Tag / brand	8
	Vaccinate	9
	Other (Please specify)	98

Section 11: Carbon Activities

Turning now to the topic of renewable energy.

11.1	Which of the following best describes your use of renewable energy on your farm? SHOW. MULTIPLE	
	I use renewable energy that I generate myself	1
	I use renewable energy from my energy retailer	2
	I don't generate or buy any renewable energy	3

11.2	ASK IF CODE 1 AT 11.1 Which of the following types of renewable energy do you generate and use on your farm? SHOW. MULTIPLE.	
	Solar without battery	1
	Solar with battery	2
	Wind	3
	Geothermal	4
	Biomass	5
	Hydroelectric	6
	Something else (Please specify)	98

11.3	Have you undertaken any carbon neutral or carbon accounting training? SHOW. SINGLE	
	Yes	1
	No	2

11.4	Do you estimate the net greenhouse gas emissions produced in your operation using carbon calculator or another process? SHOW. SINGLE	
	Yes	1
	No	2

11.5	Have you implemented any activities to reduce your net greenhouse gases while producing livestock? SHOW. SINGLE	
	Yes	1
	No	2

11.6	ASK IF CODE 1 AT 11.5 Which of the following activities have you implemented? SHOW. MULTIPLE. RANDOMISE	
	Carbon storage (manure, plant debris and composts applied to the soil, permanent planting of pastures, tree planting/revegetation, dung beetles)	1
	Herd management (increasing fertility, decreasing average age, reducing proportion of unproductive animals)	2
	Management systems (stocking rates, improved nutrition/rates of liveweight gain)‘	3
	Manure management (manure stockpile aeration, adding urease inhibitors)	4
	Pasture management (grazing management, grass species , legumes, perennial pastures)	5
	Reducing livestock numbers overall	6
	Savanna burning management	7
	Feed additives	8
	Improving dung beetle populations	9
	Something else (Please specify)	98

11.7	ASK IF CODE 1 AT 11.4 Have you undertaken a second or subsequent carbon account on your property after the initial measurement? SHOW. SINGLE	
	Yes	1
	No	2

11.8	ASK IF CODE 1 AT 11.7 Did your net GHG emissions increase, decrease or stay the same from your initial measurement? SHOW. SINGLE	
	Increase	1
	Decrease	2
	Stay the same	3

11.9	ASK IF CODE 1 AT 11.8 By what percentage did your net GHG emissions increase from your initial measurement?	
		percent

11.10	ASK IF CODE 2 AND 11.8 By what percentage did your net GHG emissions decrease from your initial measurement?	
		percent

Section 12: Biodiversity and Land and Water Management

12.1	Which of the following land management activities did you undertake on your property/ies in 2023? SHOW. MULTIPLE. RANDOMISE	
	Weed Control	1
	Control of pest animals (e.g. wild dogs, dingos, foxes, cats, pigs, horses, cane toads)	2
	Control of kangaroos and wallabies to better manage total grazing pressure	3
	Carried out prescribed burning to reduce weeds, control regrowth, or improve pasture condition	4
	Revegetated areas with native or indigenous plant species by either direct seeding of plating seedlings (including wind-breaks, shelterbelts, around dams, or within pastures)	5
	Erosion control such as construction of contour banks, deep ripping etc	6
	Applied soil treatments or amendments other than fertilisers (e.g. lime, dolomite, gypsum, compost, green manure crops, biochar)	7
	Regular pasture and land condition monitoring (through photos or documenting change)	8
	Maintained areas that are remote from reliable sources of water for livestock	9
	Destocked, protected, or spelled pastured areas	10
	Destocked, protected or spelled bushland areas	11
	Destocked, protected or spelled riparian areas and other natural water features	12
	Regular plant and animal biodiversity monitoring	13

12,2	SHOW IF ANY CODE SELECTED AT 12.1 Of the total area of your property of (SHOW AREA AS EITHER HECTARES OR SQUARE KILOMETRES FROM S5), what is the total area that you carried out these land management activities on, or the area that directly benefited from these activities? SHOW. SINGLE PROGRAMMER: AREA AT 12.2 CANNOT BE GREATER THAN AREA AT S5	
		Hectares
		Square kilometres

12.3	Have you previously (in 2023 or earlier) undertaken any of the following grazing management activities on your property/ies? SHOW. MULTIPLE. RANDOMISE	
	Fenced areas to land type to better manage grazing pressure	1
	Fenced areas to allow for spelling or to prevent livestock access (including protection of paddock trees)	2
	Fenced waterways to prevent livestock access	3
	Provided off-stream water for livestock away from riparian areas and other natural water features	4

12.4	SHOW IF ANY CODE SELECTED AT 12.3 Of the total area of your property of (SHOW AREA AS EITHER HECTARES OR SQUARE KILOMETRES FROM S5), what is the total area that you carried out these grazing management activities on, or the area that directly benefited from these grazing management activities? SHOW. SINGLE PROGRAMMER: AREA AT 12.4 CANNOT BE GREATER THAN AREA AT S5	
		Hectares
		Square kilometres

12.5	What is the source of water for your cattle? SHOW. MULTIPLE. RANDOMISE	
	Scheme Water	1
	Surface Water (direct from dams, locked dams, creeks, rivers)	2
	Surface Water (pumped to watering points such as troughs)	3
	Groundwater (bores, siphons, springs)	4
	Rainwater tanks	5
	Something else (Please specify)	98

12.6	Do you have a plan for managing the farm and your cattle during extreme weather e.g. droughts, extreme heat events and floods? SHOW. SINGLE	
	Yes	1
	No	2

12.7	Can your stock water supply withstand prolonged dry periods? SHOW. SINGLE	
	Yes	1
	No	2

12.8	Can you increase stock water supply if needed? SHOW. SINGLE	
	Yes	1
	No	2

12.9	Do you manage your pastures to have diverse drought resistant species? SHOW. SINGLE	
	Yes	1
	No	2

Section 13: Soil Management

13.1	Do you test and monitor your soil health (excluding soil carbon)? SHOW. SINGLE	
	Yes	1
	No	2

ASK 13.2 – 13.3 IF CODE 1 AT 13.1

13.2	How do you test and monitor your soil health? SHOW. MULTIPLE. RANDOMISE	
	Measure groundcover percentages	1
	Lab soil test for nutrients, organic matter, pH, conductivity, cation exchange capacity etc	2
	On-farm soil tests for nutrients, organic matter, pH, conductivity, cation exchange capacity etc	3
	Infiltration tests	4
	Capacitance probes	5
	Field testing for biological factors and structure	6
	Something else (please specify)	98

13.3	Have you changed practices based on the monitoring of your soil health? SHOW. SINGLE	
	Yes	1
	No	2

13.4	Did you undertake practices to improve your soil water retention? (e.g. leaving tall pasture grass stubble, greater grazing rotation, cover cropping, claying, aeration) SHOW. SINGLE	
	Yes	1
	No	2

Section 14: Waste Management

14.1	For waste on your property, which of the following best describes your management of **organic** waste (e.g. manures, animal bedding, sediment traps, prunings, tree residues) SHOW. MULTIPLE. RANDOMISE	
	Managed on site for beneficial reuse (e.g. left on/plough into ground, fed to animals, composted on site)	1
	Managed on site without benefit (i.e. stays on site)	2
	Landfilled through official collection/disposal location	3
	Recovered for energy (e.g. anerobic digestion, furnace, biofuel)	4
	Reused / repurposed (e.g. food donations for human consumption, secondary production/sales, fed to animals off-site)	5
	Recycled (e.g. sent for composting, mulching)	6

14.2	For waste on your property, which of the below best describes your management of **plastic** waste (e.g. protective film, piping, irrigation, drainage, nets, mesh, bags, rope) SHOW. MULTIPLE. RANDOMISE	
	Managed on site (i.e. stays on site/stockpiled)	1
	Landfilled through official collection/disposal location	2
	Recovered for energy (e.g. furnace, biofuel)	3
	Reused (e.g. reused for another purpose or sold)	4
	Recycled (e.g. sent to recycler)	5

14.3	For waste on your property, which of the below best describes your management of **workshop** waste (e.g. oils, electronics, batteries, timber posts, tyres, veterinary products, rubber, scrap metal, cardboard) SHOW. MULTIPLE. RANDOMISE	
	Managed on site (i.e. stays on site)	1
	Landfilled through official collection/disposal location	2
	Reused (e.g. reused on site, reuse shop/sale)	3
	Recycled (e.g. sent to recycler)	4

Section 15: Training and WHS

15.1	How did you learn to perform the various animal husbandry practices undertaken on farm? SHOW. MULTIPLE	
	Informal (someone showed me)	1
	Informal (I taught myself)	2
	Formal (course / workshop)	3
	I don't perform these (use contractors)	5

15.2	ASK IF CODE 3 AT 15.1 What course or workshops did you attend to learn about these practices? SHOW. MULTIPLE. RANDOMISE	
	Various courses / workshops / field days	1
	Degree / Ag College	2
	TAFE course, Ag Certificate	3
	AI / Preg testing / Spaying	4
	Low stress livestock handling	5
	Farm apprenticeship	6
	Other (Please specify)	98
	Don't know	99

15.3	Do you have, or are you doing, any of the following in regards to Workplace Health and Safety (WHS) on your farm? SHOW. SINGLE		
		Yes	No
	Have a WHS plan	1	2
	Undertake WHS risk assessment	1	2
	Induct workers in WHS obligations	1	2
	Induct visitors in WHS obligations	1	2
	Encourage workers to identify safety concerns	1	2
	Exclude children under 16 from farming activities	1	2
	Appropriate farm vehicles have roll over bars	1	2

Section 16: Final Demographics

16.01	How many years have you been involved with farming?	
		years

16.2	What is the highest level of education you have achieved? SHOW. SINGLE	
	Year 9 or less	1
	Year 10 - 11	2
	School Leaving Certificate (eg HSC)	3
	TAFE	4
	Tertiary Graduate	5
	Post Graduate	6
	Prefer not to say	99

16.3	Into which of the following age groups you fall? SHOW. SINGLE	
	18 – 24	1
	25 – 34	2
	35 – 44	3
	45 – 54	4
	55 – 64	5
	65 and over	6
	Prefer not to say	99

16.4	What is your gender? SHOW. SINGLE	
	Male	1
	Female	2
	Prefer not to identify	3
	Other	4