5 YEAR REVIEW



2024

ANGUS AUSTRALIA BEEF BREEDING INSIGHTS REPORT

ANGUS AUSTRALIA









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INSIGHTS SUMMARY

Demographics

Male
77%

45+ years old
85%

Avg. years of farming experience
35.6

Family-owned operation
95%

Avg. years of owning family operation (n = 924)
59

Median property size
500 ha

Avg. Females of breeding age FY22/23
461

% targeting the feeder market
42%

Breeding Programs

Operate purebred breeding herds
70%

Run controlled joining programs
69%

Use a 2-3% bull to cow ratio
70%

Self-replace breeding females
80%

Top 3 reasons respondents had selected their respective bull breed were;

1. Market demand
2. Temperament
3. Suits the Environment

Angus Penetrance

National female herd reported to be *influenced* by Angus genetics
53%

% of Bulls reported to be *influenced* by Angus genetics, nationally
71%

National female herd reported to be *composed* of Angus genetics
49%

% of Bulls reported to be *composed* of Angus genetics, nationally
52%

Understanding Penetrance;



Breed Influence 66% of the above herd is influenced by Angus Genetics (two from three head of cattle)

Genetic Composition 50% of the herd's gene pool is Angus genetics

Attitudes to Genetic Information

Witnessed an increase in knowledge of genetic information over the past 5 years

68%

Of Angus Australia members, witnessed an increase in knowledge of genetic information over the past 5 years

75%

Always use EBVs as part of their bull selection criteria

60%

Use EBVs more frequently than 5 years ago

46%

Always use selection indexes as part of their bull selection criteria

31%

Use selection indexes more frequently than 5 years ago

43%

Top 3 EBVs ranked;

1. Temperament
2. IMF
3. 400-day weight

Most significant trait for bull selection criteria

Temperament

EBVs

Witnessed a beneficial impact from the use of EBVs

64%

Accessing Information

Willing to make a change to their operation

97%

Increase from 2019

10%

Most common source of information

Other farmers & neighbours (56%)

Most valued source of information

Breed societies & bull breeders (4.2/5 each)

angus.tech

Have used angus.tech

34%

Have increased their use over the last 5 years

58%

Favoured method of learning for producers

One on one discussions

Main social media used by beef businesses

Facebook

ANGUS AUSTRALIA

Attended an Angus Australia event or used Angus Australia resources

30%



BACKGROUND & OBJECTIVE

As a part of the "Enhancing technology adoption across the Angus genetic improvement pipeline" project (P.PSH.1063), funded through the MLA Donor Company (MDC), Angus Australia has facilitated two quantitative surveys of Australian beef cattle producers via an independent market research group. The surveys were conducted to gather insight into the knowledge and attitudes of producers towards genetic technologies, as well as capturing the penetrance of Angus and Angus influenced cattle throughout Australia.

The initial survey, utilised as a base line, was conducted in 2019 and provided responses from 1023 producers across Australia. More recently, in 2023, a second survey was conducted with the objective of adding to the existing dataset and benchmarking producer knowledge, attitudes and the Angus penetrance against the previously recorded data. The 2023 survey consisted of 977 respondents from across Australia.

This report aims to provide the insights from the second phase of the surveying project to gauge the extent of change over a 5-year period (2019 to 2023):

- Measuring the impact of education and extension investments on the adoption of technology by stakeholders across the beef value chain.
- Understanding producers' skills, knowledge and attitudes impacting technology adoption.
- Determine the penetration of Angus and Angus influenced cattle in both southern (temperate) and Northern Australia.

METHODOLOGY

Selection and Engagement of Chi Squared Agency

The agency Chi Squared was engaged after a considerable interview, quoting and shortlisting process. This involved gathering the names and contact information of market research companies from several agricultural service providers who have had experience with similar projects. These companies were approached for interviews and quotes, short listed and re-interviewed. Companies that had competitive pricing, experience in the agricultural sector, their own database of Australian producers and methodology that was aligned with the objectives of the project were viewed favourably, with Chi Squared ultimately being the preferred candidate.

A comprehensive analysis and a report highlighting the key findings and insights from the stakeholder survey conducted during 2019 was released and used to form operational priorities and areas of focused work and messaging. In year 5 (2023) of the project a further structured quantitative survey of stakeholders to establish performance and adoption changes resulting from project initiatives was conducted. Both iterations of the survey were conducted utilising both email and an Australian based call centre – leveraging Chi Squared's considerable producer database and Angus Australia membership database. Some responses were also fielded through Angus Australia's social media platforms.

An incentive to complete the survey, being a $2,500 donation to the Royal Flying Doctors Service, was made on the behalf of the respondents by Angus Australia.

Disqualifying Parameters

To ensure the survey captured responses that were representative of viable beef breeding enterprises across the wider beef industry there were disqualifying parameters put in place. These included:

- Herd size less than 20 head of breeding females.
- Participant younger than 18 years of age
- Less than 3 years of experience
- Participant wasn't actively involved in the management decision making process of the operation.
- Main enterprise did not involve breeding or trading.
- Participant didn't intend to still be breeding cattle in 5 years' time.

This ultimately yielded 977 suitable respondents, a significant representation of the Australian cattle producer demographic in each state.







DEMOGRAPHICS

Respondents

Male
77%

45+ years old
85%

Pursued further education post year 12
59%

Held owner/operator positions
93%

Avg. years of farming experience
35.6

Respondents Businesses

Family-owned operation
95%

Avg. years of owning family operation (n = 924)
59

Avg. % of annual income derived from beef cattle
81.4%

% of main enterprise is breeding
80%

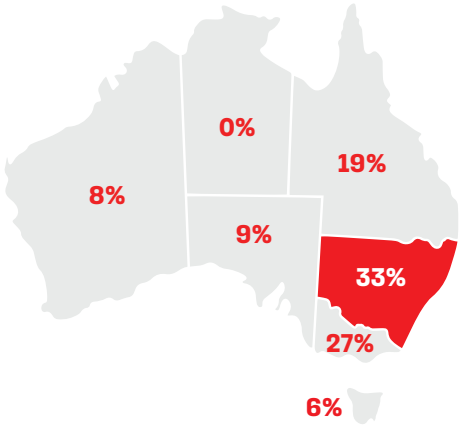
% of main enterprise is breed and trade
20%

Member of a breed association
56%

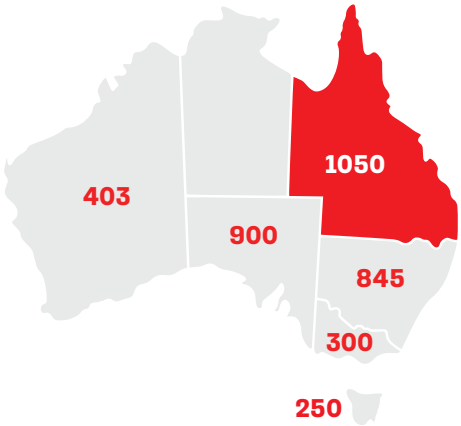
Median property size
500 ha

Avg. females of breeding age FY22/23
461

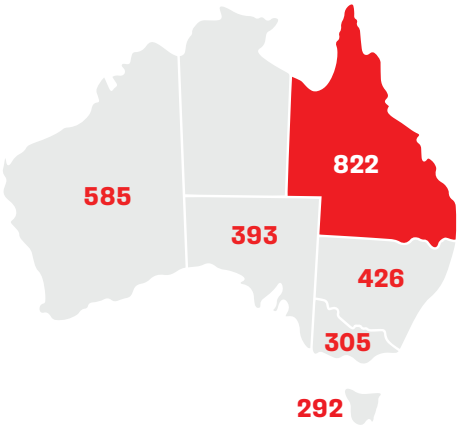
State of operation



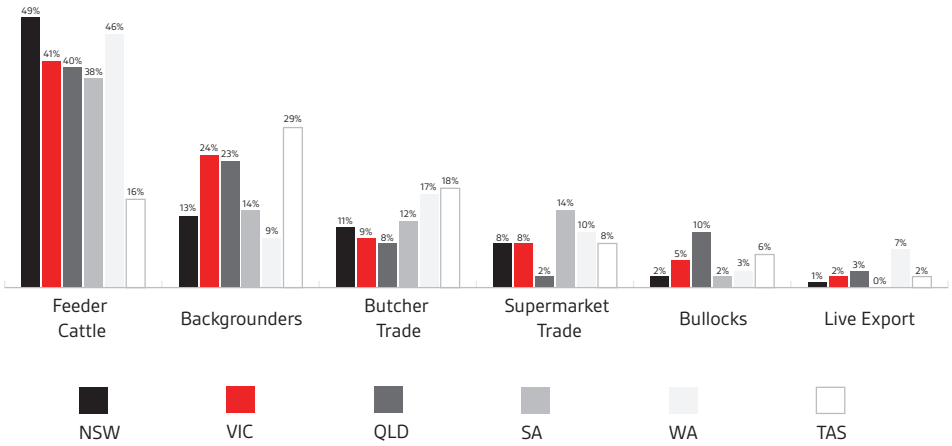
Median property size in hectares



Avg. females of breeding age FY22/23



Target market by state



Top 3 target markets of respondents, overall;



Feeder Cattle
42%

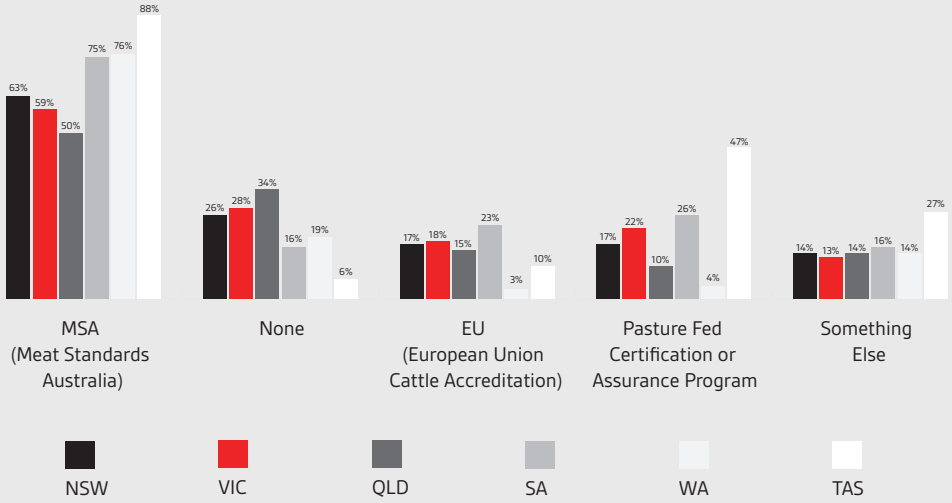


Backgrounders
18%



Butcher Trade
11%

Accreditation by state



Top 3 accreditations of respondents, overall;



MSA
62%

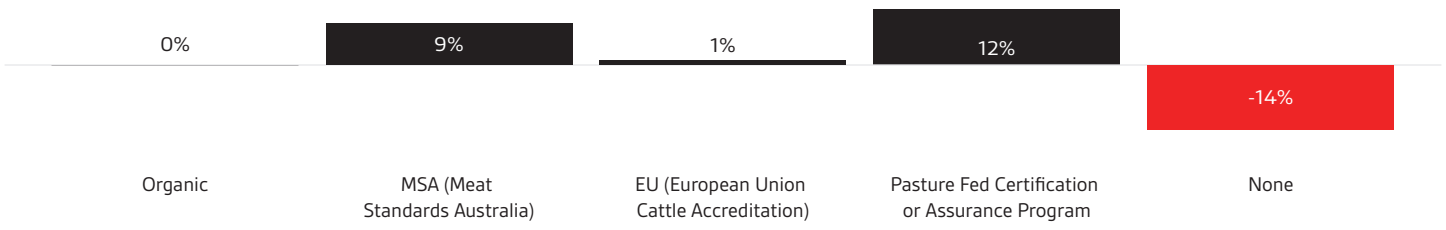


Pasture Fed
18%



EU
16%

Change in accreditations held by respondents in the last 5 years



BREEDING PROGRAMS

Key Insights

Operate purebred breeding herds

70%

Crossbreeding programs are more common in

QLD (43%)

WA (39%)

Most common joining program structure

Controlled Joining Program (69%)

Year-round mating is most common in QLD

36%

Have changed the type of joining program operated

24%

Females sourced via self-replacement

80%

Increase in producers utilising both self-replacements and purchased replacements

8%

Top selection tools for replacement females by producers;

1. Visual appraisal
2. Temperament
3. Pregnancy testing results

Have changed their female selection criteria

27%

This being an increase in the use of genomics, EBVs and change in breeds or breeding programs

In a controlled paddock joining program, join for between 6-12 weeks

69%

Use a 2-3% bull to cow ratio

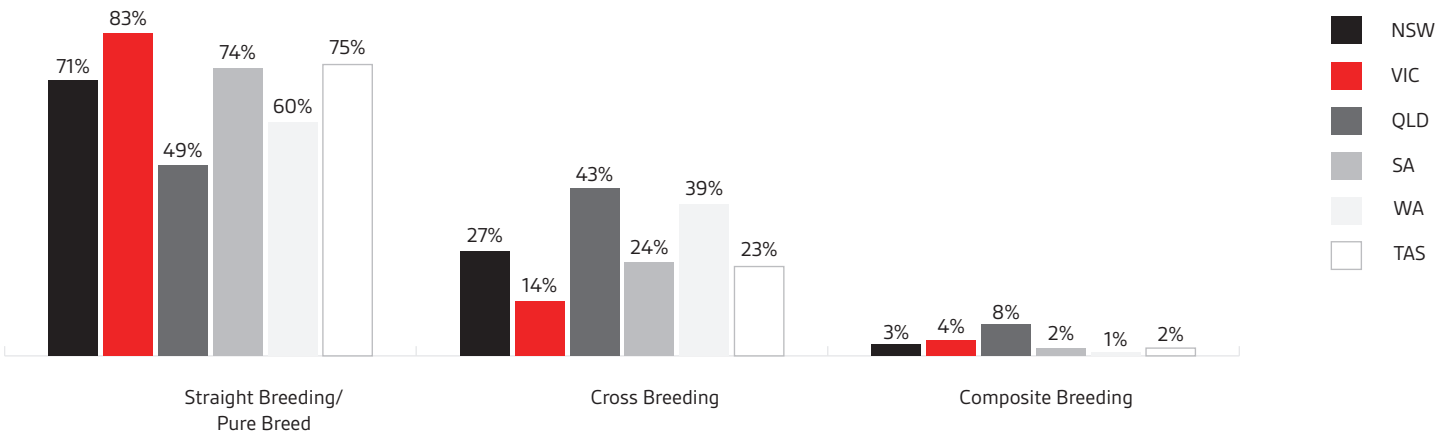
70%

Top 5 reasons respondents selected their respective bull-breed

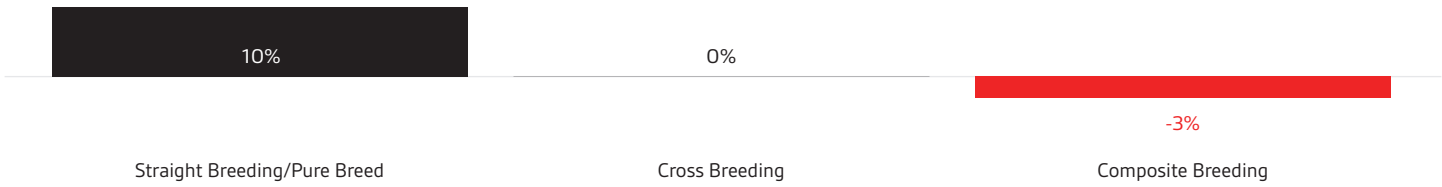
1. Market demand
2. Temperament
3. Suits the environment
4. Premium paid
5. Family/Business tradition

Type of Breeding Program

Breeding enterprise distribution by state

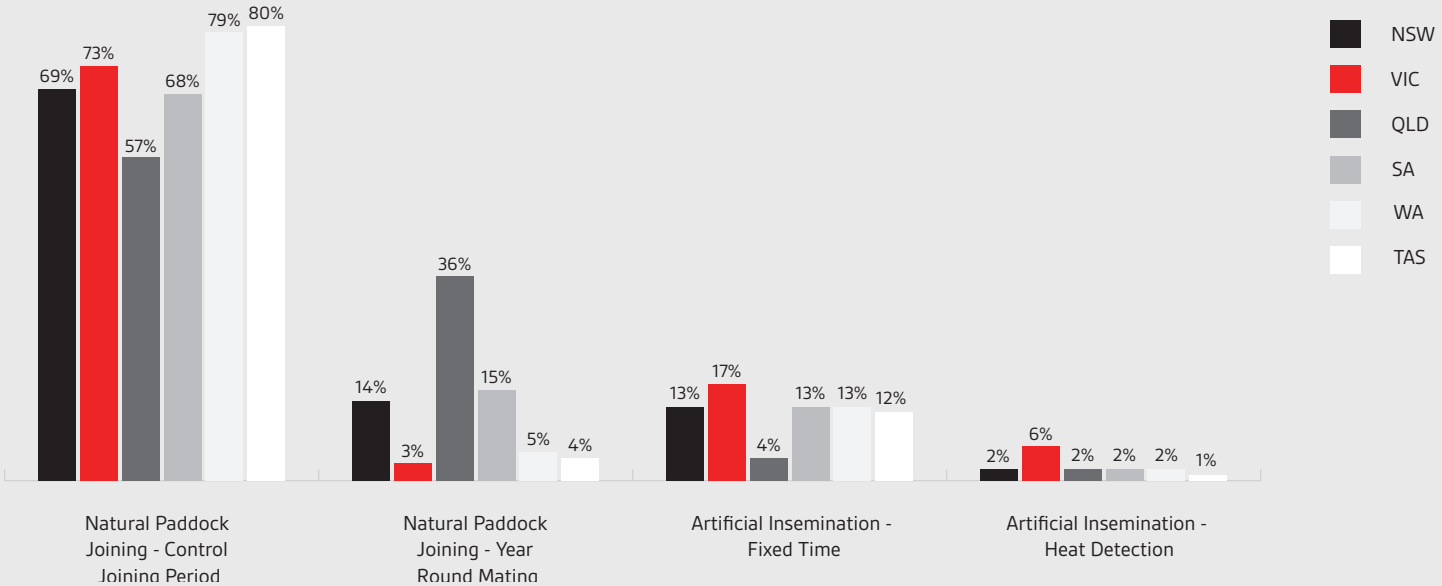


Change in breeding enterprises in last 5 years



Joining Program Structure

Percentage of each type joining program by state



Controlled Period Paddock Joining

The primary motivations for adopting a controlled joining program were reported to include its ease of implementation, cost-effectiveness, suitability for seasonal calving, and alignment with operational needs. Over the past five years, 21% of respondents indicated that they had adjusted their joining programs. Among those who made changes, the majority (48%) increased their use of artificial insemination (AI).

The reasons for this shift included the introduction of superior genetics, cost considerations, and enhancements in time management. Additionally, 19% of respondents who made changes during this period opted to reduce the length of their joining periods. This adjustment was made to achieve tighter calving intervals, improve time management, meet market demands, and enhance operational efficiency.

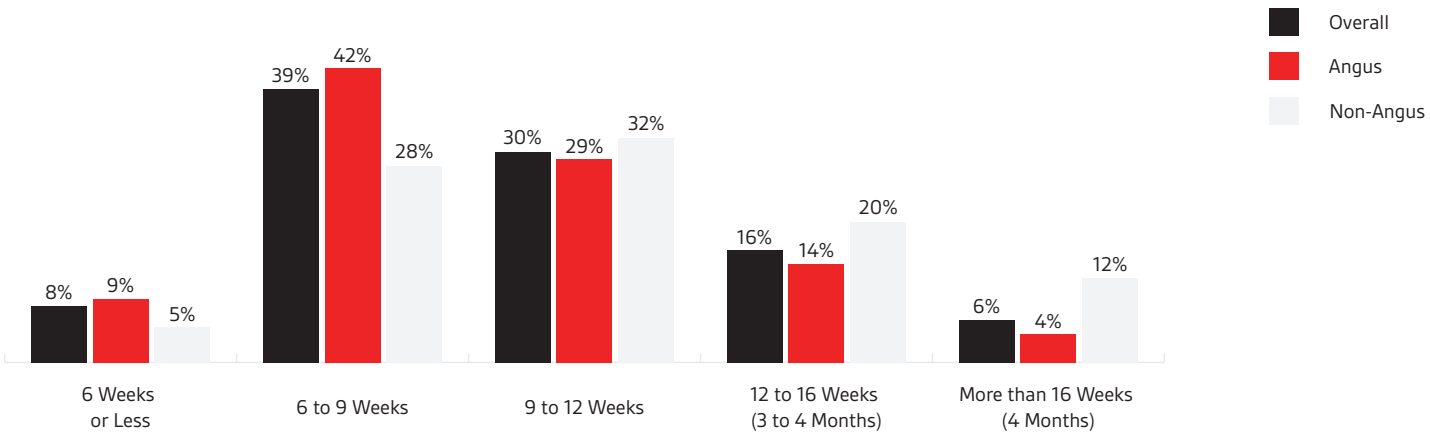
Top 3 reasons for using controlled joining period:

Easier, cost effective
42%

Seasonal calving
34%

Suits operation
12%

Length of joining program of natural – controlled joining program users, by breed affiliation



Year-Round Mating

The Year Round Mating (YRM) system is primarily utilized for its ease of implementation, its environmental suitability, and its operational compatibility. In the last five years, 12% of users have modified their YRM systems. The most prevalent changes involved an increased use of AI, with 25% of respondents making this adjustment, including 15% who adopted Fixed Time Artificial Insemination (FTAI).

Top 3 Reasons for Using YRM:

Easier
39%

Suits environment
22%

Suits operation
20%



Fixed Time Artificial Insemination

The principal reasons for the adoption of Fixed Time Artificial Insemination (FTAI) include the desire to improve genetic quality (63%), achieve tighter calving schedules (24%), and benefit from the convenience of the method (21%). Over the last five years, 39% of respondents have adjusted their FTAI systems. The most significant change observed was an increase in the use of artificial insemination (AI), with 69% of respondents making this shift, including 3% who specifically moved to FTAI. Additionally, 4% of respondents discontinued natural joining methods.

Top 3 reasons for using FTAI:

Improve genetics
63%

Tighter calving
24%

Convenient
21%

Heat Detection Artificial Insemination

The principal motivations for using Heat Detection Artificial Insemination (HDAI) are to enhance genetic quality, introduce new genetics, and increase conception rates. Over the past five years, 24% of respondents reported making changes to their HDAI systems. The most significant change was an increased application of artificial insemination (AI), with 60% of respondents adopting this approach, including 5% who transitioned to Fixed Time Artificial Insemination (FTAI). Additionally, 5% of respondents shortened their joining periods, and 5% implemented embryo transfer techniques.

Top 3 reasons for using HDAI:

Improve genetics
27%

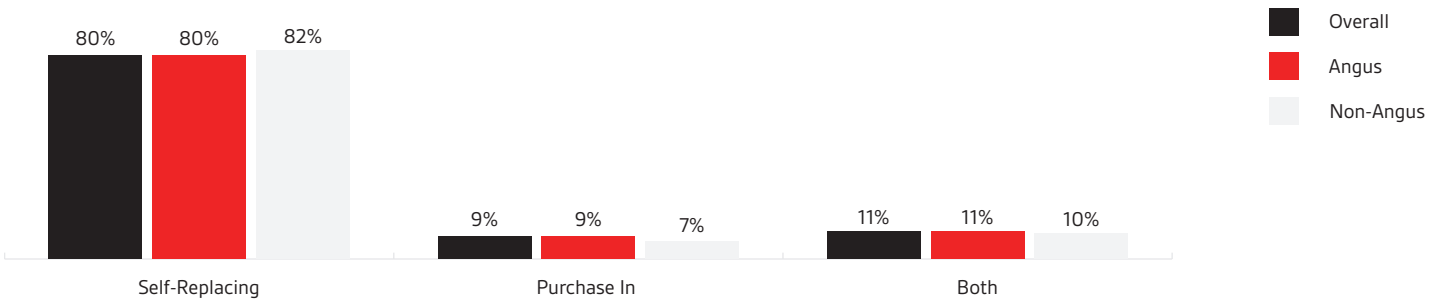
Adding new genetics
24%

Increasing conception rates
23%



Females

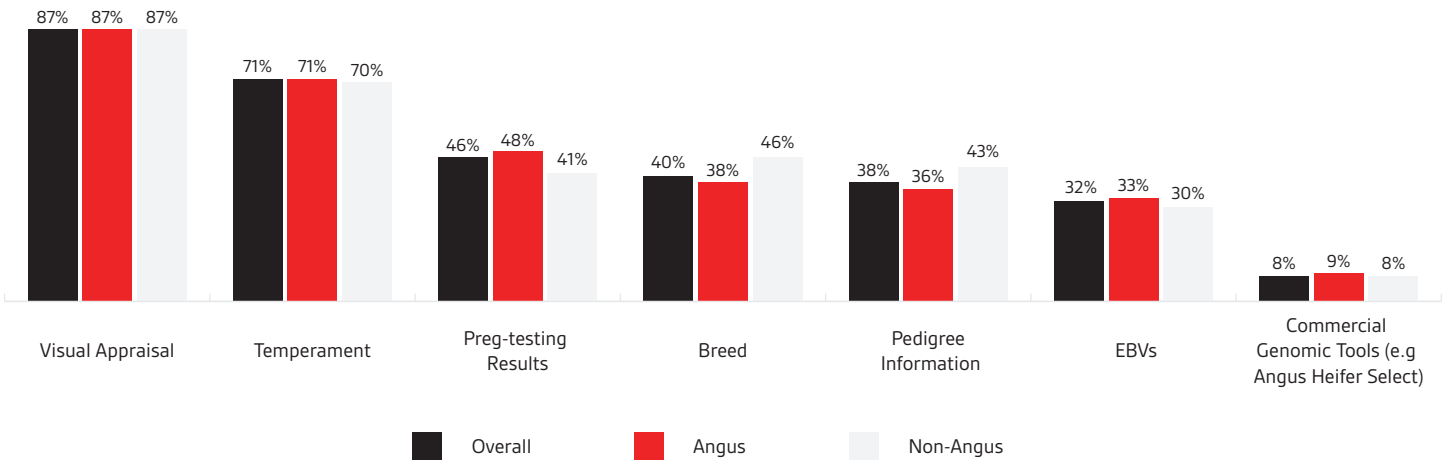
Source of replacement females by breed affiliation



Change in source of females in last 5 years



Tools used for the selection of replacement females by breed affiliation



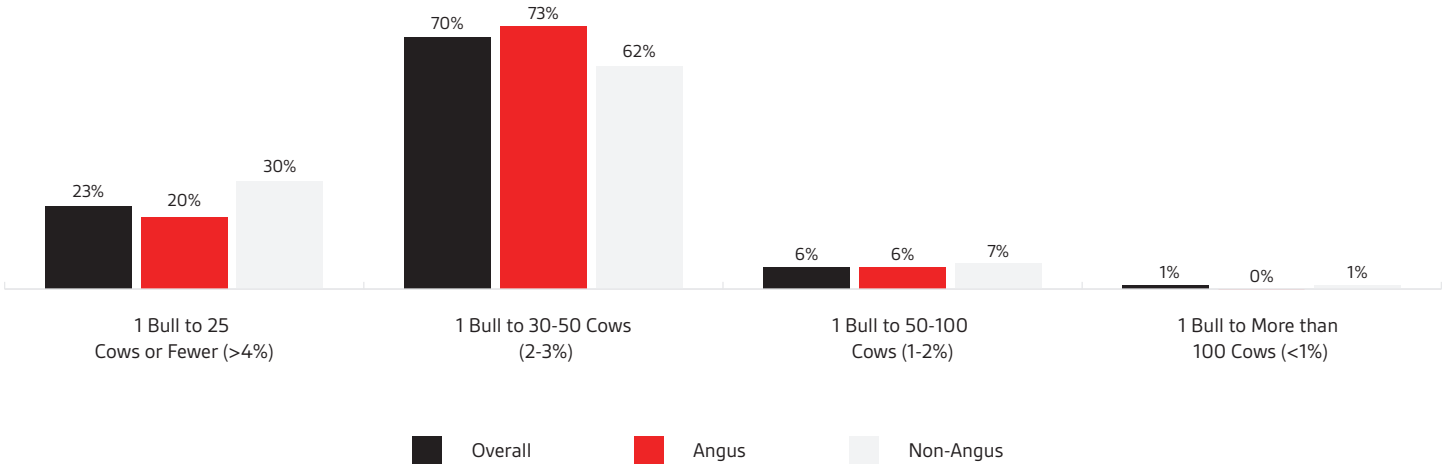
27% SURVEY RESPONDENTS MADE A CHANGE TO THE WAY THEY SELECT REPLACEMENT HEIFERS IN THE LAST 5 YEARS.

Top 3 changes made;

1. Increased use of genomics
2. Increased use of EBVs
3. Change of breed or breeding program utilised

Bulls

Bull to cow ratio utilised by breeders who naturally mate or use post-AI backup bulls, by breed affiliation



The top 3 main bull breeds utilised by respondents were;

Angus **59%**

Hereford **6%**

Drought Master **4%**

The top 5 reasons that respondents had selected their respective bull breed were:

1. Market demand
2. Temperament
3. Suits the environment
4. Premium paid
5. Family/Business tradition

These sentiments were similar across most of the states, though QLD placed a greater emphasis on bull breeds that were suitable for the environment and temperament, as well as tick resistance. Angus Australia members also shared these attitudes but also included good genetic information as an additional reason. Whilst other breed society members placed a greater emphasis on meat quality. Non-breed society members placed emphasis on increased return on investment, or growth rates depending on whether they utilised Angus genetics or not.



ANGUS PENETRANCE

Definitions

Penetrance is described in this report in 2 ways:

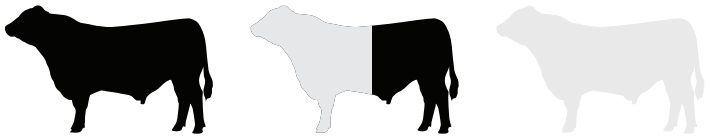
Method 1 – Breed influence

The proportion of cattle that are influenced by Angus genetics. This ranges from pure Angus to cross-breds with a percentage of Angus genetics reported. It is calculated on a per head basis.

Method 2 – Genetic composition

The proportion of the gene pool that is comprised of Angus genetics.

For example;



Method 1: 66% of the above herd is influenced by Angus Genetics (two from three head of cattle)

Method 2: 50% of the herd's gene pool is Angus genetics



Key Insights

Angus remains the dominant breed in the Australian cattle herd in both bull and female populations.

National female herd reported to be *influenced* by Angus genetics

53%

Increase from 2019

5%

National female herd reported to be *composed* of Angus genetics

49%

Increase from 2019

16%

% of respondents reported using Angus or Angus influenced genetics

67%

% that further investigated the use of Angus or Angus influenced genetics

17%

% of Bulls reported to be *influenced* by Angus genetics, nationally

71%

Increase from 2019

25%

% of Bulls reported to be *composed* of Angus genetics, nationally

52%

Increase from 2019

10%

% of those who had not investigated the use of Angus genetics reported needing to see economic value to make the conversion

9%

QLD reported the greatest proportion of respondents who had not used Angus genetics

56%

Tradition and preference are reported to be the main reason respondents have not investigated the use of Angus or Angus influenced genetics

% of respondents that reported nothing could drive them to investigate it

62%

The main reasons respondents did not use a greater proportion of Angus;

Tradition & personal preference

21%

Temperament

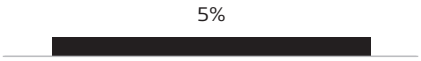
9%

Female Penetrance

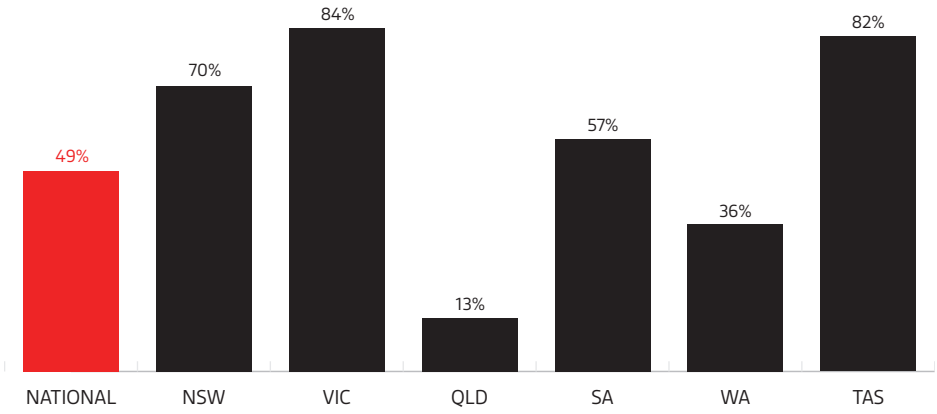
Percentage of females *influenced* by Angus genetics by state



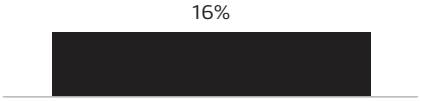
Percentage change of females *influenced* by Angus genetics over the past 5 years on a national basis (2019 v. 2023)



Percentage of females *composed* of Angus genetics by state



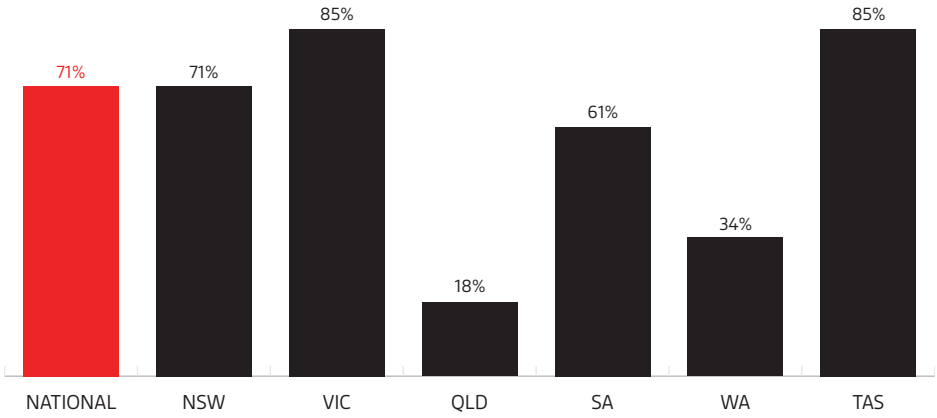
Percentage change of females *composed* of Angus genetics over the past 5 years on a national basis (2019 v. 2023)



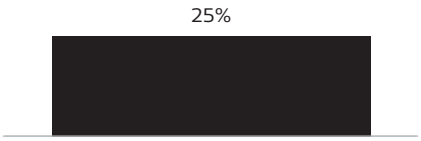


Bull Penetrance

Percentage of bulls *influenced* by Angus genetics by state



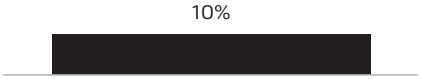
Percentage change of bulls *influenced* by Angus genetics over the past 5 years on a national basis (2019 v. 2023)



Percentage of bulls *composed* of Angus genetics by state



Percentage change of bulls *composed* of Angus genetics over the past 5 years on a national basis (2019 v. 2023)





Investigated Using Angus Or Angus Influenced Genetics

Have used Angus or Angus influenced genetics

67%

Have investigated the use of Angus or Angus influenced genetics

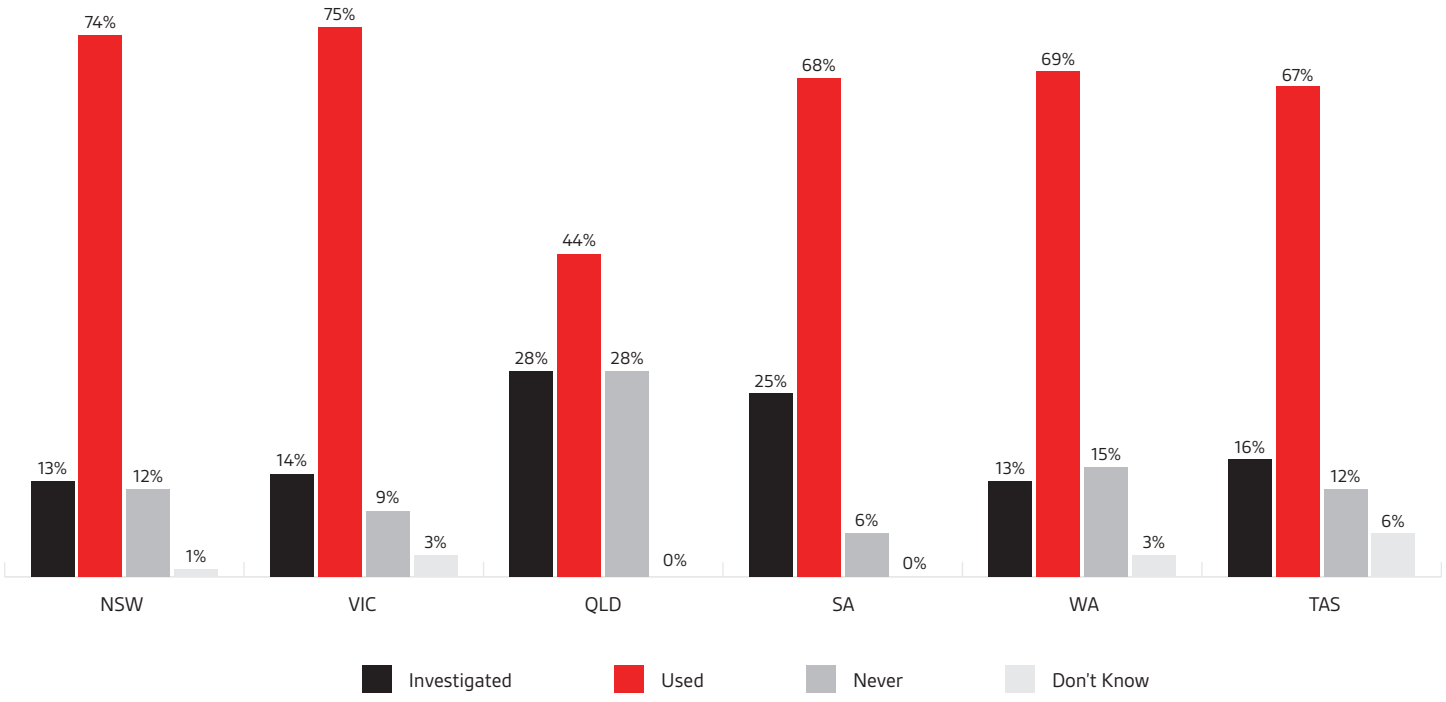
17%

Have NEVER investigated the use of Angus or Angus influenced genetics

15%



Percentage of respondents who had investigated the use of Angus or Angus influenced genetics by state



Of the 15% who had not investigated the use of Angus or Angus influenced genetics:

62% reported that nothing could drive them to investigate the use of Angus or Angus influenced genetics

9% reported needing to see the economic value of conversion

4% reported witnessing better temperament of Angus or Angus influenced genetics would encourage them to investigate further

The main reasons respondents did not use a greater proportion of Angus or Angus influenced genetics in their herd;

Tradition & personal preference
21%

Temperament
9%

Results across states were relatively similar, though the leading factor in QLD was;

Environmental Suitability
22%



ATTITUDES TO GENETIC INFORMATION

Key Insights

Over the past 5 years, respondents' self-rated level of knowledge of genetics remained stable.

Witnessed an increase in knowledge of genetic information over the past 5 years

68%

Of Angus Australia members, Witnessed an increase in knowledge of genetic information over the past 5 years

75%

Most significant trait for bull selection criteria

Temperament (9.3/10)

The ranking remained stable when compared to 5 years ago

Always use selection indexes as part of their bull selection criteria

31%

Sometimes use selection indexes

39%

Use selection indexes more frequently than 5 years ago

43%

EBVs Always use EBVs as part of their bull selection criteria

60%

Consider EBVs on occasion

25%

Angus Australia members that always incorporate EBVs

79%

EBVs Use EBVs more frequently than 5 years ago

46%

EBVs Respondents that reported witnessing a beneficial impact from the use of EBVs

64%

The main impacts witnessed were

1. Improved calving ease (46%)
2. Increased avg. weights (26%)
3. Improved market compliance (16%)

Top 3 EBVs used in selection criteria

1. Temperament
2. IMF
3. 400-day weight

IMF was ranked most important by users of Angus genetics.

Eye muscle was ranked most important by users of non-Angus genetics.

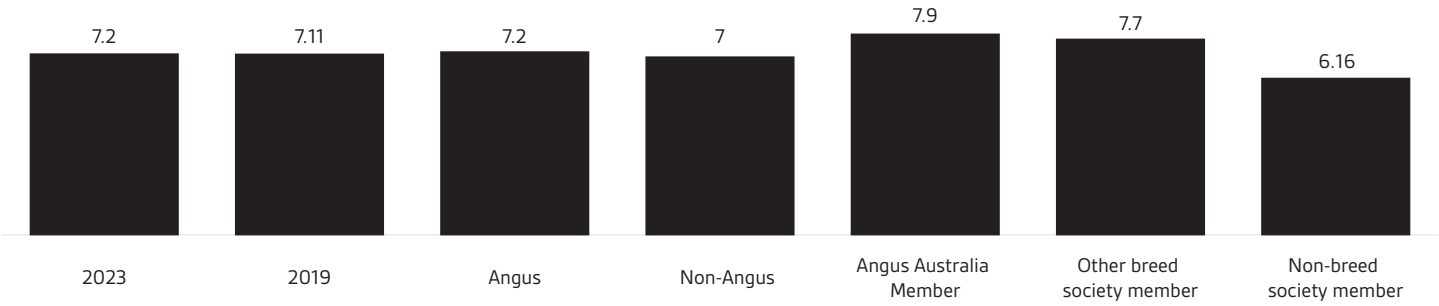
Key sources of knowledge regarding EBVs

- **32%** Key industry professionals
- **27%** Independent research
- **17%** Work experience
- **14%** Angus Australia's resources

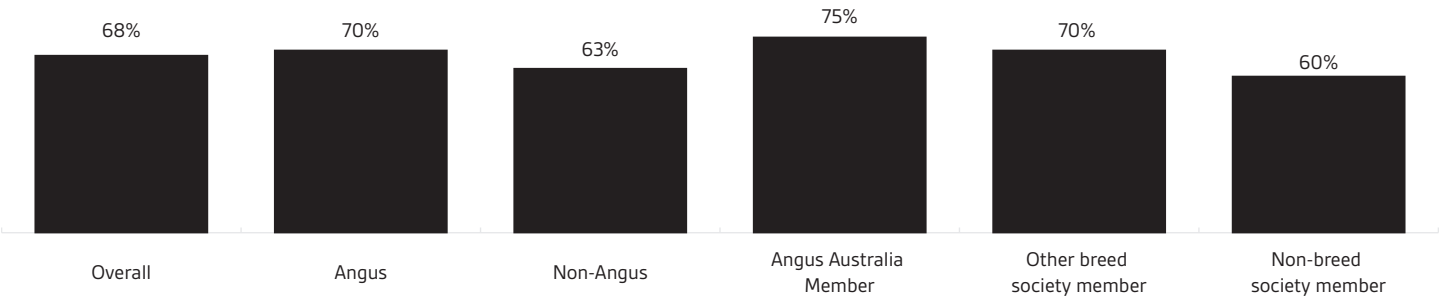


Knowledge of Genetics

Average self-rated level of knowledge of genetics as a score out of 10



Percentage of respondents who have improved their knowledge of genetic information in the last 5 years, by breed affiliation

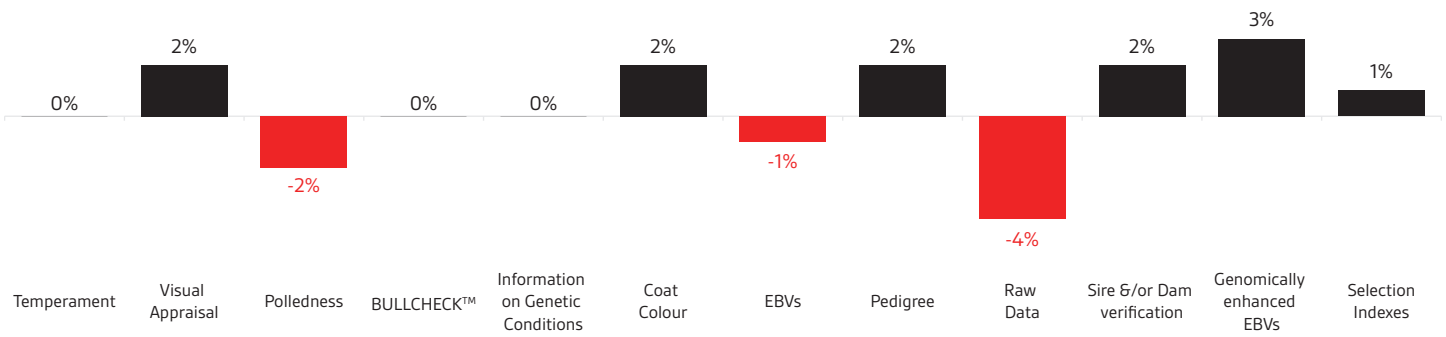


Bull Selection Criteria

Rating (out of 10) in the importance of each factor in regard to bull selection by breed affiliation

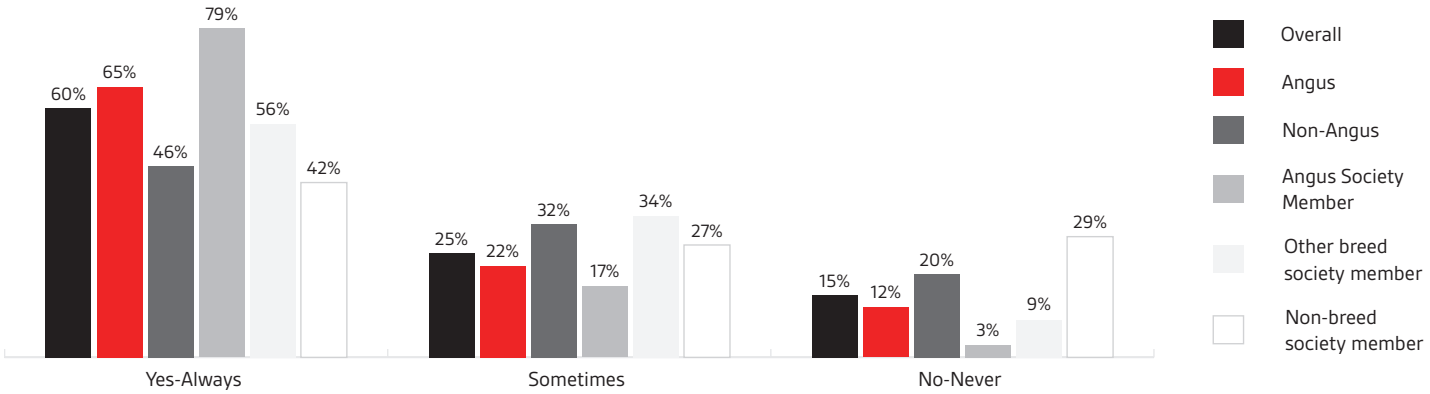
	2023	2019	NSW	VIC	QLD	SA	WA	TAS	Angus	Non-Angus
Temperament	9.3	9.3	9.3	9.2	9.5	9.1	9.3	9.4	9.3	9.3
Visual appraisal	8.9	8.7	9.0	8.9	9.0	8.9	8.4	8.8	8.9	8.9
Polledness	8.5	8.7	8.5	8.7	8.3	8.6	8.6	8.9	8.7	8.1
BULLCHECK™	8.0	8.0	8.0	7.9	8.4	7.7	7.6	7.6	8.0	7.9
Information on Genetic Conditions	7.7	7.7	7.7	7.8	7.6	7.7	7.4	7.7	7.8	7.4
Coat colour	7.6	7.5	7.9	7.7	7.3	7.4	7.4	7.3	7.8	7.1
EBVs	7.5	7.6	7.5	7.6	7.1	7.8	7.7	7.5	7.6	7.1
Pedigree	7.5	7.3	7.6	7.5	7.1	7.5	7.4	7.6	7.5	7.3
Raw data	6.9	7.2	6.9	6.9	7.1	6.8	6.5	7.0	7.0	6.8
Sire &/or Dam verification	6.8	6.7	7.0	6.9	6.6	6.6	6.5	7.0	6.9	6.6
Genomically enhanced EBVs	6.7	6.5	6.8	6.9	6.4	7.0	6.4	6.7	6.8	6.5
Selection Indexes	6.5	6.9	6.4	6.7	6.3	6.9	6.6	6.4	6.6	6.4

Percentage change in the rating of the importance of each factor regarding bull selection criteria

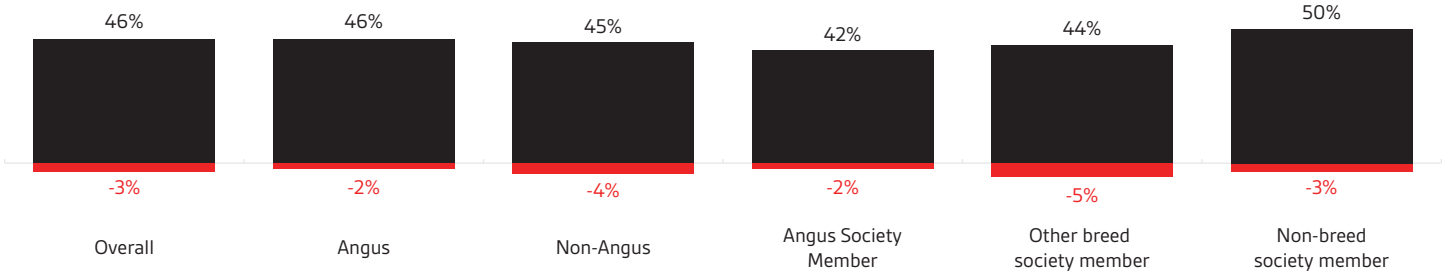


Use of EBVs

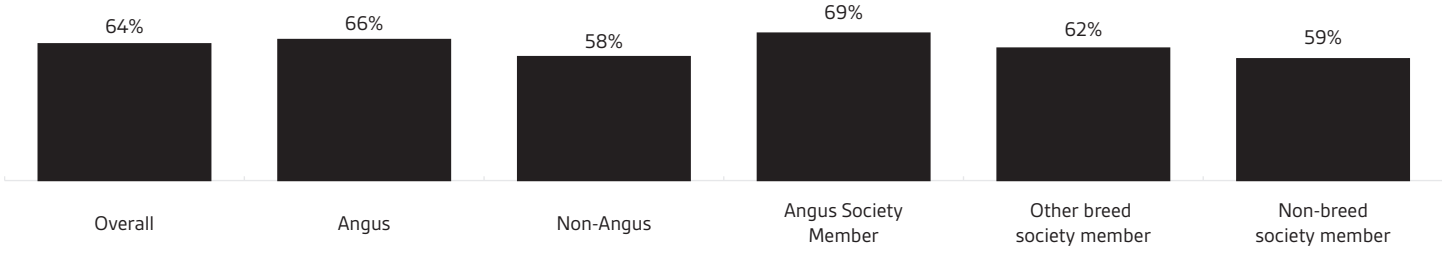
EBV usage as part of bull selection criteria



Percentage of respondents who have increased (black) or decreased (red) EBV usage in the past 5 years by breed affiliation

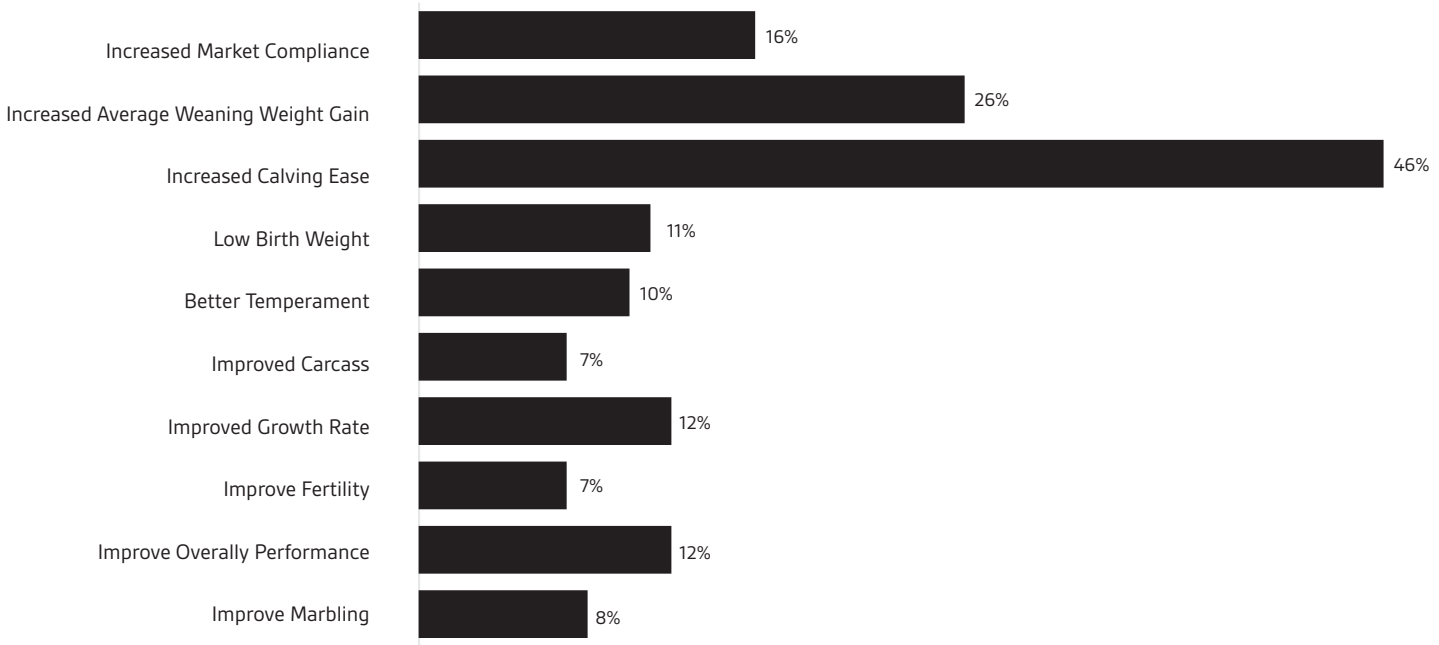


Percentage of respondents who witnessed a beneficial impact from the use of EBVs in their businesses by breed affiliation



Benefits EBVs have had in respondents' businesses, who had witnessed a beneficial impact

Only displaying results above 5%



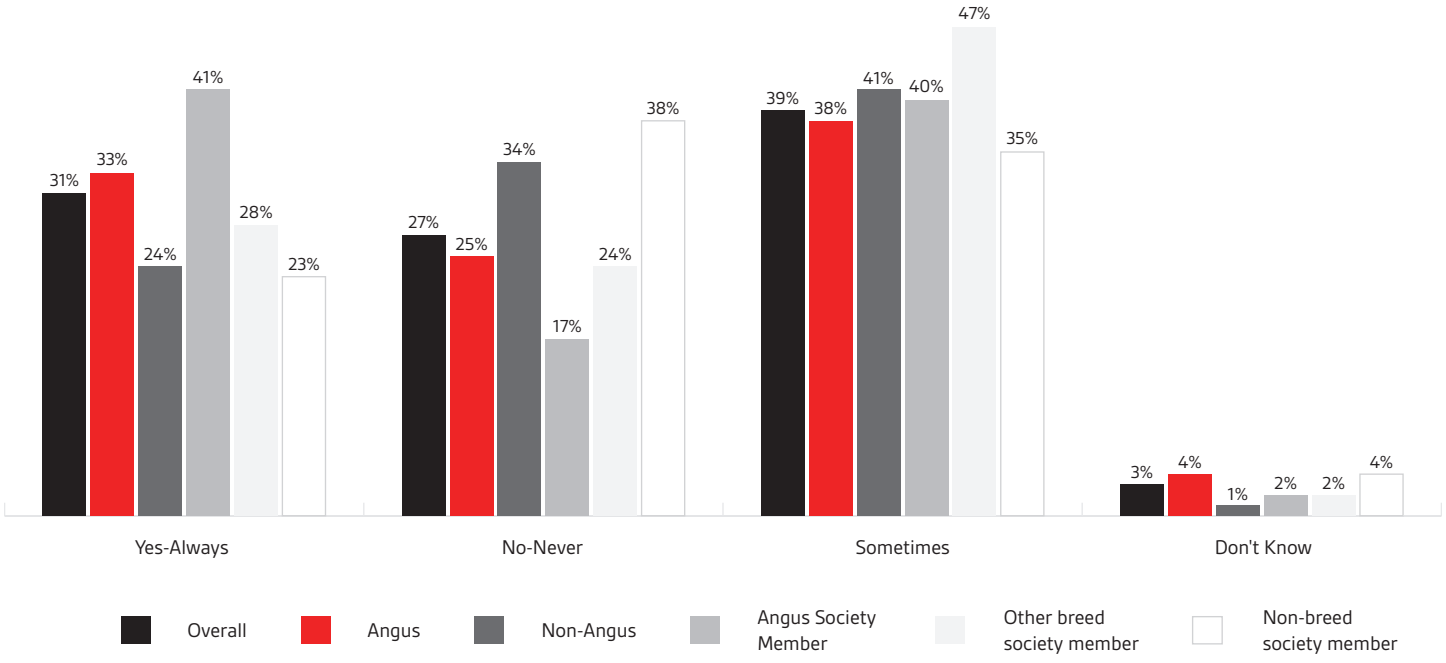
Survey respondents highlighted temperament as the main EBV in terms selection criteria, followed closely by Intramuscular Fat and 400-day weight. Users of Angus genetics place greater significance on IMF recording it as the EBV of importance. In contrast, users of other breeds ranked eye muscle area as the most significant EBV for their selection criteria and placed less focus on temperament.

The primary sources of knowledge regarding Estimated Breeding Values (EBVs) were similar across states, with most respondents listing key industry figures as the primary means of gaining insight (32%), followed closely by personal research at 27% and work experience at 17%. Among Angus Australia members, information provided directly by Angus Australia is highly influential, with 27% indicating it as their main source of EBV understanding. For members of other breed societies, information from various organizations plays a significant role, reported by 26% of respondents. Non-breed society members who do not use Angus genetics primarily gain their EBV knowledge through workshops, seminars, or courses, with 22% selecting this as their main method.



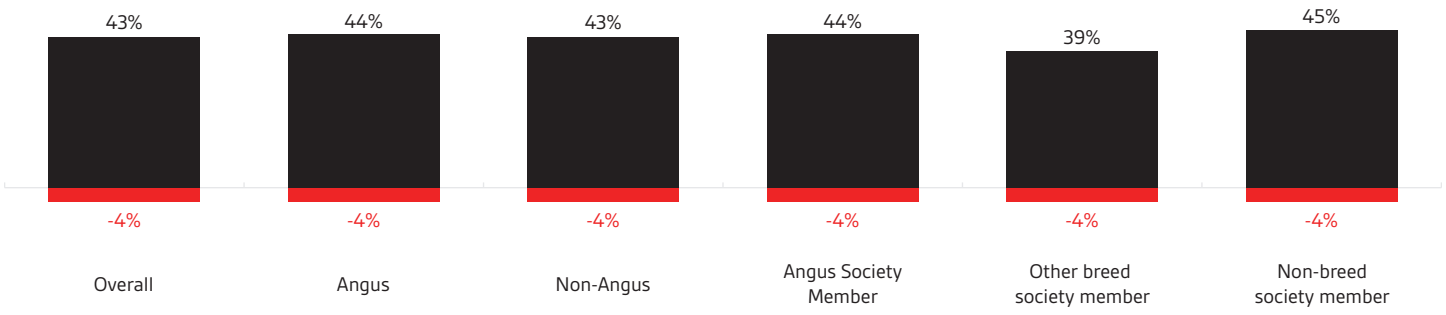
Use of Selection Indexes

Use of selection indexes as part of bull selection criteria by breed society affiliation





Percentage of respondents who have increased (black) or decreased (red) selection index usage in the past 5 years by breed society affiliation



ACCESSING INFORMATION

Key Insights

Willing to make a change to their operation

97%

Increase from 2019

10%

Most common source of information

Other farmers & neighbours (56%)

Most valued source of information

Breed societies & bull breeders (4.2/5 each)

Main social media used by beef businesses

Facebook

Favoured method of learning for producers

One on one discussions

Most common forms of industry events attended by respondents in the last 2 years

1. Field Days
2. Discussion Groups
3. Short Courses

Limited change was witnessed over the past 5 years, except for an increase in those that had not attended an industry event in the last 2 years, most likely due to covid-19.

Attended an Angus Australia event or used Angus Australia resources

30%

Have implemented a change subsequent to the event or resource use

47%

Would not have made the change had they not attended the event or used the resources

47%

Main changes made;

1. Increase in use of EBVs
2. Change to cattle selection
3. Increase in herd information recording

The reported benefits of these changes were better breeding outcomes and increased quality of their cattle.

Have used angus.tech

34%

Have increased their use over the last 5 years

58%

Willingness to Make a Change

45% of respondents are prepared to make significant changes to their operations, and a further 51% are willing to make minor changes to their operations. Representing an increase of 10% of producers willing to make alterations to their operations since the 2019 survey.

Source of Information

The most prevalent sources of information among respondents were listed as;

56% Other farmers or neighbours

52% Breed societies

52% Bull breeders

51% Newspapers

51% Email/e-newsletters

In comparison to the 2019 survey results, 2023 respondents reported an increase in the usage of social media, breed societies, bull breeders and other farmers as a source of information for their operation. Whilst other sources witnessed a reduction in the percentage of users.

Regarding perceived value, the 2023 respondents rated them;

4.2/5 Breed societies

4.2/5 Bull breeders

4.1/5 Consultants & advisors

3.8/5 Government agencies

Preferred learning methods favoured by farmers;

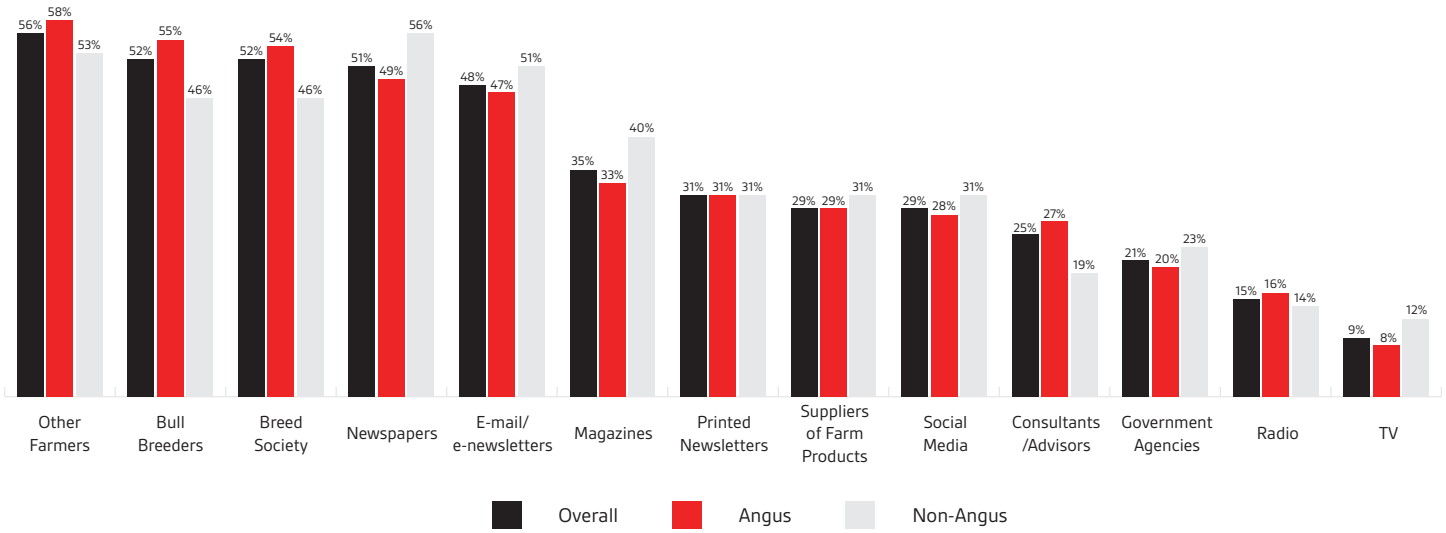
4.1/5 One-on-one discussions

3.9/5 Reading

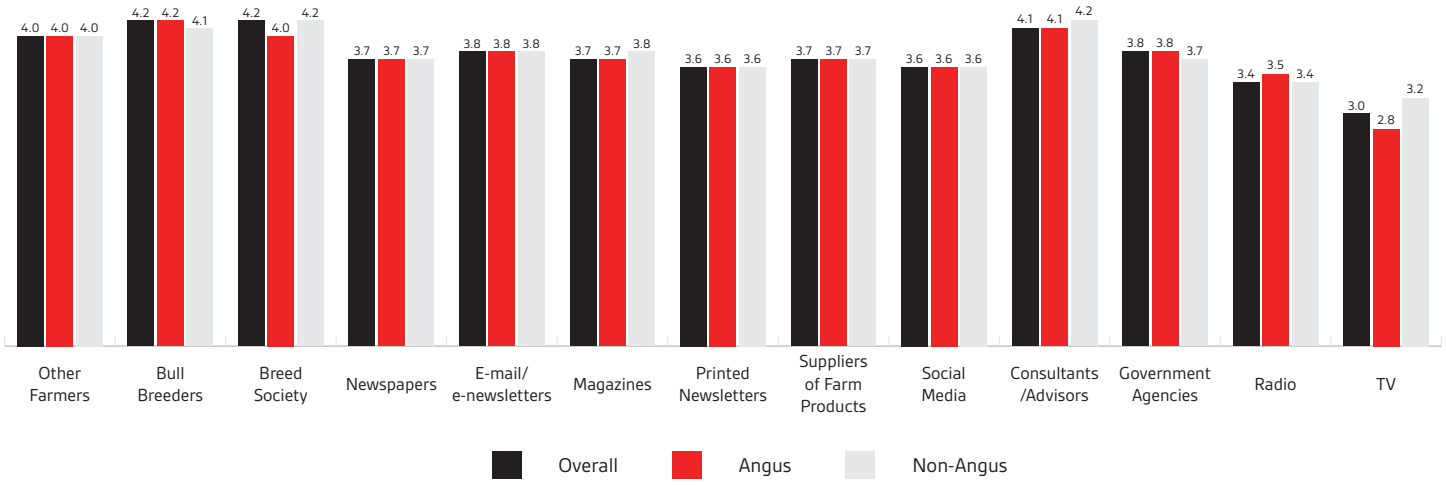
3.6/5 Hands-on learning like farm tours

These trends were consistent across states and breed affiliations and have remained stable since 2019.

Percentage of respondents using each source to obtain information for their cattle operation, by breed affiliation

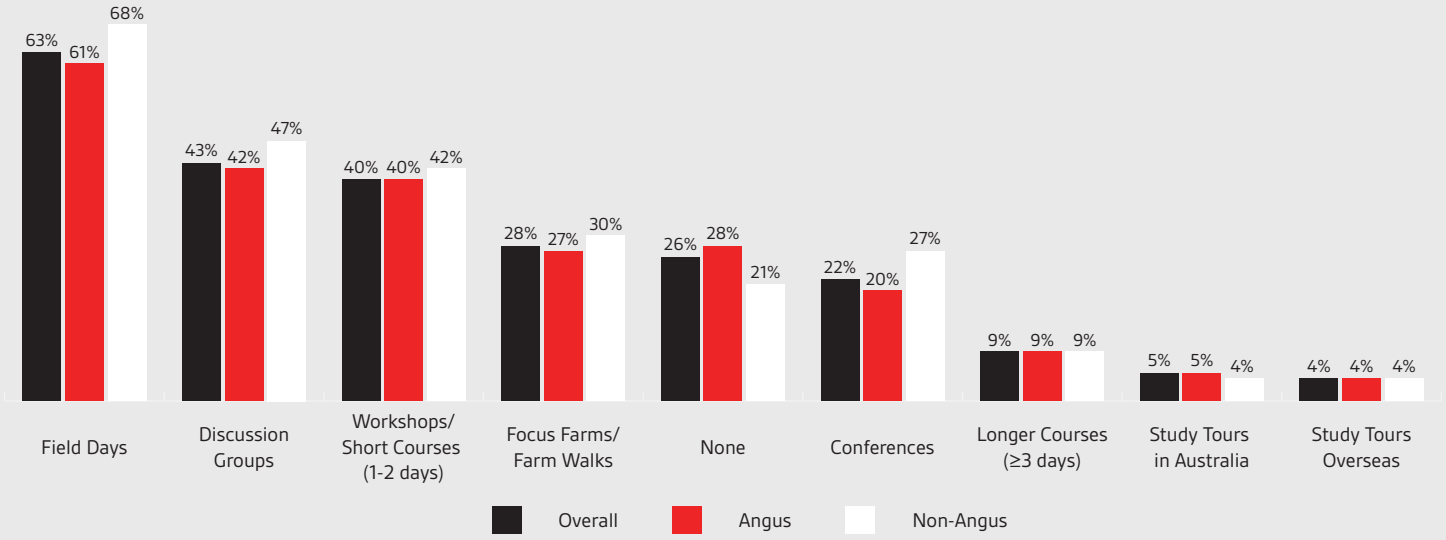


Perceived value ranking for each source used to obtain information for respondents' cattle operation, by breed affiliation

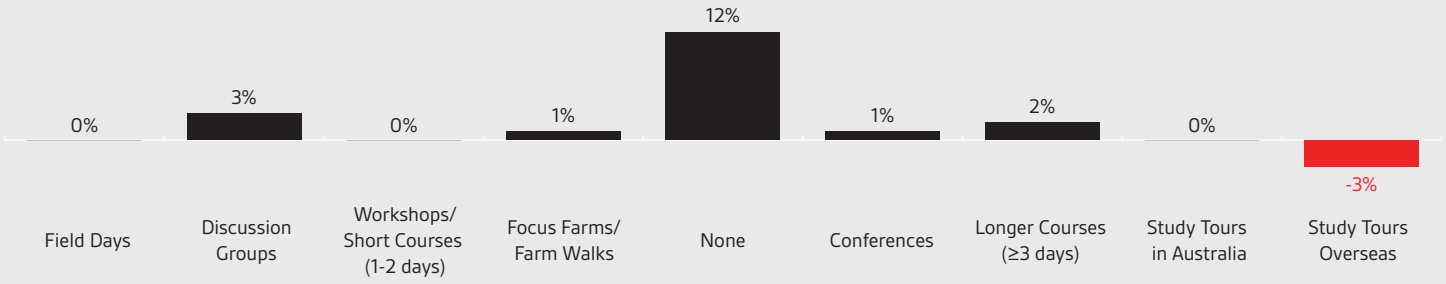


Attendance of Industry Events

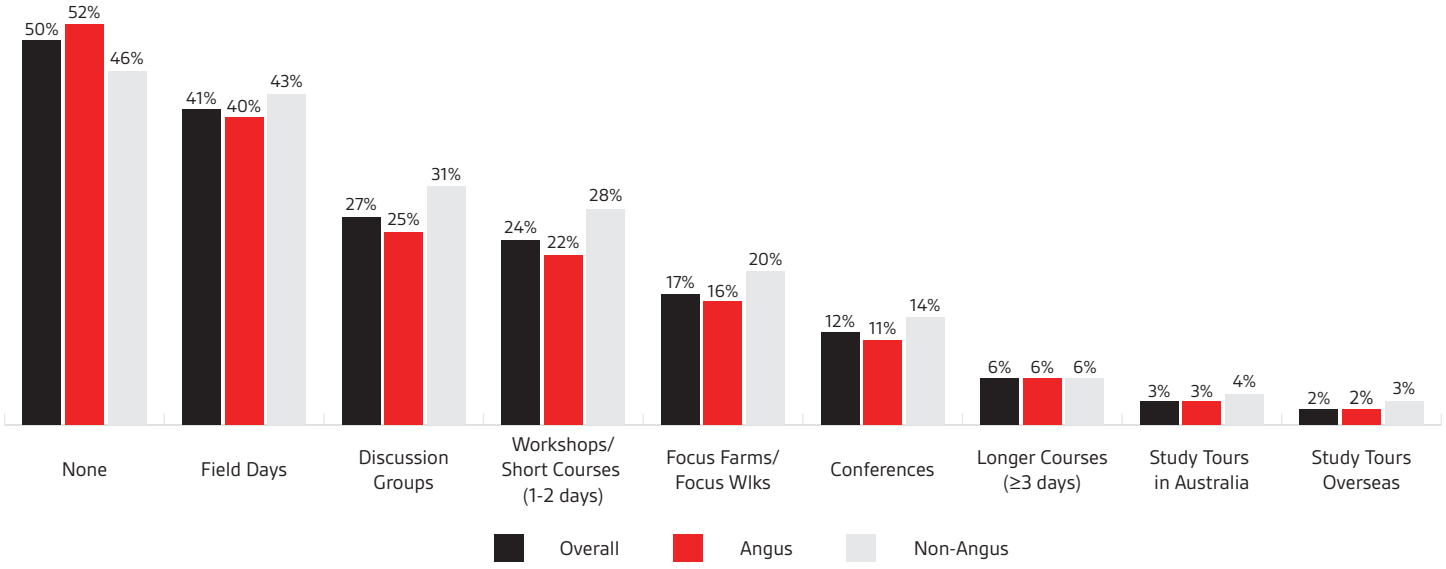
Percentage of respondents who had attended industry events in the last 2 years



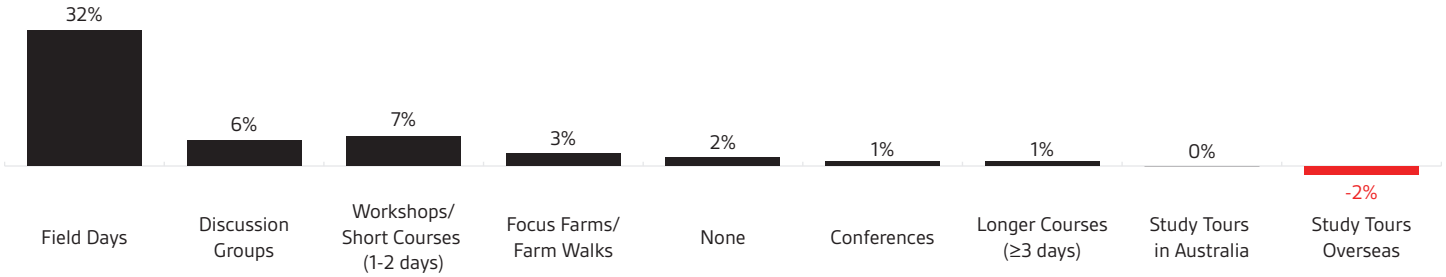
Percentage increase or decrease of respondents who had attended industry events in the last 2 years compared to 2019 survey



Percentage of other business members who had attended industry events in the last 2 years



Percentage increase or decrease of other business members who had attended industry events in the last 2 years compared to 2019 survey





Use of Social Media for Business

Predominant social media platforms for beef businesses according to respondents;

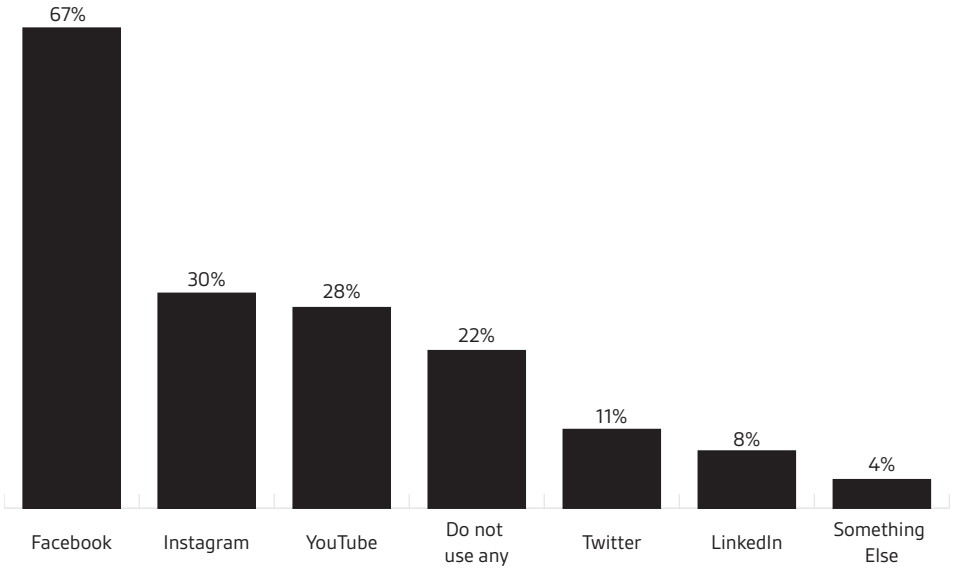
67% Facebook

30% Instagram

28% YouTube

These results were consistent with the 2019 survey results.

Percentage of respondents who utilise each social media platform for their business, of those that specified that they use social media to obtain information for their business

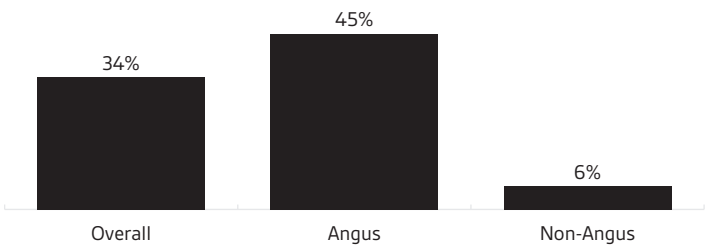




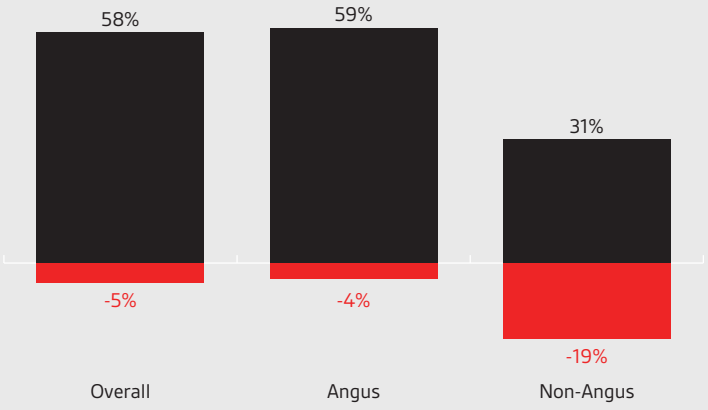


Use of Angus Australia Services

Percentage of respondents who have used angus.tech to research suitable bulls. angus.tech includes Angus Database Search, Angus Australia app, SaleSELECT and SemenSELECT



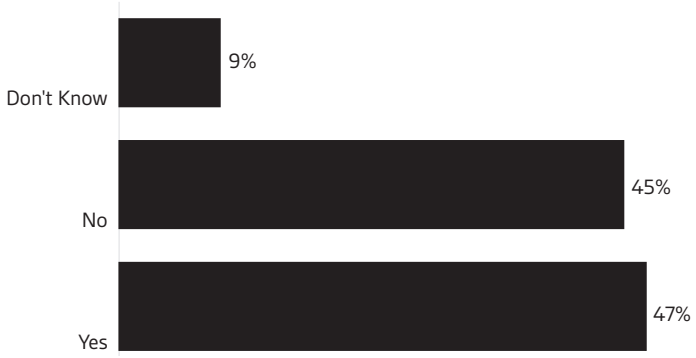
Percentage of respondents who have used angus.tech and whether they have increased (black) or decreased (red) their usage in last 5 years



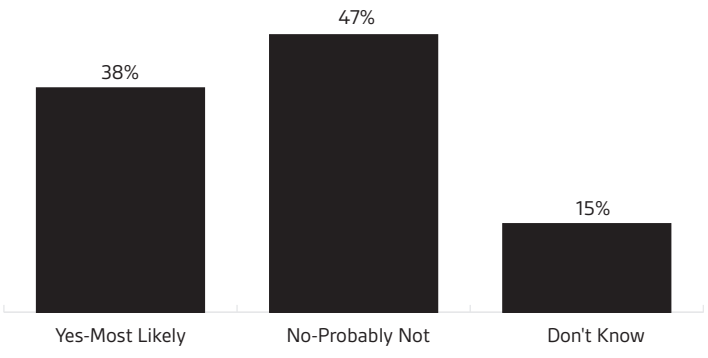
30% OF RESPONDENTS ATTENDED AN ANGUS AUSTRALIA EVENT OR USED ANGUS AUSTRALIA RESOURCES.



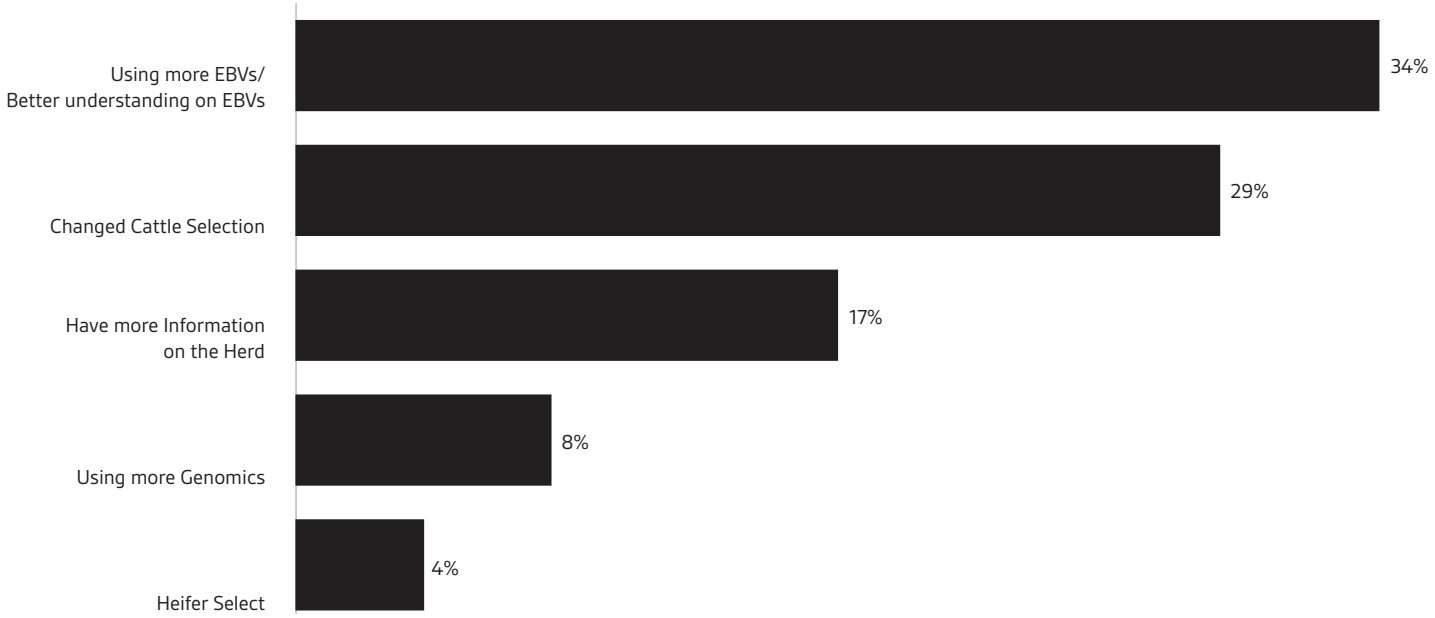
Percentage of respondents who attended Angus Australia's events or utilised Angus Australia's resources that implemented changes post attending Angus Australia events or utilising Angus Australia resources



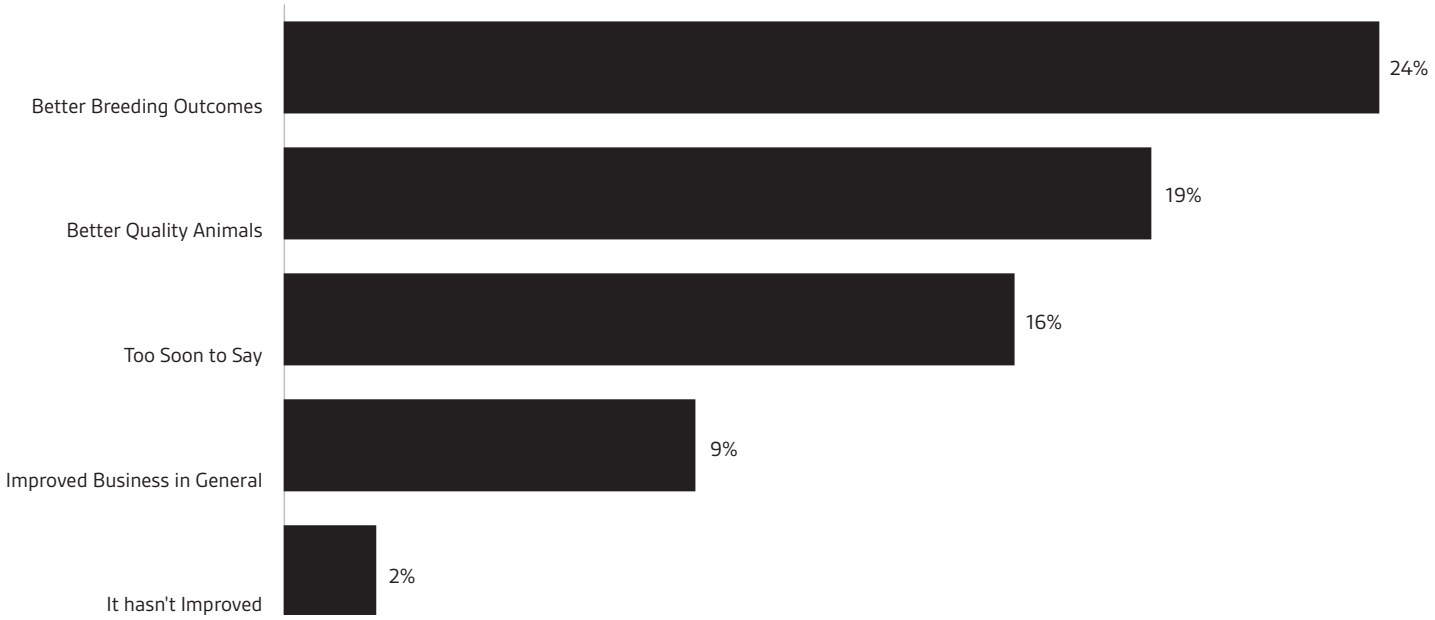
Percentage of respondents who would have implemented the change if they had not attended or utilised Angus Australia resources



Changes implemented by those who attended Angus Australia events or utilised Angus Australia materials



Improvements witnessed by those who implemented change post attending Angus Australia events or utilised Angus Australia materials



TERMS OF REFERENCE

The estimates presented within this report are results obtained from a sample survey. The reliability of estimates obtained from sample surveys are subject to sample variability and may also be confounded by sampling error, impacting the reliability of the results. Thus, the results reported here in, may differ from those that would have been obtained had the entire population been surveyed.



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