Appendix A: Report of data 2018

Introduction

The Australian Egg Industry Community Research Report 2018 summarises the key findings from a community research process about the egg industry that was open to a broad range of Australians. This research process had two components: an engagement process with egg industry stakeholders and a national community survey. This Appendix provides a more detailed account of the Community Survey component of this research and provides a comparison between the representative and open samples.

A key aim of the community research process was to enable the views of the Australian community to be captured as an input to the Australian Egg Industry Sustainability Framework. We used an online survey to achieve this because surveys offer an efficient way to access the views of many people in a consistent manner. CSIRO uses community surveys to access the thoughts and experiences of a large number of everyday Australians. By conducting this survey online, participants can complete it when it suits them in a relatively straightforward way. We use surveys because it allows us to reach out and ‘speak’ to many more Australians than would be possible if we only conducted interviews, for example.

In this project, as in many similar national projects conducted by CSIRO, we sought to collect surveys from a diverse and representative group of Australians. By collecting surveys from a group of people that is representative of the Australian population as a whole, we can be more confident that our findings reflect the broader set of community views about the egg industry. To achieve this, we used a research panel.

Research panels are used frequently in survey research of this kind to access a group of people that reflect the broader Australian population on specific demographic attributes. In this case, participants were matched with Australian Bureau of Statistics (ABS) data for age and gender, with the number of participants recruited in each state reflecting their proportional representation in the country as a whole (e.g. we collected more people from New South Wales than the Northern Territory, in line with the distribution of people across the country). We also made sure that we collected surveys from regional areas in each state, again in line with ABS data regarding the proportion of people in each state that live in regional versus metropolitan areas. Research panel participants receive a small incentive for participating in each survey that they complete. In this report, participants from the research panel are referred to as the representative sample.

Through the research panel, we collected surveys between the 6th August and the 14th September 2018 from 5,440 people matched to the ABS population statistics. After cleaning the survey data, 4,797 surveys from the research panel were analysed for inclusion in the community research process.

‘Data cleaning’ is conducted in order to ensure the quality of data included in analyses is high. This involves screening and potential removal of surveys where, for example, participants answered the survey very quickly (i.e. less than 5 minutes), in ways that indicate lack of attention to the content of questions, and extreme or consistent responding on survey questions (i.e. answering ‘1’ to all questions).

In this project, however, we also wanted to make sure that as many Australians as possible had an opportunity to share their views about the egg industry with us. To enable this, we also collected surveys through an open web link hosted on the CSIRO project page and the Australian Eggs project web page. The survey was available via this web link between the 9th of August and the 10th September 2018, with 8,037 surveys.
collected in this period. After cleaning the survey data, 7,876 surveys from the web link were analysed for inclusion in this report. Participants that self-nominated to complete the survey through the web link are referred to as the open sample.

The Community Survey comprised a number of single items of interest as well as scaled variables in which a number of related survey questions are used to build a more robust understanding of significant issues. This allows us to respect the complexity of these issues and have a robust measure of community sentiment. For these scaled measures, we explore how they correlate with each other and then average the responses of participants to them into a single score. The averaged scores allow us to reflect the multi-dimensional nature of these issues in an accessible way.

The representative and open samples of participants were separated in our analyses because they had very different demographic characteristics and often very different responses to the questions that we asked. This is a consequence of these samples representing quite different groups of people. While the research panel recruitment process provided us with a representative sample of Australians, the open self-nomination process via the CSIRO and Australian Eggs web pages, provided us with a sample of highly engaged Australians that are passionate about hen welfare. In large part this was the product of publicity of the survey by an animal welfare group, the RSPCA, and subsequent media attention. As can be seen below, in the open data collection process, there was a significant spike in participation the day of and shortly after the RSPCA distributed the survey link to their members.

In this figure, it is clear there is a connection between the number of participants completing the survey via the open link and where this sample of people get information about the egg industry. It is important to note that participation by Australians through the open web link was welcomed and appreciated – this research process was designed to be open to and inclusive of any Australian adult who wanted to contribute.
Demographic plots by sample

The representative and open samples differed substantially in their opinions and demographic characteristics. Below, we set out the demographic differences between the two samples.

Gender

Perhaps the largest difference between the two samples was that the open sample was almost 80% female, while the representative sample was more gender balanced, with a near 50-50 split (52% female, 48% male).

![Gender Split](image)

Age

There were also fairly large age differences, the median age in the open sample was 8 years older than in the representative sample (54 vs 46), and the open sample was particularly sparse in those under 30.

![Age Distribution](image)
Education

The open sample had substantially more formal education than the representative sample - for instance, 27% of the open sample had post-graduate degrees, compared to 16% of the representative sample.

Job status

By comparison, the representative and open samples had similar profiles when it came to their employment status.
Industry of employment

Both samples contained participants from a broad and representative distribution of industries, with the open sample having a higher representation in education and health care.

Associates in egg industry

In this item, we asked participants how many people they knew that worked in the egg industry. Most people in both samples did not report knowing anyone in the egg industry.
Egg consumption

Most respondents in both samples buy between 6-12 eggs per week. However, participants in the open sample were more than twice as likely to have bought no eggs in the last week compared to the representative sample (21% vs 8%).

Weekly income

Income profiles between the two samples were similar, with the exception that many more participants in the open sample were unwilling to disclose their income (23% vs 9%).
Weekly grocery spend

The two samples spent similar amounts on groceries, with a slightly higher proportion of respondents from the representative sample falling in the most frugal category, spending under $100 per week (31% vs 23%).

Lifestyle affordability

On average, the representative sample was much more likely to feel it was hard to afford the lifestyle they wanted - about 50% of these people agreed with this statement, while only 29% of the open sample said the same.
Last egg purchase type

We asked participants what kind of eggs they had purchased in the last week. Of those who had purchased eggs, most participants in both samples indicated they had purchased free range eggs.

Where people get their information

Participants could choose multiple sources, with most people in the representative sample indicating television news, the internet and friends or family as the three top sources. For the open sample, more than 80% indicated animal welfare groups (e.g. RSPCA, Animals Australia) as their source of information, followed by the internet and television news.
Self-rated knowledge of the industry

We asked participants to rate their own knowledge of the egg industry on a scale where a higher number indicates higher levels of self-reported knowledge. The open sample were overwhelmingly more likely to say they had strong general knowledge of the industry when compared to the representative sample.
Attitude data

Trust

Respondents were asked questions relating to trust in various institutions. Averaged trust scores are displayed below on a scale of 1 (Strongly disagree; lower trust) to 5 (Strongly agree; higher trust). In the representative sample, the egg industry is trusted slightly less than research institutions or welfare groups, but more than retailers or government. In the open sample, animal welfare groups are trusted much more than any other group.

![Bar chart showing trust scores for different institutions in representative and open samples.](chart.png)
Acceptance and rejection

We asked respondents how much they rejected, tolerated, accepted, approved and embraced the egg industry in Australia. The open sample was much more negative than the representative sample. In the representative sample, acceptance and approval of the industry was around 4 on a scale from 1 (Strongly disagree) to 5 (Strongly agree), whereas the open sample was closer to 2.

A deeper look at approval

Examining approval of the egg industry in more detail, we can see that almost 60% of the representative sample could be said to strongly approve of the industry, while another third are around the midpoint of the scale. Further, only about 10% of these participants actively do not approve of the industry. This is in strong contrast to the open sample, where over 40% strongly do not approve of the industry.
Ranking issues by importance

Participants were asked to rank 5 issues in order of importance when purchasing eggs. Below, we plot the distributions of these rankings. Each graph represents how all participants in that sample ranked that particular issue – for example, almost 50% of people in the representative sample ranked egg farming methods most important (number 1), almost 20% ranked it number 2, about 13% ranked it number 3 and so on.

What's clear is that in the open sample, overwhelmingly price is the lowest ranked characteristic, while egg production method is ranked number one. In the representative sample, things are more even. Price and production system compete for first priority, while environmental impact is last on the list of considerations. It should be noted that this data includes participants who rarely (or never) purchase eggs.

Representative sample
Open sample

- Egg farming method
- Price
- Confidence in food safety

- Environmental Responsibility
- Clear labelling and information

Rank (most to least important)
Zooming in on price

One of the more interesting findings in the representative sample was how people rank price as factoring into their purchasing decisions. This graph shows a clear duality, where price is either the most important (25%) or least important (29%) factor for Australians. This suggests that there are two groups of consumers, and that when it comes to eggs, people tend to either care a lot about price or almost entirely ignore it.

Ranking systems

Participants were asked to nominate which egg production system was best on a number of characteristics or outcomes (e.g. yolk colour, taste, price, nutrition, hen welfare). Below we include two ways of plotting these rankings. Both show the same story - free range is seen to be best on all characteristics, except price, where it competed with cage produced eggs.
Moral treatment of animals

We asked questions about the use of animals in a range of contexts, that were measured on a 1 (Strongly disagree) to 5 (Strongly agree) scale. The shape of the violin plot for the open sample (i.e. the distribution of scores is clumped toward the low end of the scale used) demonstrates that this group, and particularly women, disagrees with the use of animals more than the representative sample. Note that the vertical lines represent the median response in each group.

The importance of hen welfare

As shown below, hen welfare is very important to all participants on average, though scores on these items were distributed all along the 1 (Strongly disagree) to 7 (Strongly agree) scale. For the open sample in particular, scores were almost at the limit of the scale on average, with an average score on these items above 6 on the 7-point scale.
Importance of how eggs are farmed

It's clear that participants have strong feelings about how their eggs are produced, with the open sample effectively at the ceiling of the 1 (Strongly disagree) to 7 (Strongly agree) scale used, while more than half the representative sample scored above a 6 on this 7-point scale.

Environmental impact

On this measure, there's not a clear difference between genders or the two samples, with scores tending to cluster at the mid-point on the scale. Combined with the high level of 'not sure' responses (see Appendix B), this indicates that participants do not have a detailed understanding of the environmental impact of the egg industry.
Economic viability

Participants in both the open and representatives samples have very positive views on the role of the egg industry economically in Australia. Examining the violin plots for economic viability, almost all responses in both the representative and open samples were above the midpoint of the scale used.

Regulation of the egg industry in Australia

There is a lot of variability in people's view on whether the egg industry in regulated. Among the representative sample, agreement that the industry is regulated is sitting at a little under a 5, on average, out of 7. The representative sample was higher in confidence on this set of measures, on average.
Eggs as a staple

Participants also generally strongly agree with the notion that eggs are a staple food for Australians, though there was a lot more variability in this outcome among the open sample.

Source of important nutrition

More than 85% of participants in the representative sample agreed that eggs provide important nutrition in the Australian diet and that Australians rely on eggs as an important staple food.
The egg industry is important to Australia

We asked how important the egg industry was to Australia, with strong positive responses from both samples, particularly participants in the representative sample. Almost 60% of participants in the representative sample strongly approved of the industry and less than 10% of this group did not approve of industry.

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The agriculture industry is important to Australia

As with questions about the egg industry, when asked how important the agriculture industry is to Australia, responses from both samples were positive. Almost all participants in both samples agreed that the agriculture industry was important to Australia.
The egg industry is responsive to the public

On whether the egg industry is responsive to the public, we saw a strong divergence between the two samples. Those in the representative sample were quite positive (around 5 on a scale from 1 = Strongly disagree to 7 = Strongly agree) while those in the open sample were quite negative on this measure. Around 20% of both samples indicated they did not know if the industry was responsive to community sentiment.

Respect for the industry

We asked participants how much they respected the egg industry and its reputation. In line with other results, the representative sample of Australians was positive, with more than 50% of this sample indicating agreement or strong agreement that the industry has their respect. In the open sample responses were much less positive, with almost 70% of participants indicating disagreement or strong disagreement that the industry has their respect.
We asked participants the extent to which their attitude towards the egg industry was a matter of principle on a scale from 1 (Strongly disagree) to 7 (Strongly agree). This question showed a clear difference between the representative and open samples. The representative sample responded in a manner that can be seen to reflect a ‘bell curve’, with responses spread evenly around the midpoint of the scale used. For the open sample, responses were strongly weighted toward the ‘Strongly agree’ end of the scale (46% in the open sample vs 7% in the representative sample).
Necessary to maintain strict biosecurity controls

There seemed to be universal agreement that strict biosecurity controls are necessary for the egg industry in Australia. More than 70% of participants in both samples indicated that they either ‘Agreed’ or ‘Strongly agreed’ with the necessity to maintain biosecurity controls in the industry, on a 1 (Strongly disagree) to 7 (Strongly agree) scale, and more than 50% of respondents in both samples indicated the strongest possible agreement (at 7).

Affordability of eggs

There was also strong agreement across the two samples that eggs are affordable, with more than 75% of people indicating agreement above the mid-point of the scale. Approximately 80% of participants in both samples were above the midpoint of the 1 (Strongly disagree) to 7 (Strongly agree) scale used.
Price of eggs fairly reflects the cost of production

When asked, participants in the representative and open samples responded fairly evenly around the midpoint of the scale used (i.e. an equal number of participants in both samples agreed and disagreed with this statement). However, for the open sample in particular, the proportion of ‘not sure’ responses to this question were high (above 30%).

Determining the price of eggs

Again, large proportions of both the representative (i.e. approximately 15%) and open samples (i.e. approximately 25%) indicated they were not sure how the price of eggs is determined. Of those that felt confident responding, there was strong agreement across both samples that retailers determine the price of eggs.
Good hen welfare requires some invasive activities (e.g. beak trimming)

There is clear division of opinion on this item in the survey. Responses from the representative sample were distributed fairly evenly across the response scale, while those in the open sample responded with extreme disagreement on this issue. Approximately 40% of open sample participants indicated they strongly disagreed that hen welfare requires some invasive activities.

Costs and benefits to hens in every production system

Given the strong preference for free range eggs expressed by those in the representative sample, it is interesting to note that responses on this question were relatively positive. For those in the open sample, responses were clearly and very strongly negative (i.e. approximately 33% of participants indicated they 'Strongly disagreed' with this statement).
Evaluating the costs and benefits of the industry overall

Respondents were asked to rate their level of support for the industry, considering the benefits and costs associated with the egg industry. About a third of the representative sample responded with the most positive response available, with the vast majority of participants from this sample responding at or above the midpoint of the scale used (i.e. positively toward the industry). For those in the open sample, two stories emerge: about 25% of participants indicated the strongest possible rejection of the industry, while about 45% of participants in this sample responded at or above the midpoint of the scale used.
Egg farmer accreditation

Participants in both samples, and particularly in the open sample (where more than 80% indicated strong agreement), feel that egg farmers should be accredited.

Community agency

Respondents in both samples, and particularly in the open sample (where just under 70% of respondents chose the strongest positive rating available), rated quite strong agreement with the statement ‘People in Australia can influence how egg laying hens are treated’.
Consistent standards across the country

Respondents in both samples were very strongly supportive that standards for egg farming should be the same across the country. Approximately 60% of the representative sample and 80% of the open sample indicated strong agreement.

The federal government can hold the egg industry accountable

This question prompted quite high proportions of ‘not sure’ responses, and a broad distribution of scores along the scale used in both samples. Most people in the representative sample, and the majority of people in the open sample, indicated agreement that the federal government can hold the industry to account.
I listen to and respect the opinion of the egg industry

On this question, most people in the representative sample indicated that they did listen to and respect the egg industry, while most people in the open sample indicated that they did not with approximately 65% rating at or below the midpoint of the scale used.


2. For more detail on what this involves, see Meade AW and Bartholomew C. (2012) Identifying careless responses in survey design. Psychological Methods, 17(3), 437-455. DOI: 10.1037/a0028085.