Brazilian Consumer Attitudes and Interest Regarding In-Ovo Egg Sexing

January 2025

Photo by Erol Ahmed, Unsplash

REPORT PREPARED FOR

Innovate Animal Ag

Executive Summary

Among Brazilians who buy eggs and do at least 50% of household grocery shopping:

73%

ARE **UNCOMFORTABLE** WITH THE EGG INDUSTRY'S PRACTICE OF CULLING MALE CHICKS IMMEDIATELY AFTER THEY HATCH.

76%

AGREE THE EGG INDUSTRY SHOULD **FIND AN ALTERNATIVE** TO THE PRACTICE OF CULLING MALE CHICKS IMMEDIATELY AFTER THEY HATCH.

47%

WOULD BE EXTREMELY / VERY INTERESTED IN **BUYING** IN-OVO SEXED EGGS IF AVAILABLE FROM THEIR PREFERRED GROCERY STORE.

51%

ARE WILLING TO PAY AT LEAST **R$ 3.00 MORE** FOR A DOZEN EGGS PRODUCED USING IN-OVO EGG SEXING TECHNOLOGY (R$ 0.25 PER EGG).

- In Brazil (as in the U.S.), most egg buyers are unaware of the egg industry's practice of culling male chicks, are uncomfortable with it, and support finding alternatives.
- Only 7% of Brazilian consumers know that culling male chicks immediately after they hatch is a common practice for the egg industry; 48% think male chicks are raised for meat.
- 73% of egg buyers in Brazil are uncomfortable with the practice of "killing" male chicks while only 15% are comfortable; 76% agree the egg industry should find an alternative.
- Only 14% of Brazilian egg buyers were aware of in-ovo egg sexing technology prior to the survey, but 72% agree the egg industry should adopt it instead of culling male chicks.
- 47% of Brazilian consumers are "extremely" or "very" interested in eggs produced using in-ovo sexing; another 32% are "slightly" interested.
- 76% of egg buyers are willing to pay a premium for eggs produced using in-ovo sexing, including 51% who are willing to pay a premium of R$ 3.00 or more per dozen eggs; the weighted average premium Brazilians will pay is R$ 3.87 more per dozen eggs.
- In Brazil, early adopters of eggs produced using in-ovo sexing are more likely to be affluent and have more formal education. They are also more likely to be their household's primary grocery shoppers and slightly more likely to live in Brazil's Central West region.
- Compared to U.S. egg buyers, Brazilian consumers are more uncomfortable with the industry practice of culling male chicks, more likely to agree that the industry should adopt in-ovo egg sexing, equally interested in in-ovo sexed eggs, and more willing to pay a premium.

Project Background

This research study sought to help Innovate Animal Ag and its industry partners understand Brazilian consumer awareness of and attitudes toward in-ovo egg sexing as a potential alternative to the egg industry practice of culling male chicks immediately after they hatch. This study is a follow-up to a nearly identical study conducted in the United State in 2023 that was also commissioned by Innovate Animal Ag and conducted by Cultivate Insights (in partnership with Nielsen).

The Brazilian survey asked about respondents' egg purchase habits including frequency, volume, and types of specialty eggs they have purchased recently. It also assessed actual and self-reported awareness and level of comfort with culling male chicks immediately after they hatch. The survey then addressed awareness of and support for using in-ovo egg sexing as an alternative to culling male chicks, including their interest in and willingness to pay. Lastly, the survey asked a range of demographic questions, including gender, age, ethnicity, region, household income, and education.

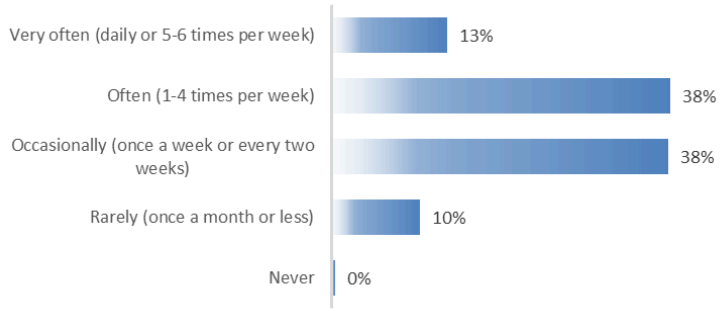
The survey questions were drafted in English and translated to Brazilian Portuguese by translators working with YouGov. The translation was then verified by a member of the Innovate Animal Ag team who is fluent in Brazilian Portuguese. Similar to the U.S. study, we excluded Brazilians below age 18, those who had not purchased eggs in the previous three months prior to taking the survey, and those who typically purchase less than half of their household's groceries. We also used the same format for questions relating to egg purchase frequency and volume.

The survey was fielded from December 20-30, 2024 with a sample size of 1,553 Brazilian adults. We worked with YouGov to source participants. YouGov provided initial data cleaning and quality assurance and Cultivate Insights conducted additional quality screening. However, we should note that online sampling is not entirely representative of the Brazilian population and we are relying on self-reported data. Respondents' answers may differ from their actual opinions or beliefs for reasons including social desirability bias, misunderstanding the questions, or not paying sufficient attention.

Egg Purchasing Behavior

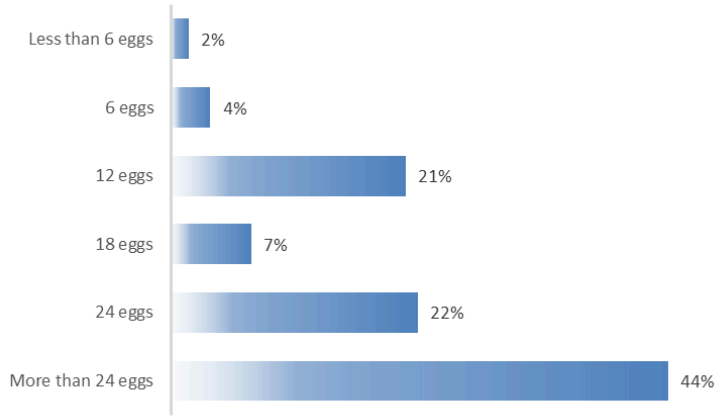
For Brazilian consumers who purchase at least half of their household's groceries (all respondents in our survey), buying eggs is very common. Essentially all respondents (96.2%) said they had purchased eggs in the three months prior to taking the survey. In addition to nearly all consumers buying eggs, Brazilian consumers purchase eggs regularly. Most survey respondents said that they buy eggs "often" (38%) or "occasionally" (38%), which is roughly once every two weeks up to four times per week. By contrast, about one in eight consumers (13%) buys eggs "very often" and one in ten consumers (10%) buys eggs "rarely." Brazilians generally buy eggs more frequently than U.S. consumers.

On average, how often do you purchase eggs? Please select the option that best applies.



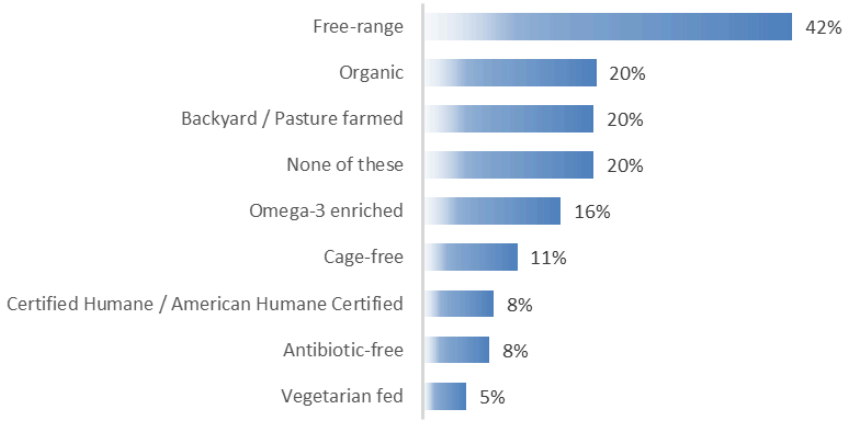
Underscoring the popularity of eggs among Brazilian consumers is how many they usually buy when they visit the grocery store, which is reportedly much higher than in the U.S. Nearly half of Brazilian survey respondents (44%) said they typically buy more than two dozen eggs and another 22% said they buy 24 eggs. Combined, this is three times the proportion of U.S. respondents who buy two dozen or more eggs at a time, which may be partly due to differences in shopping frequency or preferences. Only 6% of Brazilians said they buy fewer than a dozen eggs at a time.

How many eggs do you typically buy when you go grocery shopping? If you buy a different number of eggs, please round up to the nearest dozen or half dozen.



The survey also asked consumers which types of eggs they had purchased in the past three months, with an emphasis on different types of specialty eggs. The results are very different from the U.S., where “cage-free” and “vegetarian fed” were the most commonly purchased specialty egg types (however, language differences make direct comparisons more challenging). In Brazil, the only specialty egg type purchased by more than one in five respondents was “free-range” – which was selected by 42%. A fifth of Brazilians (20% each) said they had purchased “organic” or “backyard/pasture farmed” eggs, while one in seven (16%) had purchased “omega-3 enriched” eggs. Only 11% said they had purchased “cage-free” eggs; all other egg types were purchased by less than 10%.

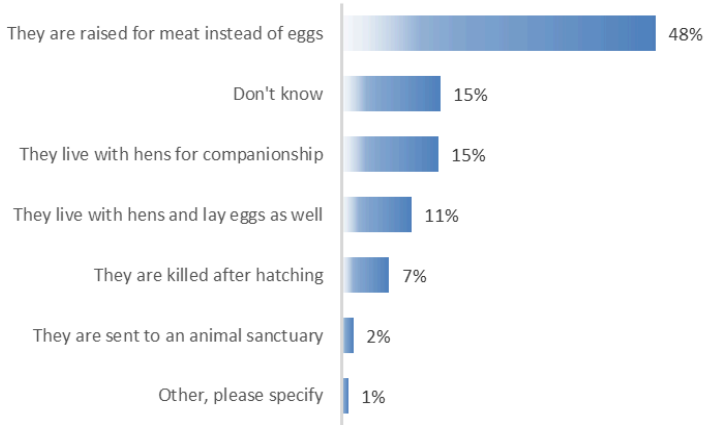
Which of the following kinds of eggs have you purchased in the past three months? Please select all that apply.



Awareness & Attitudes: Male Chick Culling

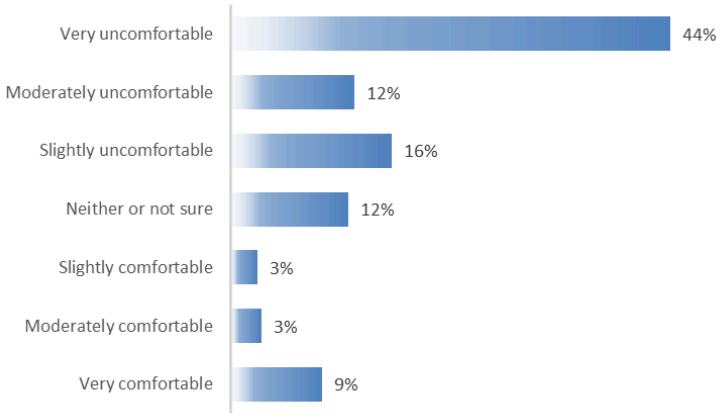
The main objective of this survey was to understand Brazilian consumer awareness of and attitudes toward the egg industry's practice of culling male chicks immediately after they hatch. As in the U.S., the survey in Brazil showed both low awareness of the practice and widespread misunderstanding of what happens to most male chicks in the egg industry. Nearly half of consumers (48%) incorrectly believe that male chicks produced by egg companies are raised for meat and another 15% said they do not know what happens. About one in seven (15%) said the male chicks continue to live with hens. Only 7% answered correctly that male chicks are killed after hatching (in a follow-up question, 21% reported having known this prior to the survey).

Please read the following excerpt and answer the question that follows. The eggs that consumers eat were produced by a female hen on a farm. For every hen that is hatched to lay the eggs we eat, a male chick is also hatched. What do you think happens to these male chicks?



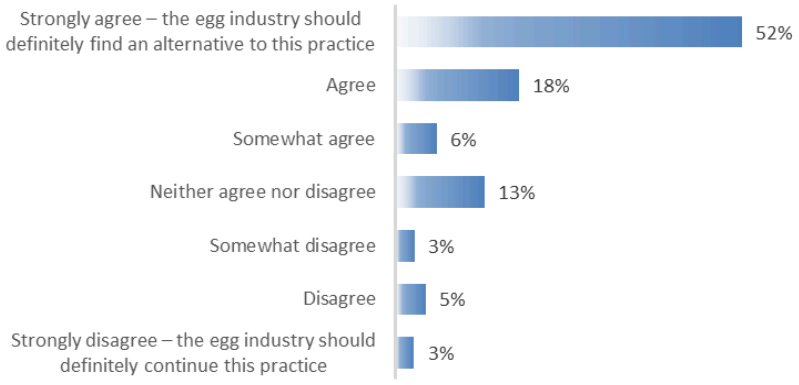
A clear majority of Brazilian consumers (73%) are “uncomfortable” with the egg industry’s practice of culling male chicks immediately after they hatch. This is nearly five times as many consumers who said they feel “comfortable” with the practice (15%). Additionally, a very high 44% of Brazilians say they are “very” uncomfortable with the practice. About one in eight consumers (12%) said they are neither comfortable nor uncomfortable with the practice of culling male chicks – or that they are not sure. These results show even more discomfort with culling male chicks than we found in the U.S., where 61% said they are uncomfortable with the practice (30% “very”).

How comfortable or uncomfortable do you feel about the egg industry's practice of killing male chicks immediately after they hatch?



Three-fourths of Brazilian consumers (76%) also agree that the egg industry should find an alternative to killing male chicks, including 52% who “strongly” agree. Brazilian consumers are greater than seven times more likely to agree than disagree with finding an alternative. Only one in ten (10%) Brazilian consumers disagrees, including 3% who disagree “strongly.” About one in eight respondents (13%) did not agree or disagree. These results are comparable to the U.S. survey, which also found that a strong majority of egg buyers agree the industry should find an alternative to killing male chicks.

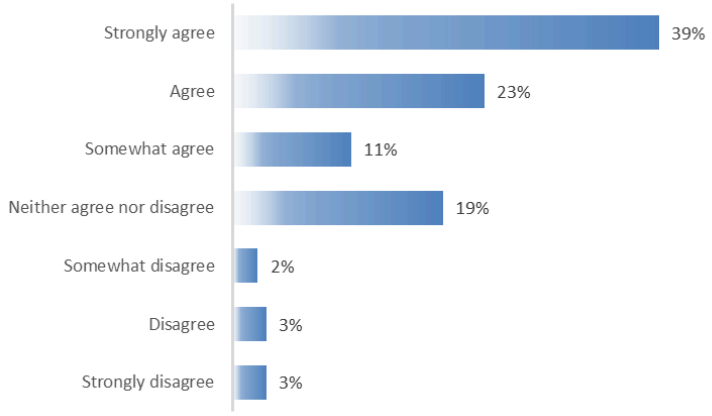
To what extent do you agree or disagree with the following statement? The egg industry should find an alternative to the practice of killing male chicks immediately after they hatch.



Awareness & Attitudes: In-Ovo Egg Sexing

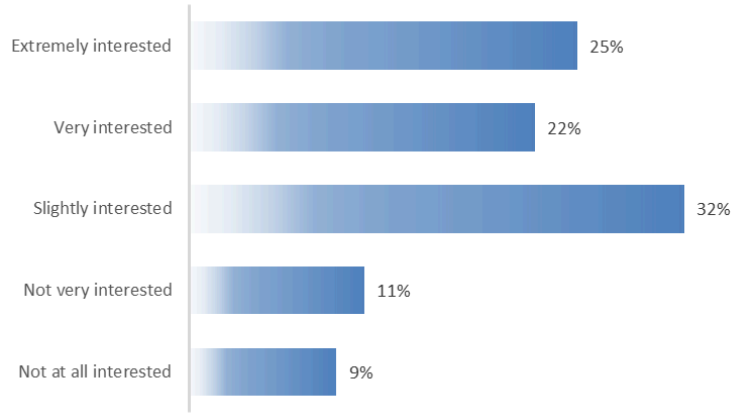
Another key objective of this research project was to understand Brazilian consumer awareness of, interest in, and willingness to pay for eggs using in-ovo egg sexing to avoid culling male chicks. Again, the survey found that awareness is quite low, with about one in seven consumers (14%) saying they were previously aware of this alternative to killing male chicks. Brazilian consumers are eight times more likely to agree than disagree that the egg industry should adopt in-ovo egg sexing. Specifically, nearly three-fourths (72%) of consumers agree, including 39% who agree "strongly." By contrast, about one in ten (9%) consumers disagrees, including 3% who disagree "strongly." About one in five respondents (19%) did not agree or disagree, which may be related to questions about cost. These results show even stronger support for in-ovo egg sexing adoption than in the U.S.

To what extent do you agree or disagree with the following statement? The egg industry should adopt in-ovo egg sexing to remove male eggs prior to hatching, instead of killing the chicks once they're born.



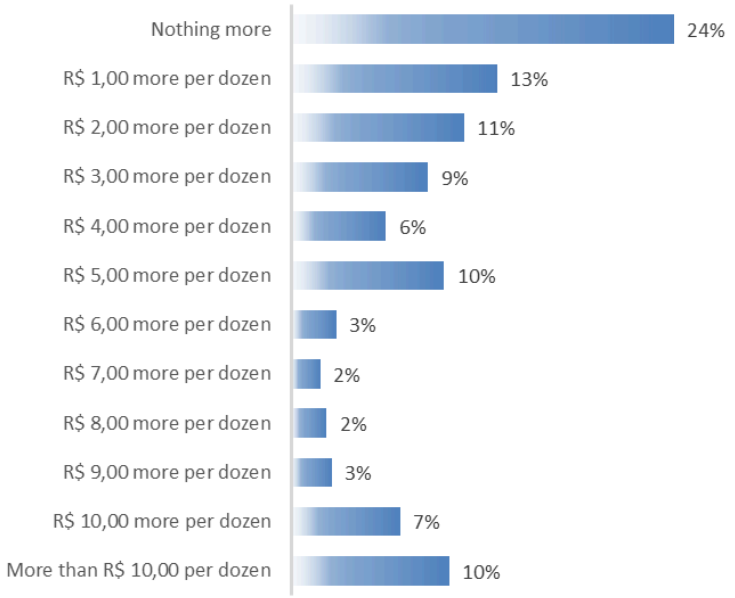
A very strong majority of Brazilian consumers (79%) said they are interested in buying eggs produced using in-ovo sexing, although the level of that interest is somewhat mixed. One in four consumers (25%) is "extremely" interested, while about one in five (22%) said they are "very" interested and another 32% are "slightly" interested in eggs produced using in-ovo sexing. About one in five Brazilian consumers said they are relatively uninterested in these types of eggs, including 11% who are "not very" interested and 9% who are "not at all" interested. These results show interest in purchasing in-ovo sexed eggs that is comparable to what we found in the U.S., where 82% said they were interested.

If eggs using this new technology (in-ovo egg sexing) were available from your preferred grocery store, how interested would you be in buying them?



Survey results also show that a clear majority of Brazilian consumers (76%) are willing to pay at least a modest premium for eggs produced using in-ovo sexing technology. The weighted average premium people will pay is estimated to be R$ 3.87 more per dozen eggs. About half of consumers (51%) are willing to pay a premium of R$ 3.00 or more per dozen eggs, or R$ 0.25 per egg. This is more than the estimated maximum cost per egg to implement in-ovo egg sexing, according to an analysis of third-party data from Innovate Animal Ag. Just over a third of Brazilians (36%) are willing to pay a premium of R$ 5.00 or more per dozen eggs. About one in six (17%) said they are willing to pay R$ 10.00 or more per dozen eggs, which would be R$ 0.83 (or more) per egg.

How much more would you be willing to pay for a dozen eggs (large, white, AA grade) if no male chicks were killed, due to the use of in-ovo egg sexing technology? Please select the highest amount you would be willing to pay (in addition to what you already pay for a dozen eggs).



Key Differences by Consumer Segment

A deeper analysis of survey results by segment shows that early adopters of eggs produced using in-ovo sexing technology are most likely to have higher household incomes and more formal education. These consumers (who say they are “extremely” or “very” interested in buying in-ovo sexed eggs) are slightly more concentrated in the Central West region of Brazil and slightly less concentrated in the Northeast region. Early adopters are equally likely to identify as female or male or to fall into any age group. Differences by self-reported ethnicity are also minimal.

Following are some observations for key consumer segments.

- **Gender:** Twice as many men as women say that they are “comfortable” with the egg industry practice of culling male chicks immediately after they hatch. Women are also more likely to agree that the industry should find an alternative and slightly more likely to agree that the industry should adopt in-ovo egg sexing. Interest in purchasing eggs produced using in-ovo sexing technology is identical for both women and men, but women are slightly more willing to pay a higher premium for such eggs.

- **Age:** Comfort with the practice of culling male chicks decreases with age, with older egg buyers being least comfortable with the practice. The same is true for agreeing that the industry should find an alternative, though the contrast is smaller. Interest in purchasing eggs produced using in-ovo sexing is comparable across age groups, though a subset of older consumers is “not at all interested.” Interestingly, and counter to the general age trends we see, the youngest consumers (18-24) are more willing to pay extra for eggs made using in-ovo sexing technology – and also more willing to pay an especially high premium.

- **Education and Income:** These two demographic variables tend to track closely with each other, but in this case we see some differences. Those with more formal education are generally less comfortable than others with the practice of culling male chicks (those with doctorates are an exception), but the reverse is true (weakly) for household income. People with more education and those with higher incomes are both more likely to agree that the industry should find an alternative and/or adopt in-ovo egg sexing. Those with higher income/education are also much more interested in purchasing eggs produced using in-ovo sexing and people with higher incomes are substantially more willing to pay a premium.

- **Shopping Responsibility:** People who do most of the grocery shopping for their household are more receptive to in-ovo egg sexing. Specifically, those who purchase more than 75% of groceries are least comfortable with the practice of culling male chicks and most likely to agree that the industry should adopt in-ovo egg sexing. They also show the most interest in purchasing eggs produced using in-ovo sexing, but that interest does not translate to more willingness to pay a premium compared to those who do less of their household’s shopping.

Conclusions & Recommendations

The following conclusions are similar to what we found in the Innovate Animal Ag survey of U.S. egg buyers in 2023. However, we should note that egg industry dynamics are different in Brazil, in particular the popularity of different types of eggs and the relative lack of market penetration for other specialty eggs including cage-free, antibiotic-free, etc. Despite these differences, support for in-ovo egg sexing is even stronger in Brazil than it was in the United States in 2023.

- **Brazil's potential market for in-ovo sexed eggs is substantial.**

  At a price premium of R$ 0.25 per egg, more than half of Brazilian consumers who purchase most of their household's groceries say they would buy eggs produced using in-ovo sexing technology. At lower price premiums, even more consumers are interested. Some egg buyers may not follow through on those intentions, but potential demand is still quite large. If producers can achieve a price premium of R$ 0.25 per egg, we believe demand for in-ovo sexed eggs could quickly surpass that of the current cage-free egg market in Brazil.

- **Consumers will need to be educated.**

  Eggs produced using in-ovo sexing technology may be more challenging to market to consumers than other specialty eggs. For example, "cage-free" eggs may have gained traction (in some countries) in part because consumers understand that conventional production systems involve cages. Our results show that most egg buyers are unaware of the egg industry practice of culling male chicks and there will likely be a period of consumer awareness-building. However, this could also be a point of differentiation for producers who are early adopters.

- **Cost remains a key driver for most egg consumers.**

  Many egg buyers are value-driven. In our survey, nearly a fourth said they would not pay any premium for eggs produced using in-ovo sexing technology. Anecdotally, in the U.S. we know that egg buyers often look for sales or rebates and they regularly buy the least expensive option. While Brazilians show slightly more willingness to pay a premium than U.S. respondents, that willingness varies substantially by household income level. To grow market share beyond a niche segment of wealthy consumers, Brazilian producers using in-ovo egg sexing will probably need to achieve a price premium of less than R$ 3.00 per dozen eggs.

Appendix: Respondent Profile

Working with YouGov, we surveyed a representative sample of online Brazilian consumers. Actual representation may differ slightly given that we excluded people who do not purchase at least half of their household's groceries. Below is the overall profile of our survey respondents.

GENDER

52% Female
48% Male

AGE

11% 18-24
21% 25-34
22% 35-44
19% 45-54
28% 55 or older

EDUCATION

10% Lower secondary or less
39% Upper secondary
14% Post-secondary
29% Bachelor's or equivalent
8% Master's or higher

GROCERY SHOPPING RESPONSIBILITY

0% Less than 25% (disqualified)
0% About 25% (disqualified)
30% About 50% (half)
17% About 75%
53% More than 75%

ETHNICITY

48% White
38% Brown
10% Black

REGION

44% South East
7% Central West
26% North East
7% North
15% South

HOUSEHOLD INCOME

31% Less than R$ 10,000
30% R$ 10,000 - R$ 49,999
31% R$ 50,000 or more
7% Prefer not to say

Appendix: Survey Instrument (English)

What is your gender?

- Female
- Male
- Non-binary/third gender
- Prefer to self-describe (open)
- Prefer not to say

Do you consider yourself a white, black, brown, indigenous, or yellow person?

- White
- Indigenous
- Black
- Brown
- Yellow/Asian
- Other
- Prefer not to say

What is your **highest** level of education?
If you are currently in full-time education please put your highest qualification to date.

- I did not complete any formal education
- Early childhood education
- Primary education
- Lower secondary education (GCSEs or equivalent level)
- Upper secondary education (A-Levels or baccalaureate)
- Post-secondary, non-tertiary education (generally vocational/ professional qualification of 1-2 years, e.g. college, trade school)
- Short-cycle tertiary education (vocational education and training, studying towards a non-academic degree, e.g. nursing/ teaching diploma) Bachelors or equivalent level degree
- Masters or equivalent level degree
- Doctoral or equivalent level degree

Gross HOUSEHOLD income is the combined income of all earners in a household from all sources, including wages, salaries, or rents and before tax deductions. What is your gross annual household income?

- Less than R$ 10,000
- R$ 10,000-R$ 25,000
- R$ 25,000-R$ 50,000
- R$ 50,000-R$ 75,000
- R$ 75,000-R$ 100,000
- R$ 100,000-R$ 200,000
- R$ 200,000 or more
- Prefer not to say

In which state do you currently live? If you spend time in multiple places, provide the state where you spend the most time.

- Distrito Federal
- Goiás
- Mato Grosso
- Mato Grosso do Sul
- Alagoas
- Bahia
- Ceará
- Maranhão
- Paraíba
- Pernambuco
- Piauí
- Rio Grande do Norte
- Sergipe
- Acre
- Amapá
- Amazonas
- Pará
- Rondônia
- Roraima
- Tocantins
- Espírito Santo
- Minas Gerais
- Rio de Janeiro
- São Paulo
- Rio Grande do Sul
- Paraná
- Santa Catarina

On average, how often do you purchase eggs? Please select the option that best applies.

- ○ Very often (daily or 5-6 times per week)
- ○ Often (1-4 times per week)
- ○ Occasionally (every two weeks)
- ○ Rarely (once a month)
- ○ Never

How many eggs do you typically buy when you go grocery shopping? If you buy a different number of eggs, please round up to the nearest dozen or half dozen.

- ○ Less than 6 eggs
- ○ 6 eggs
- ○ 12 eggs
- ○ 18 eggs
- ○ 24 eggs
- ○ More than 24 eggs

Which of the following kinds of eggs have you purchased in the past three months? Please select all that apply.

- □ Cage-free
- □ Vegetarian fed
- □ Antibiotic-free
- □ Omega-3 enriched
- □ Free-range
- □ Certified Humane / American Humane Certified
- □ Organic
- □ Backyard/pasture farmed
- □ None of these

Please read the following excerpt and answer the question that follows. The eggs that consumers eat were produced by a female hen on a farm. For every hen that is hatched to lay the eggs we eat, a male chick is also hatched. What do you think happens to these male chicks?

- ○ They are killed after hatching
- ○ They are raised for meat instead of eggs
- ○ They live with hens for companionship
- ○ They live with hens and lay eggs as well
- ○ They are sent to an animal sanctuary
- ○ Other (open)
- ○ Don't know

It is true that for each hen that lays the eggs we eat, a male chick is also hatched. These male chicks cannot lay eggs and are unsuitable for meat production because the breeds of chicken used in the egg and meat industries are different. The male chicks are therefore killed immediately after they hatch.

Prior to taking this survey, were you aware that most male chicks in the egg industry are killed immediately after they hatch?

- ○ Yes, I was
- ○ No, I wasn't

How comfortable or uncomfortable do you feel about the egg industry's practice of killing male chicks immediately after they hatch?

- ○ Very comfortable
- ○ Moderately comfortable
- ○ Slightly comfortable
- ○ Neither or not sure
- ○ Slightly uncomfortable
- ○ Moderately uncomfortable
- ○ Very uncomfortable

To what extent do you agree or disagree with the following statement? The egg industry should find an alternative to the practice of killing male chicks immediately after they hatch.

- ○ Strongly disagree – the egg industry should definitely continue this practice
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree – the egg industry should definitely find an alternative to this practice

A new technology could provide an alternative to the practice of killing male chicks. **In-ovo egg sexing** enables the early identification of male eggs, allowing them to be removed before they hatch. With this technology, only females are hatched, addressing animal welfare concerns and increasing sustainability by saving resources.
Prior to taking this survey, were you aware that in-ovo egg sexing could be used to remove male eggs prior to hatching, instead of killing the chicks once they're born?

- ○ Yes, I was
- ○ No, I wasn't

To what extent do you agree or disagree with the following statement? The egg industry should adopt in-ovo egg sexing to remove male eggs prior to hatching, instead of killing the chicks once they're born.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

If eggs using this new technology (in-ovo egg sexing) were available from your preferred grocery store, how interested would you be in buying them?

- Extremely interested
- Very interested
- Slightly interested
- Not very interested
- Not at all interested

How much more would you be willing to pay for a **dozen eggs** (large, white, AA grade) if no male chicks were killed, due to the use of in-ovo egg sexing technology? Please select the **highest amount** you would be willing to pay (in addition to what you already pay for a dozen eggs).

- Nothing more
- R$ 1,00 more per dozen
- R$ 2,00 more per dozen
- R$ 3,00 more per dozen
- R$ 4,00 more per dozen
- R$ 5,00 more per dozen
- R$ 6,00 more per dozen
- R$ 7,00 more per dozen
- R$ 8,00 more per dozen
- R$ 9,00 more per dozen
- R$ 10,00 more per dozen
- More than R$ 10,00