



The Scale of Consumer Packaging Waste and Elevated Health Problems Due to Confusion

June 2024



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Introduction

- This study was commissioned by Plus Brand as part of their campaign to understand and quantify the issue of confusion in relation to packaging waste. This project will also comprehensively analyze the market potential and strategic opportunities for Plus Brand's innovative All-Scratch!® technology in the United States.
- The aim of this research was to:
 - Understand if respondents ever experience confusion, and if so, how frequently and which products do they experience it with
 - What events do respondents attend and host and which of these do they experience confusion at
 - What do they do with their food/beverage item as a result of experiencing confusion
 - How concerned are they by the health risks related to confusion
 - How concerned are they by the environmental impact related to confusion
 - Their likelihood of purchasing a product with the All-Scratch!® technology
 - Identify and quantify the demand drivers, competitive landscape, and consumer adoption trends for All-Scratch!® technology.
 - Demonstrate how All-Scratch!® technology can effectively reduce food waste by eliminating ownership confusion at social gatherings such as sports events, live music concerts, and homes, ultimately enhancing product value and market penetration for Plus Brand

This project was carried out in collaboration with BCC research and its sister company, Futuresource Consulting. The market analysis was carried out by BCC research and the consumer survey was carried out by Futuresource Consulting.

Methodology

Consumer Methodology

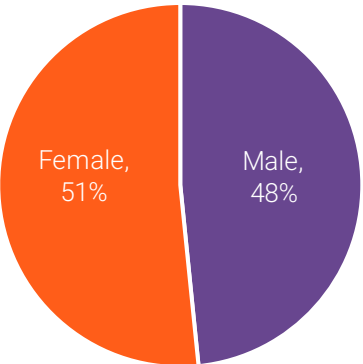
- Futuresource has interviewed 10,046 respondents. This was a nationally representative sample carried out in the US.
- Futuresource monitored key quota groups such as age, gender and income to ensure a representative spread.
- Fieldwork took place in April 2024, using an online survey approach.
- For more information regarding the methodology, interviewees or questionnaire used, please email taran.sahota@futuresource-hq.com

Market Analysis Methodology

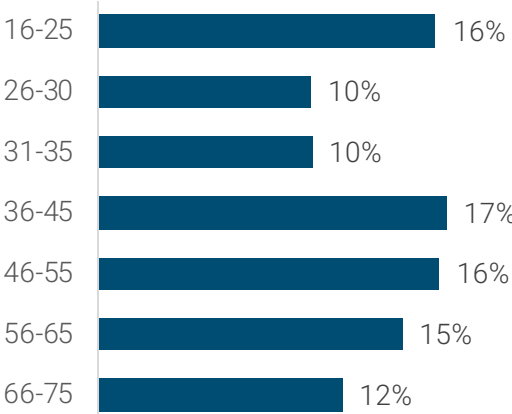
- BCC has collected and reviewed existing research papers, reports, and publications on global food waste.
- BCC has gathered data on food production, consumption, and waste from primary sources like government reports, industry publications, and databases such as FAO, UNEP, ReFED Inc., and others.
- Convert volume data to value using average market prices of various food categories.
- In the case of mass gathering event waste, we have identified food and beverage items consumed, leftover, and spilled. We also estimated the food and beverage packaging waste generated by each attendee.
- For more information regarding the market research methodology, please email kunal.nagpure@bccresearch.com

Consumer Survey - Nationally representative sample of US respondents

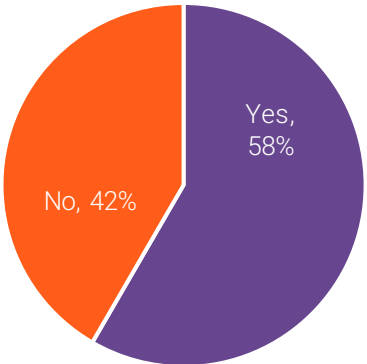
Gender
(All respondents: N = 10046)



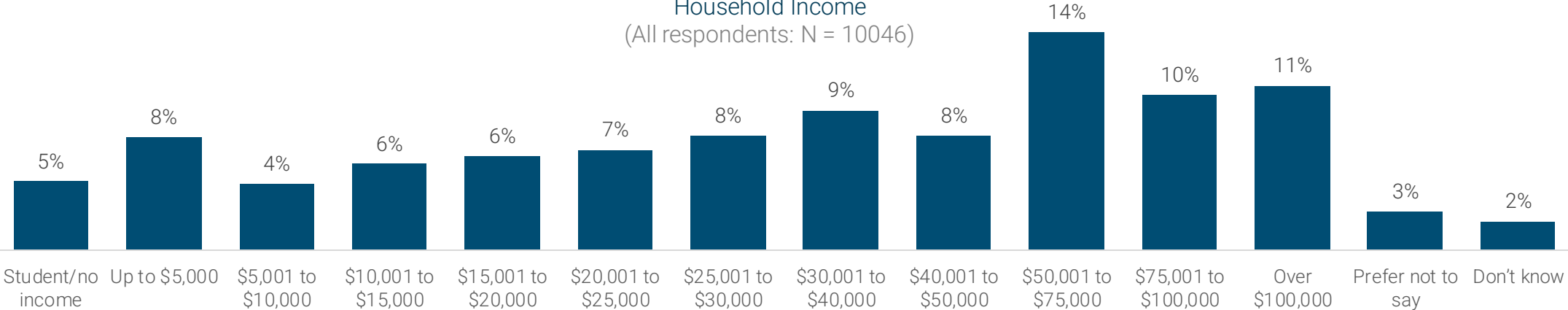
Age
(All respondents: N = 10046)



Do you have children?
(All respondents: N = 10046)



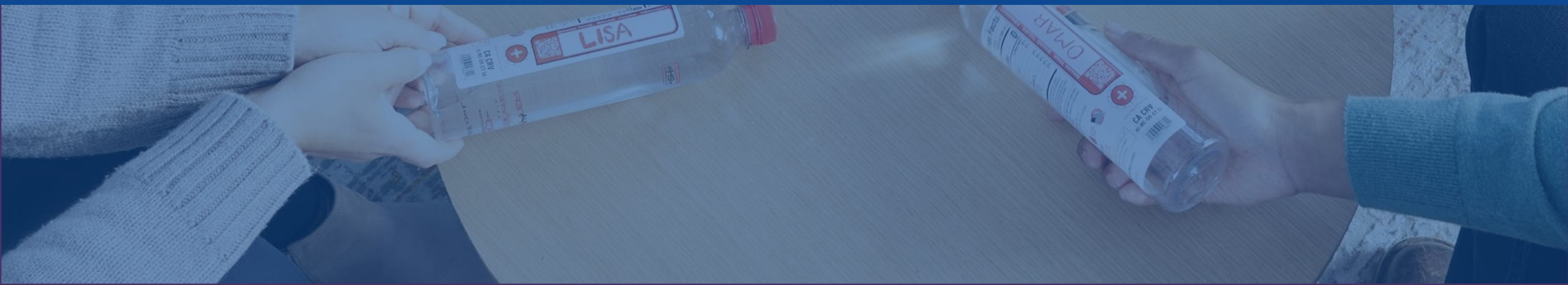
Household Income
(All respondents: N = 10046)



Q1: Please confirm your gender. Q2: How old are you?
Q5c: Do you have children? Q5: What is your annual household income?

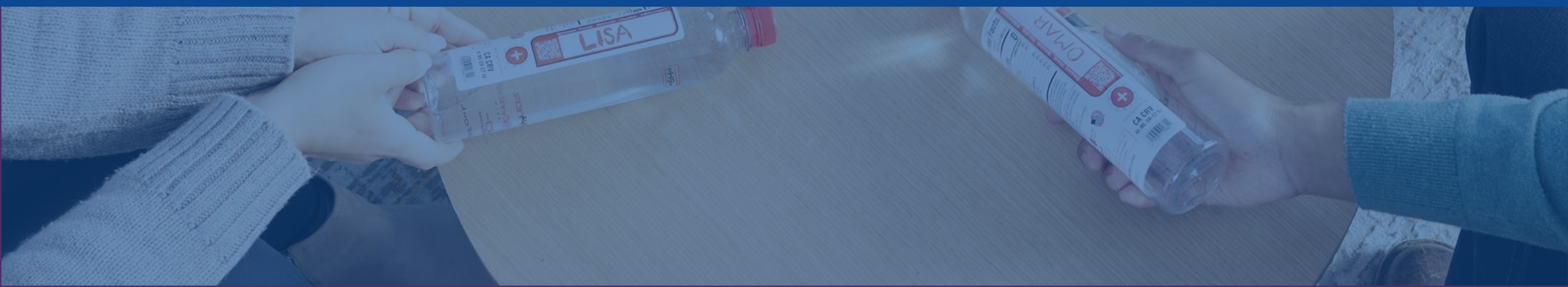


Consumer Survey





Key Headlines



Key Headlines

- The consumer data shows that confusion is a widespread issue, with nearly 3 in 5 across the US experiencing it. Of these, nearly three-quarters have experienced it in the last year.
 - Those who have experienced it primarily report experiencing it with beverage containers, most commonly with drink cans, plastic cups and plastic bottles.
 - Confusion is prevalent across a range of different events, with it being highest at informal social events and social friends/family events.
- Confusion has a clear impact on waste, as a majority of individuals (86%) reported throwing away their item as a direct result of confusion. When asked why, health concerns are generally cited as the main motivator.
 - While concern around the environmental impact caused by additional waste from confusion is high, it is not as high as the health concerns. This suggests that when faced with the option of throwing away the product to avoid health risks or keeping the item to reduce waste, individuals are more likely to choose the former.
- The All-Scratch!® technology is extremely appealing, with nearly 4 in 5 saying they would be likely to purchase it. This shows that respondents can see the All-Scratch!® technology as a solution to the real-life problem they face.
 - It's even higher among those who have reported experiencing the issue of confusion with their food and/or beverages (85%).
 - Furthermore, nearly 9 in 10 respondents who have experienced confusion are more likely to purchase a water bottle with the All-Scratch!® technology vs. one without.
- In addition to the health benefits of the All-Scratch!® technology, it's also seen as a fun product with the personalisation element being very appealing.
 - 3 in 5 said the creative element of the All-Scratch!® technology makes them more likely to buy it, with this being strong among those with children vs. those without.
 - Two-thirds of parents said they believe their children would utilise the All-Scratch!® technology, with personalisation, fun and identification being key uses and motivators for children.



Consumer Survey



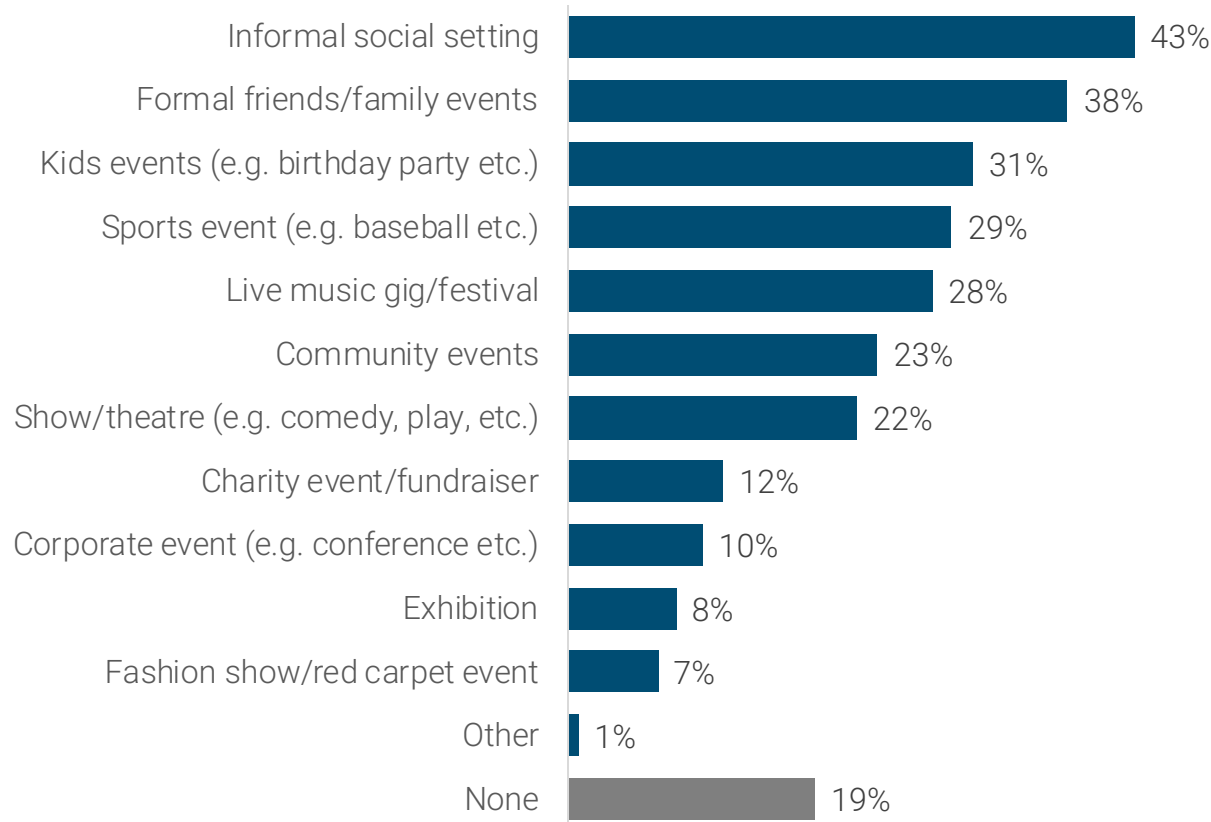
Event Attendance and Hosting



4 in 5 said they have attended an event and over 4 in 5 also plan to attend an event in the next 12 months, with informal social events being the most popular type

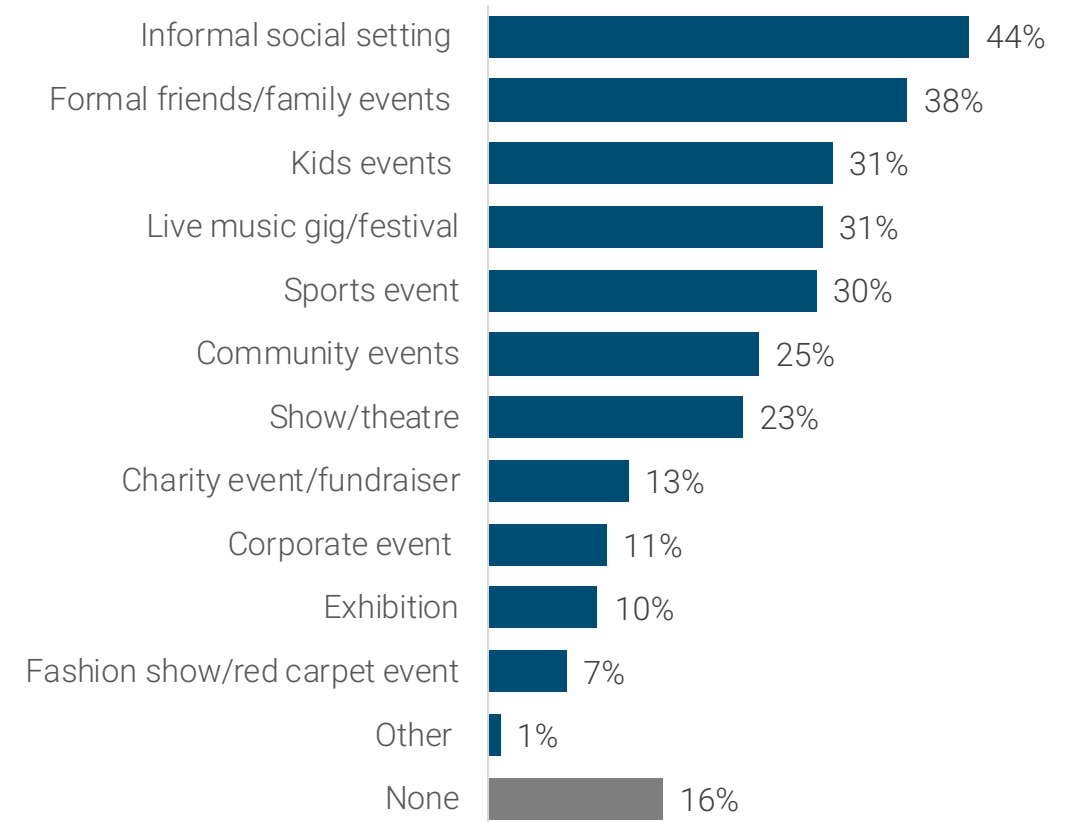
Which of the following types of events have you attended in the last 12 months?

(All respondents: N = 10046)



Which of the following types of events do you plan on attending in the next 12 months?

(All respondents: N = 10046)



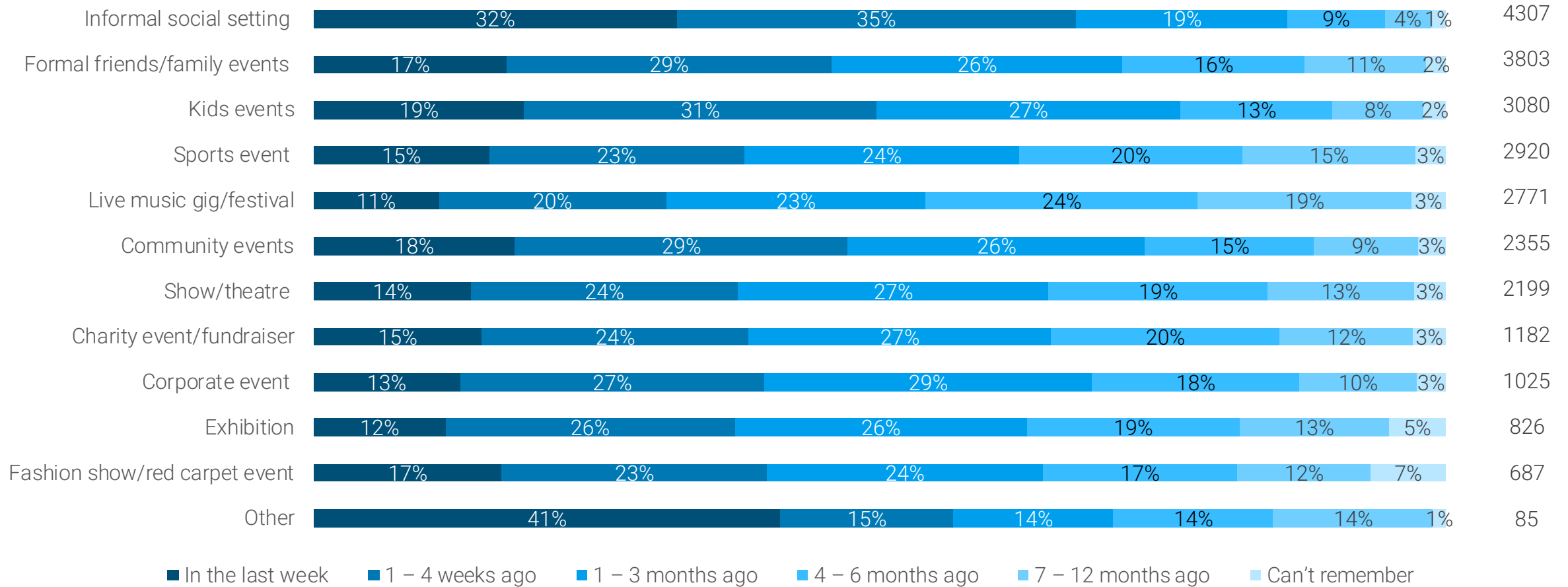
Q7: Which of the following types of events have you attended in the last 12 months?

Q10: Which of the following types of event(s) do you plan on attending in the next 12 months?

Respondents have typically attended an event within the last 3 months, with informal social events being the most recently attended event for a third of respondents

When was the last time you attended each of the following types of event(s)?
 (Those who have attended one of those events in the last 12 months: N = 8168)

N = attended

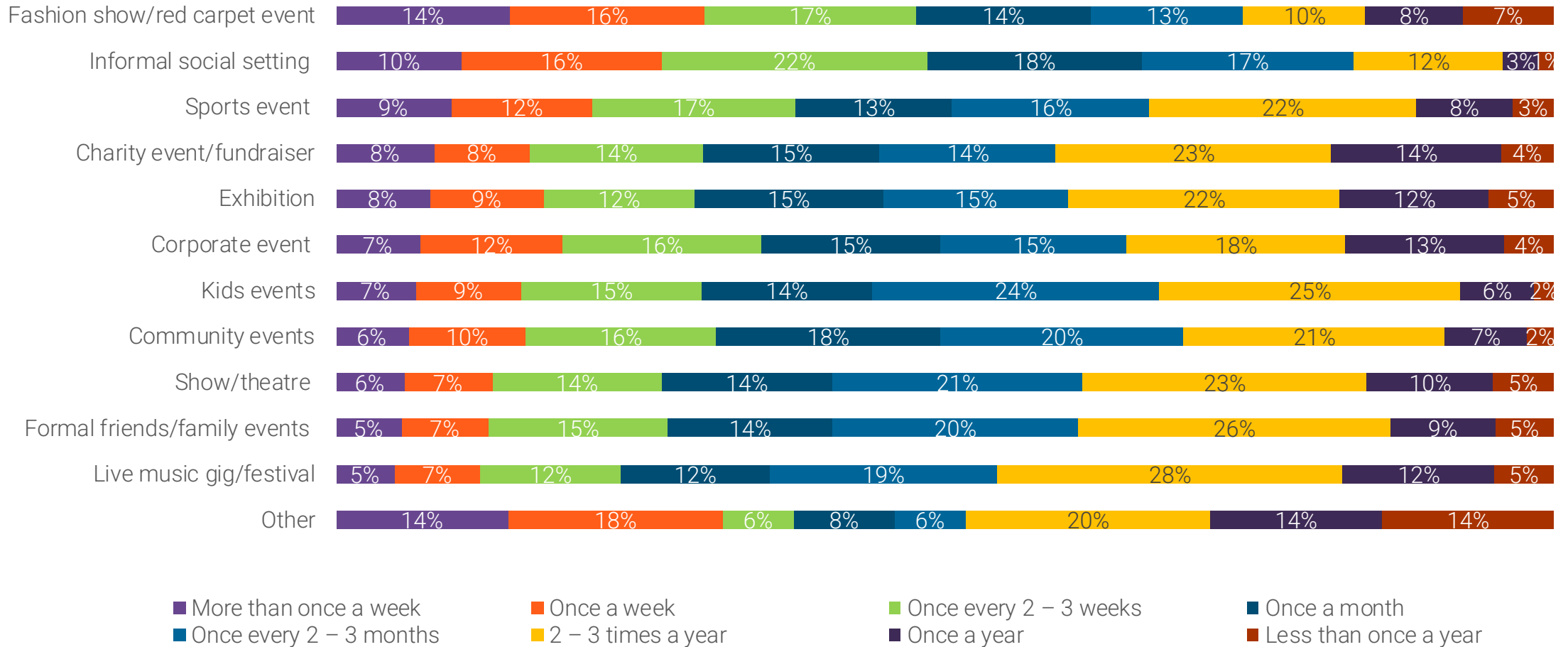


Q8: When was the last time you attended each of the following types of event(s)?

Respondents tend to attend these events multiple times a year

Respondents are attending events they may experience confusion at multiple times a year, suggesting the ongoing benefit the All-Scratch!® technology could have as attending these events is not just a one-off.

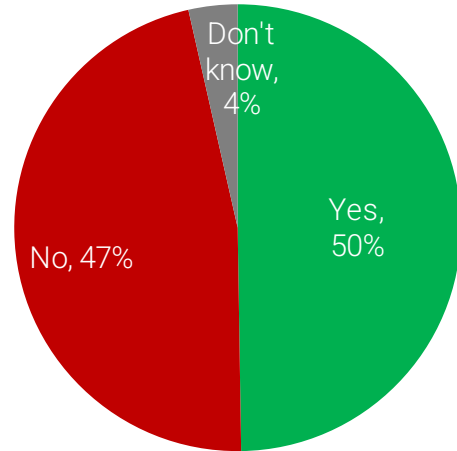
How often do you attend each of the following types of event(s)?
(Those who have attended one of those events in the last 12 months: N = 8168)



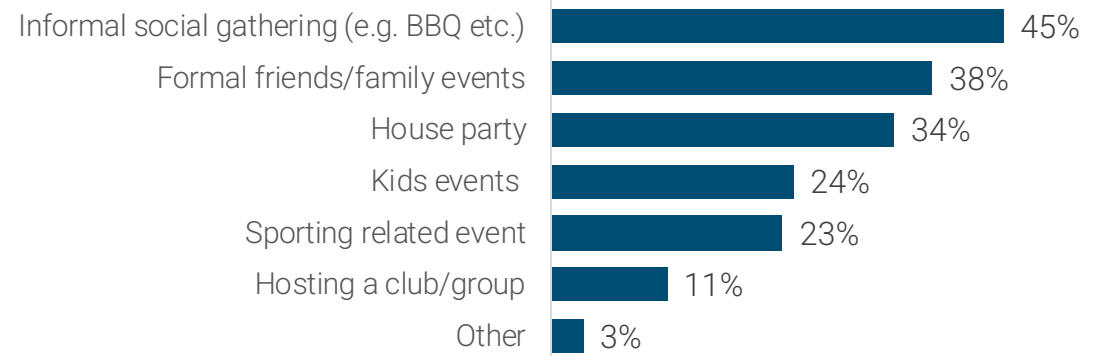
Q9: How often do you attend each of the following types of event(s)?

Half of respondents have hosted an event in their home, with informal social gatherings being the most common reason

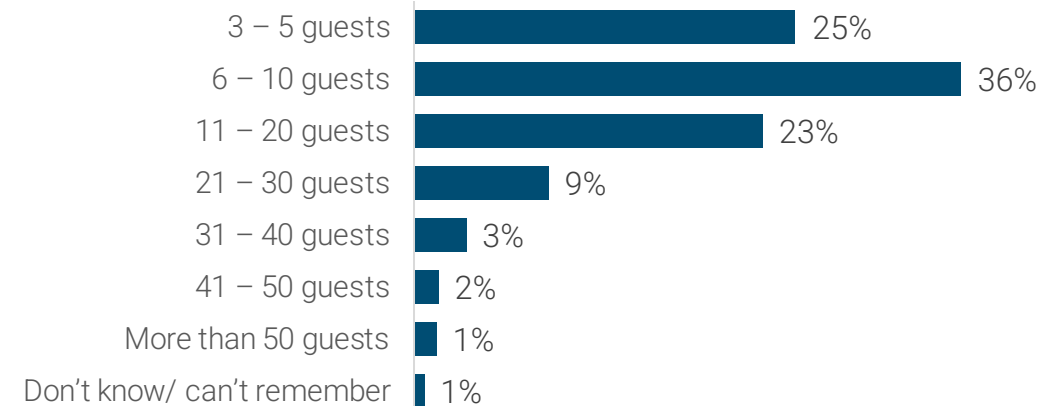
Have you hosted an event in your home in the last 12 months, with at least 3 guests attending?
(All respondents: N = 10046)



What was the reason for hosting this/these event(s)?
(Those who have hosted an event in their home in last 12 months: N = 4998)



On average, how many guests attended the event(s) you hosted?
(Those who have hosted an event in their home in last 12 months: N = 4998)



Q11a: Have you hosted an event in your home in the last 12 months, with at least 3 guests attending?

Q11: What was the reason for hosting this/these event(s)?

Q11b: On average, how many guests attended the event(s) you hosted?



Consumer Survey



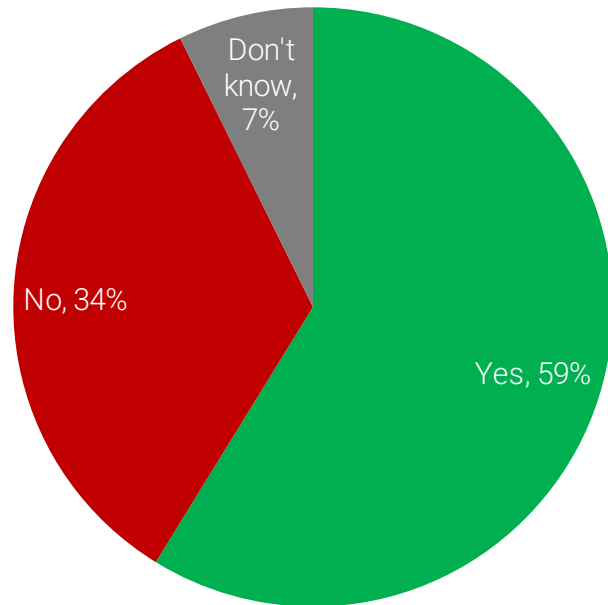
Confusion



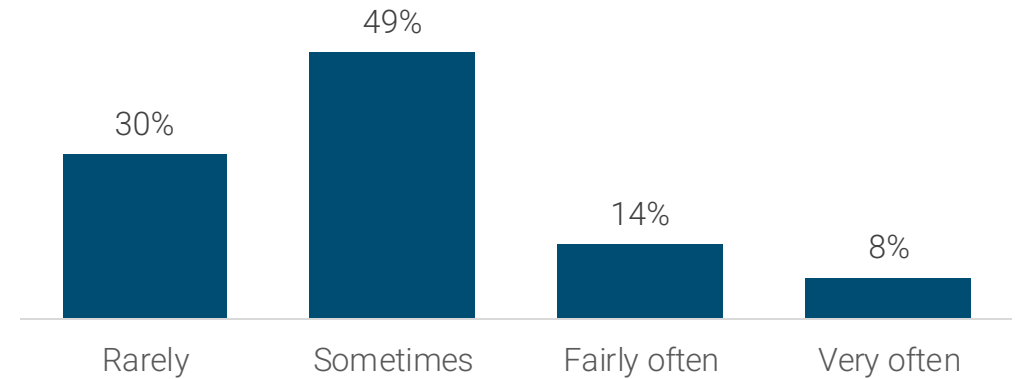
Nearly 3 in 5 respondents have experienced confusion

Respondents report experiencing this multiple times, indicating it is an ongoing issue.

Have you ever experienced 'confusion' with pre-packaged food or beverage items?
(All respondents: N = 10046)



How often do you experience issues with food or beverages due to 'confusion'?
(Those who have experienced confusion: N = 5906)



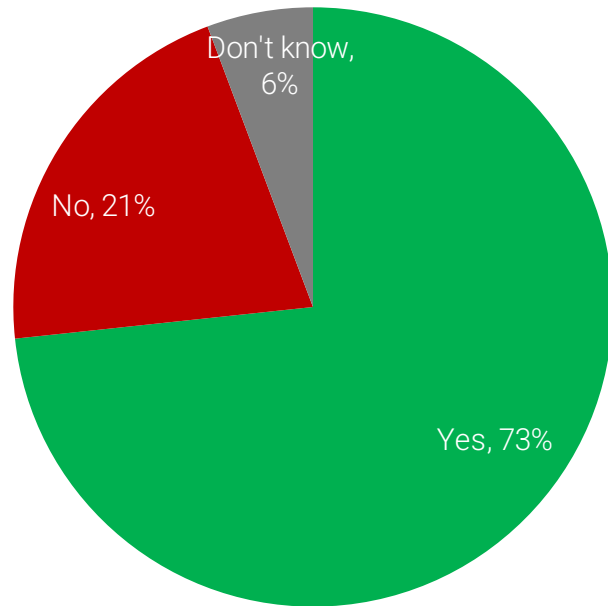
Q15: Have you ever experienced 'confusion' with pre-packaged food or beverage items?

Q16: Please indicate how often you experience issues with food or beverages due to 'confusion'.

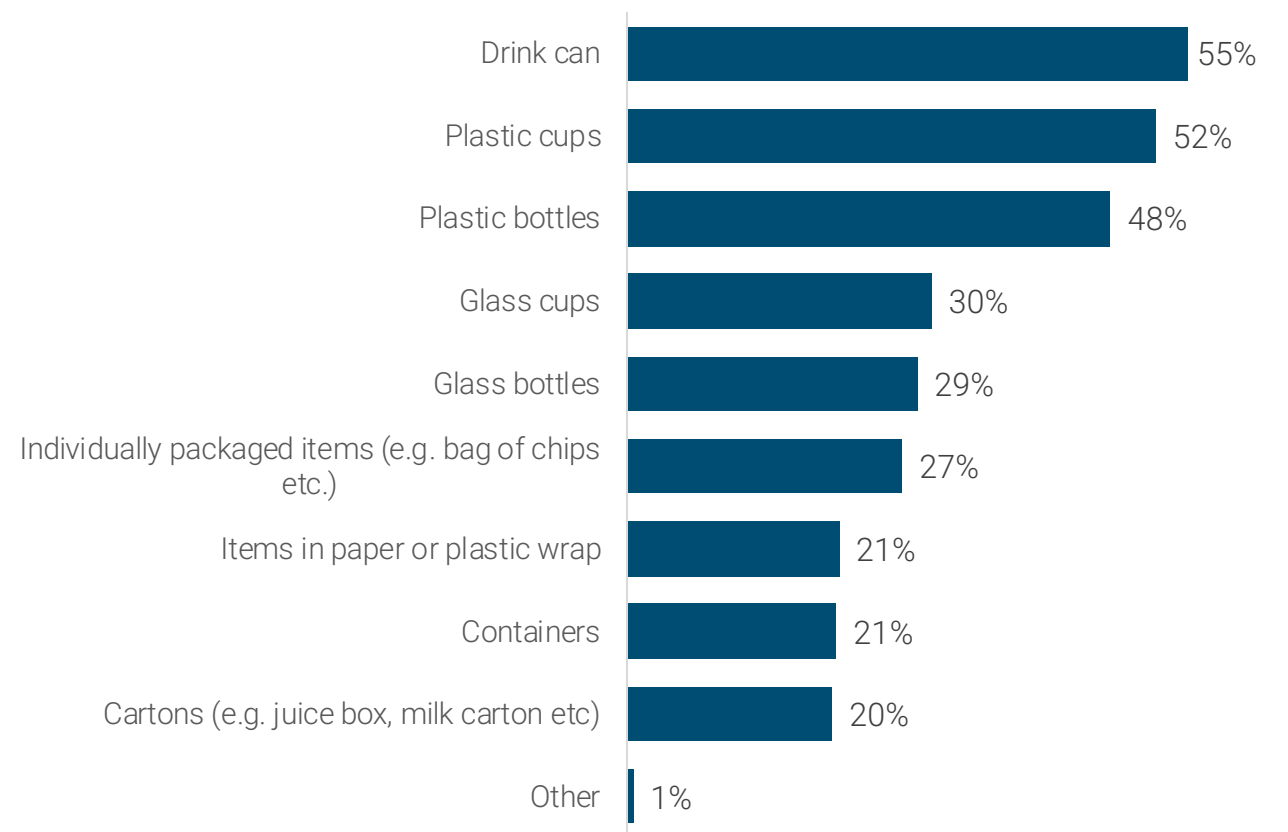
Nearly three-quarters of those who experienced confusion said it has happened in the last 12 months

Confusion appears to be most often experienced with beverages, particularly with drink cans, plastic cups and plastic bottles.

Have you experienced 'confusion' with food or beverages in the last 12 months?
(Those who have experienced confusion: N = 5906)



Which items have you experienced 'confusion' with in the last 12 months?
(Those who have experienced confusion in last 12 months: N = 4330)

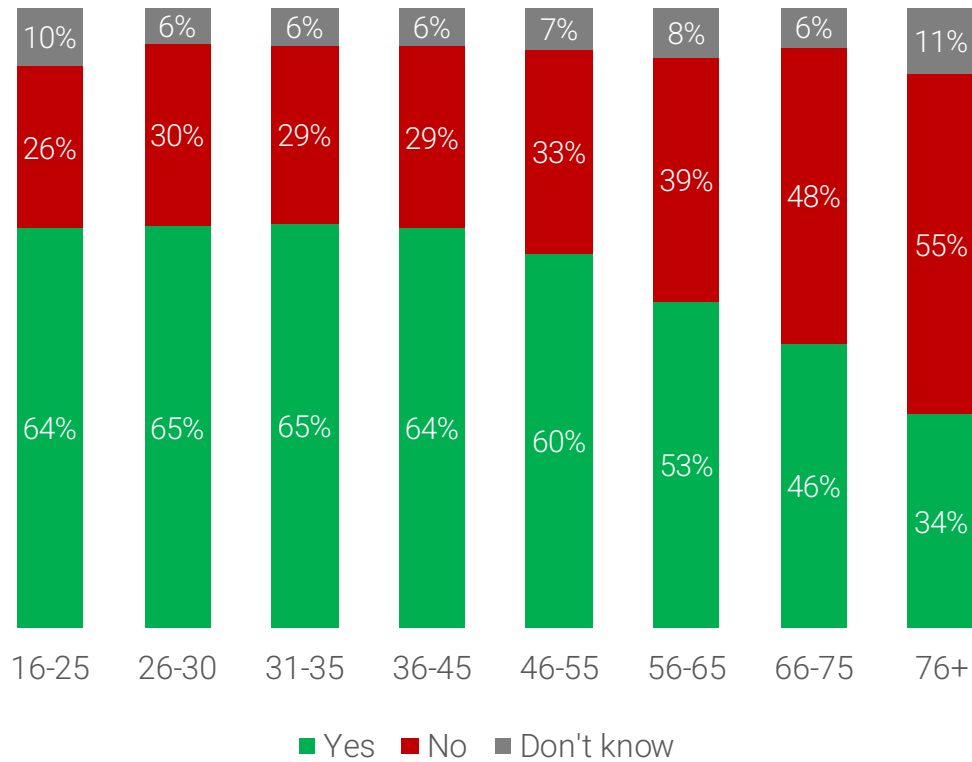


Q17a: Have you experienced 'confusion' with food or beverages in the last 12 months?
Q17: Which of the following types of items have you experienced 'confusion' within the last 12 months?

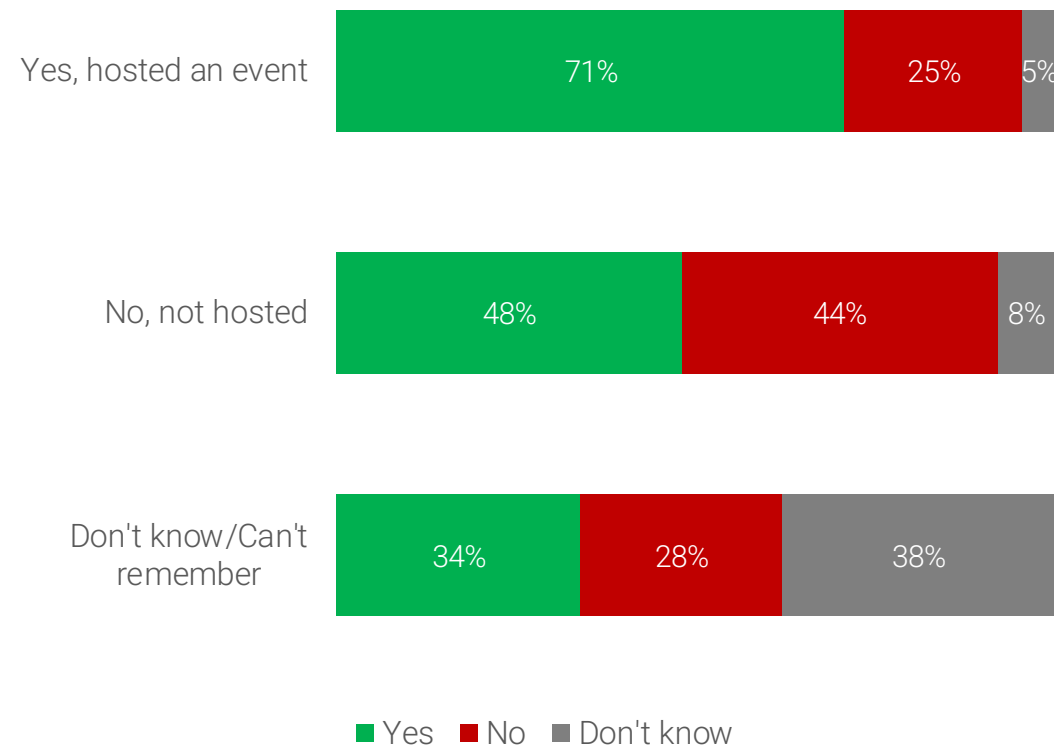
Respondents in younger age brackets are more likely to report experiencing confusion

Those who have previously hosted an event in their home are also more likely to report experiencing confusion.

Have you ever experienced 'confusion' with pre-packaged food or beverage items? – By age group
(All respondents: N = 10046)



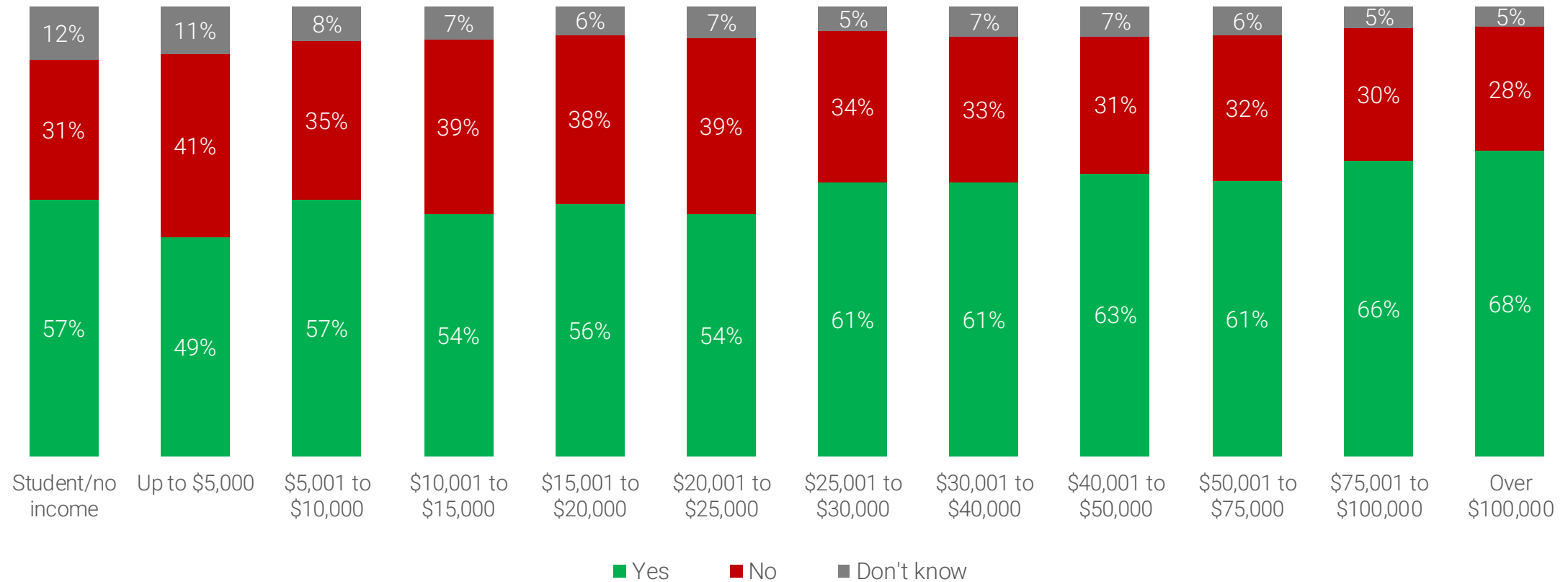
Have you ever experienced 'confusion' with pre-packaged food or beverage items? – By those who have hosted an event in last 12 months
(All respondents: N = 10046)



Q15: Have you ever experienced 'confusion' with pre-packaged food or beverage items?
Q11a: Have you hosted an event in your home in the last 12 months, with at least 3 guests attending?

Respondents from higher income households tend to report experiencing confusion slightly more than those from lower income households

Have you ever experienced 'confusion' with pre-packaged food or beverage items? – By Income group
(All respondents: N = 10046)



Q15: Have you ever experienced 'confusion' with pre-packaged food or beverage items?



Consumer Survey



Where Confusion is Experienced

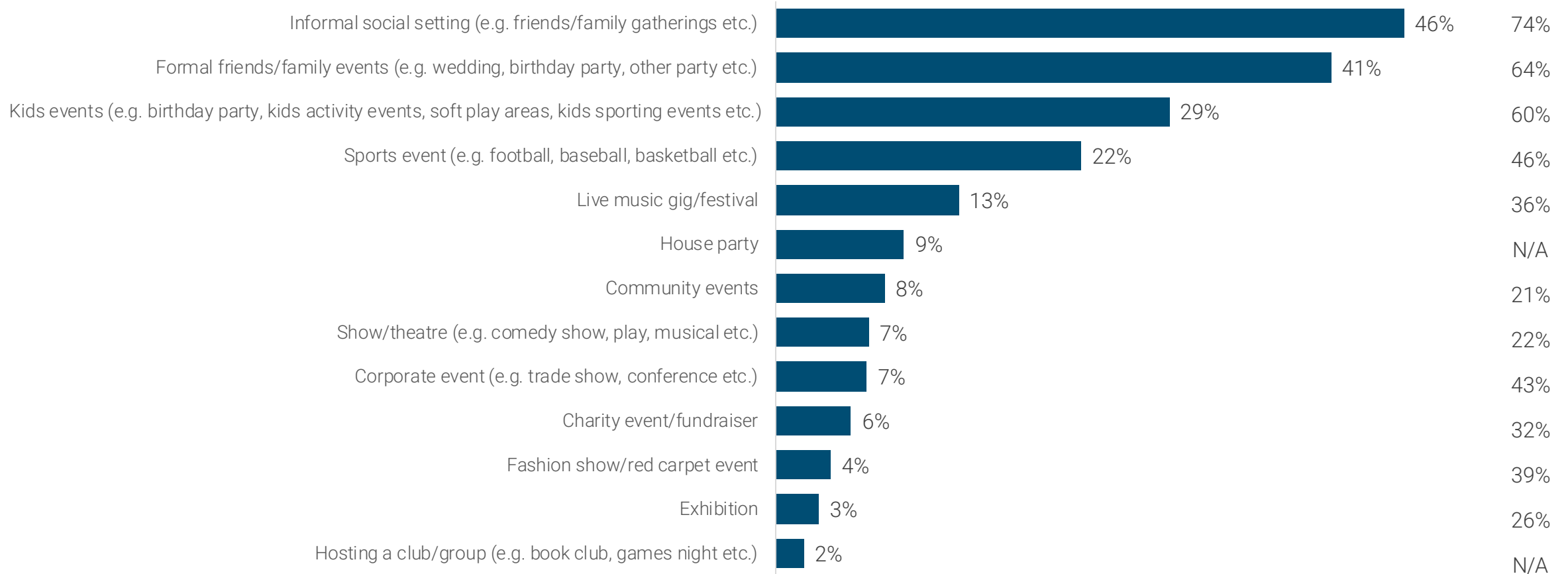


Informal events and formal friend/family events tend to be where respondents report experiencing confusion the most

This could be due to informal environments or being around familiar individuals means people are less strict over personal items and are less vigilant about guarding their food and drinks, leading to a higher probability of confusion.

At which types of event have you experienced 'confusion' in the last 12 months?
(Those who have experienced confusion in last 12 months: N = 4109)

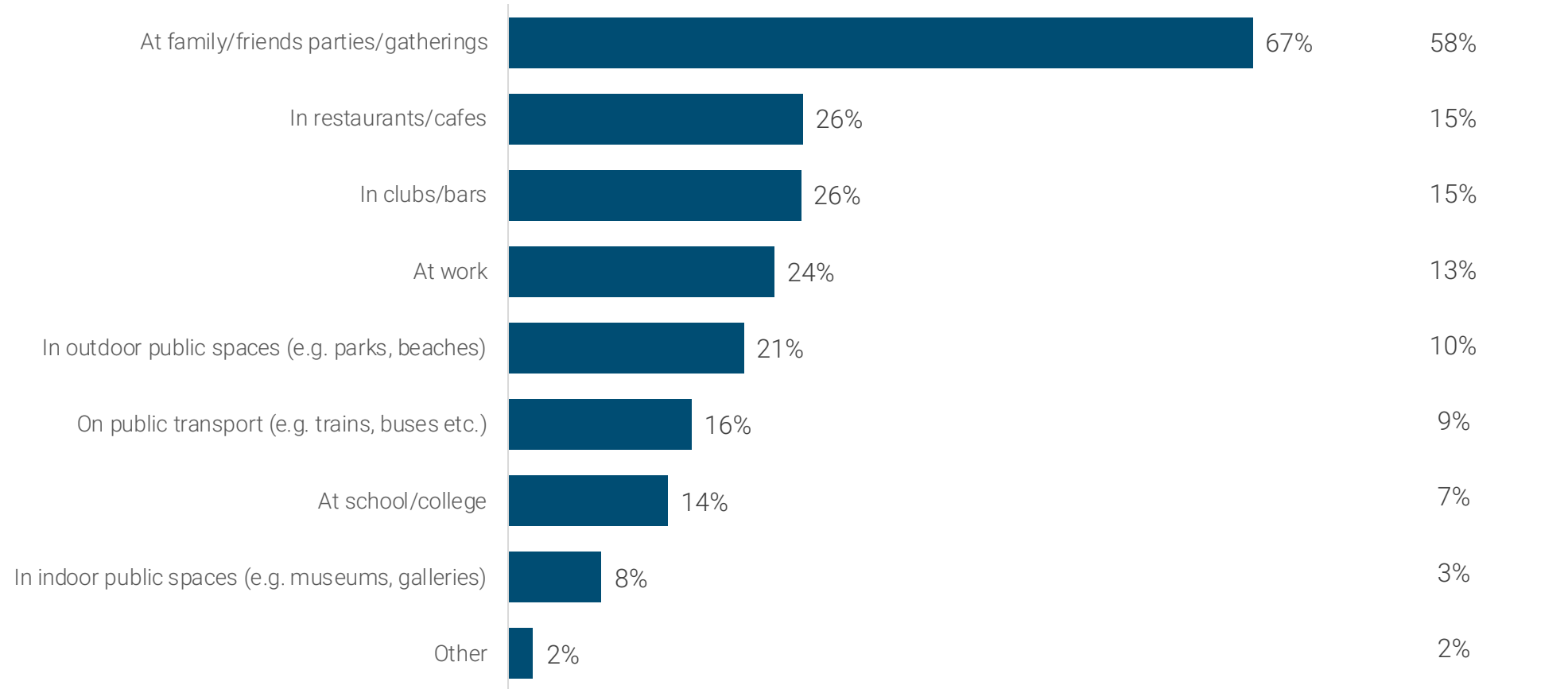
Among those who have attended that type of event



Q18: In the last 12 months, at which of the following types of event(s) have you experienced food or beverage confusion?

Two-thirds of those who have experienced confusion in the last 12 months said it has happened at a family/friends party

In the last 12 months, which of the following other places have you experienced 'confusion'?
(Those who have experienced confusion in last 12 months: N = 4330)



Q19: In the last 12 months, which of the following other places have you experienced 'confusion'?

Q19a: You said you experience issues with your food/beverages due to 'confusion'. In which place(s) do you experience it most?

Overall, respondents who said they have experienced confusion are more likely to have attended an event vs. those who have not experienced confusion

Which of the following types of events have you attended in the last 12 months?

Type of event attended	Yes have experienced confusion (N = 5906)	No have not experienced confusion (N = 4140)
Informal social setting	50%	33%
Formal friends/family events	45%	28%
Kids events	37%	21%
Sports event	33%	23%
Live music gig/festival	33%	20%
Community events	28%	18%
Show/theatre	26%	16%
Charity event/fundraiser	15%	8%
Corporate event	13%	6%
Exhibition	10%	5%
Fashion show/red carpet event	9%	4%
Other	1%	1%
Net attended	89%	70%

Which of the following types of event(s) do you plan on attending in the next 12 months?

Type of event plan to attend	Yes have experienced confusion (N = 5906)	No have not experienced confusion (N = 4140)
Informal social setting	51%	34%
Formal friends/family events	45%	28%
Kids events	38%	22%
Live music gig/festival	36%	23%
Sports event	34%	24%
Community events	29%	19%
Show/theatre	27%	18%
Charity event/fundraiser	16%	9%
Corporate event	14%	6%
Exhibition	12%	7%
Fashion show/red carpet event	9%	5%
Other	1%	1%
Net plan to attend	92%	73%

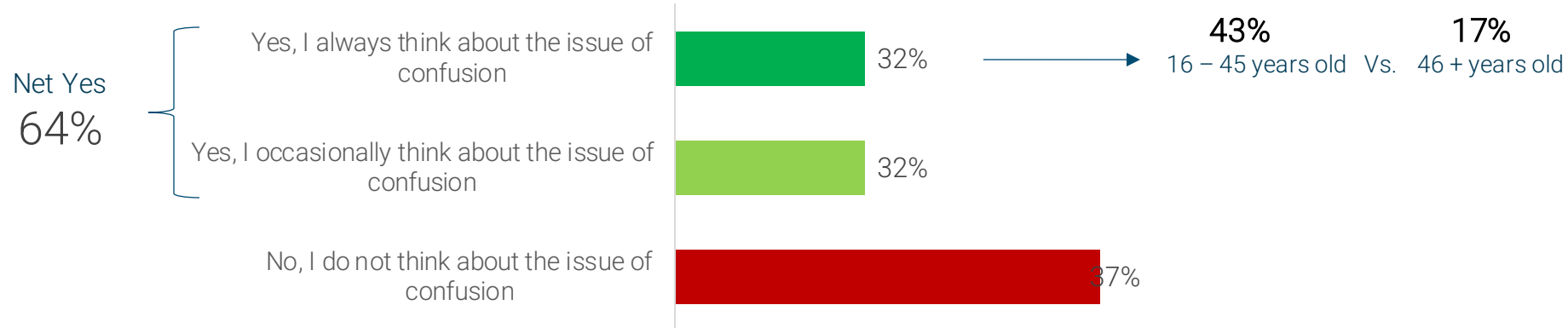
Q7: Which of the following types of events have you attended in the last 12 months?

Q10: Which of the following types of event(s) do you plan on attending in the next 12 months?

Almost two-thirds of respondents who have hosted an event said they think about confusion when purchasing products for their event

On average, respondents aged 16 to 45 were 2.5 times more likely to say they always think about confusion when purchasing products vs. those aged 46+. Nearly half of respondents who have hosted a sports related event or a club/group event said they always think about the issue of confusion when purchasing products.

When you are purchasing products for the event(s) you are hosting, does the issue of confusion related to people picking up the wrong drinks ever cross your mind?
 (Those who have hosted an event in their home in last 12 months: N = 4998)



Those who always think about confusion when hosting (Reasons for hosting events)	
47%	Sporting related event
47%	Hosting a club/group
42%	Kids events
41%	Formal friends/family event
37%	House party
20%	Informal social gathering
18%	Other

Q20: When you are purchasing products for the event(s) you are hosting, does the issue of confusion related to people picking up the wrong drinks ever cross your mind?



Consumer Survey



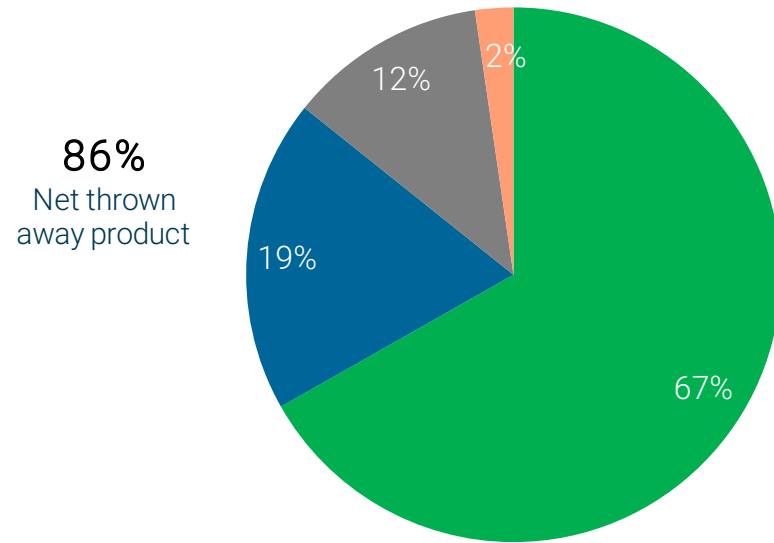
Impact of Confusion



86% of those who have experienced confusion said they have thrown the product away as a result, with two-thirds saying they obtained a new one

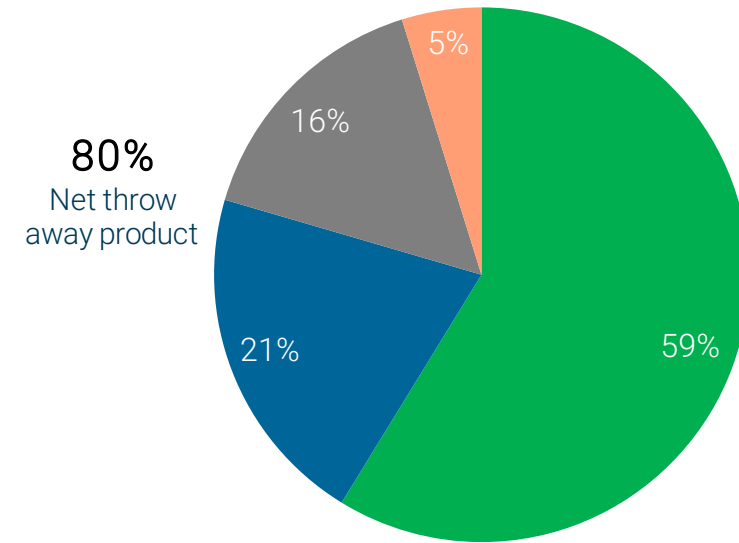
When asked of all respondents, 4 in 5 would throw away the product if they experienced confusion, with 3 in 5 saying they would obtain a new one.

Thinking about a situation where you have experienced confusion with an opened beverage/food product, what have you usually done?
(Those who have experienced confusion in last 12 months: N = 4330)



- Thrown the product away and obtained a new one
- Thrown the product away and not obtained a new one
- Eaten/drank it anyway
- Other

If you were in a situation where, you were no longer sure if the item was yours or belongs to someone else, what would you do?
(All respondents: N = 10046)



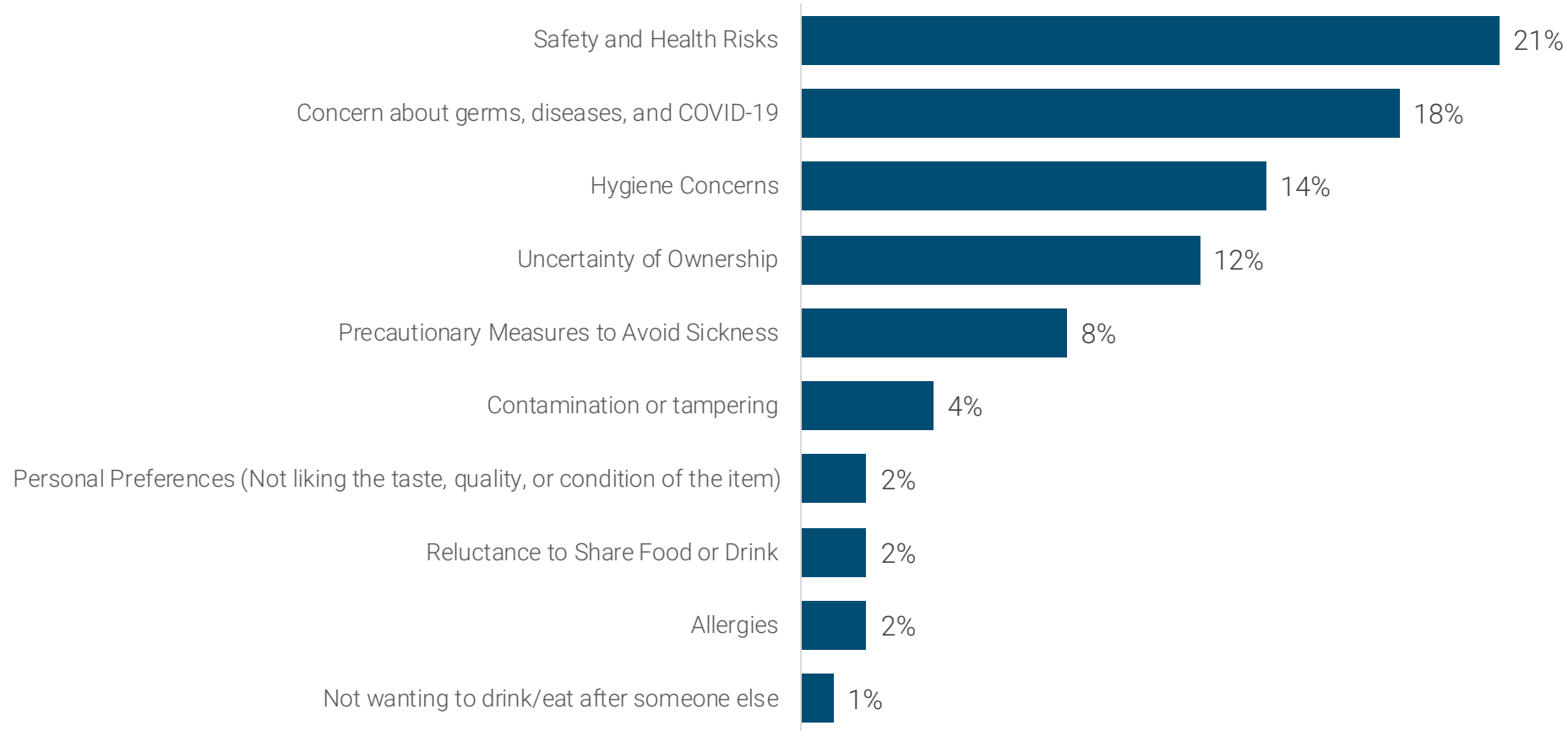
- Throw the product away and would obtain a new one
- Throw the product away and would not obtain a new one
- Eat/drink it anyway
- Other

Q21: Thinking about a situation where you have experienced confusion with an opened beverage/food product, what have you usually done?
Q21a: If you were in a situation with an opened beverage/food product and you were no longer sure if the item was yours, what would you do?

The top key reasons for throwing away items due to confusion all appear to be centred around the potential health risks

Explaining how the All-Scratch!® technology can help alleviate this concern may resonate strongly with audiences.

Please explain why you would decide to throw away the product rather than just eating/drinking it anyway
(Those who would throw away product if they experienced confusion: N = 7989)



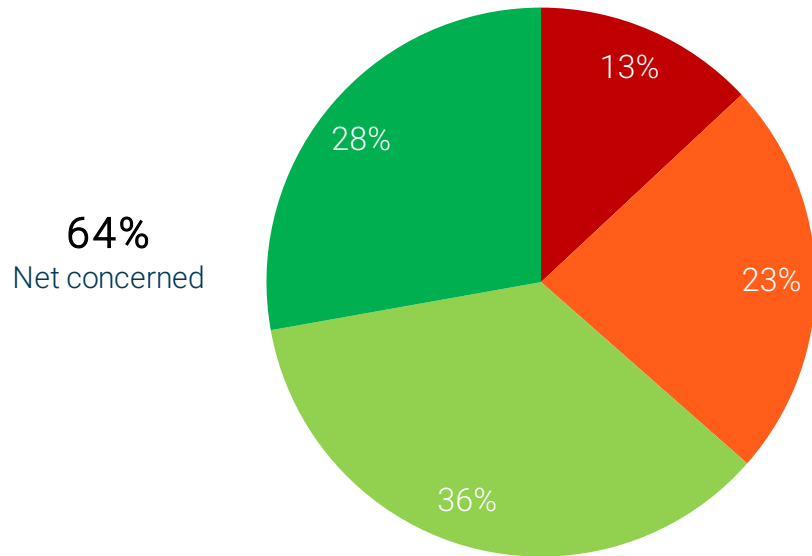
Q21b: You said you would throw away the food/drink product if you experienced confusion. Please explain why you would decide to throw away the product rather than just eating/drinking it anyway.

Almost two-thirds said they are concerned about the health risks associated with confusion, with 85% stating it would impact their decision to throw away the product

This demonstrates how health concerns caused by confusion are a direct contributor to the amount of consumer packaging being thrown away needlessly.

Concerned about the health risks (for example germs, viruses or bacteria) caused by 'confusion' of food/drink related products?

(All respondents: N = 10046)

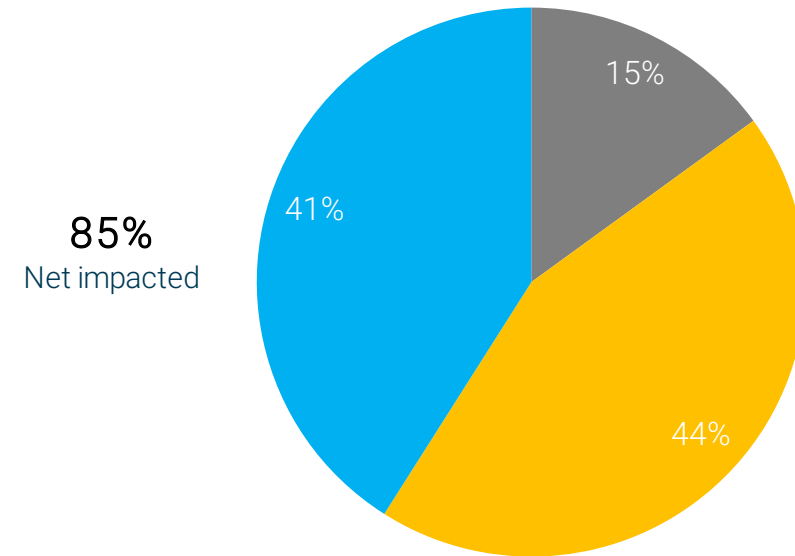


64%
Net concerned

- 1 - Not at all concerned
- 2 - Fairly unconcerned
- 3 - Fairly concerned
- 4 - Very concerned

The impact elevated health risks would have on their decision to throw away a product after experiencing 'confusion'?

(All respondents: N = 10046)



85%
Net impacted

- No impact at all
- A little bit of an impact
- A very big impact

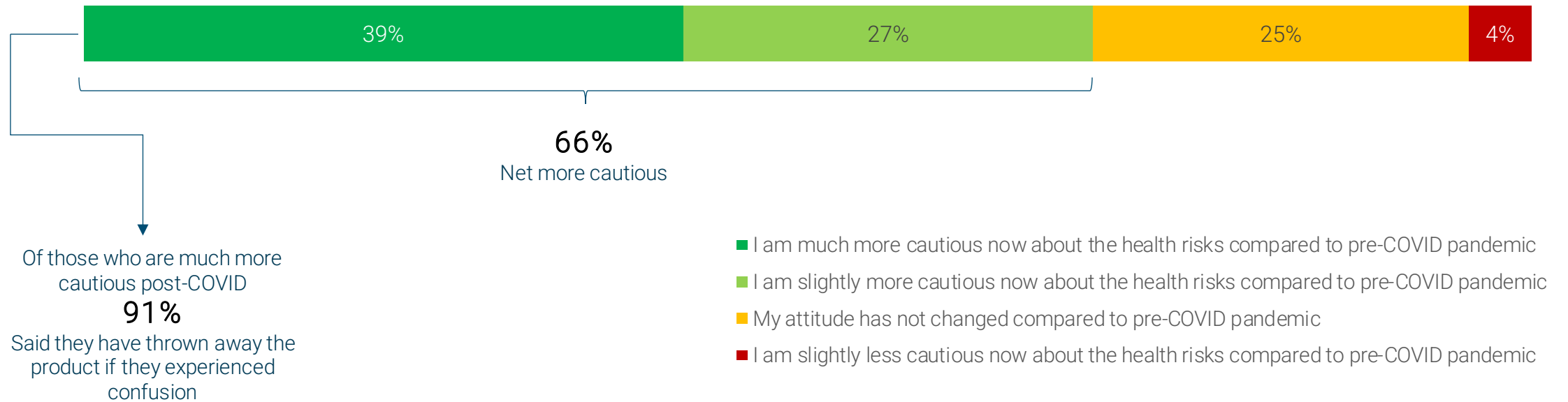
Q22: How concerned are you by the health risks (for example germs, viruses or bacteria) caused by 'confusion' of food/drink related products?

Q23: How much of an impact would the elevated health risks (for example germs, viruses or bacteria) have on your decision to throw away a product after experiencing 'confusion'?

Two-thirds said post-COVID they are now more cautious about the health risks related to confusion with food and drinks

Of those who are much more cautious post-COVID, 9 out of 10 said they have thrown away a beverage/food product when they experience confusion.

Since the COVID pandemic, how has your attitude and level of caution changed with regards to the health risks caused by food/drink?
(All respondents: N = 10046)



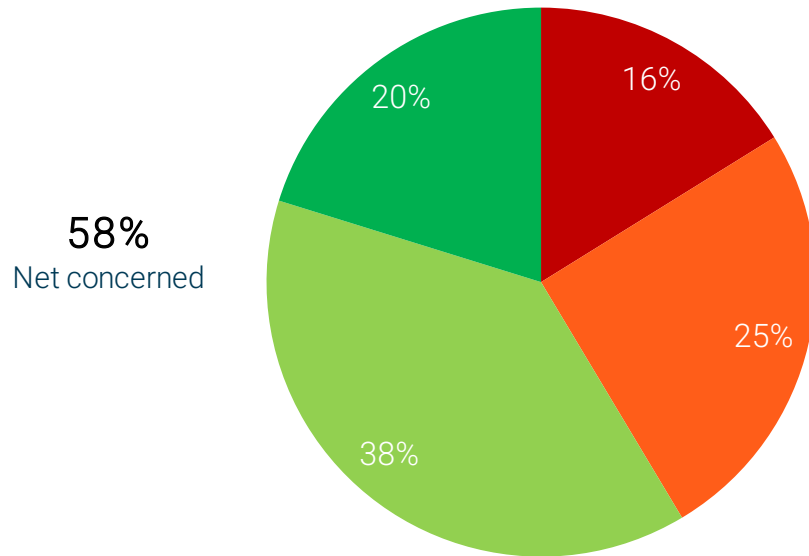
Q24: Since the COVID pandemic, how has your attitude and level of caution changed with regards to the health risks caused by food/drink and potential contamination of products?

Nearly 3 in 5 are concerned about the environmental impact associated with additional waste generated through confusion

Nearly 4 in 5 said it would have some impact on their decision to throw away the item. Overall, the health risks appear to be a slightly stronger motivator behind what individuals do with their items compared to the environmental consequences.

Concerned about the environmental impact caused by the additional waste resulting from throwing away due to experiencing 'confusion'?

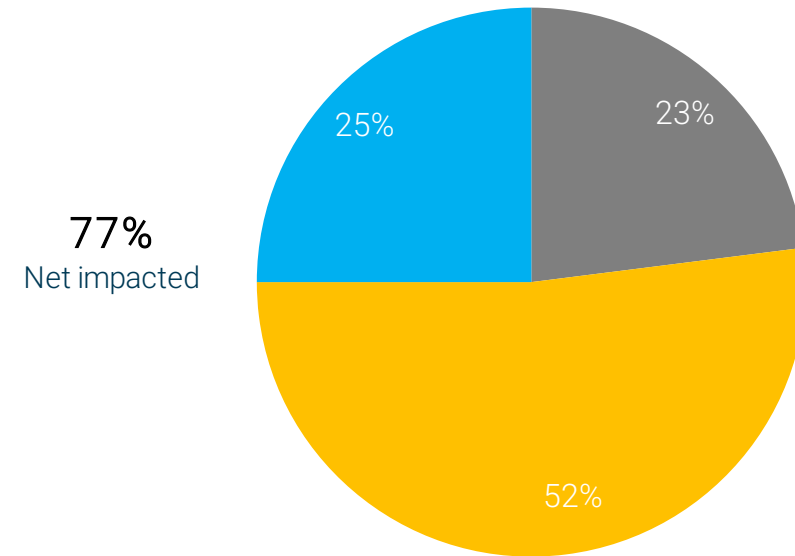
(All respondents: N = 10046)



- 1 - Not at all concerned
- 2 - Fairly unconcerned
- 3 - Fairly concerned
- 4 - Very concerned

The impact the environmental consequences would have on their decision to throw away a product after experiencing 'confusion'?

(All respondents: N = 10046)



- No impact at all
- A little bit of an impact
- A very big impact

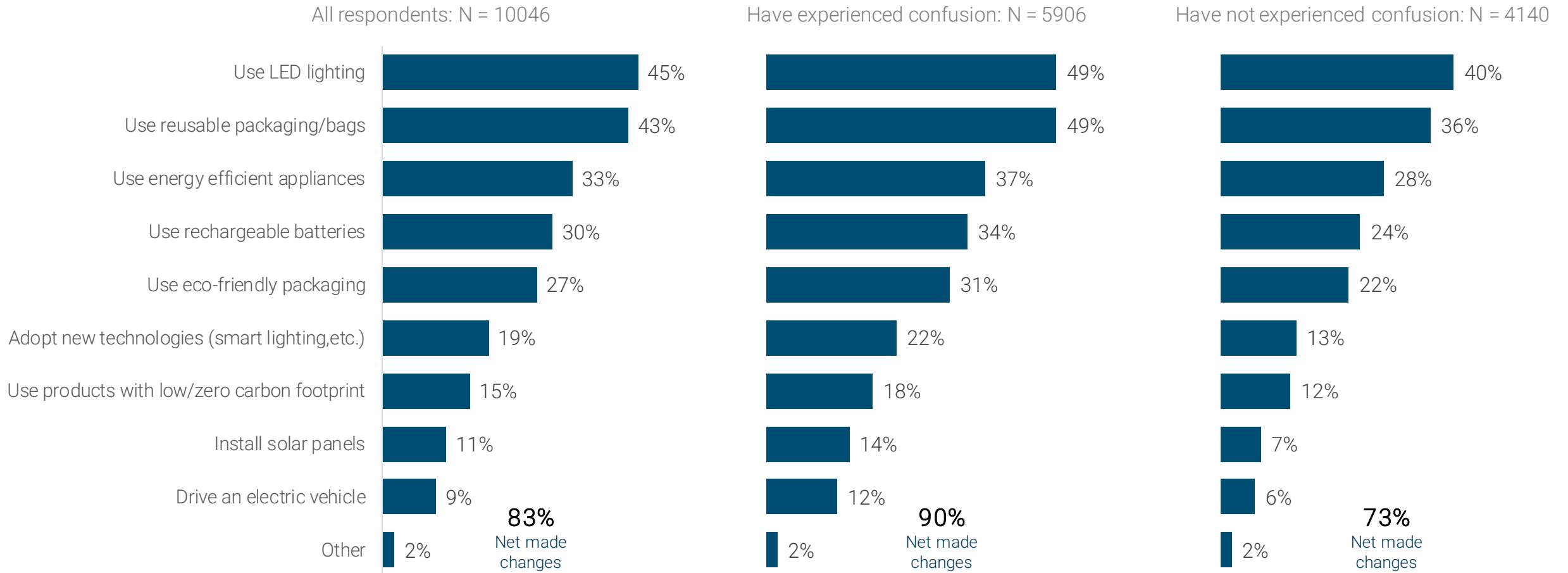
Q25: How concerned are you by the environmental impact caused by the additional waste resulting from throwing away due to experiencing 'confusion'?

Q26: How much of an impact would the environmental impact caused by wasting/throwing away food or drink packaging have on your decision to throw away your product after experiencing 'confusion'?

More than 4 in 5 have taken at least one step towards reducing their carbon footprint

This is slightly higher among those who have experienced confusion.

Changes you have made within your household in order to reduce your carbon footprint?

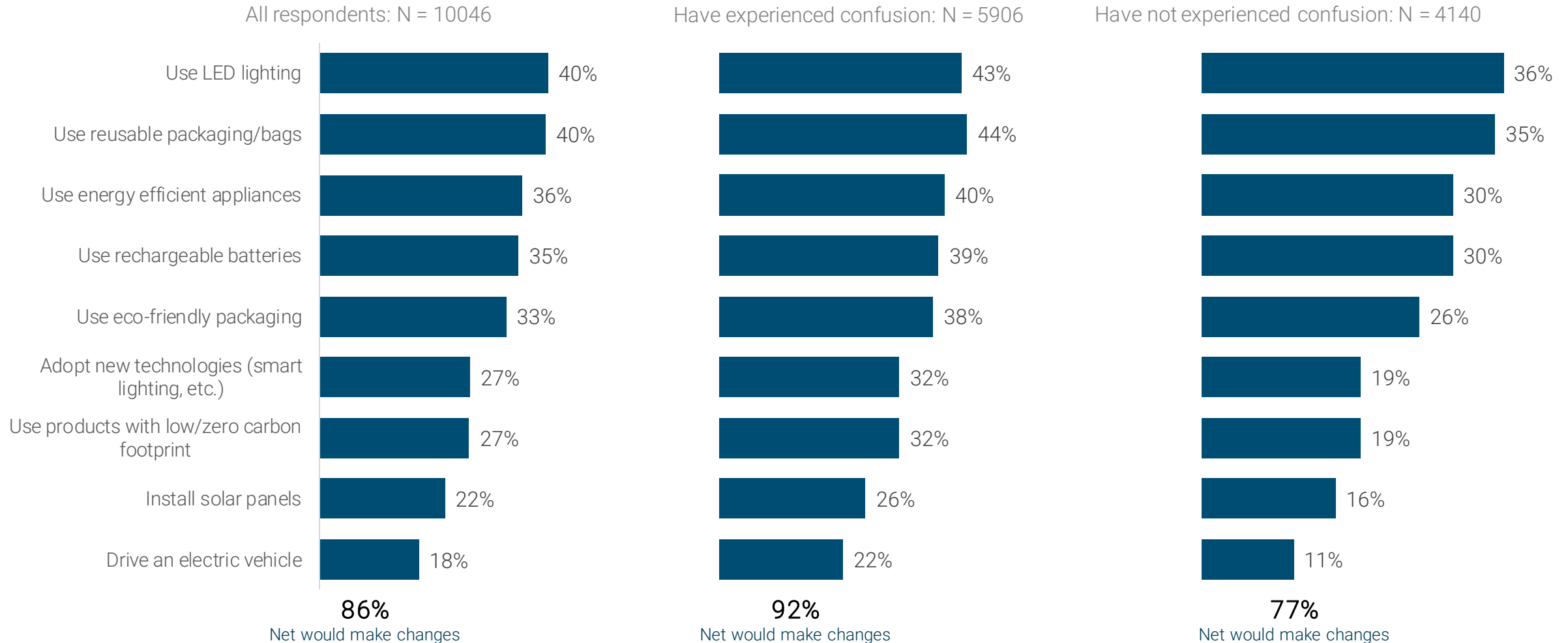


Q27: Which of the following changes have you made within your household in order to reduce your carbon footprint?

86% would consider making at least one change within their household to try and offset their carbon footprint

Those who have experienced confusion appear to be more receptive to the idea of adopting new changes within their household to reduce the impact they have on the environment.

Changes would you consider making within your household in order to reduce your carbon footprint?



Q28: Which of the following changes would you consider making within your household in order to reduce your carbon footprint?



Consumer Survey



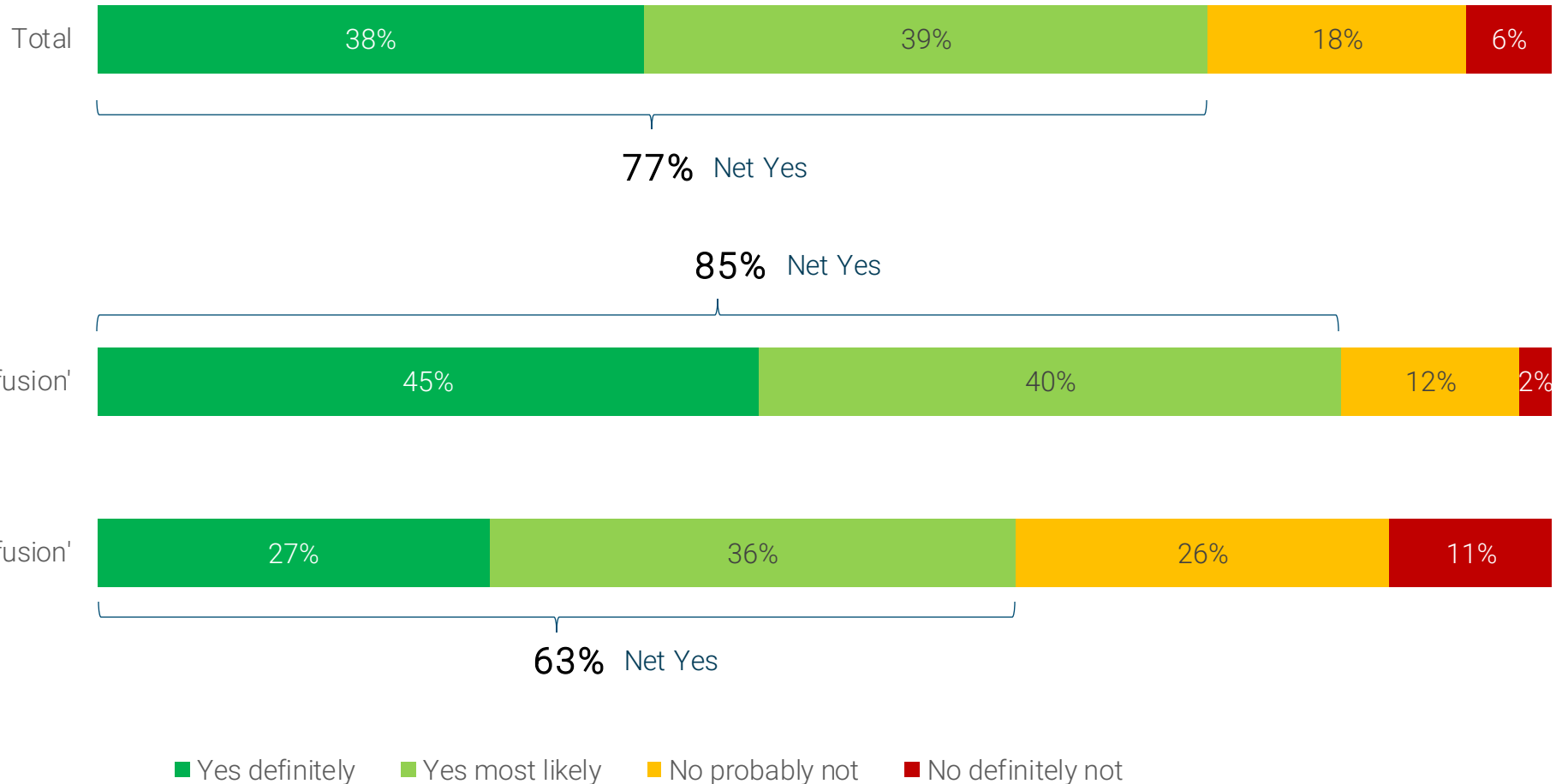
All-Scratch!® Technology



Over three-quarters said they would purchase a product with the All-Scratch!® technology

This likelihood to purchase is considerably stronger among those who have experienced confusion, indicating individuals can see it as a real solution to concerns related to confusion.

Would you purchase a product with the All-Scratch!® technology?
(All respondents: N = 10046, Those who have experienced confusion: N = 5906, Those who have not experienced confusion: N = 4140)

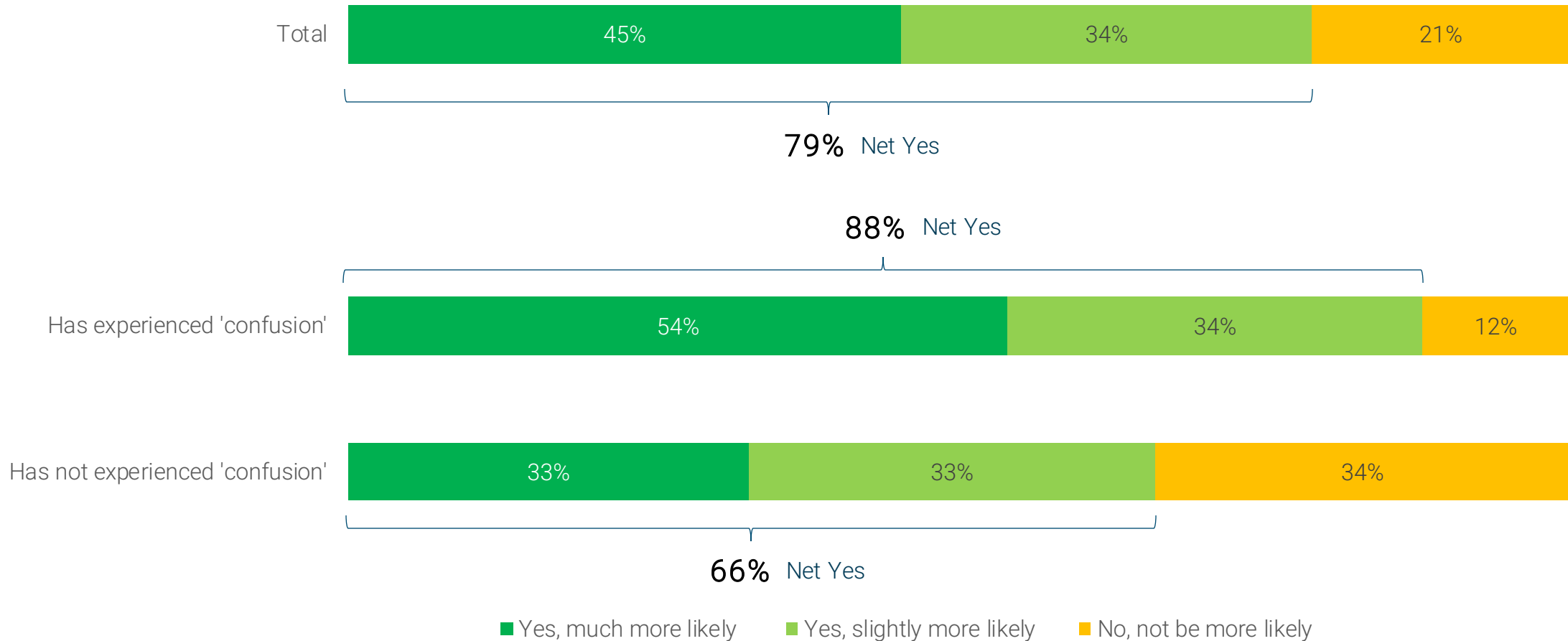


4 in 5 are more likely to purchase a bottle that has All-Scratch!® technology over one that does not

This increases considerably among those who have previously experienced confusion.

Would you be more likely to buy a water bottle that has All-Scratch!® technology over one that did not?

(All respondents: N = 10046, Those who have experienced confusion: N = 5906, Those who have not experienced confusion: N = 4140)

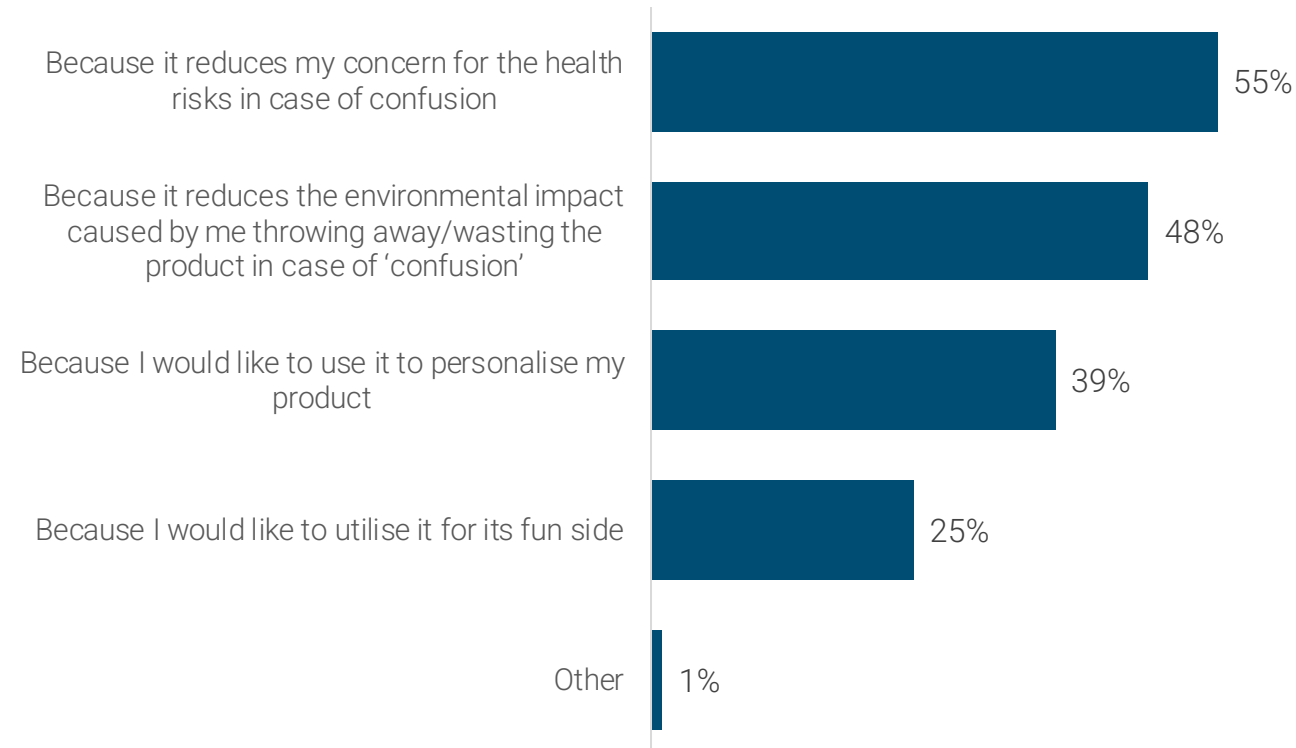


Q30c: If there was a water bottle that had the All-Scratch!® technology, would you be more likely to buy that bottle over one that did not?

The alleviation of both health and environmental related concerns appears to be a strong motivator behind the appeal of the All-Scratch!® technology

Respondents are also able to see beyond just the practical applications of the All-Scratch!® technology, as around 2 in 5 are attracted to the personalisation element and a quarter would utilise its fun side.

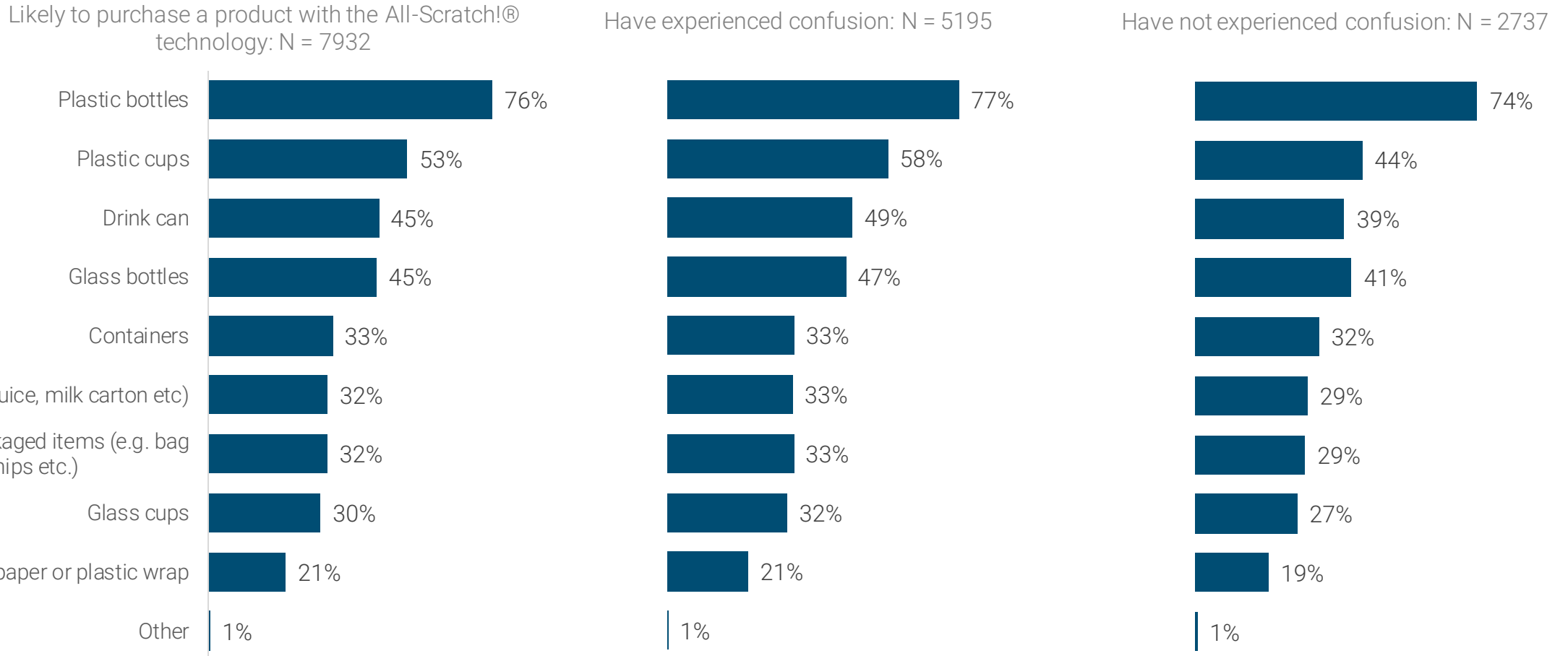
Why would you be more likely to purchase a product with the All-Scratch!® technology than one without?
(Those who would be likely to purchase a product with the All-Scratch!® technology: N = 7932)



Plastic bottles are the most popular type of product that respondents would consider buying with the All-Scratch!® technology implemented, chosen by three-quarters of respondents

Overall consideration was higher for all products among those who had experienced confusion vs. those who have not, suggesting these individuals may be more receptive to the All-Scratch!® technology.

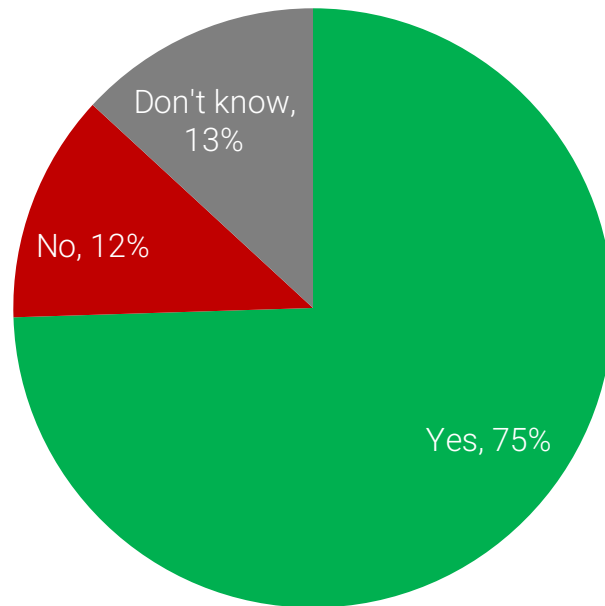
Which products with the All-Scratch!® technology would you consider purchasing?
(Among those who would be likely to purchase a product with the All-Scratch!® technology)



Q30b: Which products with the All-Scratch!® technology would you consider purchasing?

Three-quarters of those concerned about health risks associated with confusion feel that the All-Scratch!® technology would alleviate these worries

Would the All-Scratch!® technology alleviate your concerns with regards to the health risks caused by confusion of food/drink products?
(Those concerned about health risks caused by confusion: N = 6381)



Why would the All-Scratch!® technology alleviate health concerns?
(Those who said it would alleviate health concerns: N = 4754)

"My health is very poor so picking up germs is dangerous for me. All-Scratch!® is a very smart move - actually a life saver. Something as simple as this can save illness and lives."

"I love this idea and wish companies had thought of it before. If I were having a get-together, I would definitely purchase this product to ensure we are all kept safe from any disease that might be going around."

"I think it's kind of cool that a food or drink item could have an easy signage tag that I could easily use my hand to sign"

"We normally write out names on our drinks but the usually fades away with the condensation. This is an awesome idea to avoid waste."

Why would the All-Scratch!® technology NOT alleviate health concerns?
(Those who said it would not alleviate health concerns: N = 788)

"Even though you scratch an identifying mark on your food or drink someone else might accidentally pick it up and use it."

"Kids will be kids and they'll grab any bottle if not monitored and drink it."

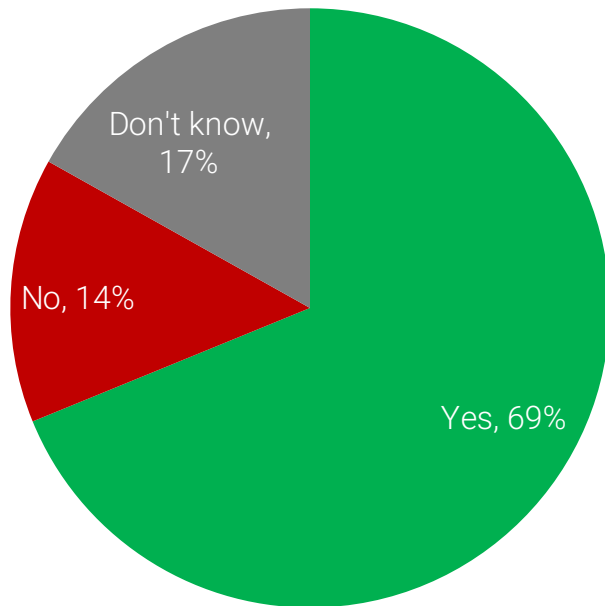
"I'm not sure I would put this product when a Sharpie would do the same thing and avoid additional waste."

Q31: Do you think the All-Scratch!® technology would alleviate your concerns with regards to the health risks caused by 'confusion' of food/drink products?
Q31b: Please explain why you feel All-Scratch!® technology would alleviate your concerns with regards to the health risks caused by 'confusion' of food/drink.
Q31c: Please explain why you feel All-Scratch!® technology would not alleviate your concerns with regards to the health risks caused by 'confusion' of food/drink.

Of those worried about the environmental impact of waste, nearly 7 in 10 feel that the All-Scratch!® technology would help those concerns

Would the All-Scratch!® technology alleviate your concerns with regards to the environmental impact caused by waste?

(Those concerned about environmental impact caused by waste: N = 5894)



Why would the All-Scratch!® technology alleviate environmental concerns?
(Those who said it would alleviate environmental concerns: N = 4072)

"Since the technology would let me mark a bottle to indicate that it's mine, I would have no reason to throw away a bottle before it's empty.."

"You can keep the same bottle instead of getting a new one every time, it could be refilled meaning less waste."

"It helps me keep track of my bottles and plates to keep down waste"

"People would be more careful about throwing things with their name on it"

Why would the All-Scratch!® technology NOT alleviate environmental concerns?
(Those who said it would not alleviate environmental concerns: N = 833)

"It is really a wasted effort because our environment is already so bad."

"Simply, because whether we finish the product or not, it's still gonna go in the trash, which still is going to contribute to environmental impact."

"Unfortunately, it's still a single use plastic that will end up in the landfill or recycled if possible."

Q32: Do you think the All-Scratch!® technology would alleviate your concerns with regards to the environmental impact caused by waste?
Q32b: Please explain why you feel All-Scratch!® technology would alleviate your concerns with regards to the environmental impact cause by waste.
Q32c: Please explain why you feel All-Scratch!® technology would not alleviate your concerns with regards to the environmental impact cause by waste.

Those who feel the All-Scratch!® technology would alleviate environmental worries stated reasons such as not needing to throw away their items as they can readily identify them

Those who do not feel like it would alleviate environmental concerns often expressed general concerns regarding waste and the environment and felt the All-Scratch!® technology would not have a big impact on overall waste levels as the bottle would still be thrown away.

Why would the All-Scratch!® technology alleviate environmental concerns?
 (Those who said it would alleviate environmental concerns: N = 4072)



Why would the All-Scratch!® technology NOT alleviate environmental concerns?
 (Those who said it would not alleviate environmental concerns: N = 833)

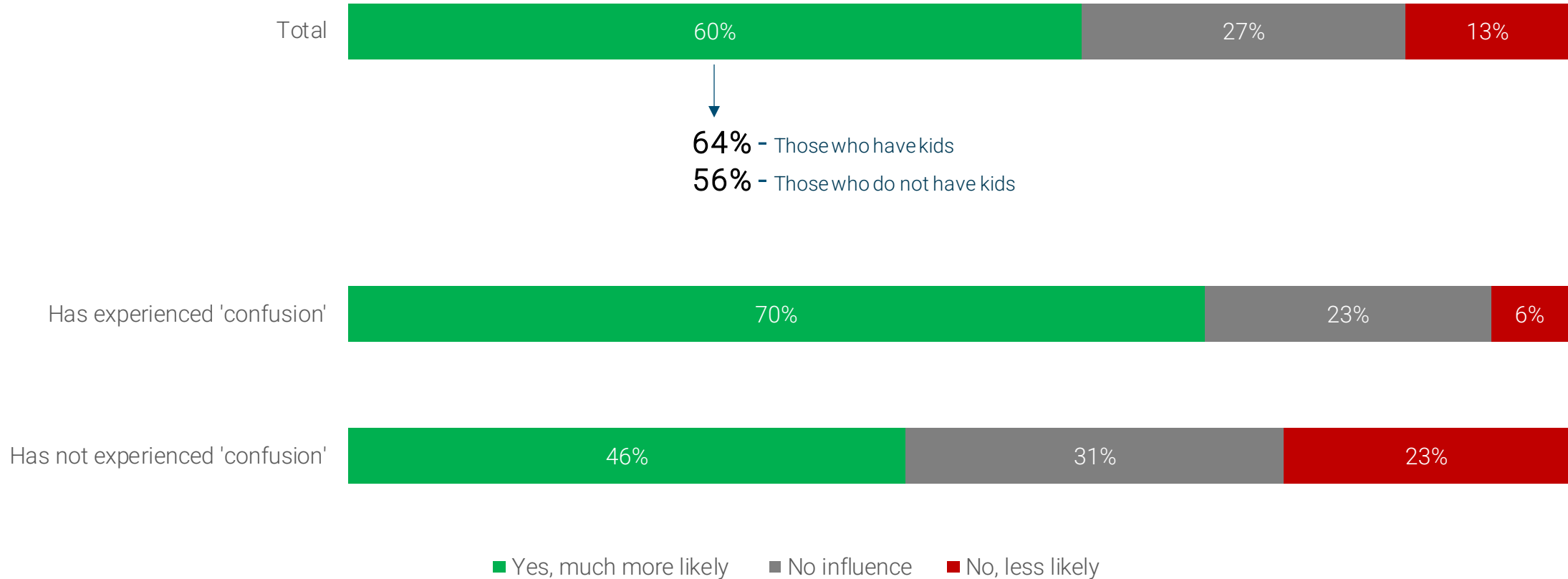


Q32b: Please explain why you feel All-Scratch!® technology would alleviate your concerns with regards to the environmental impact cause by waste.
 Q32c: Please explain why you feel All-Scratch!® technology would not alleviate your concerns with regards to the environmental impact cause by waste.

6 in 10 said the ability to personalise items using All-Scratch!® technology makes them more likely to purchase

With this increasing to 7 in 10 among those who have experienced confusion. This figure is also higher among those who have children vs. those without.

Does the ability to personalise your items using the All-Scratch!® technology make you more likely to buy it?
(All respondents: N = 10046, Those who have experienced confusion: N = 5906, Those who have not experienced confusion: N = 4140)

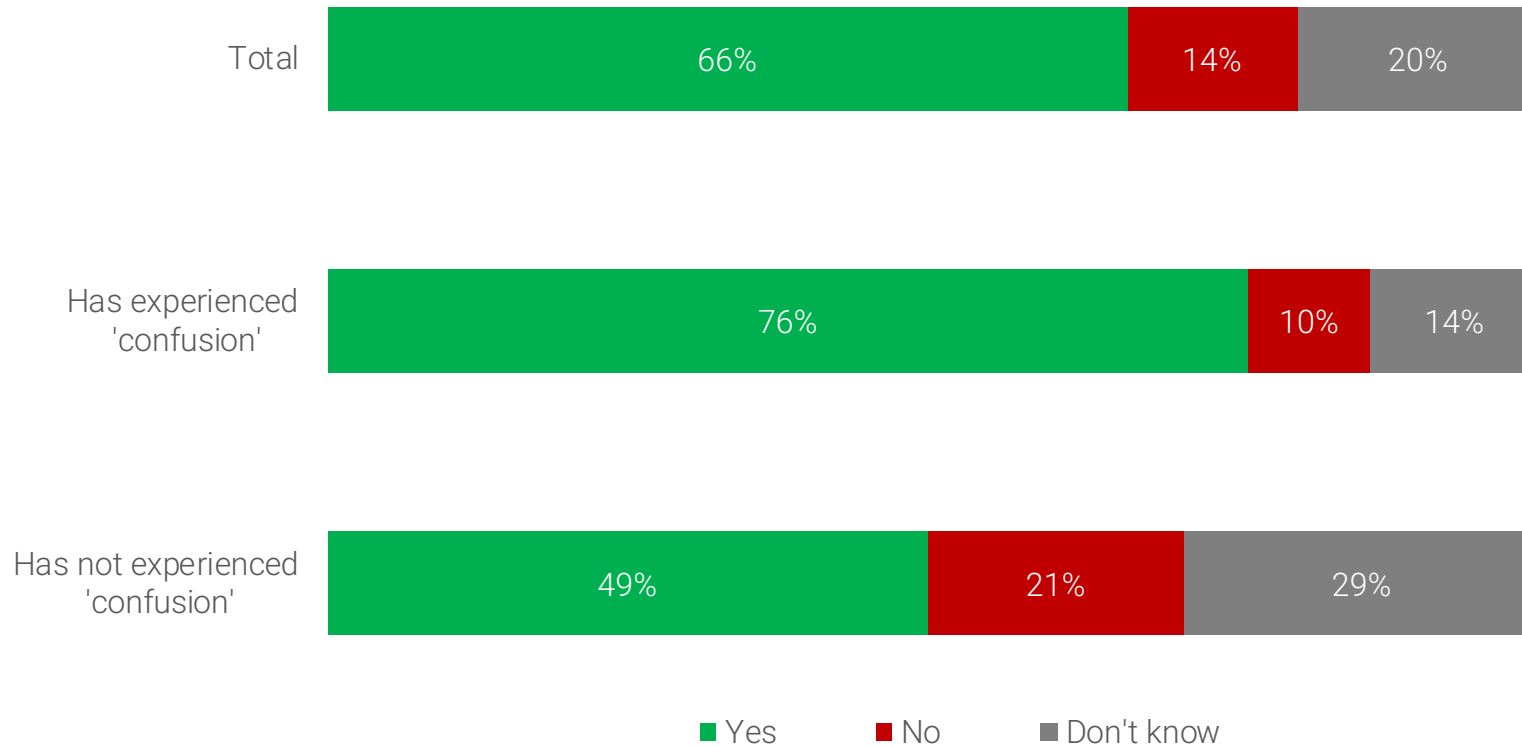


Two-thirds of parents said their children would use the All-Scratch!® technology for its creative/fun purposes

This shows the benefits of the All-Scratch!® technology beyond its practical applications and highlights its appeal to children.

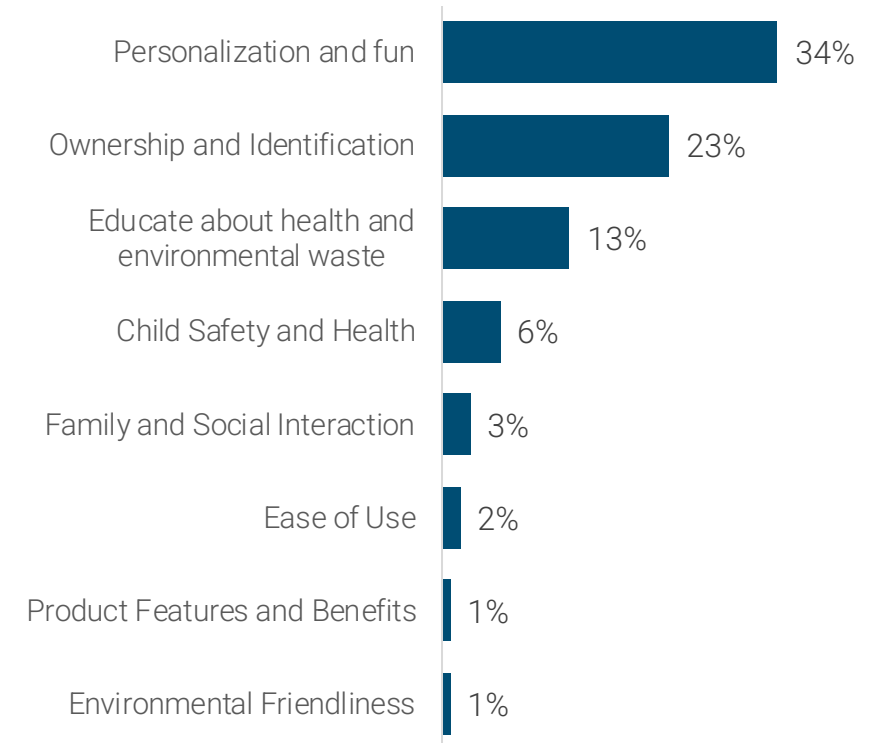
Would your children use the All-Scratch!® technology for its creative/fun purposes?

(Respondents with children: N = 5863, Respondents with children who have experienced confusion: N = 3698, Respondents with children who have not experienced confusion: N = 2165)



How do you think your kids would make use of the creative aspect of the All-Scratch!® technology?

(Respondents with children who would use All-Scratch!® technology: N = 3877)



Q34: Would your children use the All-Scratch!® technology for its creative/fun purposes?

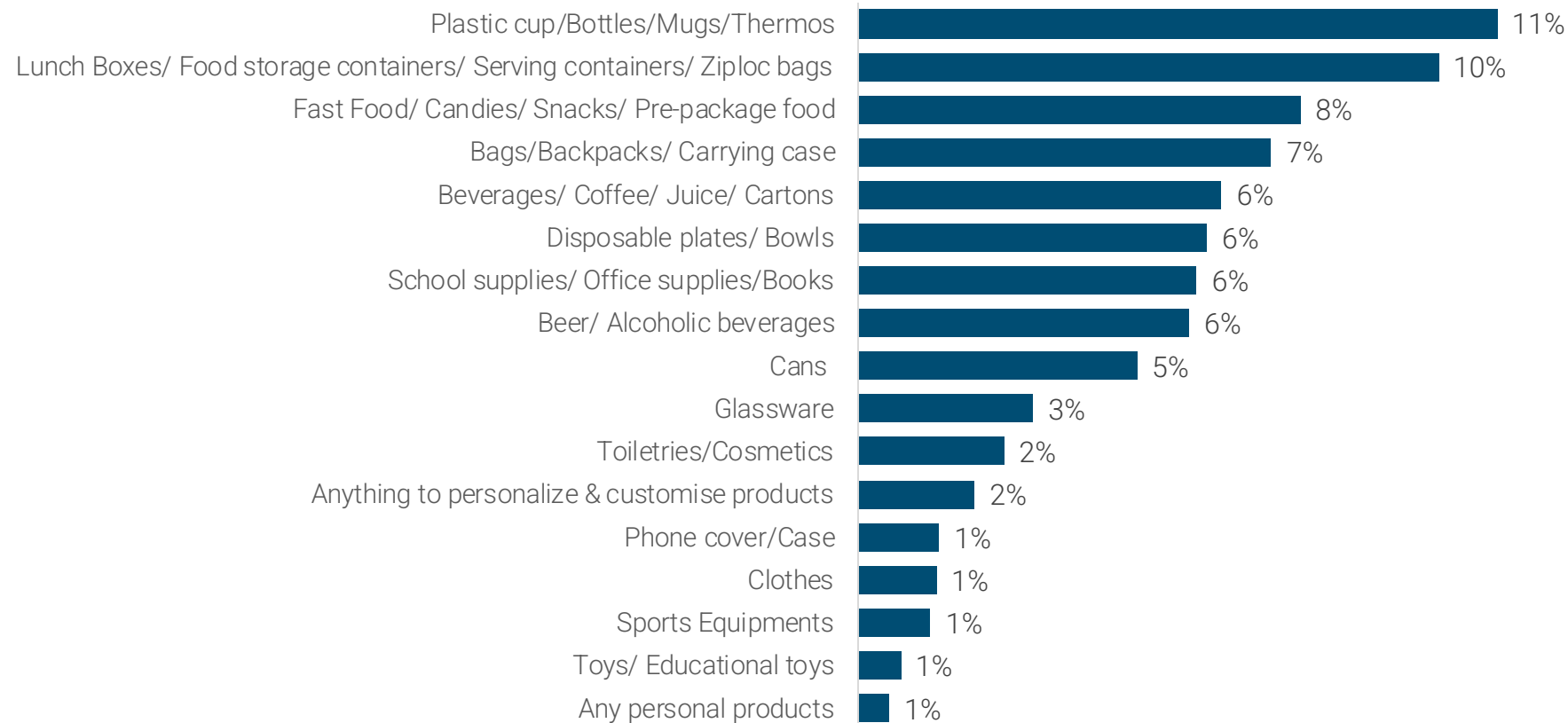
Q35: How do you think your kids would make use of the creative aspect of the All-Scratch!® technology?

Food and drink containers appear to be the most popular types of products respondents feel would benefit the most from the All-Scratch!® technology

Items related to children such as lunchboxes, backpacks and school supplies were also frequently mentioned.

Outside of its use on water bottle packaging, are there any other products you feel could benefit from the accompaniment of the All-Scratch!® technology?

(All respondents: N = 10046)



Q36: Outside of its use on water bottle packaging, are there any other products you feel could benefit from the accompaniment of the All-Scratch!® technology?



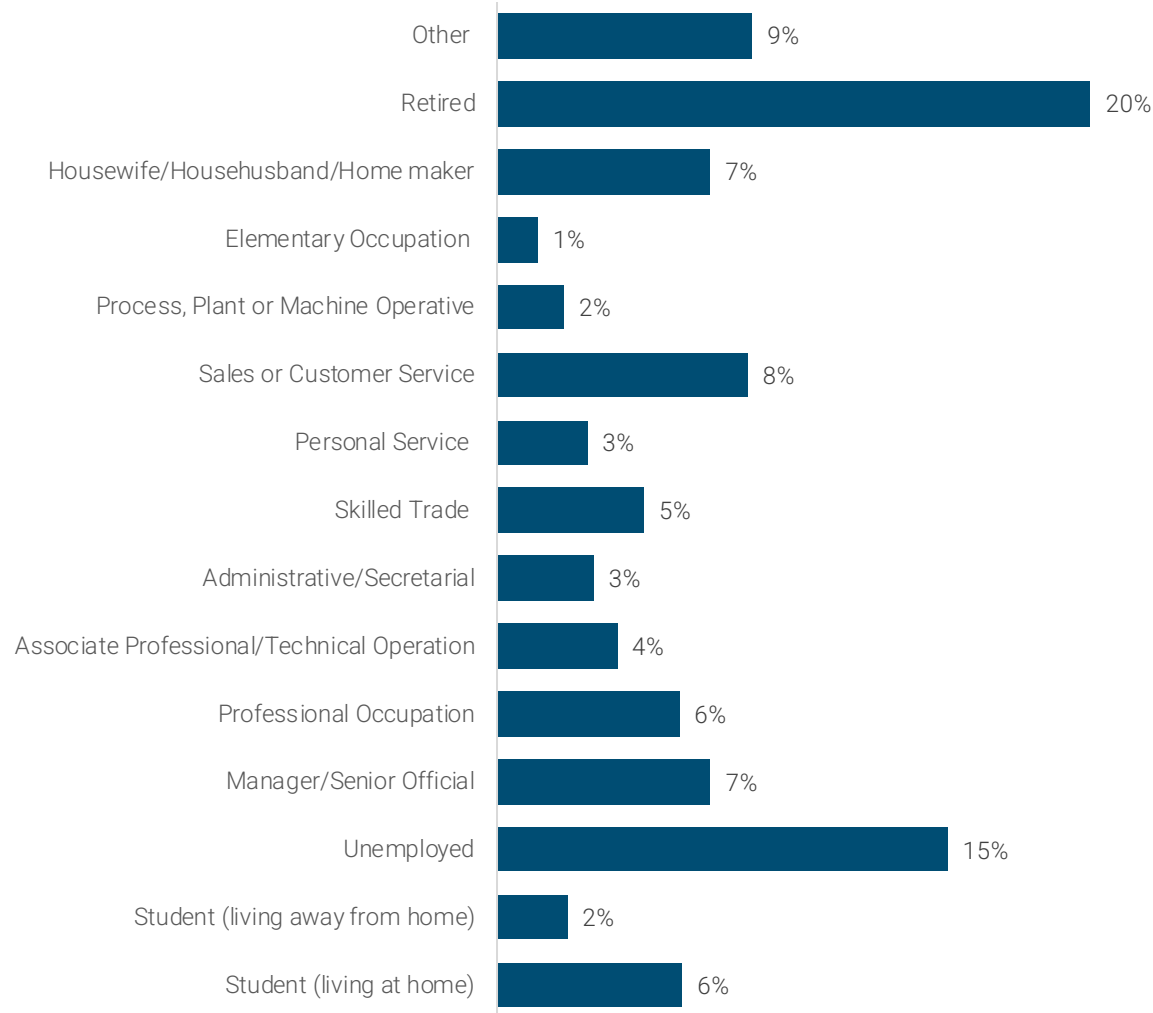
Consumer Survey Appendices



Appendix 1/6

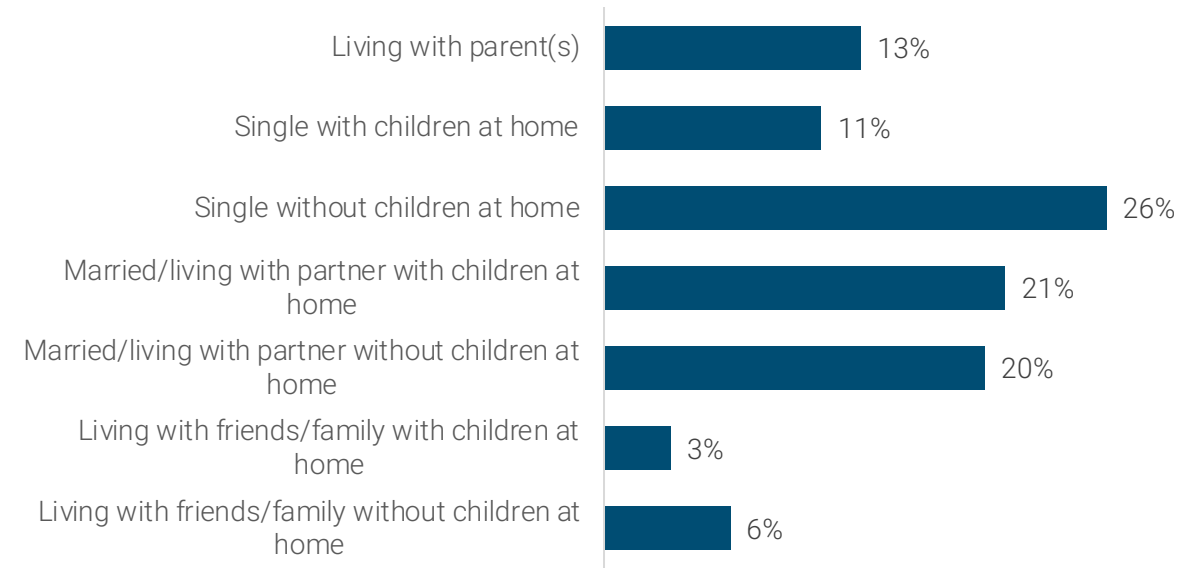
Occupation

(All respondents: N = 10046)



Living situation

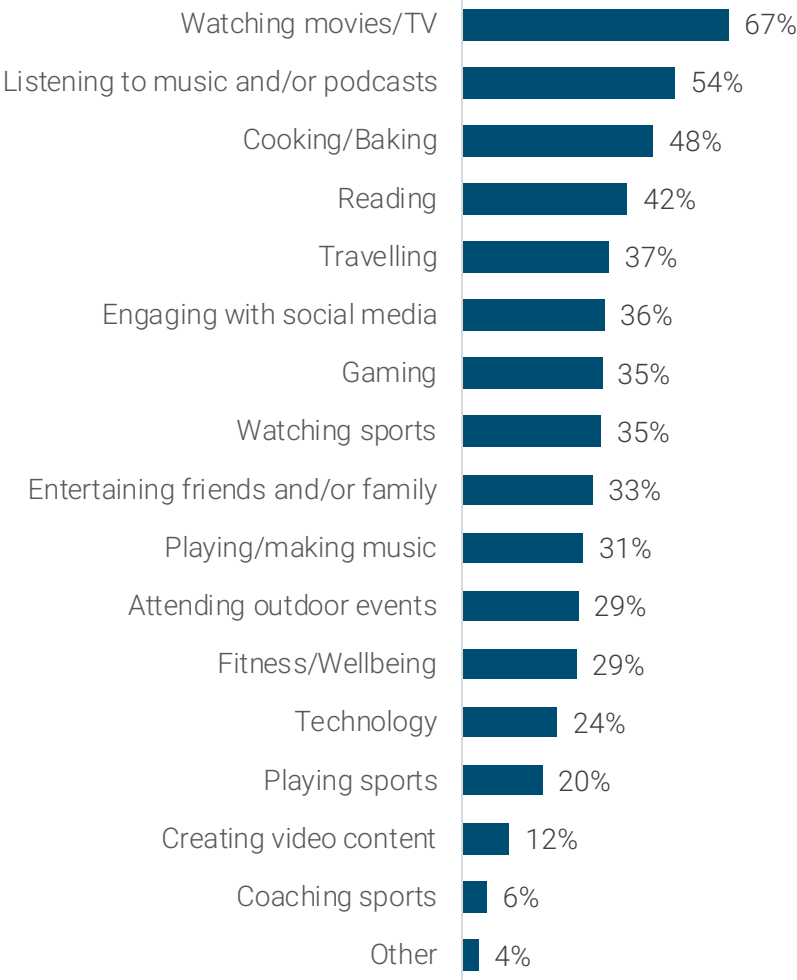
(All respondents: N = 10046)



Q4: How would you classify your occupation?

Q5a: Which of the following best describes your living situation?

Hobbies/interests (All respondents: N = 10046)

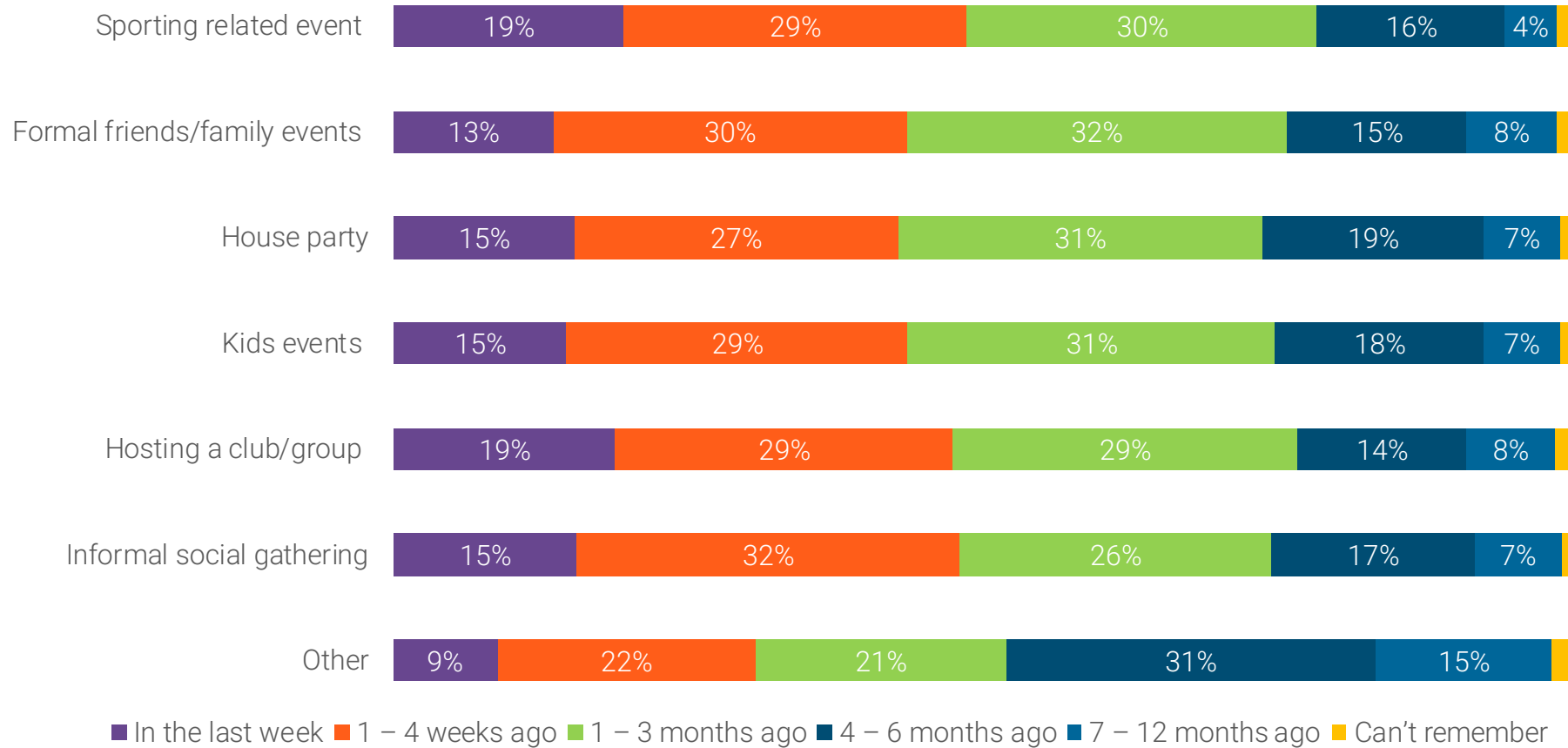


Q6: Which of the following would you consider hobbies/interests to you?

Appendix 3/6

Last time you hosted an event?

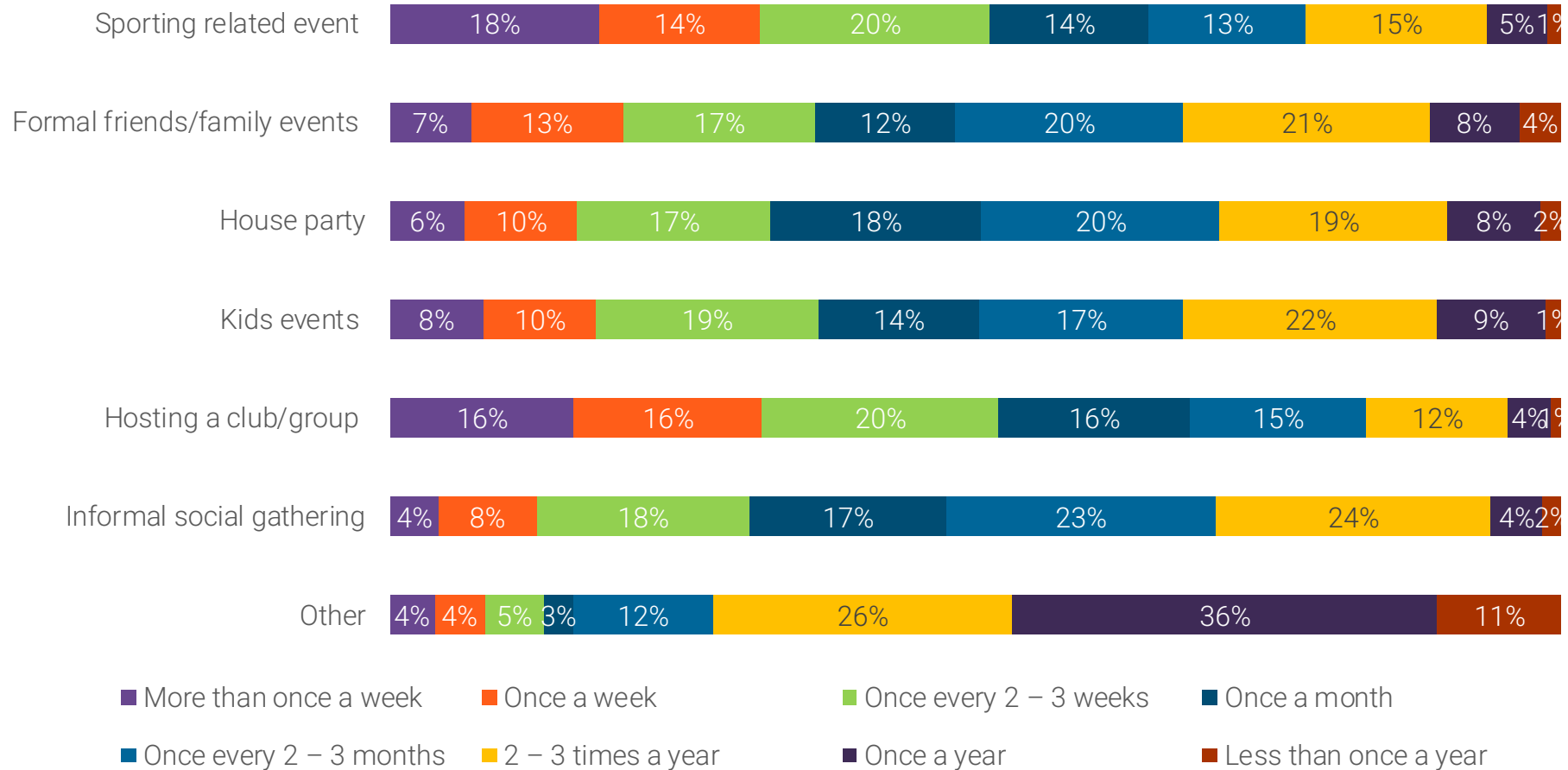
(Those who said they have hosted one of these events in the last 12 months: N = 4998)



Q12: When was the last time you hosted each of the following types of event(s)?

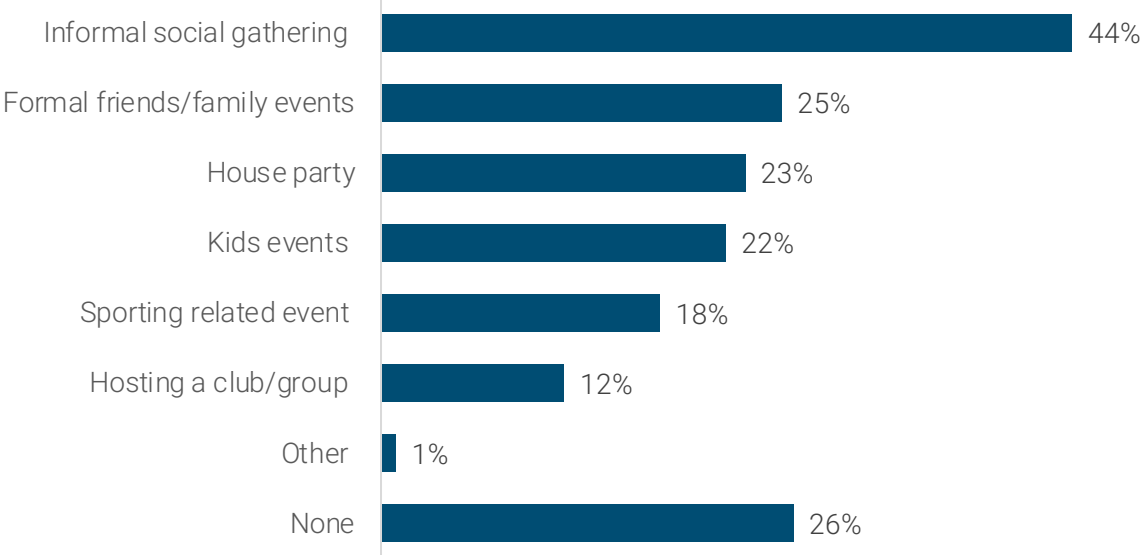
Appendix 4/6

How often do you host each of these events?
 (Those who said they have hosted one of these events in the last 12 months: N = 4998)



Q13: How often do you host each of the following types of event(s)?

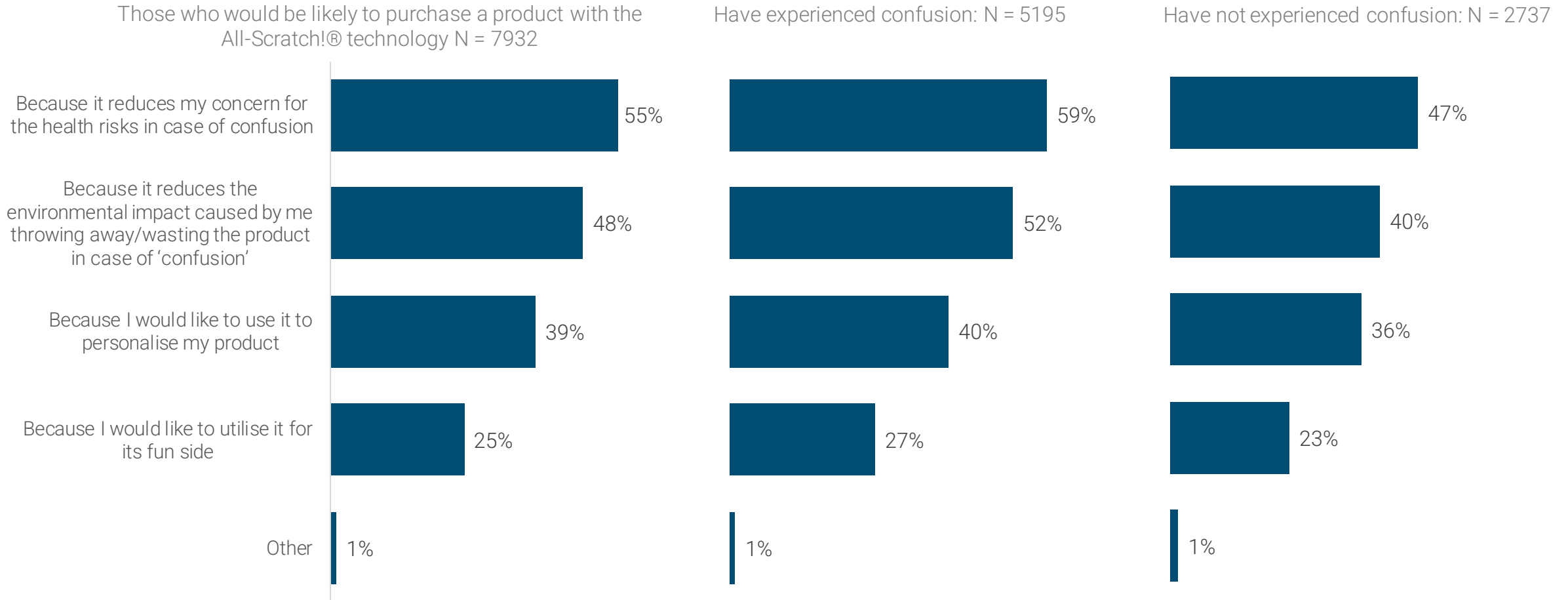
Which type of event do you plan on hosting in the future
(All respondents: N = 10046)



Q14: Which of the following types of event(s) do you plan on hosting in the next 12 months?

Appendix 6/6

Why would you be more likely to purchase a product with the All-Scratch!® technology than one without?



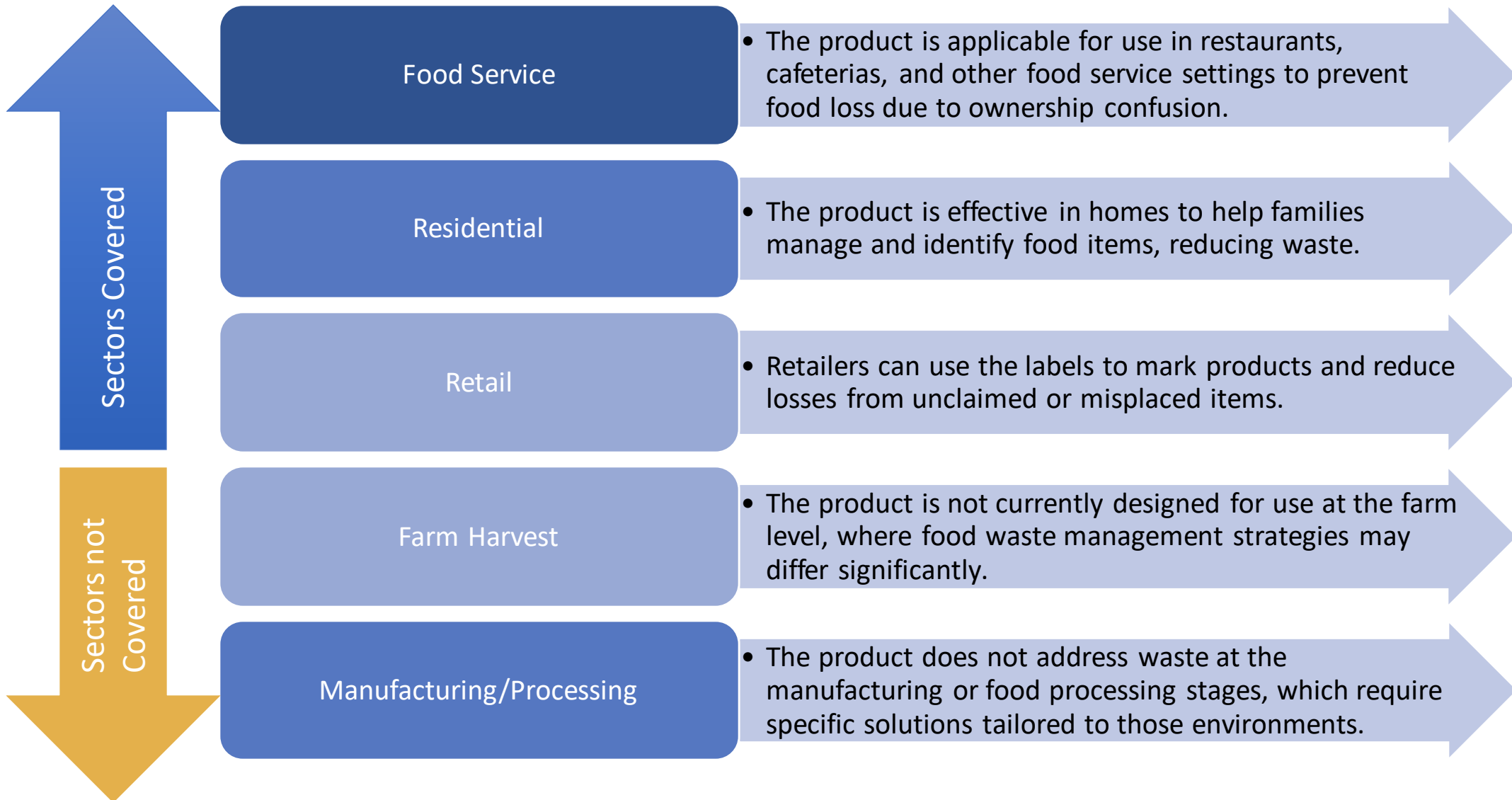
Q30a: Why would you be more likely to purchase a product with the All-Scratch!® technology than one without it



Market Analysis



Market Analysis – Areas Covered





Global Food Waste Analysis



Global Food Waste Analysis: Volume & Value

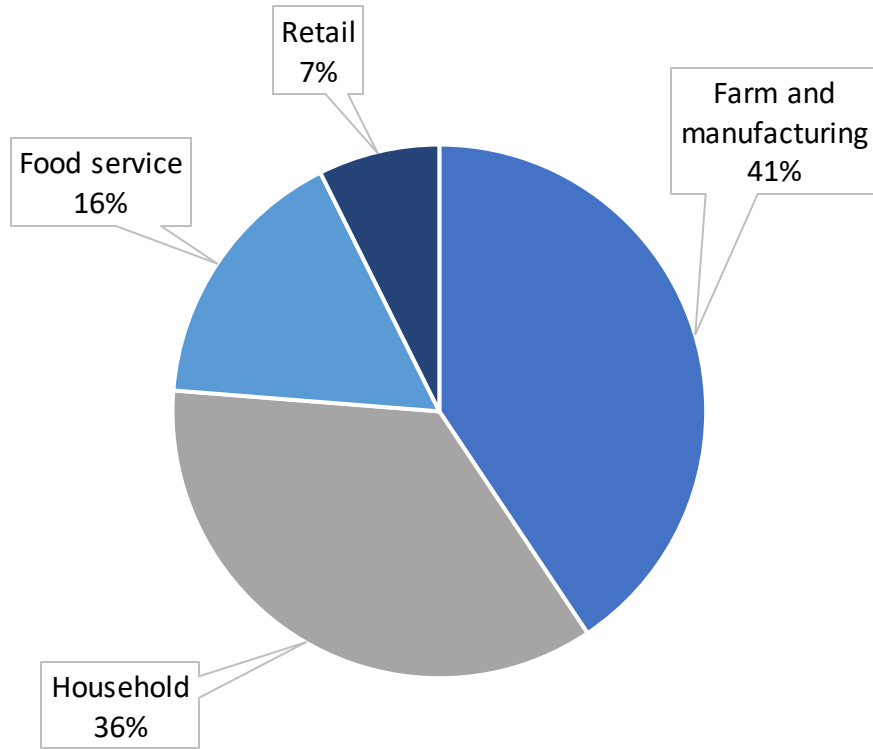
- ❖ The Food and Agriculture Organization of the United Nations (FAO) defines “Food waste as any food, and inedible parts of food, removed from the FSC (food supply chain) to be recovered or disposed.” Food waste pertains to the discarding or loss of food that is suitable and safe for human consumption. It happens when edible food is thrown away, left unused, or spoiled, leading to significant environmental, economic, and social consequences.
- ❖ Around one-third of all food produced for consumption is lost or wasted. FAO reports indicate that approximately 19% of the food available for consumption is wasted across food service, retail, and household levels. Furthermore, according to FAO estimates, there is an additional 13% loss in the food supply chain from the post-harvest stage.
- ❖ Food waste/loss accounts for 8-10% of global GHG emissions. Food lost or wasted during production contributes to carbon footprints amounting to roughly 3.3 billion tons of CO₂.



Source: FAO, GreenMatch, IFCO.

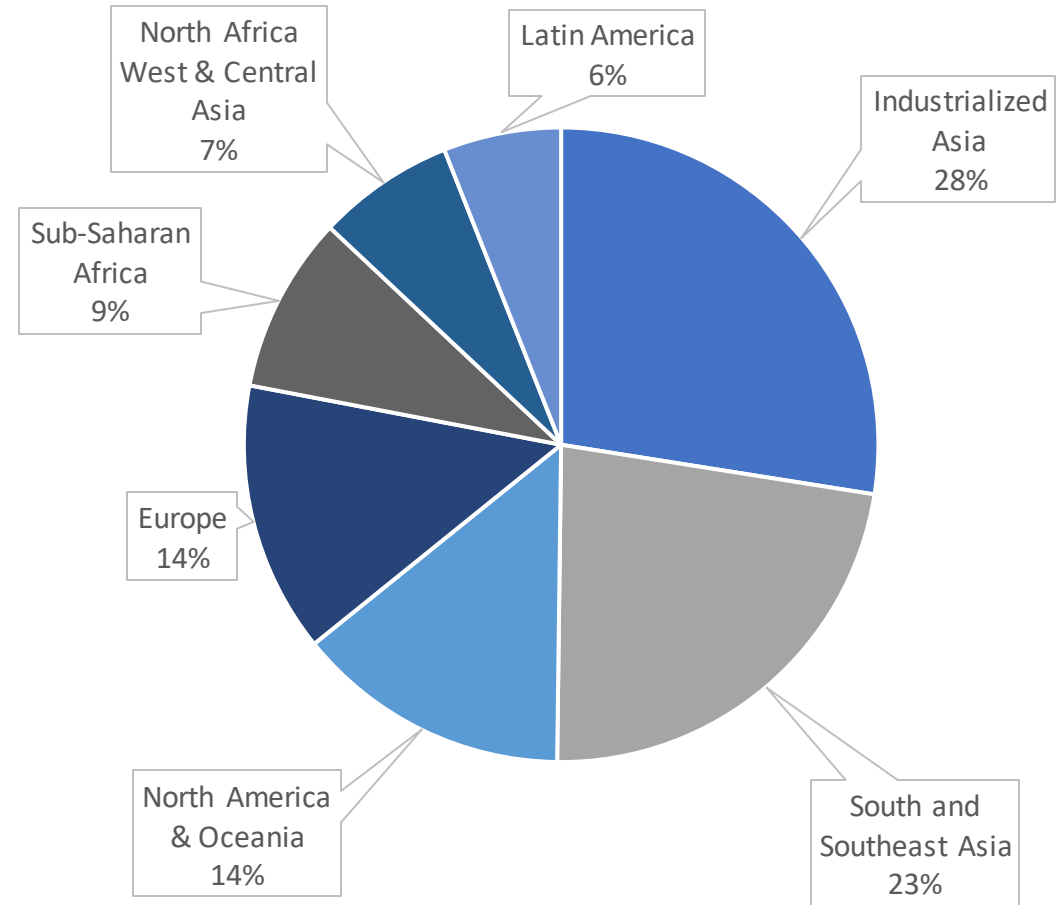
Global Food Waste: Sector and Regional Analysis

Global Food Loss/Waste by Sectors (%)



Source: FAO, UNEP, BCC Research

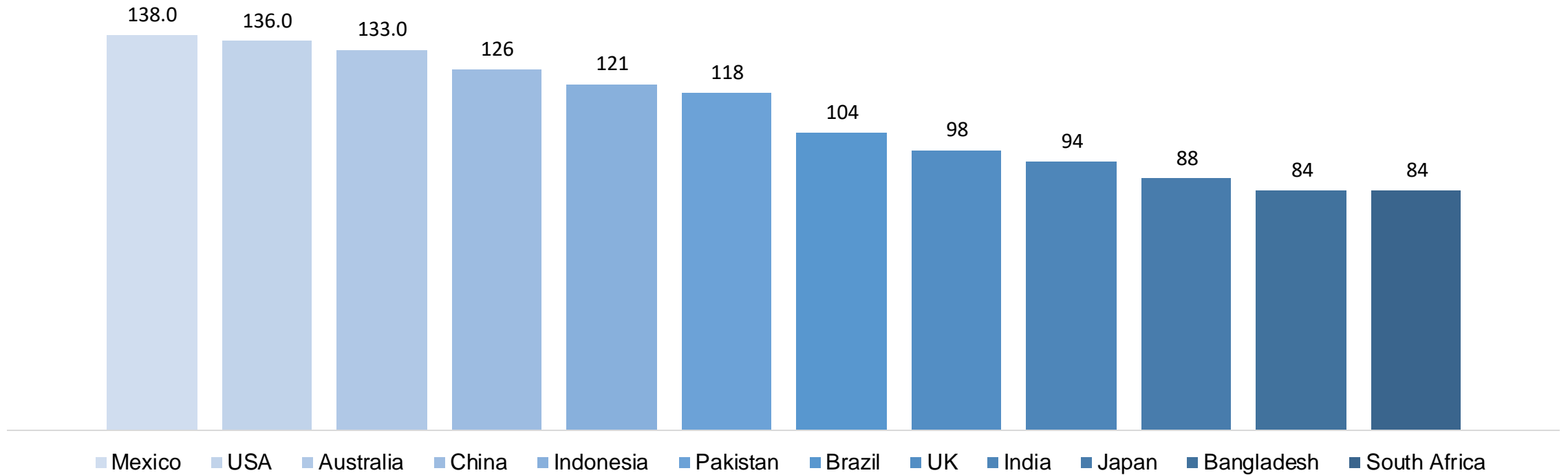
Global Food Loss/Waste by Region (%)



Source: FAO, BCC Research

Global Food Waste: Top Countries Analysis

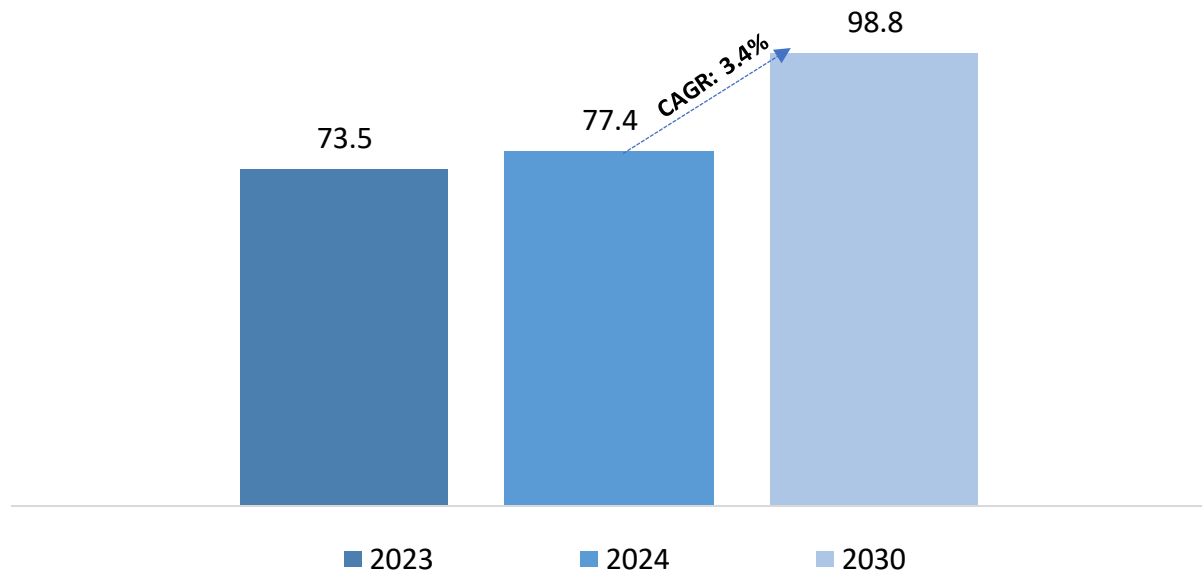
Food Waste by Major Countries (Kg/Capita/Year) (2021)



Source: UNEP Food Waste Index Report 2021 Database

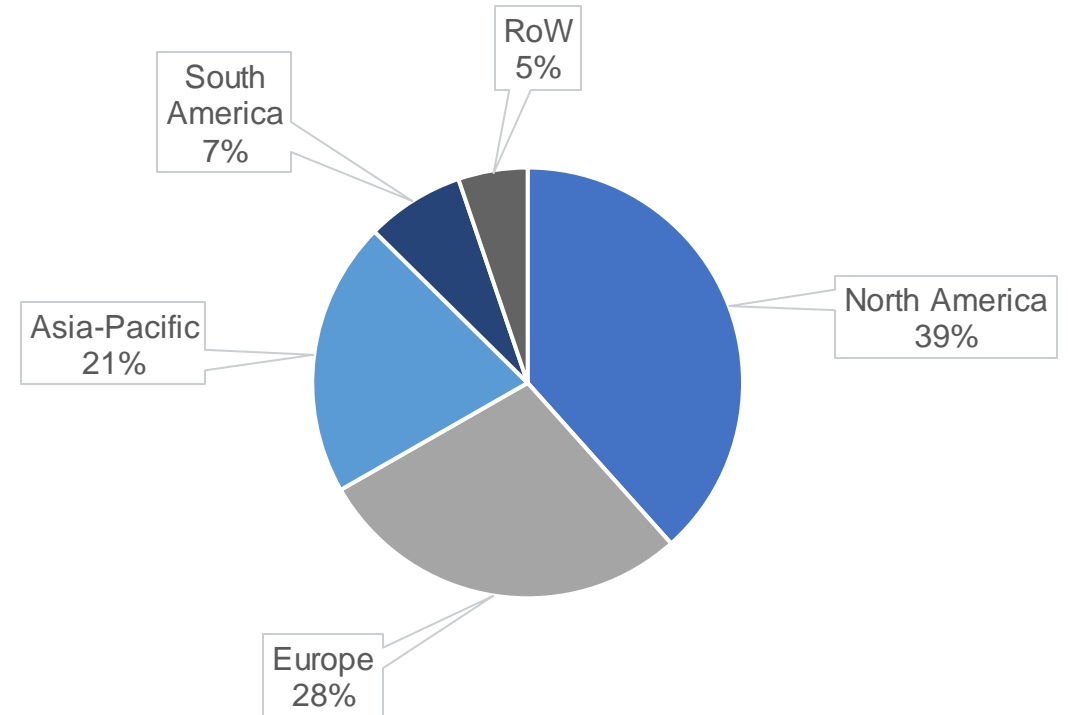
Global Market for Food Waste Management

Market for Food Waste Management
Market Value, 2023-2030, US \$Bn, CAGR (%)



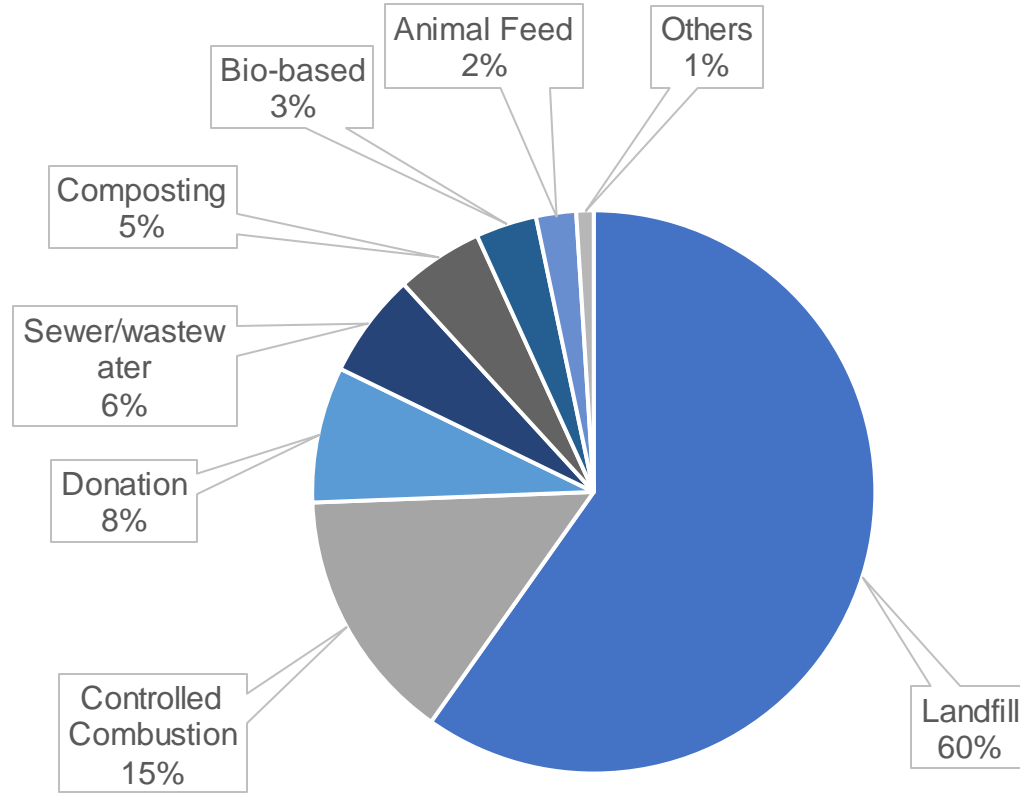
Source: [GreenMatch](#)

Regional Market Value Share (%), 2023



Source: BCC Research

Food Waste Management Pathways (%)



Source: [GreenMatch](#)

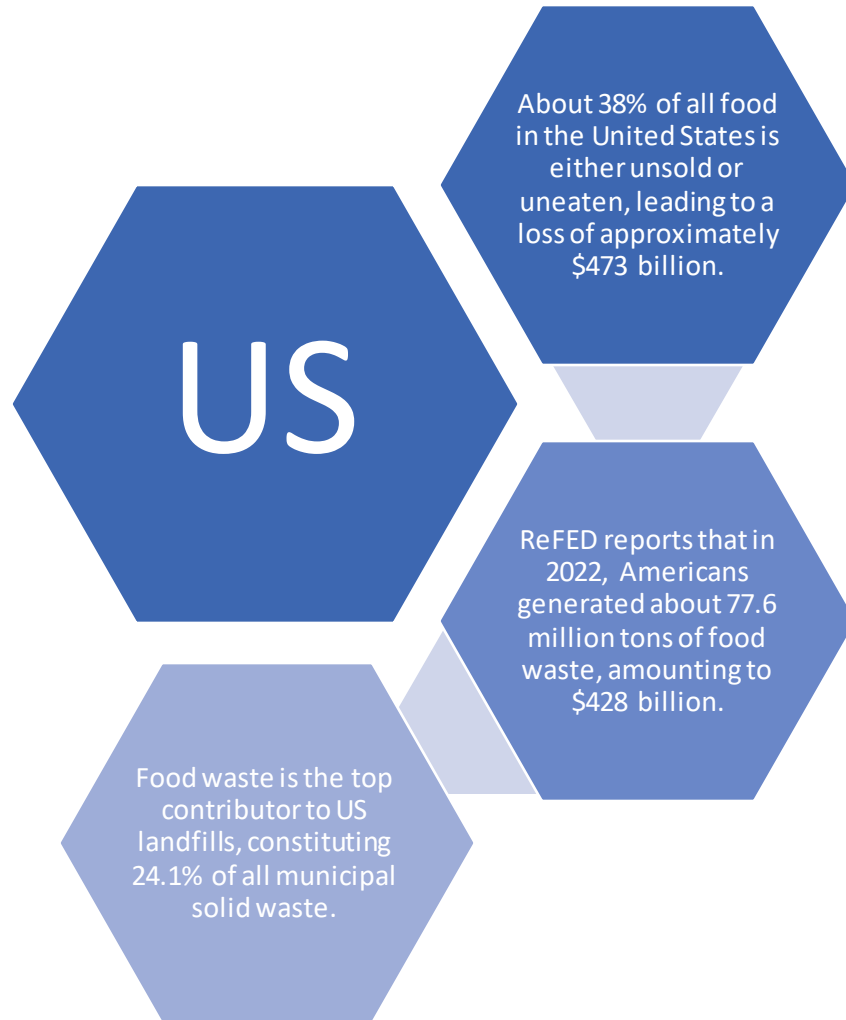
- ❖ With an increasing population, food waste has been increasing year after year; due to this, the market for food waste management has been growing rapidly. New environmental policies are driving the industry to reduce and recycle food waste in the proper ways.
- ❖ Financial aid from international organizations and governments is increasing to curb food waste. Increasing usage of organic waste to produce animal feed and fertilizers drives the food waste management market.
- ❖ Cutting-edge technologies like artificial intelligence and machine learning are used in food waste management to scale up operations and stay competitive in the dynamic environment of the food waste management industry.
- ❖ The effective collection of food waste and the adverse environmental effects of waste processing techniques impact market growth.
- ❖ The US Food waste management market was valued at \$20.8 billion in 2023. Efficient food waste management and recycling programs and diverse trash collection and treatment rules established by governments and enterprises using cutting-edge waste management technologies are driving market expansion in the United States.



US Food Waste Analysis



US Food Waste Analysis



Source:- BCC Research and ReFED, Inc.

Food Wastage in US



Each year, American businesses, consumers, and farms spend \$218 billion on activities related to food that ultimately goes uneaten.



This \$218 billion expenditure amounts to 1.3% of the United States' total Gross Domestic Product (GDP) on growing, processing, and disposing of food that is never consumed.



Food waste results in an annual loss of \$74 billion for American businesses

US Food Waste by States

States	Food Waste (Tons)	Share (%)
California	11,809,361	15.2%
Florida	5,772,702	7.4%
Texas	4,941,593	6.4%
New York	3,247,097	4.2%
Wisconsin	2,961,500	3.8%
Washington	2,911,828	3.8%
North Carolina	2,606,746	3.4%
Pennsylvania	2,575,946	3.3%
Georgia	2,528,041	3.3%
Illinois	2,491,546	3.2%
Ohio	2,410,085	3.1%
Michigan	2,398,582	3.1%
Arizona	2,363,568	3.0%
Virginia	1,927,338	2.5%
New Jersey	1,715,188	2.2%
Indiana	1,561,387	2.0%
Tennessee	1,538,171	2.0%

Source:- BCC Research and ReFED, Inc.

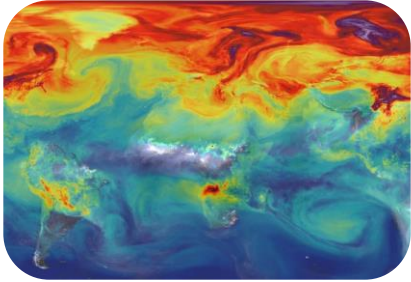
States	Food Waste (Tons)	Share (%)
Massachusetts	1,496,604	1.9%
Minnesota	1,395,972	1.8%
Colorado	1,376,641	1.8%
Missouri	1,361,019	1.8%
Maryland	1,151,488	1.5%
South Carolina	1,135,598	1.5%
Louisiana	1,116,626	1.4%
Alabama	989,767	1.3%
Kentucky	968,887	1.2%
Oregon	968,485	1.2%
Oklahoma	797,313	1.0%
Iowa	748,216	1.0%
Nevada	722,126	0.9%
Arkansas	708,130	0.9%
Connecticut	669,935	0.9%
Idaho	650,504	0.8%
Utah	649,362	0.8%

Source:- BCC Research and ReFED, Inc.

States	Food Waste (Tons)	Share (%)
Mississippi	612,525	0.8%
Kansas	588,749	0.8%
New Mexico	518,573	0.7%
Nebraska	411,083	0.5%
New Hampshire	380,648	0.5%
Maine	370,896	0.5%
West Virginia	358,483	0.5%
North Dakota	254,843	0.3%
Delaware	228,849	0.3%
South Dakota	226,565	0.3%
Hawaii	225,553	0.3%
Rhode Island	176,766	0.2%
Montana	164,510	0.2%
Vermont	152,504	0.2%
Alaska	121,552	0.2%
Wyoming	120,934	0.2%

Source:- BCC Research and ReFED, Inc.

Environmental Impact of US Food Waste



6.1% of U.S. GHG Emission



16% of U.S. Cropland Use



22% of all Fresh Water Use

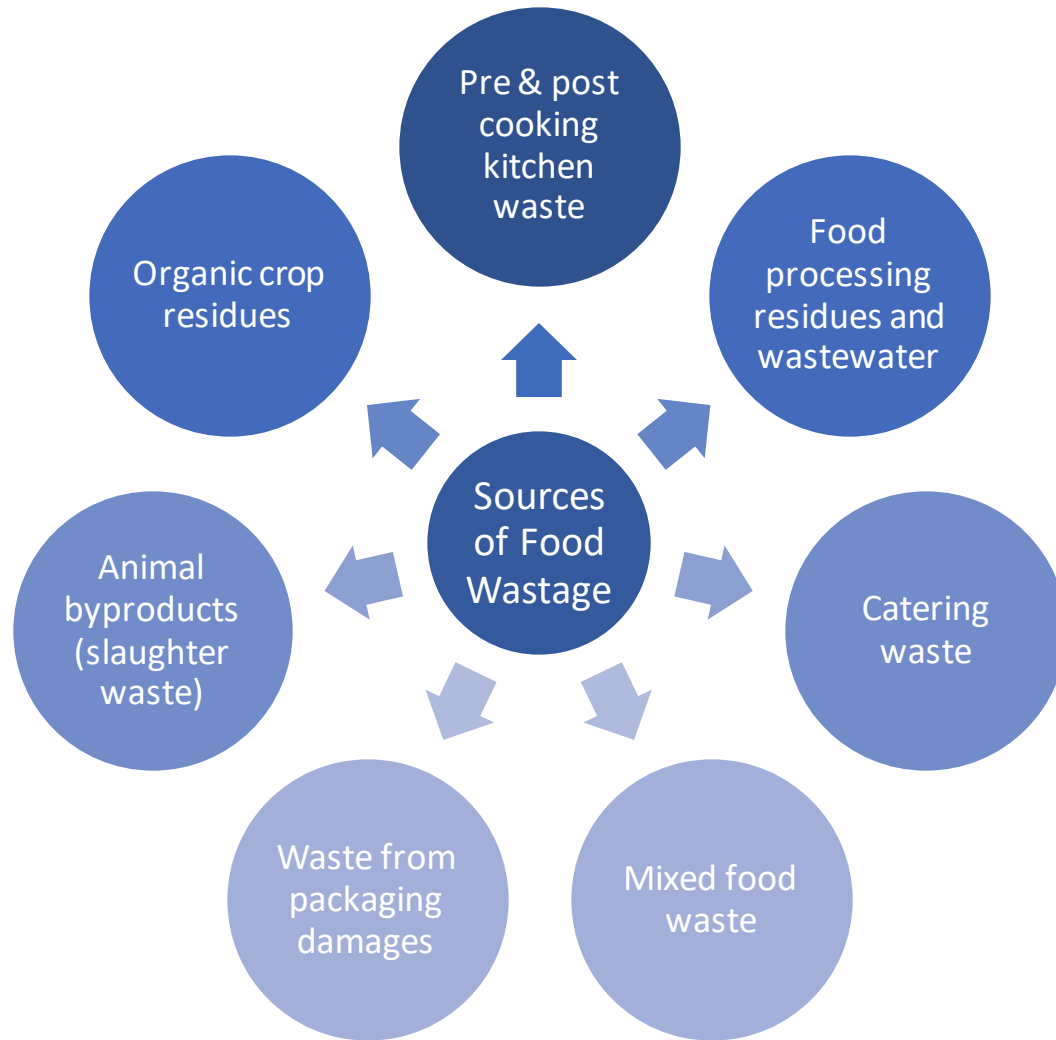


24% of Landfill Inputs

- ❖ According to the EPA, U.S. food loss and waste generate 170 million metric tons of CO₂ equivalent GHG emissions, which is similar to the yearly CO₂ emissions of 42 coal-fired power plants.
- ❖ Food waste contributes to methane emissions. When food decomposes in landfills, it releases methane gas, which is 28 to 36 times more potent than CO₂ in terms of its greenhouse gas effect.
- ❖ Despite having sufficient resources, the U.S. has around 38 million people, including 12 million children, who are food insecure due to the wastage of 108 billion pounds of food.

Source:- BCC Research and ReFED, Inc.

US Food Waste by Causes



Source:- BCC Research

Causes of Food Wastage by Sector



Distribution & Retail

- Produce fails to meet specifications
- Overstocking or excessive ordering
- Produce exceeds its expiration date before being sold



Food Services and domestic consumption

- Overpreparation
- Excessively large portion sizes
- Forgotten or leftover food
- Health risk concerns
- Poor taste

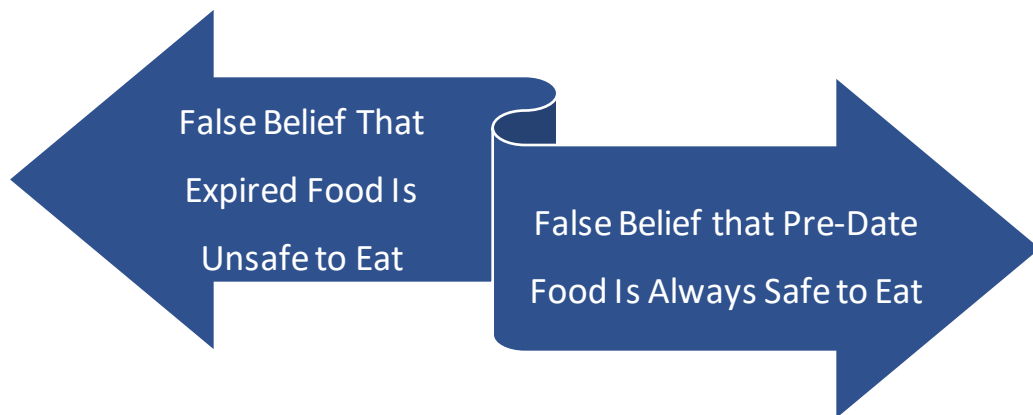
US Food & Beverage Waste Due To Confusion

Food & Beverage Wastage Due to Confusion

Confusion, inconsistent, and unclear date labels significantly contribute to food & beverage waste in the US. Consumers discard food & beverage items prematurely as they are unfamiliar with labels indicating "use-by," "best before," and "sell-by" dates

Approximately 90% of consumers discard perfectly good items like dairy, eggs, and grains due to safety concerns, even though these can remain fresh beyond their expiration dates.

Misinterpreted labels contribute to 20% of consumer waste, amounting to a significant \$29 billion in the US. Due to confusion over date labels, the average household throws away \$275 to 455 worth of good food each year.



How to Avoid Food & Beverage Wastage Caused by Confusion



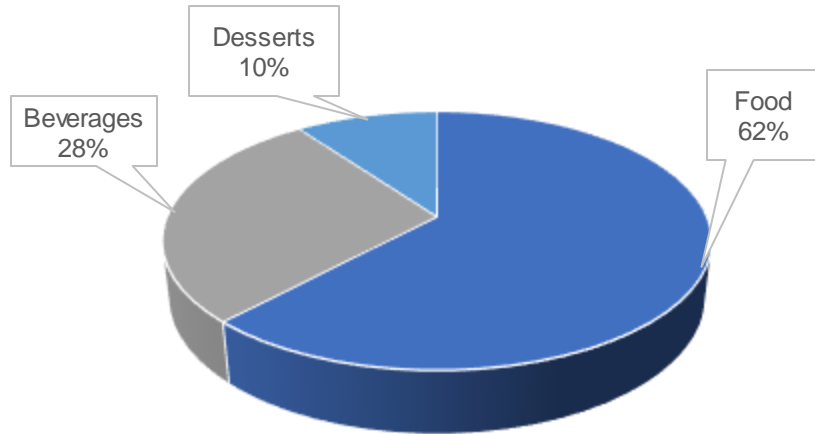


Mass Gatherings: Food & Beverage Waste Analysis



Sports Events: Food & Beverage Waste Analysis

Sport Events F&B Wastage Share (%)



- ❖ In stadiums with seating for over 100,000, akin to a small city, the congregation of people results in substantial waste production. The EPA reports that college football games typically yield 50 to 100 tons of waste.
- ❖ Each year, the Super Bowl contributes to roughly 40 tons of waste, while attendees at various sports events across the US collectively generate about 39 million pounds of trash annually.
- ❖ Waste Due to Ownership Confusion: At sports events where food & beverages are served in shared spaces, there can be confusion over the ownership of products, especially in crowded areas like concession stands or seating sections. This confusion may lead to individuals abandoning partially consumed items or leaving them behind, contributing to food and beverage waste. Implementing clearer policies or visual cues to indicate ownership (such as unique packaging (All-Scratch!® Technology) or designated seating areas) can help minimize waste from ownership confusion. Additionally, encouraging attendees to take responsibility for their items or facilitating easy ways to dispose of or return unwanted items can mitigate waste in such situations.
- ❖ Environmental Impact: Food & beverage waste represents a loss of resources and contributes to environmental issues like greenhouse gas emissions when disposed of in landfills. By reducing food waste, sports events can contribute to environmental sustainability goals.

Item Served in Stadiums	Approximate Wastage Percentage
Hot Dogs	20.2%
Peanuts	15.4%
Soft Pretzels	12.5%
Popcorn	10.7%
Nachos	9.0%
Soda (Canned)	8.5%
Cracker Jacks	8.0%
Cotton Candy	5.5%
Beer (Cups)	5.2%
Water (Bottles)	5.0%

Source:- BCC Research

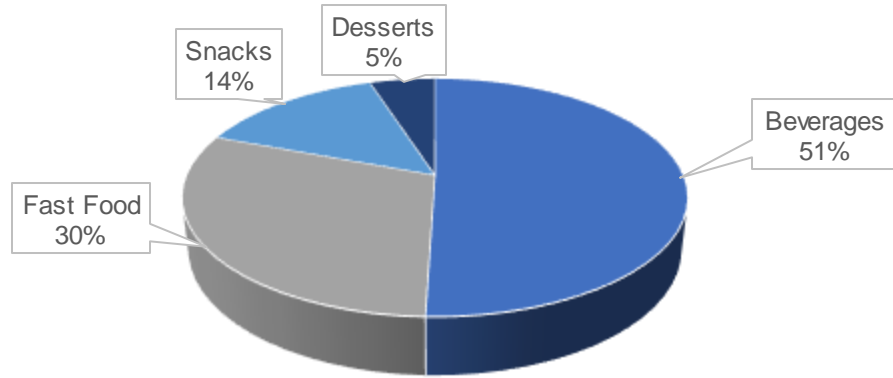
Global Top Leagues: Food & Beverage Packaging Waste Analysis

League	Sport	Country	Teams	Games	Total Attendance	Waste Generation (Ton)
Major League Baseball	Baseball	USA and Canada	30	2,430	70,747,365	4,244.8
Nippon Professional Baseball	Baseball	Japan	12	858	25,070,169	1,504.2
National Hockey League	Ice hockey	USA and Canada	32	1,312	22,436,532	1,346.2
National Basketball Association	Basketball	USA and Canada	30	1,230	22,234,502	1,334.1
National Football League	American football	United States	32	272	18,821,367	1,129.3
Premier League	Association football (soccer)	England and Wales	20	380	14,960,957	897.7
Bundesliga	Association football (soccer)	Germany	18	306	13,155,894	789.4
La Liga	Association football (soccer)	Spain	20	380	11,236,873	674.2
Serie A	Association football (soccer)	Italy	20	380	11,196,503	671.8
Major League Soccer	Association football (soccer)	USA and Canada	29	493	10,900,804	654.0
Campeonato Brasileiro Série A	Association football (soccer)	Brazil	20	368	9,700,000	582.0
Ligue 1	Association football (soccer)	France	20	380	9,049,197	543.0
Liga MX	Association football (soccer)	Mexico	18	306	8,244,861	494.7
Australian Football League	Australian football	Australia	18	207	8,139,464	488.4
Southeastern Conference	American football	United States	14	97	7,476,786	448.6
Bundesliga	Association football (soccer)	Germany	18	306	6,797,017	407.8
Big Ten Conference	American football	United States	14	94	6,307,955	378.5
Formula 1	Formula racing	International	10	22	6,150,000	369.0
Big 12 Conference	American football	United States	14	92	4,950,767	297.0
Atlantic Coast Conference	American football	United States	14	91	4,482,225	268.9
National Rugby League	Rugby league	Australia and New Zealand	17	213	4,086,606	245.2
Pac-12 Conference	American football	United States	12	79	3,844,171	230.7
American Athletic Conference	American football	United States	14	87	2,070,932	124.3
Canadian Football League	Canadian Football	Canada	9	81	1,813,837	108.8
Mountain West Conference	American football	United States	12	75	1,762,669	105.8
					305,637,453	18,338.2

Source:- BCC Research, MLB Advanced Media, LP., and Topend Sports Network

Live Music Concerts: Food & Beverage Waste Analysis

Live Music Event F&B Waste Generation Share (%)



Items Served	Waste Generation Share (%)
Alcoholic beverages (beer, wine, mixed drinks)	35.3%
Non-alcoholic beverages (soda, water, energy drinks)	15.2%
Burgers	10.1%
Popcorn	9.9%
Hot dogs	8.1%
Fries	7.0%
Other fast-food items (chicken tenders, pizza slices, etc.)	5.0%
Nachos	3.2%
Ice cream	2.3%
Pretzels	1.9%
Cookies	1.0%
Brownies	1.0%

- ❖ Live music continues to thrive as real-life experiences gain popularity
- ❖ Live Nation, a major entertainment company that owns Ticketmaster, reported its biggest year ever in 2023. Concert attendance surged, with over 145 million fans attending over 50,000 events. This represents a 20% increase in attendance compared to the prior year.
- ❖ Factors contributing to this growth include the increased popularity of live events, the growing affordability of high-priced event tickets, and the use of mobile apps.
- ❖ Alcoholic beverages account for the largest percentage share (50%) of menu items served, but they also contribute significantly to waste generation (35.3%). This indicates that there may be challenges in managing and controlling alcoholic beverage consumption, leading to excess waste.
- ❖ The All-Scratch!® technology can be instrumental in mitigating food and beverage wastage due to ownership confusion at live music concerts by providing a clear and efficient method for identifying ownership and ensuring accountability
- ❖ All-Scratch!® technology can incorporate interactive elements such as customer feedback surveys or loyalty programs, encouraging patrons to provide feedback on their purchases and incentivizing responsible consumption. Engaging customers in the process can foster a sense of ownership and accountability, leading to more mindful consumption behavior and reduced wastage.

Source:- BCC Research

Live Music Concerts 2024-25: Global Opportunities For Waste Reduction

US States	Total Concerts	Share
USA	51,470	36.8%
Germany	28,306	20.2%
United Kingdom	18,942	13.5%
Spain	5,493	3.9%
France	4,911	3.5%
Japan	4,147	3.0%
Canada	3,321	2.4%
Netherlands	2,289	1.6%
Austria	2,254	1.6%
Italy	1,995	1.4%
Denmark	1,659	1.2%
Mexico	1,427	1.0%
Switzerland	1,295	0.9%
Sweden	1,222	0.9%

Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Australia	1,207	0.9%
Czech Republic	1,194	0.9%
Norway	1,145	0.8%
Ireland	976	0.7%
Brazil	885	0.6%
Belgium	717	0.5%
Poland	613	0.4%
Portugal	596	0.4%
Finland	439	0.3%
Argentina	363	0.3%
New Zealand	349	0.2%
Greece	305	0.2%
South Africa	269	0.2%
Romania	235	0.2%

Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Hungary	216	0.2%
Chile	193	0.1%
Luxembourg	150	0.1%
China	149	0.1%
Turkey	147	0.1%
Colombia	123	0.1%
Croatia	113	0.1%
Slovakia	113	0.1%
Taiwan	113	0.1%
Singapore	99	0.1%
Bulgaria	93	0.1%
Hong Kong	89	0.1%
Israel	86	0.1%
Malaysia	42	0.03%

Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Uruguay	41	0.03%
Slovenia	39	0.03%
United Arab Emirates	37	0.03%
Serbia	30	0.02%
Lithuania	23	0.02%
Peru	21	0.02%
Estonia	19	0.01%
Philippines	15	0.01%
Korea	7	0.01%
Indonesia	6	0.00%
Iceland	4	0.00%
Ecuador	1	0.00%
India	1	0.00%
Venezuela	1	0.00%

Source:- BCC Research and CONCERTS 50

Live Music Concerts 2024-25: Regional Opportunities For Waste Reduction

US States	Total Concerts	Share
California	6,676	13.0%
New York	4,986	9.7%
Nevada	3,866	7.5%
Texas	2,969	5.8%
Illinois	2,232	4.3%
Pennsylvania	1,976	3.8%
Massachusetts	1,763	3.4%
Florida	1,714	3.3%
Ohio	1,596	3.1%
Colorado	1,493	2.9%
Tennessee	1,493	2.9%
Washington	1,480	2.9%
Arizona	1,379	2.7%
Missouri	1,367	2.7%

Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Michigan	1,305	2.5%
North Carolina	1,202	2.3%
Georgia	1,071	2.1%
Indiana	1,006	2.0%
New Jersey	959	1.9%
Oregon	926	1.8%
Virginia	867	1.7%
Minnesota	807	1.6%
District of Columbia	732	1.4%
Wisconsin	688	1.3%
South Carolina	637	1.2%
Utah	603	1.2%
Maryland	575	1.1%
Kentucky	497	1.0%

Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Connecticut	398	0.8%
Iowa	379	0.7%
Alabama	377	0.7%
Oklahoma	349	0.7%
Louisiana	341	0.7%
New Hampshire	333	0.6%
Nebraska	279	0.5%
Idaho	270	0.5%
New Mexico	259	0.5%
Hawaii	202	0.4%
Montana	187	0.4%
Kansas	179	0.3%
Maine	147	0.3%
Arkansas	142	0.3%

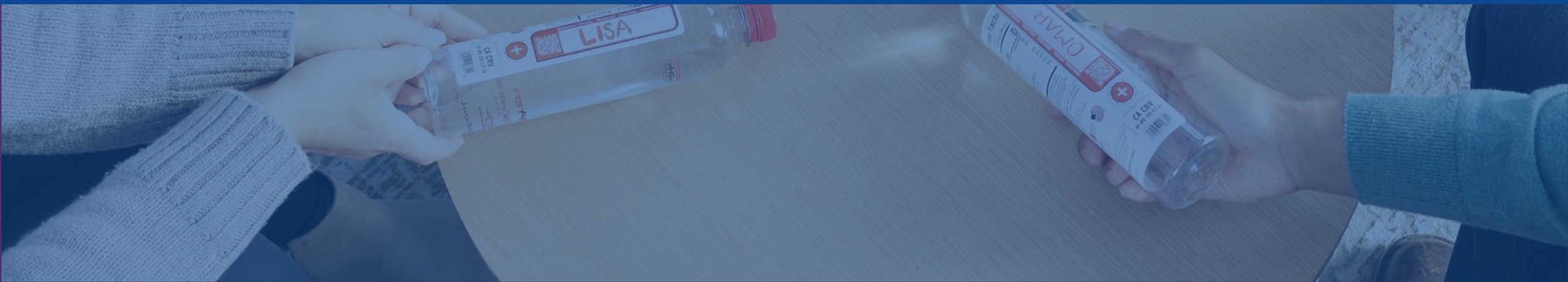
Source:- BCC Research and CONCERTS 50

US States	Total Concerts	Share
Mississippi	135	0.3%
Delaware	132	0.3%
Vermont	107	0.2%
Rhode Island	98	0.2%
West Virginia	85	0.2%
North Dakota	82	0.2%
South Dakota	53	0.1%
Wyoming	48	0.1%
Alaska	25	0.0%

Source:- BCC Research and CONCERTS 50



Mass Gatherings & Diseases Spread Analysis



Mass Gatherings and Diseases Spread

- ❖ The World Health Organization defines mass gatherings as events where large numbers of people come together at a specific location for a particular purpose over a set period of time. These events have the potential to strain the planning and response resources of the host country or community.
- ❖ Mass gatherings, including concerts, festivals, and sporting events, can significantly facilitate the spread of infectious diseases. These events typically involve large crowds in close quarters, creating an ideal setting for the transmission of viruses and bacteria.
- ❖ The high density of people in confined spaces facilitates the spread of various respiratory diseases, including:
 - Influenza: Influenza viruses can spread rapidly in crowded settings, leading to outbreaks and increased disease burden.
 - COVID-19: The SARS-CoV-2 virus, which causes COVID-19, is primarily transmitted through respiratory droplets and aerosols, making mass gatherings a high-risk environment for its spread.
 - Tuberculosis (TB): TB is an airborne infectious disease that can be transmitted in crowded settings, particularly in areas with poor ventilation.
 - Other respiratory illnesses: Mass gatherings can also contribute to the spread of other respiratory diseases, such as the common cold, pneumonia, and respiratory syncytial virus (RSV) infections.
- ❖ Mass gatherings have played a crucial role in the global spread of diseases, as evidenced in several countries, including Italy, Spain, Iran, Malaysia, France, Germany, Switzerland, Jordan, Malta, and Malawi.



Mass Gatherings and Diseases Spread

Some Examples of Mass Gathering Events

Event Type	Event Name	Host Country	Typical Attendance
Religious	Hajj	Saudi Arabia	2.5 million
Sporting	FIFA World Cup 2022	Qatar	3 million
Cultural (arts/music)	Carnival	Brazil (also worldwide)	7 million
Business	EXPO 2023	Argentina	>5 million



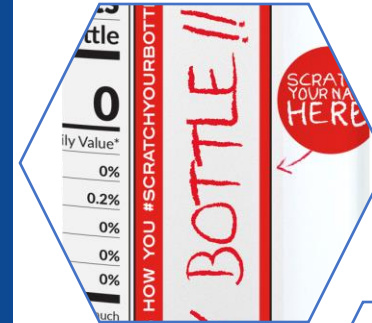
Mass Gatherings and Diseases Spread: Case Study

- ❖ Spain was one of the main epicenters of the COVID-19 pandemic in the world during the spring of 2020. Mass gathering events (MGEs) have been linked to the transmission of COVID-19. Between March 6 and 10, 2020, several MGEs associated with the Falles festival occurred in Borriana, a municipality in the province of Castellon, Spain.
- ❖ By April 2020, reported COVID-19 cases had reached approximately 200,000, accounting for over 10% of worldwide deaths, approximately 23,000 in total.
- ❖ The deaths in Spain were significantly influenced by large mass gatherings, such as the Falles festival in Borriana, the Women's Day march in Madrid with 120,000 participants, and a football match in Barcelona (Barcelona vs. Real Sociedad) with 77,000 attendees.
- ❖ Moreover, during the same period, approximately six sports games took place in the province of Madrid, drawing over 103,000 attendees.
- ❖ These events led to the community transmission of COVID-19 in Spain in 2020, resulting in multiple fatalities.



Opportunities To Utilize The All-Scratch!® Technology Solution

- ❖ Incorporating Plus Brand's All-Scratch!® Technology could serve as a vital element within a comprehensive strategy aimed at reducing disease transmission during mass gatherings.
- ❖ The risk of disease spread at such events escalates when attendees share items like utensils, water bottles/glasses, buffets, or crowded food stalls. In the face of large crowds, food vendors may struggle to maintain adequate hygiene standards, heightening the potential for foodborne and waterborne illnesses.
- ❖ By clearly labeling personal containers using All-Scratch!® technology, the practice of sharing food and drinks, a common mode of germ transmission during gatherings, can be discouraged.
- ❖ The efficacy of All-Scratch!® products hinges on their widespread adoption and proper usage during events, ensuring a meaningful impact on disease prevention.





US Food Waste Analysis by Sector

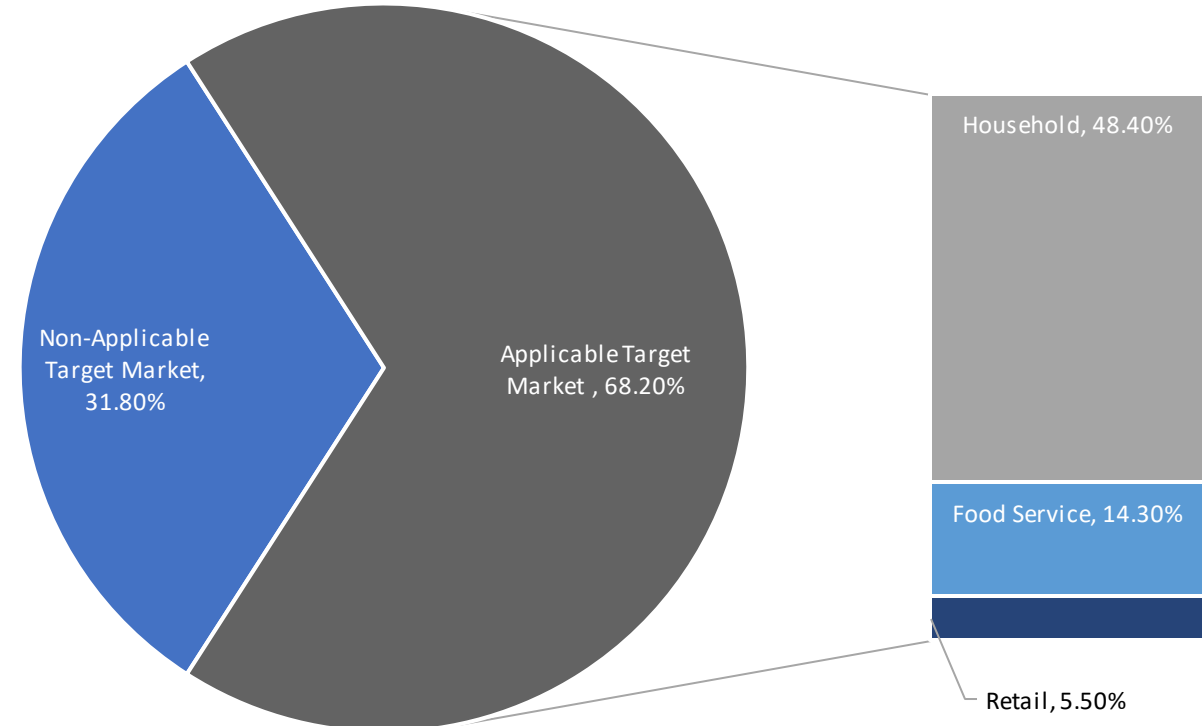


US Food Waste Analysis by Sector

Sector	Waste Generation Volume Share (%)	Volume (Mn Ton/ Year)	Value (US\$ Bn/ Year)
Household	48.4%	44.0	229.0
Food Service	14.3%	13.0	138.0
Retail	5.5%	5.0	29.0
Farms	17.6%	16.0	11.0
Manufacturing	14.3%	13.0	37.0
Total	100.0%	91.0	444.0

Source:- BCC Research and ReFED, Inc.

Total Applicable Target Market Analysis, Share (%)



BCC Recommendations: by Sector

Household Sector

- **Targeted Campaigns:** Launch educational campaigns to raise awareness about food waste and promote the use of All-Scratch!® technology on labels for better food management.
- **Product Customization:** Develop family-sized label packs with easy-to-follow instructions.

Food Service Sector

- **Partnerships with Restaurants:** Collaborate with food service providers to integrate All-Scratch!® technology into their packaging labels, reducing waste from misidentification.
- **Training Programs:** Offer training for staff on effective labeling and storage techniques.

Retail Sector

- **Bulk Solutions:** Integrate All-Scratch!® technology product label options for retail chains to streamline inventory management and reduce waste.
- **Promotional Activities:** Highlight the economic benefits of reduced waste through the use of effective product label technologies like All-Scratch!® to attract more retail clients.



US Household Sector: Food & Beverage Waste Analysis

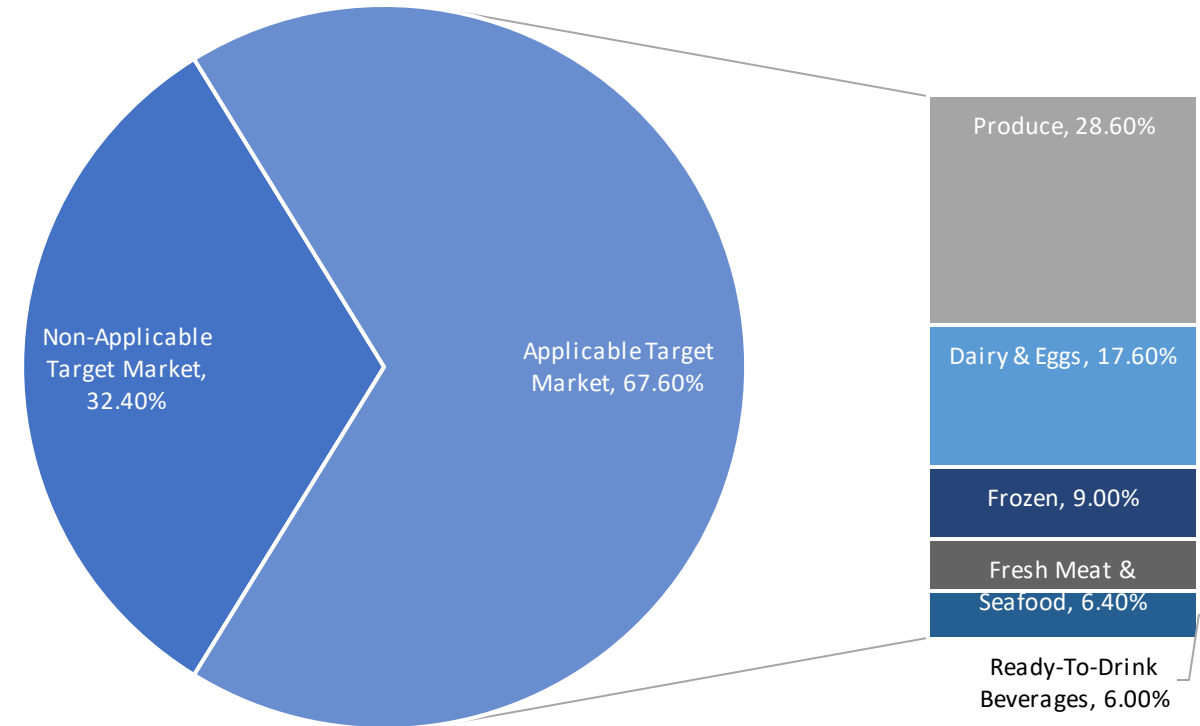


US Household Sector: Food & Beverage Waste Analysis

Product Category	Volume (Mn Ton/ Year)	Value (US\$ Bn/ Year)	Waste Generation Share (%)	Target Market
Produce	12.58	65.49	28.60%	Yes
Dairy & Eggs	7.74	40.30	17.60%	Yes (excluding Eggs)
Dry Goods	7.48	38.93	17.00%	No
Prepared Foods	5.46	28.40	12.40%	No
Frozen	3.96	20.61	9.00%	Yes
Fresh Meat & Seafood	2.82	14.66	6.40%	Yes
Ready-To-Drink Beverages	2.64	13.74	6.00%	Yes
Breads & Bakery	1.32	6.87	3.00%	No
Total Market	44.00	229.00	100.00%	

Source:- BCC Research and ReFED, Inc.

Total Applicable Target Market Analysis, Share (%)



Source:- BCC Research

US Household Sector: Ready-To-Drink Beverages Waste Analysis

Ready-To-Drink Beverages	Volume (Mn Ton/ Year)	Waste Share (%)
Fruit and Vegetable Juice	1.68	63.7%
Tea	0.63	23.9%
Coffee	0.19	7.0%
Other Drinks	0.07	2.6%
Shakes and Smoothies	0.05	2.0%
Sparkling Juice	0.02	0.7%



Source:- BCC Research and ReFED, Inc.

Bottled Water Waste Analysis

	Globally, water bottles contribute to approximately 25 million tons of plastic waste produced annually.
	In 2023, 15.94 billion gallons of bottled water were sold in the U.S.
	Each year the U.S. discards 35 billion water bottles into landfills, with around 80% of plastic water bottles ending up there.
	Consequently, over 2 million tons of plastic water bottles are filling up U.S. landfills.



Source:- BCC Research and International Bottled Water Association



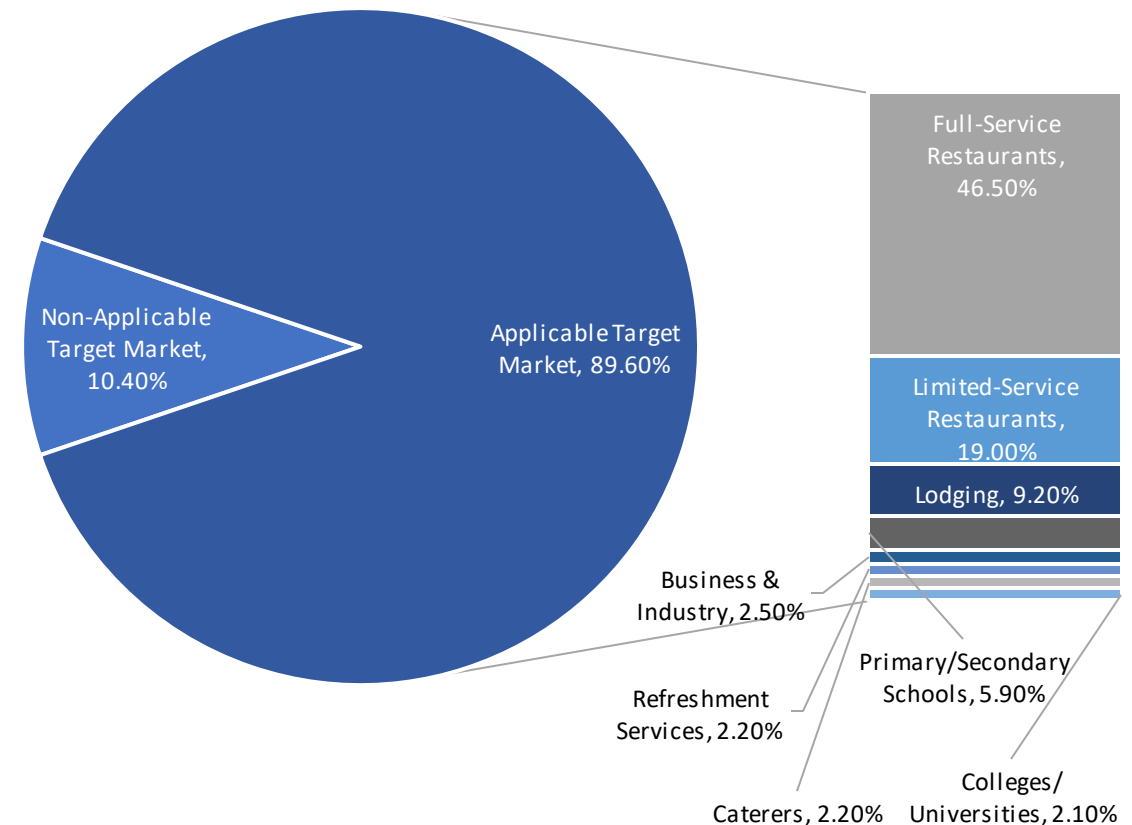
US Food Service Sector: Food Waste Analysis



US Food Service Sector: Waste Analysis by Source

Sub-Sector	Volume (Mn Ton/ Year)	Value (US\$ Bn/ Year)	Waste Generation Share (%)	Target Market
Full-Service Restaurants	6.04	64.16	46.5%	Yes
Limited-Service Restaurants	2.47	26.22	19.0%	Yes
Lodging	1.20	12.76	9.2%	Yes
Primary/Secondary Schools	0.76	8.10	5.9%	Yes
Recreation	0.62	6.58	4.8%	May be
Business & Industry	0.32	3.39	2.5%	Yes
Refreshment Services	0.29	3.07	2.2%	Yes
Caterers	0.29	3.04	2.2%	Yes
Colleges/ Universities	0.27	2.90	2.1%	Yes
Hospitals	0.18	1.92	1.4%	May be
Transportation	0.16	1.68	1.2%	May be
Military	0.11	1.13	0.8%	May be
Corrections	0.10	1.09	0.8%	May be
Senior Living	0.09	1.00	0.7%	May be
Long-Term Care	0.06	0.63	0.5%	May be
Bars And Taverns	0.03	0.34	0.2%	May be
Total	13.00	138.00	100.00%	

Total Applicable Target Market Analysis, Share (%)



Source:- BCC Research and ReFED, Inc.

US Food Service Sector: BCC Recommendations

Full-Service Restaurants (46.5%)

- **Strategy:** Implement leftover containers with All-Scratch!® technology for consumers to scratch name, date and time of storage
- **Marketing:** Promote a "Save and Serve" campaign encouraging diners to take leftovers home with properly labeled containers.
- **Training:** Educate staff on portion control and proper food storage practices.

Limited Service Restaurants (19.0%)

- **Strategy:** Integrate All-Scratch!® technology labels on storage containers for prepped ingredients to track freshness and reduce spoilage.
- **Marketing:** Highlight the reduction in waste and cost savings through efficient inventory management.
- **Technology:** Introduce an app to remind staff of the use-by dates for prepped items.

Lodging (9.2%)

- **Strategy:** Provide leftover containers with All-Scratch!® technology for room service and buffet take-home items to track name, preparation and consumption times.
- **Marketing:** Emphasize sustainability initiatives to guests, promoting responsible consumption.
- **Policy:** Establish a food donation program for excess food with clear labeling for safety.

Primary/Secondary Schools (5.9%)

- **Strategy:** Implement food and beverage containers with All-Scratch!® technology to provide students with a labeling system for cafeteria food to manage ownership and reduce waste.
- **Education:** Integrate lessons on food waste and sustainability into the curriculum.
- **Engagement:** Involve students in a food waste reduction program, using labels as a tool for awareness.

BCC Recommendations Continued...

Business & Industry (2.5%)

- **Strategy:** Integrate food delivery containers for catered meals and snacks with All-Scratch!® technology integrated to ensure proper rotation and freshness as well as indicate ownership.
- **Policy:** Encourage businesses to adopt zero-waste goals and provide resources for staff education.
- **Engagement:** Offer incentives for companies that reduce their food waste footprint.

Refreshment Services (2.2%)

- **Strategy:** Serve beverages and food items in containers with All-Scratch!® technology integrated for consumers to scratch name and/or dates.
- **Marketing:** Promote waste reduction by educating consumers on the importance of labeled products to avoid confusion.
- **Policy:** Develop a partnership with local charities to donate excess food.

Caterers (2.2%)

- **Strategy:** Serve beverages and food items in containers with All-Scratch!® technology integrated for consumers to scratch name and/or dates.
- **Marketing:** Highlight the caterer's commitment to sustainability and waste reduction.
- **Policy:** Develop a partnership with local charities to donate excess food.

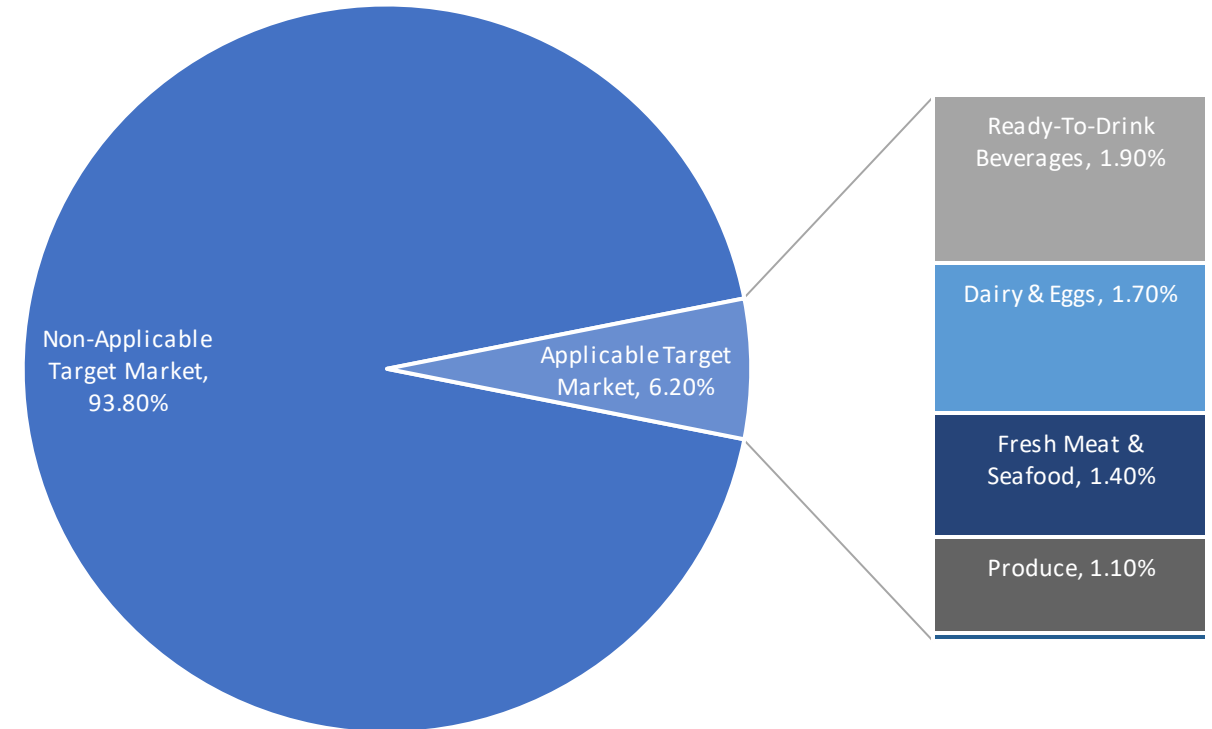
Colleges/Universities (2.1%)

- **Strategy:** Implement food and beverage containers with All-Scratch!® technology to provide students with a labeling system for dining hall food to manage ownership and reduce waste.
- **Education:** Conduct campaigns to raise awareness among students and staff about food waste.
- **Engagement:** Involve students in sustainability programs and food waste reduction initiatives.

US Food Service Sector: Waste Analysis by Product Type

Product Type	Volume (Mn Ton/ Year)	Value (US\$ Bn/ Year)	Waste Generation Share (%)	Target Market
Prepared Foods	11.88	126.08	91.4%	No
Dry Goods	0.24	2.58	1.9%	No
Ready-To-Drink Beverages	0.24	2.57	1.9%	Yes
Dairy & Eggs	0.21	2.28	1.7%	Yes
Fresh Meat & Seafood	0.18	1.91	1.4%	Yes
Produce	0.14	1.54	1.1%	Yes
Breads & Bakery	0.09	0.93	0.7%	No
Frozen	0.01	0.11	0.1%	Yes
Total	13.00	138.00	100.0%	

Total Applicable Target Market Analysis, Share (%)



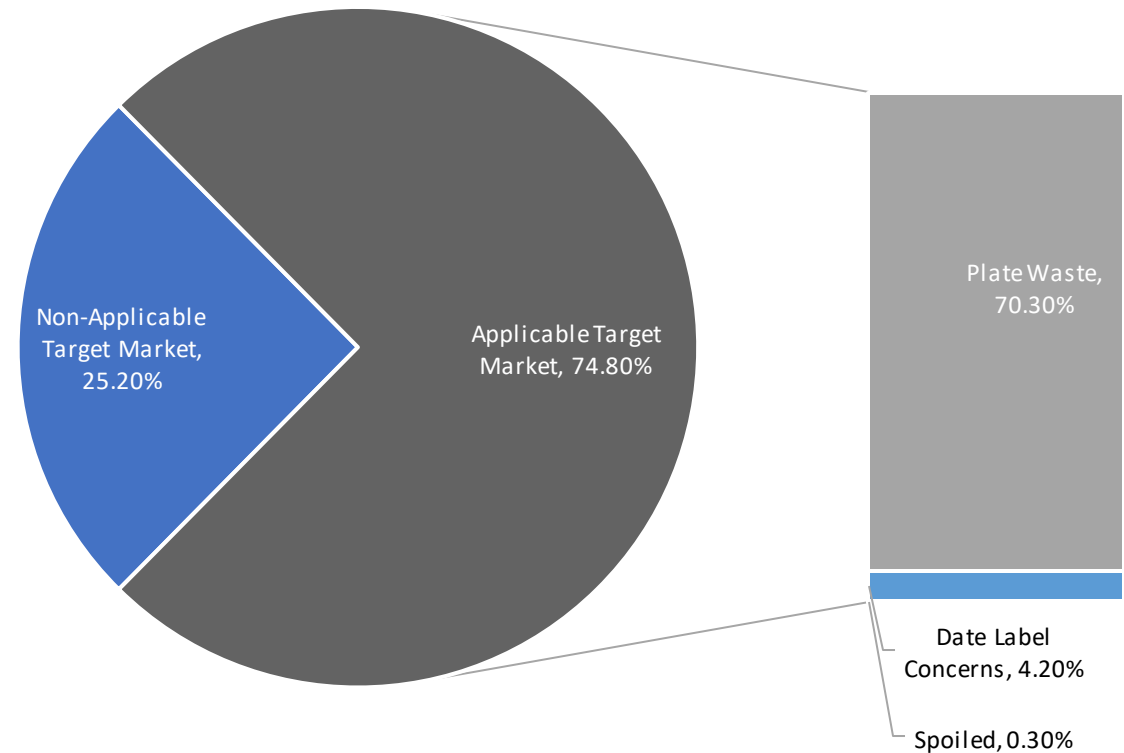
Source:- BCC Research and RefED, Inc.

US Food Service Sector: Waste Analysis by Causes

Waste Causes	Waste Share (%)	Target Market
Plate Waste	70.3%	Yes
Overproduction	12.7%	No
Catering Overproduction	9.6%	No
Date Label Concerns	4.2%	Yes
Trimblings & Byproducts	1.5%	No
Handling Errors	1.0%	No
Spoiled	0.3%	Yes
Cooking Issues	0.2%	No
Equipment Issues	0.1%	No
Other	0.1%	No

Source:- BCC Research and ReFED, Inc.

Total Applicable Target Market Analysis, Share (%)





US Retail Sector: Food Waste Analysis

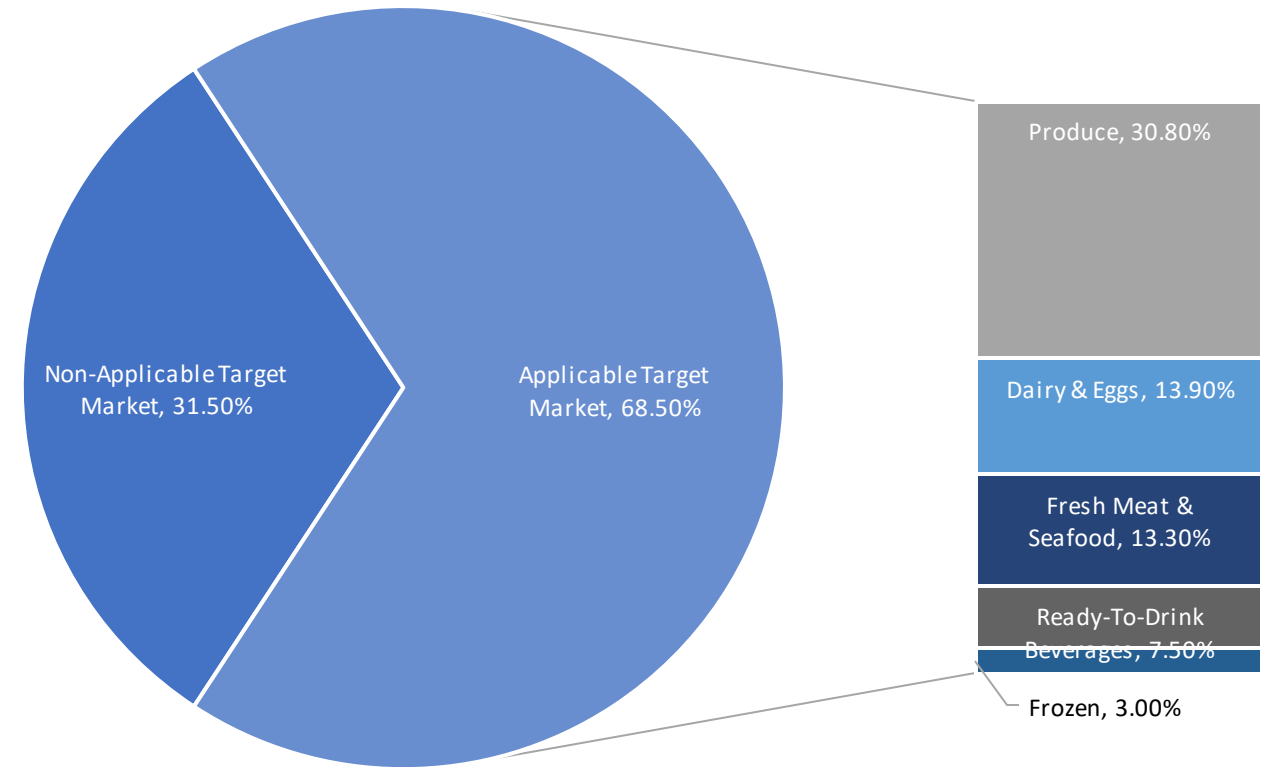


US Retail Sector Waste Analysis by Product Type

Food Service	Volume (Mn Ton/ Year)	Value (US\$ Bn/ Year)	Waste Generation Share (%)	Target Market
Produce	1.54	8.92	30.8%	Yes
Dairy & Eggs	0.70	4.03	13.9%	Yes
Fresh Meat & Seafood	0.66	3.86	13.3%	Yes
Prepared Foods	0.55	3.21	11.1%	No
Breads & Bakery	0.54	3.12	10.8%	No
Dry Goods	0.49	2.82	9.7%	No
Ready-To-Drink Beverages	0.38	2.18	7.5%	Yes
Frozen	0.15	0.86	3.0%	Yes
Total	5.00	29.00	100.0%	

Source:- BCC Research and REFED, Inc.

Total Applicable Target Market Analysis, Share (%)





Potential Opportunities for Large Scale Impact



Global Gatherings: Olympics 2024

- 35 venues
- 10,500 athletes
- 20,000 accredited journalists
- 45,000 volunteers
- +600,000 meals served at the Athletes' Village every day
- 15+ Million spectators
- 13+ Million meals and snacks will be served

**Just Imagine The Impact Of Eliminating Confusion
Related Waste At Gatherings Of This Scale**



Seizing the Golden Opportunity: Strategies for Large Scale Event Success

Strategies For Large Scale Event Success

- **Strategic Venue Placement:** Place All-Scratch!® displays or kiosks strategically across the 35 venues to maximize visibility and accessibility to athletes, volunteers, journalists, and spectators.
- **Athlete Outreach Program:** Collaborate with Olympic organizers to introduce All-Scratch!® to the 10,500 athletes, emphasizing its role in reducing food and beverage waste due to ownership confusion. Provide complimentary samples and demonstrations to showcase its benefits.
- **Media Partnerships:** Partner with accredited journalists covering the Olympics to feature All-Scratch!® in articles, interviews, and segments, highlighting its innovative solution to a common problem faced during large-scale events.
- **Volunteer Engagement:** Engage with the 45,000 volunteers by offering training sessions on how to use All-Scratch!® and encouraging them to promote its adoption among attendees to minimize food waste.
- **Athletes' Village Integration:** Implement All-Scratch!® technology on meal and beverage containers served at the Athletes' Village, educating athletes on how to use them to claim ownership and track open dates of their food items.



Seizing the Golden Opportunity: Strategies for Large Scale Event Success

Strategies For Large Scale Event Success

- **Spectator Activation:** Create interactive experiences at spectator zones where attendees can learn about All-Scratch!® technology and participate in games or challenges related to food waste reduction and responsible consumption.
- **Meal Service Collaboration:** Partner with catering services responsible for serving over 600,000 meals daily at the Athletes' Village to integrate All-Scratch!® technology on meal packaging, facilitating ownership identification and reducing food waste.
- **Sustainability Initiatives:** Align All-Scratch!® technology launch with the Olympics' sustainability initiatives by highlighting its contribution to reducing environmental impact through the reduction of food waste.
- **Digital Campaigns:** Launch targeted digital marketing campaigns across social media platforms and mobile apps frequented by athletes, journalists, volunteers, and spectators to raise awareness about All-Scratch!® and its benefits.
- **Post-Event Follow-up:** Conduct post-event surveys and feedback sessions to gather insights from users and stakeholders about their experience with All-Scratch!® during the Olympics, informing future marketing and product development strategies.



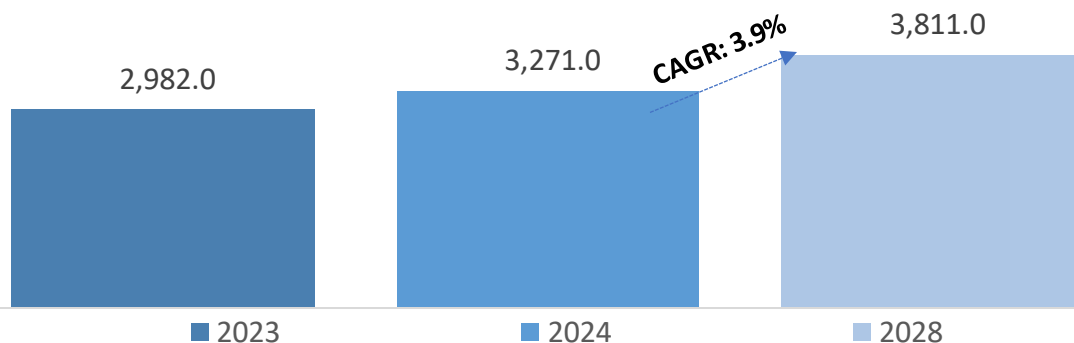


Market Opportunity Analysis by Sectors

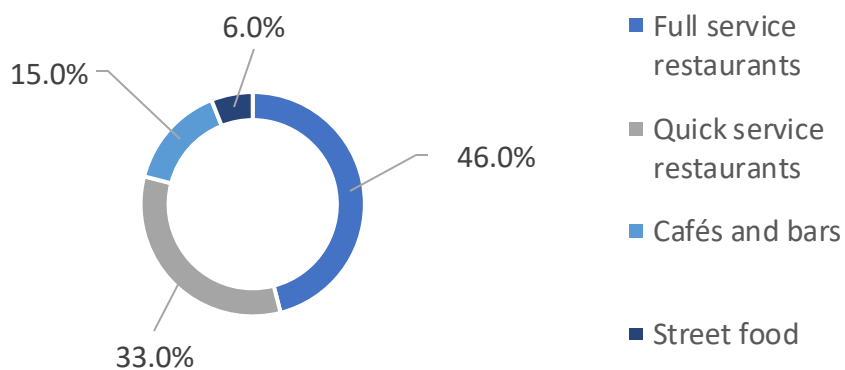


Global Market for Food Services

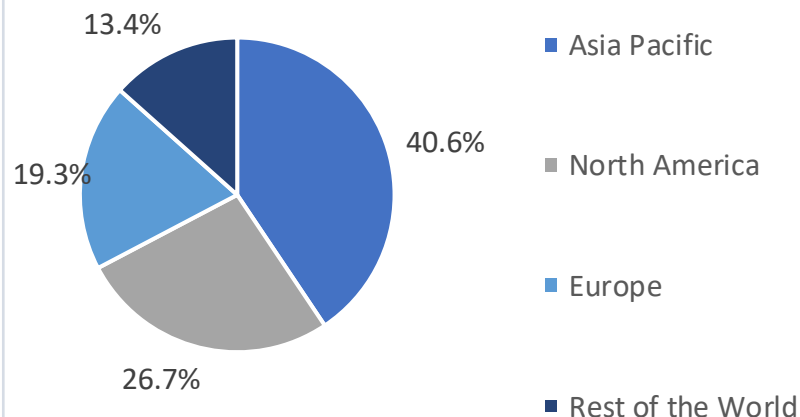
Global Market for Food Services
Value, 2023-2028, US \$Bn, CAGR (%)



Market Value Share by Restaurant Type, 2023



Regional Market Value Share, 2023



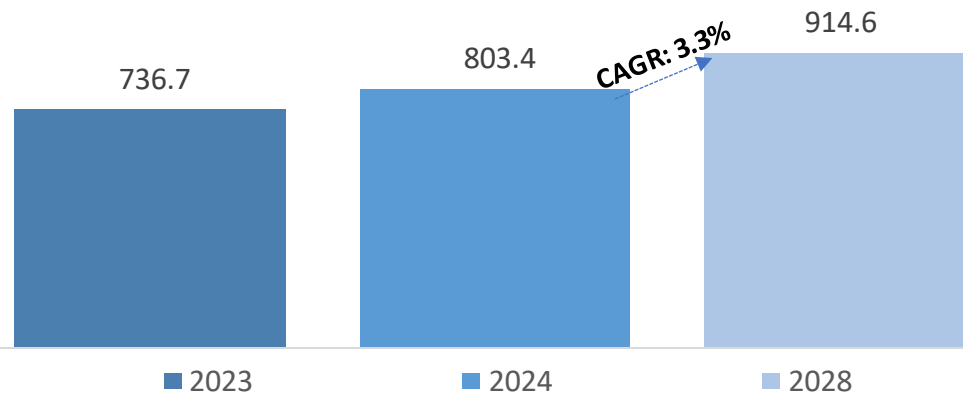
Highlights

- ❖ The food services industry is developing because of factors such as changing consumer preferences, rising urbanization, eating out becoming more popular, digitalization, and the increasing popularity of intercontinental cuisines.
- ❖ Due to rising household spending, ever-changing lifestyles, and an increase in women's employment, the Asia Pacific area is expected to develop at the fastest rate during the projection period.
- ❖ Increasing investments in promotions and advertising by key food service companies in the country will also drive demand. The growing food services industry presents an opportunity for food labeling, creating a market for Plus Brand's All-Scratch!® Technology.

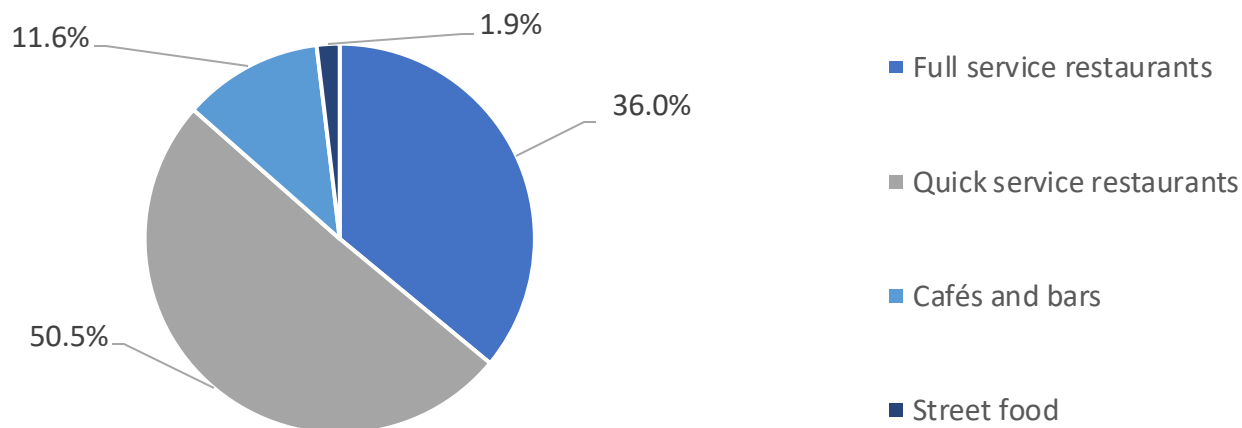
Source: BCC Research

US Market for Food Services

US Market for Food Services
Value, 2023-2028, US \$Bn, CAGR (%)



Market Value Share by Restaurant Type, 2023



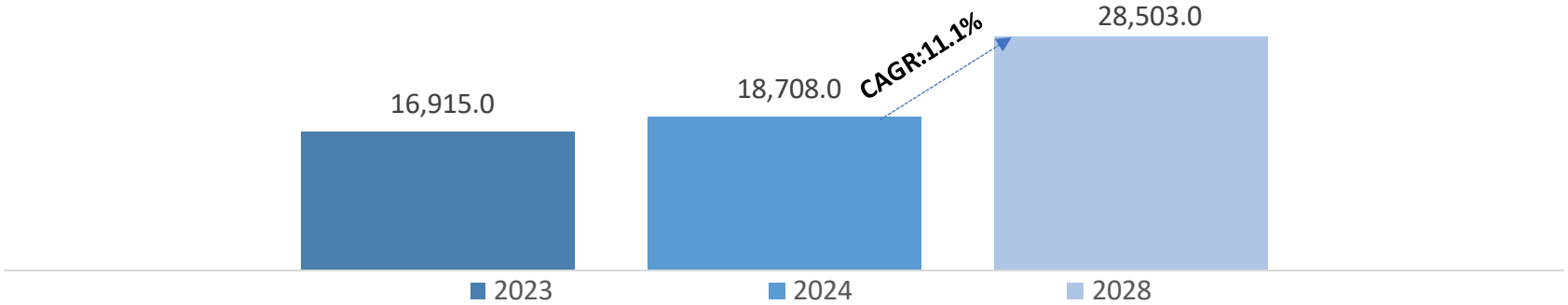
Highlights

- ❖ In 2023, quick-service restaurants dominated the US food services business. This segment is dominant because it is convenient and affordable to consumers, and fast food's popularity fuels its growth.
- ❖ The rising demand for personalized services, increased access to different food options, and the emergence of novel restaurant formats such as virtual and ghost kitchens are moving the US market forward.
- ❖ The expanding food services market is driving the demand for packaging and labeling. This growth presents an opportunity for food labeling, creating a market for Plus Brand's All-Scratch!® Technology.

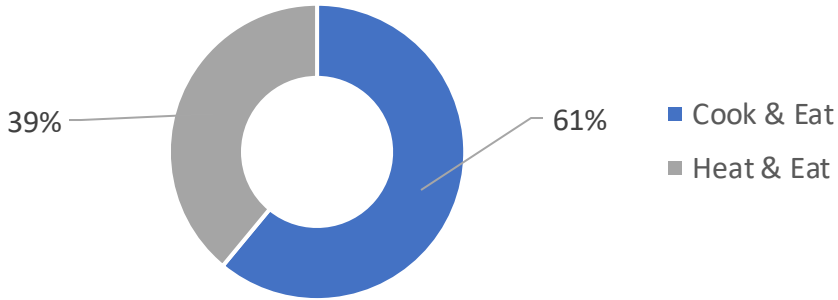
Source: BCC Research

Global Market for Meal Kits

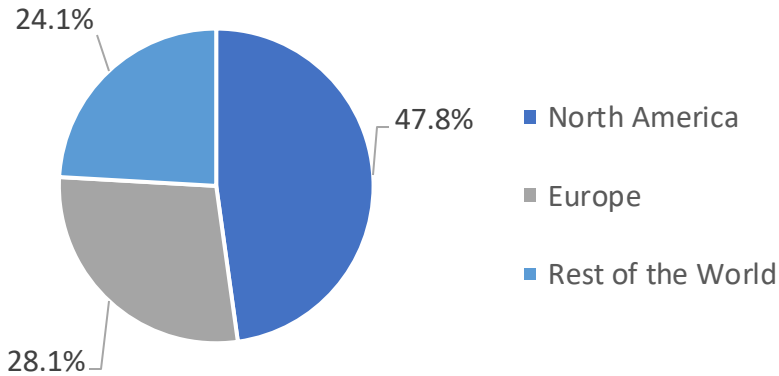
Global Market for Meal Kits
Value, 2023-2028, US \$Mn, CAGR (%)



Market Value Share by Service, 2023



Regional Market Value Share, 2023



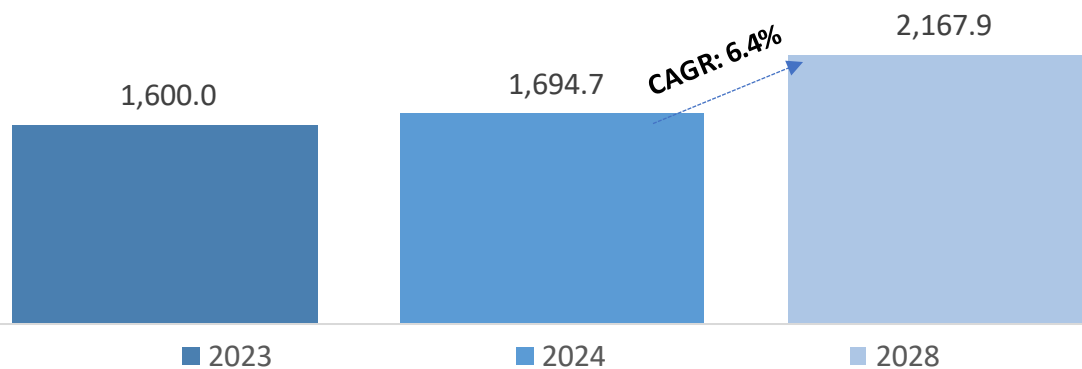
Highlights

- ❖ The Asia-Pacific region is experiencing the most rapid growth in the Global Meal Kit market, outpacing other regions in terms of market expansion.
- ❖ As the market leader, HelloFresh SE, a German-based company, dominates the Global Meal Kit market with the largest share.
- ❖ The United States holds the largest share by country in the Global Meal Kit market, with a substantial market value of \$6,472.4 million.
- ❖ Meal kits can reduce greenhouse gas emissions by 33% compared to grocery store meals. This is because meal kits have less food waste, a streamlined supply chain, and lower last-mile transportation emissions.
- ❖ The growing global meal kit market presents an opportunity for All-Scratch!® Technology, which currently helps to avoid food wastage caused by confusion.

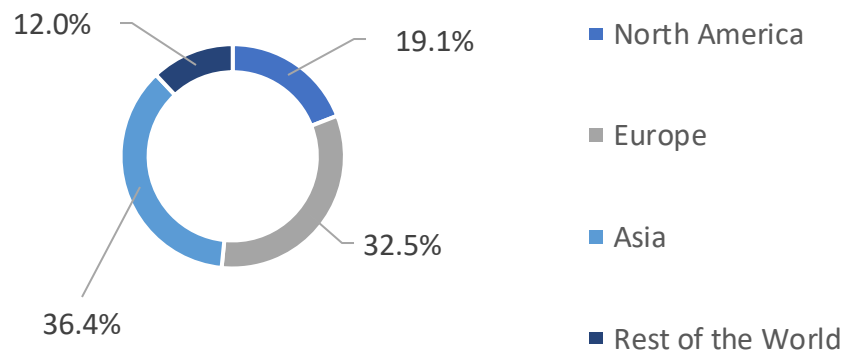
Source: BCC Research

Global Market for Business Events

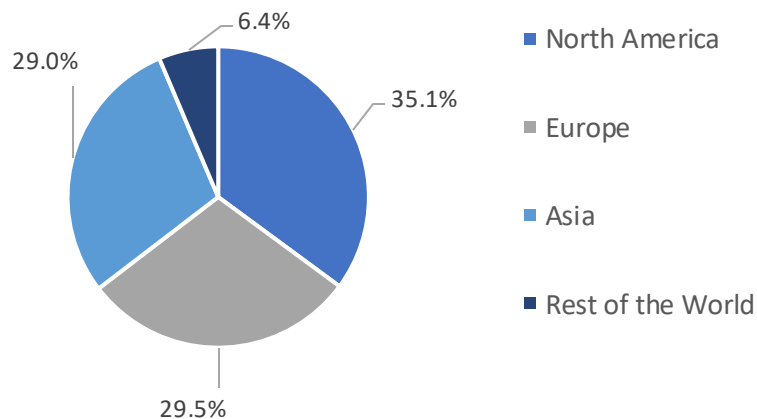
Global Market for Business Events
Value, 2023-2028, US \$Bn, CAGR (%)



Business Events Participants by Region, 2023



Regional Market Value Share, 2023



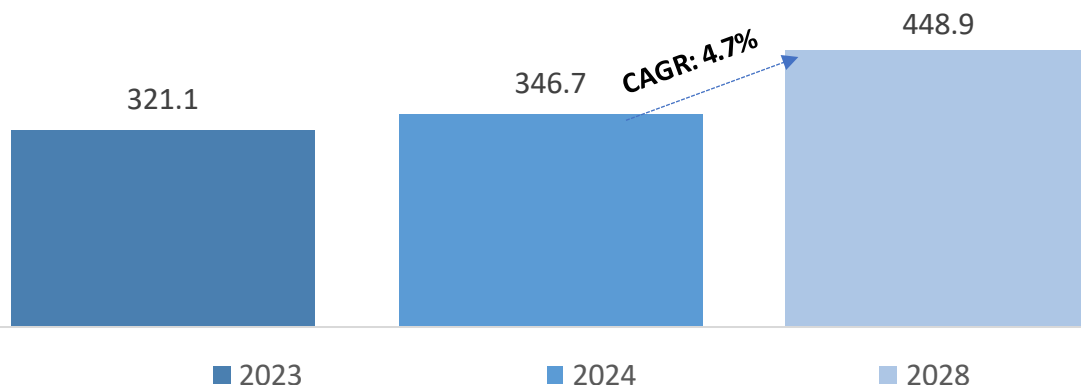
Highlights

- ❖ The global business events industry is valued at \$1.6 trillion, with over 1.5 billion people participating in various events annually. This industry generates more than 26 million direct and indirect jobs worldwide. In the US alone, the business events sector sees direct expenditures of \$477 billion, with around 269 million participants attending these events.
- ❖ On average, 15% to 20% of food is wasted at events. In the UK alone, approximately 10 million tons of food are wasted annually at events. This occurs because more food is provided than necessary, leading to significant waste.
- ❖ Plus Brand can play a vital role in these events by sponsoring them and providing customized labels for food and refreshment packages to help minimize food waste.

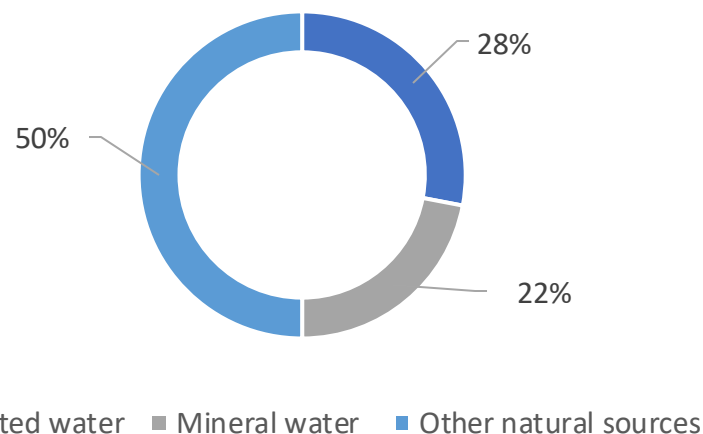
Source: BCC Research

Global Market for Bottled Water

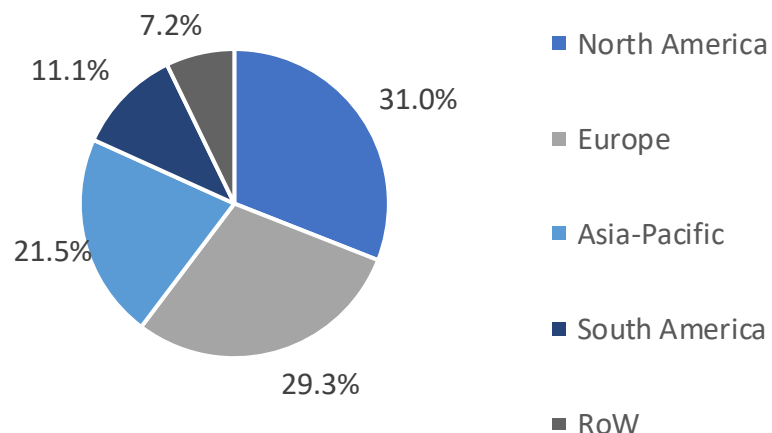
Global Market for Bottled Water
Value, 2023-2028, US \$Bn, CAGR (%)



Market Value Share by Type, 2023



Regional Market Value Share, 2023



Highlights

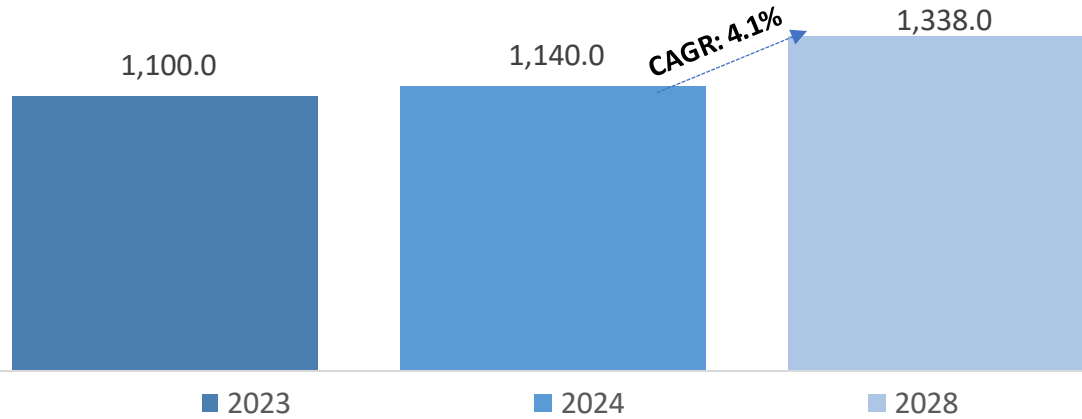
- ❖ The United States has a considerable market share in the global bottled water market, valued at \$56 billion in 2023. According to the Beverage Marketing Corporation (BMC), bottled water remained the preferred packaged beverage in the United States.
- ❖ The increasing consumption of bottled water worldwide is driven by concerns regarding the deteriorating quality of tap water and the shortage of clean drinking water.
- ❖ The bottled water industry presents various growth opportunities, including increased consumption of labels and packaging, which will create a market for Plus Brand's All-Scratch!® Technology.



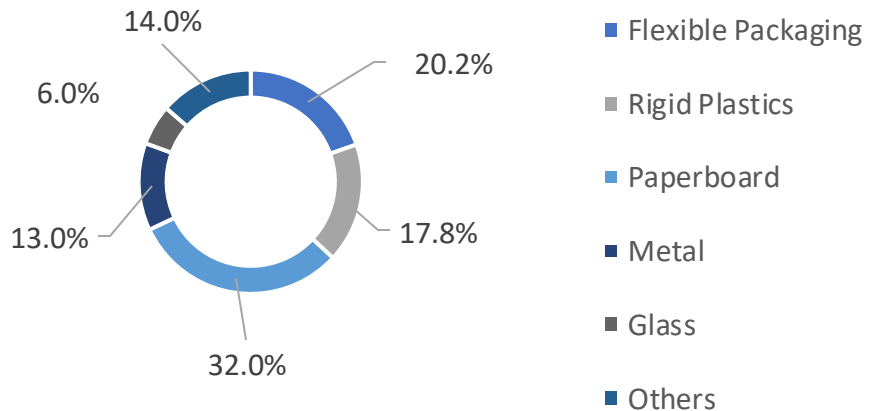
Source: BCC Research

Global Packaging Market

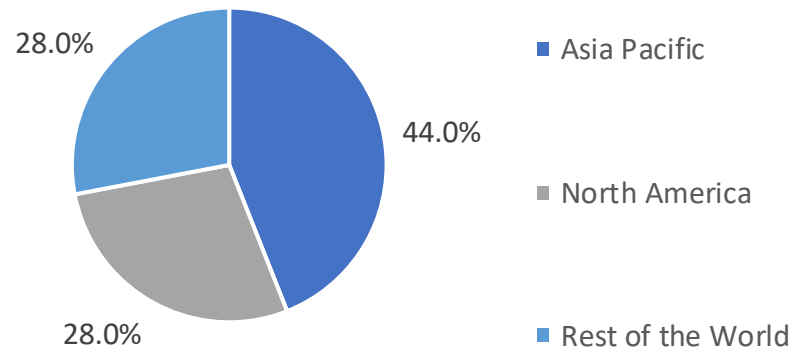
Global Market for Packaging
Value, 2023-2028, US \$Bn, CAGR (%)



Market Value Share by Material, 2023



Regional Market Value Share, 2023



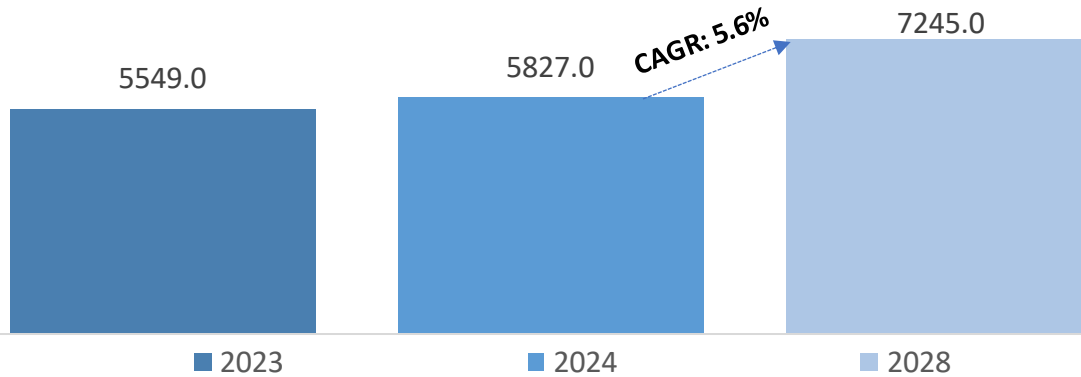
Highlights

- ❖ The expanding processed food and beverage industry is propelling the worldwide need for packaging. The growing demand for bottled water and carbonated soft drinks (CSD) propels the global packaging market.
- ❖ The United States has a 90% share of the North American packaging market, which is worth \$277 billion.
- ❖ The rising demand for packaged food has contributed substantially to the accumulation of plastic waste. However, there's been a profound change in consumer outlook, leading to a growing demand for sustainable packaging solutions. This shift in consumer behavior has sparked increased interest in eco-friendly substitutes across the packaging industry.
- ❖ The expanding packaging industry is driving demand for labeling, thereby creating a market for Plus Brand's All-Scratch!® Technology.

Source: BCC Research

Global Market for Consumer-Packaged Goods (CPG)

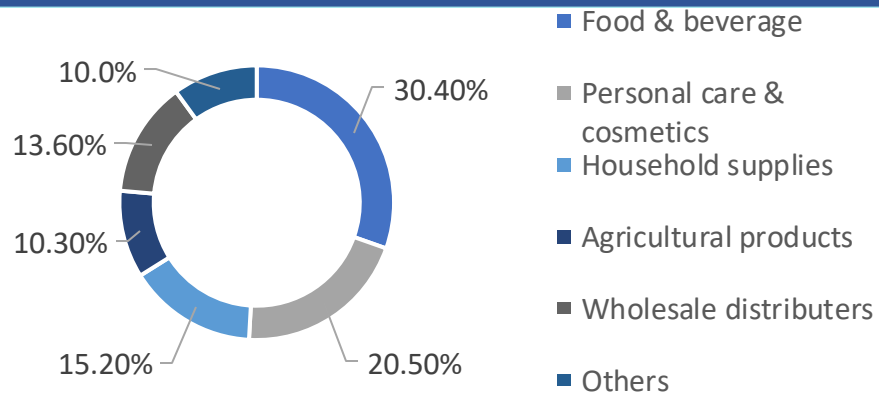
Global Market for Bottled Water
Market Value, 2023-2028, US \$Bn, CAGR (%)



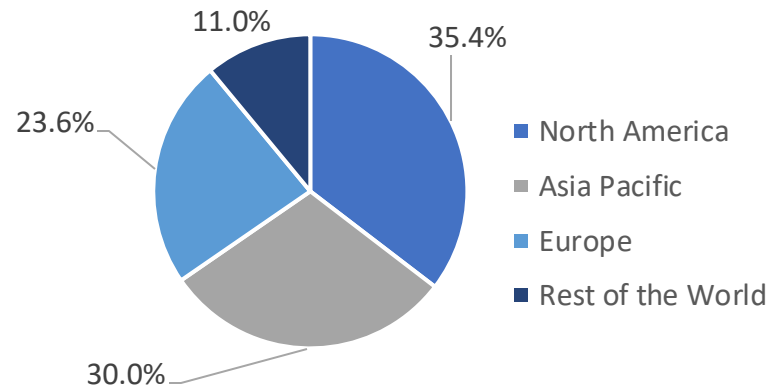
Highlights

- ❖ The US had the highest market share in the North American region, amounting to \$875.0 billion. This dominance is attributed to rising disposable incomes, increased consumer spending on convenience products, and the growing demand for healthy and organic consumer packaged goods (CPG).
- ❖ The demand for labels in the consumer packaged goods (CPG) market is increasing due to the need to convey product information, promote consumer safety, and enhance brand visibility.
- ❖ A growing demand for personalized branding and a shift towards sustainable, eco-friendly packaging and labels, thereby creating a market for Plus Brand's All-Scratch!® Technology.

Market Value Share by Type, 2023



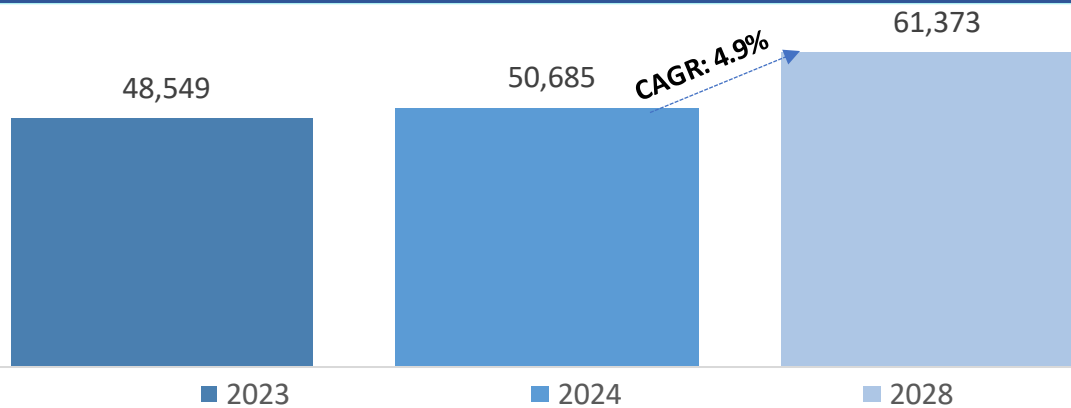
Regional Market Value Share, 2023



Source: BCC Research

Global Market for Labels

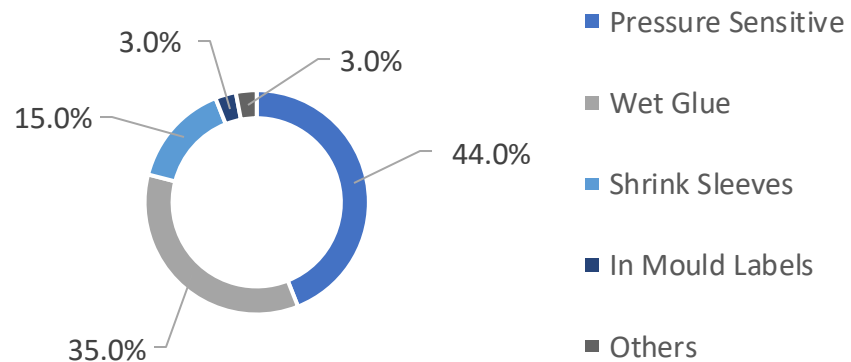
Global Market for Labels
Value, 2023-2028, US \$Mn, CAGR (%)



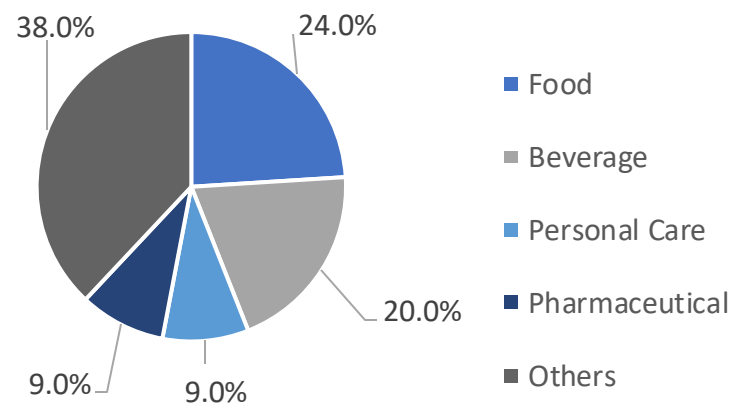
Highlights

- ❖ In 2023, the United States dominated the North America labels market, representing a significant share valued at \$11.2 billion.
- ❖ The rising consumer demand for packaged food, beverages, healthcare, pharmaceutical, and other products is boosting the need for labels, creating an opportunity for Plus Brand's All-Scratch!® Technology.

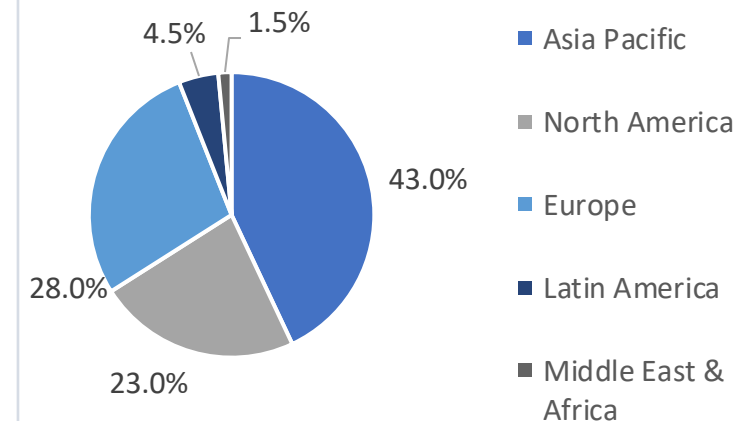
Market Value Share by Type, 2023



Market Value Share by End-use, 2023



Regional Market Value Share, 2023





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