



INTERNATIONAL
FOOD INFORMATION
COUNCIL FOUNDATION

IFIC Foundation Survey

Research with Consumers To Test Perceptions and Reactions
To Various Stimuli and Visuals
Related to Bioengineered Foods

June 2018

Introduction

Research Objectives

- Measure consumers' general awareness and understanding of genetically modified / bioengineered foods, and how consumers currently react to these food products when grocery shopping.
- Understand how consumers' attitudes and perceptions vary when viewing different methods of expressing the presence of bioengineered ingredients in food products. Measure reactions to both visual (logo) and textual formats.

Sampling

- ✓ Research Now Online Panel
- ✓ Sample size
 - 1002 total US respondents
 - Representative distribution by region, gender, age, education, race / ethnicity and household income

Methodology

- ✓ Survey Conducted
 - May 18-27, 2018



- ✓ **Average Length of Online Survey**
 - 15 minutes



- ✓ **Qualification Criteria**
 - Age 18-80
 - Sole or shared responsibility for household's grocery shopping

SUMMARY & CONCLUSIONS

Consumer awareness and knowledge about bioengineered foods is not very high, and consumers are generally inclined to avoid BE foods if they are aware of them. Consumers want food package labeling to inform them.

- **Knowledge of BE foods:** The same percent of consumers that know very little or nothing at all (36%) say they know a great deal or fair amount (36%) about bioengineered foods.
- **Consideration of BE foods:** Nearly half of consumers do not consider whether foods are genetically modified (47%). Two in five consumers consider the genetic modification of foods when buying them (41%).
- **Method of disclosing BE foods:** Consumers want information to include a symbol (73% rank 1 + 2) or wording (63%) directly on the food package so they have this information at the point of purchase. Consumers do not want to have to look elsewhere (call a phone number, visit a website, etc.) to obtain this information.



SUMMARY & CONCLUSIONS

Consumers cite three specific areas of concern regarding bioengineered foods.

When consumers avoid BE foods, it's primarily due to three factors:

1. Human health concerns (85%)
2. Environmental concerns (43%)
3. Animal health concerns (36%)



These are also the three areas where consumers have the highest levels of concern about BE foods:

1. Human health concerns (72% rate 4-5 on 5-point scale)
2. Environmental concerns (67%)
3. Animal health concerns (64%)



SUMMARY & CONCLUSIONS

Three logos and two word descriptions were tested in the survey in several different visual contexts.



Sun Logo -

- Associated with the smallest amount of concern about human health concerns and all the other concerns
- Provides the right amount of information about bioengineered foods for the smallest proportion of consumers
- Correlated with the lowest amount that consumers would pay for a bioengineered food



Smile Logo –

- Generally liked by consumers
- When associated with the words “all natural”, correlates to the highest amount consumers would pay for a bioengineered food
- Generates a relatively high amount of concern about animal health and religious / spiritual / ethical aspects



Plant Logo –

- Associated with greater concern for human health, as well as several other factors
- Correlates to a high amount that consumers would pay for a bioengineered food
- With the word “bioengineered” provides the most information to consumers about the product
- Creates the highest levels of concern for human health and five additional aspects

“Bioengineered” - appears to be the most communicative about BE and consumers believe that if any amount of bioengineered ingredients are in a product it should be labeled as such

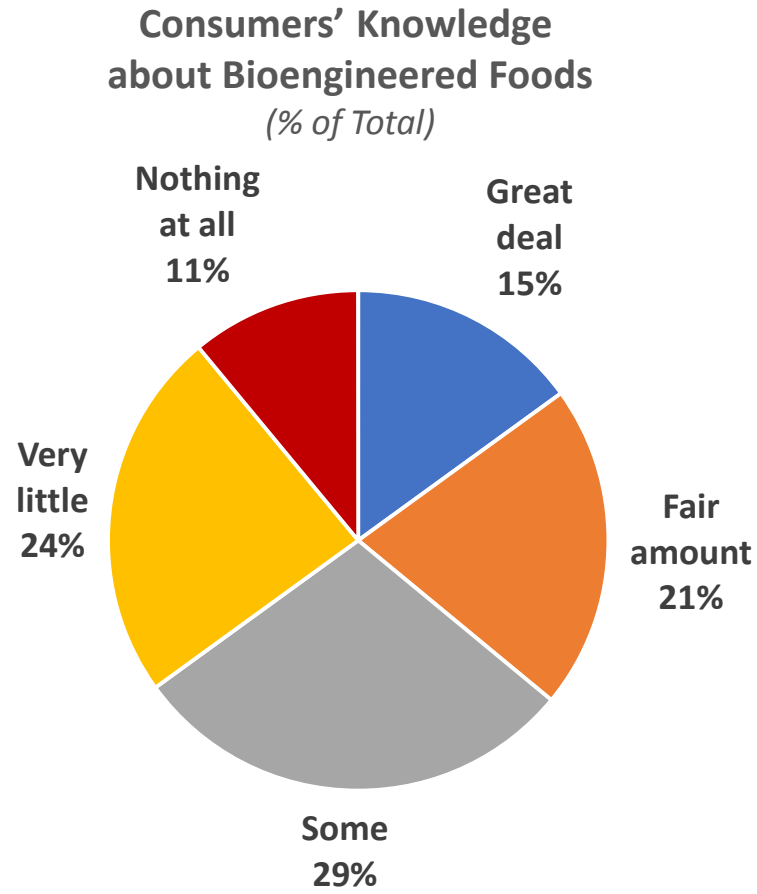
- There is little difference in the impact of the amount of BE ingredients in food on consumers’ likelihood to eat it

“May Be Bioengineered” - is less communicative

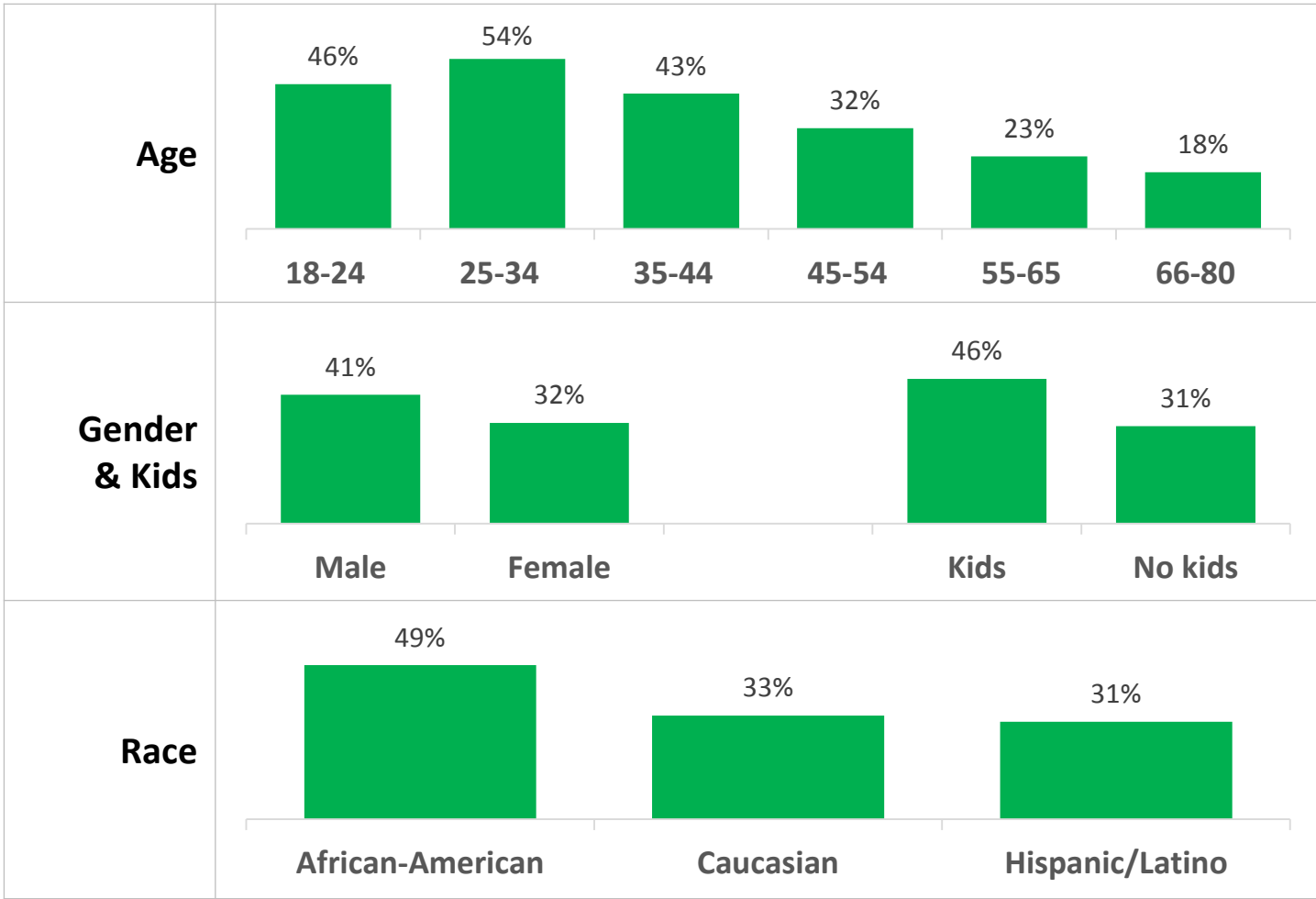
- The words “May Be Bioengineered” raise less concern among consumers for most of the tested aspects and is slightly less associated with human health concerns
- However, the phrase provides less information to consumers; only when combined with a logo is this phrase deemed informative

Detailed Findings

The same percent of consumers that know very little or nothing at all (36%) say they know a great deal or fair amount (36%) about bioengineered foods. Those who claim to be the most knowledgeable about bioengineered foods tend to be young, male, parents and African-American.



(% Great Deal + Fair Amount)

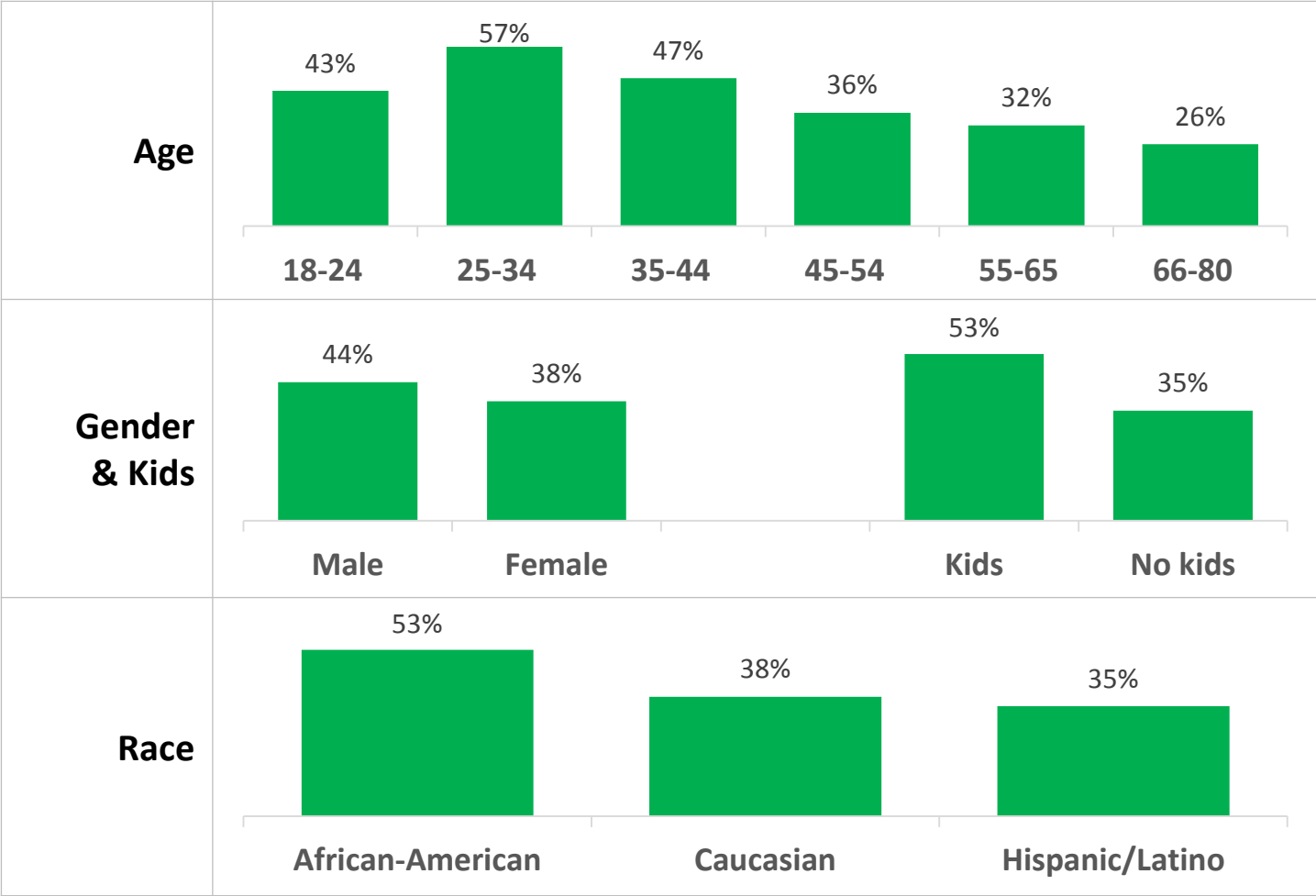
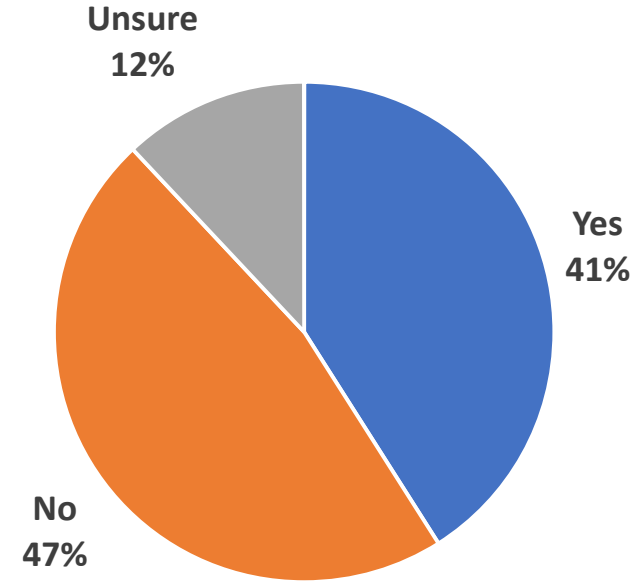


Q2. How much do you know about bioengineered/genetically modified foods?
Base=Total Respondents; n=1002

Nearly half of consumers do not consider whether foods are genetically modified (47%). Two in five consumers consider the genetic modification of foods when buying them (41%). Those who consider whether or not food they intend to purchase are genetically modified tend to be young, male, parents and African-American.

(% Yes)

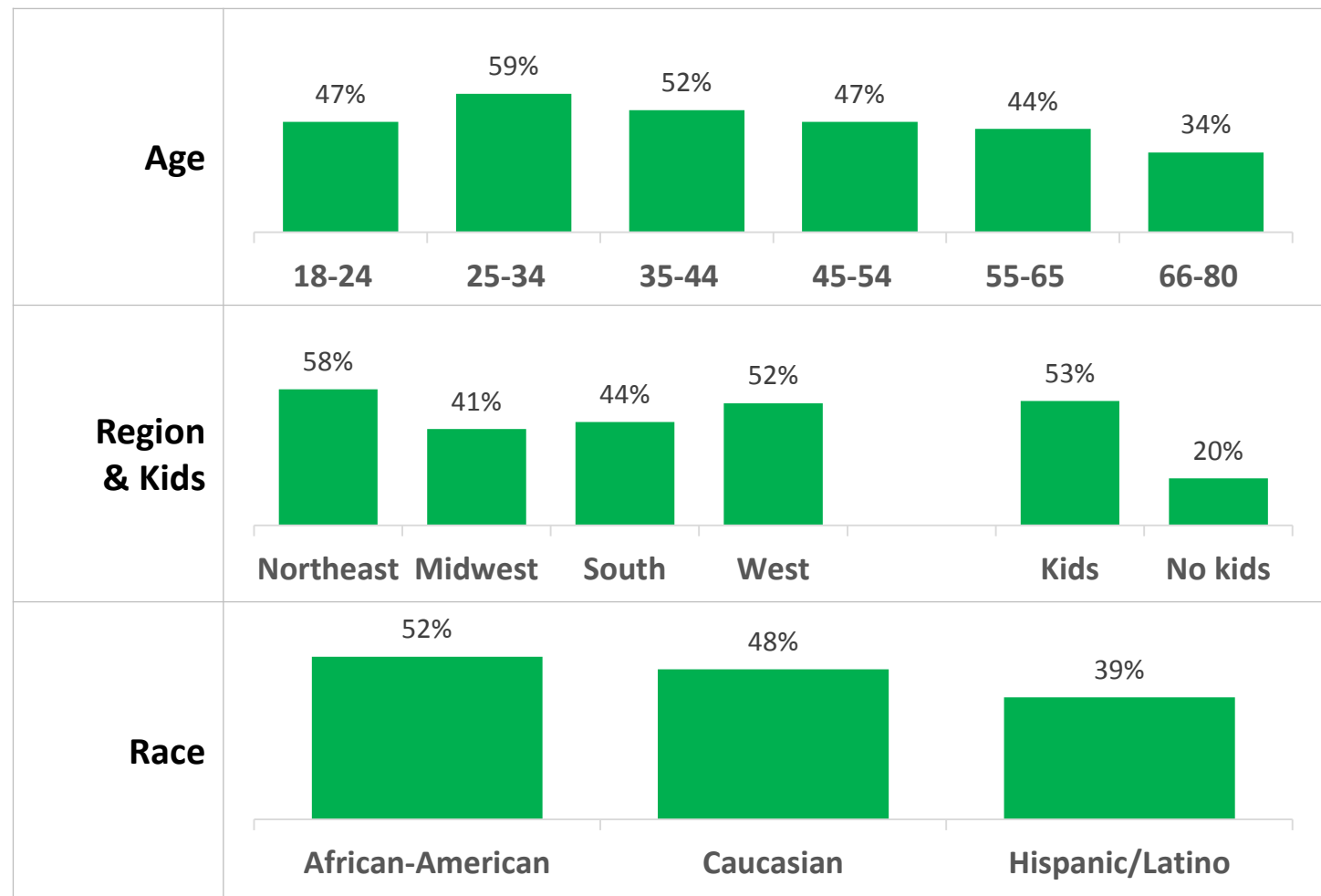
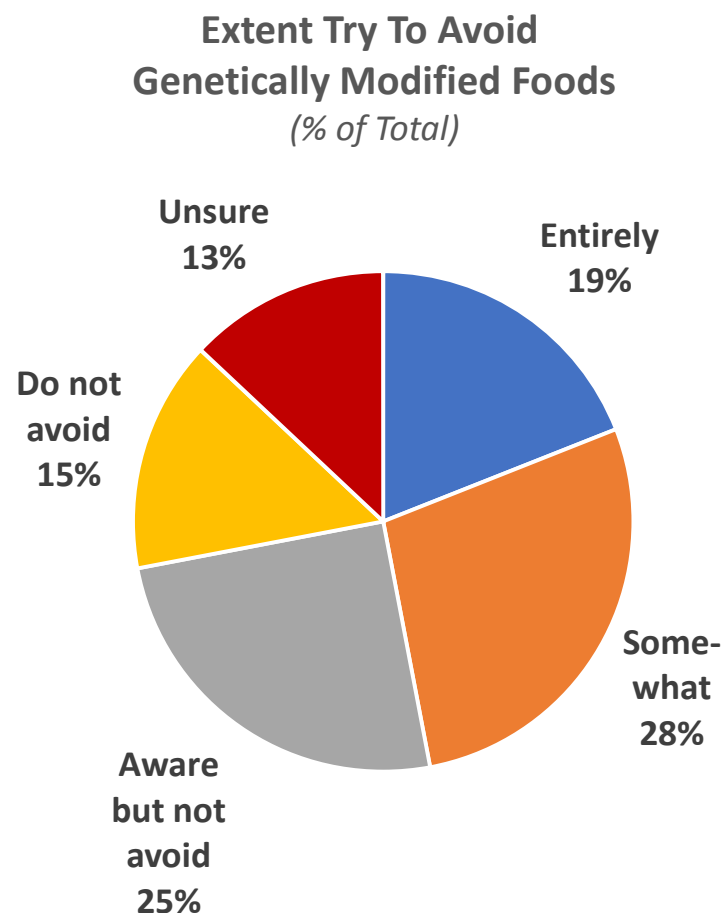
Considered whether Foods were Genetically Modified when Buying
(% of Total)



Q3. Thinking back about the past twelve months, when making decisions about buying foods and beverages, did you consider whether or not they are genetically modified or bioengineered (BE)?
Base=Total Respondents; n=1002

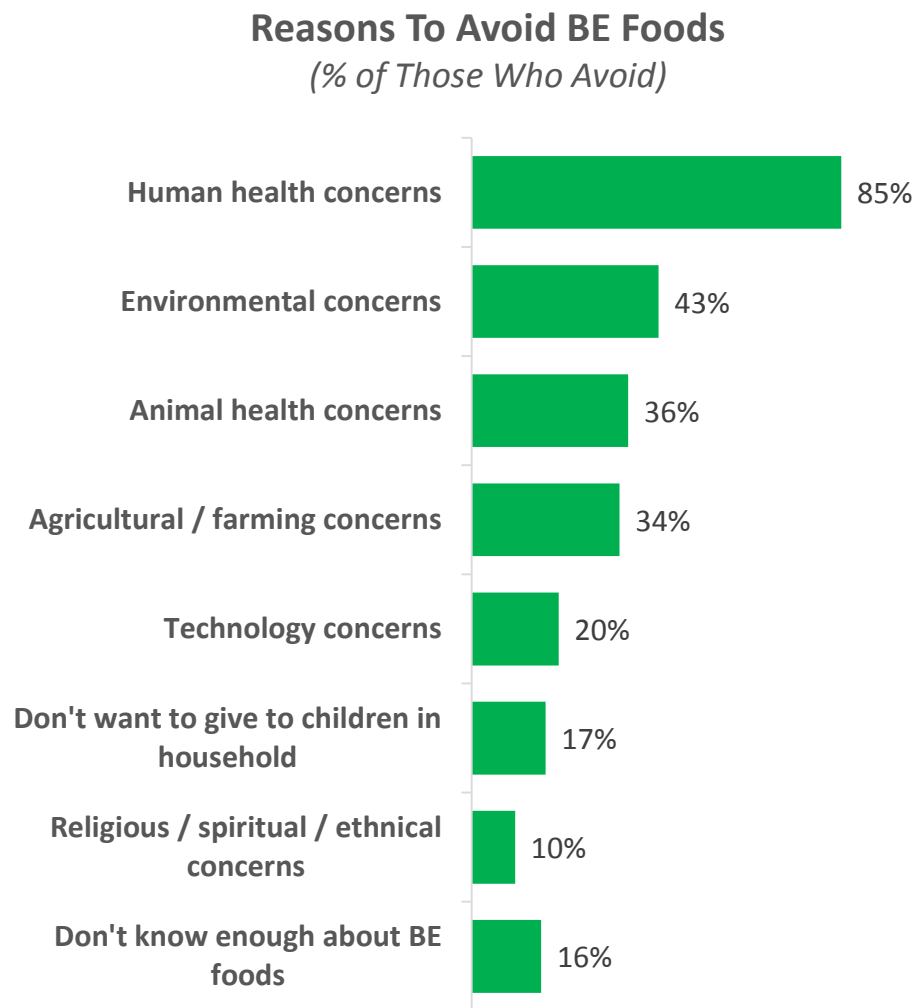
Almost half of the surveyed consumers avoid at least somewhat genetically modified foods (47%). Slightly less do not avoid (40%). Avoiders of bioengineered foods tend to be younger, from the Northeast and West, have children at home, and are African-American.

(% Entirely + Somewhat)



Q4. To what extent do you try to avoid foods that have been genetically modified/bioengineered (BE)?
Base=Total Respondents; n=1002

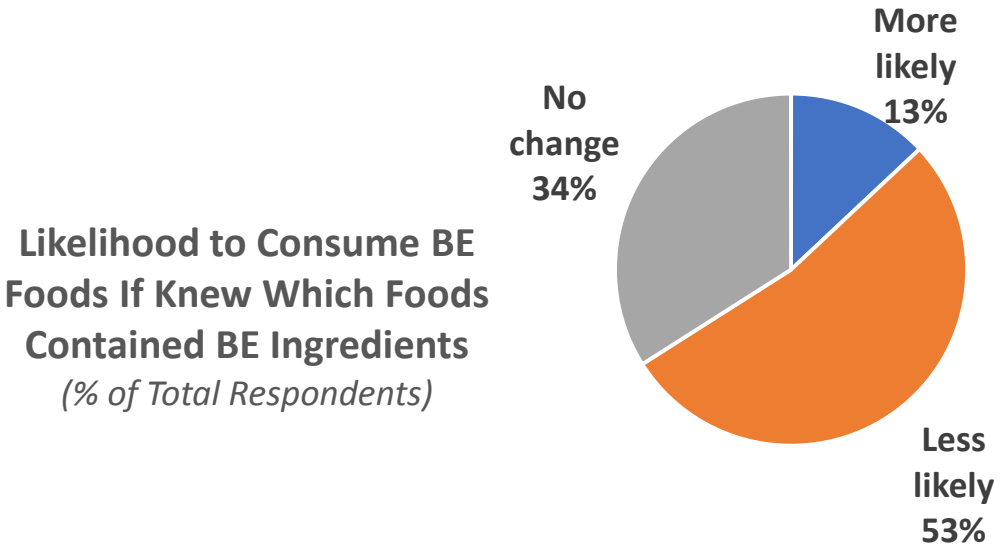
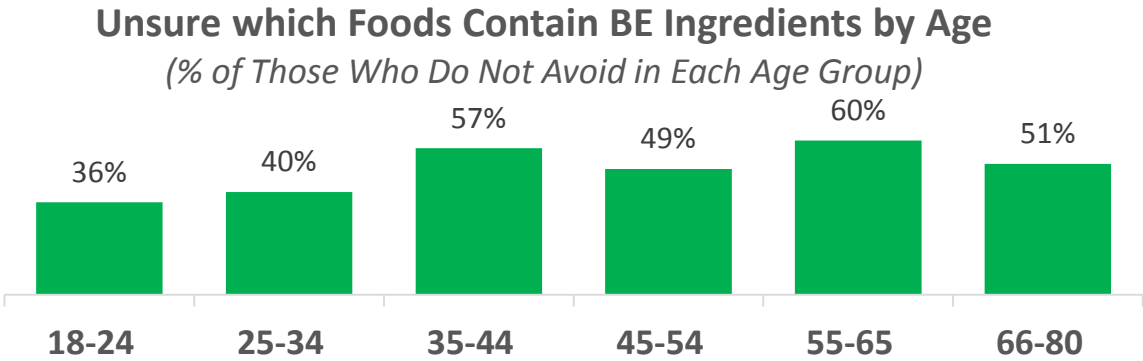
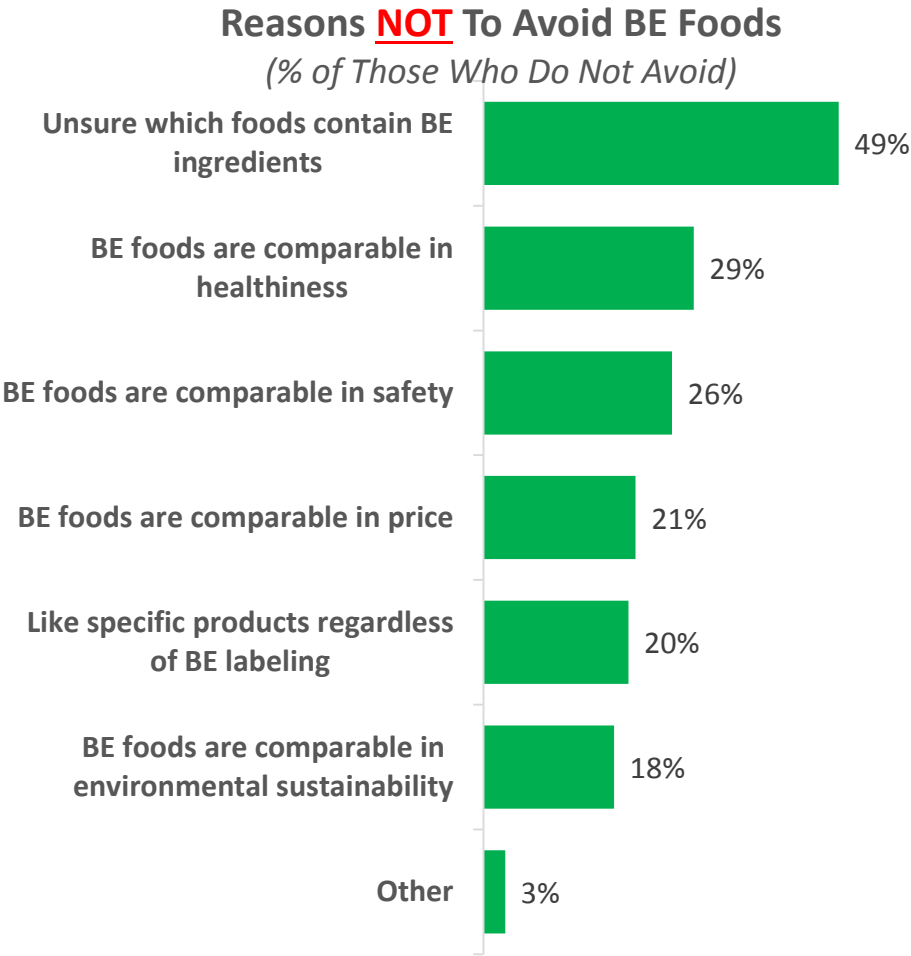
Human health concerns are the primary reason consumers avoid BE foods, then concerns dip significantly. Following human health are environmental and animal health concerns.



Q5. Why do you avoid BE foods?

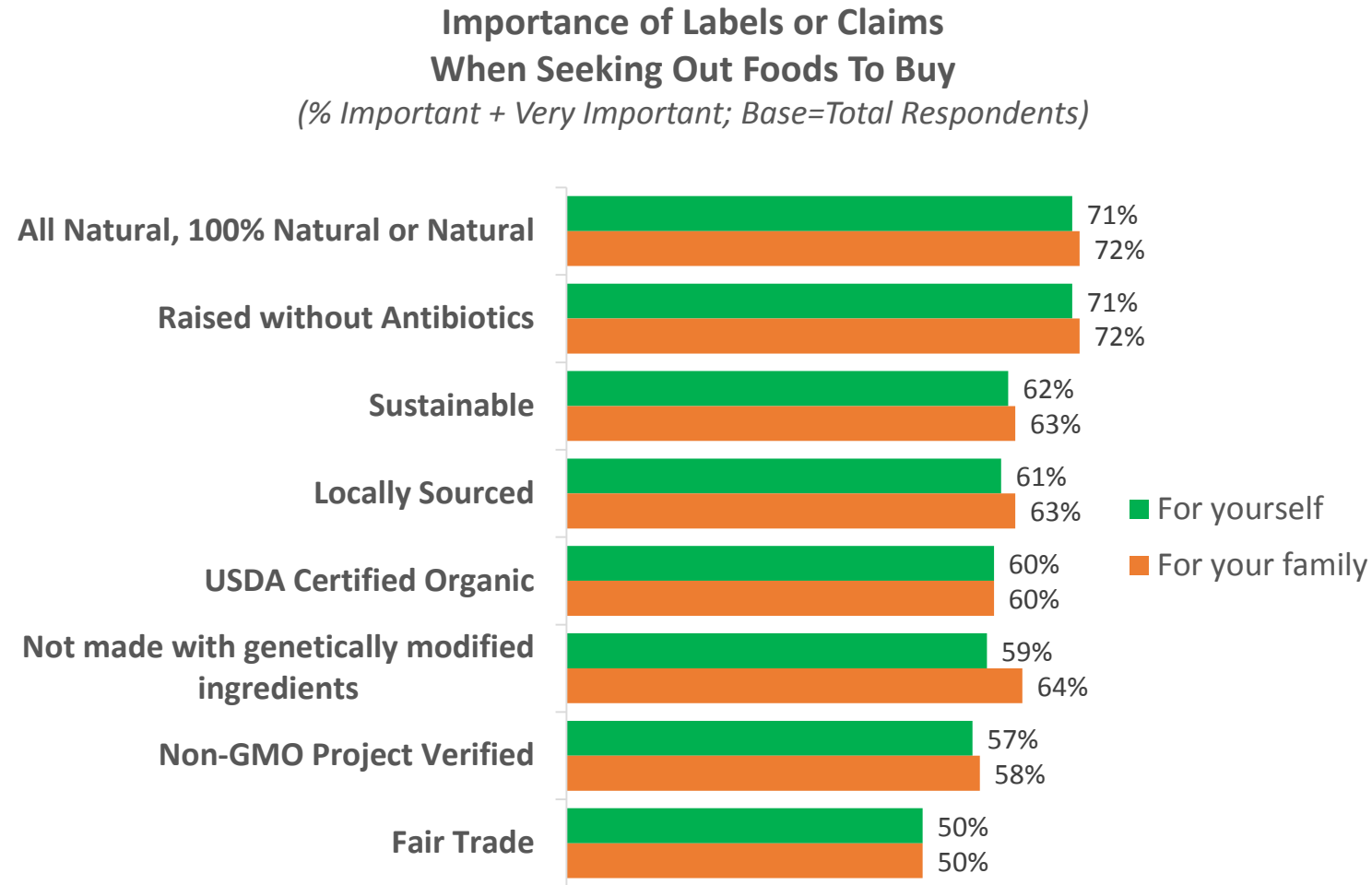
Base=Try to avoid foods that have been genetically modified; n=476

Uncertainty about which foods are genetically modified is the primary reason for not avoiding BE foods. Older consumers are more likely to avoid certain foods due to a lack of knowledge. A majority of respondents (53%) say they are less likely to consume food if they know it contains BE ingredients. Nearly half (47%) would either have no change or would be more likely to consume these foods.



Q7. Why don't you seek to avoid BE foods?
Q6. What types of BE foods do you try to avoid.
Base=Try to avoid foods that have been genetically modified; n=395; Total=1002

There is agreement about the importance of labels/claims for both yourself and your family; “all natural, 100% natural or natural” and “raised without antibiotics” are the most important claims.

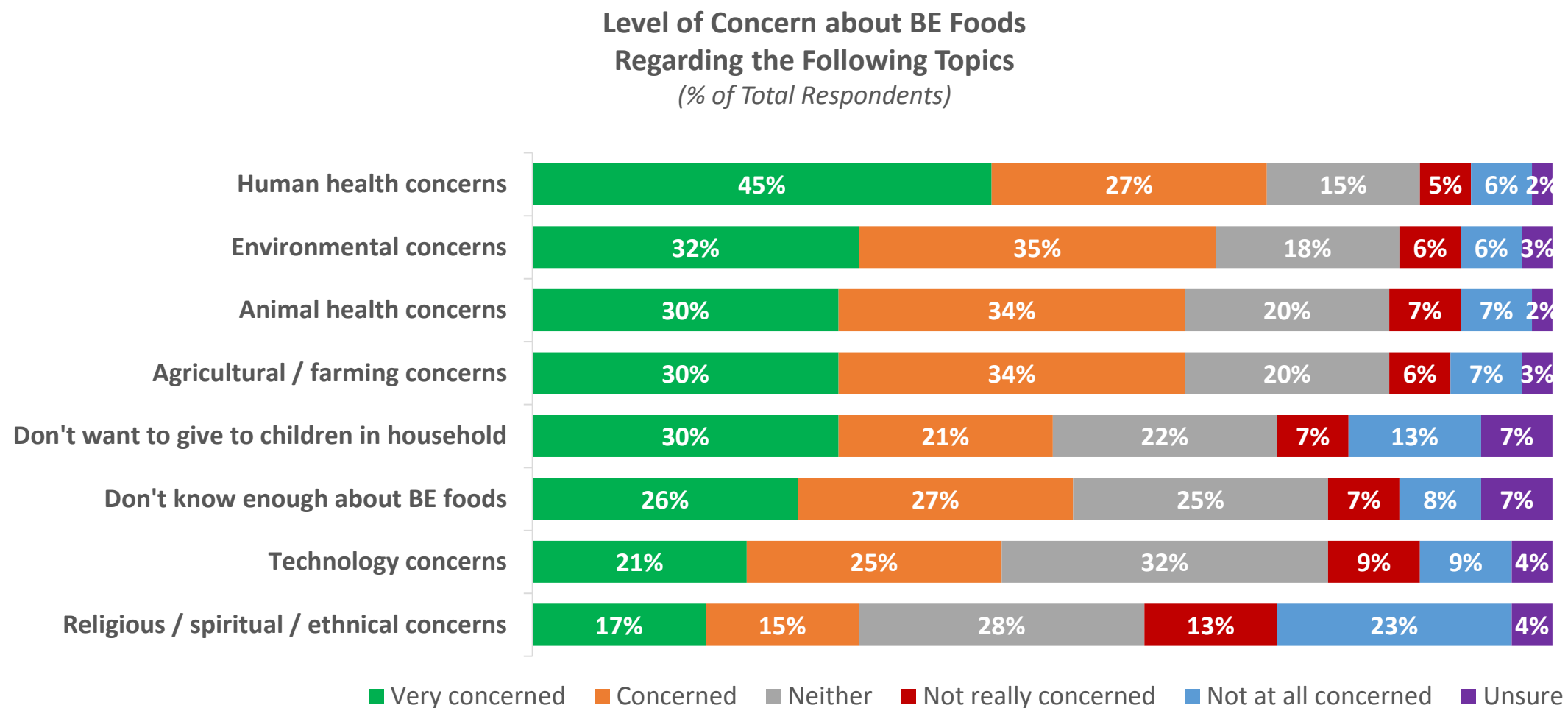


Q9. How important are the following labels or claims when seeking out foods to buy for yourself?

Q10. How important are the following labels or claims when seeking out foods to buy for your family?

Base=Total Respondents; n=1002

Human health concerns followed by environmental concerns generate the most concern for consumers.

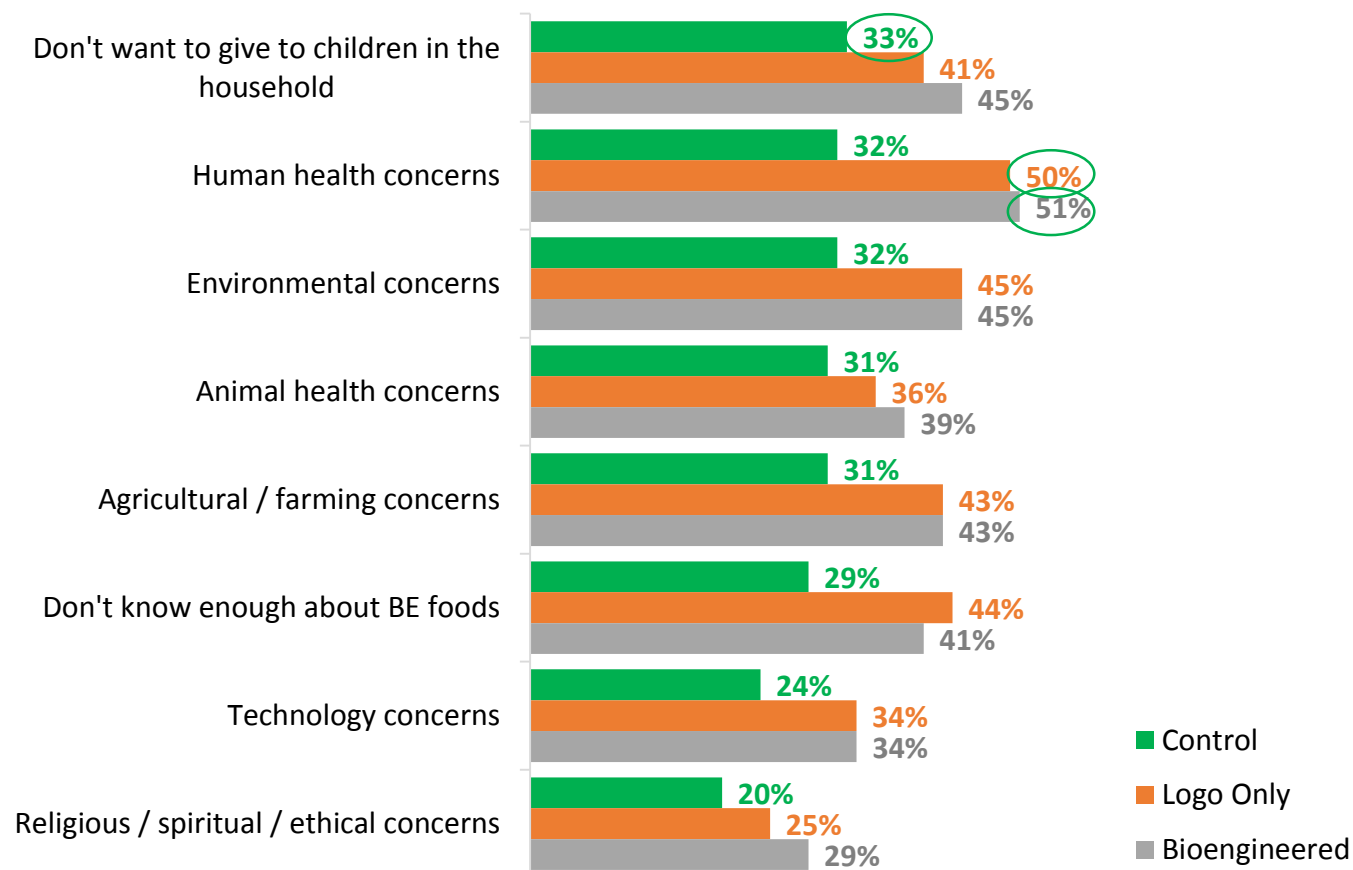


Q11. On a scale of 1 to 5 (not at all concerned to very concerned), please indicate your level of concern about BE foods surrounding...
Base=Total Respondents; n=1002

Adding this logo and the wording “Bioengineered” creates much more concern for human health than the Control with neither of these labels.

Consumer Reactions to Text / Labels / Claims

(Split 1 - % Concerned + Very Concerned)

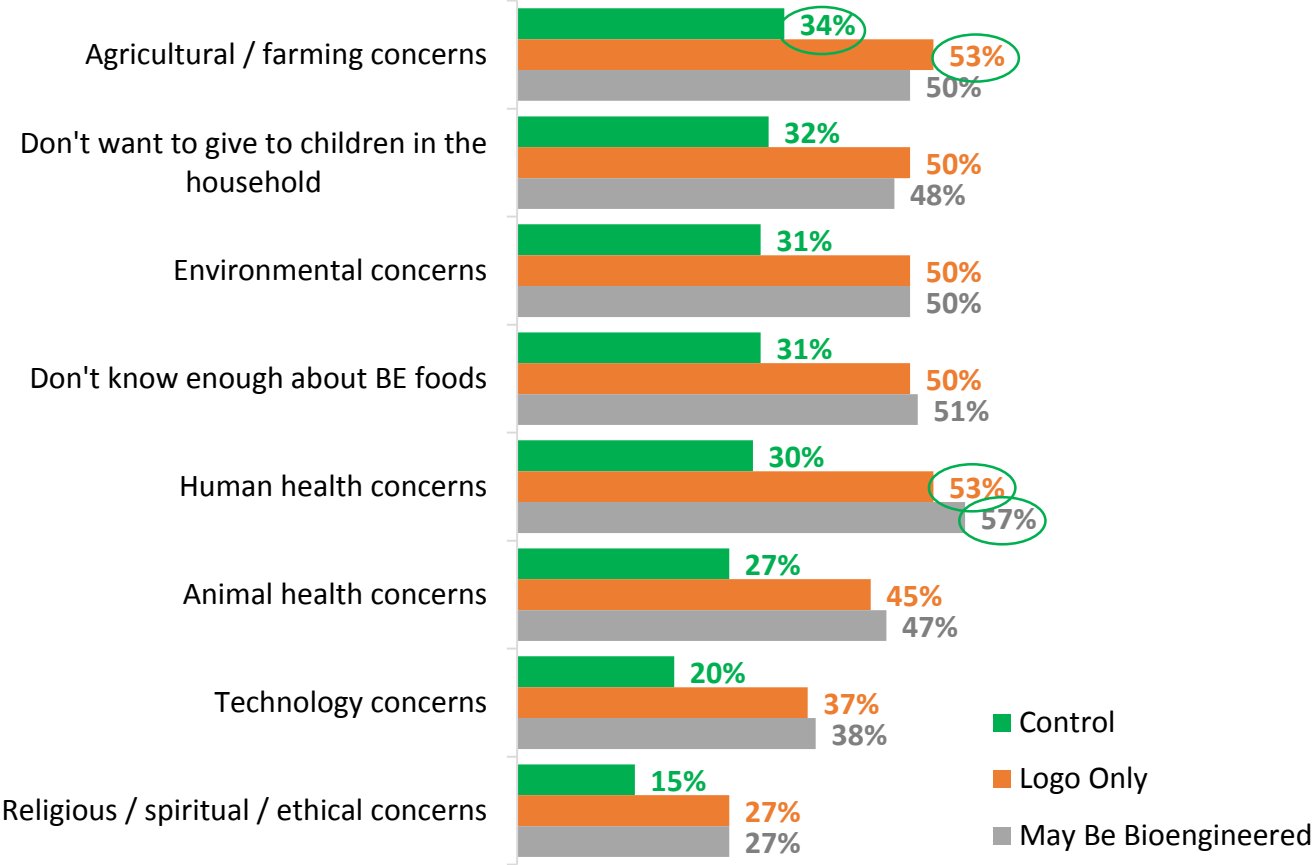


○ indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

Human health is the most concerning aspect of this stimulus with the logo and the words “May Be Bioengineered”, while the plain label is more concerning for several other issues.

Consumer Reactions to Text / Labels / Claims
(Split 2 - % Concerned + Very Concerned)

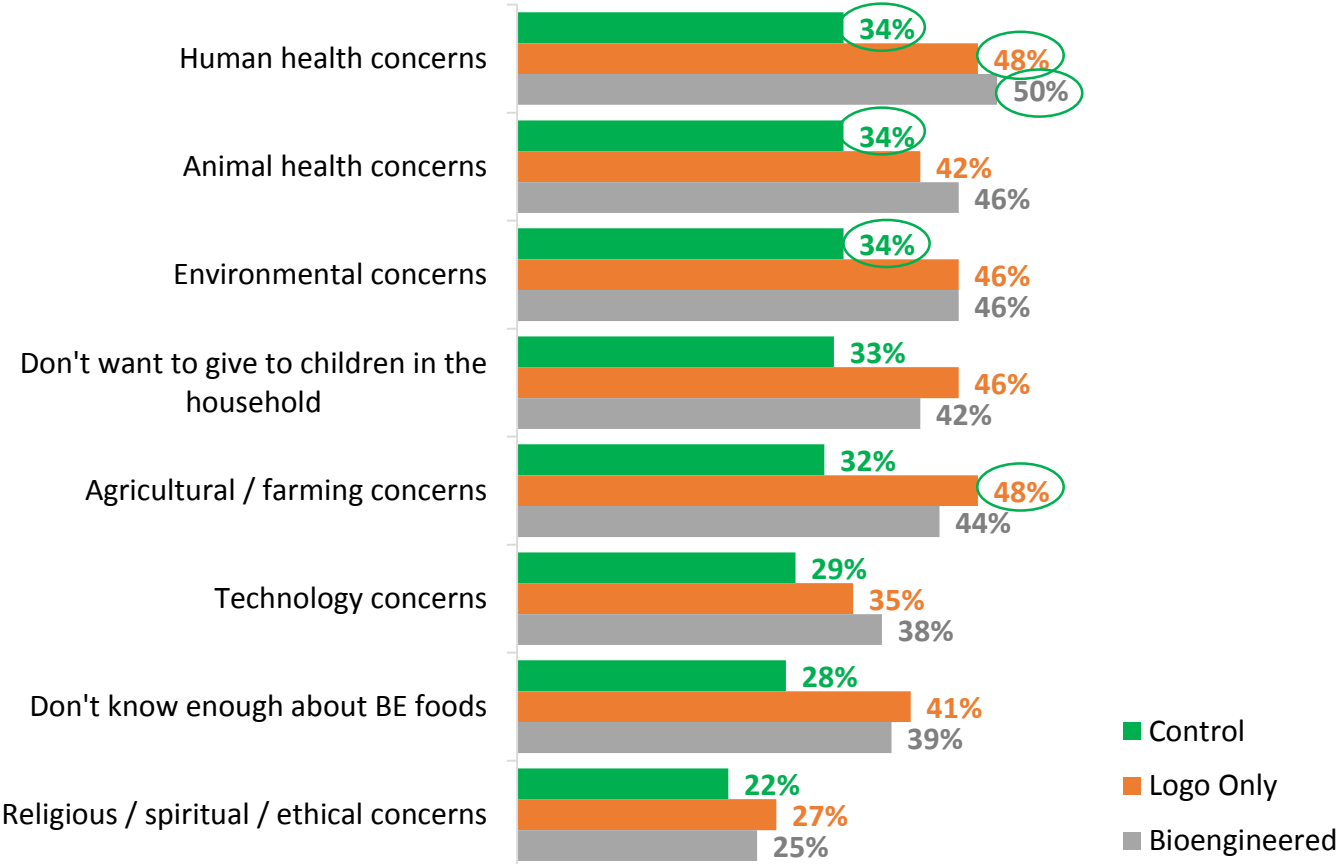


indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

Several of the concerns are rated similarly for each image, although human health concerns is among the highest.

Consumer Reactions to Text / Labels / Claims
(Split 3 - % Concerned + Very Concerned)



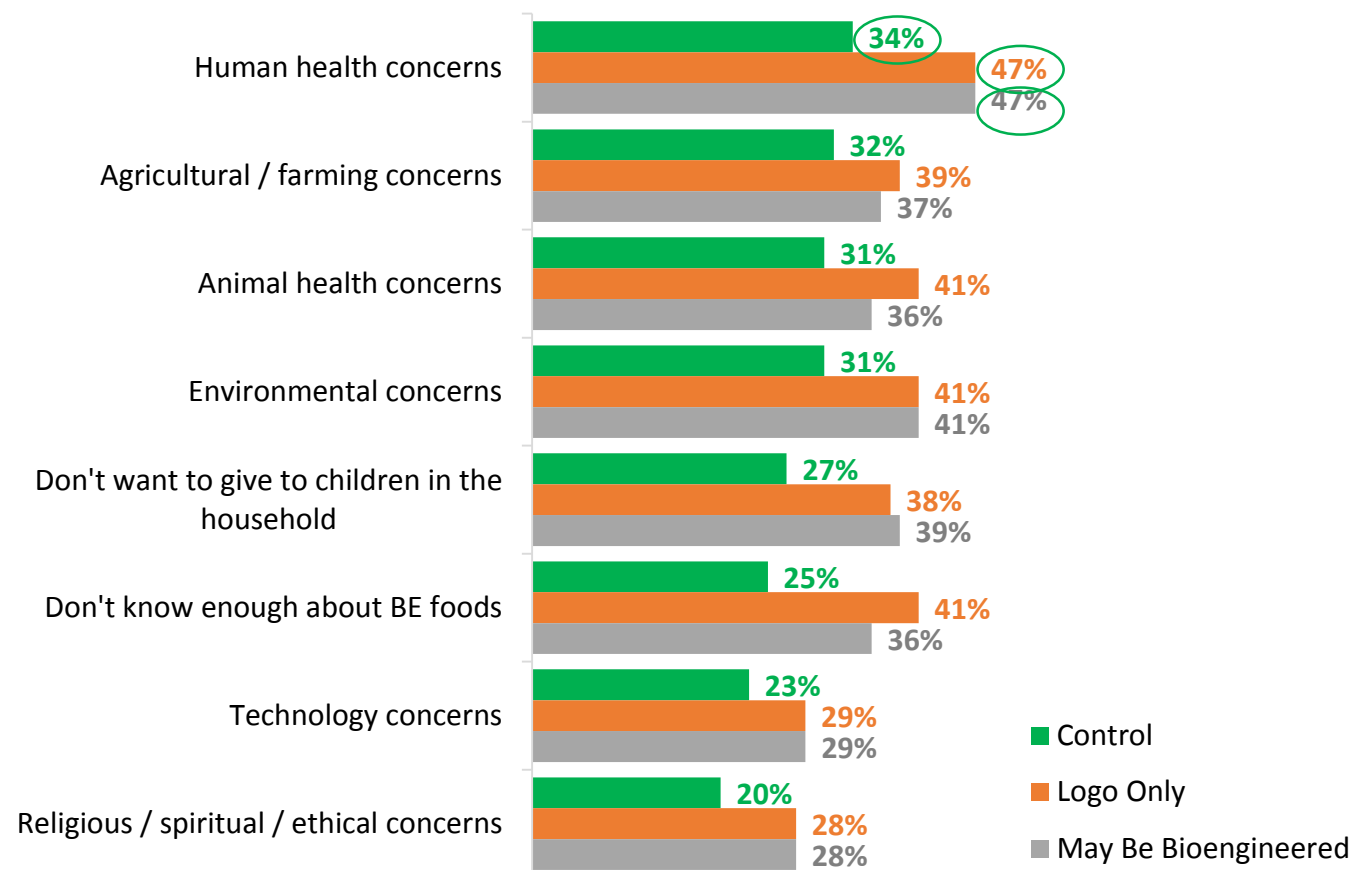
indicates largest concern for image

Q12. Please indicate your level of concern about this food.
 Base=Split Respondents; n varies

Human health is the highest rated concern among consumers viewing each of these three stimuli.

Consumer Reactions to Text / Labels / Claims

(Split 4 - % Concerned + Very Concerned)

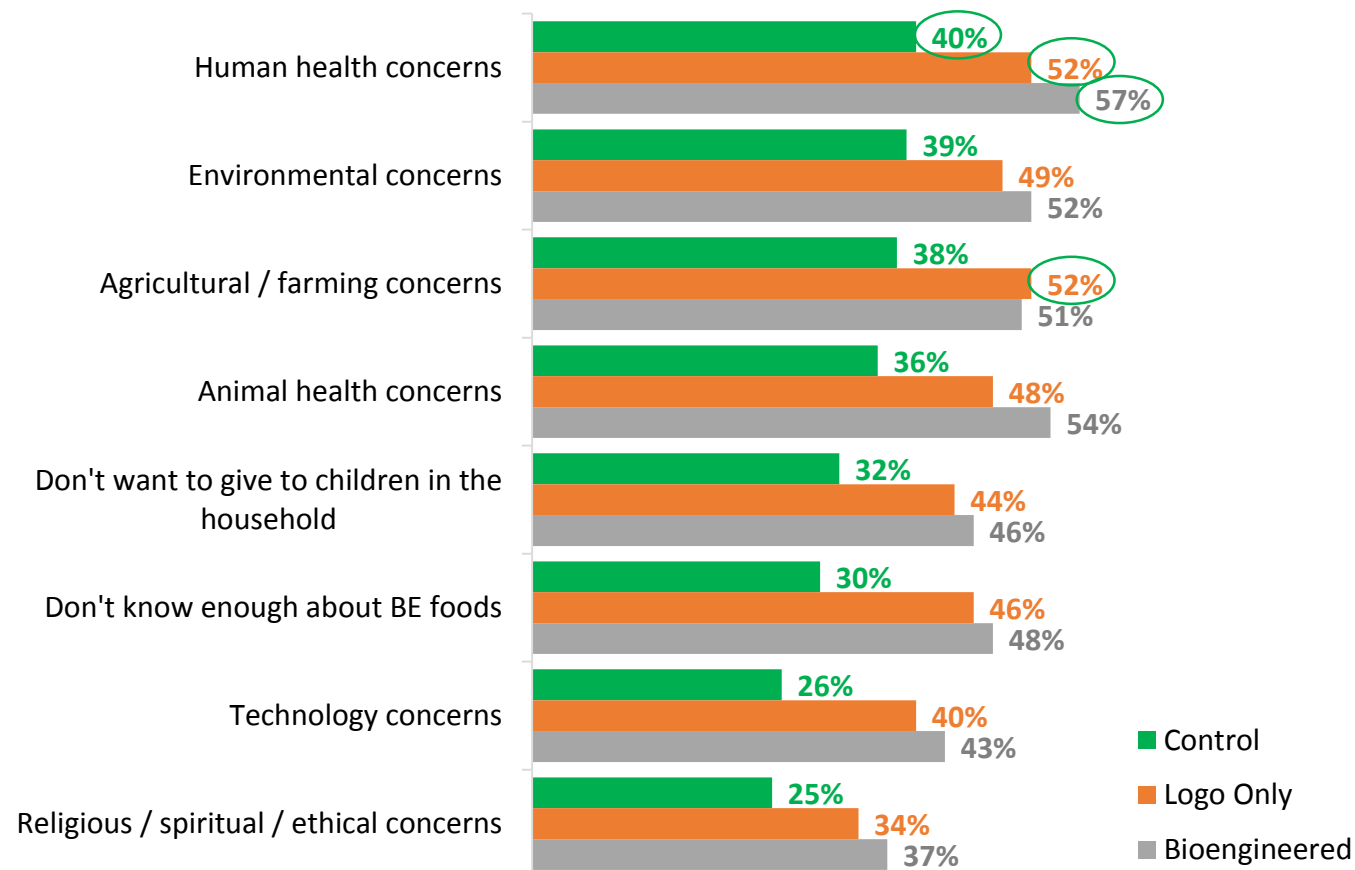


○ indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

Human health is a concern among two in five of those who viewed the Control while human health is more of a concern with the Logo Only bottle and even more of a concern with the addition of the word Bioengineered.

Consumer Reactions to Text / Labels / Claims (Split 5 - % Concerned + Very Concerned)



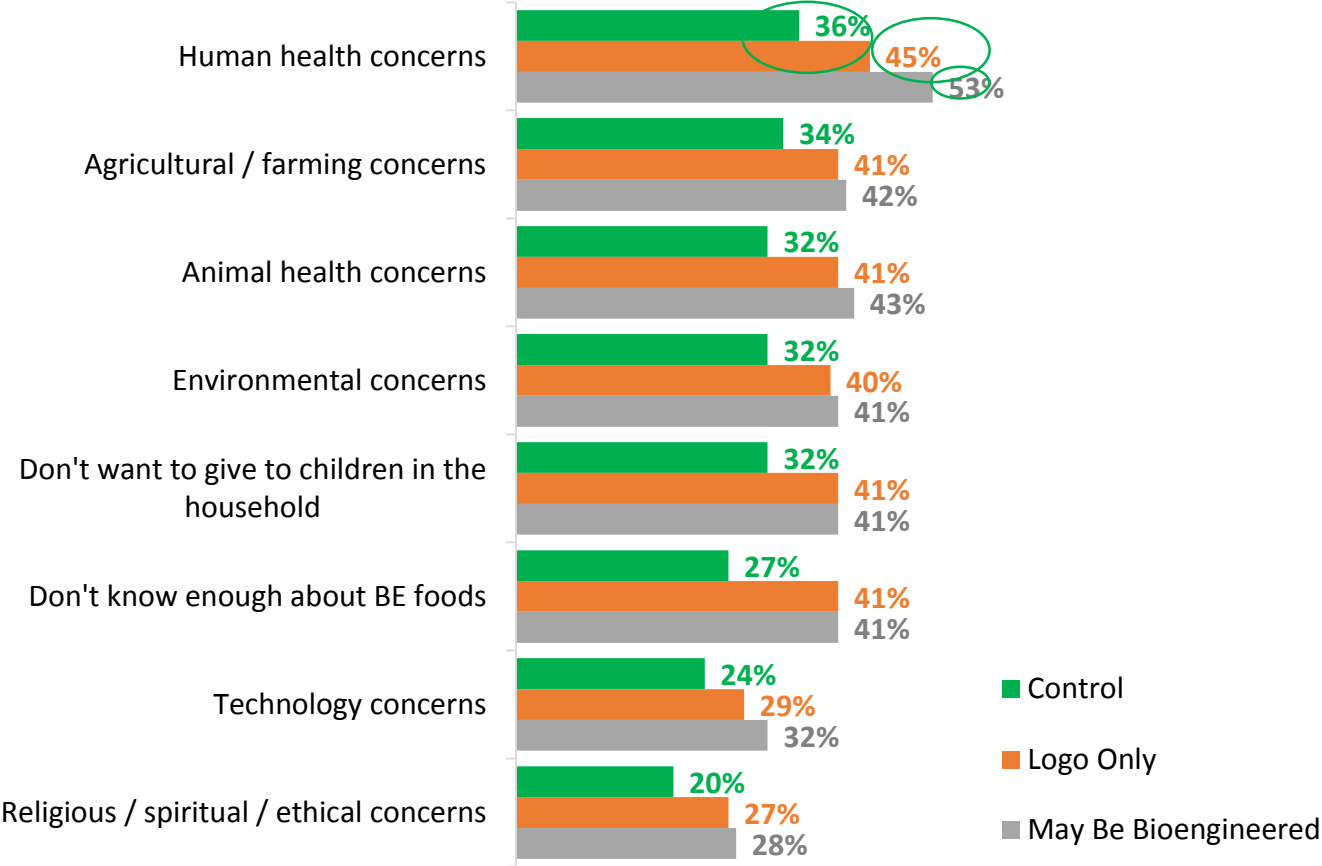
indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

Similar to other Splits, human health concerns predominate.

Consumer Reactions to Text / Labels / Claims

(Split 6 - % Concerned + Very Concerned)



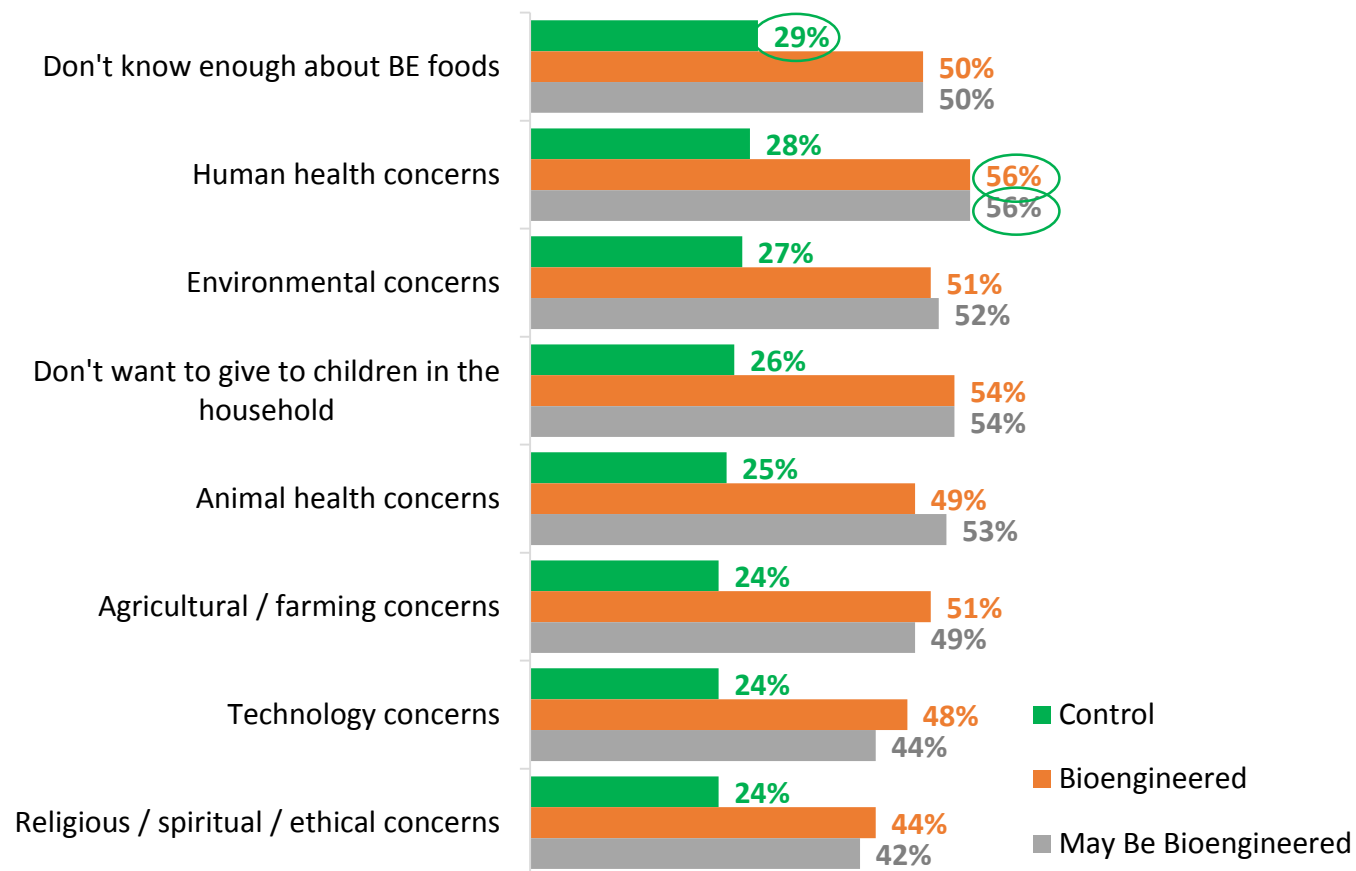
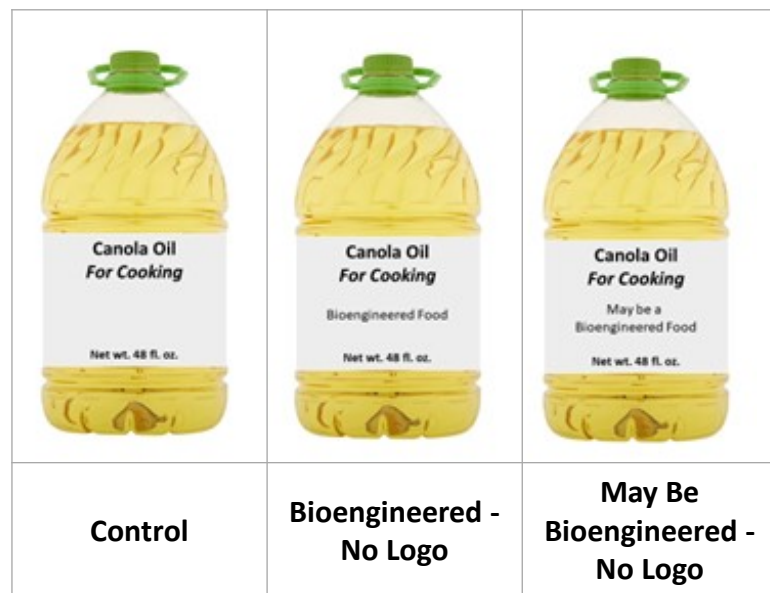
indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

More than half who saw the text disclosure in either form had human health concerns.

Consumer Reactions to Text / Labels / Claims

(Split 7 - % Concerned + Very Concerned)



○ indicates largest concern for image

Q12. Please indicate your level of concern about this food.
Base=Split Respondents; n varies

Overall, the words “May Be Bioengineered” raises less concern than the words “Bioengineered” and the Sun logo raises less concern than the other two logos.

Summary - Consumer Reactions to Text / Labels / Claims

(% Concerned + Very Concerned - %s Averaged Across Images)

	<u>Words Shown on Image</u>			<u>Logo Shown on Image</u>		
	<u>CONTROL</u>	<u>BIO-ENGINEERED</u>	<u>MAY BE BIO-ENGINEERED</u>	<u>PLANT</u>	<u>SUN</u>	<u>SMILE</u>
Human health concerns	33%	54%	53%	52%	48%	49%
Environmental concerns	32%	49%	46%	48%	44%	45%
Agricultural / farming concerns	32%	47%	45%	48%	44%	47%
Animal health concerns	31%	47%	45%	41%	42%	45%
Don't want to give to children in the household	31%	47%	46%	46%	42%	43%
Don't know enough about BE foods	28%	45%	45%	47%	41%	44%
Technology concerns	24%	41%	36%	36%	32%	35%
Religious / spiritual / ethical concerns	21%	34%	31%	26%	28%	31%

- Overall, the Control version of the images, with no logo and no words, raises the least concern among consumers for each of the aspects listed.
- Human health is the concern voiced by the most consumers regardless of the image they viewed. The two text images (Bioengineered and May Be Bioengineered) raise nearly equal levels of human health concerns, much higher than the Control. However, consumers are more concerned with each of the tested aspects when viewing bottles labeled “Bioengineered” than “May Be Bioengineered”.
- Of the three logos, the Plant logo is associated with the most concern for human health. The Plant logo is also associated with the highest level of concern for six of the eight aspects tested. The Sun logo is least associated with all of the aspects.

Human health is the primary concern among consumers when viewing labels regarding BE foods, regardless of the form of the visual (words or logo) shown. Below is a summary of the percent of consumers indicating human health concerns for each of the canola oil series.

Summary - Consumer Reactions to Text / Labels / Claims
(% Concerned + Very Concerned)

	Control (no logo)	Plant	Plant + Bioengineered	Plant + May Be Bioengineered
Human Health Concerns	30%/32%*	50%/53%*	51%	57%
	Control (no logo)	Sun	Sun + Bioengineered	Sun + May Be Bioengineered
Human Health Concerns	34%/34%*	48%/47%*	50%	47%
	Control (no logo)	Smile	Smile + Bioengineered	Smile + May Be Bioengineered
Human Health Concerns	40%/36%*	52%/45%*	57%	53%
	Control (no logo)	N/A	Bioengineered – No Logo	May Be Bioengineered – No Logo
Human Health Concerns	28%		56%	56%

*the number following the parentheses corresponds to the visual seen with the “may be” language. Survey participants saw either the “bioengineered” text with the disclosure symbol OR the “may be bioengineered” text with the disclosure symbol

Consumers would pay the least for the logo-only option - \$2.61 - and the most for sustainable - \$2.93, only three cents less than the control with no disclosure or claims.

Most Consumer is Willing to Pay

(Split 1 - Average Price)

In general, younger consumers, consumers with children in the household and mid-level incomes (\$50,000 - \$150,000) would pay more for the control option as well as all three of the other options shown in this split.

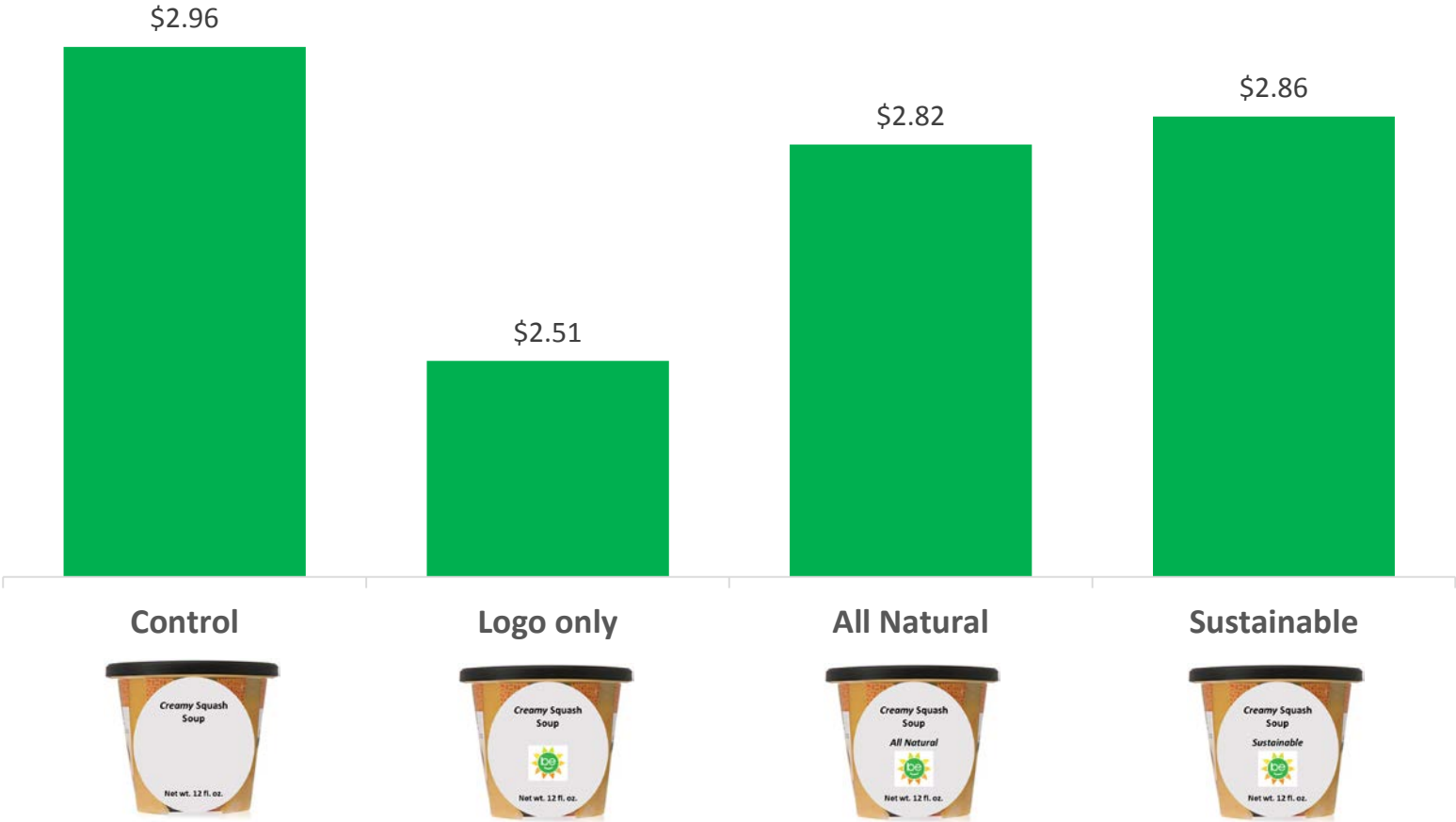


Q13. What is the most you would be willing to pay for the container on the right?
Base=Split Respondents; n=varies; mean includes zero

Again, the logo-only option receives the lowest price consumers would be willing to pay - \$2.51 - and sustainable receives the highest - \$2.86, 10 cents lower than the control.

Most Consumer is Willing to Pay
(Split 2 - Average Price)

Overall, younger consumers, females and those with children are willing to pay the most for this series of stimuli.



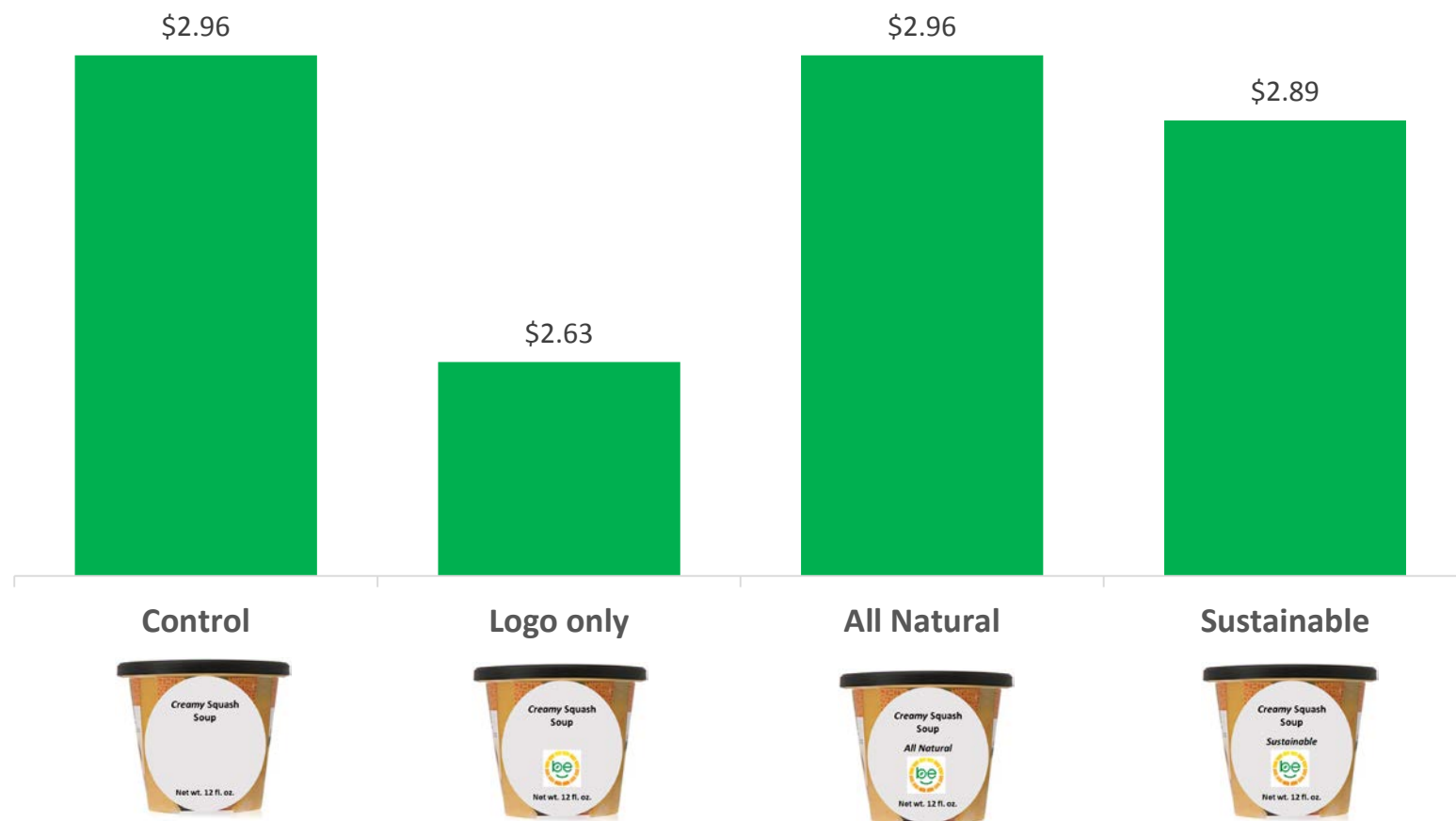
Q13. What is the most you would be willing to pay for the container on the right?
Base=Split Respondents; n=varies; mean includes zero

The logo-only option receives the lowest price - \$2.63; while the All Natural option receives a price equal to the Control option - \$2.96 - which is the highest amount.

Most Consumer is Willing to Pay

(Split 3 - Average Price)

Only younger consumers will pay more than others for this entire series of visuals. Other segments are not substantially different from the overall average.






Q13. What is the most you would be willing to pay for the container on the right?
Base=Split Respondents; n=varies; mean includes zero

Adding the words “All Natural” or “Sustainable,” along with the BE disclosure increases consumer willingness to pay, in one case equal to the control group without any GMO disclosure.

Summary - Most Consumer is Willing To Pay

(Average Price; Average Includes Zero)

Highest is Shaded in Yellow; Lowest is Shaded in Gray

	<u>Logo Only</u>	<u>All Natural</u>	<u>Sustainable</u>
Control (no logo)	\$2.96	~	~
Plant Logo 	\$2.61	\$2.86	\$2.93
Sun Logo 	\$2.51	\$2.82	\$2.86
Smile Logo 	\$2.83	\$2.96	\$2.89



The highest price that consumers would pay for the tested product (Squash Soup) is shared equally by the Control product (no logo, no label) and the Smile Logo / “All Natural” label.

The Smile Logo elicits a higher price than the other two logos when shown on a product with the logo only and no label (\$2.83), and when shown on a product with the logo and the words “all natural” (\$2.96).



The Plant Logo with “Sustainable” has the second highest price that consumers would pay for the product (\$2.93).



The Sun Logo is given the lowest price regardless of whether the logo is shown alone or with text.



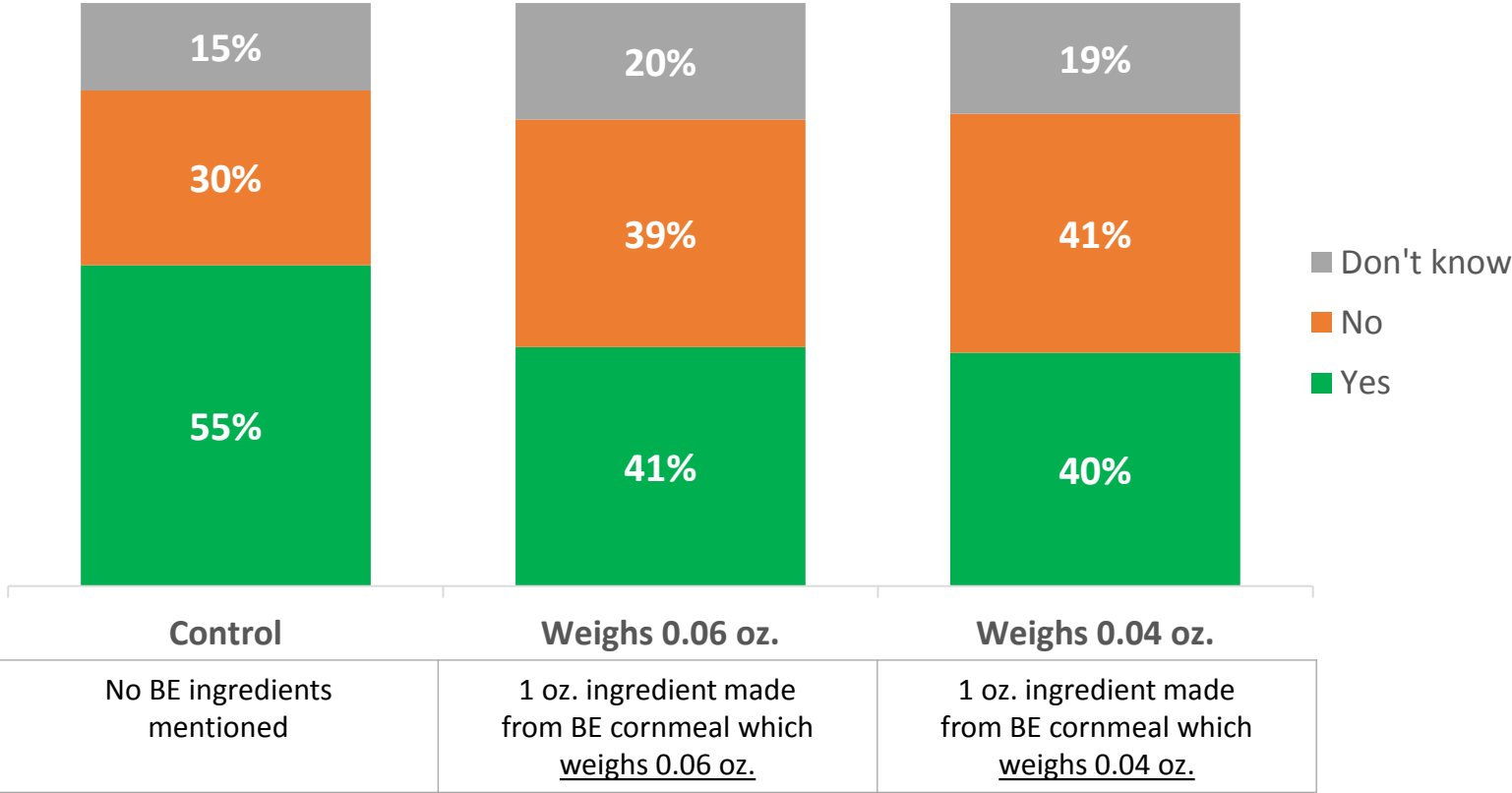
Mentioning the BE ingredients reduces the proportion of consumers that say they would eat this food.



Younger consumers (age 25-34), African-Americans, those in the Northeast, Midwest and South, those with mid-level incomes (\$50,000-\$99,999) and those with children are more likely than others to eat the Control version.

Results are somewhat different for the two options shown: more in the 25-34 age group, males, those in the Northeast and South, those with an advanced educational degree, and those with children are more likely to eat the other two products shown with the weights mentioned.

Consumer Would Eat this Food
(Split 1 - % of Total)

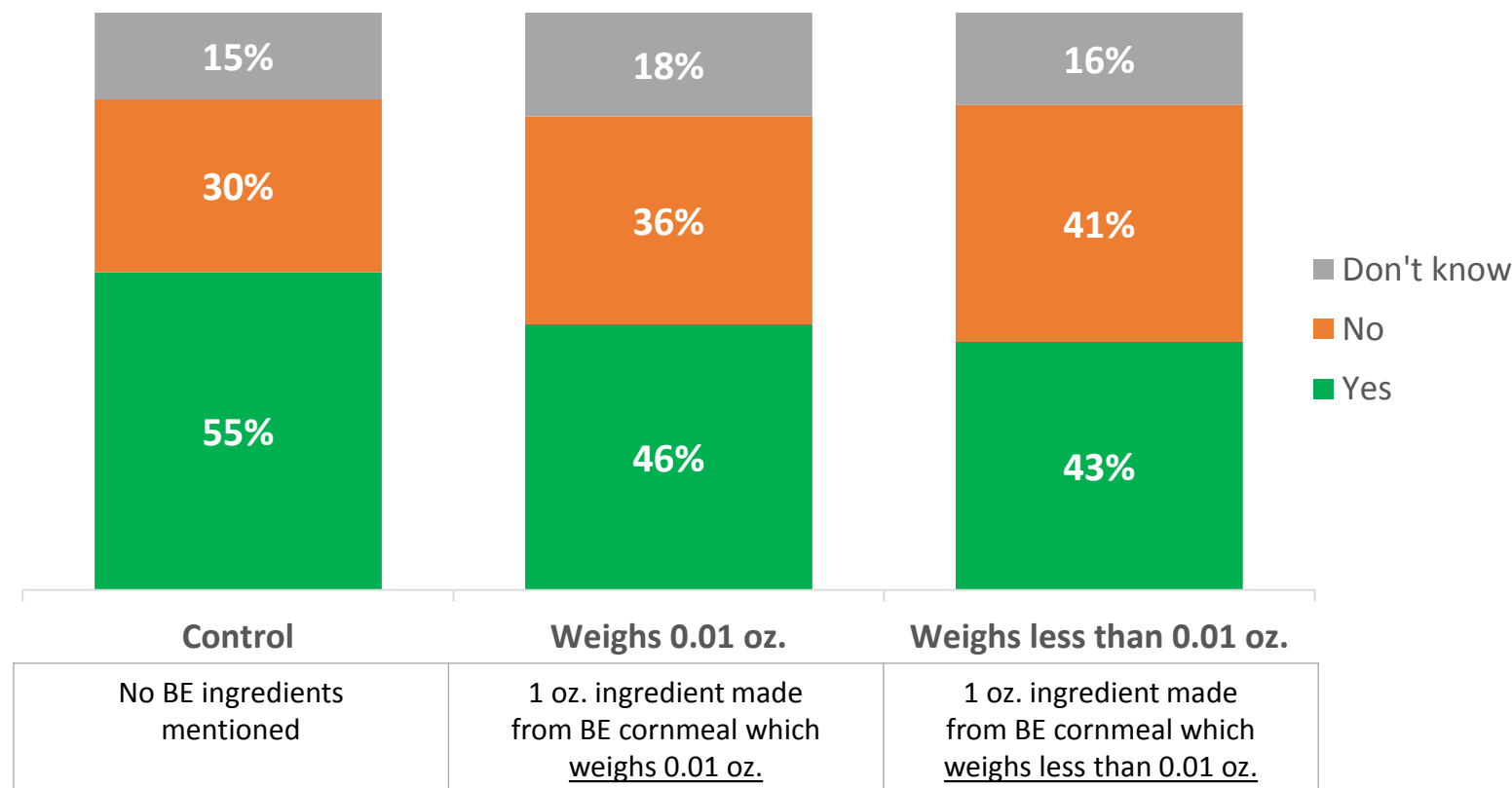


Q14-15. Would you eat this food?
Base=Split Respondents; n=varies

The description including “weighs less than” receives the highest proportion of consumers who say they would not eat this food (41% no).



Consumer Would Eat this Food
(Split 2- % of Total)



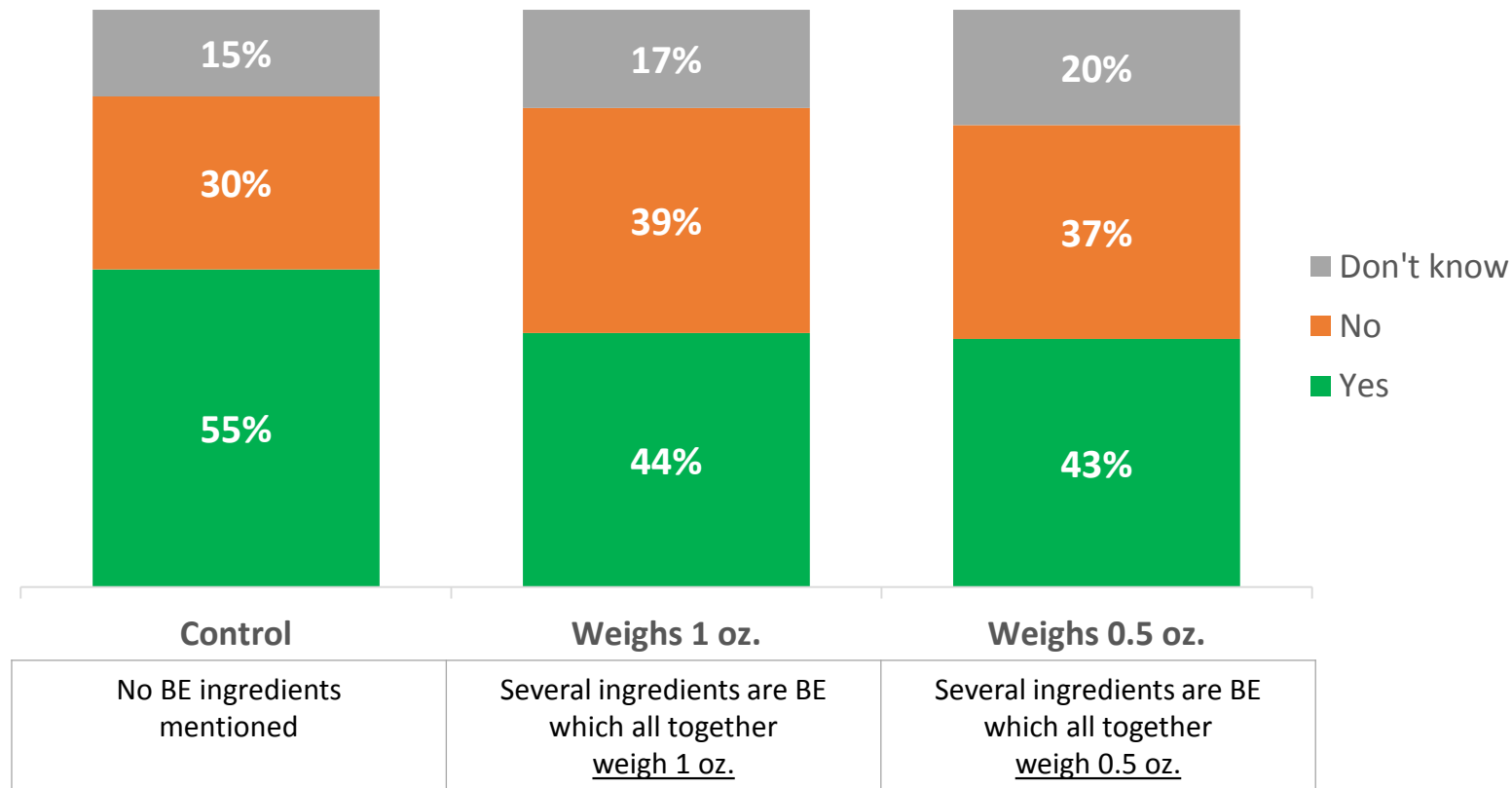
For both of the options shown in this split, consumers aged 35-44, living in the Midwest and South, and with kids are more likely to eat both options shown. The product weighing 0.01 ounce is also more likely to be eaten by males than females.

In Split 3, the fewest consumers rate the description with the lowest weight of BE ingredients (0.5 oz.) as appealing – only 43% say “yes” they would eat this food.



For both stimuli shown in this split, more consumers aged 25-34, with incomes \$25,000-\$100,000 and with children will eat this food compared to other segments.

Consumer Would Eat this Food
(Split 3- % of Total)



Q14-15. Would you eat this food?
Base=Split Respondents; n=varies

While consumers are less inclined to eat a food (pizza) including any BE ingredients versus a food without BE ingredients mentioned, the variation is small. Furthermore, there is no correlation between the amount of the BE ingredient (ounces) and the consumer's likelihood to eat it.

Summary - Consumer Would Eat this Food (%)

Control (no BE ingredients or weights mentioned)	55%
1 oz. ingredient made from BE cornmeal which <u>weighs 0.01 oz.</u>	46%
Several ingredients are BE which all together <u>weigh 1 oz.</u>	44%
Several ingredients are BE which all together <u>weigh 0.5 oz.</u>	43%
1 oz. ingredient made from BE cornmeal which <u>weighs less than 0.01 oz.</u>	43%
1 oz. ingredient made from BE cornmeal which <u>weighs 0.06 oz.</u>	41%
1 oz. ingredient made from BE cornmeal which <u>weighs 0.04 oz.</u>	40%



The most consumers would eat a pizza product where BE ingredients are not mentioned at all (55%).

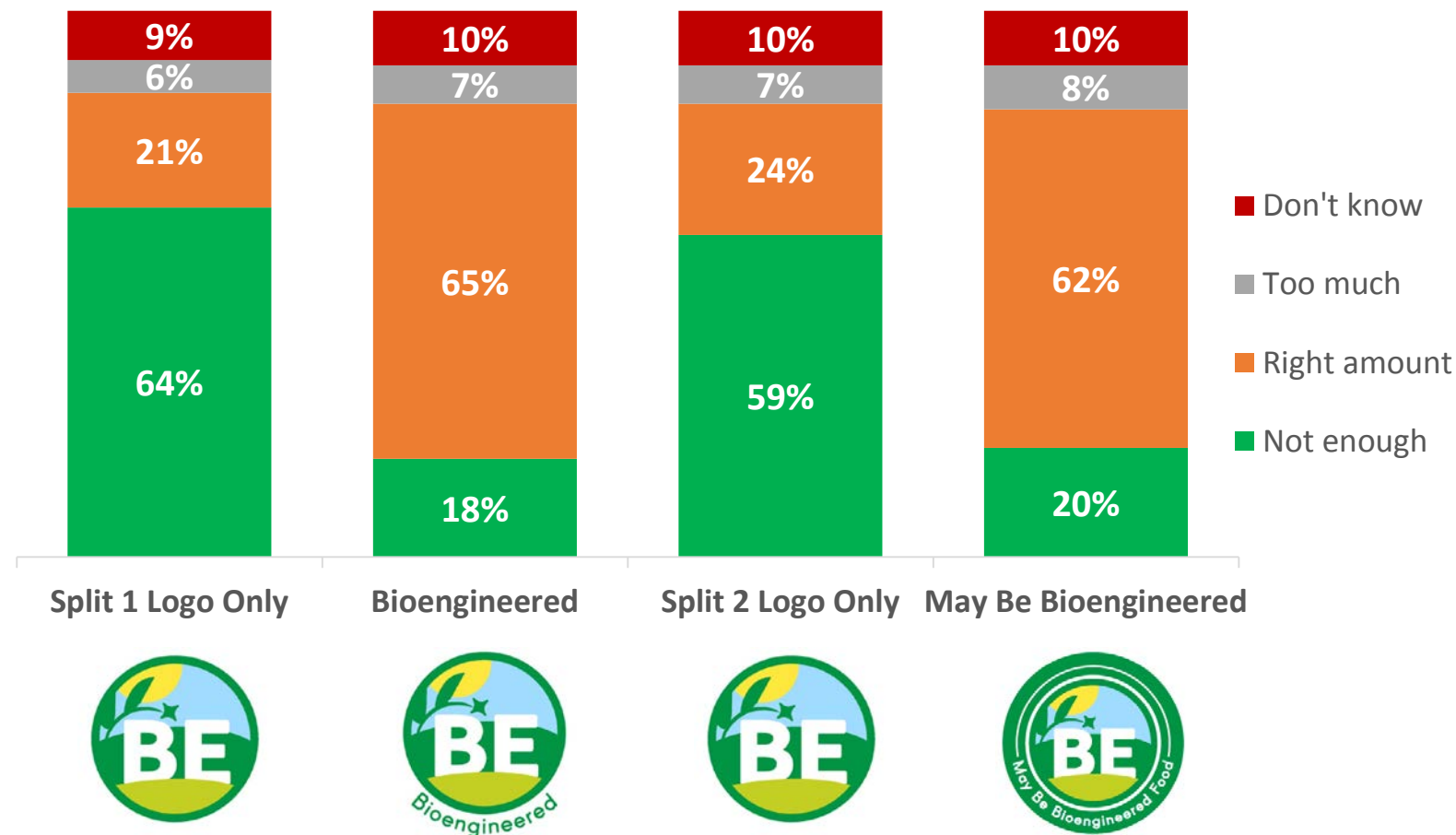
When BE ingredients are mentioned, a pizza product with a BE ingredient weighing 0.01 ounces would be eaten by the most survey respondents (46%); a pizza with a BE ingredient weighing 0.04 ounces would be eaten by the smallest proportion (40%). However, for other weights, there is no direct correlation between the weight of the BE ingredient and the number of people who would eat it.

Younger, male and consumers with kids are more likely than others to eat the pizzas described in the survey, regardless of the BE product weight.

Over three in five respondents say that the Bioengineered logo (65%) and May Be Bioengineered Food logo (62%) provides the right amount of information.

Extent Labels Provide Enough Information (Split 1 + 2 - % of Total)

Due to small sample sizes, there are no significant differences by segment to these logo options.

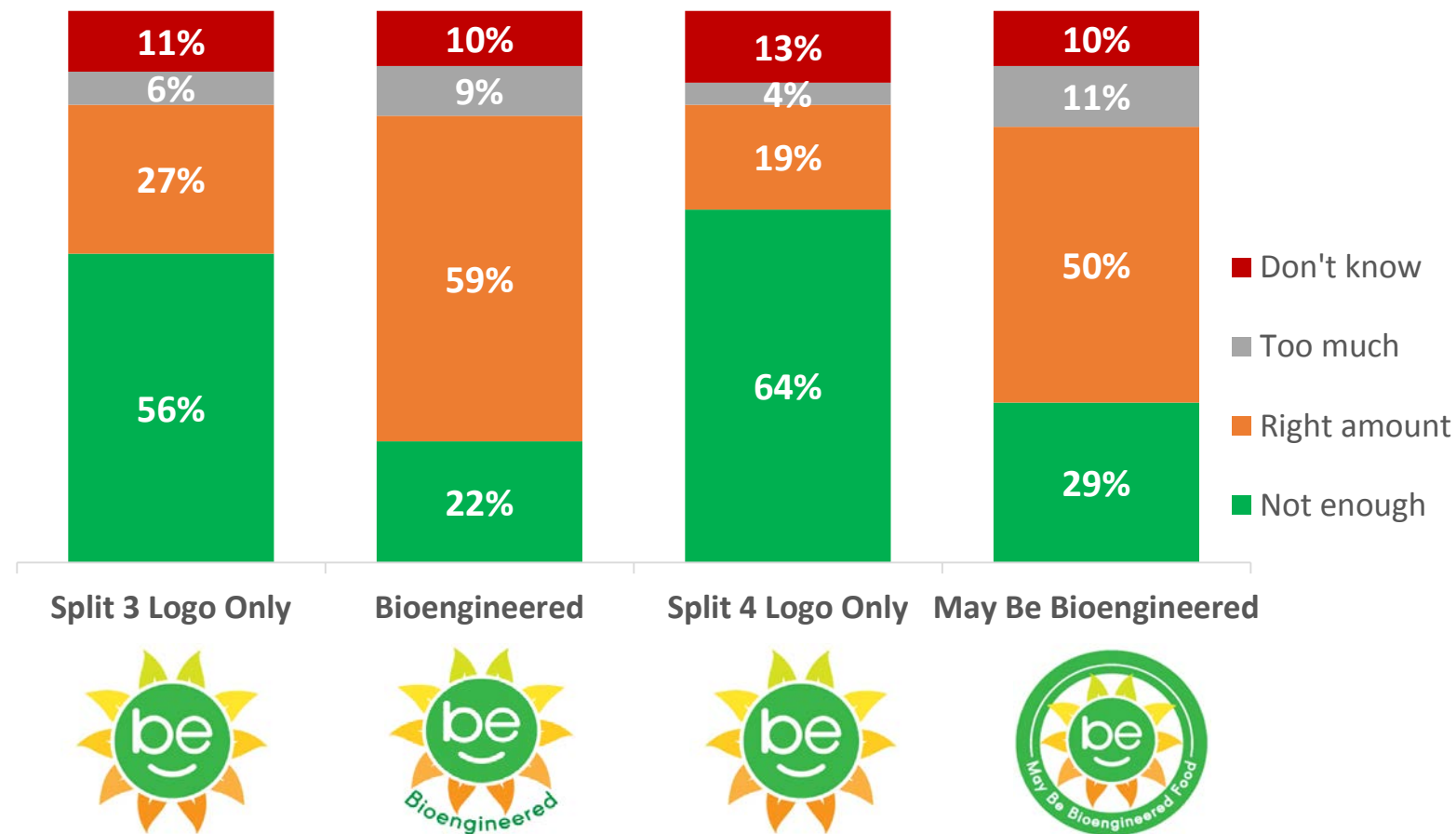


Q16. Do these labels/text contain...?
Base=Split Respondents; n=varies

A majority say the Bioengineered logo has the right amount of information (59%). The May Be Bioengineered Food logo is also rated high as having the right amount (50%).

Extent Labels Provide Enough Information (Split 3 + 4 - % of Total)

Although sample sizes are small, male consumers are more inclined to find the logo-only option as having the right amount of information compared to females.

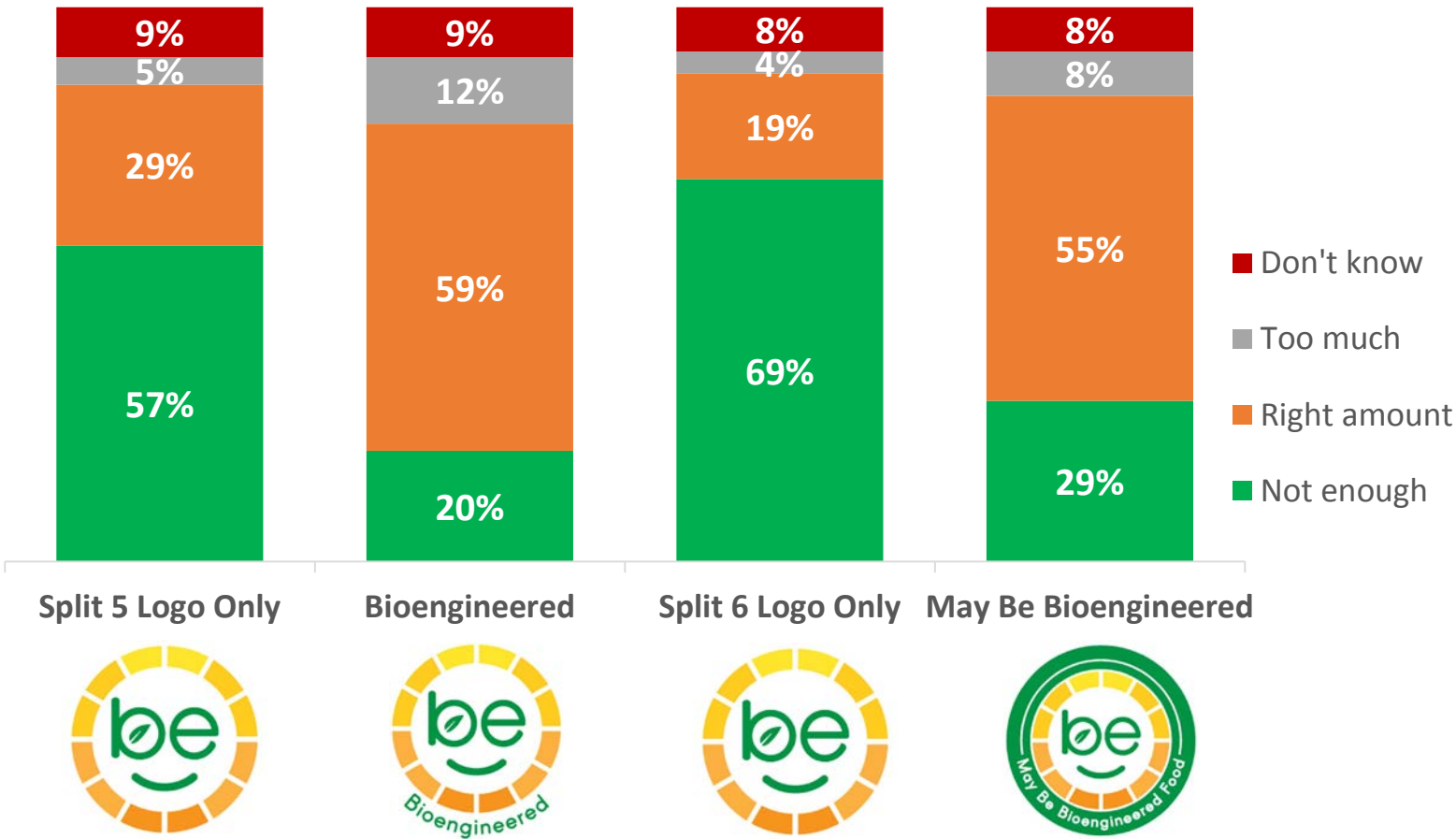


Q16. Do these labels/text contain...?
Base=Split Respondents; n=varies

The results in Split 5+6 are similar to Split 1+2; Bioengineered (59% right amount) and May Be Bioengineered Food (55%) are the most preferred.

Extent Labels Provide Enough Information
(Split 5 + 6 - % of Total)

Males are also the only segment with any significant difference from other consumers; more males than females find the logo-only option as having the right amount of information.

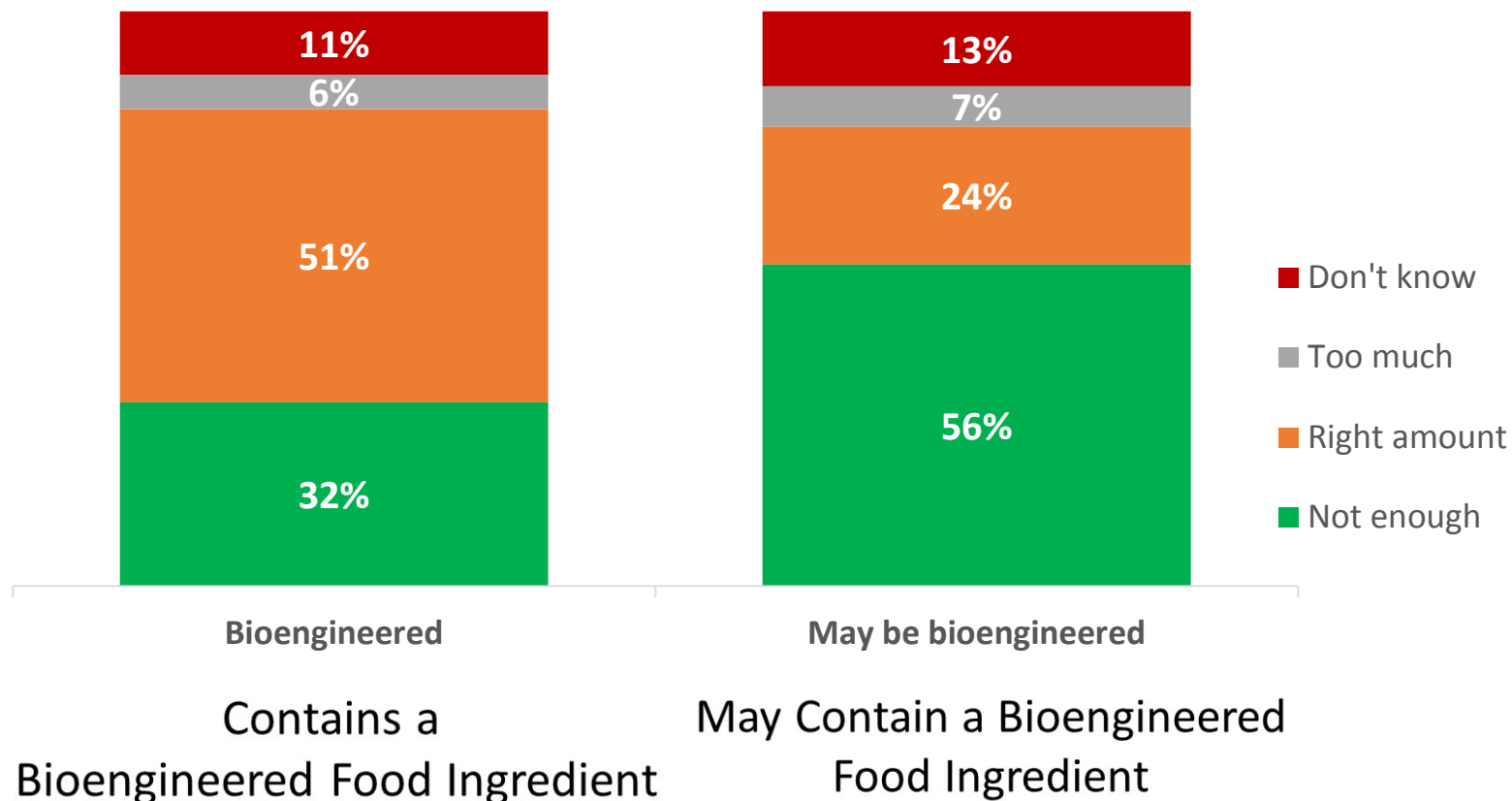


Q16. Do these labels/text contain...?
Base=Split Respondents; n=varies

“Contains” a Bioengineered Food Ingredient (51% right amount of information) is clearly preferred over the “May Contain” statement (56% not enough information, 24% right amount of information).

Extent Labels Provide Enough Information
(Split 7 - % of Total)

For this option which shows no logos and only text, there are no significant differences in perceptions by segment.



Labels with a logo and the word “Bioengineered” provide more information than labels with the words “May Be Bioengineered” and labels with no text at all.

Summary - Extent Labels Provide Enough Information

(% Provides “Right Amount” of Info)

Highest is Shaded in Yellow; Lowest is Shaded in Gray



	<u>Logo Only</u> ¹	<u>Bioengineered</u>	<u>May Be Bioengineered</u>
No logo (text only)	~	51%	24%
Plant Logo	23%	65%	62%
Sun Logo	23%	59%	50%
Smile Logo	24%	59%	55%

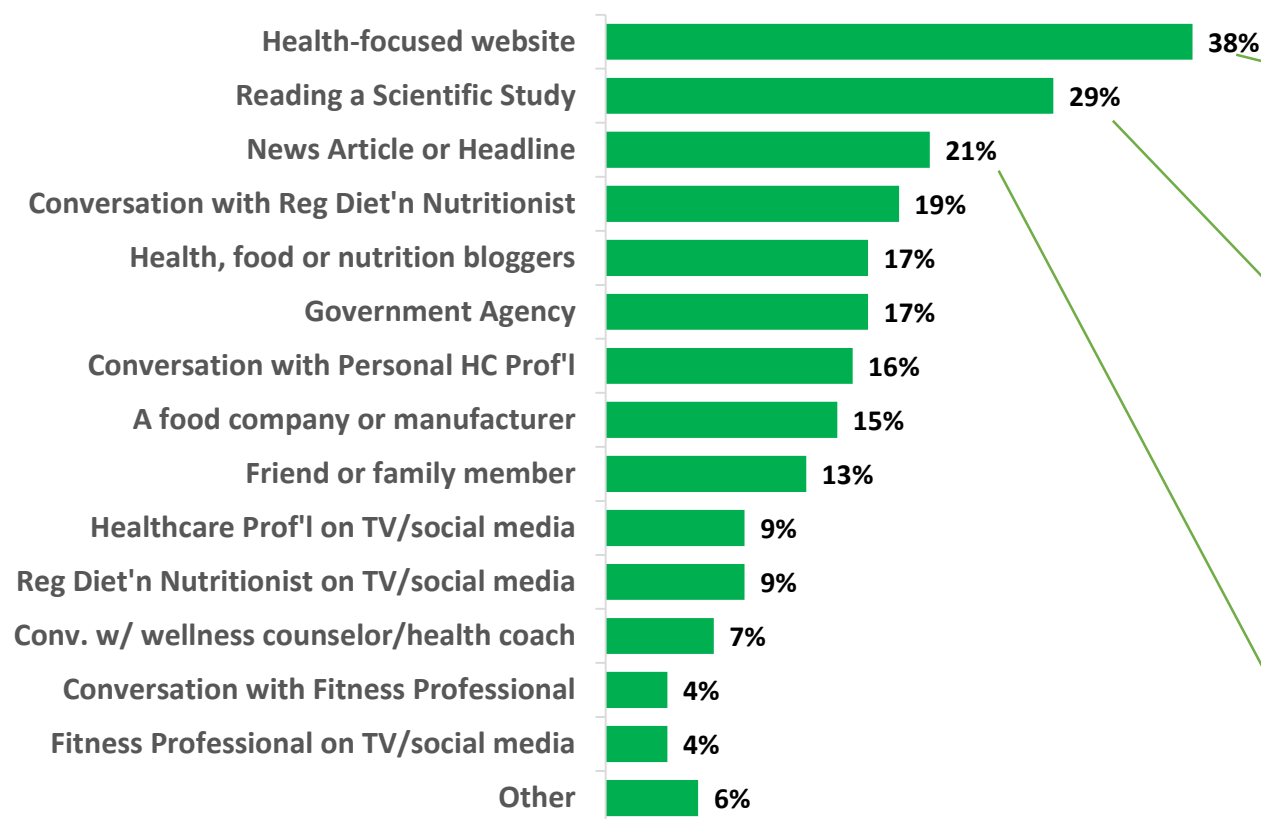
¹Two Split response groups averaged

The presence of a logo adds a great deal to the amount of information perceived by consumers; the words “Bioengineered” and “May Be Bioengineered” alone with no logo are considered as providing less information than these words with a logo. In addition, the presence of a logo alone with no accompanying words explaining the logo is also perceived as providing much less information than a logo / word combination.

Of the tested combinations, the Plant Logo with the word “Bioengineered” provides the most information for consumers. The words “May Be Bioengineered”, without a logo, provides the least amount of information.

Health-focused websites would be visited by 38% of consumers that wished to learn more about BE foods.

**Where Consumer Would Look
for Information about BE Foods**
(% Selected as One of Top Three)



Health-focused website is ranked #1 by nearly all respondent segments. However, a health-focused websites is significantly more important to older respondents (from 39% to 46%) and women (41%) compared to other segments.

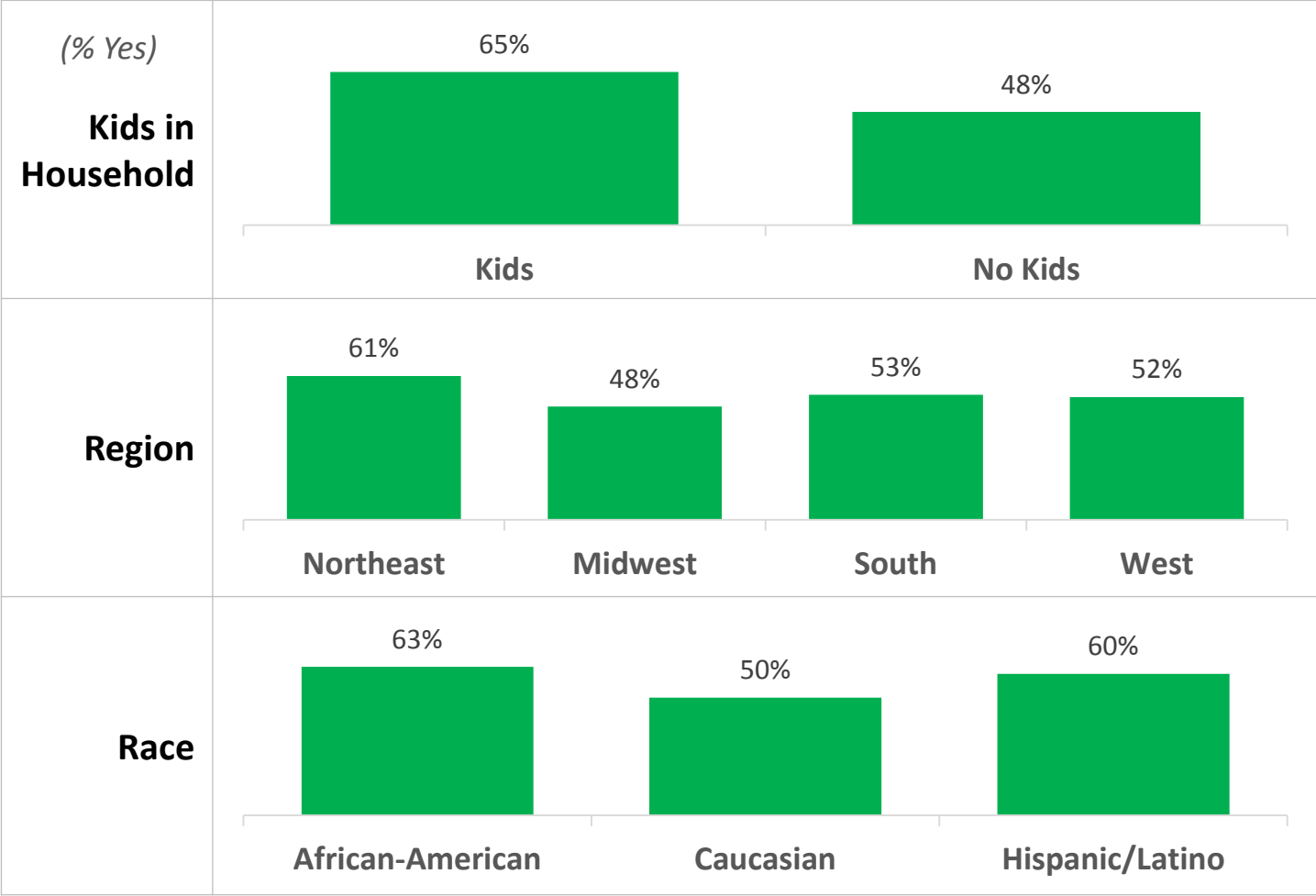
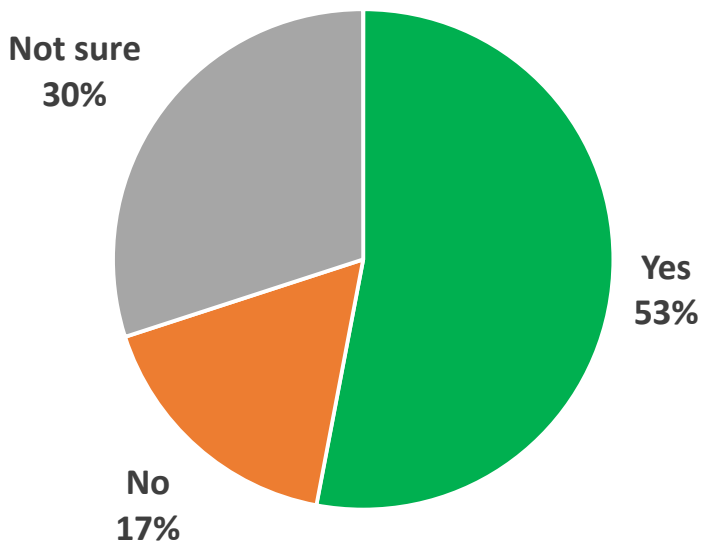
Older respondents (from 32%-35%) are also more likely to read a scientific study, along with Caucasians (34%), those more highly educated (36%) and consumers with children (32%).

Consumers with the highest income levels are most likely to read news articles (35%).

Q17. If you wanted to learn more about BE foods, where would you seek out additional information?
Base=Total Respondents; n=1002

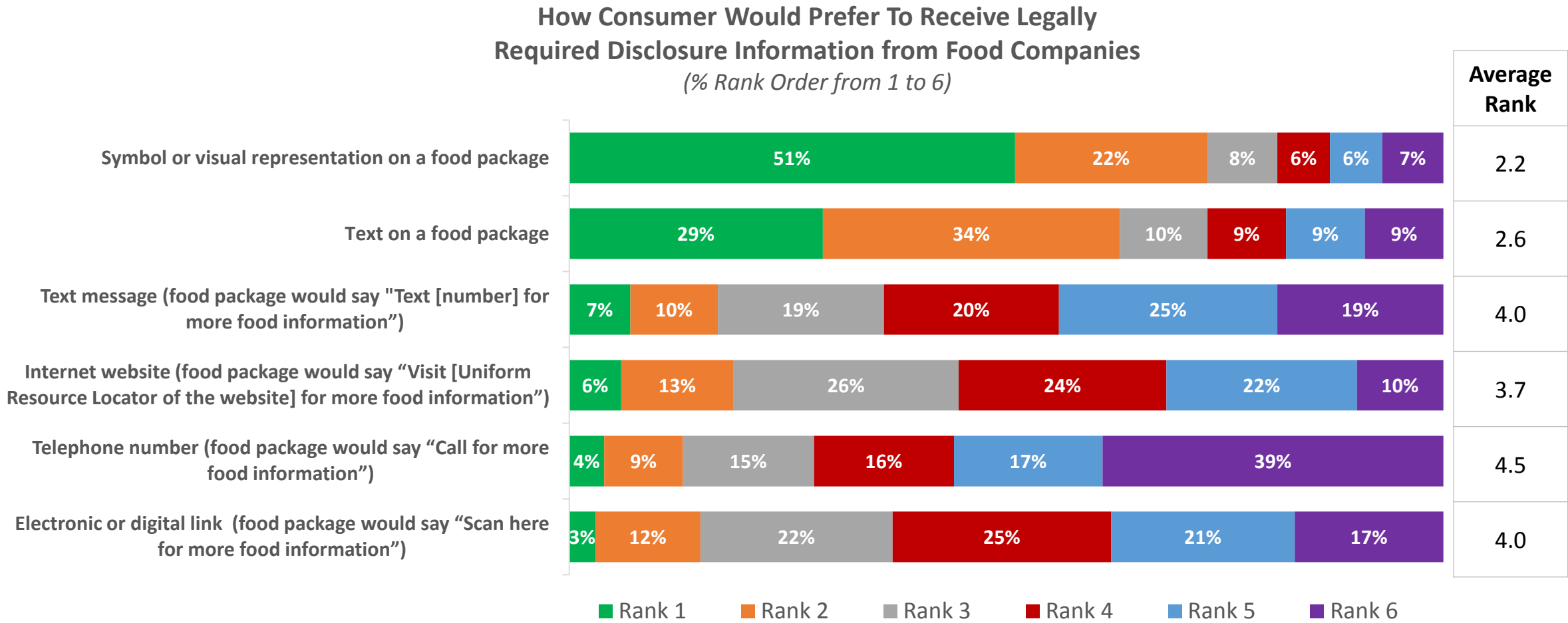
Just over half of the surveyed consumers believe that foods should be labeled as BE if they may or may not contain trace amounts (53%). However, 47% are either unsure or oppose labeling these foods. Parents, those living in the Northeast and African-Americans are the most likely to believe that foods which may or may not contain trace amounts of genetic material should be labeled as BE.

Foods which May / May Not Contain Trace Amounts of Genetic Material Should be Labeled as BE
(% of Total)



Q18. Do you think highly refined foods which may or may not contain trace amounts of genetic material should be labeled as BE?
Base=Total Respondents; n=1002

Consumers want BE labels on food packaging; they do not want to have to work at obtaining BE information. Either a symbol or visual representation on the food package (51% rank #1) or text on a food package (29% rank #1) are the most popular ways that consumers want to receive/view BE food ingredient information.



Q19. If BE food or BE food ingredient information is legally required to be provided by food companies, please rank (with 1 being the top priority and 6 being the lowest priority) how you would like to receive this information.
Base=Total Respondents; n=1002

Appendix

Stimuli

Splits for Stimuli Shown in Q12



Splits for Stimuli Shown in Q13

Control



Split 1



Split 2



Split 3



Splits for Stimuli Shown in Q16



Split 1



Split 3



Split 5



Split 2



Split 4



Split 6



Split 7

Contains a
Bioengineered Food Ingredient

May Contain a Bioengineered
Food Ingredient