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CONSUMER FOOD INSIGHTS

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INTRODUCTION

Consumer Food Insights (CFI) is a monthly survey of more than 1,200 Americans from across the country. Since January 2022, the Center for Food Demand Analysis and Sustainability (CFDAS) at Purdue University has used this survey to track trends and changes in consumer food demand and food sustainability behaviors.[1] Visit purdue.ag/CFDAS or contact cfdas@purdue.edu for more details. As we reach the end of Volume 2 of the CFI, we wanted to say a big 'thank you' to our readers who follow along with us each month!

In this issue, we explore the differences between generational cohorts: (1) Gen Z (born after 1996), (2) Millennials (born 1981-1996), (3) Gen X (born 1965-1980) and (4) Boomer+ (born before 1965).[2] New questions asked this month build off of last month's food safety theme and dig deeper into actions people take based on date labels and sensory cues[3]. Additionally, we summarize consumer trends from 2023 to wrap up the second full year of the CFI.

KEY INSIGHTS FROM DECEMBER

- Sensory information, when combined with date labels, slightly reduces unnecessarily discarded food.
- Approximately 30% and 45% of consumers indicate safety and taste as a concern when eating past-date foods, respectively.
- Consumer food inflation estimates (5.9%) and expectations (3.5%) declined from November as food inflation continues to cool.
- Consumers in the Boomer+ cohort are more likely to be satisfied with their diets and food secure than younger generations.
- Stockout rates decreased from 2022, with eggs being the most frequently reported out-of-stock item due to the avian flu outbreak.
- Sugar was the most common response consumers gave in 2023 when asked which foods they are actively limiting from their diets.

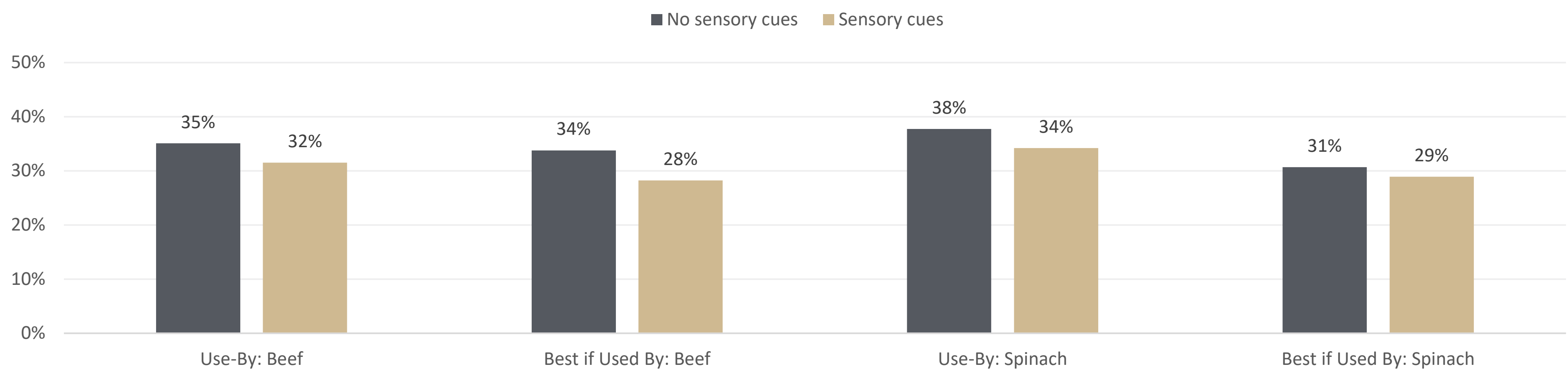
SFP INDEX	FOOD INSECURITY	FOOD SPENDING	GROCERY STOCKOUTS
70 /100	13%	$183 /WEEK	11%

FOOD SAFETY AND WASTE

Do date labels, sensory cues and food type influence food waste?

Since last month's results revealed a difference in the perceived risk of contracting a foodborne illness from meat and fresh produce, we asked a new question set this month for two specific foods: (1) raw beef and (2) raw spinach. In each date label treatment, consumers are asked how likely they are to discard each food item one day past the date label shown. Additionally, last month's results suggest that sensory cues, such as smell and appearance, may be important in the decision to eat or discard food items. As a follow-up, we asked respondents to indicate how likely they would be to discard the unopened food item (1) with only information from the date label and (2) with information from the date label paired with sensory information that describes the food's smell and appearance as "normal". **Figure 1** summarizes the share of consumers who are 'somewhat likely' or 'very likely' to discard the food in each treatment. We see a slight decrease in the proportion of consumers who are likely to discard the food when told the food item smells and looks normal in combination with the date label. Consumers are also slightly more likely to discard foods past the "Use-By" date compared to the "Best if Used By" date.

Figure 1. Share of consumers who are 'somewhat likely' or 'very likely' to discard the food item based on date labels with and without sensory cues, Dec. 2023



FOOD SAFETY AND WASTE

What are consumer perceptions of food date labels?

In addition to the likelihood of discarding the food, we wanted to evaluate safety and taste concerns in each treatment. **Figures 2 and 3** reveal a similar result. However, sensory cues combined with date labels have a slightly greater impact on taste concerns compared to safety concerns. Generally, food quality (taste) is a concern for more people than food safety when assessing whether or not to consume or discard the food items past the date labels, regardless of the type of label or food.

Figure 2. Share of consumers who 'somewhat agree' or 'strongly agree' with the following statement regarding food safety, Dec. 2023

'It would be unsafe to eat the food item'

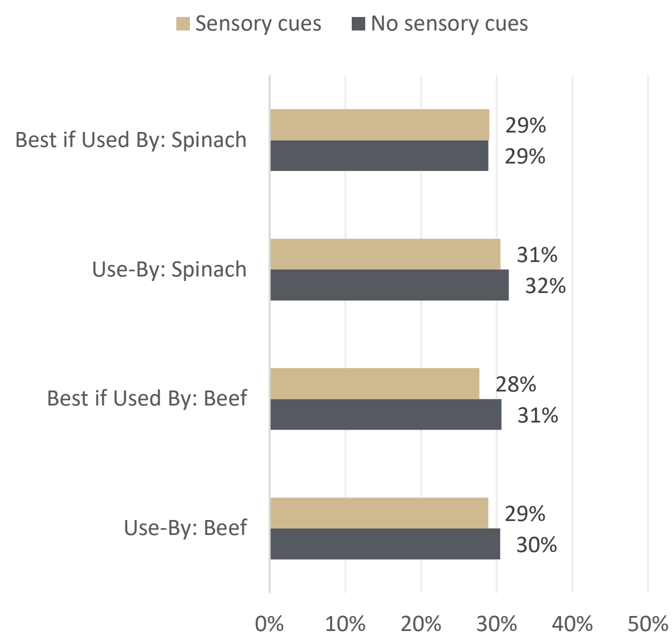
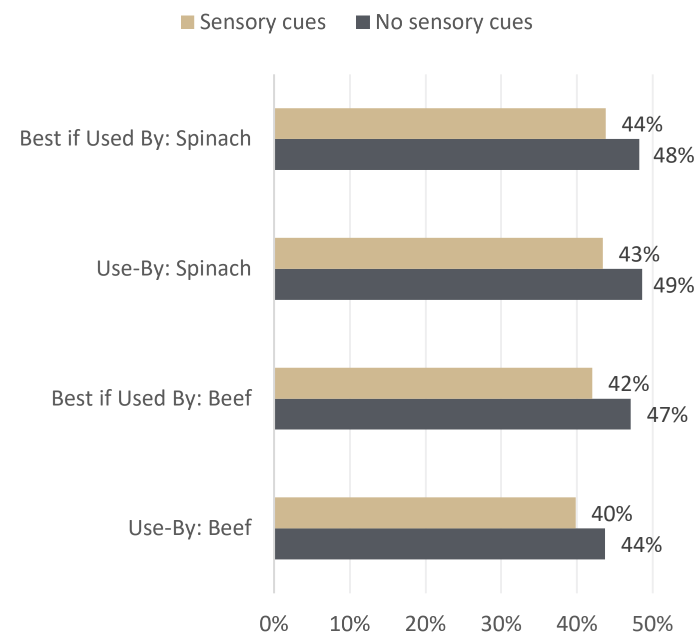


Figure 3. Share of consumers who 'somewhat agree' or 'strongly agree' with the following statement regarding taste, Dec. 2023

'I would be concerned the food item would not taste as good'

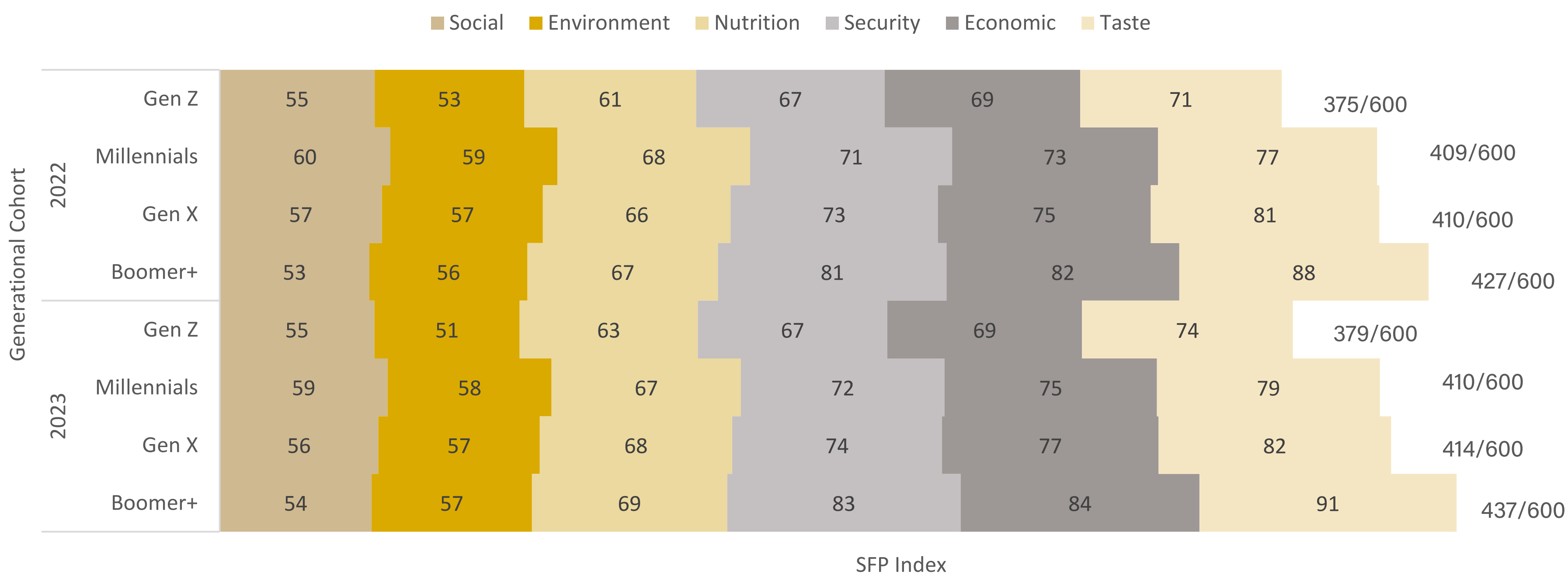


SUSTAINABLE DIETS

Are Americans making sustainable food purchasing decisions?

The Sustainable Food Purchasing (SFP) Index[4] has remained relatively stable, though scores improved slightly overall from 2022 to 2023 (**Figure 4**). We also see subtantial differences in the index scores when disaggregating by generational cohorts. Older generations score much higher in the *Economic, Taste* and *Security* sub-indicators compared to other groups, which leads to a higher overall sustainability score for this generation. However, they score similarly or lower when asked about environmentally and socially conscious food purchasing intentions. Gen Z adults scored the worst overall on the index in both 2022 and 2023. We will begin measuring the SFP on a quarterly basis beginning in 2024 due to the limited change in the overall score month-to-month.

Figure 4. Sustainable Food Purchasing Index by Generational Cohort, Jan. 2022 - Dec. 2023

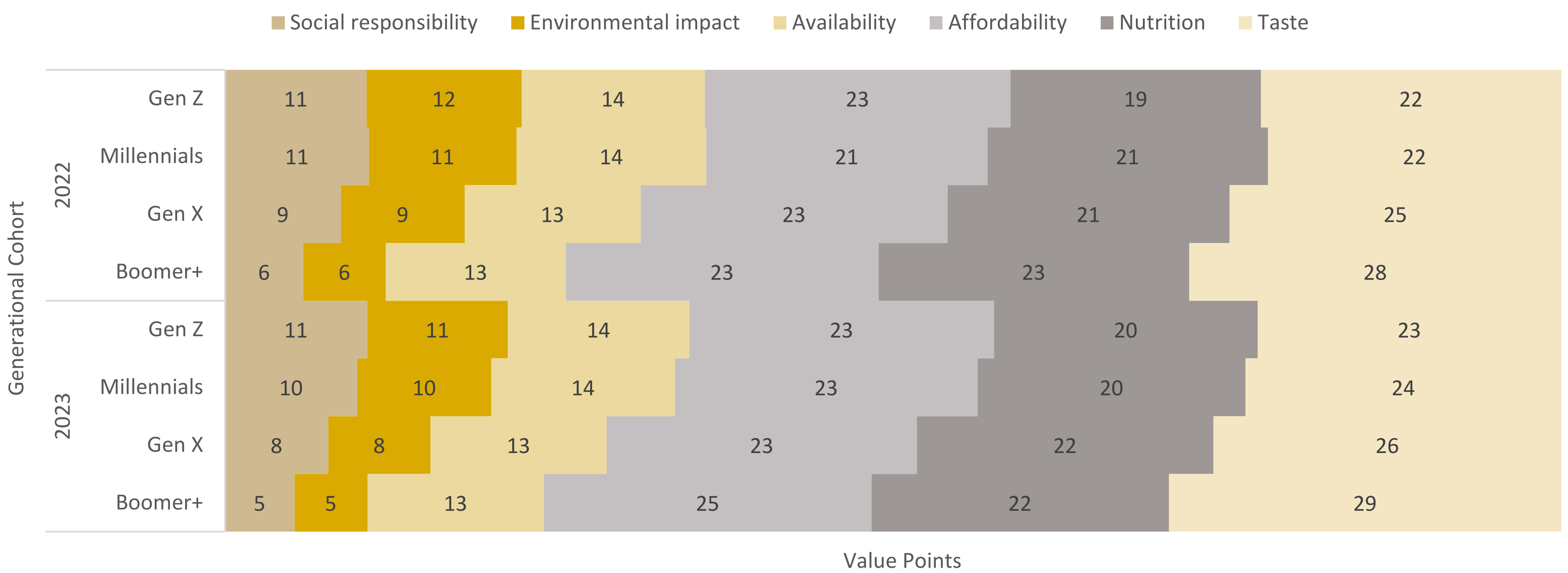


FOOD VALUES

What attributes do Americans most value when purchasing food?

Every month, respondents are asked to allocate 100 points to six food attributes based on their importance when grocery shopping. These attributes closely reflect the components of the SFP Index. On a monthly basis, we have not observed significant changes in the distribution of points across attributes. However, we see the values diverge when separating by generational cohorts (**Figure 5**). The oldest consumers (Boomer+) are less likely than younger generations to consider the environmental impact and social responsibility of their food purchasing decisions compared to taste. Understandably, affordability and availability are important food attributes to consumers across all generations. We will begn measuring food values on a quarterly basis beginning in 2024.

Figure 5. Share of 100 Points Allocated to Food Attributes by Generational Cohort, Jan. 2022 - Dec. 2023



FOOD EXPENDITURES

How much are American households spending on their food?

Each month, consumers report their household's weekly spending on food from the last 30 days (**Figure 6**). On average, consumers are spending about $120/week on groceries (FAH) and $63/week on restaurants and other carryout (FAFH)[5]. Average weekly food spending in 2023 ($187) is 5% higher than in 2022 ($178).

The consumer estimate of annual food inflation was 5.9%, down from 6.4% in November (**Figure 7**). The government CPI measure of food inflation dropped to 2.9% from 3.3% in November. Consumers' inflation expectation for the next 12 months is the lowest it has been since the inception of the survey (3.5%). A decline in both the consumer food inflation estimate and expectation suggest consumers may be more optimistic as we see food prices increasing much more slowly relative to the high inflation consumers experienced in 2022 and much of 2023.

Figure 6. Weekly Household Food Expenditures: Over Time & Average, Jan. 2022 - Dec. 2023

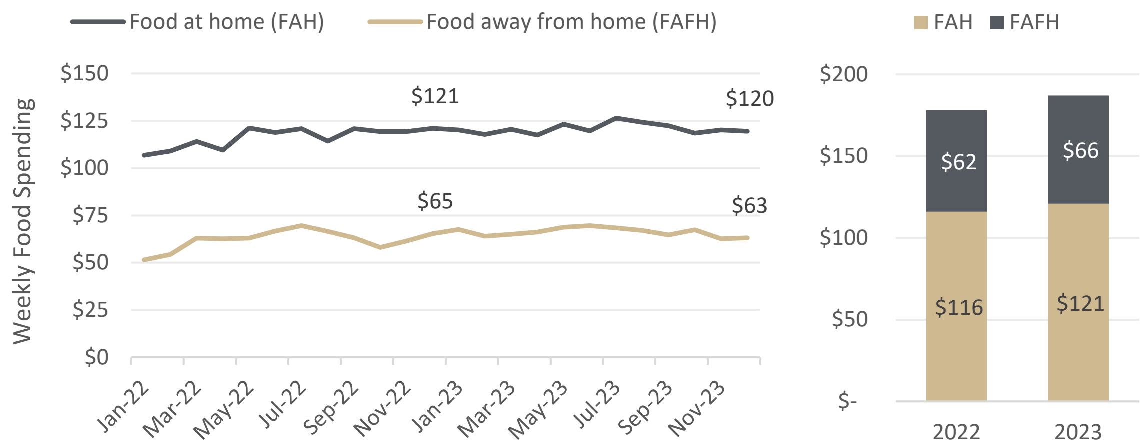
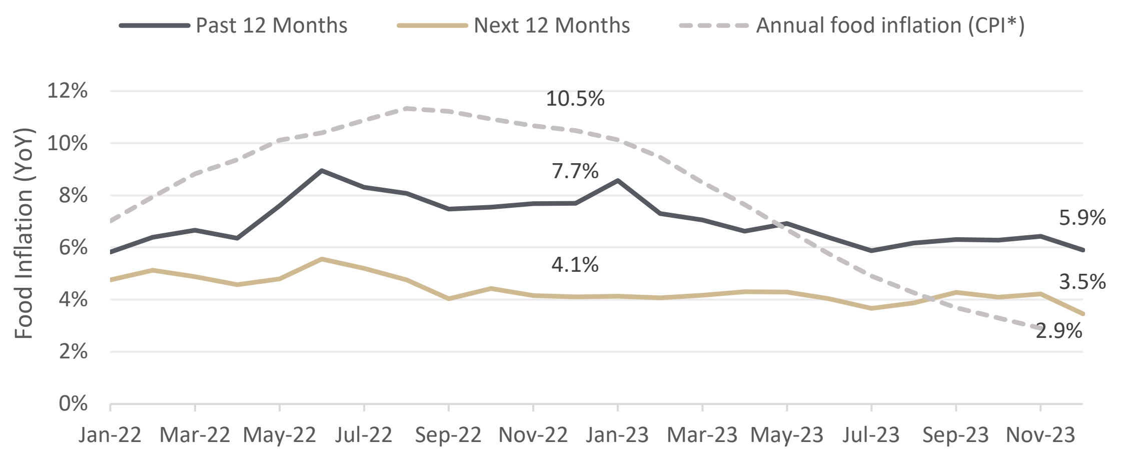


Figure 7. Consumer Estimates of Food Inflation Compared to Gov. Estimate, Jan. 2022 - Dec. 2023



*The Consumer Price Index (CPI) is a measure of inflation computed by the U.S. Bureau of Labor Statistics.

FOOD EXPENDITURES

How much are American households spending on their food?

Figure 8 shows a difference in the average weekly household food expenditures based on the age of the respondent. Consumers in the Millennial and Gen X generations reported the highest average weekly food spending in both 2022 and 2023 while consumers in the Boomer+ generation reported the lowest. This result makes sense given that young and middle-aged adults are more likely to have a larger household (children, siblings, etc.) compared to older adults who are more likely to have adult children who are out of the house. This is supported by **Figure 9**. We also see little change in the average weekly food expenditures among the Boomer+ consumers from 2022 to 2023 compared to slight spending increases among the three younger generations.

Figure 8. Average Weekly Food Spending by Generational Cohort ($), Jan. 2022 - Dec. 2023

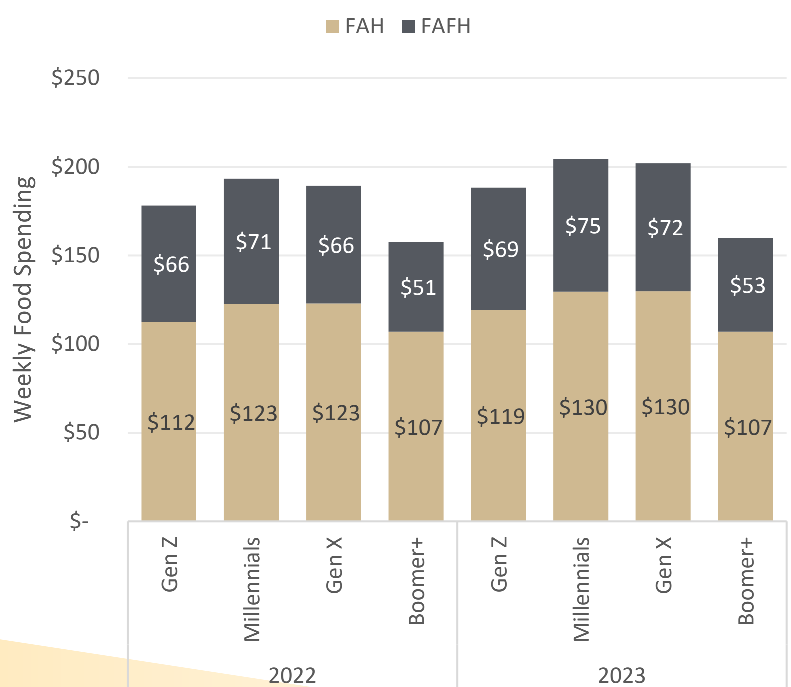
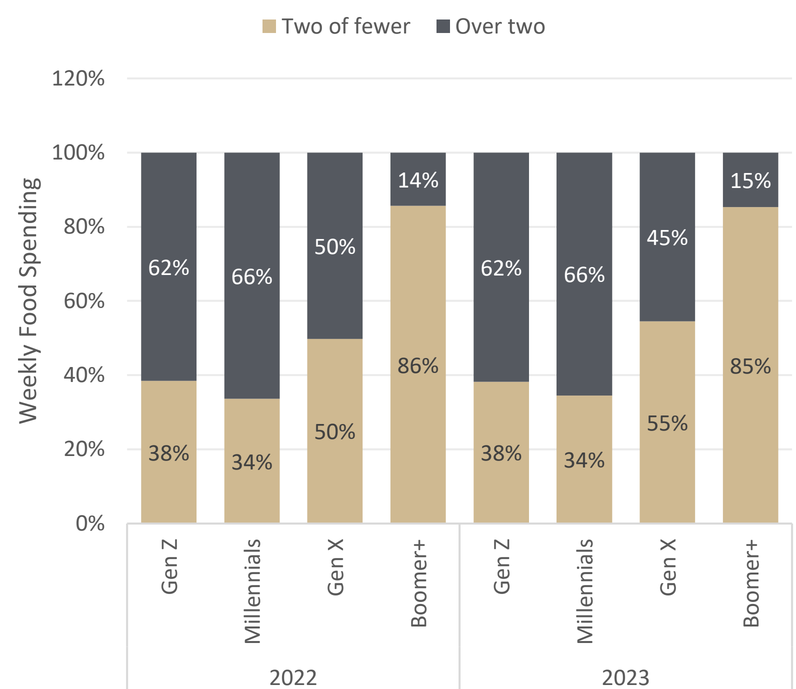


Figure 9. Household Size by Generational Cohort, Jan. 2022 - Dec. 2023



FOOD SECURITY

Which Americans are having trouble buying food for their families?

Based on a set of six standard questions[6] about food purchased and eaten in the past 30 days, we estimate national food insecurity to be about 12.6%. This rate remains below the 2022 average (15%) and reflects a continued slow decline in food insecurity since June 2023 (**Figure 10**). The average food insecurity rate in 2023 was 14%, down from the 15% average in 2022.

In **Figure 11**, we compare food insecurity rates between generational cohorts. Food insecurity is consistently highest among the youngest generation of adults (Gen Z) while the oldest generation of consumers (Boomer+) are the most food secure. There appears to be a strong correlaton between food security and age, which is likely a result of a difference in the amount of resources people tend to have at different stages in life. More work experience with age leads to higher incomes, making quality food options more affordable.

Figure 10. Rate of Household Food Insecurity in the Last 30 Days, Jan. 2022 - Dec. 2023

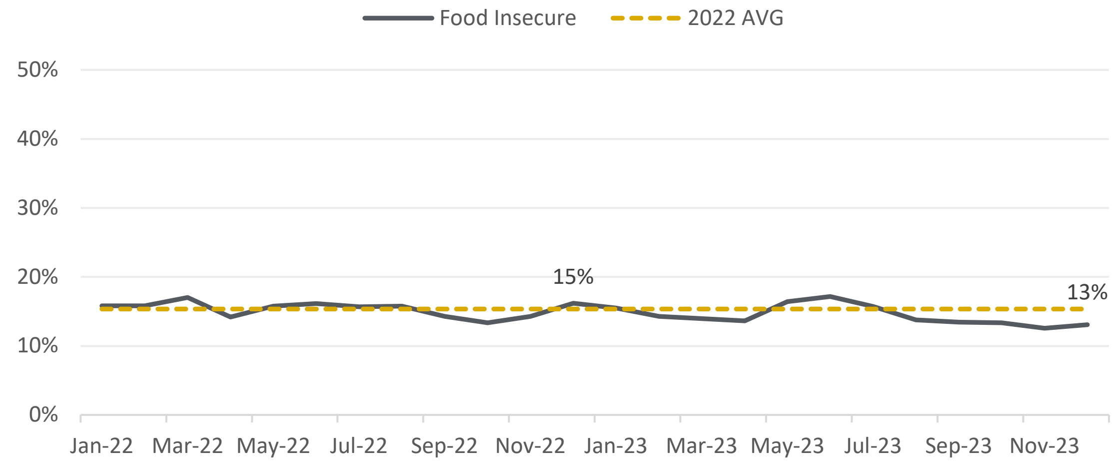
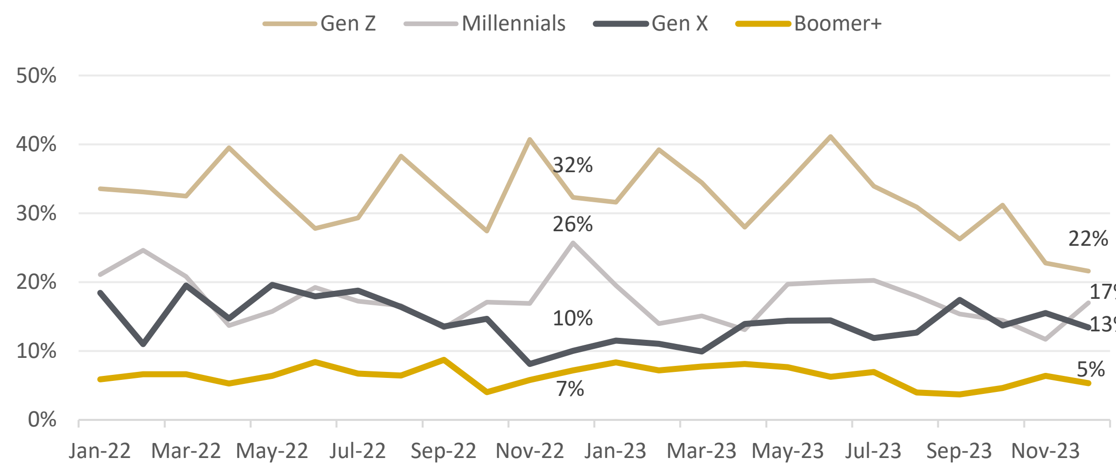


Figure 11. Rate of Household Food Insecurity in the Last 30 Days by Generational Cohort, Jan. 2022 - Dec. 2023



FOOD SATISFACTION

Are Americans satisfied with their diets?

Respondents score their own diet on a 0-10 scale, with the top of that scale (10) representing their ideal diet.[7] Scores are categorized as thriving (7-10), struggling (5-6) or suffering (0-4). A majority of Americans (67%) continue to report thriving on this Diet Well-Being Index. Younger consumers are more less likely to be considered thriving on the index compared to those in the the Boomer+ cohort. The distribution has not changed significantly from 2022 to 2023 (**Figure 12**).

While most consumers are rather or very happy with their diets (86%), a larger proportion of those in the Boomer+ cohort tend to be happier with their diets than the younger generations (**Figure 13**). However, the difference in diet happiness between generations is smaller than the difference observed in the well-being index.

We will begin measuring food satisfaction on a quarterly basis beginning in 2024.

Figure 12. Diet Well-Being Index (0-10 Scale) by Generational Cohort (%), Jan 2022 - Dec. 2023

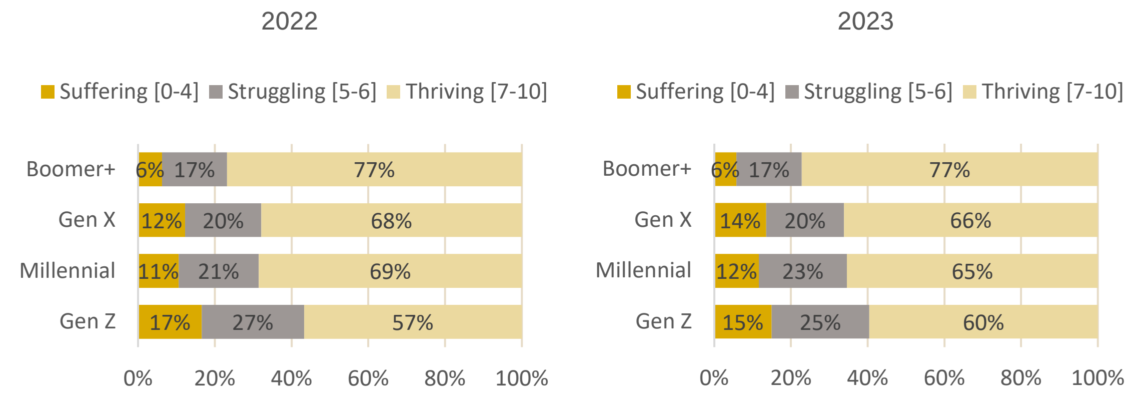
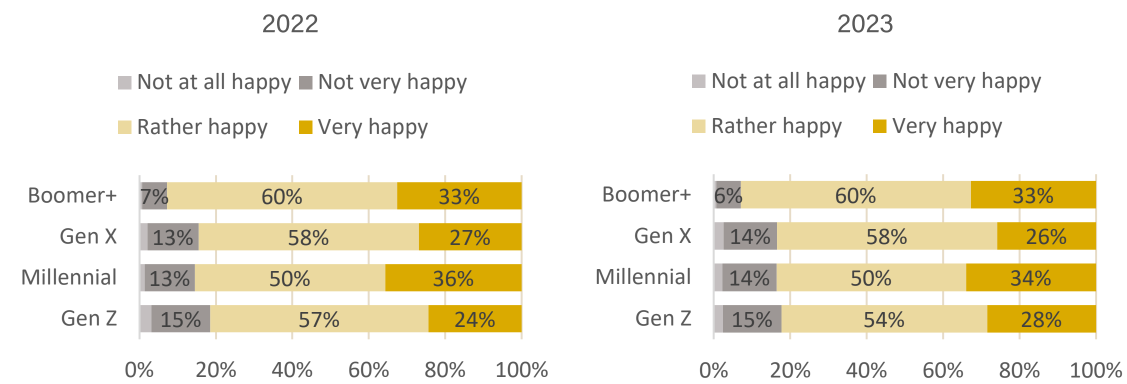


Figure 13. Diet Well-Being Index (0-10 Scale) by Generational Cohort, Jan 2022 - Dec. 2023



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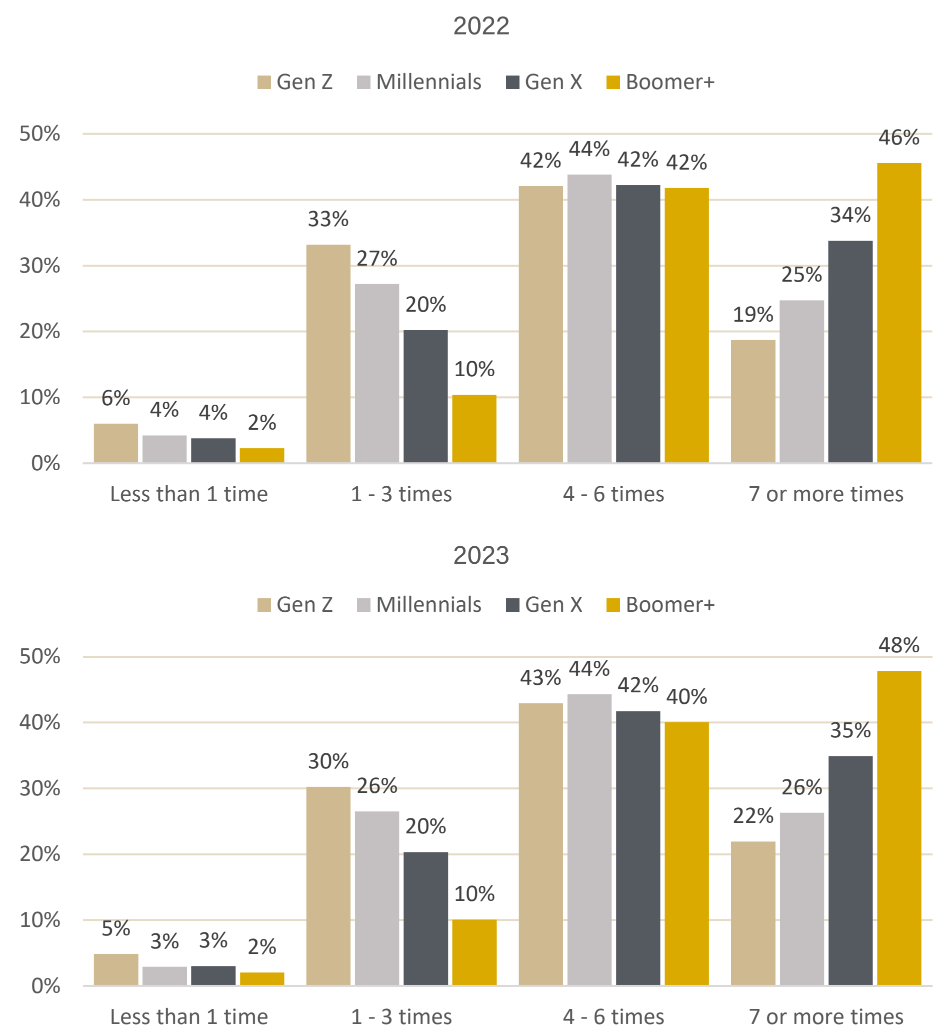
CONSUMER BEHAVIORS

How are Americans navigating their food environment?

Figure 14 shows little variation in the frequency of home-cooking between the last two full years of the survey. However, we do see generational differences. Younger generations (Gen Z and Millennials) reported eating fewer home-cooked meals per week than the older Gen X and Boomer+ generations.

Finally, we present consumers with common shopping and eating habits to see how frequently the statement applied to them in the last 30 days (**Figure 15**). We see notable differences in the food choices and preferences of consumers based on age group. On average, Gen Z and Millennial consumers more often choose foods that are typically promoted as ethical or sustainable (i.e., local foods, wild-caught fish, grass-fed beef, cage-free eggs and organic foods). Consumers in the Boomer+ cohort are also less likely to take risks with their food consumption as they reported eating unwashed fruits and vegetables, rare or undercooked meat and raw dough or batter less frequently than other consumers. They also check food labels less often than younger generations, except for the Use-by/Sell-By dates and nutrition labels, which are frequently checked by all consumers.

Figure 14. Frequency of Home-cooked Meals Eaten Per Week by Generational Cohorts (%), Jan. 2023 - Dec. 2023



CONSUMER BEHAVIORS

Figure 15. Frequency of Consumer Shopping and Eating Habits by Generational Cohorts, Jan. 2022 - Dec. 2023

	2022				2023			
	Gen Z	Millennial	Gen X	Boomer+	Gen Z	Millennial	Gen X	Boomer+
Chose generic foods over brand-name foods	3.5	3.5	3.4	3.1	3.2	3.4	3.2	3.0
Chose local foods over non-local foods	3.2	3.3	3.0	2.9	3.2	3.2	3.0	2.8
Chose wild-caught fish over farm-raised fish	3.1	3.2	2.9	2.7	3.0	3.1	3.0	2.7
Chose grass-fed beef over conventional beef	3.1	3.2	2.9	2.5	3.1	3.2	2.9	2.4
Chose cage-free eggs over conventional eggs	3.1	3.2	2.8	2.4	3.1	3.1	2.9	2.4
Chose organic foods over non-organic foods	3.0	3.2	2.8	2.3	3.1	3.1	2.8	2.2
Chose plant-based proteins over animal proteins	2.9	3.0	2.5	2.0	2.7	2.8	2.4	1.8
Checked the Use-By/sell-by date at the store	3.9	4.0	4.0	4.1	3.9	3.9	4.0	4.1
Checked the nutrition label before buying new foods	3.3	3.5	3.4	3.4	3.5	3.4	3.5	3.3
Checked for natural or clean labels	3.2	3.4	3.0	2.6	3.2	3.3	3.0	2.5
Checked where my food originated	3.1	3.2	2.9	2.7	3.0	3.1	2.8	2.6
Checked for food recalls	3.2	3.2	2.9	2.6	3.1	3.1	2.8	2.4
Checked for GMO ingredients	2.9	3.1	2.9	2.5	2.9	3.1	2.8	2.4
Checked how my food was produced	3.1	3.2	2.8	2.4	3.0	3.0	2.8	2.3
Took steps to reduce food waste at home	3.3	3.6	3.8	4.0	3.4	3.5	3.8	4.0
Recycled food packaging	3.5	3.5	3.5	3.6	3.5	3.4	3.5	3.6
Threw away food past the Use-By date	3.5	3.4	3.2	2.9	3.6	3.4	3.2	2.9
Composted food scraps	2.8	2.7	2.4	2.0	2.6	2.7	2.4	1.9
Ate fruits and vegetables without washing them	2.7	2.5	2.3	1.8	2.6	2.5	2.2	1.8
Ate rare or undercooked meat	2.4	2.3	2.0	1.5	2.3	2.3	1.8	1.5
Ate raw dough or batter	2.5	2.3	1.9	1.3	2.5	2.3	1.8	1.3

Mean Score

5 Always
4 Often
3 Sometimes
2 Rarely
1 Never

CONSUMER TRENDS IN 2023

What were common consumer trends in 2023?

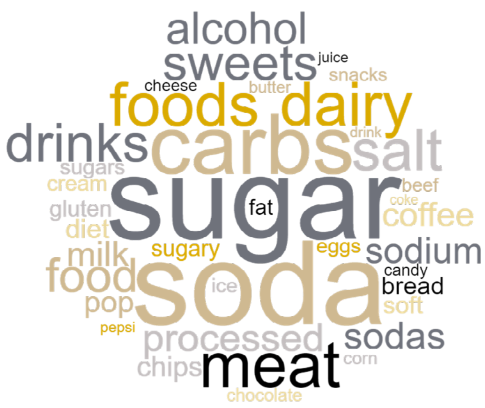
Each month, consumers are asked to report if any foods they wanted to purchase were unavailable when they went to the grocery store. **Figure 16** summarizes the most common open response results we received in 2023. Eggs were the most commonly reported out-of-stock item in grocery stores, which is understandable given the effects of the widespread avian flu outbreak on the egg supply chain in 2022 through early 2023 when egg prices peaked.[8] Dairy items, such as cheese and milk, were also common items consumers reported being out-of-stock in 2023.

Similarly, we ask consumers to specify any foods they have actively limited in their diets each month. **Figure 17** summarizes the open response results we received in 2023. Many sugary food items made the list. Sugar was the most commonly reported item people tried to eat less of followed by soda and carbs. As we enter the new year, it will be interesting to see if these foods make an appearance in consumers' food-related New Year's resolutions.

Figure 18 compares the stockout rates from 2022 with 2023. Early 2022 experienced the highest stockout rates, which is likely a result of the supply chain still recovering from the height of the COVID-19 pandemic. Since then, the stockout rate steadily declined and has begun to level out. **Figure 19** shows that the proportion of consumers who reported limiting certain foods from their diets has remained relatively stable from 2022 to 2023.

Figure 16. Top Food Products Consumers Report Being Unable to Find, 2023

Figure 17. Top Food Products Consumers Report Limiting in their Diets, 2023



CONSUMER TRENDS IN 2023

Figure 18. Share of Consumers who Report Being Unable to Find a Specific Food Product, Jan. 2022 - Dec. 2023

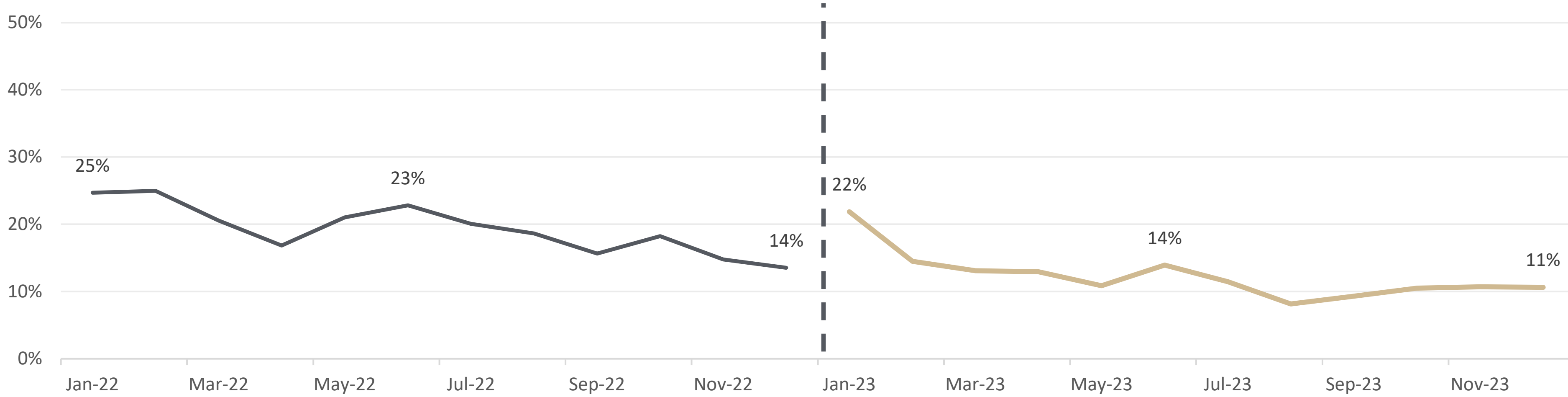
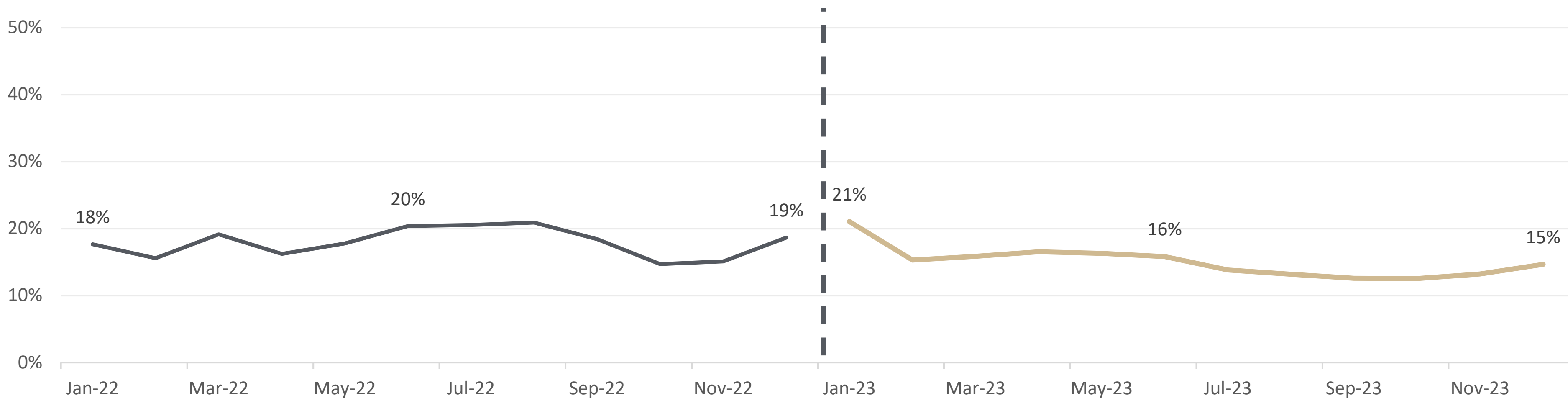


Figure 19. Share of Consumers who Report Limiting their Intake of a Specific Food Product, Jan. 2022 - Dec. 2023



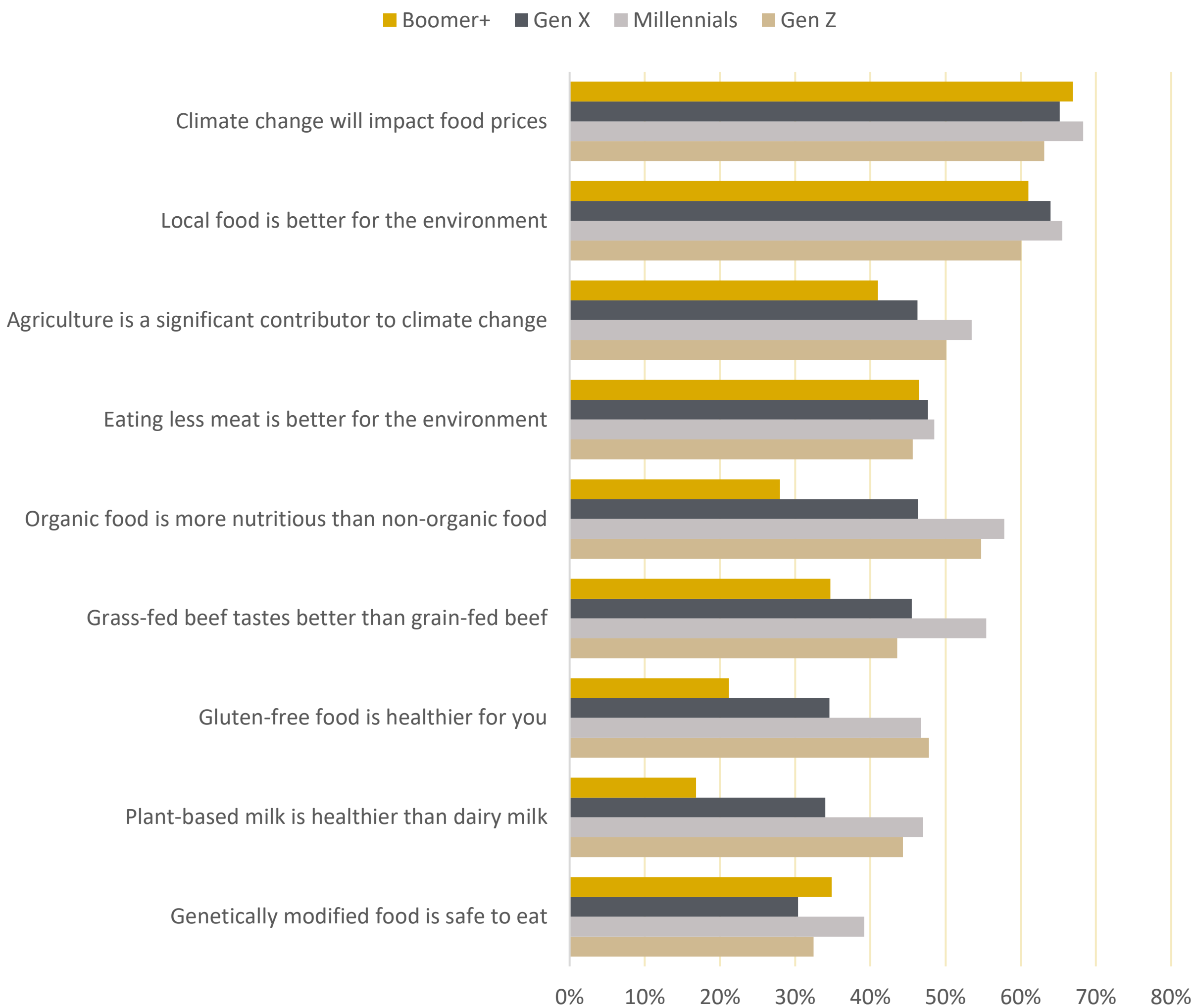
CONSUMER BELIEFS

What do Americans believe about their food and food system?

Figure 20 reveals generational differences in the beliefs about foods and the food system, specifically when respondents were presented with statements about the health benefits and taste of alternative food options. For example, The majority of Gen Z and Millennial adults believe organic food is more nutritious than non-organic food compared to only around 30% of consumers in the Boomer+ cohort. Similarly, younger generations (Gen Z and Millennials) are more likely to agree that (1) gluten-free food is healthier for you and (2) plant-based milk is healthier than dairy milk.

However, we do observe similar levels of agreement with statements regarding the connection between agriculture and the environment. The majority of all age groups believe that climate change will impact food prices and that local food is better for the environment.

Figure 20. Share of Consumers who *'Somewhat Agree'* or *'Strongly Agree'* with Claims about Food by Generational Cohorts, 2023



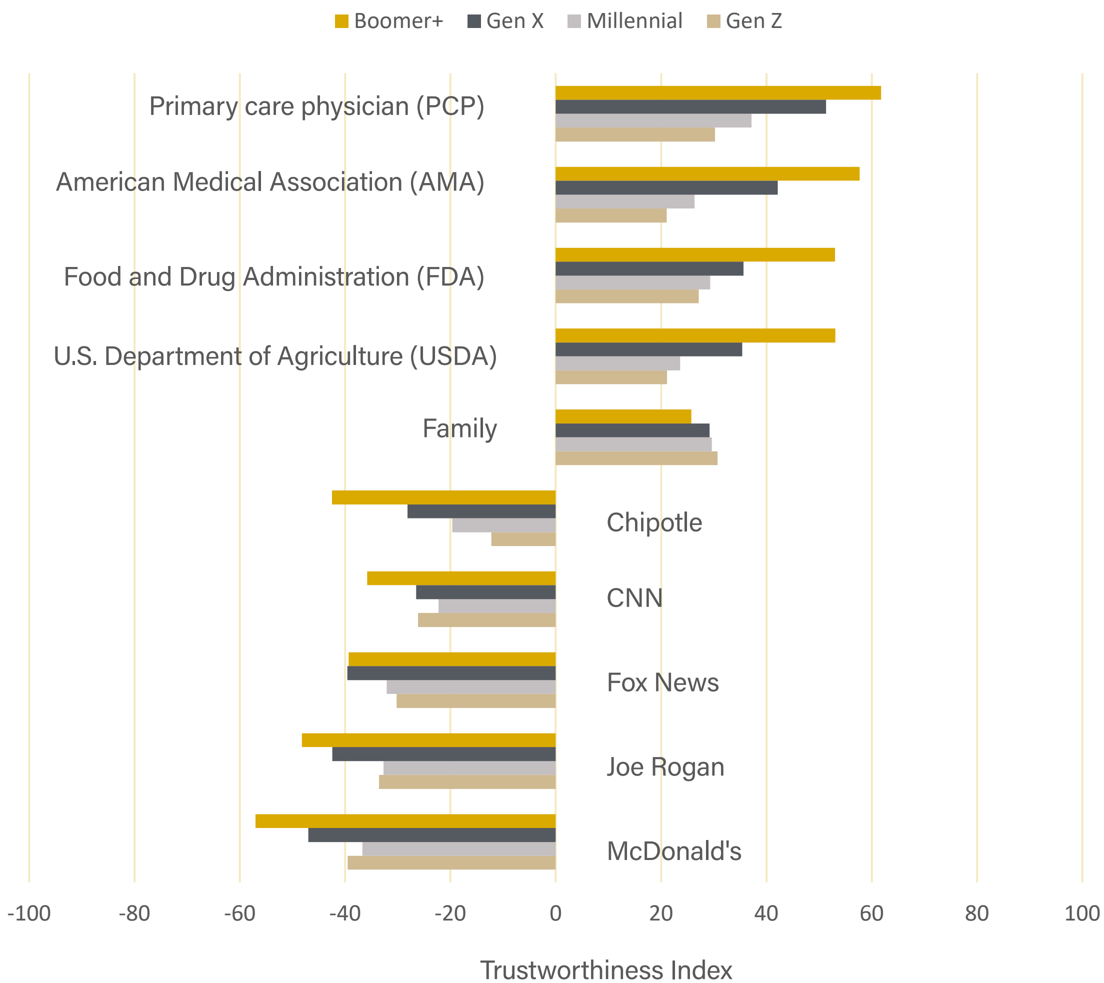
CONSUMER TRUST

Who do Americans trust on topics of food?

Respondents select their most trusted and least trusted sources of information about healthy and sustainable food, which are scored on a Trust Index from -100 (least trusted) to 100 (most trusted) (**Figure 21**).[9]

While the overall trust in different entities as reliable sources of food related information has remained relatively consistent over time, we do observe a notable difference between consumers of different ages in 2023. For instance, older consumers (Gen X & Boomers+) trust primary care phsyicians (PCP), the Department of Agriculture (USDA), the American Medical Association (AMA) and the Food and Drug Administration (FDA) much more than younger consumers (Gen Z & Millennials). Fast food companies and media outlets remain distrusted by most consumers, but more so by those in the Boomer+ and Gen X cohorts.

Figure 21. Trust Index of Food-Related Information Sources by Generational Cohorts, Jan. 2023 - Dec. 2023



ENDNOTES

1 Data were collected from an online panel maintained by the company Dynata over a six-day period from December 18-23, 2023. The eligible population included U.S. adults ages 18+. A weighting method called iterative proportional fitting (or raking) was applied to ensure a demographically balanced sample by age, sex, race, census region, income, and SNAP participation. Every respondent from the previous month was re-contacted and asked to take the survey again. About 42% of November's sample participated this month, thus the rest of the sample was filled in with a new pool of respondents. Data collection for every survey begins on the third Monday of each month, unless otherwise dictated by holidays or extenuating circumstances. This report is released on the second Wednesday of the following month. Due to the holidays, the release of this report is scheduled for Thursday, January 11th.

2 Sample size Jan. 2022 - Dec. 2022: Gen Z (n=1,107); Millennials (n=3,391); Gen X (n=3,540); Boomer+ (n=6,939)
Sample size Jan. 2023 - Dec. 2023: Gen Z (n=1,425); Millennials (n=4,056); Gen X (n=4,284); Boomer+ (n=5,356)

3 Questions were inspired by previous research on the topic of date labels and food waste:
Ziyang Gong, Leona Yi-Fan Su, Jennifer Shiyue Zhang, Tianli Chen, Yi-Cheng Wang, *Understanding the association between date labels and consumer-level food waste,* Food Quality and Preference, Volume 96, 2022, 104373, ISSN 0950-3293, https://doi.org/10.1016/j.foodqual.2021.104373

4 The Sustainable Food Purchasing (SFP) Index is a self-reported measure of food purchasing designed to assess how well consumer shopping habits align with healthy diets from sustainable food systems, as described by the EAT-Lancet Commission on Food, Planet, Health. A top score of 100 reflects consumer food purchasing that aligns with a set of key recommendations for better nurturing human health and supporting environmental sustainability. The SFP Index includes six components—Nutrition, Environment, Social, Economic, Security, and Taste—correlating with the different strategies for achieving food systems transformation.

5 Food at home (FAH) refers to food sales meant for home or off-site consumption and the value of donations and non-market acquisitions, which is acquired from outlets such as grocery stores, convenience stores, direct sales, etc. Food away from home (FAFH) refers to food sales meant for immediate consumption, federal food programs, and food furnished as an ancillary activity, which is acquired from outlets such as restaurants, bars, schools, etc.

ENDNOTES

6 High or marginal food security (i.e., food secure): 0-1 reported indications of food-access problems; little indication of change in diet or food intake. Respondents who reported an U.S. Census Region above 185% of the Federal poverty line were also screened as having high food security. This determination was made according to research by Ahn et al. (2020), which shows that using a modified income-based screening procedure for internet surveys better approximates government estimates of food insecurity. Low food security (i.e., food insecure): 2-4 reported indications of reduced quality, variety, or desirability of diet; little indication of reduced food intake. Very low food security (i.e., food insecure): 5-6 reported indications of disrupted eating patterns, changes in diet, and reduced food intake.

7 This scale is based on the Cantril Scale used in Gallup's World Poll to assess well-being and happiness around the world. Thus, we use the same validated conceptual labels—thriving, struggling, and suffering—to group responses.

8 Egg prices over time: https://ag.purdue.edu/cfdas/chew-on-this/egg-prices-the-data-tell-the-story

9 Trust questions were not fielded in the Consumer Food Insights survey from October 2022 - December 2022. The sample for this response summary spans Jan. 2023 - Dec. 2023.