Volume 2, Issue 11: November 2023

CONSUMER FOOD INSIGHTS

Center for Food Demand Analysis and Sustainability
College of Agriculture, Purdue University
Joseph Balagtas and Elijah Bryant

TABLE OF CONTENTS

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.

In this issue, we disaggregate some of the CFI results by consumer food risk attitudes collected in our survey since January 2023. We compare across three groups: risk-averse (0-4), risk-neutral (5) and risk-loving (6-10).[2] New questions included in this month's survey explore food safety, specifically looking at consumer perceptions of "Best if Used By" and "Use-By" food date labels and foods considered to be high-risk sources of foodborne illnesses.

KEY INSIGHTS FROM NOVEMBER

- Most consumers associate "Best if Used By" and "Use-By" food date labels with food safety rather than food quality
- Perceived risk of foodborne illnesses is higher for food prepared at restaurants (FAFH) than food prepared at home (FAH)
- Consumers are more likely to believe raw meats pose a high risk of containing foodborne bacteria than other food items
- Risk-averse consumers reported eating home-cooked meals more frequently than risk-loving consumers
- Risk-loving consumers reported eating unwashed produce, rare or undercooked meat, and raw dough or batter more frequently than risk-neutral and risk-averse consumers
- Food insecurity dropped slightly for the fifth straight month to 12.6%

SFP INDEX	FOOD INSECURITY	FOOD SPENDING	GROCERY STOCKOUTS
69/100	13%	$183/WEEK	11%

FOOD SAFETY

What are consumer perceptions of food date labels?

New questions this month explored consumer perceptions of food date labels and risk of foodborne illnesses. The U.S. Department of Agriculture Food Safety and Inspection Service defines "Best if Used by" and "Use-By" date labels as references to peak food quality rather than references to the date after which the food is no longer safe to eat.[3] However, there is no universal requirement/standard for food product dating in the U.S., except for infant formula, which explains the variation in the distribution of responses when we ask consumers to define what these labels. **Figure 1** shows that 52% of respondents believe "Best if Used By" date labels refer to food safety while 39% believe they refer to food quality. Similarly, 59% of consumers believe "Use-By" date labels refer to food safety and 34% believe they refer to quality (**Figure 2**).

Figure 1. Consumer Perceptions of "Best if Used By" Label, Nov. 2023

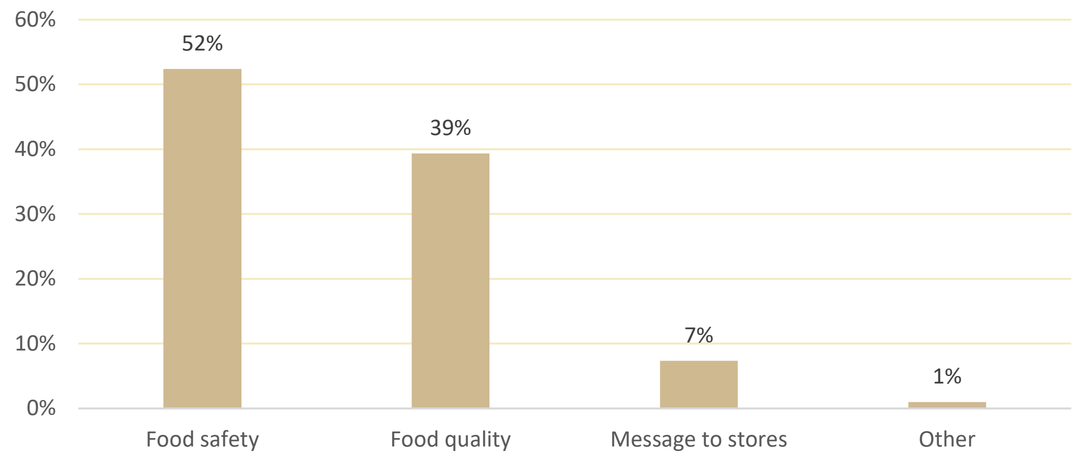
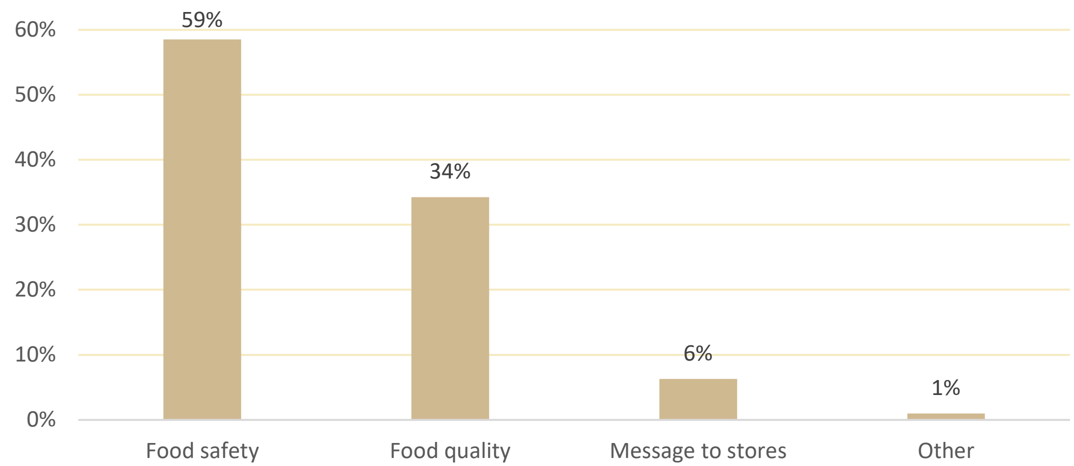


Figure 2. Consumer Perceptions of "Use-By" Label, Nov. 2023



FOOD SAFETY

What are consumer perceptions of foodborne illness risks?

Figure 3 shows a difference in the perceived riskiness of food prepared at home (FAH) and food prepared at a restaurants and other outlets (FAFH).[4] Similar to a 2016 study by the U.S. Food & Drug Administration[5], we find that consumers believe the risk of getting sick from a foodborne illness is higher when eating foods prepared at a restaurant compared to foods prepared at home.

Next, we asked respondents to select the food items they believe pose a high risk of containing foodborne bacteria that make people sick (e.g., *E.coli, Salmonella*). The list of food items presented to respondents came from a list of high-risk food items from the Centers for Disease Control and Prevention (CDC).[6] Raw meat items were selected more often than non-meat items despite leafy greens and other fresh fruits and vegetables also having the potential to contain harmful bacteria (**Figure 4**). A 2021 CDC report attributed 62% of *E. coli* illnesses to leafy greens compared to 21% to beef, the second highest percentage. Poultry, fruits and pork were the top three foods found to be the cause of *Salmonella* related illnesses. Finally, dairy, leafy greens and fruits accounted for 77% of all Listeria illnesses[7]. Many foods that consumers are less likely to consider as risky foods in terms of containing foodborne bacteria are actually the root of many illness outbreaks.

Figure 3. Perceived Risk of Foodborne Illness by Food Preparation (FAH vs. FAFH), Nov. 2023

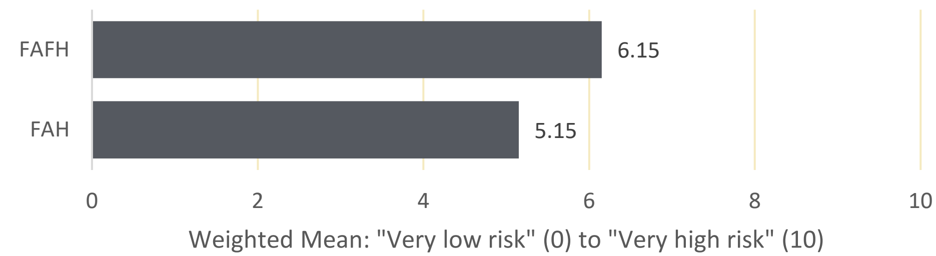
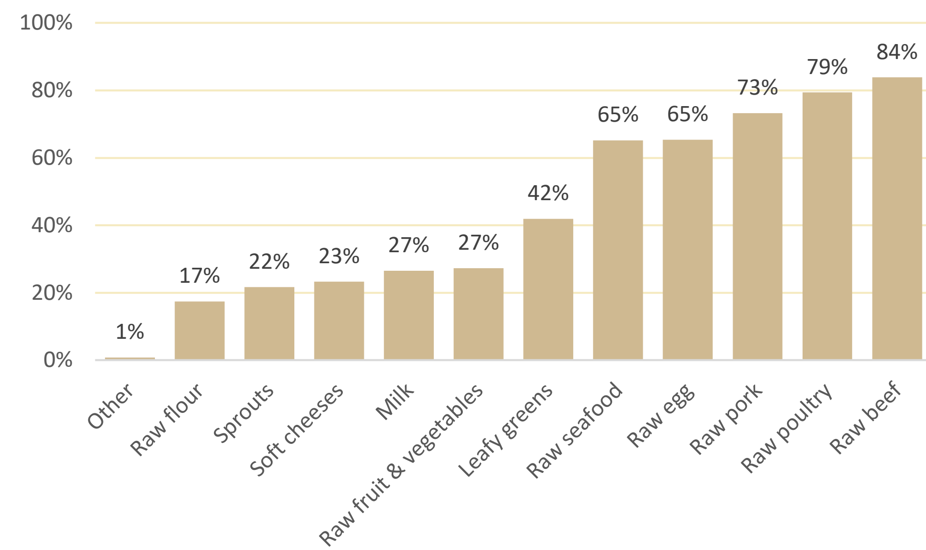


Figure 4. Food Items Perceived as Having a High-risk of Containing Foodborne Bacteria (% of responses where selection occurred), Nov. 2023

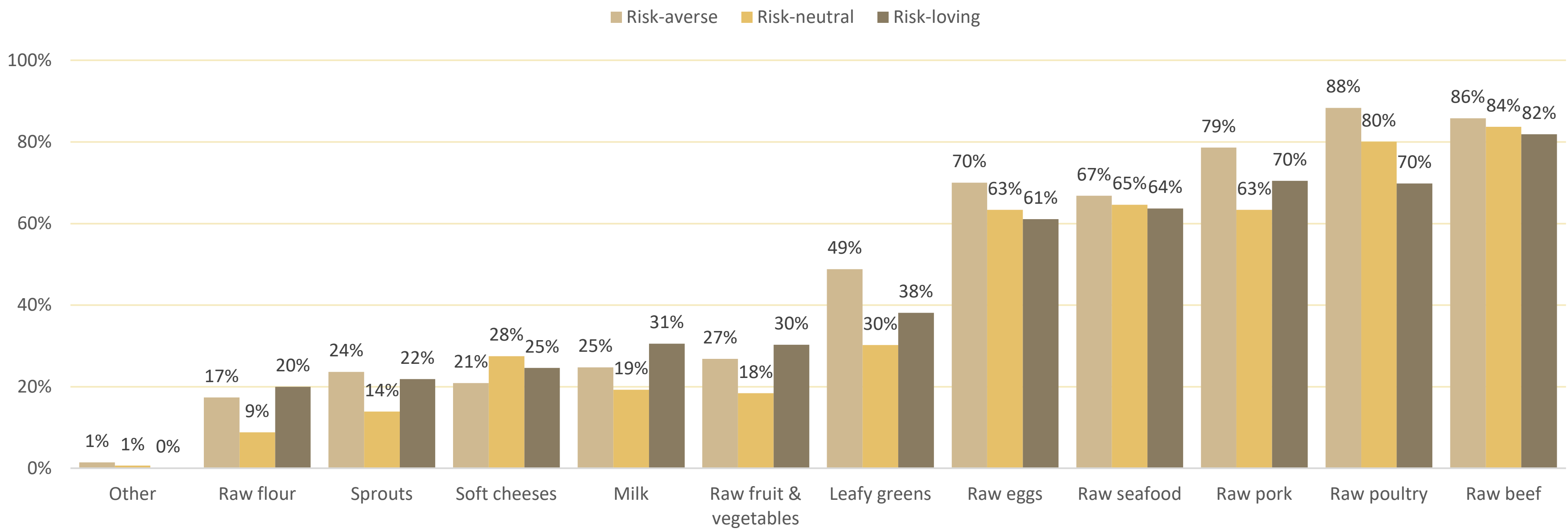


FOOD SAFETY

What are consumer perceptions of foodborne illness risks?

Figure 5 further breaks down the selection of "risky" foods by food risk attitudes. Foods such as leafy greens, raw eggs and raw meats were more likely to be selected as foods that pose a high risk of containing foodborne bacteria by consumers who are less willing to take risks when it comes to their food consumption.

Figure 5. Foods Perceived as Having a High Risk of Containing Foodborne Bacteria by Food Risk Attitude (% of responses where selection occurred), Nov. 2023

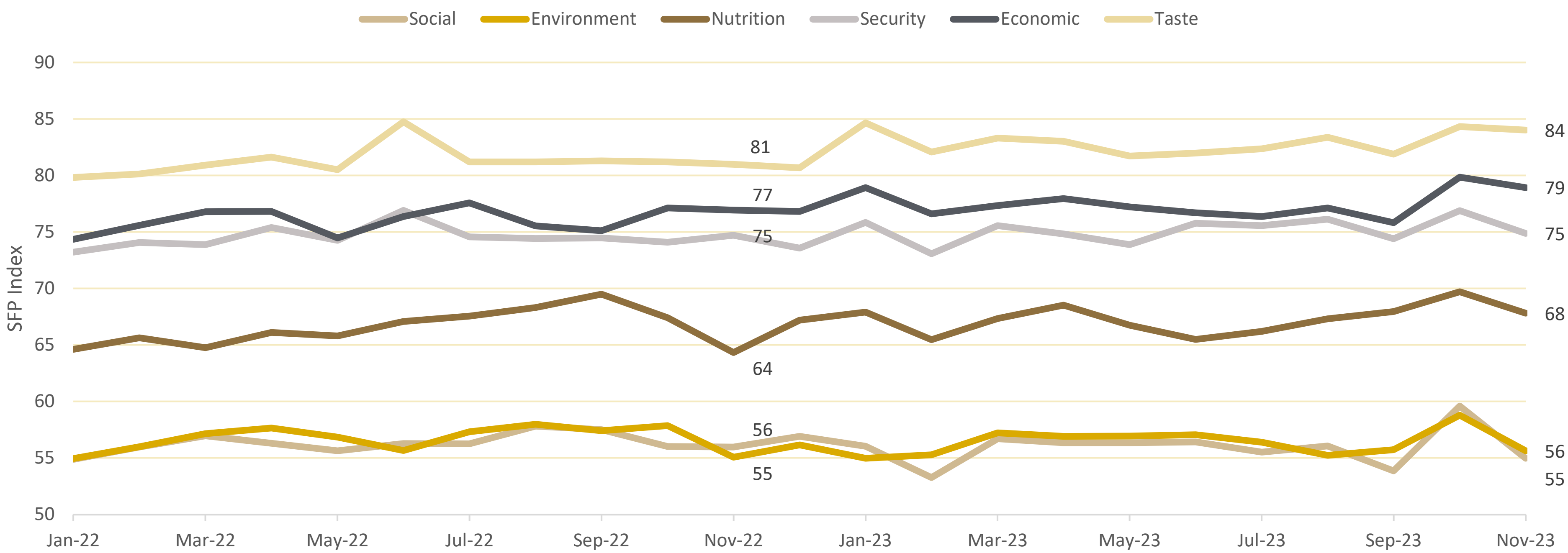


SUSTAINABLE DIETS

Are Americans making sustainable food purchasing decisions?

The Sustainable Food Purchasing (SFP) Index[8] has remained relatively stable over the past 23 months. The average overall SFP Index score is 69 for the month of November, which is a slight decrease from last month's high of 72 (**Figure 6**). Consumers continue to make sustainable purchasing decisions that are conscious of their taste preferences, budgets, food security and health. Consumers continue to score high in the *Taste*, *Economic*, *Security* and *Nutrition* subcategories relative to the *Environment* and *Social* subcategories. Generally, consumers are less conscious of the envrionmental and social impacts of their food purchasing compared to aspects of the purchasing decision that directly affect them.

Figure 6. Sustainable Food Purchasing Index, Jan. 2022 - Nov. 2023

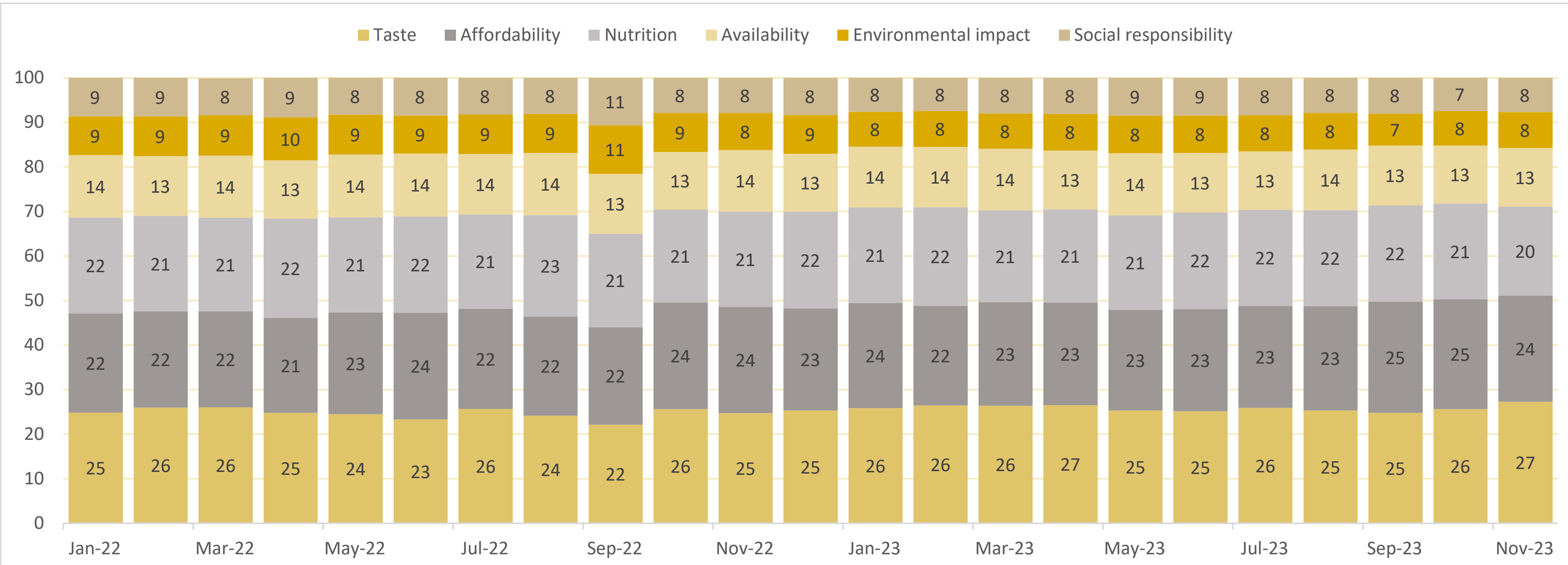


FOOD VALUES

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 (**Figure 7**). Similar to the SFP Index, consumers tend to value the food attributes that have a more direct, tangible effect on them, such as taste, affordability, nutritional value and availability, more than the environmental impact and social responsibility of their food. Taste and affordability continue to be the most important attributes consumers consider when shopping for groceries.

Figure 7. Share of 100 Points Allocated to Food Attributes by, Jan. 2022 - Nov. 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 8**). On average, consumers are spending about $120/ week on groceries (FAH) and $63/week on restaurants and other carryout (FAFH). Total average weekly food spending is only 1.2% higher than last November.

The consumer estimate of annual food inflation was 6.4%, the same as the October estimate (**Figure 9**). The government CPI measure of food inflation dropped to 3.3% from 3.7% in October. Consumers' inflation expectations for the next 12 months remain relatively consistent with last month's expectations. It will be interesting to see if consumers' inflation estimates and expectations adjust and begin to decline as the government's official estimate of food inflation continues to reflect a slower increase in food prices relative to last year.

Figure 8. Weekly Household Food Expenditures, Jan. 2022 - Nov. 2023

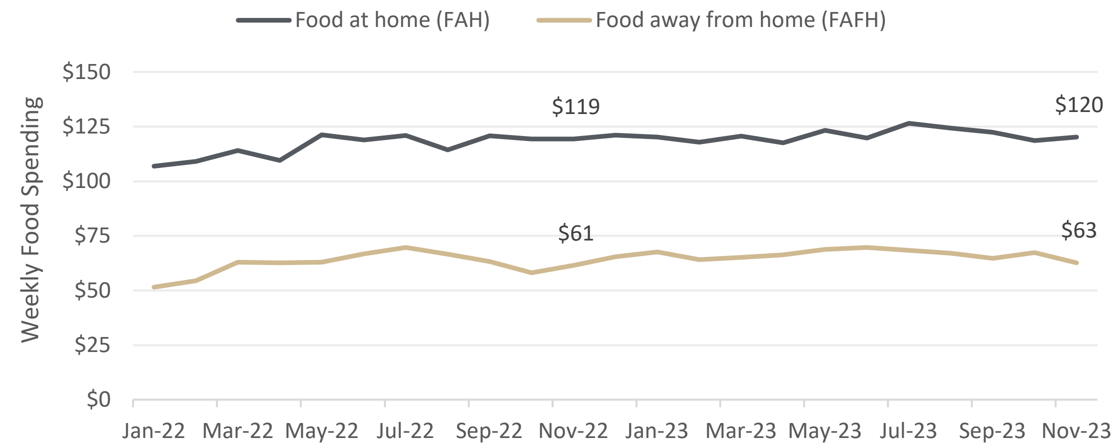
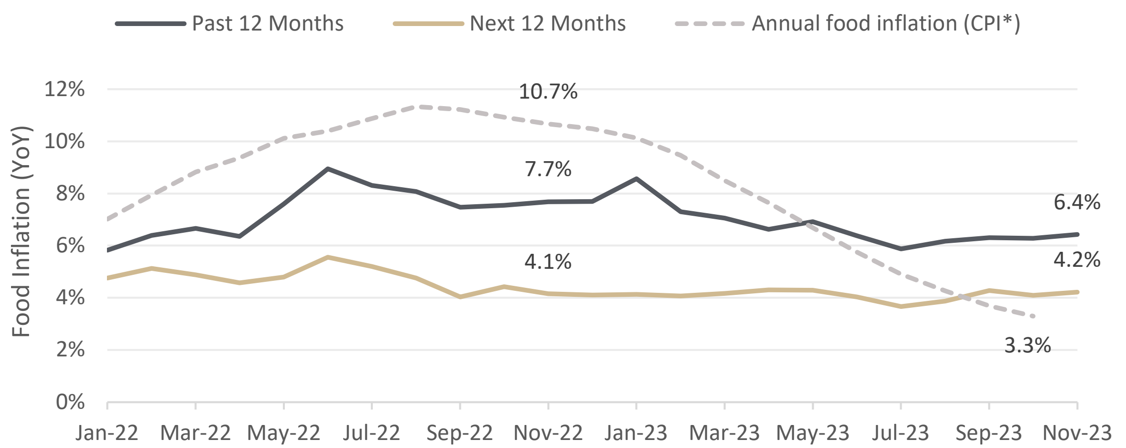


Figure 9. Consumer Estimates of Food Inflation Compared to Gov. Estimate, Jan. 2022 - Nov. 2023



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

FOOD SECURITY

Which Americans are having trouble buying food for their families?

Based on a set of six standard questions[9] 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 rate of households receiving free groceries remains unchanged from last month (**Figure 11**).

In **Figure 12**, we compare food security rates between groups with different food risk tolerances. Interestingly, more risk-averse consumers tend to be more food secure while risk-loving consumers report a higher rate of food insecurity. However, this difference is likely attributed to the correlation between risk aversion and age shown in **Figure 13.** Food insecurity tends to be higher among younger individuals (**Figure 14**), which may explain the similar correlation we observe between food insecurity and risk attitudes.

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

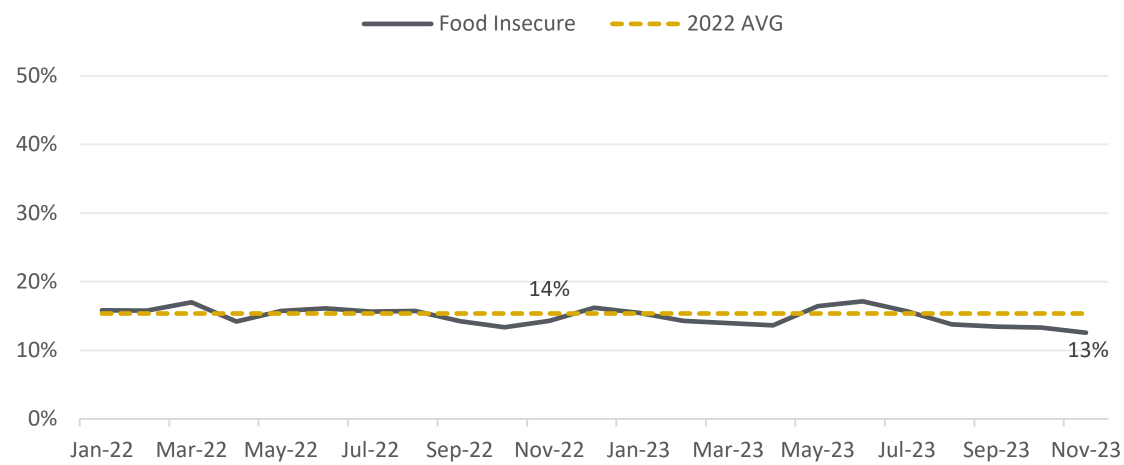
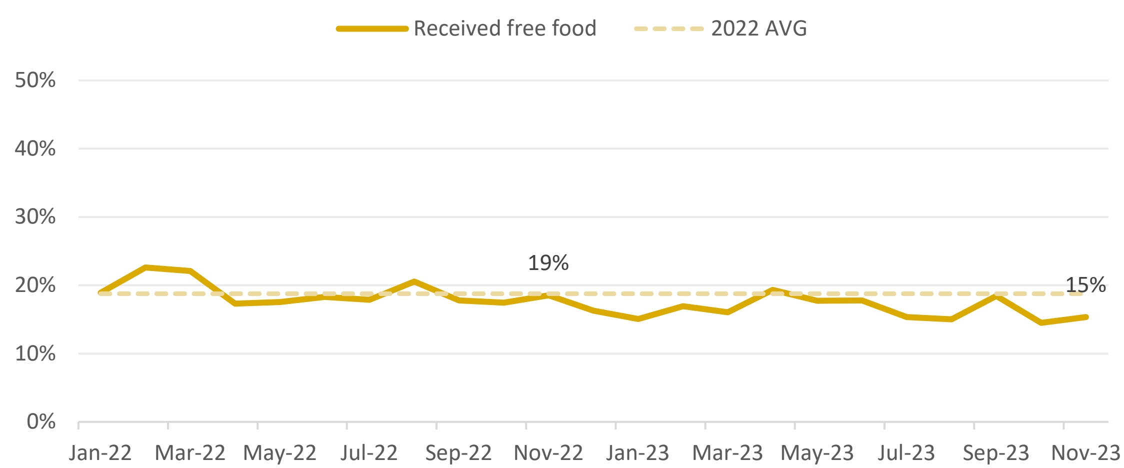


Figure 11. Households Receiving Groceries from a Food Bank, Church or Pantry in the Last 30 Days, Jan. 2022 - Nov. 2023



FOOD SECURITY

Figure 12. Food Insecurity Rate by Food Risk Attitude, Jan. 2023 - Nov. 2023

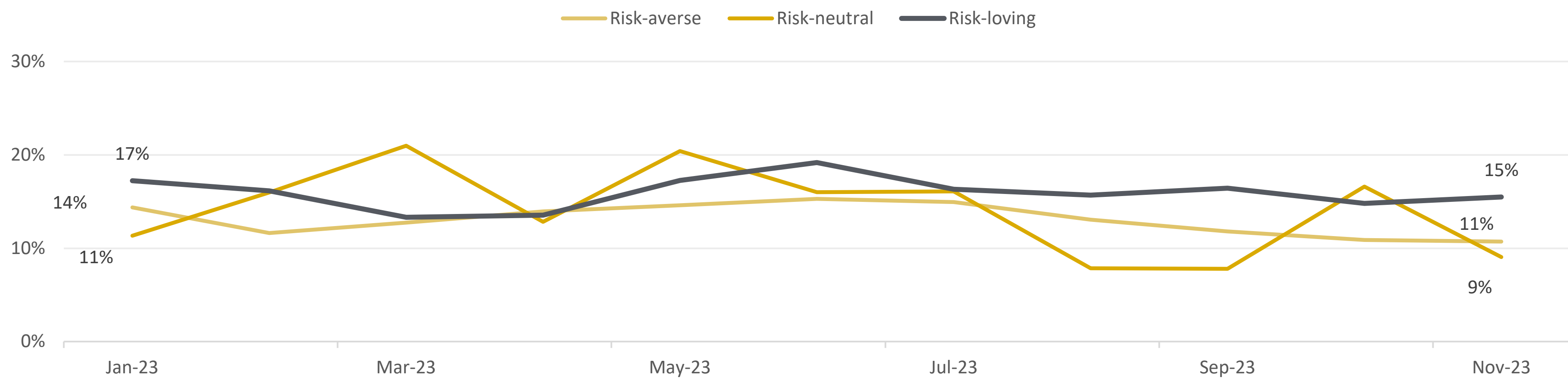


Figure 13. Food Risk Attitude by Age, Jan. 2023 - Nov. 2023

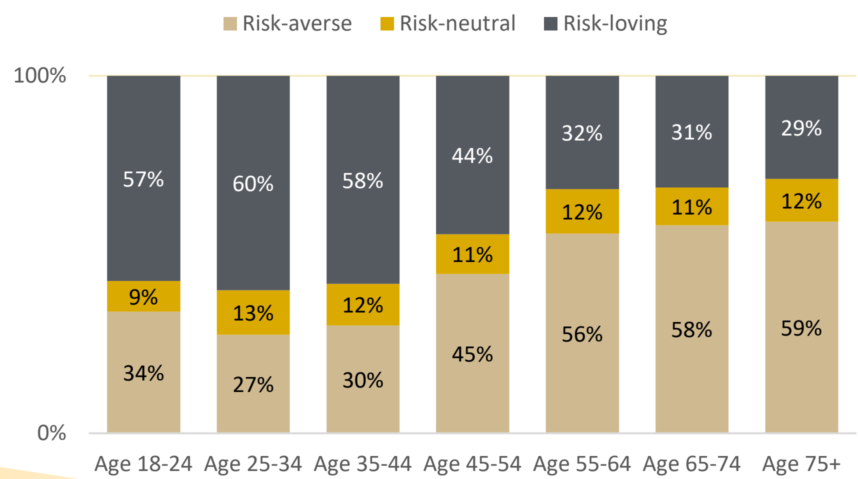
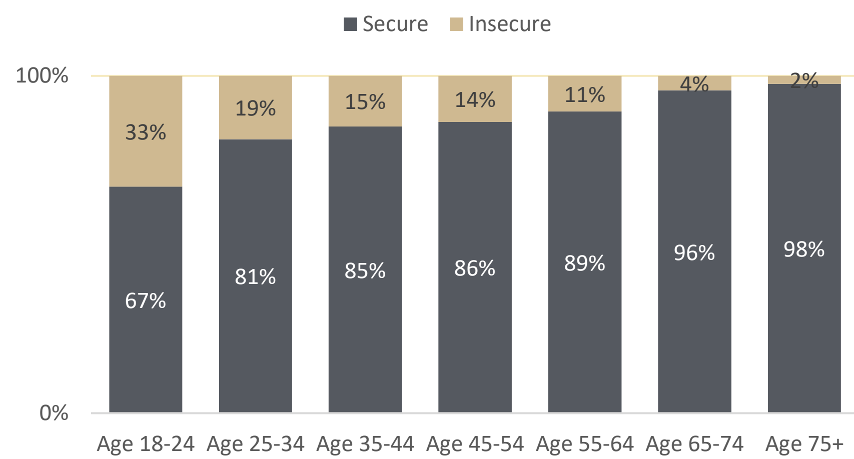


Figure 14. Food Insecurity Rate by Age, Jan. 2023 - Nov. 2023

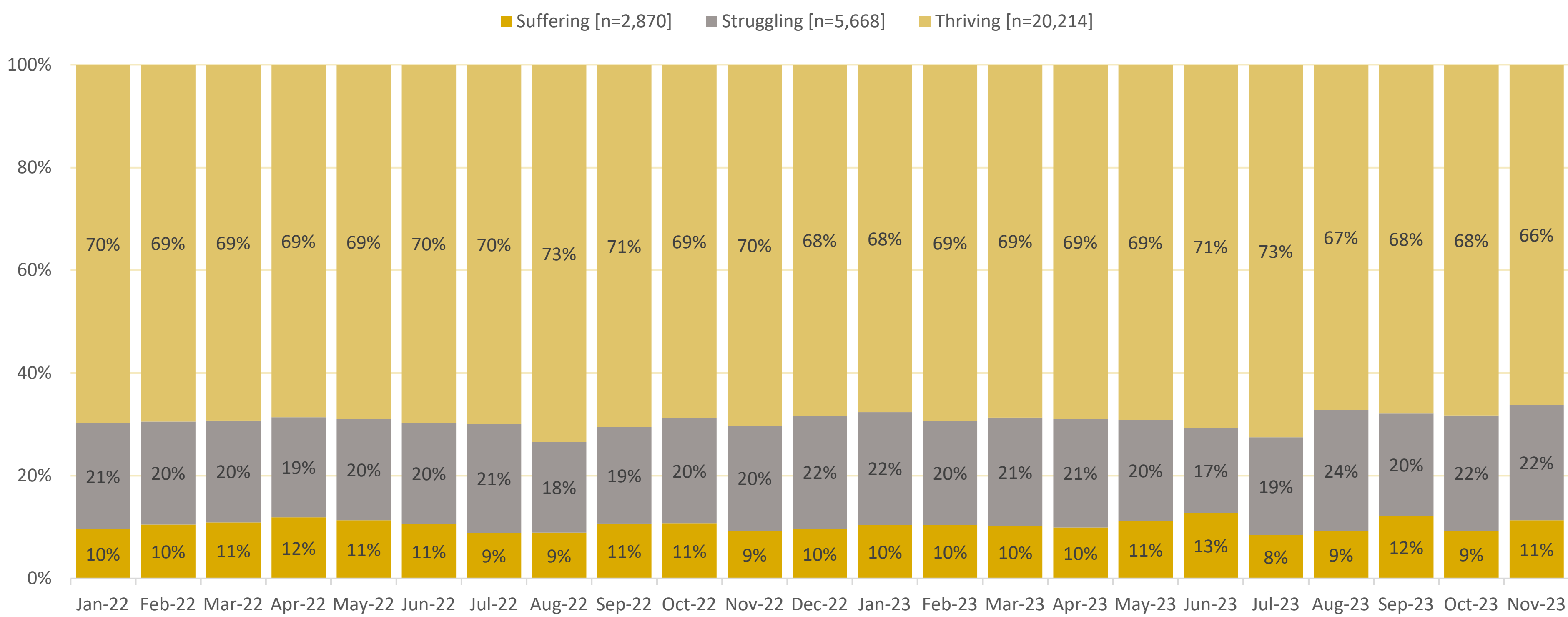


FOOD SATISFACTION

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.[10] Scores are categorized as thriving (7-10), struggling (5-6) or suffering (0-4). A majority of Americans (66%) continue to report thriving on this Diet Well-Being Index (**Figure 15**). Consumers also report high levels of happiness with their diets and lives as illustrated in **Figure 16** and **Figure 17** where 87% of consumers report being either "rather happy" or "very happy" with their diets.

Figure 15. Diet Well-Being Index (0-10 Scale) by, Jan. 2022 - Nov. 2023



PURDUE UNIVERSITY | College of Agriculture

FOOD SATISFACTION

Figure 16. Rate of Consumer Diet Happiness, Jan. 2022 - Nov. 2023

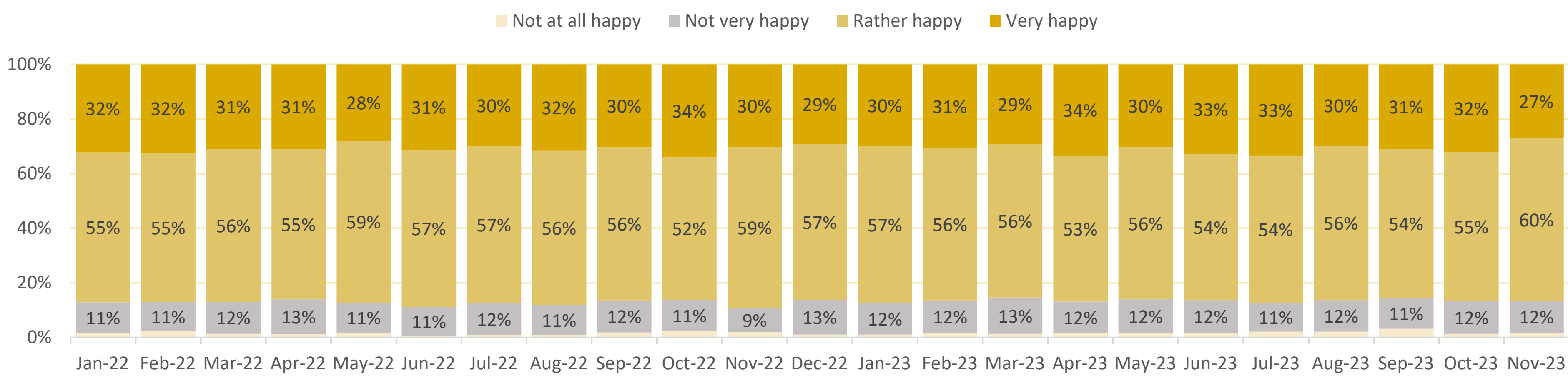
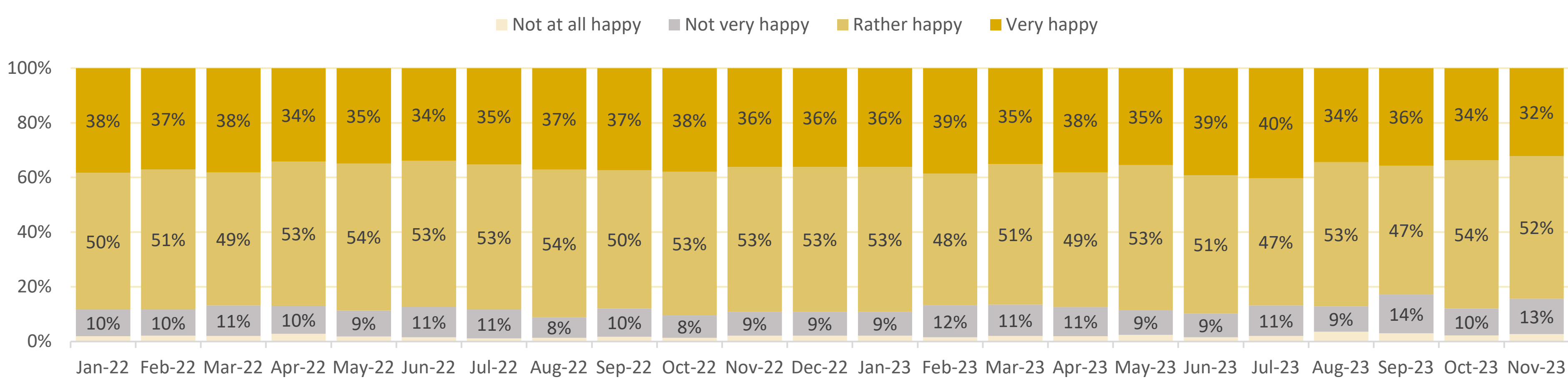


Figure 17. Rate of Consumer Life Happiness, Jan. 2022 - Nov. 2023



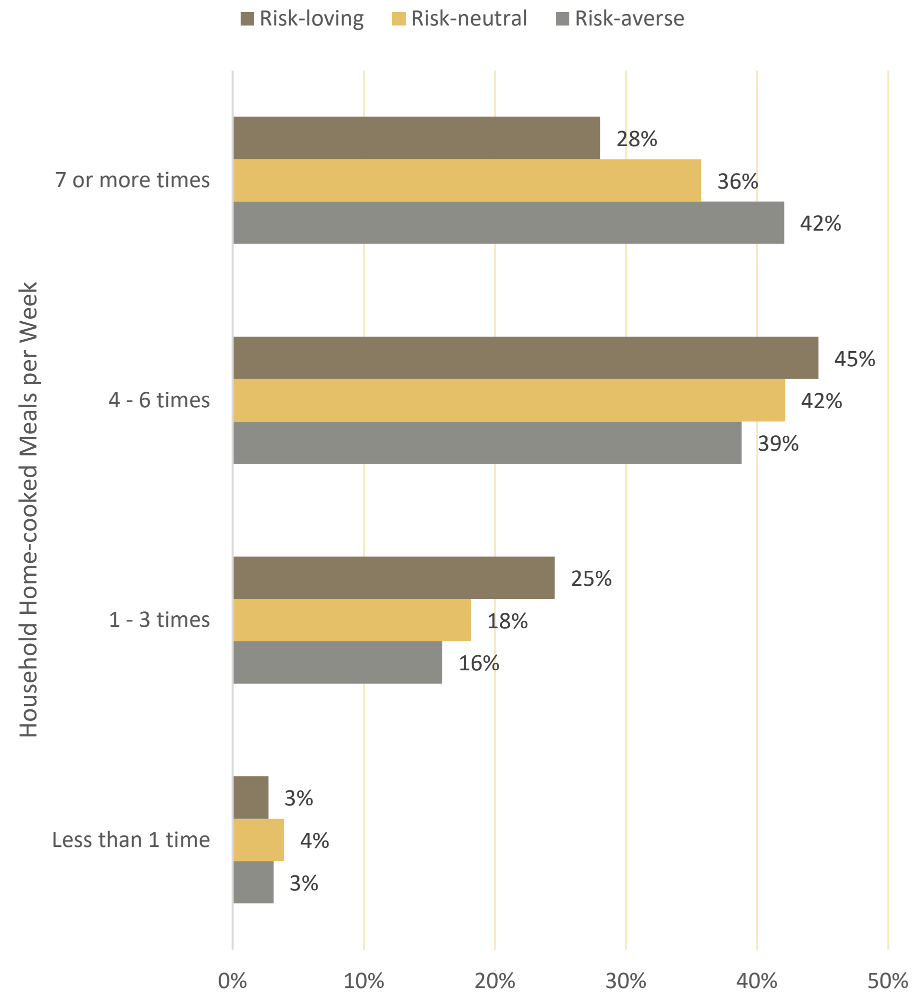
CONSUMER BEHAVIORS

How are Americans navigating their food environment?

Figure 18 summarizes how often households reported eating home-cooked meals on a weekly basis by food risk attitudes. A majority of consumers eat at least four home-cooked meals per week while fewer than 5% of all consumers make fewer than one home-cooked meal per week. Risk-averse consumers report cooking more home-cooked meals per week than risk-loving or risk-neutral consumers. This aligns with the results we see in **Figure 3** where consumers perceive FAH risk as being lower than FAFH risk in terms of the likelihood of contracting a foodborne illness. Therefore, it makes sense that those willing to take less risks with their food are more likely to prepare more of their own meals at home.

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 19**). Risk-averse consumers were less likely to choose non-conventional food items (e.g., organic foods, plant-based proteins, etc.) over conventional food items. Somewhat counterintuitively, risk-averse consumers also reported checking food labels for different attributes less frequently than risk-loving consumers. However, they reported eating unwashed fruits and vegetables, rare meat and raw dough much less frequently compared to consumers willing to take more risks with their food consumption.

Figure 18. Frequency of Home-cooked Meals Eaten Per Week by Food Risk Attitude, Jan. 2023 - Nov. 2023



CONSUMER BEHAVIORS

Figure 19. Frequency of Consumer Shopping and Eating Habits by Food Risk Attitudes, Jan. 2023 - Nov. 2023

	Risk-averse	Risk-neutral	Risk-loving
Chose generic foods over brand-name foods	3.2	3.1	3.3
Chose local foods over non-local foods	2.8	2.9	3.3
Chose wild-caught fish over farm-raised fish	2.8	2.6	3.1
Chose grass-fed beef over conventional beef	2.6	2.6	3.1
Chose cage-free eggs over conventional eggs	2.6	2.6	3.1
Chose organic foods over non-organic foods	2.5	2.5	3.0
Chose plant-based proteins over animal proteins	2.1	2.1	2.6
Checked the Use-By/sell-by date at the store	4.1	3.8	4.0
Checked the nutrition label before buying new foods	3.5	3.1	3.5
Checked for natural or clean labels	2.8	2.7	3.2
Checked where my food originated	2.7	2.6	3.1
Checked for food recalls	2.6	2.6	3.1
Checked for GMO ingredients	2.6	2.5	3.0
Checked how my food was produced	2.5	2.4	3.0
Took steps to reduce food waste at home	3.9	3.6	3.7
Recycled food packaging	3.5	3.4	3.6
Threw away food past the Use-By date	3.1	3.1	3.4
Composted food scraps	2.1	2.1	2.7
Ate fruits and vegetables without washing them	1.9	2.1	2.5
Ate rare or undercooked meat	1.6	1.7	2.2
Ate raw dough or batter	1.6	1.7	2.3

Jan. 2023 - Nov. 2023

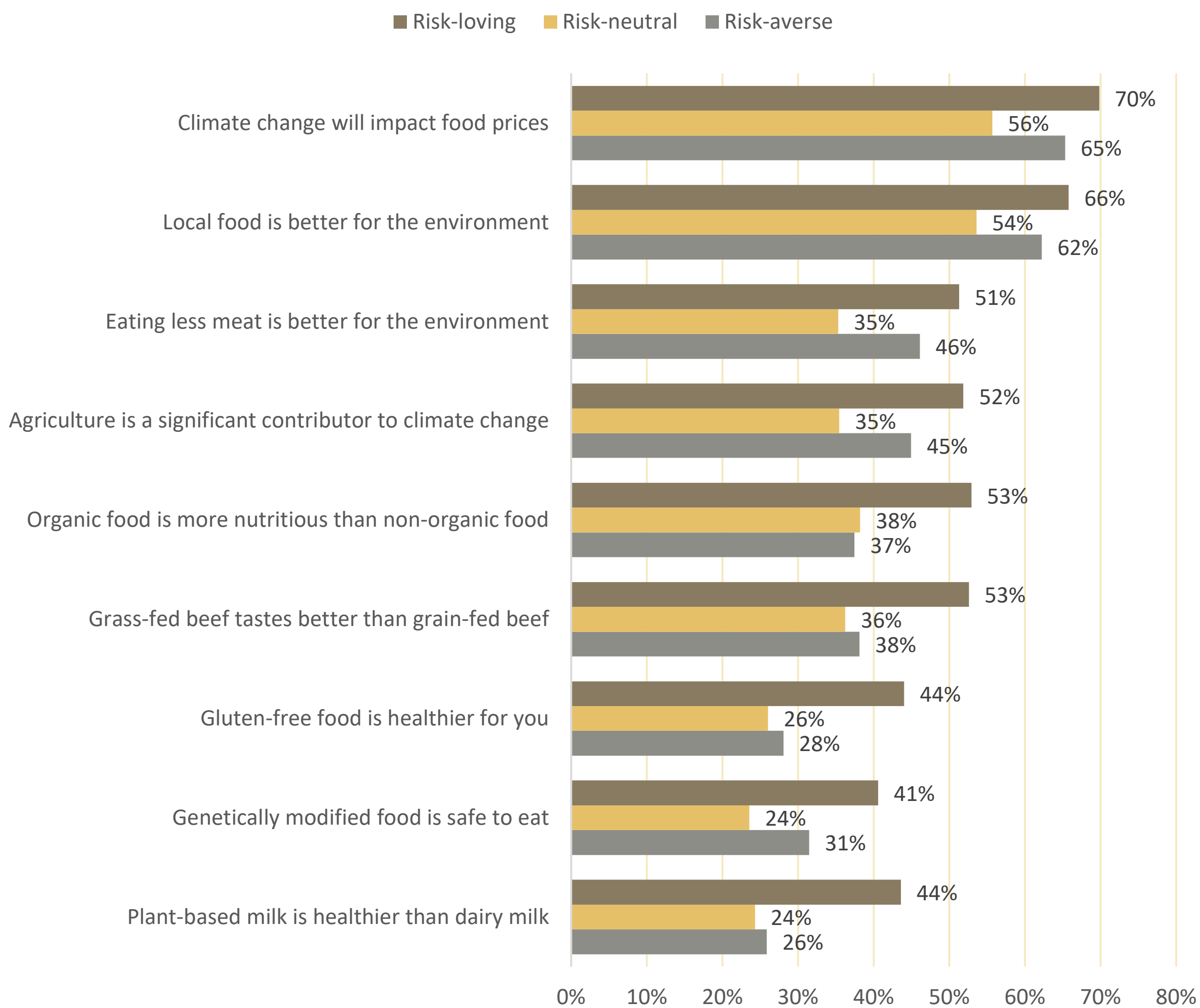
Mean Score	
5	Always
4	Often
3	Sometimes
2	Rarely
1	Never

CONSUMER BELIEFS

What do Americans believe about their food and food system?

Figure 20 shows that there are differences in the level of agreement with statements about the food system between consumers of differing levels of risk tolerance. A significant proportion of consumers in all groups agree with the statements that connect the food system with the environment. However, we see greater differences between risk-averse and risk-loving consumers when presented with the statements about the health and safety of non-conventional food items, with a smaller proportion of risk-averse consumers agreeing with the statements (e.g., organic is healthier than non-organic, gluten-free is healthier, plant-based milk is healthier than dairy milk). Further exploring the response distribution of risk-neutral consumers revealed that many of them took neutral stances to the statements, which explains the lower levels of agreement.

Figure 20. Share of Consumers who *'Somewhat Agree'* or *'Strongly Agree'* with Claims about Food by Food Risk Attitude (%), Jan. 2023 - Nov. 2023

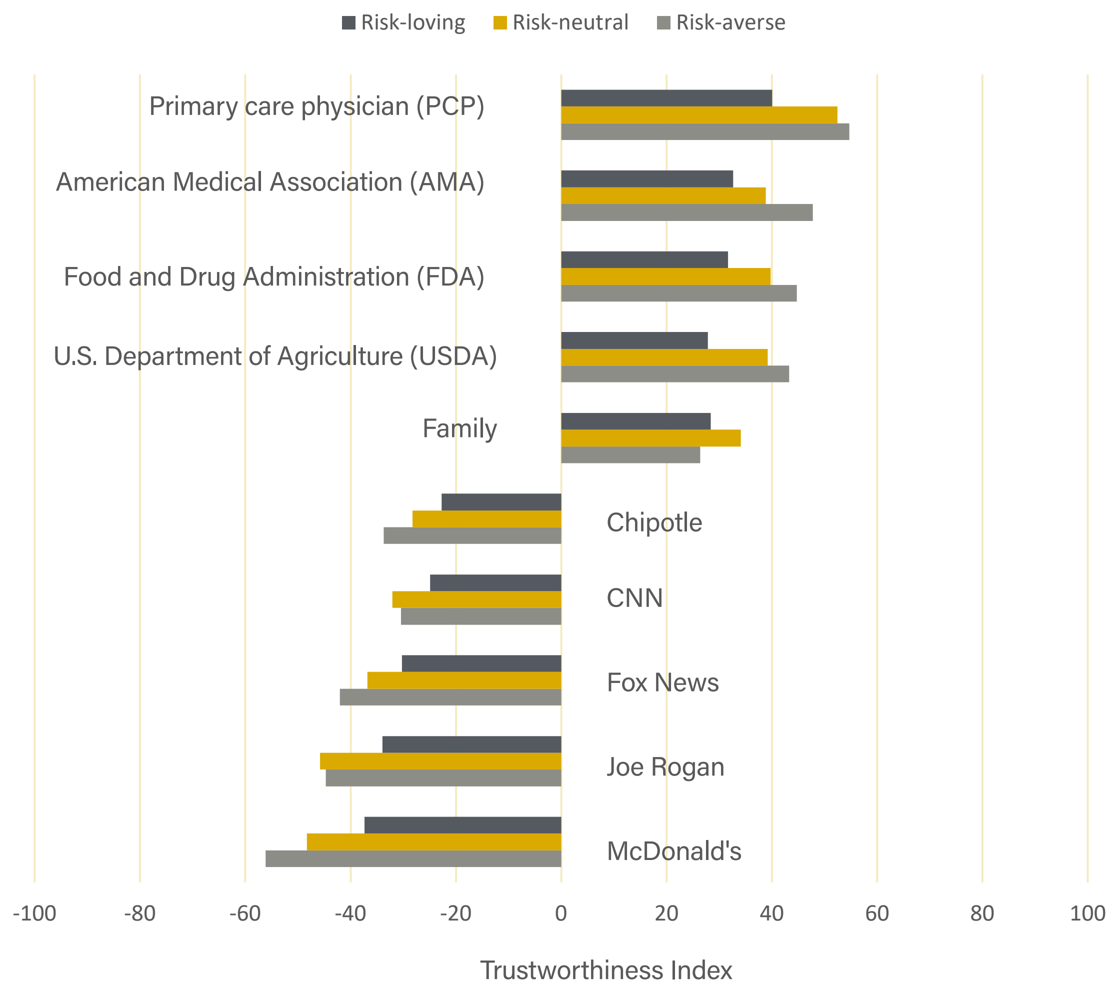


CONSUMER TRUST

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**).[11] 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 with different food risk tolerances. Specifically, risk-averse consumers tend to trust or distrust entities to a greater extent than other consumers. For instance, organizations centered around providing citizens with reliable health and food information (e.g., PCP, AMA, FDA, USDA) are trusted more by risk-averse consumers while organizations with stronger business-related motivations are distrusted to a greater degree by the same group of consumers relative to more risk-tolerant consumers.

Figure 21. Trust Index of Food-Related Information Sources by Food Risk Attitude, Jan. 2023 - Nov. 2023



ENDNOTES

1 Data were collected from an online panel maintained by the company Dynata over a four-day period from November 13-16, 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 53% of October'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.

2 Consumers are asked to evaluate their attitude towards risk in when it comes to food away from home (FAFH) and food at home (FAH) on a scale from risk averse (0) to fully prepared to take risks or risk loving (10). The general food risk scale averages the two to get the consumers' general food risk attitude.

Sample sizes by food risk attitudes:

January 2023 - November 2023	Risk-averse: n=6,059; Risk-neutral: n=1,551; Risk-loving: n=6,165
November 2023	Risk-averse: n=593; Risk-neutral: n=150; Risk-loving: n=524

3 Food Safety and Inspection Service, U.S. Department of Agriculture. (2019, October 2). *Food Product Dating.* U.S. Department of Agriculture https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/food-product-dating

4 Lando et al. (2016). *2016 FDA Food Safety Survey*. Center for Food Safety and Applied Nutrition, U.S. Food & Drug Administration. https://www.fda.gov/media/101366/download

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 Centers for Disease Control and Prevention (2023). Food Safety: Foods That Can Cause Food Poisoning. https://www.cdc.gov/food-safety/foods-linked-illness.html

7 Interagency Food Safety Analytics Collaboration. Foodborne illness source attribution estimates for 2021 for *Salmonella*, *Escherichia coli* O157, and *Listeria monocytogenes* using multi-year outbreak surveillance data, United States. Atlanta, Georgia and Washington, District of Columbia: U.S. Department of Health and Human Services, CDC, FDA, USDA/FSIS. 2023.

8 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.

9 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.

10 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.

11 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 - Nov. 2023 since January 2023 was the first month when we began evaluating risk attitudes.