

Volume 3, Issue 8: August 2024

CONSUMER FOOD INSIGHTS

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TABLE OF CONTENTS

03	INTRODUCTION
04	REGENERATIVE AGRICULTURE
09	FOOD VALUES
11	FOOD EXPENDITURES
13	FOOD SECURITY
14	CONSUMER BEHAVIORS
16	CONSUMER BELIEFS
17	CONSUMER TRUST
18	ENDNOTES

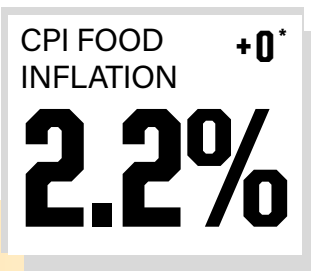
INTRODUCTION

Consumer Food Insights (CFI) is a monthly survey of more than 1,200 American adults 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 look at how respondents with differing educational attainment have answered our survey. We aggregate 32 months of data (Jan. 2022 - Aug. 2024) to compare consumer behaviors across four groups based on their education: high school degree or less (\leq HS), some college or two-year college degree (\approx AA), four-year college degree (\approx BA) and graduate degree (Grad).² Additional questions this month ask consumers about their familiarity with and perceptions of regenerative agriculture.

KEY INSIGHTS FROM AUGUST

- Consumers say taste and affordability are the most important food values; environmental and social responsibility are least important.
- Consumers with more education tend to value nutrition more.
- 71% of consumers are unfamiliar or only slightly familiar with regenerative agriculture.
- Consumer support for regenerative agriculture adoption is lower when the cost is passed to consumers via higher prices or taxes.
- Maintaining affordable food prices ranked highest (3.1) among the seven attributes explored related to regenerative agriculture.
- Food inflation expectations for the next 12 months decreased by 0.4 percentage-points for the second month in a row (2.8%).
- Food insecurity is highest among those without any college education (31%).



*+/- in upper right corner tracks the unit change in the statistic from the previous month or quarter, depending on data collection frequency

REGENERATIVE AGRICULTURE

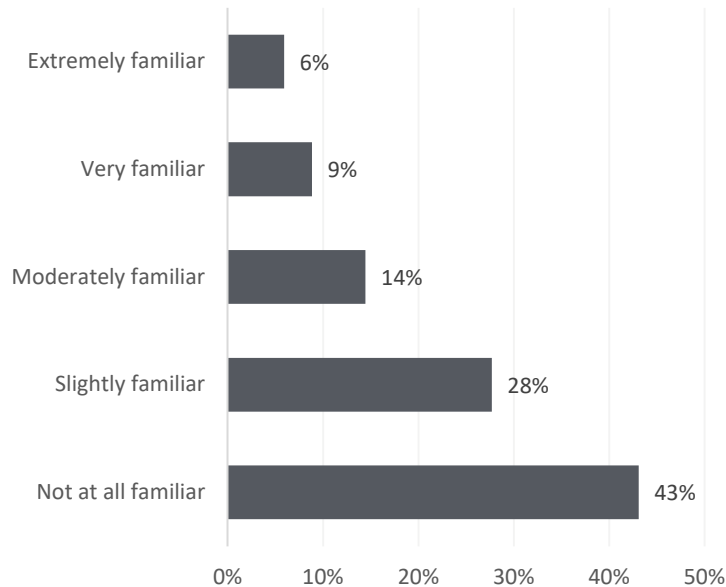
Are consumers familiar with regenerative agriculture?

Consumer familiarity with "regenerative agriculture" is low, with 71% of respondents being unfamiliar or only slightly familiar with the term (**Figure 1**).

Those who reported at least some familiarity with regenerative agriculture were asked to describe it in a few words. **Figure 2** summarizes the most common words used to describe "regenerative agriculture" by consumers. "Soil" is the most common word, appearing 393 times in this open-response question. The words "health", "land" and "agriculture" also all had frequencies of over 100.

Figure 1. "How familiar are you with the term 'regenerative agriculture'?", Aug. 2024

Figure 2. Consumer Descriptions of Regenerative Agriculture, Aug. 2024



REGENERATIVE AGRICULTURE

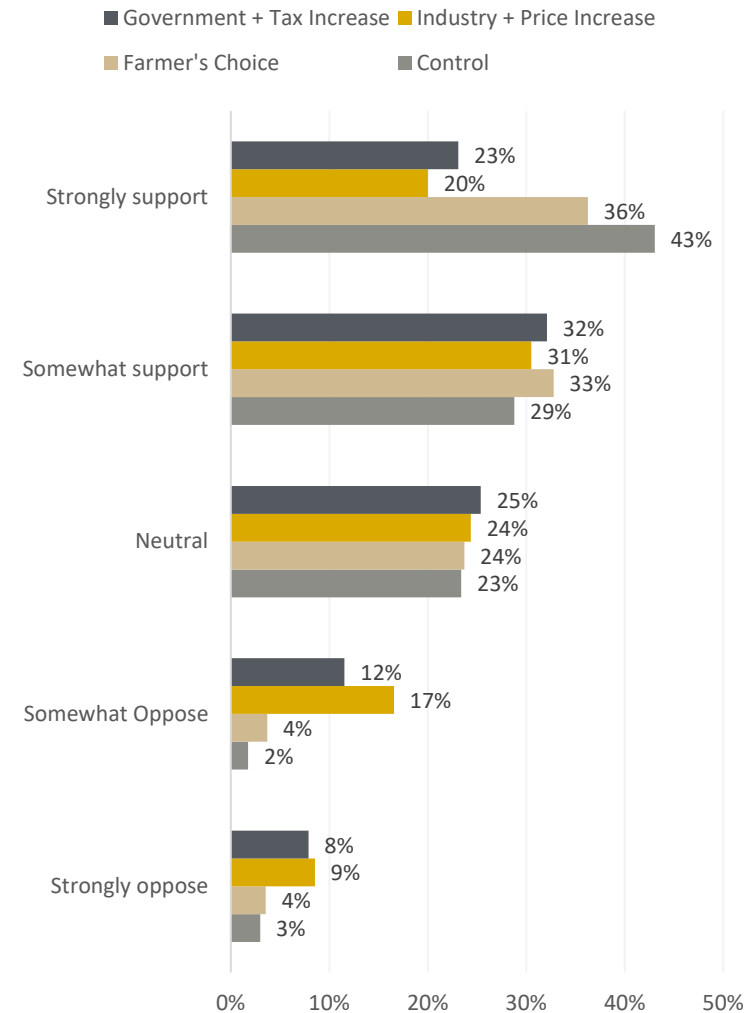
Do consumers support regenerative agriculture practices?

We present a broad definition of regenerative agriculture³ and randomly split the sample into four groups. One group responds to the question, "do you support or oppose the use of regenerative agriculture methods on U.S. farms?" (control). The other three groups report their level of support for one of three hypothetical scenarios:

1. Farmers: U.S. farmers considering a voluntary switch to regenerative agriculture methods
2. Industry: a plan proposed by food companies that would give financial incentives to U.S. farmers to adopt regenerative agriculture methods, funded by an increase in food prices at the grocery store
3. Government: a plan proposed by the government that would give financial incentives to U.S. farmers to adopt regenerative agriculture methods, funded by an increase in taxes

While general support for regenerative agriculture is high among the control group, we see notable differences when information about the entity proposing the plan and the potential costs of the plan are included. Consumers are less supportive of the plans when the costs are passed down to the consumer in the form of price increases or taxes. However, we see that at least half of consumers in each treatment are supportive of regenerative agriculture adoption to some degree, regardless of whether or not they received additional information about the potential costs to consumers (**Figure 3**).

Figure 3. Consumer Support for Regenerative Agriculture Adoption Under Different Scenarios, Aug. 2024



REGENERATIVE AGRICULTURE

Are consumers willing to pay more for food produced using regenerative agriculture methods?

In addition to consumer perceptions, we also want to know if regenerative agriculture is something consumers are willing to pay for. Previous research on this topic has yielded mixed results, with some finding that people are willing to pay more for regenerative agriculture or sustainable food products, while others find consumers are less likely to do so.⁴ We compare two question variations in our survey by randomly assigning respondents to one of two groups. Half were simply asked if they are willing to spend more for a snack item produced using regenerative agriculture (yes/no). The other half were asked to choose between two of the same snack foods, one produced traditionally (\$5.00) and one produced using regenerative agriculture at a higher price point (\$5.50)⁵. Around 56% of consumers who received the "yes/no" question stated that they are willing to pay more for regenerative agriculture (**Figure 4**). However, we see the results flip among the group asked to choose between the two snack options. Around 53% say they would pick the traditional snack option over the higher priced snack produced using regenerative agriculture (**Figure 5**).

Figure 4. Share of Consumers Stating a Willingness to Pay for Regenerative Agriculture, Aug. 2024

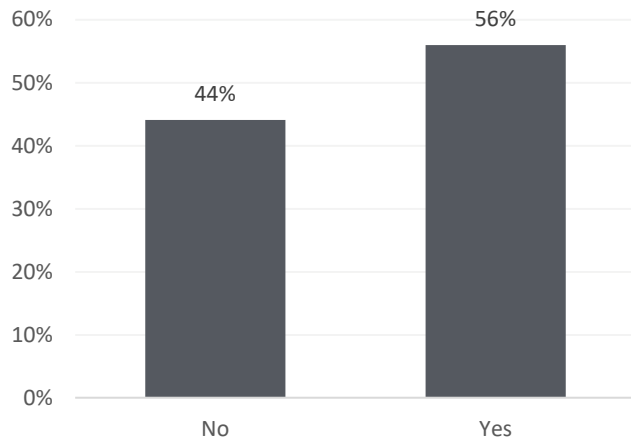
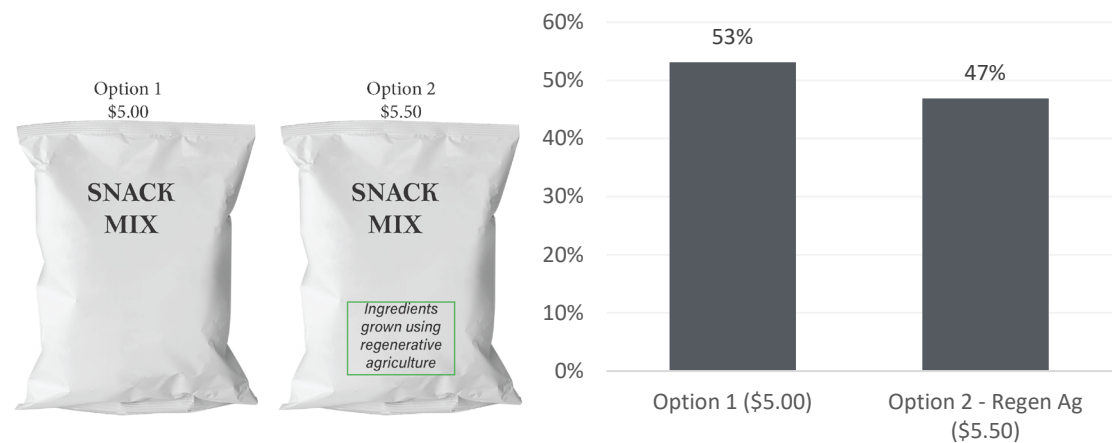


Figure 5. Consumer Choice Between Traditional and Regenerative Agriculture Products, Aug. 2024



REGENERATIVE AGRICULTURE

Are consumers willing to pay more for food produced using regenerative agriculture methods?

Additional follow-up questions ask consumers to pick the statement that most closely reflects the reason for their response. Those who are not willing to pay more for regenerative agriculture products (no/option 1) receive one question, those who say they are (yes/option 2) receive another.

Among those who are not willing to pay or who chose the traditional lower cost item, over 88% made their decision due to the higher price point (**Figure 6**). Slightly under half say, despite being in support of regenerative agriculture, they do not want to pay higher prices for it at the grocery store. Affordability of regenerative agriculture products is imperative to consumer support.

Among those who state that they are willing to pay or who chose the product produced using regenerative agriculture methods at a higher price, around 45% support regenerative agriculture and are willing to incur the extra cost. However, 20% signal that their response indicates their support for regenerative agriculture more so than a willingness to pay more for it (**Figure 7**).

Figure 6. Not Willing to Pay - Responded "No" or "Option 1", Aug. 2024

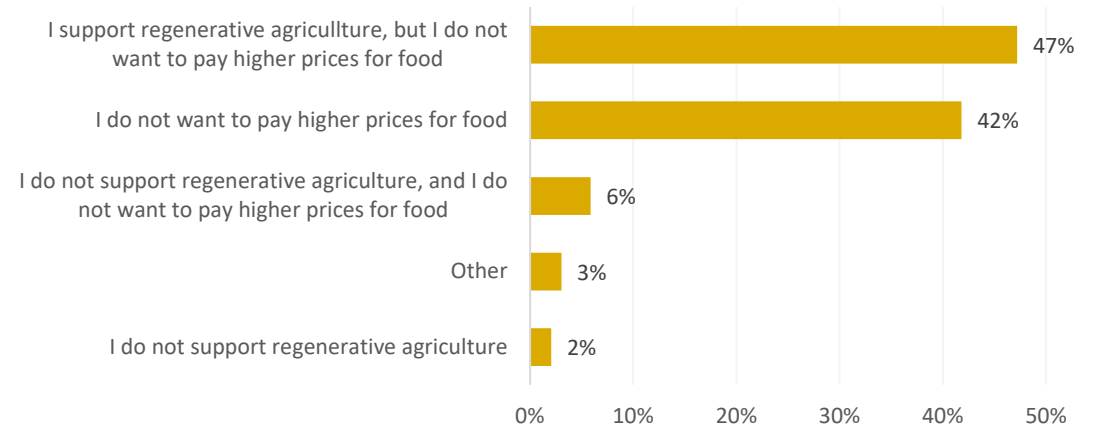
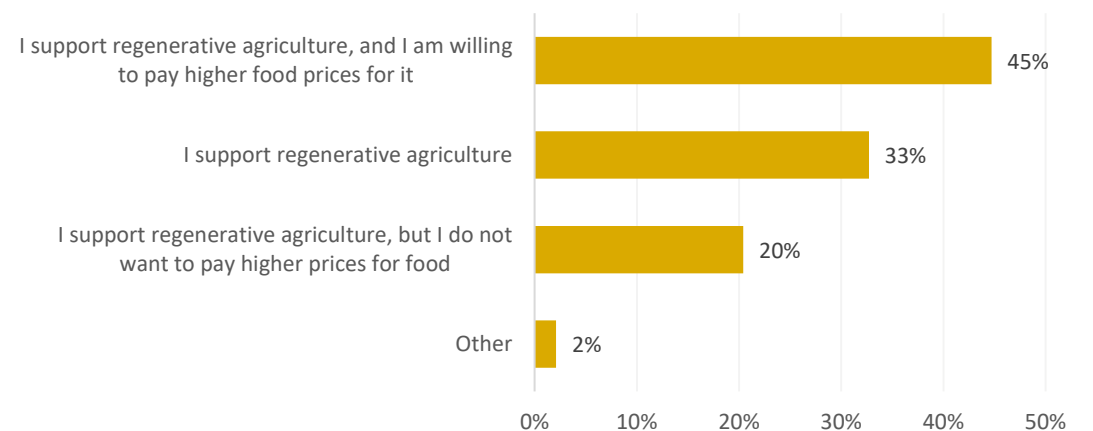


Figure 7. Willing to Pay - Responded "Yes" or "Option 2", Aug. 2024



REGENERATIVE AGRICULTURE

What attributes do consumers consider important for regenerative agriculture?

Following Malone & Golan (2024)⁶, we ask a rank order question targeting the tradeoffs between different attributes in terms of their perceived importance for regenerative agriculture (**Figure 8**).

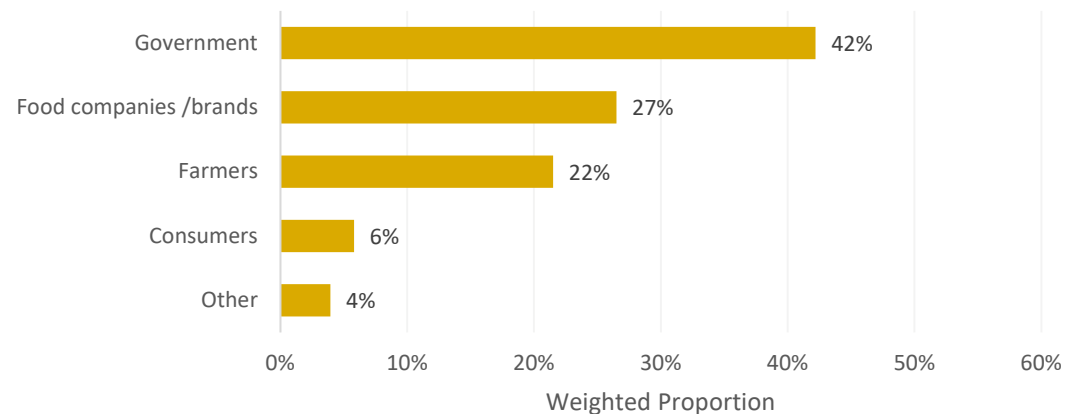
Notably, maintaining food prices (3.1) receives the highest average ranking out of the seven attributes explored, ahead of environmental attributes, such as enhancing soil health (3.7), reducing water use (4.0), reducing greenhouse gas emissions (4.4) and preserving biodiversity (4.8). The economic attributes, profitability and yield, rank in the middle. The low dispersion of the average rankings tells us that there are varying opinions among consumers, as no single attribute was ranked heavily on the low end or high end of the scale.

Around 42% of consumers believe it should be the government's responsibility to fund regenerative agriculture farming methods in the U.S. Unsurprisingly, few think the cost should be placed on consumers (6%). This reveals an interesting dissonance given that government funds come from consumers in the form of tax dollars (**Figure 9**).

Figure 8. Perceptions of Attribute Importance for Regenerative Agriculture (1 - most important, 7 - least important), Aug. 2024



Figure 9. Who Should Fund Regenerative Agriculture Methods in the U.S.?, Aug. 2024



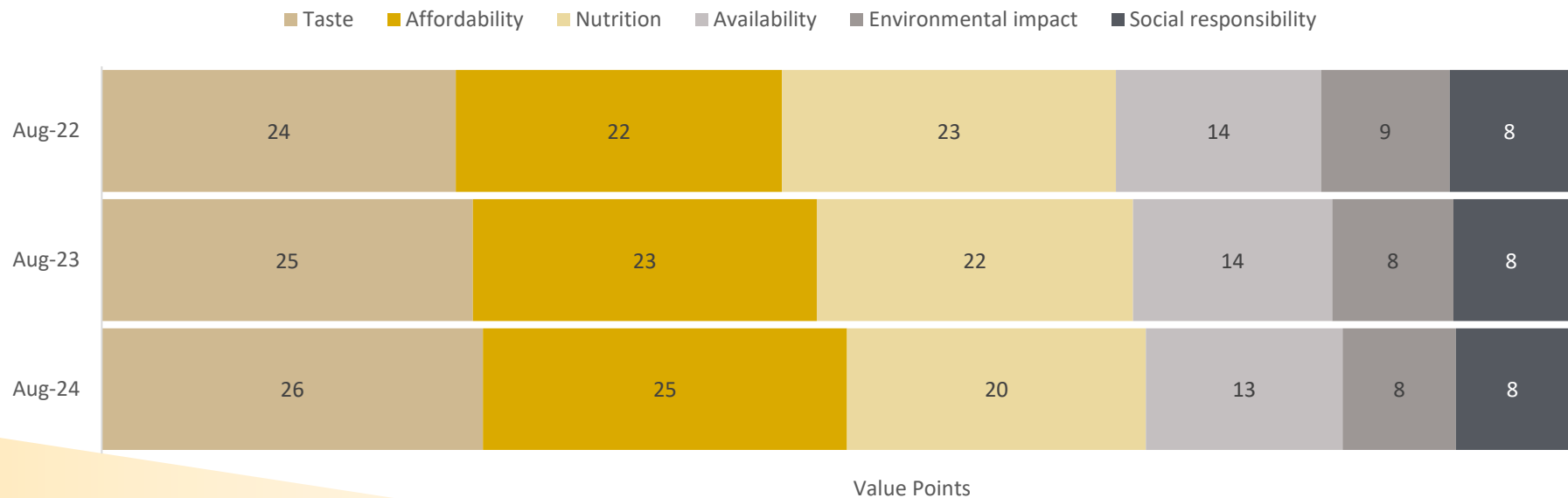
FOOD VALUES

What attributes do Americans most value when purchasing food?

Respondents were asked to allocate 100 points to six food attributes based on their importance when grocery shopping.⁷ **Figure 10** compares responses to the food values point allocation question this month with August 2023 and August 2022. We observe only moderate differences. Notably, consumers are placing more weight on the affordability of their food relative to nutrition over time. Nutrition saw a slight decline. This is not entirely surprising given that food prices have risen around 6.2% from August 2022 to July 2024, based on the most recent release of CPI data.⁸

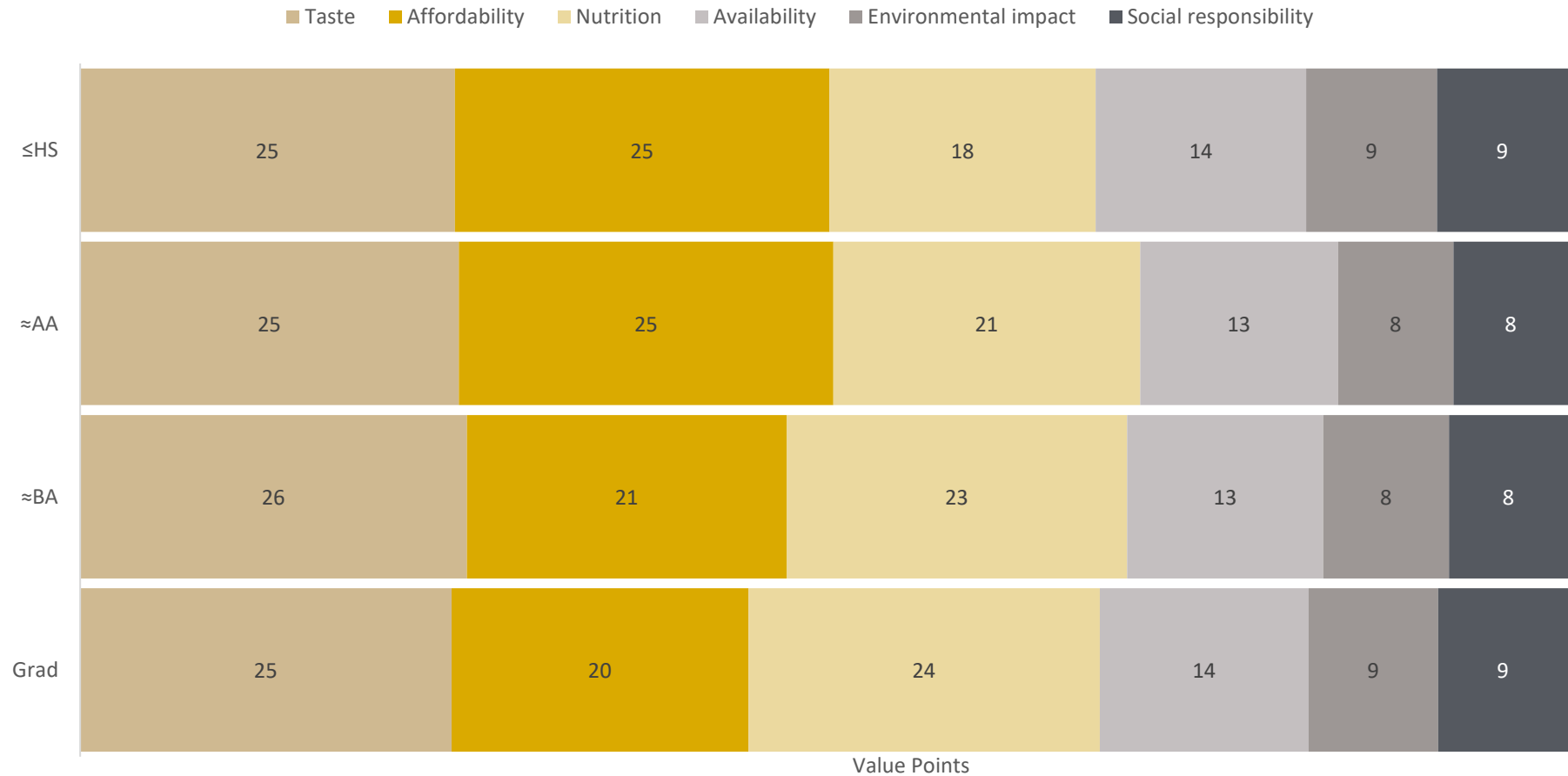
Summarizing all 32 months of CFI data by education level reveals differences in the value of nutrition and affordability (**Figure 11**). On average, consumers with a college degree value nutrition more than those without a degree. Conversely, those with no or little college education value the affordability of their food to a greater degree than those with a college degree. Taste, availability, environmental impact and social responsibility are relatively the same across educational attainment.

Figure 10. Share of 100 Points Allocated to Food Attributes, Aug. 2022, 2023 and 2024



FOOD VALUES

Figure 11. Share of 100 Points Allocated to Food Attributes by Education Level, Jan. 2022 - Aug. 2024



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 12**). On average, consumers reported spending about \$124/week on groceries (FAH) and \$67/week on restaurants and other carryout this month (FAFH)⁹. Both values remained unchanged from last month.

The consumer estimate of food inflation over the past 12 months is 5.4%, unchanged from July's estimate. Consumer inflation expectations decreased by 0.4 percentage points (**Figure 13**). This is the second month in a row that inflation expectations have dropped by 0.4 percentage points. The year-over-year CPI measure of food inflation remains stable at 2.2%. The drop in food inflation expectations in recent months may be indicative of consumers adjusting to the more stable food inflation rate we have observed over the last seven months.

Figure 12. Weekly Household Food Expenditures, Jan. 2022 - Aug. 2024

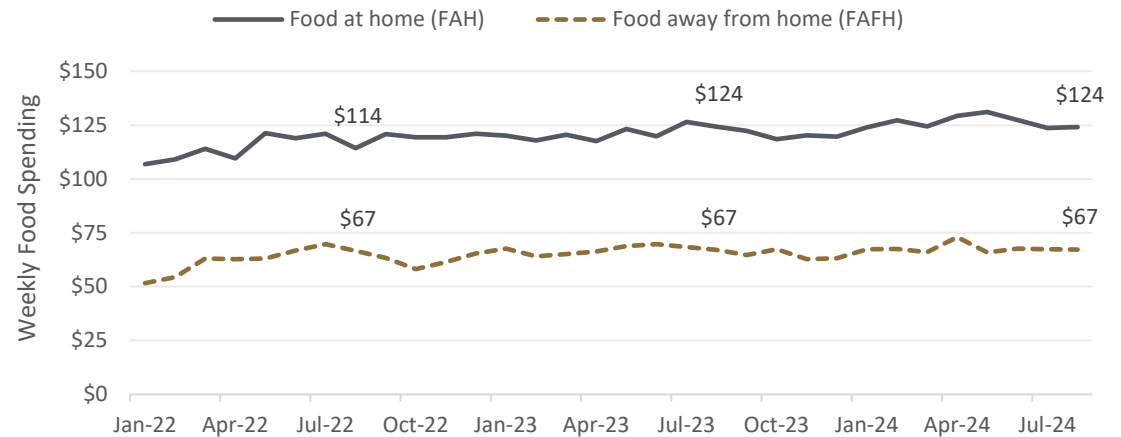
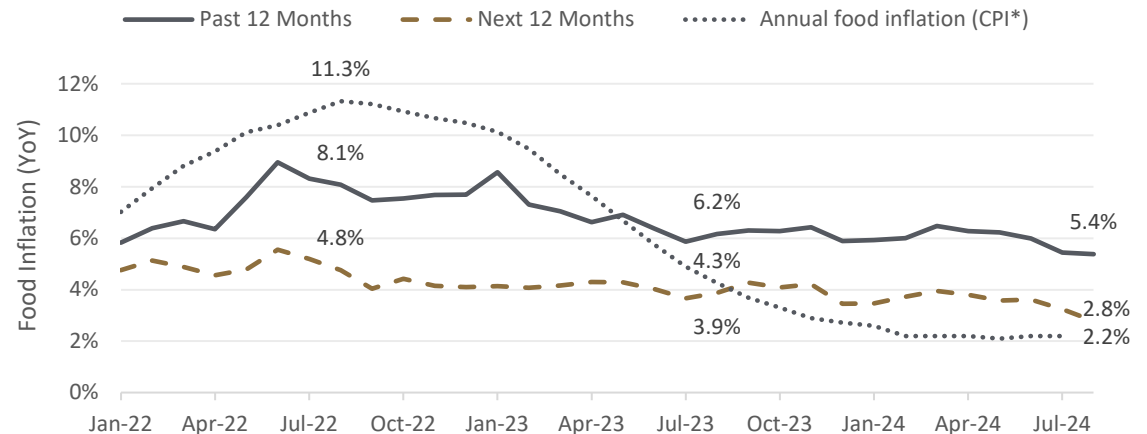


Figure 13. Consumer Estimates of Food Inflation Compared to Gov. Estimate, Jan. 2022 - Aug. 2024



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

FOOD EXPENDITURES

Do consumer food inflation estimates vary by education level?

Figure 14 explores consumer food inflation estimates this month compared to August in 2023 and 2022. Consumers who have earned a high school diploma or less report the lowest food inflation estimates in each month. However, we see less variation between the estimate from each group in the most recent month of data. We observe a similar pattern when disaggregating consumer inflation expectations for the next 12 months by education level (**Figure 15**). Each measure has loosely trended in the same direction of the CPI measurement, though the consumer estimates have declined more gradually and remain higher than the CPI estimate.

Figure 14. Consumer Estimates of Food Inflation Over the Past 12 Months by Education Level, Aug. 2022, 2023 and 2024

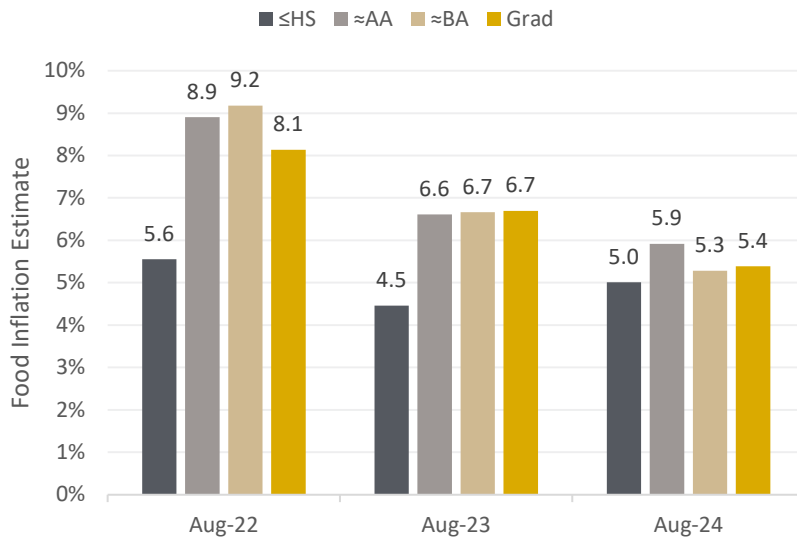
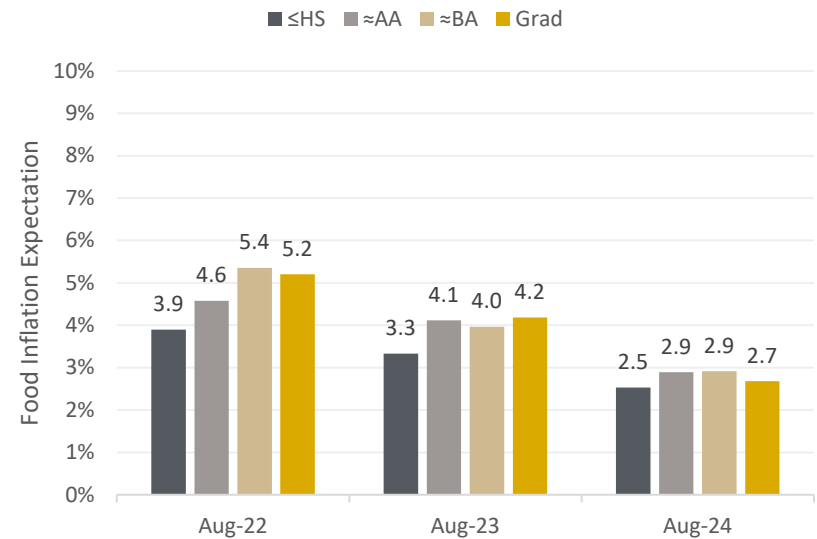


Figure 15. Consumer Expectations for Food Inflation Over the Next 12 Months by Education Level, Aug. 2022, 2023 and 2024



FOOD SECURITY

Which Americans are having trouble buying food for their families?

Based on a set of six standard questions about food purchased and eaten in the past 30 days, we estimate national food insecurity to be 13% (**Figure 16**).¹⁰ This average rate of food insecurity thus far in 2024 is 12%, which is lower than the 2023 average of 14%.

Significant disparities exist between groups based on educational attainment (**Figure 17**). Combining all months of CFI data from January 2022 to August 2024 reveals substantial differences between groups. Over 30% of those without any college education report food insecurity in their households compared to just 3-4% of consumers with at least a four-year degree. We can hypothesize that the main influential factors in this relationship are age and wealth given that both are closely correlated with educational attainment. Those with a higher level of education tend to have a higher earning potential. More income lessens the pressure of acquiring adequate amounts of nourishing foods.

Figure 16. Rate of Household Food Insecurity in the Last 30 Days, Jan. 2022 - Aug. 2024

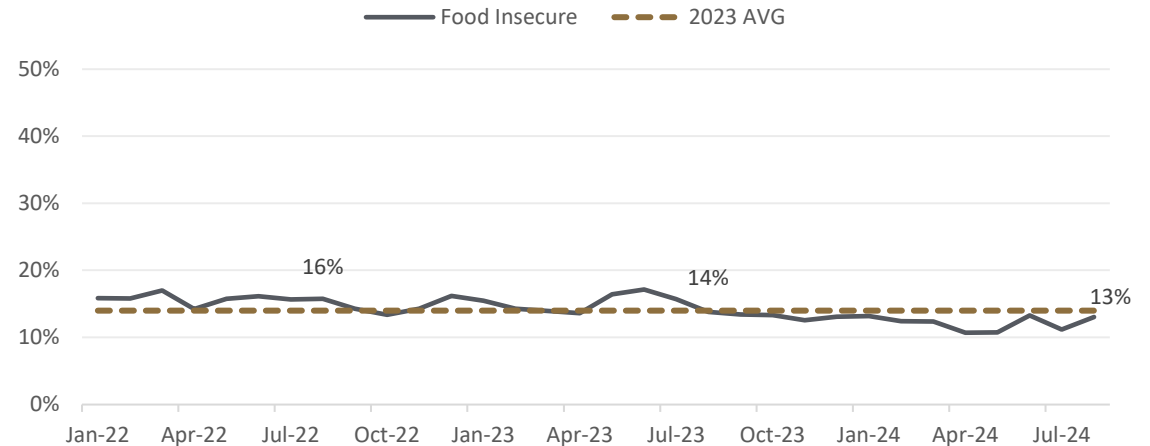
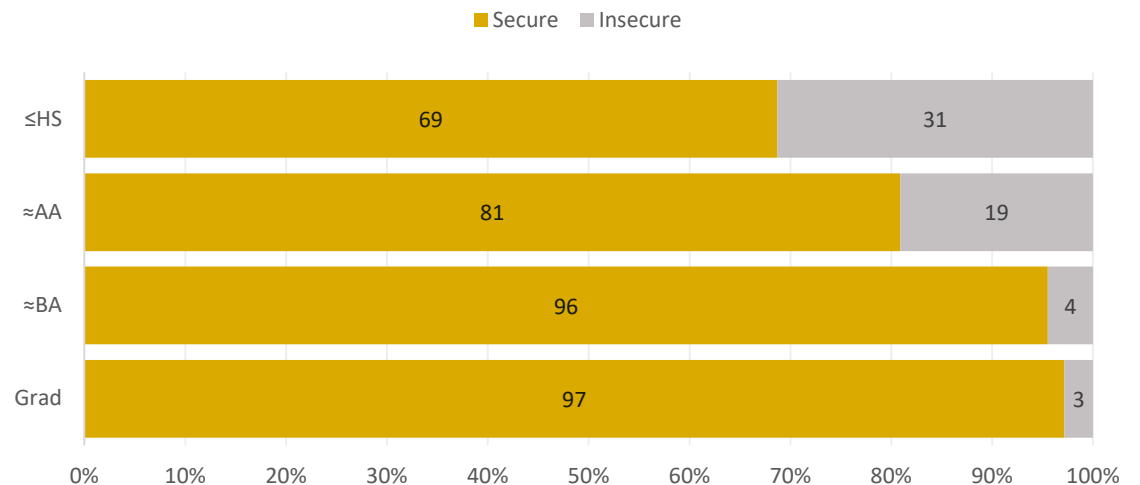


Figure 17. Rate of Household Food Insecurity in the Last 30 Days by Education Level, Jan. 2022 - Aug. 2024



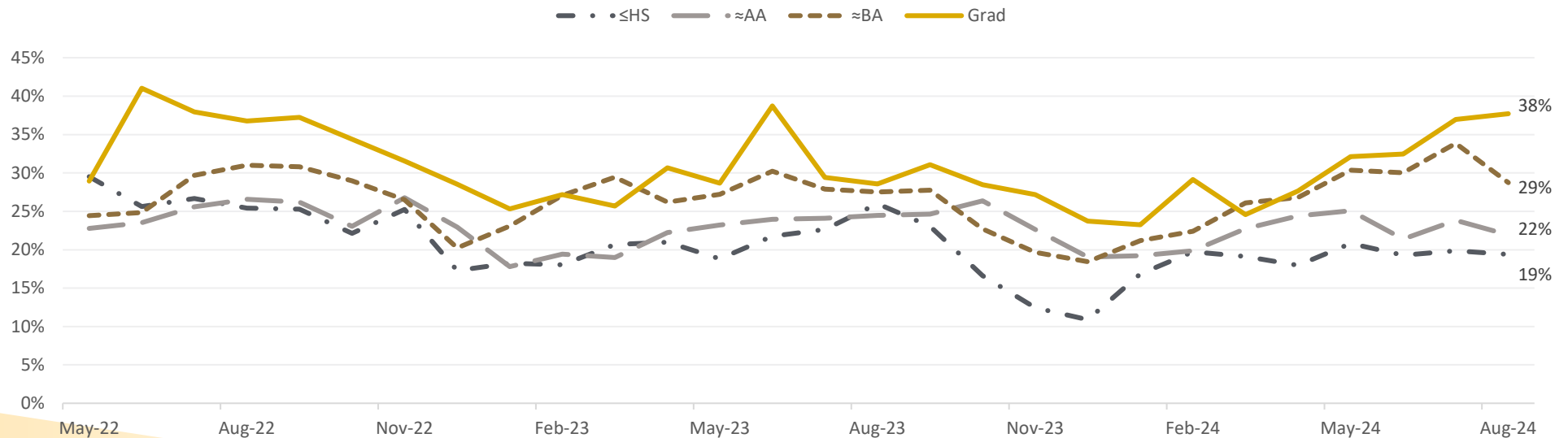
CONSUMER BEHAVIORS

How are Americans navigating their food environment?

Figure 18 shows the rate of food gardening over time and by educational attainment. Understandably, we observe slight seasonality as the rates tend to increase in the spring months and decline late fall. People with a graduate degree are most likely to grow their own food in a garden, with 38% saying they do so. In 2024, the rate of food gardening has trended upward among those with at least a 4-year degree yet remained steady among those with a two-year degree or less.

Figure 19 further shows specific consumer shopping and eating habits broken down by education level, combining all months of survey data. Notably, we observe the most educated groups choosing foods that are typically promoted as more ethical or sustainable more frequently (i.e., wild-caught fish, grass-fed beef, cage-free eggs and organic foods). We also observe a positive correlation between the frequency of recycling food packaging and educational attainment.

Figure 18. Share of Consumers who Food Garden by Education Level, May 2022 - Aug. 2024



CONSUMER BEHAVIORS

Figure 19. Frequency of Consumer Shopping and Eating Habits by Education Level, Aug. 2022 - Aug. 2024

	≤HS	≈AA	≈BA	Grad	
Chose generic foods over brand-name foods	3.2	3.3	3.3	3.4	<p>Mean Score</p> <ul style="list-style-type: none"> 5 Always 4 Often 3 Sometimes 2 Rarely 1 Never
Chose local foods over non-local foods	3.0	3.0	3.1	3.2	
Chose wild-caught fish over farm-raised fish	2.7	2.8	3.1	3.2	
Chose grass-fed beef over conventional beef	2.7	2.8	3.0	3.0	
Chose cage-free eggs over conventional eggs	2.6	2.7	3.0	3.0	
Chose organic foods over non-organic foods	2.5	2.6	2.9	3.0	
Chose plant-based proteins over animal proteins	2.2	2.2	2.5	2.6	
Checked the use-by/sell-by date at the store	3.9	4.1	4.1	4.1	
Checked the nutrition label before buying new foods	3.1	3.4	3.6	3.7	
Checked for natural or clean labels	2.8	2.9	3.1	3.1	
Checked where my food originated	2.7	2.8	3.0	3.1	
Checked for food recalls	2.9	2.8	2.8	2.9	
Checked for GMO ingredients	2.6	2.7	2.9	2.9	
Checked how my food was produced	2.6	2.6	2.9	2.9	
Took steps to reduce food waste at home	3.5	3.8	3.8	3.9	
Recycled food packaging	3.1	3.4	3.7	3.9	
Threw away food past the Use-By date	3.3	3.2	3.2	3.3	
Composted food scraps	2.3	2.3	2.4	2.5	
Ate fruits and vegetables without washing them	2.3	2.1	2.2	2.3	
Ate rare or undercooked meat	1.9	1.8	2.0	2.1	
Ate raw dough or batter	2.0	1.8	1.9	1.9	

Jan. 2022 - Aug. 2024

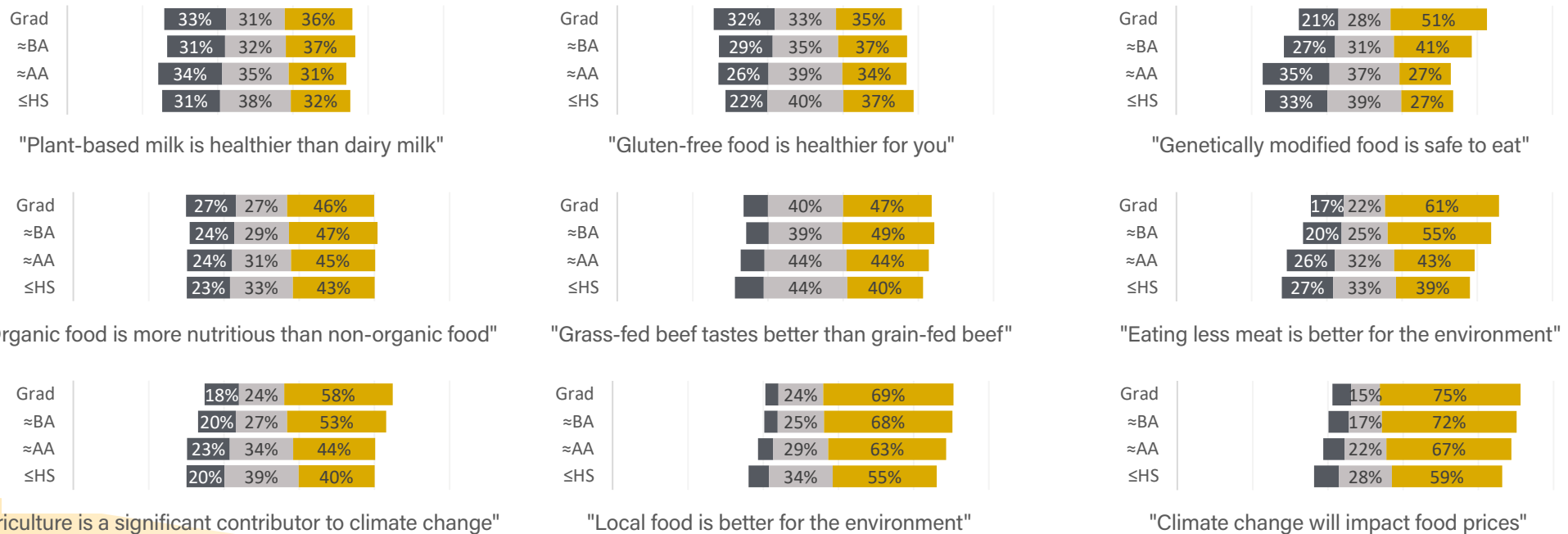
CONSUMER BELIEFS

What do Americans believe about their food and food system?

We observe differences in the beliefs that consumers with differing education levels have about their food (**Figure 20**). Generally, those with lower educational attainment were more likely to have a neutral opinion of each claim. With regards to climate change, a majority of all consumers agree that climate change will impact food prices. However, only those with at least a four-year predominantly agree that there is a connection between our food system and climate change. The variation in agreement about the safety of GMO foods reveals the need for more education and information highlighting the safety of such foods. Responses are more uniform across education levels with regards to statements about health and nutrition.

Figure 20. Consumer Agreement with Claims about Food and Nutrition by Education Level , Jan. 2022 - Aug. 2024

■ Strongly/somewhat disagree ■ Neither agree nor disagree ■ Strongly/somewhat agree



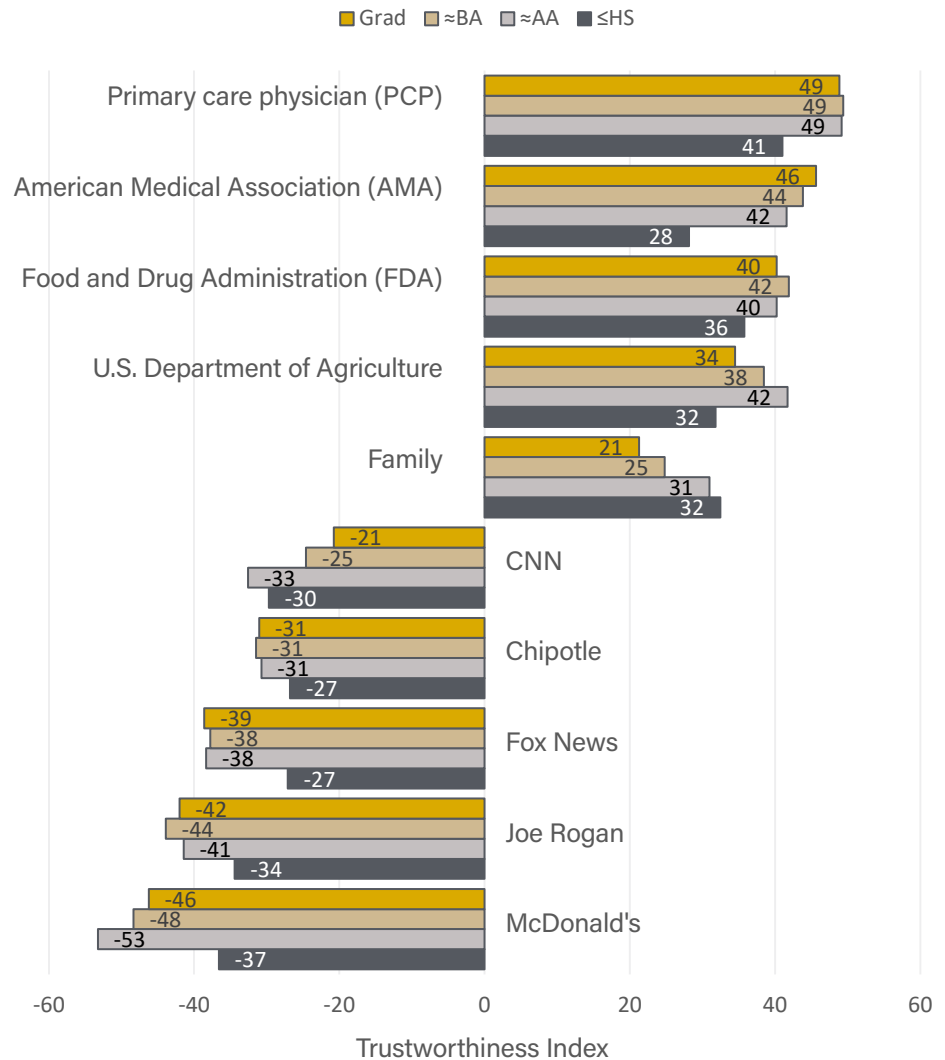
CONSUMER TRUST

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 The five highest and lowest rated entities are summarized by respondent education level.

Consumers with more education compared to others generally trust the AMA and FDA more, while consumers with less education compared to others tend to trust individuals (family & friends) more. People with a college education also distrust fast food companies to a greater degree. Interestingly, the competing news agencies CNN and Fox News score differently on the trust index when separating the sample by education level. CNN is distrusted less among those with at least a four-year degree while Fox News is distrusted less among those who have earned a high school diploma or less. However, both are generally distrusted by consumers as sources of food-related information.

Figure 21. Trust Index of Food-Related Information Sources by , Jan. 2022 - Aug. 2024



ENDNOTES

1 Data were collected from an online panel maintained by the company Dynata over a four-day period from August 19-22, 2024. 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. Population proportions reflect the most recent complete year of ACS Census data (2022). Every respondent from the previous month was re-contacted and asked to take the survey again. Not all respondents retake the survey, so the sample is filled with a new pool of respondents each month. 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 Education levels follow the grouping used in the July 2022 edition of the CFI report.

Sample size Jan. 2022 - Aug. 2024:	≤HS (n=8,876); ≈AA (n=11,940); ≈BA (n=11,662); Grad (n=7,364)
Sample size Aug. 2022:	≤HS (n=289); ≈AA (n=392); ≈BA (n=377); Grad (n=216)
Sample size Aug. 2023:	≤HS (n=272); ≈AA (n=307); ≈BA (n=378); Grad (n=248)
Sample size Aug. 2024:	≤HS (n=277); ≈AA (n=364); ≈BA (n=373); Grad (n=217)

3 Description presented to respondents: "The term 'regenerative agriculture' broadly refers to farming methods that result in improved soil health, carbon capture, improved biodiversity, and healthy water resources. Regenerative agriculture methods include but are not limited to:

Cover cropping – planting crops on bare fields to cover the soil to improve soil health, prevent erosion, and increase biodiversity

No-till farming – reducing soil disturbance to maintain soil structure, reduce erosion, and increase organic matter in the soil

Crop rotation – alternating the type of crops grown on a field to improve soil fertility

Rotational grazing – rotating livestock through different pastures to graze to allow time for plants to regrow and improve the long-term health of pastureland"

4 International Food Information Council (2022). *Consumer Perspectives on Regenerative Agriculture*. <https://foodinsight.org/wp-content/uploads/2022/02/IFIC-Regenerative-Ag-Consumer-Survey.pdf>.

ENDNOTES

5 The 10% premium used in the choice question was determined based on calculations from Dr. Lourival Monaco using data on the cost of adopting regenerative agriculture practices for key crops, such as corn and soybeans.

Precision Conservation Management (2022) *The Business Case for Conservation. Cost-Benefit Analysis of Conservation Practices.*

Precision Conservation Management. https://www.precisionconservation.org/wp-content/uploads/2024/06/2024_PCM_Booklet_WEB2_FINAL.pdf

6 Malone, T. & Golan, E. H. (2024). *Limited Understanding and Differing Perceptions of Agricultural Sustainability Point to the Need for More Consumer Education.* Farm Foundation Issue Report. February 2024. <https://www.farmfoundation.org/wp-content/uploads/2024/02/Farm-Foundation-February-2024-Issue-Report-Sustainable-Ag-Terminology.pdf>

7 Descriptions of each attribute:

Nutrition (amount and type of fat, protein, vitamins, etc. are healthy and nourishing)

Environmental impact (production and consumption improve rather than damage environment)

Social responsibility (farmers, processors, retailers, workers, animals and consumers all benefit)

Affordability (food prices are reasonable, fit within your budget, and allow you lots of choices)

Availability (enough safe and desirable food is easy to find and physically accessible)

Taste (flavor and texture in your mouth are pleasing and high quality)

8 U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: Food in U.S. City Average [CPIUFDSL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CPIUFDSL>, August 27, 2024.

9 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

10 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.

11 Trust questions were not fielded in the Consumer Food Insights survey from October 2022 - December 2022.