FRESH MUSHROOM CONSUMPTION AND ATTITUDES

APRIL 2024

Methodology

A food diary study to understand the who, what, where and when

- It is hard to track total mushroom consumption given its role as a main and meal ingredient
- The National Eating Trend food diary reflects the eatings per capita
  - Self-reported survey; all ages (kids/teens/adults)
  - Continuous daily reporting for up to 7 days per person
  - All foods & beverages; all channels, uses, and situations
  - Yielding over 500,000 occasions annually
  - Yielding over 1,000,000 eatings of foods & beverages annually
  - Weighted to key U.S. Census Bureau statistics

Source: Circana's National Eating Trends 2024

Research terminology

- **Annual Eatings Per Capita**: the average number of eatings per person in the population per year. The population includes eaters and non-eaters of the item of interest
- **Eating**: represents one instance of one person eating or drinking one item. Measures frequency; does not reflect the volume consumed at the occasion
- **Occasion:** number of occasions (meals/snacks) during which a specified behavior took place
- **Index**: relative measure indicating if a group is well-developed or underdeveloped compared to the rest of the population
  - Above-average engagement: >115
  - Below-average engagement: <85

Source: Circana's National Eating Trends 2024

Definitions relative to dishes/meal usage

- **Base dish (end dish):** a food or beverage representing the final (end) dish that was prepared or consumed.
  - Examples include pizza, a glass of milk, cookies, soup, casserole, etc.
- **Addition/topping**: anything added to an end dish by individuals who are eating the dish after it was prepared. Additions are typically unique to the individual eater since they are "added" to a dish which is sometimes referred to as the "host food" at the table.
  - Examples include adding milk to a bowl of cereal, spreading jam on toast, ketchup on fries, etc.
- **Ingredient**: an item the preparer combines to make a dish, i.e. recipe components.
  - Examples include milk in mashed potatoes, butter in cookies, egg in cake batter, etc.
- **Cooking aid**: a food item used to facilitate the cooking process.

CONSUMPTION

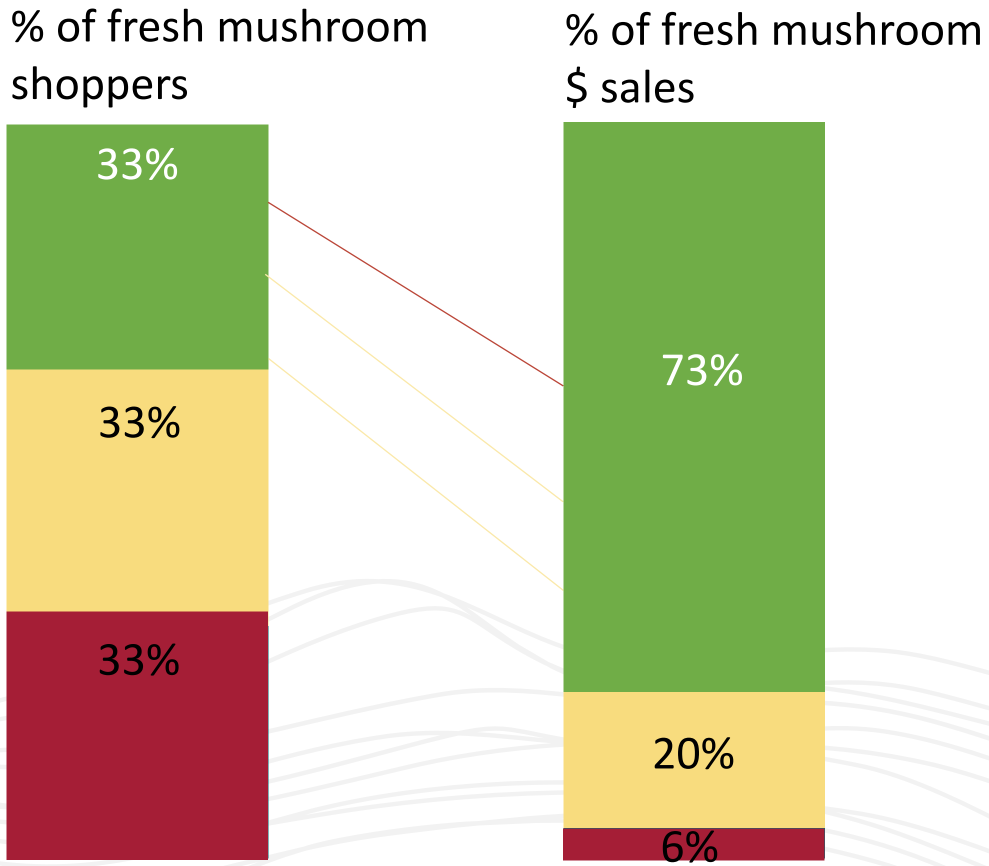
NUMBER OF MUSHROOM EATINGS PER CAPITA ACROSS ALL CONSUMERS AND BY GROUP

Mushroom consumers

While about half purchase mushrooms from the produce department, engagement is very lobsided

48%

Of households purchase mushrooms from the produce department at least once per year.



Consumer engagement, whether consumption altogether or produce department purchases, is very lobsided, skewing toward:

- Adults vs. kids

And within adults, towards:

- Boomers and Gen X
- Higher income
- Higher education
- Women
- Asian

Source: Circana Integrated Fresh Household Panel 2024

Mushroom consumption adults vs. kids

Children, especially young kids, far under index for consuming mushrooms

64%

Of Americans consume mushrooms at least once a year, whether fresh from the produce department or as an ingredient/topping to a base dish, such as a frozen pizza or a jar of spaghetti sauce

Taste and texture remain the top reasons for non-consumption

Index of mushroom consumption adults vs. kids

115

Adult mushroom consumption index

53

Kid mushroom consumption index

35 Ages 2<6
52 Ages 6<12
74 Ages 13-17

While engagement increases as children age, there appears to be a consumption ceiling: Gen Z and Millennials also under index for mushroom consumption

Source: Circana Primary Shopper Survey March 2024| National Eating Trends 2024

Mushroom consumption among adults

Mushroom consumption skews older

Index of mushroom consumption adults vs. kids

115

Adult mushroom consumption index

Index of mushroom consumption by generation

83	Ages 18-24	**Gen Z and younger Millennials under index**
86	Ages 25-34	
100	Ages 35-44	**Older Millennials are on par**
125	Ages 45-54	**Boomers and Gen X are core mushroom consumers**
133	Ages 55-64	
125	Ages 65+	

Kid, Gen Z and Millennial consumption paints a disconnect with mushrooms in younger generations. As such, Millennials parents (a rapidly growing share of total Millennials) may not introduce their children to (fresh) mushrooms to the same extent as Boomers and Gen X did before them. This is an important downward cycle that will have to be reversed for future mushroom growth. Note, these numbers do not include supplements or powders.

Source: Circana's National Eating Trends 2024

Mushroom consumption by gender and age

Women are more likely to consume mushrooms across all ages

Index of mushroom consumption men vs. women

55%

Across ages, including children, women account for more than half of mushroom consumption occasions, leading to a slightly above-average index

91 Men
108 Women

Index of mushroom consumption by age and gender

Adult men	Adult women
104 Overall index	**122 overall index**
75 Ages 18-24	91 Ages 18-24
75 Ages 25-34	88 Ages 25-34
100 Ages 35-44	130 Ages 35-44
118 Ages 45-54	148 Ages 45-54
132 Ages 55-64	136 Ages 55-64
114 Ages 65+	136 Ages 65+

Women, especially in older generations, are more likely to consume mushrooms. In these generations, females were far more likely to be the sole primary grocery shopper, versus a more shared responsibility among Millennials and Gen Z (if multiple people are present).

Source: Circana's National Eating Trends 2024

Mushroom consumption by income and HH size

Consumption skews toward higher-income, 2-person households

Index of mushroom consumption by household size and composition

113 Households without kids
86 Households with kids
- **70** Households with kids ages 2<6
- **80** Households with kids ages 6<12
- **92** Households with teens 13-17

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98 1-member households
117 2-member households
90 3-member households
93 4-member households
93 5+ member households

Index of mushroom consumption by annual income

62 Less than $25K
67 $25K-$44.9K
85 $45K-$74.9K
110 $75K-$99K
124 $100K+

Consumers earning $100K or more per year (44% of the panel), represent 54% of all mushroom eatings.
Unlike other economic downturns when consumption changes were driven by lower-income households, inflation prompted many behavioral changes among high-income households in 2023 as well. In retail, the volume study showed that while the initial volume pressure was driven by light consumers, ongoing declines are driven by lower engagement among heavy/core consumers.

Source: Circana's National Eating Trends 2024

Mushroom consumption by race/ethnicity

Consumption skews toward white non-Hispanic and Asian

Index of mushroom consumption by race/ethnicity

116 White non-Hispanic
49 Black/non-Hispanic
51 Hispanic
181 All other race/ethnicity, including Asian

This matches the household panel purchase patterns at retail that showed a very high index for Asian Americans, at 130.

Source: Circana's National Eating Trends 2024

Average per capita consumption across all ages, non-consumers and consumers

3.5x per year

Average number of mushroom eatings across all consumers ages 2+

4.0x per year

Average number of mushroom eatings across all adults

Types

(consumer identified)

89% White, regular, not identified
6% Crimini, (porta)bellas
5% Stuffed and exotics

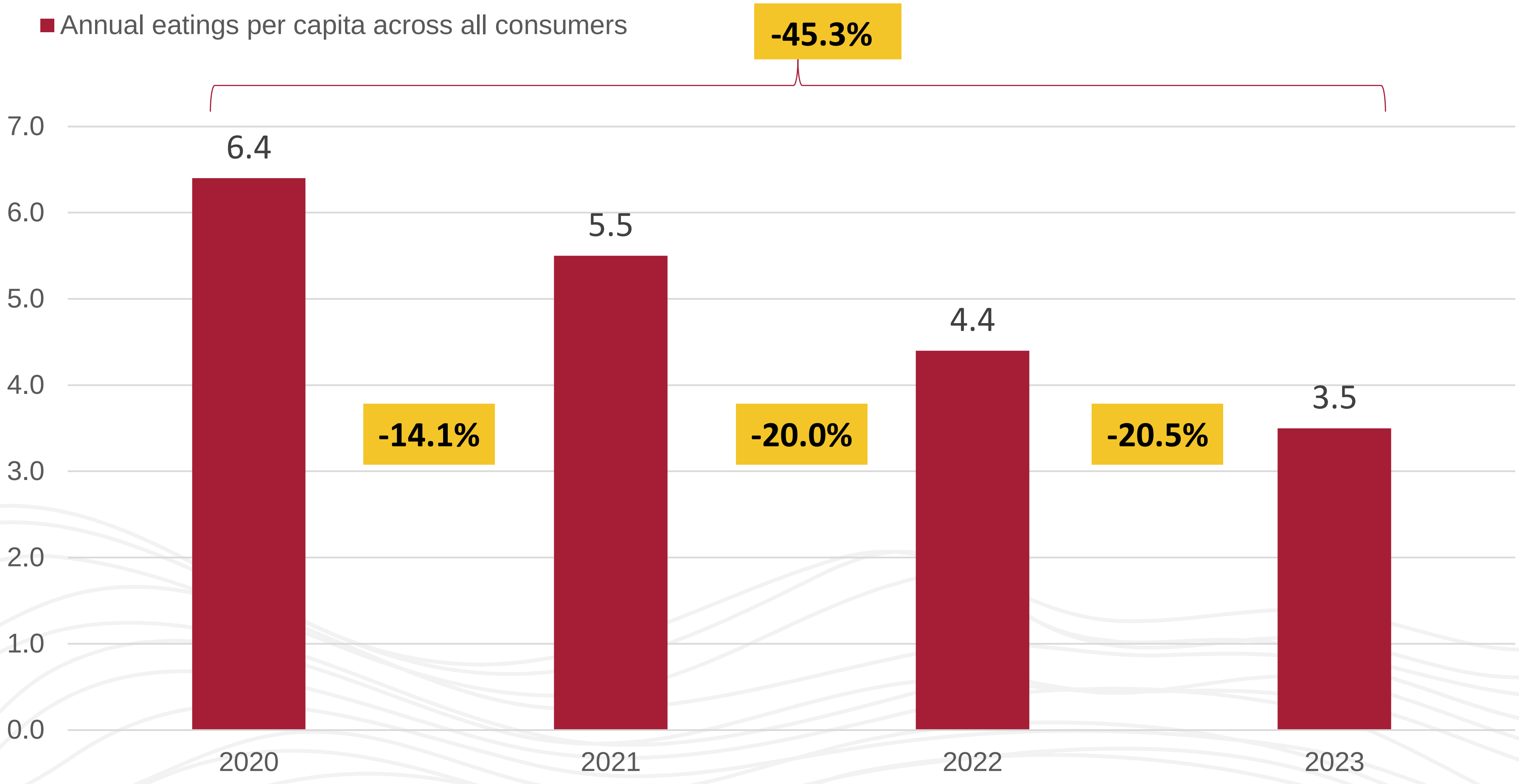
Notes:
These numbers are fairly meaningless as they are affected by kids, non-consumers and light consumers. Additionally, diary respondents are not expected to identify all the ingredients in restaurant-prepared dishes.

The important numbers and storyline are the indices that show patterns by the population group and patterns over time.

Source: Circana's National Eating Trends 2024

Per capita eatings

The overall population average is pulled down by children and non-users



Notes:
As noted on the prior page, the actual numbers are going to be far higher among mushroom consumers plus are skewed by the very lobsided engagement. It's year-over-year patterns that matter.

As seen in retail sales, consumption peaked in 2020, but have been sliding since. These numbers will be exaggerated versus reality as only limited foodservice dishes will have mushrooms identified.

Source: Circana's National Eating Trends 2024

Meeting the high bar: weekly consumption

5% of consumers enjoy mushrooms weekly

Weekly individual mushroom penetration

5.1%

Of total individuals consume mushrooms at least once during a seven-day period

Share of weekly consumption:

- **5.3%** Women
- **5.6%** Adults
- **6.9%** Gen X
- **6.9%** Boomers
- **6.5%** Annual income of $100K+
- **6.3%** Western Census region

Source: Circana's National Eating Trends 2024

THE WHEN, WHERE AND WHAT

USAGE BY DAYPART, SEASON AND MEAL TYPE AS WELL AS PREPARATION METHODS

Consumption by meal occasion

Dinner is the most common time to consume mushrooms

Share of annual mushroom eatings

12%
Breakfast

18%
Lunch

66%
Dinner

4%
Other (Before, after or in between meal occasions)

Source: Circana's National Eating Trends 2024

Consumption by time of the day

Similarly, the late afternoon/early evening hours are the key hours

Share of annual mushroom eatings

Note: this data is available in 15 minute increments

8%
Before 10 a.m.

19%
Between 10 a.m. and 2 p.m.

58%
Between 5 p.m. and 8 p.m.

15%
Other in between lunch/dinner or later

Source: Circana's National Eating Trends 2024

Consumption by season

Fall and winter have the highest share of total eatings, corresponding to retail sales

Share of annual mushroom eatings

26%

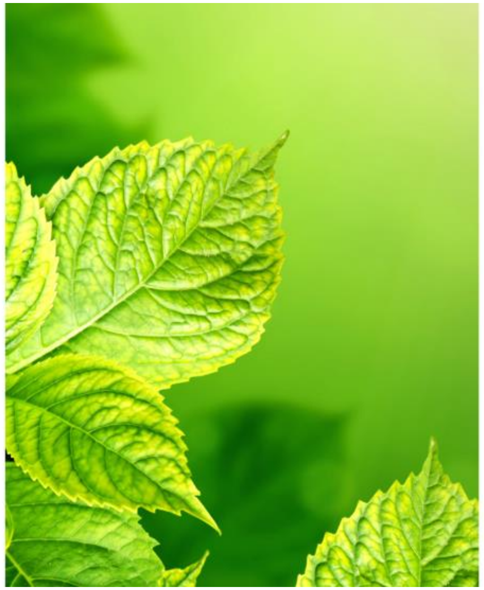
105 Index

December
January
February

25%

101 Index

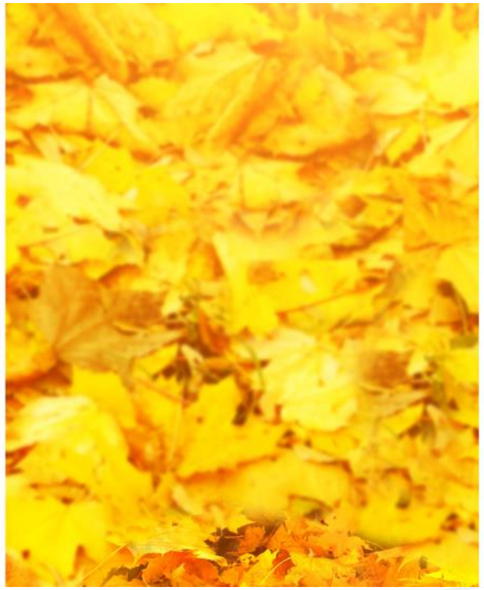
March
April
May



23%

90 Index

June
July
August



26%

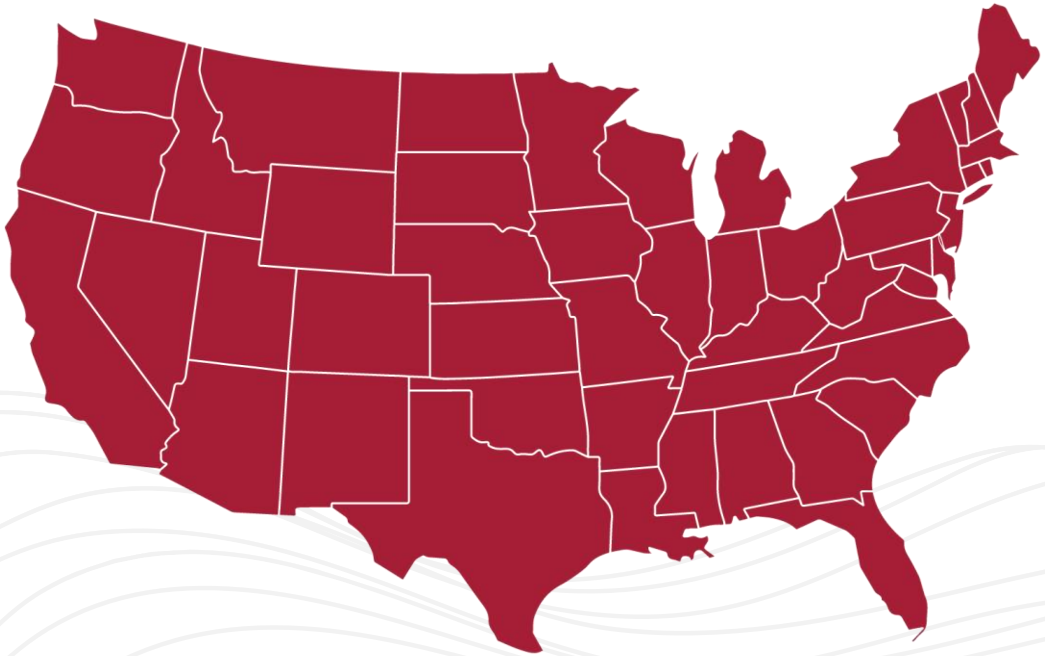
104 Index

September
October
November

Source: Circana's National Eating Trends 2024

Consumption by Census region

The South lags in fair share mushroom consumption, though at retail, the Midsouth and Southeast have seen above-average growth in the past few years



Share of mushroom eatings:

20% Northeast
25% Midwest
30% South
25% West

Index of mushroom eatings:

115 Northeast
121 Midwest
78 South
106 West

Source: Circana's National Eating Trends 2024

Consumption location

In-home is highest, by far. Keep in mind that pizza, sandwiches, burgers, etc. are often, and increasingly, consumed in-home, even when purchased away-from-home.

Share of annual mushroom eatings

As an example, McDonalds reported that fewer than 10% of trips/purchase occasions are consumed on premise

Total mushroom eatings

86%
In-home

14%
Away from home*

* This is going to be under-reported as consumers are not asked to identify ingredients in a dish, sauce, etc. when eating restaurant-prepared foods

- **5%** Restaurants
- **4%** Someone else's home
- **3%** Work
- **1%** School/college
- **1%** Other

Source: Circana's National Eating Trends 2024

Sources of meal inspiration (in-home meals)

Large generational gaps

Top 3 sources of meal inspiration or meal ideas by generation:

Overall	**Gen Z**	**Millennials**	**Gen X**	**Boomers**
Routine meals	TikTok	YouTube	Routine meals	Routine meals
Family/friends	YouTube	Facebook/meta	Family/friends	Family/friends
Recipe websites	Instagram	Instagram	Recipe websites	Cookbooks

Source: FMI Power of Produce 2024

Usage as a base dish or ingredient/addition

Mushrooms are far more likely to be used "in" something than as the main dish

Share of annual mushroom eatings

21%

Base dish

(a food or beverage representing the final (end) dish that was prepared or consumed

80%

Additions/topping or ingredients

25% Addition

55% Ingredient

95%

of mushroom eatings were part of the original meal

5%

were added to a leftover dish

Source: Circana's National Eating Trends 2024

Food trends for in-home occasions

Italian, Mexican and Japanese are the big global food trends

Global foods sizing based on annual eatings per capita – total including dishes without mushrooms (in-home)

	Annual eatings per capita in-home					
	2020	**2021**	**2022**	**2023**	**Pt. Chg vs. 1YA**	**Pt. Chg vs. 3YA**
Italian (incl. pizza)	39.4	37.2	38.3	40.3	+2.0	+0.9
Mexican	26.0	26.5	27.8	28.1	+0.3	+2.1
Asian	27.2	26.7	27.0	28.2	+1.2	+1.0
Chinese	9.2	9.0	8.8	9.2	+0.4	+0.0
Japanese (incl. ramen)	14.2	13.6	14.4	14.3	-0.1	+0.1
Indian	3.4	3.5	3.3	4.3	+1.0	+0.9
Korean	0.9	1.3	0.8	0.9	+0.1	+0.0
Thai	0.8	0.7	0.5	0.7	+0.2	-0.1
Cajun	1.3	1.1	0.9	0.8	-0.1	-0.5

Source: Circana's National Eating Trends 2024

Top host foods for mushrooms

As seen in the co/cross purchase study, eggs, Asian and Italian dishes are common cuisines among mushroom consumers

% of annual eatings when mushrooms are used as an addition/topping or ingredient for in-home dishes

Top host food used (in-home)

15%	Eggs & egg dishes
8%	Asian dish
7%	Spaghetti
6%	Salad
5%	Pizza, traditional
5%	Pasta/noodles
4%	Soup/broth/stock/gumbo
4%	Red meat, beef steak
3%	Red meat, all other
3%	Vegetables, other
3%	Mixed dish with red meat or pork
3%	Mixed dish with poultry

Source: Circana's National Eating Trends 2024

Top accompaniments with mushrooms

Mushrooms are often paired with vegetables — served up with sides such as fries, mashed potatoes, a variety of vegetables, bread/buns, etc.

% of occasions when mushrooms are consumed that also have the following base dish accompaniments

Top non-mushroom base dish accompaniments

17%	Potatoes (mashed, fried and other)
16%	Cooking vegetables, including onions, zucchini, asparagus, etc.
16%	Broccoli, green beans, carrots, mixed vegetables or corn
12%	Bread, buns/rolls or toast
11%	Salad
9%	Red meat (steak, ground, etc.)
7%	Chicken
7%	Rice/grains
5%	Seafood

Source: Circana's National Eating Trends 2024

Cooking appliances when preparing mushrooms

Traditional appliance are the most prevalent when preparing mushrooms at home

Share of in-home preparation occasions

60%
Stovetop

21%
Oven or convection oven

14%
Microwave

9%
No appliance/raw

5%
Fryer (air or oil)

4%
Electric skillet

3%
Grill

3%
Slow cooker

Source: Circana's National Eating Trends 2024

Preparation and cook time

For at-home preparation of dishes that contain mushrooms, the average cook time is around 20-25 minutes

Share of in-home preparation occasions

Total preparation and cook time of the meal occasion

6%	Less than 5 minutes
19%	5 to 14 minutes
26%	15 to 29 minutes
17%	30 to 44 minutes
7%	45 to 59 minutes
6%	1 hour to less than 2 hours
4%	2 hours or more
16%	Varies, N/A, Don’t know

Source: Circana's National Eating Trends 2024

MOTIVATIONS AND ATTITUDES

MUSHROOM CONSUMER MEAL DRIVERS

Taste always wins

But mushrooms tend to have a love/dislike divide

96%

Of consumers agree that if a meal tasted good, they will prepare it again

- Consumers who buy them consider them delicious (60%)
  - Taste/flavor is a big driver among those who consume them
  - At the same time, taste and texture is the big challenge for those who don’t
    - Can health/nutrition provide a second chance?
    - Can money-saving tips (blend) provide a second chance?
    - Is this where powders/supplements are winning?

Source: 96% = Power of Meat 2024 | 60% = The Mushroom Council Growth Strategy Research

Attitudes among mushroom vs. all consumers

Underscores the importance of nutrition and sustainability

Consumer attitudes

	% of consumers (18+)		
	Total consumers	Mushroom consumers	Index to Total Shoppers
Top 2 box (somewhat or strongly agree)	**100**	**100**	**100**
I actively seek out foods with nutritious benefits (e.g., whole grains, calcium)	62	71	115
I feel guilty when I eat something that is not healthy	44	51	115
Environmental concerns strongly influenced what foods and beverages I have	27	31	115
I only buy food and beverages with ingredients I understand	42	47	114
I am always aware of calories in the foods and beverages I have	48	53	111
Taking the time to prepare a home cooked meal is worthwhile	81	88	109
My family typically sets down together for dinner	61	66	109
I use technology (e.g., apps) as part of my health and wellness routines	50	52	105
I enjoy entertain guests at home	48	50	103
Price of food isn't an issue - I buy what I want	37	38	103
Buying foods and beverages my family enjoys is my top consideration	73	74	101
My life tends to feel hectic and rushed	46	44	96
I can master even the most sophisticated cooking techniques	39	37	94
I care less about eating healthy when I go to a restaurant	52	44	85
I am always the first to try new foods, flavors, or beverages	38	32	83
I often rely on takeout because I have no time to cook	27	22	80
Food is just means to keep me going	33	25	77
I often run out of money before my next paycheck	31	24	77
I often eat/drink because of the mood I am in, not because I'm hungry	42	30	71
Best known brands are highest quality	32	21	67
Convenience is most important in the foods and beverages I consume	45	28	63

Source: Circana's National Eating Trends 2024

Analysis of mushroom consumer attitudes

Health and nutrition:
- Actively seek out nutritional benefits
- Feel guilty when eating something that isn't healthy
- Buy items with ingredients I understand
- Calorie awareness

Sustainability
- Environmental concerns influence food choices

Enjoyment
- Value taking the time to prepare a home-cooked meal
- Enjoying a meal together with family

<u>NOT</u> strongly motivated by:
- Brands
- Convenience
- Food as fuel only
- Trendy foods

In retail, private label sales have been outperforming branded mushrooms. Additionally, whole mushrooms have been outperforming sliced/cut over the past year.

Source: Circana's National Eating Trends 2024

Top motivations of the mushroom occasion

Health/nutrition plays a key role, as does mood or a specific taste

Share of mushroom occasions (in-home)

Top 5 motivations of the occasion

35% Was made with items on hand

33% Was healthy/nutritious

29% Satisfied craving/specific taste

27% Was made how I like it

26% It was a favorite

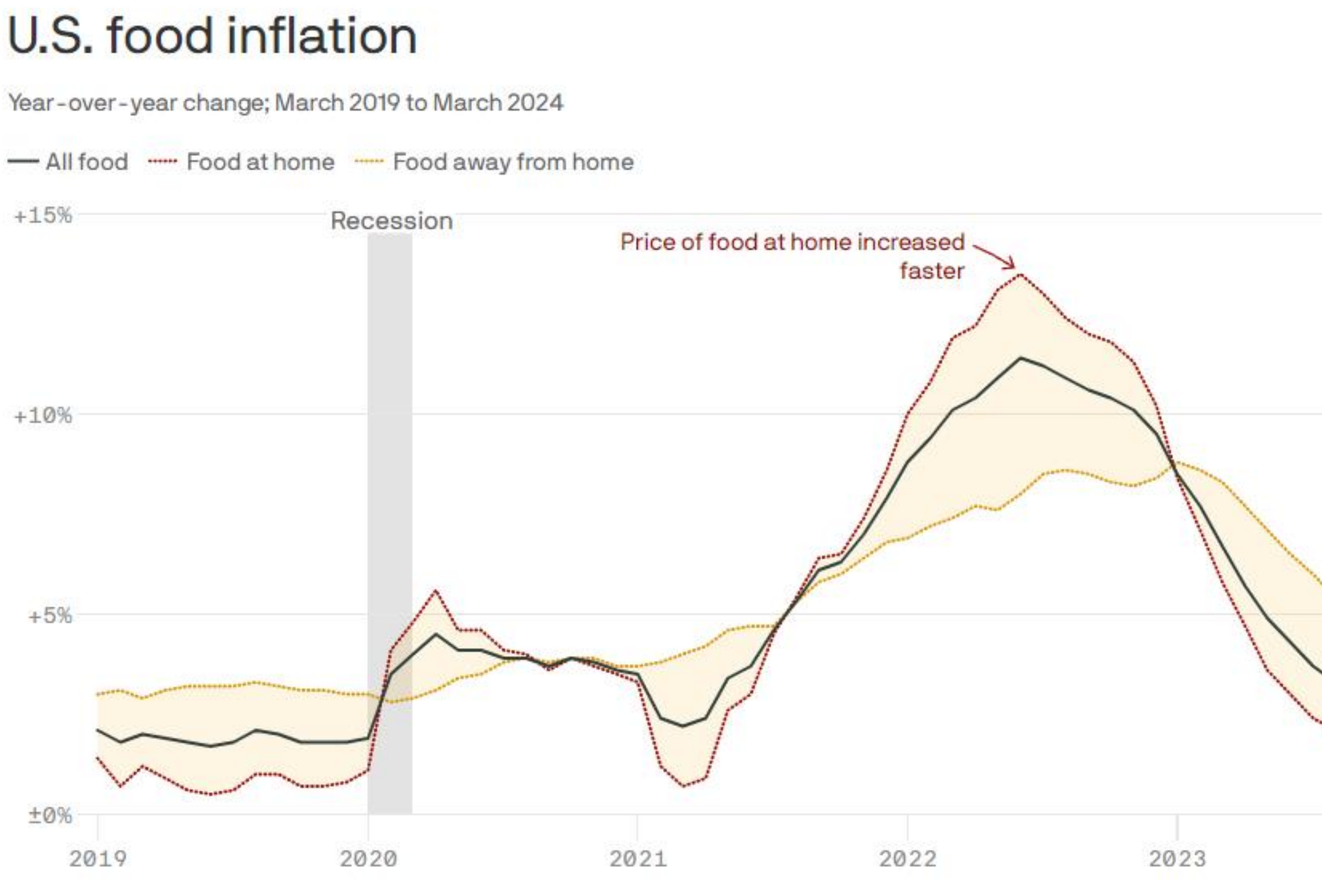
Source: Circana's National Eating Trends 2024

EXTERNAL MARKET PATTERNS

MARKETPLACE TRENDS AFFECTING MUSHROOM CONSUMPTION

Inflation has flipped from 2022-2023

Foodservice (restaurants) price increases are higher than retail



Cost per eating occasion

At home/retail: $1.78

Commercial FS: $7.48

+4.3x

+$5.03

Source: Circana, Total US, MULO++, 52 weeks ending 2/25/2024

Source: Bureau of Labor Statistics, ERS through March 2024

State of foodservice (restaurants)

-0.5%
Real growth of restaurants sales for 2023

-0.3%
Projected real growth of restaurant for 2024

Fine dining and QSR expected to maintain or grow in 2024

Continued declines for midscale, casual dining and fast casual

+2.0%
Projected growth 2024 colleges/ universities

+2.0%
Projected growth 2024 lodging/ recreation

Source: National Restaurant Association | State of the Foodservice Industry 2023

In retail, more departments moved into the plus

But unit pressure persists overall

	Total store	Frozen	Dry grocery	Refrigerated	Produce	Meat	Deli	Bakery	Seafood
Dollar sales	**$896B**	**$84B**	**$247B**	**$95B**	**$90B**	**$100B**	**$54B**	**$48B**	**$8B**
Dollars vs. YA	+2.8%	+0.9%	+4.8%	-0.6%	+2.7%	+1.1%	+3.1%	+4.5%	-4.0%
Units vs. YA	-0.7%	-2.1%	-1.4%	+0.6%	+1.5%	-0.8%	+1.7%	-0.9%	-2.4%

Source: Circana, Integrated Fresh, Total US, MULO+, 52 weeks ending 3/31/2024

Price perceptions and shopping changes

The produce purchase looks vastly different at retail

75%

Of consumers believe fresh fruit and vegetables are more expensive now

83%

Of consumers are making changes to their fresh produce purchases

Top money-saving measures:

- **35%** Buy more produce on sale/promotion
- **25%** Buy produce that lasts longer for less waste
- **24%** Buy less produce (amount)
- **20%** Buy cheaper types of fruits/vegetables
- **19%** Buy at a different store/place
- **18%** Visit farmers' markets/roadside stands

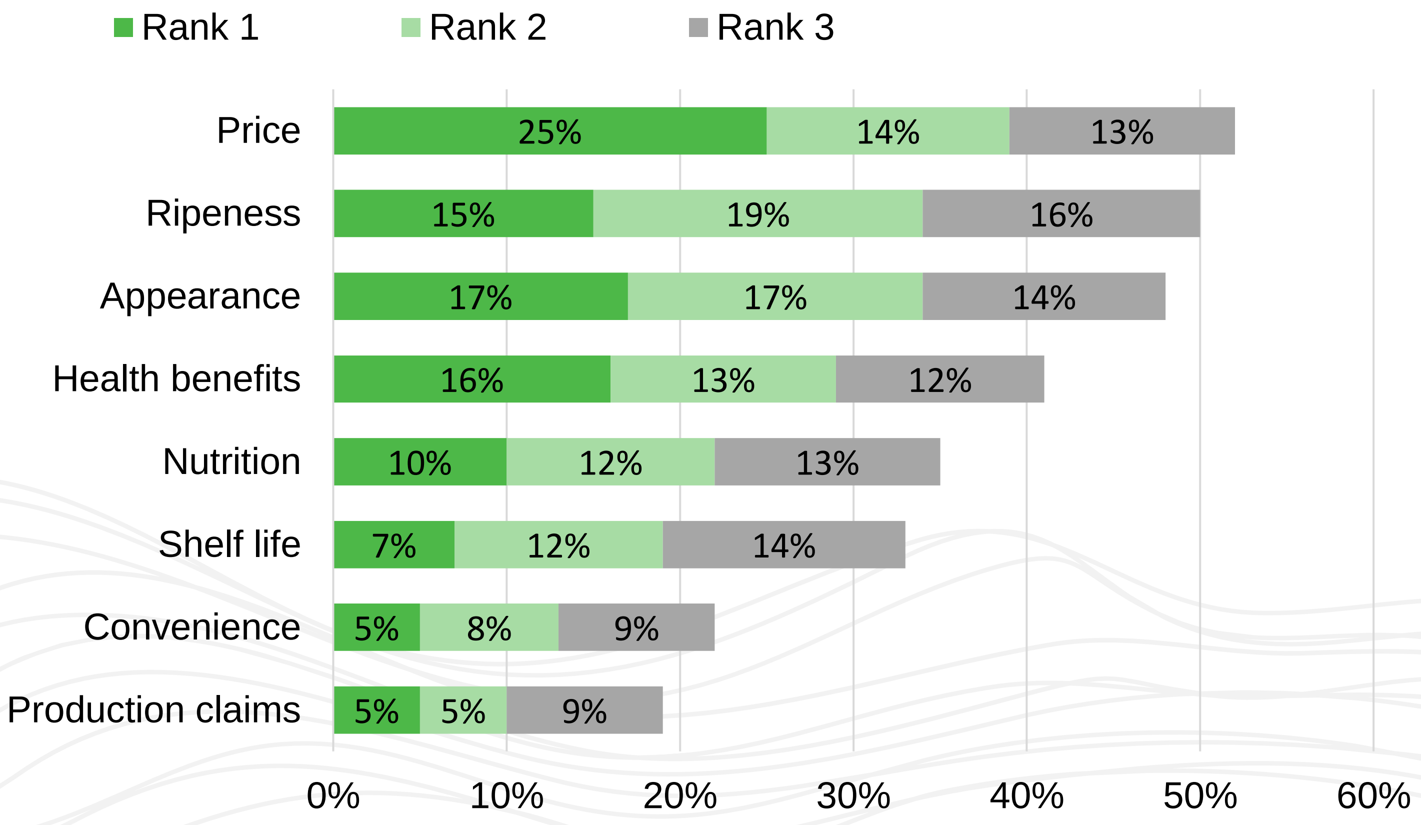
Price per pound | Change vs. YA
Total fresh produce: $1.90 | +2.1%
Total fresh vegetables: $1.98 | +0.5%
Total fresh mushrooms: $4.53 | +0.7%

Source: Bureau of Labor Statistics, ERS through March 2024 | Price per pound: Circana, MULO, Total US, 52 w.e. 4/21/2024

Produce purchase decision

Attributes are very similar across fruits, vegetables and individual commodities

Produce purchase decision factors:



Purchase decision themes:

- Whether top rank or combined top 3 ranking, price dominates
- But it is hand-in-hand with ripeness and appearance, meaning it is **value more so than price**
- Health benefits and nutrition close out the top 5

Dollars moved around the different channels

Channel share of total food & beverage dollars:

	2019	Q1 2024
Traditional grocery	38.6%	**35.3%**
Mass & Supercenter	21.5%	**22.3%**
Club	10.7%	**11.9%**
Discount grocery	6.8%	**6.4%**
Specialty stores	3.7%	**4.1%**
Online	1.2%	**3.8%**
Health/organic specialty	2.7%	**2.0%**
Other	14.8%	**14.2%**

Sources: Circana, Household Panel data, 13 w.e. 3/25/2024 and 2019 calendar year

KEY TAKEAWAYS

IN MUSHROOM USAGE AND ATTITUDES

Key takeaways

- Mushroom engagement is very lopsided, making overall consumption averages rather meaningless
  - 64% consumed mushrooms in the past year
  - 48% bought them at retail at least once in the past year
  - However, the top one-third of consumers represents 73% of mushroom dollar sales
- Consumption lags among kids and among adults skews toward:
  - Boomers and Gen X
  - Higher income
  - Higher education
  - Women
  - Asian
- To halt the volume decline currently, Boomers, Gen X and high-income (re)engagement is crucial
- To drive future growth:
  - Gen Z and Millennials present large consumption gaps, which, in turn, will likely further influence the already very low consumption among kids
  - Positioning mushrooms as a budget saver may grow consumption among lower-income consumers
  - It is important to boost consumption among men, especially younger men, as shopping is far more a shared versus female responsibility among younger generations

Key takeaways

- Mushrooms are largely consumed at dinner, with breakfast and lunch being growth opportunities
  - Breakfast sandwiches have been an area of growth for years
  - Digital sources are driving meal inspiration among younger consumers
- Consumption dips in the summer as mushrooms are mostly a topping or ingredient (80% of eatings)
  - Emphasize salads and grilling occasions, though the primary way to prepare mushrooms is on the stove top and in the oven
  - Meals average 20-25 minutes
  - Optimize cuisines/foodservice channels that are growing in QSR
- The South, while a large region, lags in mushroom eatings, though has seen above average growth in recent years.
- In the external environment…
  - The overall pressure on finances that has resulted in widespread unit and volume pressure is affecting mushrooms as well
  - Restaurant inflation is likely to continue a home-centric environment, along with strength for value-focused restaurants, such as QSRs
  - Regional differences will remain strong in both retail and foodservice
  - Dollar distribution changes for total food & beverages and produce will affect mushroom dollar distribution also

For more information

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