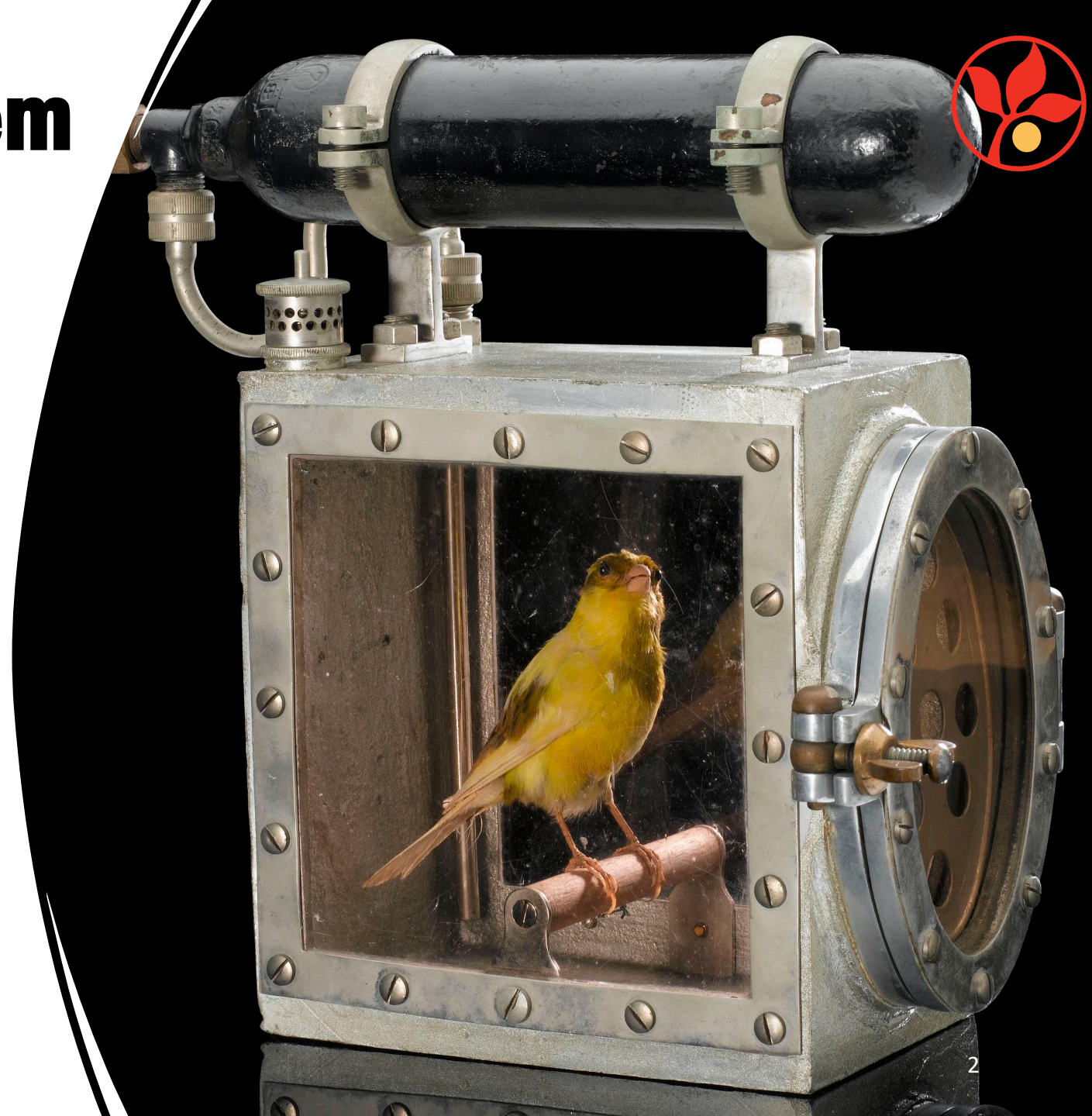# Early Warning System
Significance

- Food bank use is like a canary in the coal mine for those facing hunger and hardship.

- Food banks offer a window into understanding the full extent of the coming food crisis: an Early Warning System of the strains on our food systems.

Early Warning System
Context

- This is a framework to inform the development of a statewide Food Emergency Early Warning System.

- The framework's goal is to provide input on the development of an Early Warning System and advance discussions with the Maryland Department of Emergency Management on this topic.

- Early Warning System indicators included in this framework are monitored by subject-matter experts at the Maryland Food Bank.
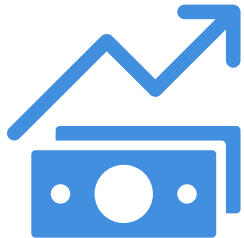
Early Warning System Indicators

Demand

↑

- Food Distribution
- Partner Visits
- Internet Searches
- 211 Calls for Food

Food Supply

↑

- Food Supply
- Movement of Supplies
- Inventory Turnover
- Sourcing Outlook

Hardship

↑

- Consumer Price Index
- Food Affordability
- Food Insufficiency
- Financial Hardship

Early Warning System Indicators

| #	Indicator	Early Warning Sign	Significance	Data Sources
1	Demand	Food Distribution	MFB tracks the amount of food it distributes to its 1,200 sites.	MFB Navision
2	Demand	Network Partner Visits	MFB tracks pantry statistics, visitor patterns, demographics.	MFB Link2Feed
3	Demand	211 Calls for Food	MFB evaluates 211 call data to monitor needs trends.	211-Maryland
4	Demand	Search for Free Food	MFB evaluates Google Trends to assess demand and need.	Google Trends
5	Food Supply	Cost of Goods	MFB monitors the cost of good distributed.	MFB Navision
6	Food Supply	Inventory Turnover	MFB tracks movement by item during the last 30 days.	MFB Navision
7	Food Supply	Movement of Supplies	MFB monitors the availability of items.	MFB Navision
8	Food Supply	Cereal Supply	Up-to-date stats of the world cereal market.	FAO
9	Food Supply	Supply Events	Trade news alerts shed light on potential food shortages.	AP, USDA
10	Hardship	Cost of Living	MFB tracks inflation impact on neighbors in need.	U.S. BLS
11	Hardship	Household Expenses	The effects of usual household expenses on financial stability.	U.S. Census
12	Hardship	Food Affordability	Survey results are a pulse of food affordability.	U.S. Census
13	Hardship	Food Insufficiency	MFB monitors food insufficiency rates on a bi-monthly basis.	U.S. Census

Hardship: Propel Survey (U.S. Data)

Example #1

In the last 30 days, Providers have:

- ● Skipped meals
- ● Eating less
- ● Visited a food pantry
- ● Relied on family or friends for meals
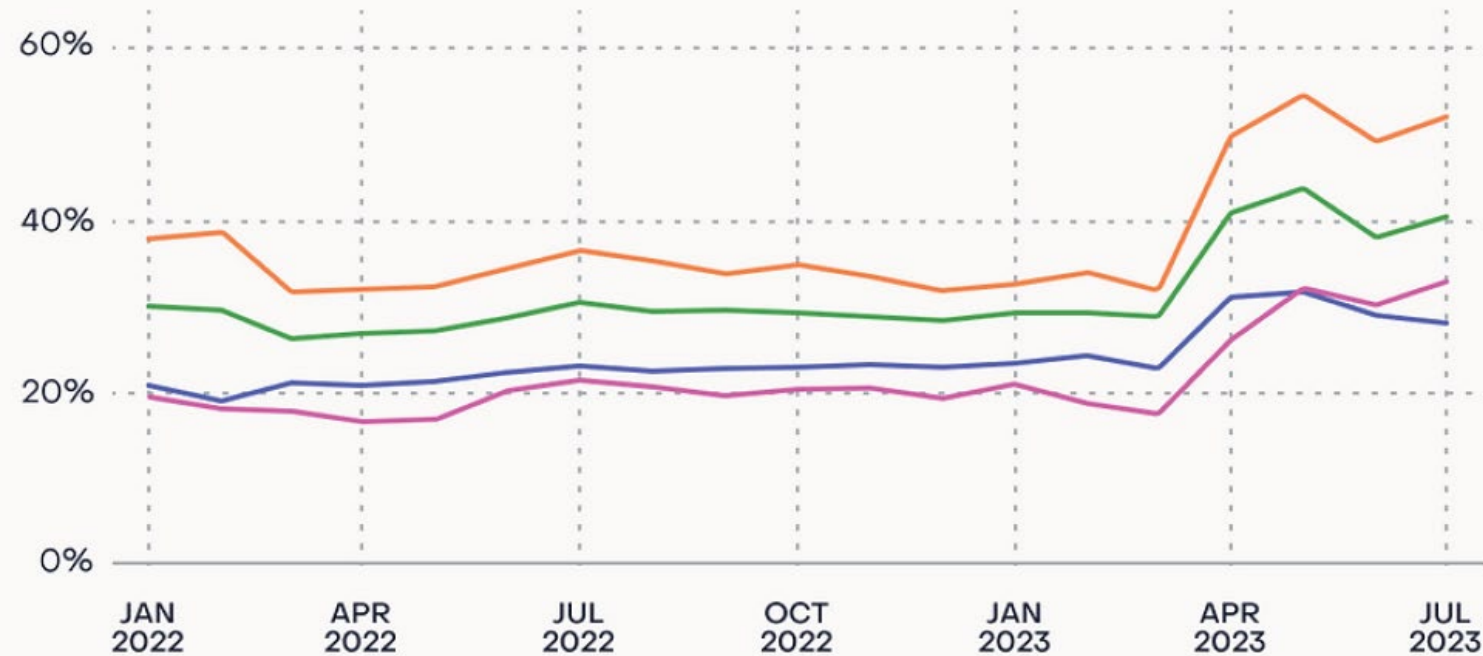
n=2,581
Source: Random sample of Providers users. Data presented by Propel, inc

Propel SNAP Household Survey Results, July 2023. https://www.joinpropel.com/reports/july-2023-pulse-survey

Hardship: Food Affordability (Md. Data)

Hardship

#12: Food Affordability

Census researchers ask MD parents if their children were *often, sometimes* or *never* eating enough because the household "just couldn't afford enough food." The (bi-)monthly survey results measure a pulse of food affordability.

U.S. Census Household Pulse Survey:
Food Table 4. Recent Food Insufficiency for Households with Children.

Hardship: Food Affordability (Md. Data)
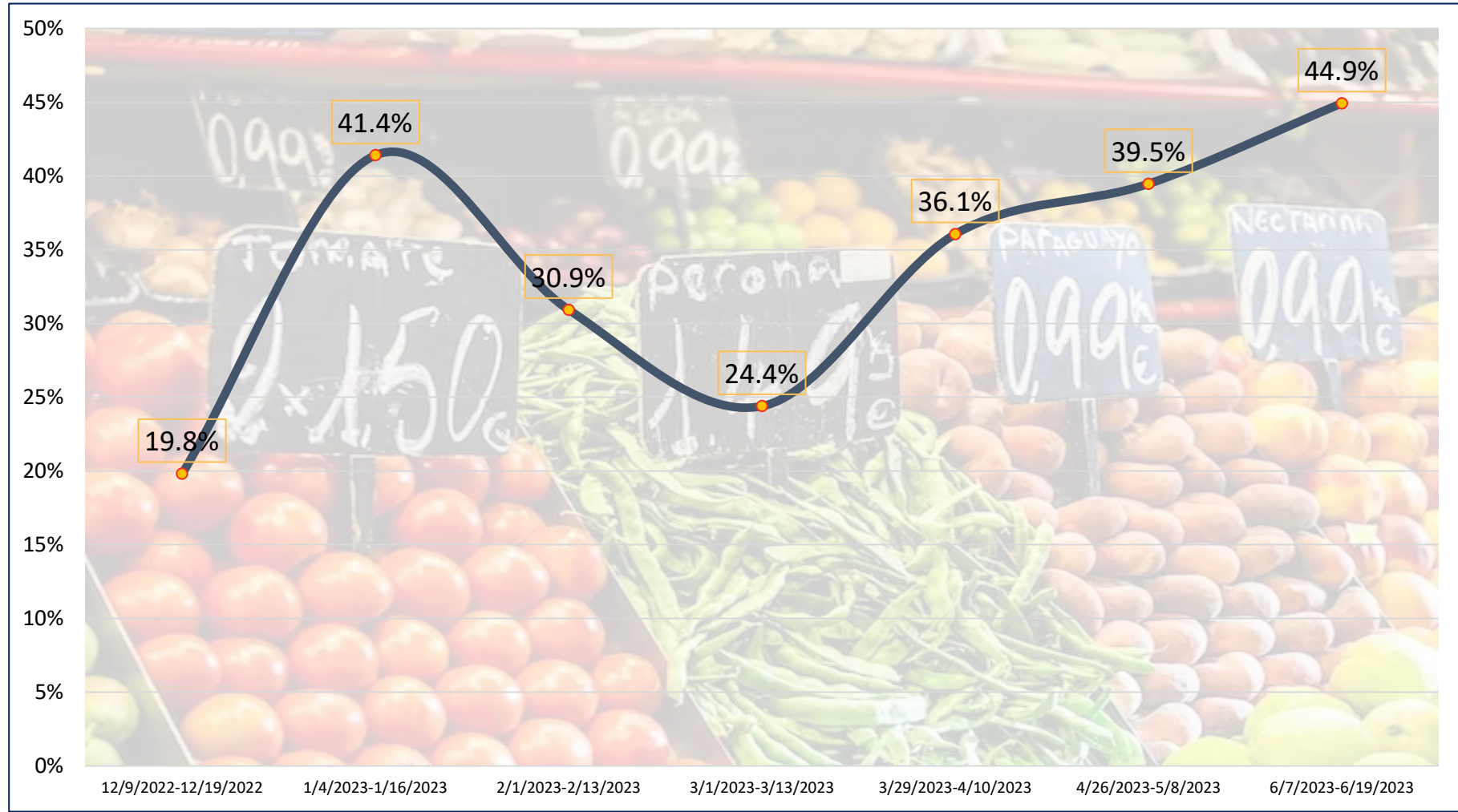
Example #2

U.S. Census Household Pulse Survey: *Food Table 4.* Combined share of respondents whose children were *"sometimes"* or *"often"* not eating enough because food was unaffordable

Demand: Google Searches for Free Food

Demand

#4: Internet Searches for Free Food

Significance

MFB uses daily data from Google Trends for the search terms "Food Pantry," "Food Bank," "Free Food" and "Maryland Food Bank" and document the development of a food crisis, as indicated by the number of individuals who need to locate a food pantry through the internet.

Data

Google Trends. Searches for "Food Pantry," "Food Bank," "Free Food" and "Maryland Food Bank". https://tinyurl.com/mr2zxcrp

Demand: Google Searches for Free Food
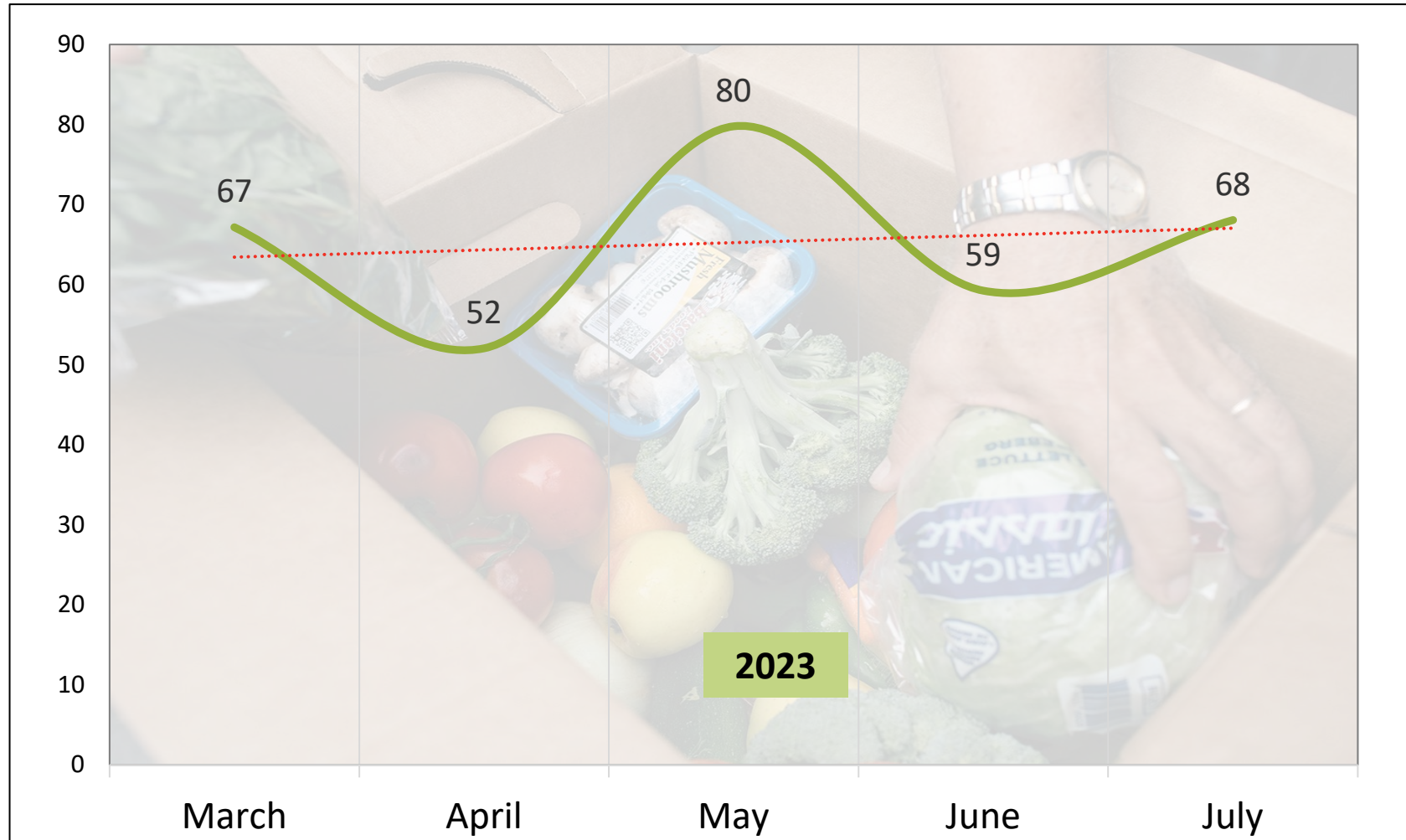
Google Trends. Searches for "Food Pantry," "Food Bank," "Free Food" and "Maryland Food Bank". https://tinyurl.com/mr2zxcrp

Food Supply: Cost of Goods (Per Pound)
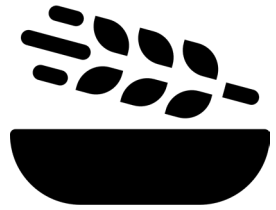
#5: Cost of Goods (Per Pound)

MFB monitors Cost of Goods as a measure of supply chain strains. MOM/YOY comparison informs decision-making regarding vendor searches, efficiency in logistics. MFB flags trends that exceed MDEM 25% threshold for awareness and 45% threshold for mitigation. Baseline: 25 top purchased items (core)

Significance

Maryland Food Bank. Tableau/Navision.
Cost of Goods (Per Pound)

Data

Food Supply: Cost of Goods (Per Pound)

Learning & Research Goal
- Identify Top 25 Items Received FY2019 (Pre-Covid) through FY 2023.

Data Analytics/Visualization:
- Compare Pricing: Pre-Covid to Current for Top 25 Items.
- Quarterly Increments, 2019-2024 for Top 25 items.

Data Visualization
- Develop Tableau dashboard for trend analysis.

Food Supply: Cost of Goods (Per Pound)

Cost Per Pound Trend

Fiscal Year

Year of Fiscal Year: 2023
CPP: $0.98

2020: $0.72
2021: $0.82
2022: $0.98
2023: $0.98

Top 25 Items Pre-Covid vs This FY (By weight)

Note this does not incude Produce Boxes, Turkeys or Stuffing

Description	Item No.	2020			2023		
		Ext. Gross Weight	CPP	% Change in CPP	Ext. Gross Weight	CPP	% Change in CPP
Macaroni & Cheese Box 2..	P-906104	106,834	$0.48		219,884	$0.72	50.9%▲
Corn, Whole Kernal 24/15...	P-352703				204,255	$0.61	
Tuna, chunk in water 48/..	P-915001	3,584	$4.58		197,792	$1.62	- 64.5%▼
Peanut Butter 12/18 oz	P-923005				194,016	$1.14	

Food Supply: Cost of Goods (Per Pound)

Cost Per Pound Trend (Last 3 Months Rolling)
Overall Trend: Quarter over quarter has gone up by 8%

Trend for Select Product Types

- **Peanut butter up by 24.5%**
  We are no longer getting Feeding America subsidy on this, we were previously getting a discount on this item. This also is an item that had supply chain issues late last year
- **Tuna up by 49%**
  Previously getting a discount on this item as above. We are now going with the preferred tuna that is better quality and nutrition, hence price hike.

Example #4 ⟶ June 2023 Report (Highlights)

Food Supply: Cost of Goods (Per Pound)

| | | | 2023 | | | | | | | | | | | | | | | |
| | | | 4/1/23 | | | | | | 5/1/23 | | | | | | 6/1/23 | | | | | |
FBC Product Type - Description	Item No.	Description	Ext. Gross Weight	% Change in Weight	% Total Weight	CPP	% Change in CPP	% of Total Cost Amo..	Ext. Gross Weight	% Change in Weight	% Total Weight	CPP	% Change in CPP	% of Total Cost Amo..	Ext. Gross Weight	% Change in Weight	% Total Weight	CPP	% Change in CPP	% of Total Cost Amo..
Protein - Meat, Poultry, Fish	P-351506	Franks, Fro..							14,256		4.52%	$1.27		5.92%	19,008	33.3%▲	5.39%	$1.27	0.0%▲	8.12%
	P-915001	Tuna, chunk..	26,208		13.35%	$1.81		24.86%	12,240	-53.3%▼	3.88%	$1.96	8.3%▲	7.82%	32,000	161.4%▲	9.08%	$1.87	-4.6%▼	20.09%
	P-915022	Beef Pattie..							18,432		5.84%	$1.90		11.45%	18,432	0.0%▲	5.23%	$1.90	0.0%▲	11.79%
	P-915032	Turkey, Gro..	7,056		3.59%	$1.99		7.37%	7,056	0.0%▲	2.24%	$1.99	0.0%▲	4.59%	9,408	33.3%▲	2.67%	$1.99	0.0%▲	6.30%
	P-915041	Ham, Canne..							1,944		0.62%	$2.77		1.76%	5,832	200.0%▲	1.65%	$2.77	0.0%▲	5.43%
	P-915131	Chicken Dru..													40,000		11.35%	$0.50		6.73%
Juice	P-351409	Juice, Fruit ..	13,440		6.85%	$0.46		3.22%	11,200	-16.7%▼	3.55%	$0.46	0.0%▲	1.67%	6,720	-40.0%▼	1.91%	$0.46	0.0%▲	1.03%
	P-351411	Juice, Apple..	13,440		6.85%	$0.45		3.15%	17,920	33.3%▲	5.68%	$0.45	0.0%▲	2.61%	8,960	-50.0%▼	2.54%	$0.45	0.0%▲	1.34%
	P-351413	Juice, Grap..	8,960		4.56%	$0.46		2.15%	11,200	25.0%▲	3.55%	$0.46	0.0%▲	1.67%	11,200	0.0%▲	3.18%	$0.46	0.0%▲	1.72%
	P-914001	Juice, Oran..	13,440		6.85%	$0.46		3.22%	8,960	-33.3%▼	2.84%	$0.46	0.0%▲	1.34%	15,680	75.0%▲	4.45%	$0.46	0.0%▲	2.41%
Spice, Condiment, Sauce	P-926004	Pancake Sy..							33,320		10.56%	$0.40		4.39%	17,640	-47.1%▼	5.00%	$0.40	-0.3%▼	2.38%
	P-926030	Jelly, Grape..							15,977		5.06%	$1.07		5.58%	4,576	-71.4%▼	1.30%	$0.00	######	0.00%
	P-926036	Spaghetti S..	9,384		4.78%	$0.81		3.99%	26,496	182.4%▲	8.40%	$0.78	-3.9%▼	6.74%	23,184	-12.5%▼	6.58%	$0.34	-55.8%▼	2.68%
Protein - Non-Meat	P-923005	Peanut But..	44,352		22.60%	$1.20		27.95%	48,384	9.1%▲	15.34%	$1.27	5.9%▲	20.10%		######				######
Vegetables - Canned & Frozen	P-352703	Corn, Whol..	20,655		10.52%	$0.61		6.63%		######			######		27,540		7.81%	$0.61		5.66%
	P-352718	Collard Gre..							17,680		5.60%	$1.22		7.07%	13,260	-25.0%▼	3.76%	$1.25	2.3%▲	5.58%
Dairy	P-907009	White Milk, ..	33,600		17.12%	$0.80		14.11%		######			######		34,560		9.81%	$0.80		9.30%
Pasta	P-352101	Spaghetti, ..							28,224		8.95%	$0.65		6.02%	18,144	-35.7%▼	5.15%	$0.33	-49.3%▼	2.02%
Fruit	P-910057	Applesauce..							37,145		11.78%	$0.78		9.45%		######				######
Rice	P-352401	Rice - 24/1 lb													20,000		5.67%	$0.30		2.03%
Household Cleaning Product	P-913004	Liquid Laun..													18,720		5.31%	$0.53		3.36%
Paper Product - Personal	P-351911	Toilet Pape..	3,850		1.96%	$1.11		2.25%	3,500	-9.1%▼	1.11%	$1.11	0.0%▲	1.27%	5,600	60.0%▲	1.59%	$1.11	0.0%▲	2.09%
Paper Product - Household	P-919003	Paper Towe..	1,900		0.97%	$1.10		1.10%	1,520	-20.0%▼	0.48%	$1.10	0.0%▲	0.55%	1,995	31.3%▲	0.57%	($0.14)	######	-0.09%
Grand Total			196,285		100.00%	$0.97		100.00%	315,454	60.7%▲	100.00%	$0.97	-0.1%▼	100.00%	352,459	11.7%▲	100.00%	$0.84	-13.1%▼	100.00%

Early Warning System Data

- 211-Maryland. Number of 211 Maryland Caller Needs for Food by Count. 211 Dashboard.
- Associated Press, Reuters, Google News Alerts, USDA news alerts and updates
- Food and Agriculture Organization of the United Nations: FAO Cereal Supply and Demand Brief. https://www.fao.org/worldfoodsituation/csdb/en/
- FAO, Food Price Monitoring and Analysis Tool. https://fpma.fao.org/giews/fpmat4/#/dashboard/tool/international
- Google Trends. Searches for "Food Pantry," "Food Bank," "Free Food" and "Maryland Food Bank". https://tinyurl.com/mr2zxcrp
- Maryland Food Bank. Link2Feed. Timeline Pantry Visitor Data. 2023 [MFB Tableau Dashboard]
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- Maryland Food Bank. "Food Insecurity in Maryland." https://mdfoodbank.org/wp-content/uploads/2022/07/MFB-Strategy-Group-Research-Report-Food-Insecurity-in-Maryland.pdf
- Moody's Analytics Weekly Market Outlook. "Cross-Sector Market Data Highlights." Monthly analysis of CPI. https://tinyurl.com/mr3fs8tw
- Propel SNAP Household Survey Results, July 2023. https://www.joinpropel.com/reports/july-2023-pulse-survey
- U.S. Bureau of Labor Statistics Consumer Price Index Analysis for Mid-Atlantic Region and for Baltimore-Columbia-Towson. https://www.bls.gov/regions/mid-atlantic/news-release/consumerpriceindex_baltimore.htm
- U.S. Census Household Pulse Survey, Food Table 4. Recent Food Insufficiency for Households with Children, by Additional Food Related Household Characteristics. https://www.census.gov/programs-surveys/household-pulse-survey/data.html [MFB Tableau Dashboard]
- U.S. Census Household Pulse Survey, Food Table 2. Food Sufficiency for Households with Children, in the Last 7 Days, by Select Characteristics. https://www.census.gov/programs-surveys/household-pulse-survey/data.html [MFB Tableau Dashboard]
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- U.S. Department of Agriculture. Changes in Food Price Indexes, 2020 through 2023. https://www.ers.usda.gov/webdocs/DataFiles/50673/CPIforecast.xlsx?v=7341.1