$18Bn Cost Recovery Opportunity of waste in the US Perishable Supply Chain

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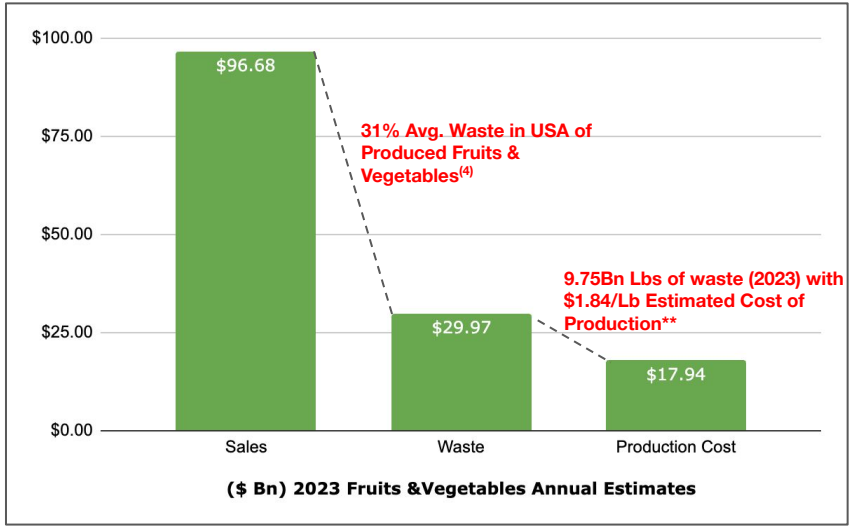
$18 B Per Annum Is The Estimated Potential Cost Recovery In The US Perishable Supply Chain Due To Waste[1]

Annual Food Waste

$218.89B[2]
by 2026
9.5% CAGR

Annual Fruit & Veg. Waste

$96.68B[3]
2023 Est.



Producers Can Quickly Boost Gross Profits by Adopting Cutting Edge AI Technologies in their Supply Chain

What causes food loss and waste?

Food loss occurs for many reasons, with some types of loss—such as spoilage—occurring at every stage of the production and supply chain. Between the farm gate and retail stages, food loss can arise from problems during drying, milling, transporting, or processing that expose food to damage by insects, rodents, birds, molds, and bacteria. At the retail level, equipment malfunction (such as faulty cold storage), over-ordering, and culling of blemished produce can result in food loss. Consumers also contribute to food loss when they buy or cook more than they need and choose to throw out the extras (See Buzby et al (2014)).

(1) Our own research and calculation, see Appendix 1 for details
(2) ResearchAndMarkets / GrandViewResearch [https://www.researchandmarkets.com/reports/5656317/perishable-prepared-food-manufacturing-global] / [https://miro.com/app/board/uXjVN-Naxlw=/?moveToWidget=3458764574476140002&cot=14]
(3) Our 2023 Extrapolation of GrandViewResearch Industry Analysis [https://www.grandviewresearch.com/industry-analysis/us-fruit-vegetables-market]
(4) Our Research shows between 22% and 40% of food goes to waste. We used an Average of 31% for this research. Sources: USDA.GOV, FeedingAmerica [https://www.feedingamerica.org/our-work/reduce-food-waste#:~:text=Shockingly%2C%20nearly%2040%25%20of%20all,billion%20pounds%20of%20food%20waste.] [https://www.usda.gov/foodwaste/faqs]

The US Perishable Supply Chain Is Ripe For AI Disruption

Traditional Supply Chain Management is rapidly becoming OBSOLETE.

COVID-19 Eroded entrenched practices and company boards are demanding Reform and Modernization.

Supported by lessons from Industry Leaders & Top Researchers

High-Impact Areas

DEMAND PLANNING	FLEXIBLE PRICING	RESILIENT CHAINS
Improving the accuracy of demand levels mitigate issues of over and understocking.	Using dynamic pricing models in response to changing market conditions.	Deploying hybrid agile- and just-in-time models in response to real-time data.

Data Science & AI

McKinsey & Co's Industry Insight for future supply chains, squarely position Data Science, Artificial Intelligence, and Machine Learning capabilities at the Core of modernization(1).

Real-Time Analytics

HBR reported on the 'Death of Supply Management' back in 2018, calling for the use of Digital, Real-time Analytics, and advanced Tech(2).

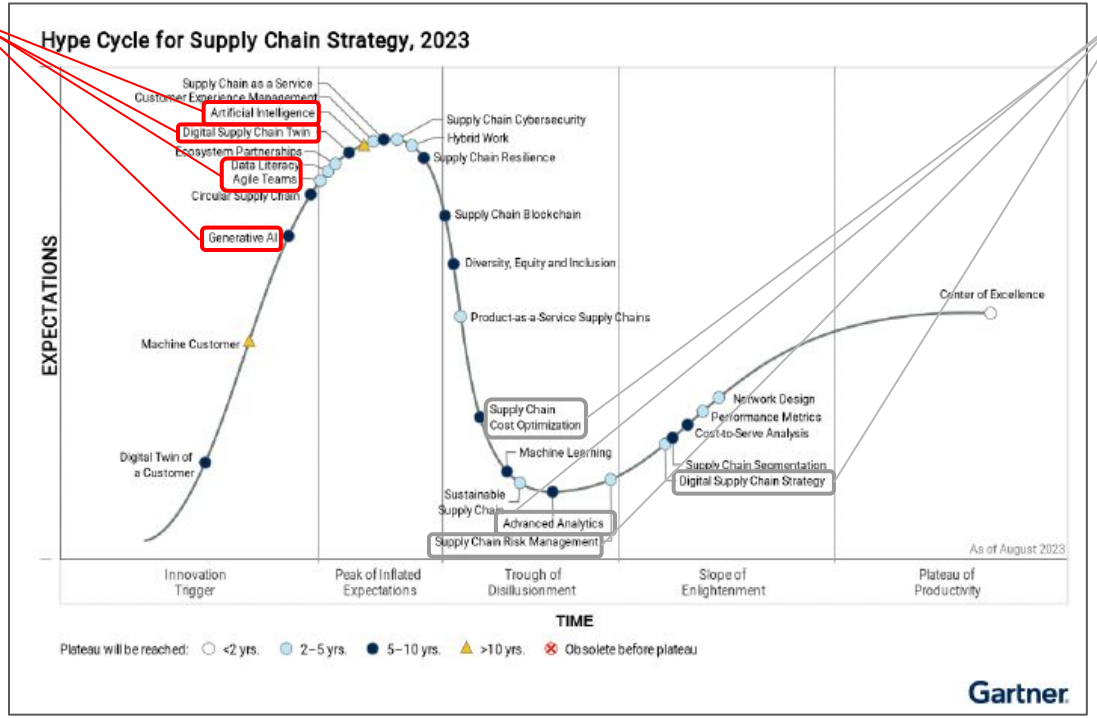
Resiliency, Risk Mgt, & Digital

Deloitte's Report on the board's agenda in the US, is the modernization of Supply Chains to create resiliency, manage risk, and put Digital into action(3).

Laser Focus on AI Platforms' Value Proposition to Manage Inflated Expectations And Deliver Value

Customers' expectations of the possibilities of digital & Artificial Intelligence remain inflated, due to lack of understanding, fear, and ambiguity created by Generative Technologies like ChatGPT[1].

This prompts producers to LASER FOCUS on its Value Proposition for a specific product category.



During the same time period, acceptance of advanced concepts from traditional supply chain management players gained acceptance and adoption by the same customers[1].

(1) Magic Quadrant for Supply Chain Solutions, ID G00773092, Gartner Research, May 2023

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Appendix 1: **Perishable Supply Chain Food Waste Calculations**

Extrapolating the Cost of Production for Food Wasted in the US Perishable Supply Chain.

	A	B	C	D	E
1	Perishable Supply Chain Waste Costs				
2	Fadi Jawdat Hindi				
3	Jan, 2023				
4					
5					
6		**($ Bn) 2023 Fruits &Vegetables Annual Estimates**			
7		Sales	$96.68	Using a figure of 92.88B at 4.1% CAG	
8		Waste	$29.97	Using 31% average	
9		Production Cost	$17.94		
10					
11		Bn Pounds Fruit&Veg USA			
12		2021	31.95		
13		2022	30.98		
14		2023	31.46	Estimated avg	
15					
16		Bn Pounds Waste (31%)			
17		2023	9.7526		
18					
19		Pounds Waste	9,752,600,000		
20		Avg Prod Cost of 1 Lb	1.84		
21		Cost Loss	$17,944,784,000.00		
22					
23					
24					
25					
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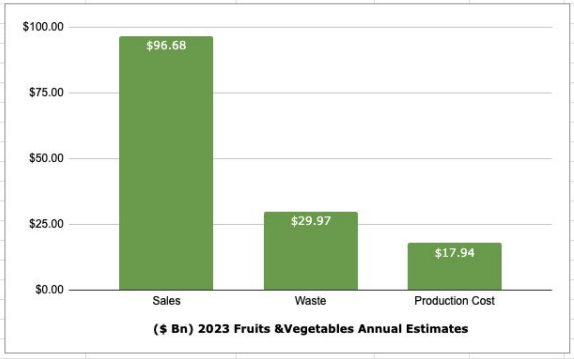

Cost of producing 1 Lb of fruits & vegetables varies significantly based on several factors:

1. **Type of Produce**: Different fruits and vegetables have different costs of production. For example, exotic or organic produce generally costs more to produce than common, conventionally grown varieties.

2. **Location**: The cost of production can vary greatly depending on the region. Factors such as climate, labor costs, and land prices all influence the overall cost.

3. **Farming Practices**: Organic farming, which avoids synthetic fertilizers and pesticides, often has higher production costs compared to conventional farming. Similarly, hydroponic or vertical farming might have different cost structures due to technology and energy use.

4. **Scale of Production**: Large-scale farming operations often benefit from economies of scale and may have lower costs per pound compared to smaller, local farms.

5. **Seasonality**: The cost of production can also fluctuate with seasons, especially for seasonal fruits and vegetables.

6. **Transportation and Logistics**: The cost of getting the produce from the farm to the market, including storage, transportation, and handling, also contributes to the overall cost.

7. **Market Factors**: Supply and demand dynamics, trade policies, and subsidies can also affect the cost of production.

To get a specific cost for a particular type of fruit or vegetable in a specific region, it would be necessary to consult local agricultural data or market reports. For a more detailed and specific answer, providing information about the type of produce, location, and farming practices would be helpful.

The approximate average cost of producing 1 pound of fruits and vegetables in the USA, based on retail prices as a reference, is around $1.85. It's important to note that this figure is an approximation and actual production costs can vary significantly depending on the type of produce, location, farming practices, and market conditions. The calculation is based on a selection of common fruits and vegetables and their retail prices, which may not accurately reflect the actual production costs but can provide a general idea.

```
# Calculating the average cost of producing 1 pound of fruits and vegetables in the USA.
# Since the data available from the sources is not direct, we will use an approximate method to calculate the average.

# Average retail prices for fruits and vegetables from the USDA ERS website
# These prices are in cents per pound and are for retail, not production. However, they can give us an approximation.
# Source: USDA ERS - How Expensive Are Fruits and Vegetables?

# Sample prices of some common fruits and vegetables in cents per pound
fruit_prices = [32, 200, 400, 136, 150, 240] # Prices in cents per pound (e.g., watermelon, apples, cherries, bananas, oranges, grapes)
vegetable_prices = [31, 457, 200, 150, 100, 120] # Prices in cents per pound (e.g., potatoes, asparagus, broccoli, carrots, lettuce, tomatoes)

# Calculating the average price in cents per pound
average_fruit_price = sum(fruit_prices) / len(fruit_prices)
average_vegetable_price = sum(vegetable_prices) / len(vegetable_prices)

# Calculating the overall average price in cents per pound
overall_average_price = (average_fruit_price + average_vegetable_price) / 2

# Converting the overall average price to dollars per pound
overall_average_price_dollars = overall_average_price / 100

overall_average_price_dollars
```

RESULT $1.84