

Got Milk?

**Comparing Dairy and Alternative Milks Consumption,
Nutrition, and Environmental Impact**

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Introduction

Purpose:

To explore shifting milk consumption trends & implications for government policy, social impact, & sustainability



Background (2022):

Total Revenue in US:

Cow's Milk \$29 Bn

Plant Milk \$3 Bn

Comparative Growth Rates (2014-2027):

Cow's Milk: 42%

Plant Milk: 186%



US Dairy Market Background

- **Regulation**

- FDA naming standards
- FDA production standards
- State regulations

- **Subsidies**

- Minimum fluid prices
- Revenue protection
- Gov't controlled insurance



Study Framework:

1. Changing Consumer Preferences

- Rise in plant-based diets in US
- Related shift to alternative milks, especially for consumers under the age of 35
- Many people still drink cows' milk from habit, flavor preference
- Data from consumer surveys (Mintel), Google Trends, Statista, dairy industry reports



Study Framework:

2. Nutrition

- Food scientists have found:
 - Lactose-intolerant consumers must rely on plant milks
 - While alternative milks have some nutritional value, only cows' milk offers the fats, proteins, & critical micronutrients required for good health, especially for children
 - Parents need to be aware of the differences
 - Even skim milk is nutritionally preferable to non-dairy alternatives
- Prior Research
 - Collard & McCormick 2021
 - Research into the nutritional value of milks primarily in infants for parents
 - Park 2021
 - General research into the nutritional value of milks



Study Framework:

3. Environmental Impact

- Differing carbon footprints between dairy & alternatives
 - Animals versus plants
 - Production & processing
 - Distribution & supply chain
- Prior Research
 - Blanco-Gutierrez et al. 2020
 - Swot and Multicriteria analysis of specific spanish alternative and traditional food and milk products
 - Poore & Nemecek 2018
 - Research into environmental impacts of large scale agriculture including alternative and cow's milk



Literature Review - Industry

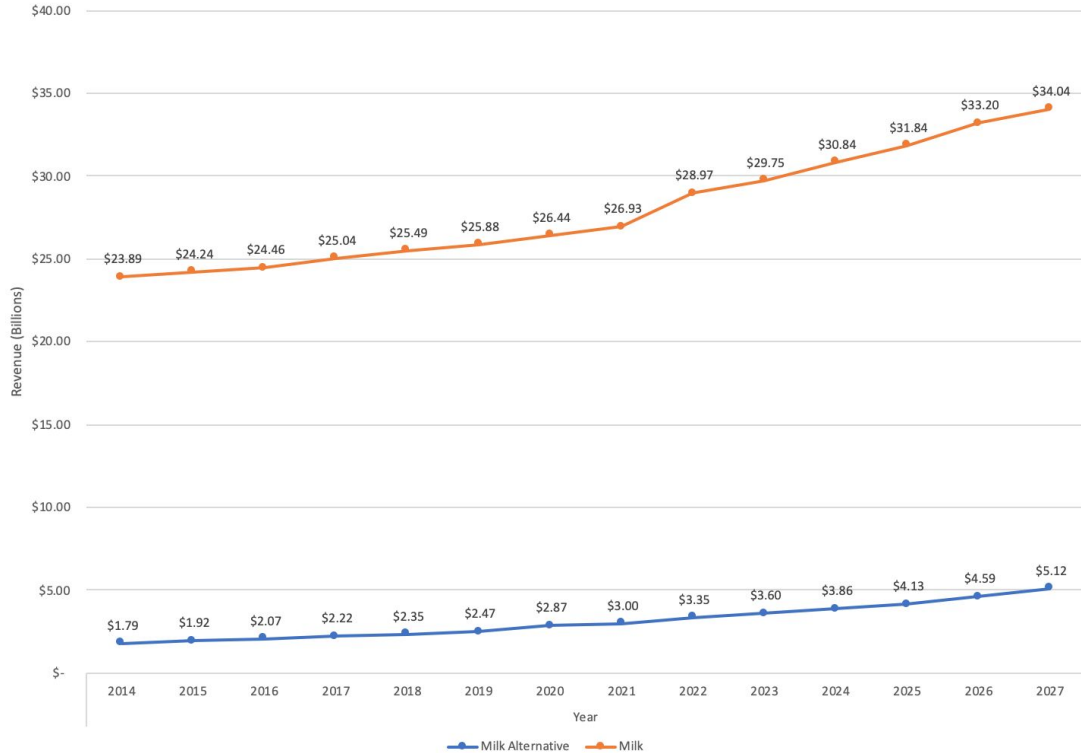
- Statistics
 - Statista
 - J.Poore and T.Nemece
- Economic research
 - Hayden Steward et al
 - Dharmasena & Capps
- Conclusion
 - Statistics
 - Confirms trends in milk
 - Gives environmental data
 - Economic research
 - Confirms downward trends in milk but not causally
 - Establishes substitute goods



Results: Market Data

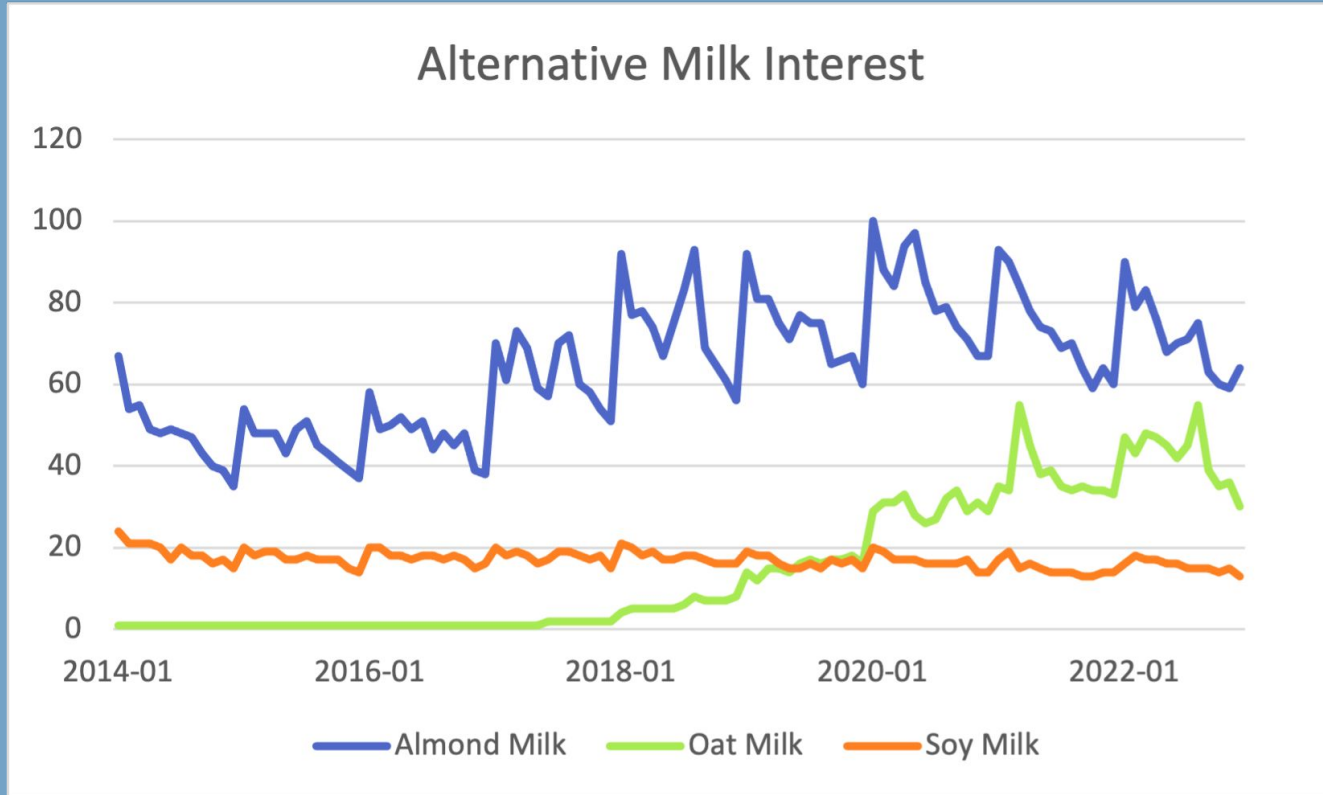
	Revenue (Billions)														
Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Percent Growth 2014-2027
Milk Alternative	\$ 1.79	\$ 1.92	\$ 2.07	\$ 2.22	\$ 2.35	\$ 2.47	\$ 2.87	\$ 3.00	\$ 3.35	\$ 3.60	\$ 3.86	\$ 4.13	\$ 4.59	\$ 5.12	186%
Milk	\$ 23.89	\$ 24.24	\$ 24.46	\$ 25.04	\$ 25.49	\$ 25.88	\$ 26.44	\$ 26.93	\$ 28.97	\$ 29.75	\$ 30.84	\$ 31.84	\$ 33.20	\$ 34.04	42%

Milk Industry vs. Milk Alternative Industry Yearly Revenue 2014-2027 (Projection)



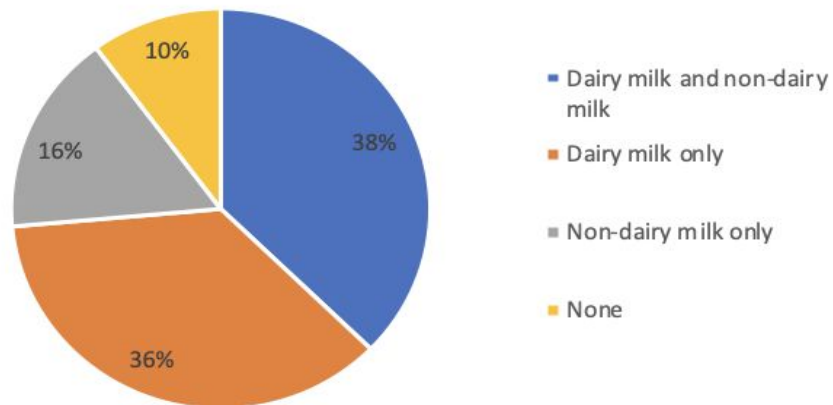
Although as of now in 2022 the Milk Market is 8.5 times larger than the Milk Alternative Market, from 2014-2027 (projected) the Milk Market will have only grown by 42%, whereas the Milk Alternative Market will have grown by 186%.

Results: Consumer Search Share

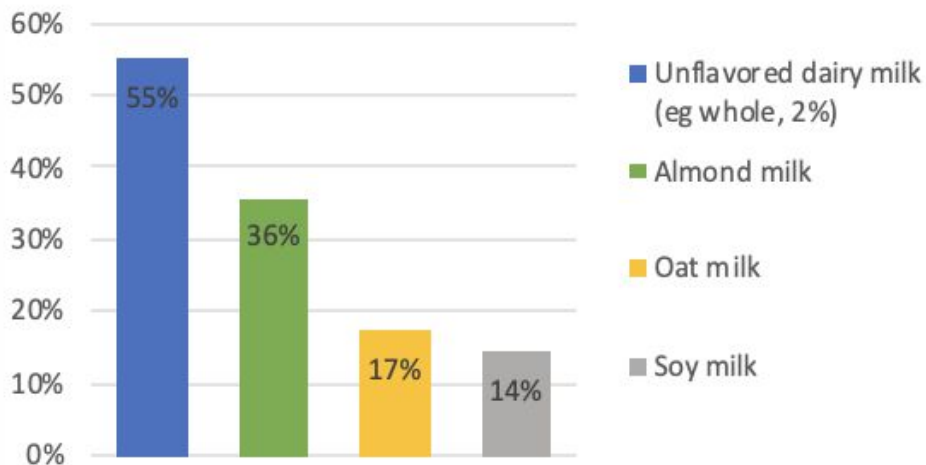


Results: Consumer Preferences 1

Dairy or Non-Dairy 2022



Type of Milk Purchases 2022



Question: Which of the following types of dairy milk or non-dairy milk have you purchased for you or your household in the past 3 months?

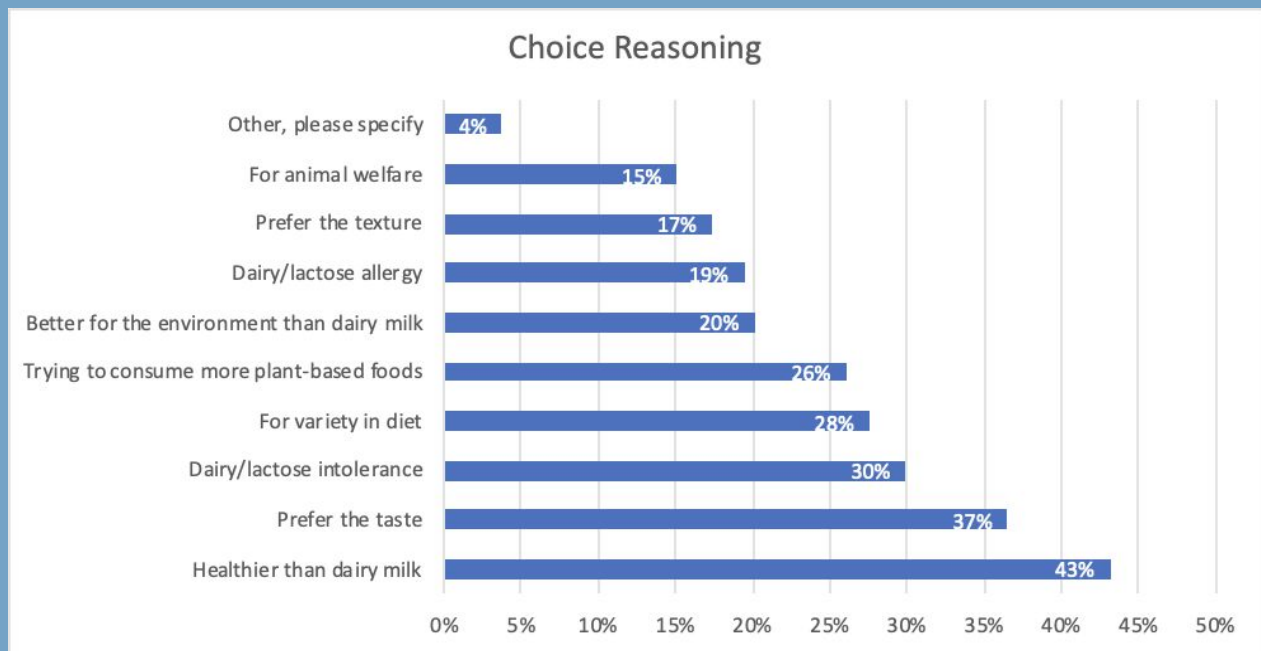
Base: 2,000 internet users aged 18+

Question: Which of the following types of dairy milk or non-dairy milk have you purchased for you or your household in the past 3 months?

Please select all that apply

Base: 2,000 internet users aged 18+

Results: Consumer Preferences 2



Question: Why do you/others in your household use non-dairy milk? Please select all that apply.

Base: 1,059 internet users aged 18+ who have purchased non-dairy milk in the past 3 months

Results: Environmental

Relative rankings of environmental impacts

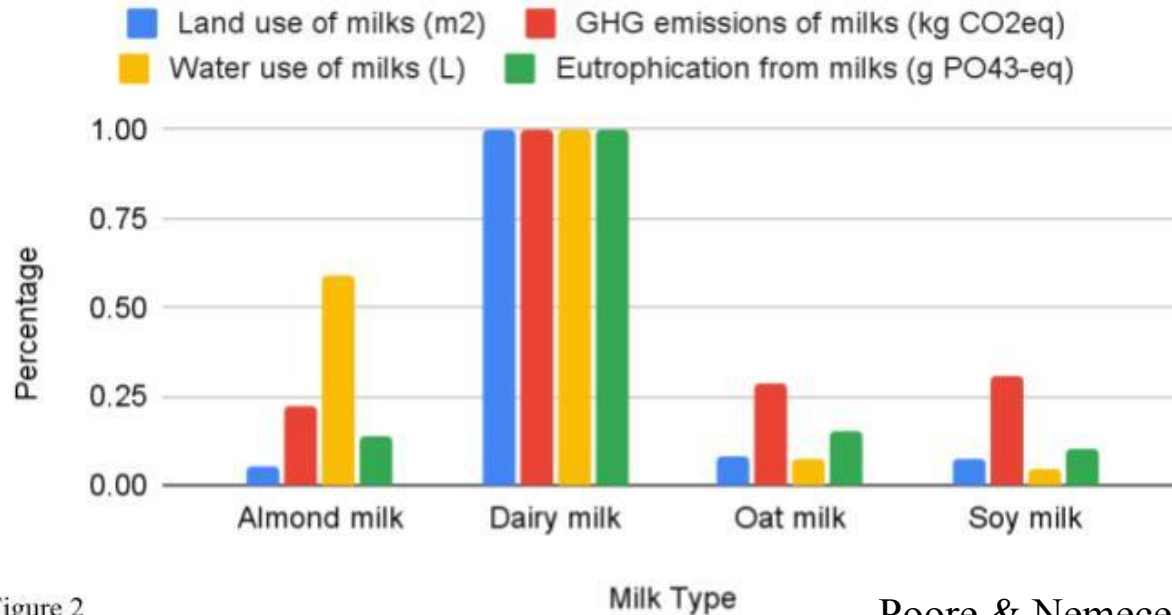


Figure 2

Poore & Nemecek

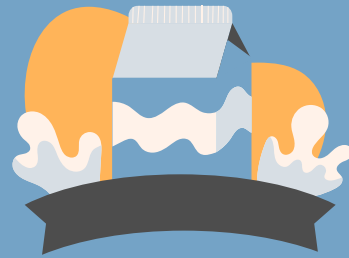
Discussion/Interpretation

Economic Trends

- Industry participants broadly view alternative dairy as an existential threat
- Small component of broader dairy industry challenges

Consumer Preferences

- Clear shift to plant-based diets, including dairy alternatives
- Non-milk dairy products (ice cream, yogurt) less of a shift
- Other dairy products such as ice cream and yogurt are not seeing as large of a shift in dairy-alternatives as milk
- Reasons for shift vary
 - Health? Sustainability? What is “trendy”? Cultural norms?



Discussion/Interpretation

Nutrition and Health

- Consumer reports indicate that consumers believe milk alternatives are healthier than dairy milk
- There are not nearly as many nutrients in milk alternatives as in traditional dairy milk

Environmental

- Many consumers choose to drink alternative milks since they have less of an environmental impact than dairy milk
- Almond milk is the most popular milk alternative, yet it has the largest environmental impact out of all milk alternatives



Conclusion

- Contradictory results
- Who can use these findings?
 - Public health government food regulators can use this information as reason to better explain the nutritional value of milk alternatives to Americans
 - Parents making decisions about what milks to give to their children
- How can this research be improved?
 - More must be done to understand the consumer psychology behind the purchasing decision of milk alternatives



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