

Influencing Fluid Milk Sales with Innovative Product Attributes

Shannon Allen and Ellen Goddard

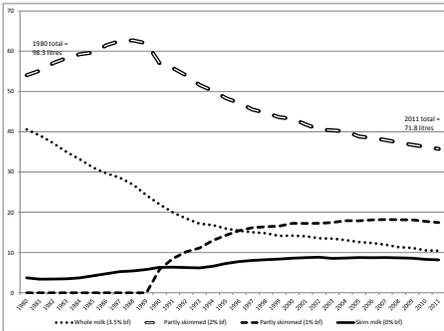
Department of Resource Economics and Environmental Sociology, 515 General Services Building, University of Alberta, Edmonton, AB, T6G-2H1
Email: ellen.goddard@ualberta.ca

■ Take Home Messages

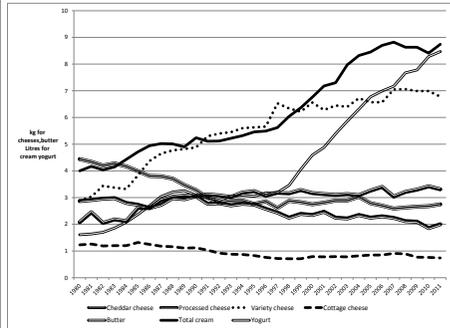
- ▶ Fluid milk sales in Canada continue to decline on a per capita basis, unlike sales of yogurt.
- ▶ While this is a negative influence on the dairy industry, dairy products are a good source of key vitamins and there is evidence that the Canadian population is becoming deficient in those same vitamins.
- ▶ Yogurt is sold in many different brands, forms, package sizes and recipes (e.g. fortified, probiotic) with substantially higher expenditure on advertising and different information provided on labels.
- ▶ Research shows that for certain population segments, milk marketed in similar ways to yogurt might encourage increased consumption.

■ Introduction

Fluid milk is the major dairy product sold in Canada, with the highest level of farm prices associated with this particular product. For the dairy industry, the declining per capita disappearance of fluid milk is an issue of concern (Figure 1). Total sales per person in Canada have declined from 98.3 litres in 1980 to 71.8 litres in 2011. Flat or declining trends can be seen for most other dairy products (Figure 2), with the exception of yogurt, cream and variety cheese. Yogurt exhibits the highest rate of year over year growth.



Source: Cansim, Table 20011



Source: Cansim, Table 20011

Figure 1: Fluid Milks, per capita availability, litres

Figure 2: Dairy Products, per capita availability

For the dairy industry fluid milk is the key component of the industry and while aggregate sales look better than per capita disappearance due to population growth, declining per capita sales suggest future shrinkage in the milk industry. The question of why yogurt, in particular, exhibits such a different pattern of sales to the majority of other dairy products is of interest given that many characteristics of yogurt also apply to milk.

Fundamentally yogurt is marketed in Canada very differently than milk. Yogurt is a branded product with significant expenditures on brand advertising that dwarf advertising expenditures on milk, largely generic in nature. Yogurt is sold in a significant number of different forms and package sizes and is often sold in single serving containers, possibly making it more amenable to eating away from home. Yogurt is one of the few dairy products to be sold in a variety of functional forms, with probiotic yogurt considered to be one of the most successful functional foods. However there are also yogurts sold with soluble and insoluble fibre, Omega-3 and CLA enriched yogurts, and vitamin, calcium and antioxidant fortified yogurts. Sales of other probiotic dairy products (Kraft® had introduced a probiotic cheese in 2007 which was later withdrawn from the market and Natrel® has introduced a probiotic milk with some success) have not been as significant as those of yogurts. In another minor marketing issue, yogurt has taken advantage of the requirement to have a nutrition facts panel, to highlight many more nutrients than the 14 required elements. Although many of these same additional nutrients are available in milk, with only a few exceptions, milk is sold with only the nutrition facts on the 14 required nutrients, a missed opportunity to highlight the broader contribution of milk to nutrition.

Given the differences in how yogurt and milk are marketed, there is merit in examining whether fluid milk sales might rebound if different marketing

strategies are pursued. In this paper the detailed trends in fluid milk sales in Canada, by time period at the individual or household level are examined. The results of stated preference experiments, at a national level, on purchase intentions about milk with different attributes are presented and compared to similar results for yogurt. Recommendations on possible ways to increase fluid milk sales are provided.

■ Canadian Fluid Milk and Yogurt Purchases

With the exception of aggregate data provided above, there are very few publicly available data sets that allow anyone to examine actual milk (or dairy product) purchases at a household or individual level across time. Publicly in Canada we know very little about household food purchases since dietary recall studies (as one example) are very infrequently done. In 2004, Statistics Canada did conduct a 24 hour dietary recall study through the Canadian Community Health Survey Cycle 2.2¹. This was the first publicly conducted study since 1969. The survey covered 35,107 Canadians. The data provide a snapshot of all foods consumed at home and away from home and the data are illuminating for dairy products. For milk and yogurt the first thing of note is how few people actually consumed either milk or yogurt in the previous 24 hours. More people consumed milk than yogurt but the paucity of actual respondents who consumed these products makes further disaggregation by demographic segment difficult. Allen (2012) found that being from a household with children, having lower income, being a non-smoker, having lower self-rated health status, and lower physical activity levels were predictors of consuming milk. There was also evidence of substitution between milk and other dairy products as people who did consume other dairy products were less likely to consume milk. People who lived in urban areas and who had lower self-rated health were more likely to have consumed yogurt.

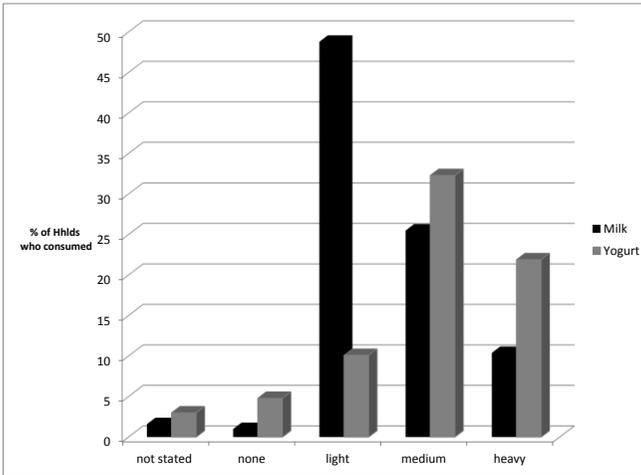
¹ The data was accessed through agreement with Statistics Canada and access to the Research Data Centre at the University of Alberta.

Table 1: Percentage of respondents who consumed milk or yogurt and mean consumption level.

	CCHS Cycle 2.2	
	n = 35,107	
	%	mean (ml)
Any milk	5.86%	204
skim	0.44%	233
1%	0.87%	273
2%	3.57%	166
whole	0.98%	272
Any yogurt	0.15%	190
low/non-fat	0.09%	232
whole fat	0.07%	134

Source: Allen (2012)

Other sources of data provide a more recent picture of household level consumption of milk and yogurt. For example, data from the Print Measurement Bureau (Sept. 2012 accessed through the University of Alberta Library), suggest that milk is, on average, less frequently consumed. In 2012 over the previous six months, 87% of households (29,799 respondents), reported some milk consumption and 72% of households reported yogurt consumption. The picture looks less optimistic when the data for frequency of milk (and yogurt consumption) over the previous 7 days is examined. In Figure 3, the households reporting light milk consumption (1-3 litres) vastly outweigh any other milk category while those who report medium levels of yogurt consumption (1-4 litres) are the biggest category of yogurt consumers.



Source: Print Measurement Bureau, 2012, various

Figure 3. Use of Milk (litres) /Yogurt (containers) in Past Seven Days, 2012

■ Canadian National Dairy Survey Design and Implementation

To further understand Canadian milk and yogurt preferences, a national survey was conducted online by TNS with 1705 respondents.. The sample was representative of the Canadian population in terms of regional breakdown and other key socio-demographic characteristics. The survey included stated preferences for different milk and yogurt products to elicit preferences for attribute combinations not currently available in the Canadian marketplace.

Frequency of milk and yogurt consumption at home and away from home was examined. In Figures 4 and 5, it is clear that dairy products are consumed more frequently at home than away from home and that of the two products, yogurt is consumed more frequently away from home. Over 40% of respondents never consume milk away from home: on the other hand, slightly over 30% of respondents consume milk one to two times per day at home. Milk is consumed more frequently than yogurt.

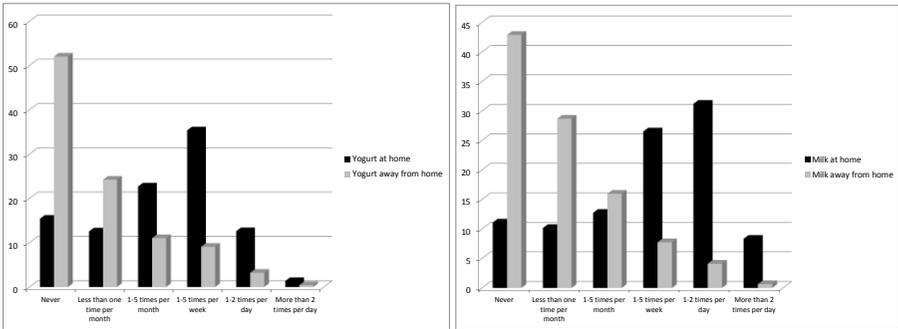


Figure 4. Yogurt Frequency of Consumption, National survey, 2011

Figure 5. Milk Frequency of Consumption, National survey, 2011

Although calcium fortification is becoming more common in many foods in Canada, respondents were asked about the acceptability of added calcium in different foods, if they were interested in increasing their calcium intake (Figure 6). It is worth noting that the more familiar products were the most acceptable (not surprisingly) and that beverages and cereals or bread ranked only slightly lower than the more traditional dairy products in terms of likely consumption. This reinforces the idea that people see foods other than dairy products as acceptable vehicles for added calcium in their diet.

The survey also questioned barriers to consumption of dairy products and the vast majority of respondents perceived that there were barriers. Although personal preferences (dislike) was seen to be the biggest barrier, expense, shelf life, fat content and concerns about hormones and antibiotic residues were all seen as equally significant barriers. All of these are things that the dairy industry can address. The growing importance of understanding the production practices at the farm level is seen by the high level of concern about hormones and antibiotics in livestock production.

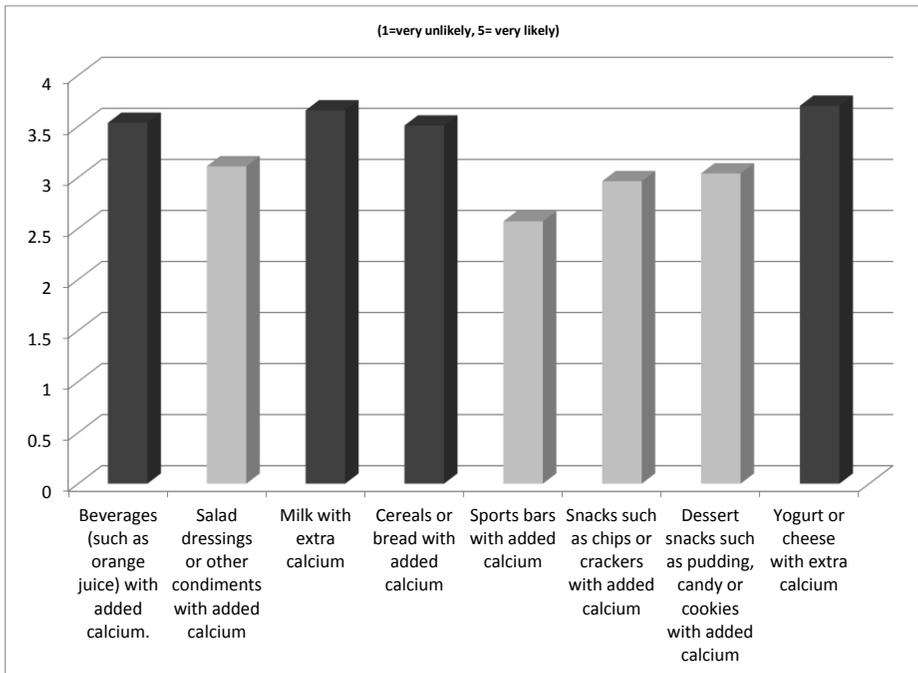


Figure 6. Some new sources of calcium may become available. How likely would you be to consumer the products above, if you wanted to increase your intake of calcium?

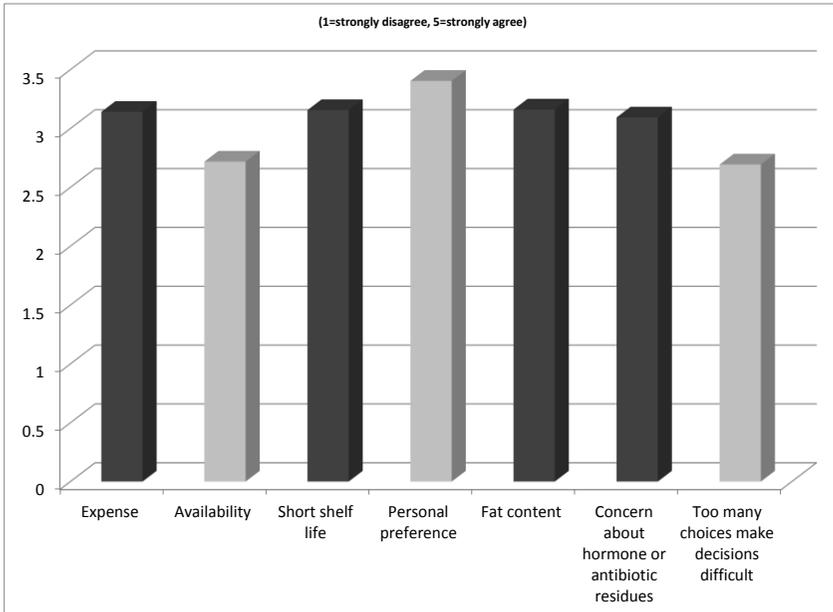


Figure 7. Would you agree or disagree that the above issues are a barrier to consuming more dairy products?

The expense concern, although often disregarded in Canada where such a low level of disposable income is allocated to food, remains important particularly in reference to historically lower prices. Since 2007, higher and more volatile food prices have become the norm. Within that reality, in Canada, dairy product prices have risen 33% since 2002 and milk prices 35% in the same period. These are as compared to a 19% increase in the overall consumer price index and a 27% increase in the food consumer price index (Statistics Canada, Cansim, 2013). The expense concern, as expressed by survey respondents, is reflective of these high prices and more significant increases in dairy prices. Milk prices, in particular, have increased in real terms over the last ten years, when the real prices of other beverages such as soft drinks have declined, making milk relatively more expensive.

Stated Preference for Milk and Yogurt Attributes

Stated preferences are a tool used to determine what consumers might purchase in choices among products that do not currently exist in the marketplace. In this case many of the attributes considered for milk and yogurt are attributes that may exist singly but not in combination, or may exist for one of milk or yogurt but not both. By examining the different combinations of attributes for both products the aim was to see if the attribute combinations were attractive for both dairy products (and by implication possibly for others)

and to see if attributes that appear to be responsible for growth in yogurt sales could be applied to milk with equal success.

The attributes considered in this exercise included price, fat content, vitamin B2, B12 and D enhancement, probiotic, voluntary longer nutrition facts panel and the application of the Health Check™ to applicable products. Respondents were asked to choose between two milk (yogurt) products or neither of the products and completed four pairs of choices for milk products and four for yogurts. The results of these choices can be analyzed using multinomial logit regressions and result in coefficients that can be expressed in terms of relative willingness to pay for particular attributes. Since the experimental design was identical for yogurt and milk, these measures of willingness to pay are directly comparable across products. The results are found in Table 2.

The results suggest that a longer (adding voluntary nutrition information on B vitamins, for example) nutrition facts panel is of interest to respondents for both milk and yogurt and similar dollar values are assigned to the utility expressed for that attribute. In most studies additional information is found to be of value to respondents, even if they only use it once or just know that it is there. In this experiment they were not told the additional information was provided – they had to read the label to ascertain the differences.

Table 2. Mean Willingness to Pay (WTP) for Milk and Yogurt with Different Attributes

(Prices are for a 2L carton of milk (average retail price: \$3.50) or an 8 x 100g package of yogurt (average retail price: \$5.50).

Attribute	Milk - WTP (in \$CAD)	Yogurt - WTP (in \$CAD)
Fat content	-0.22***	-0.58***
Probiotic	-0.08	-0.15**
Vitamin Enhanced	0.15**	0.61***
Health Check™	0.31***	0.18**
Nutrition Panel	0.25***	0.25***

** statistically significant at the 5% level, *** statistically significant at the 1% level

It is worth noting that survey respondents were willing to pay less for dairy products with higher fat content but that that value was much larger for yogurt: yogurt with higher fat content provides more disutility than does milk. Vitamin B2, B12 and D enhancement provides more utility in yogurt than milk, as

evidenced by a higher willingness to pay. Does this suggest that respondents prefer milk to be more 'natural'? Further research is necessary for that aspect. The addition of the Health Check™ symbol is positive but provides less value on yogurt than on milk. The interesting finding that probiotics are not considered to be a positive attribute in milk (by the majority but not all respondents) or yogurt reinforces the difficulties that seem to exist in the marketplace for probiotic dairy products. However, the fact that the majority of respondents did not want probiotics in their yogurt is interesting given the focus on probiotic yogurt development by most brands and the significant advertising campaigns. It may be that for many consumers probiotics are seen as an addition to the yogurt (or any food) that is not natural. The patterns of responses to the various attributes are similar across the two products but the value in terms of utility is not the same to consumers. This suggests that following the same strategies for milk that have been used in the yogurt market may not be as successful.

■ Conclusions

Dairy products, as seen by Canadian consumers, are not treated alike. While there is clearly evidence of some substitution among dairy products the fact that milk is in such strong decline while yogurt (as well as some other individual products) is increasing in popularity suggests the need for a re-evaluation of milk marketing. In this study comparisons were drawn between Canadian consumption of milk and yogurt and potential changes in product attributes for each.

On every indicator the dwindling interest in milk consumption is evident. It is noticeable that the vast majority of respondents to the national survey did not consume milk away from home. This is in spite of the fact that approximately 25% of the Canadian food dollar is spent away from home and this should represent a significant issue of concern for the dairy industry. Survey respondents all see significant barriers to consumption of dairy products and these range from cost to production practices, many of which are areas that the industry can address. Although milk and yogurt quantities are not directly comparable it appears from national tracking data that Canadian consumers are consuming milk less frequently over time and yogurt more frequently. That was borne out in survey data reported here in which the average milk consumption frequency was only marginally higher than that of yogurt. In addition, there was some evidence that other functional food products, beverages and cereals, for example, appear to be as acceptable to most Canadians as a source of calcium fortification as traditional dairy products.

On average, Canadians are interested in additional B2, B12 and D vitamin fortification of milk (currently not allowed by regulation within Canada) as well as better signalling of health attributes including longer nutrition facts panels and Health Check™ labelling in their purchases of milk. Providing these

attributes could encourage higher sales of milk. Younger people were found to be more interested in attributes such as probiotics so it is possible that teenagers and those in their twenties might increase milk consumption if probiotics were involved. In another demographic segment, another dairy deficient population, women in their middle aged period were attracted to functional milks and yogurts and these could be important in attracting these women to increase dairy/milk consumption. They were also the group with the highest concerns about fat in dairy products.

In surveys the economic value of additional information to consumers is a common finding, whether this relates to traceability, production practice (organic, natural) or nutrition labelling. At the same time sceptics often allude to the fact that people may not commonly read labels or packages to suggest that increased information is not useful. Consumers see significant value in additional information in this study and given the perceived barriers to dairy consumption in general and the downward trends in consumption of many dairy products, including milk, perhaps one of the most cost effective methods the industry could use to increase sales would be to add more nutritional information (as is being done by a few individual companies) and to seek out third party certification such as the Health Check™ for the allowable products, in spite of the cost.

■ Acknowledgements

The authors would like to acknowledge the following sources of funding for this project:

University of Alberta Faculty of Agriculture, Life and Environmental Sciences
Food and Health Research Innovation Initiative,
Canadian Dairy Commission Scholarship for Shannon Allen's MSc studies,
Co-operative Program in Agricultural Marketing and Business, University of Alberta.

■ References

- Allen, Shannon, 2012, Consumer Preferences for Milk and Yogurt Products in Canada, unpublished MSc thesis, University of Alberta, Edmonton, Canada.
- Print Measurement Bureau. 2012. Product Database. Accessed through the University of Alberta Library, January 2013.
- Statistics Canada. CANSIM (database). Using CHASS (distributor). Last updated January, 21, 2013.
<http://dc2.chass.utoronto.ca/cansim2> (accessed January 2013).
- Statistics Canada. 2004. CCHS 2.2. Public Use microfiles and Research Data Centre analysis.

