

Preferences for packaged and unpackaged milk-A study of consumers in Ludhiana

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ABSTRACT

India is the world leader in milk production and Punjab is the second largest milk producing state in India producing 10 per cent of country's milk. Per capita availability of milk in Punjab is the highest in the country. Generally milk is sold loose, in bottles or in polythene sachets. Selling loose milk or milk products like ghee, butter paneer etc has possibility of contamination, problem of adulteration, etc. These problems can be controlled by offering packaged milk and milk products. But only 14 per cent of the milk produced in Punjab is marketed by the milk plants in the cooperative and private sectors. Demand for packaged milk and milk products depends a lot upon consumer preferences. This paper presents some findings about consumer preferences for packaged and unpackaged milk in Ludhiana city.

Key words : Consumer preference, Milk, Packaged milk, Milk products

Milk, the major product of livestock sector has long been recognized as complete natural food. It is good for growth and maintenance of health. In 2001, India became world leader in milk production with a production of 84 million tones (Hemme *et al.*, 2003). Milk processing in India is around 35per cent (with the organized dairy industry accounting for 13% of the milk produced) while the rest of the milk is either consumed at farm level, or sold as fresh, non-pasteurized milk through unorganized channels. Milk is processed and marketed by 170 Milk Producers' Cooperative Unions, which federate into 15 State Cooperative Milk Marketing Federations. Over the years, several brands have been created by cooperatives like Amul (Gujarat), Vijaya (AP), Verka (Punjab), Saras (Rajasthan), Nandini (Karnataka), Milma (Kerala) and Gokul (Kolhapur).

Punjab is the second largest milk producing state in India producing 10 per cent of country's milk. Per capita availability of milk in Punjab is the highest in the country. Generally, milk is sold loose, in bottles or in polythene sachets. Selling loose milk or milk products like ghee, butter, paneer etc has possibility of contamination, problem of adulteration, etc. These problems can be controlled by offering packaged milk and milk products. But only 14 per cent of the milk produced in Punjab is marketed by

the milk plants in the cooperative and private sectors. The state has 62 milk plants in the private and cooperative sectors with capacity to process 57 lakh litres per day out of which about 59 per cent is being utilized (Taneja, 2007).

Variations in the factors such as income levels, size and composition of a family, educational levels and thereby awareness on the nutritive front, availability of the substitutes and prices, tastes and preference of the consumers affect the consumption of milk and milk products across the various socio-economic groups in the urban areas.

Consumer's decision to purchase or reject a product is the moment of final truth for the marketer. Consumer preferences in terms of pricing, easy availability etc should be considered as important aspect than merely developing a good product (Mohan, 1977).

Therefore, in the present study has been carried out with specific objective of understanding consumer preferences and satisfaction towards packaged and unpackaged milk and milk products.

METHODOLOGY

The study was conducted in Ludhiana city of Punjab. Both primary and secondary data were used for the study. Secondary data related to sale of packaged milk and milk products were taken from Verka milk Plant, Ludhiana – Punjab's leading cooperative milk plant. Primary data were collected from the residents of Ludhiana. Three colonies namely, Luxmi Nagar, Vikas Nagar and Sarabha Nagar, which represent low, middle and high-income group consumers, respectively were selected on judgment basis.

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A sample of 50 respondents was randomly drawn from each of the above colonies.

Keeping in view the objectives of this study, structured and non-disguised questionnaire was prepared for collecting information from the respondents. Analysis of the collected data was done by percentages; compound annual growths rates and mean scores. Z-test was used as a statistical tool to test whether the mean of population differs from the sample mean. For Z-test the following formula was used:

$$Z = \frac{X - \mu}{\sigma / (N)^{1/2}}$$

where,

X = sample mean

μ = Population mean

σ = standard deviation

N = number of respondents

FINDINGS AND DISCUSSION

To know about the trend of sale of milk and milk products, data were collected from the selected milk plant while consumer preferences and satisfaction about milk was analysed on the basis of data taken from the households.

Sale of packaged milk and milk-based products:

Past five years' sales figures were taken from the selected milk plant. It was found that compound annual growth rate of packaged milk was 2.24% and that of paneer was 8.56%. Ghee and butter have negative CAGR. Data depict that the sale of selected milk plant's packaged milk has shown an upward trend from year 2002-03 to the year 2006-07 (Table 1). On an overall

basis, it was observed that the demand of packaged milk has been increasing for the last 5 years. It was found that the reason for this rising trend in the sale of packaged milk is both the increase in population and the rising awareness amongst the people for packaged milk. Fear of milk adulteration with water or synthetic materials is also responsible to some extent for the increase in sale of packaged milk.

It is clear for Table 1 that the sale of ghee has been on a decline in the last 5 years. The main reason for the decrease, as told by company officials, is that people have become more health conscious and avoid saturated fats intake. As per the company official, the sale of butter has decreased due to competition from other companies located outside Punjab. Sale of packaged paneer has increased over last few years.

Consumer preference for packaged milk and milk based products:

Consumers were asked about the type of milk (packaged or un-packaged) consumed by them. Out of a total of 150 respondents, 50 were using packaged milk and 100 were using unpackaged milk (Table 2).

Further in the low income group, it was found that 82 per cent were using unpackaged milk and rest were using packaged milk. In the middle income group, majority of the people *i.e.* 72 per cent were using unpackaged milk and rest were using packaged milk (Table 2). In the high income group only 46 per cent were using unpackaged milk and rest *i.e.* 54 per cent were using packaged milk.

The respondents were asked about the decision maker in the family for the purchase of milk. It was found that in all the income categories, woman of the house was the main decision maker in purchase of packaged as

Table 1: Sales of milk and milk products of the selected milk plant

Packaged milk and milk products	Sales					Compound annual growth rate (%)
	2002-03	2003-04	2004-05	2005-06	2006-07	
Milk (,000 litres)	1836.58	1873.5	1900.70	1947.86	2006.4	2.24
Ghee (tonne)	635.5	595.8	563.19	413.2	385.3	-11.76
Butter (M tonne)	250.3	239.4	211.8	192.7	188.9	-6.79
Paneer (M tonne)	64.8	64.6	64.7	71.0	90.0	8.56

Table 2 : Type of milk used by respondents

Type of milk	Low income group	Middle income group	High income group	Total
Packaged milk	9 (18)	14 (28)	27 (54)	50
Unpackaged milk	41 (82)	36 (72)	23 (46)	100
Total	50 (100)	50 (100)	50 (100)	150

Figures in parenthesis represent percentages

well as unpackaged milk. Therefore, the marketers can target women and make them more aware of the benefits of packaged milk.

Form of milk products used:

Respondents were asked whether they used packaged, unpackaged or both types of milk products (Table 3).

Sr. No.	Products	Packaged	Unpackaged	Both packaged and unpackaged
1.	Butter	27(18)	103(68.66)	20(13.34)
2.	Paneer	33 (22)	60 (40)	57 (38)
3.	Ghee	143(95.34)	5 (3.34)	2 (1.32)

In case of butter 68.66% used unpackaged butter *i.e.* homemade or from local dairy / Halwaii. For paneer 40% used unpackaged, 38% used both packaged and unpackaged and only 22% used packaged paneer only. In case of ghee, 95.34% used only packaged and only 3.34% used unpackaged ghee (Table 3).

Type of family of respondents:

Choice of unpackaged or packaged milk may vary with respect to the type of family. Therefore, the respondents were asked whether they lived in joint family or nuclear family. Table 4 indicates that in case of unpackaged milk consumers, 51 per cent were from joint families and 46 per cent belonged to nuclear families, whereas in case of packaged milk consumers, 56 per cent were from nuclear families, 38 per cent were from joint families and 6 per cent were singles. Consumption of unpackaged milk was observed to be higher in the joint families. The reason as reported by them was their large quantity milk requirement and old people in the family think that in case of packaged milk fat has already been taken out.

In case of packaged milk, the highest percentage (56 per cent) of users were found to be of nuclear families. Also, all the singles preferred to purchase packaged milk. The reason given was basically the ease of purchase of

Type of family	Unpackaged	Packaged	Total freq.(%)
Joint	51 (51.00)	19 (38.00)	70 (46.67)
Nuclear	49 (49.00)	28 (56.00)	77 (51.33)
Single person	0	3 (6.00)	3 (2.00)
	100	50	150(100)

packaged milk at any time. The working class found it easy to purchase the milk from a booth rather than wait for a milkman.

Reasons for purchasing unpackaged/ packaged milk:

The respondents were asked about reasons for the purchase of unpackaged milk.

Majority (88 per cent) of the respondents purchased unpackaged milk because of home delivery facility while 76 per cent preferred because payment can be made at the end of the month rather than on day-to-day basis (Table 5).

Reasons	Frequency (%)
Ease in payment	76(76.00)
Home delivery	88 (88.00)
Reasonable price	42 (42.00)
Taste preference	44 (44.00)

(Multiple responses)

In case of packaged milk, 100% of the respondents gave hygiene/quality the main reason for purchasing, 84 per cent purchased packaged milk due to taste preference and only 18 per cent said that ‘no time-bound delivery’ was the reason for their purchase of packaged milk (Table 6).

Reasons	Frequency (%)
Hygiene/quality	50 (100.00)
Taste preference	42 (84.00)
Can purchase any time	9 (18.00)

(Multiple responses)

Reference group/promotional measures influencing the purchase:

In case of unpackaged milk, 95 per cent of the respondents were influenced by the word of mouth of neighbours who recommended milk from a particular milk vendor. But in case of packaged milk, advertisements had influenced the largest number of the respondents (Table 7).

Influencer	Unpackaged	Packaged	Total
Neighbors	95	0	95 (63.34)
Friends/relatives	5	3 (6.00)	8 (5.33)
Advertisement	0	47 (94.00)	47 (31.33)
Total	100	50 (100)	150 (100)

Figures in parenthesis represent percentages

Level of satisfaction of respondents of packaged and unpackaged milk:

Consumers of packaged and unpackaged milk were asked about their level of satisfaction with respect to various parameters like quality of milk, price of milk, taste preference, mode of payment and assurance of right quantity.

It was found that the level of satisfaction in case of packaged milk users was the highest for quality of milk and lowest for the mode of payment. The calculated Z-value was less than the table value in case of mode of payment, so the result was insignificant (Table 8). For all the remaining parameters calculated Z-value was greater than the table value, therefore they were significant.

Table 8 : Level of satisfaction of consumers of packaged milk with respect to various parameters

Parameters	Weighted mean	Z-value
Quality of milk	1.84	35.44*
Price of milk	1	9.134*
Taste preferences	1.06	17.843*
Mode of payment	0.02	0.277

* represent significant values

In case of the consumers of unpackaged milk, the satisfaction was highest taste preference and second highest for mode of payment (Table 9). The calculated Z-value was less than the table value in case of price of milk the result was insignificant. For all the remaining parameters, calculated Z-value was greater than the table

Table 9 : Level of satisfaction of consumers of unpackaged milk with respect to various parameters

Parameters	Weighted mean	Z-value
Quality of milk	1.67	26.5*
Price of milk	0.72	0.8
Taste preferences	1.57	31.4*
Mode of payment	1.02	29.14*

(* represent significant values)

value, therefore they are significant.

Conclusions:

While the sale of packaged milk and paneer is on rise, the sale of butter and ghee has a negative growth. As the income level goes on increasing, the percentage of people using packaged milk also goes on increasing because they do not mind paying a little more for perceived better quality of product. The percentage of people using unpackaged butter and paneer is higher. Consumers can be made aware of the better quality of packaged butter and paneer. Packaged ghee is preferred by the most of the respondents. Ease and payment in delivery are the major reasons, as told by consumers, for buying unpackaged milk. The companies can increase the preference for packaged milk by highlighting the quality factor, by making home delivery possible in all areas and by making payment system suitable to the consumers. Mainly women are the decision makers for milk purchase therefore advertising media should be selected keeping this factor in view.

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