



e-ISSN: 2456-6632

This content is available online at AESA

Archives of Agriculture and Environmental Science

Journal homepage: journals.aesacademy.org/index.php/aaes



ORIGINAL RESEARCH ARTICLE



Analysing the consumer preference of fluid milk in province no. 2 of Nepal

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ARTICLE HISTORY

Received: 06 July 2020

Revised received: 24 August 2020

Accepted: 10 September 2020

Keywords

Consumer preference

Fluid Milk

Households

Purchase decision

Socio-economic characters

ABSTRACT

Information is an asset for any industry. Some information such as the consumer preference is hidden deep in the mind of the consumer which is difficult to access. Studies have revealed that the consumer preferences can be measured effectively and their research may provide a deeper understanding of the choices that consumers make when deciding to select an offer against another. Milk is one of the major components of diet for the people around the globe. The demand for milk and other dairy products is generally income elastic. The marketing of fluid milk is not similar as compared to other consumer-based goods. The demand for milk and milk products depend considerably on the consumption pattern, food habits, geographical region, urbanization and life style. The study was conducted to analyse the consumer preference of fluid milk in Province no. 2 of Nepal. Rautahat and Saptari districts from Province no. 2 were selected for the study. The total sample size of 180 household was selected for study but data from 159 households was only taken for consideration. Consumer preference was analysed using tabular and percentage analysis. Garret's ranking technique was adopted to analyse the reason for preference of fluid milk by household consumer. From the study it was clear that almost all the households irrespective of the income and other socio-economic factors, preferred fluid milk. Nutritive value was found to be the most important reason for preference of fluid milk. The other reason for preference of fluid milk were taste, quality, availability, price and satisfaction. The consumption of fluid milk was found to be dependent over several socio-economic factors such as education, income, gender etc. The differences in consumption behaviour of the consumers provide an important inference to marketing and promotion strategies of dairy/ food products. Different promotion strategies based on different consumption determinants are perhaps necessary for effective marketing in a specific area.

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Citation of this article: Shingh, S., Yadav, O.P., Ghimire, S. and Dahal, N. (2020). Analysing the consumer preference of fluid milk in province no. 2 of Nepal. *Archives of Agriculture and Environmental Science*, 5(3): 377-383, <https://dx.doi.org/10.26832/24566632.2020.0503020>

INTRODUCTION

Studying consumer's behaviour is not an easy task as the preferences are hidden deep in the mind of the consumer. Along the research the consumers may not fully express their needs and desires and act in a totally opposite way or it's possible that they aren't even aware of the true motivations behind their buying behaviour. The consumers can even react to factors determining

the last-minute changes to their buying decision. Hence, the physiochemical process behind the consumer preferences is difficult to take into account (Cătoiş and Teodorescu, 2004; Kotler, 2008). Preferences of any good could be due to its features such as its shape, size, taste, colour, consistency, packaging and also the elements referring to label, name, use instructions that is contained by the product (Cătoiş and Teodorescu, 2004; Voicu, 2013; Kotler, 2008). Identifying the

customer's preference represents the basic pillar of every company's marketing activity (Ileana and Anamaria, 2014).

Dairy products have been the major component of diet since prehistoric times. The consumption of fluid milk has been associated with overall diet quality and adequate intake of nutrients such as calcium, potassium, magnesium, zinc, iron, fat soluble vitamins and vitamin B complex (USDA, 2005; Palacios et al., 2009; Peng et al., 2006; Wham and Worsley, 2003). Despite of the benefits, consumption pattern of fluid milk has changed a lot. The per capita consumption of the whole fat milk decreased because of the higher preference of low-fat milk in the developed countries. The reason behind the preference might be health concerns, aging of the population, income factors and increased education (Jensen, 1995; Peng et al., 2006). The situation is contradictory to the case of developing countries where unpacked fluid milk takes a significant share of fluid milk consumption (Phillips et al., 1995; Hatirli et al., 2004).

Nepalese dairy market can be broadly categorized into two groups i.e. Organized sector consisting of cooperatives, private owned dairies selling pasteurized chilled milk and unorganized sector's milk distributors selling unprocessed milk (Zingone et al., 2016). Based on our knowledge, no studies exist that analyse the consumer preference of fluid milk in Province no. 2 specially in Rautahat and Saptari districts of Nepal. Hence, the study was conducted to analyse the consumption of fluid milk by households and to identify the determinants of preference in that region. The study on consumer preference was found to be important as the consumer behaviour bears an important implication to marketing and promotion strategies of the food products and would also let the dairy producers analyse their present and future scopes in these regions. The consumption patterns for fluid milk products in Province no. 2 of Nepal were different for different socio-economic and demographic characteristics of households such as monthly income, education, age, gender and employment status of the consumers. Each consumer is different and for that reason he/she makes different decisions within the process of purchasing (Kilic et al., 2009). The impact of changing consumption habits, urbanization, lifestyle etc could be clearly noticed on the demand of the dairy products.



Figure 1. Sampling sites.

MATERIALS AND METHODS

For this research work, Rautahat and Saptari districts of province no. 2 of Nepal were purposively selected as both the districts are connected with Mahendra Highway and have got good potential for future dairy market expansion (Figure 1). From each district, 90 household consumers were selected by simple random sampling procedure thus yielding a total sample size of 180 household consumers. A complete analysable data of 159 household was obtained since the rest of the data were obtained from "chance" shopper and a few were improperly filled. 53% of the respondents were from Saptari district while the rest 47% were from Rautahat district. The reference year for the present study was 2019 and the data collection was undertaken during the months of November and December (2019).

Survey method was adopted for the collection of primary data from the household consumers. Care was taken to collect the data in such a way that sample respondents fell in the entire income group, as group and education group. From the selected household consumers, pertinent data was collected to bring out the useful conclusion on the objective of study. The data was collected through personal questioning, by interviewing the sample respondent household with the help of well-structured interview schedule. The raw data collected were coded and then entered into the program for analysis. They were analysed using M.S Excel.

The issue of memory bias could be common in the case of households' on-the-spot surveys. The over and under estimation of the data about expenditures, quantities, and frequencies etc could also be possible by the households' leaders.

Tabular and percentage analysis was used to analyse the consumer preference of fluid milk.

Garret's ranking technique was used to analyse the reason for preference of fluid milk by the sample population. The order of merit marked by the respondents was converted into rank by using the formula.

$$\text{Percentage position} = \frac{100 (A_{ij} - 0.50)}{F_j}$$

Where,

A_{ij} = Rank given for i th factor by j th individual

F_j = Number of factors ranked by j th individual.

The percentage position thus obtained was converted into Garret's score by referring to the Garret's table given by Garret and Woodworth, (1969). Finally, for each reason the score of individual respondents were added and then were divided by the total respondents for whom the rank was marked. The final rank was assigned on the basis of the mean scores. The similar methodology was adopted by Bhanu et al. (2017) for the study.

RESULTS AND DISCUSSION

Socio-economic characteristics

Being an agricultural country, dairying is recognized as an instrument for social and economic development in Nepal (FAO, 2010). The nation's milk supply is the outcome of millions of small producers, dispersed throughout the rural areas. Milk production in Nepal is dominated by small and marginal landholding farmers (Sharma, 2017). The demand for livestock products is generally income elastic but there are other several factors to which the demand is dependent upon (Bhanu *et al.*, 2017).

One of the prime factors that could influence the consumer attitudes and intentions are socio-demographic variables. The impact of demographic variables such as education and ethnicity on demand and preference of milk have been studied by Bashir, (2011), Bhanu *et al.* (2017) and Alwis and Athauda (2009) in their earlier researches. The analysis of the socioeconomic characteristics of the sample population is important to have a clear understanding of the constraints perceived by them. The socioeconomic characteristics of the respondents are tabulated in Table 1.

All the respondents were found to purchase fluid milk for consumption regularly. It was found that males holding the position of family head were much more than female holding the similar position. Out of the total respondents, 71.70% of the respondents were male and rest 28.30% of the respondents were female. According to age, most of the respondents were in

between the age group of 30-50 years (47.79%), followed by 28.93% of people who were below 30 years in age. Remaining 23.27% of the respondents were above 50 years in age.

Education enables a person to understand his/her surroundings and environment and in addition helps in enhancing their knowledge in understanding of nutritional knowledge and dietary fat intake (Santhi, 2016).

Of the total respondents, 43.39% had educational attainment up to primary level and 29.55% with secondary level, 16.35% with higher secondary level, 8.17% were graduates and remaining 2.51% were post graduates. The majority of the respondents were found to be employed. Occupation wise classification of the respondents showed that 59.11% were employed and rest 40.88% were unemployed. The house hold income was also higher for the families with higher employed members.

Household income gains importance in household decision regarding monthly consumption and expenditure on milk (Rundle-Thiele and Bennett, 2001). Of the total households, 26.81% were having monthly income up to 20,000, 53.45% had monthly household income of Rs. 20,000- 40,000, 13.20% of the households had monthly income of Rs. 40,000-60,000, 4.40% of the respondents had the monthly income of Rs. 60,000-80,000, 1.25% of the population had the monthly income of Rs. 80,000-1,00,000 and rest 1.25% have the income of Rs. 1,00,000 and above. The above data showed that the income of the majority of the respondents was in the range of Rs. 20,000-Rs. 40,000.

Table 1. Socio-economic characteristics of the respondents.

Characteristics	Variables	Frequency	Percentage (%)
Milk Purchased		159	100
Age	Below 30	46	28.93
	30-50	76	47.79
	above 50	37	23.27
Gender	Male	114	71.70
	Female	45	28.30
Education	Primary	69	43.39
	Secondary	47	29.55
	Higher secondary	26	16.35
	Graduate	13	8.17
	Post Graduate	04	2.51
Occupation	Employed	94	59.11
	Unemployed	65	40.88
Income	Below Rs. 20,000	42	26.41
	Rs. 20,000-40,000	85	53.45
	Rs. 40,000-60,000	21	13.20
	Rs. 60,000-80,000	07	4.40
	Rs. 80,000-1,00,000	02	1.25
	Above Rs. 1,00,000	02	1.25
Monthly expenditure for milk	Upto Rs. 1000	31	19.49
	Rs. 1000-2000	59	37.10
	above Rs. 2000	69	43.39

Table 2. Distribution of branded and unbranded milk preference of milk based on socio-economic characteristics.

Variables		Frequency (Both branded and Unbranded)	Frequency of branded	Branded Milk (% of Respondents)	Frequency of Unbranded	Unbranded Milk (% of Respondents)	Total respondent (In %)
Milk Purchased		159	34	21.383	125	78.61	100.00
Age	Below 30	46	13	28.26	33	71.93	28.930
	30-50	76	16	21.05	60	78.94	47.798
	above 50	37	05	13.51	32	86.48	23.270
Gender	Male	114	26	22.80	88	77.20	71.698
	Female	45	08	17.78	37	82.22	28.301
Education	Primary	69	10	14.50	59	85.50	43.396
	Secondary	47	11	23.40	36	76.60	29.559
	Higher secondary	26	07	26.92	19	73.08	16.352
	Graduate	13	04	30.07	09	69.23	8.1761
	Post Graduate	04	02	50.00	02	50.00	2.515
Occupation	Employed	94	24	25.53	70	74.46	59.119
	Unemployed	65	10	15.38	55	84.61	40.880
Income	Below Rs. 20,000	42	08	19.04	34	80.95	26.415
	Rs. 20,000- 40,000	85	17	20	68	80	53.459
	Rs. 40,000- 60,000	21	05	23.80	16	76.19	13.207
	Rs. 60,000- 80,000	07	02	28.57	05	71.42	4.402
	Rs. 80,000- 1,00,000	02	01	50	1	50	1.257
	Above Rs. 1,00,000	02	01	50	1	50	1.257
	Monthly expenditure for milk	Upto Rs. 1000	31	05	16.12	26	83.88
	Rs. 1000-2000	59	12	20.33	47	79.67	37.106
	above Rs. 2000	69	17	24.63	52	75.64	43.396

Table 3. Reasons for preference of fluid milk by Garret's ranking technique.

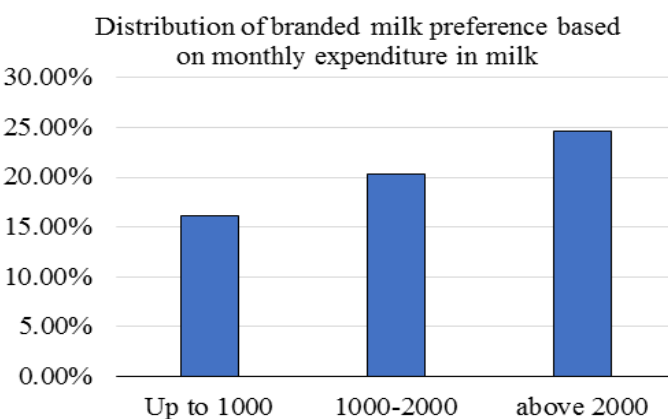
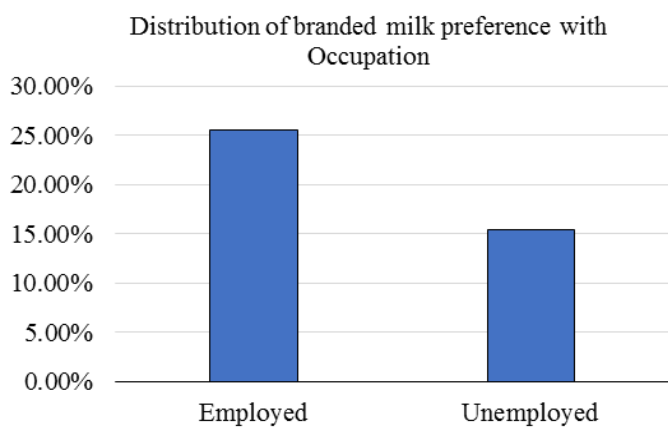
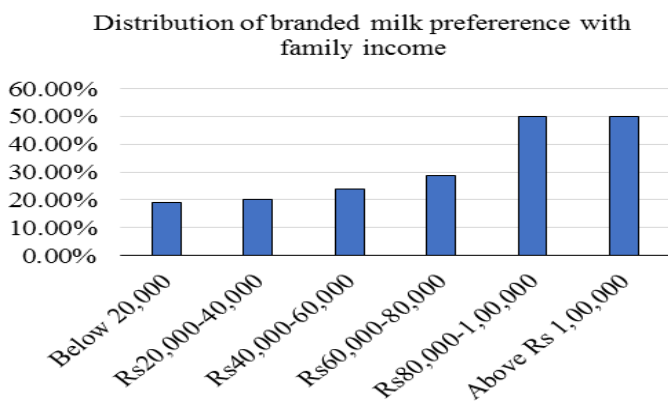
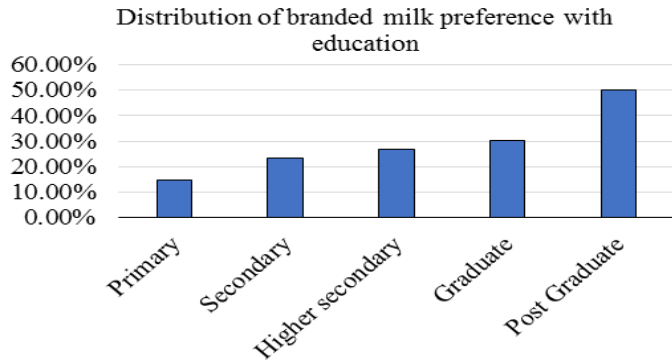
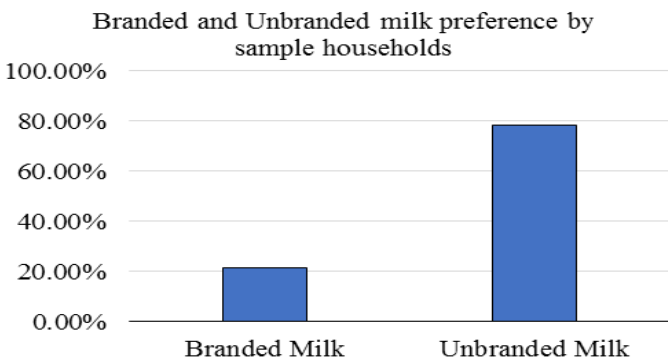
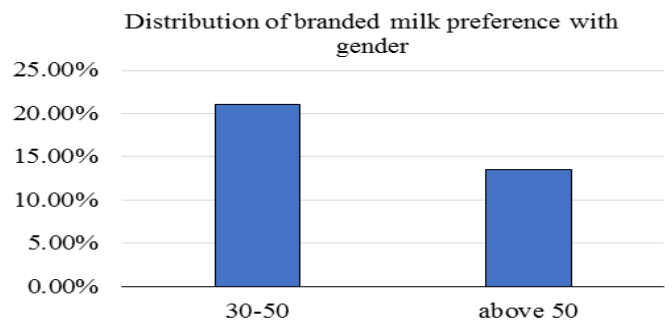
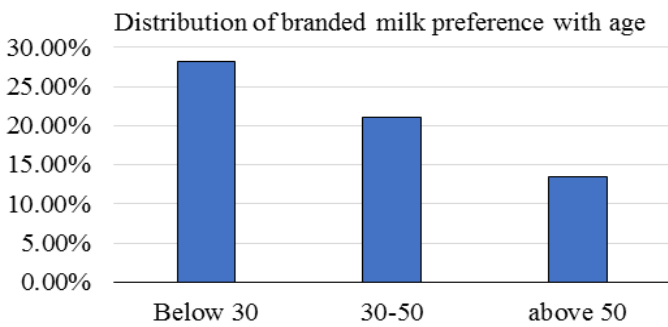
S.N.	Reason	Whole Milk		
		Total Score	Average Value	Rank
1	Nutritive value	10859	68.29	I
2	Taste	8876	55.82	II
3	Quality	7858	49.42	IV
4	Availability	6583	41.40	V
5	Price	8505	53.49	III
6	Satisfaction	5116	32.17	VI

The average expenditure on dairy products by consumers is an important indication for marketing and distribution of goods at the particular area. 19.49% of the respondents spent up to Rs. 1000 per month for the purchase of fluid milk, 37.10% of the respondents spent Rs. 1000-Rs. 2000 per month for the purchase and rest 43.39% of the respondents spent above Rs. 2000 per month for the purchase of fluid milk.

Distribution of branded and unbranded preference of fluid milk based on socio economic characteristics

Socio-economic variables are among the first that come to mind as potential factors affecting consumer attitudes and

preferences (Antonopoulou *et al.*, 2009). It is not surprising that the roles of the socio-economic factors have been commonly examined and measured in numerous studies (Onyango and Nayga, 2004, Hossain *et al.*, 2002, Azhar *et al.*, 2014 and Hsu and Kao, 2001). The preference of consumers was found to be greatly affected by the socio-economic characteristics such as age, gender, education, occupation and family income in several of these researches (Alwis and Athauda, 2009 and Watanabe *et al.*, 1998). The effect of socio-economic characteristics on branded and unbranded milk preference is tabulated in Table 2.



Majority of the respondents from the target area were found to purchase unbranded milk. 78.61% of the respondents prefer unbranded milk and rest 21.383% preferred branded milk. The reason for preference of unbranded fluid milk by majority of the respondents could be level of education, family income, occupation, price of milk and the lesser availability of packaged branded milk. Price was found as a major factor for choice of unbranded milk. The average price of branded milk was found to be Rs. 85 per litre whereas the unbranded milk was available with Rs. 70 per litre. Hence, people found branded milk costlier and preferred unbranded one. Price affecting the consumer buying behaviour has also been stated by Al-Hassan, (2016). Suitable prices makes consumer more willing to purchase items. The other reasons for preference of unbranded milk could be lack of awareness among the people regarding the keeping quality, microbial quality and chemical constituents in branded milk.

The influence of age of the consumer was studied in order to have some ideas of preferences among different age groups of the population. Age has also been included in previous researches as well with similar outcomes (Gould et al., 1990 and Hatirli et al., 2004). The relatively young could have a greater bearing on consumption patterns in the future. It was also considered because the food consumption pattern is affected by phases in the consumers' life cycle (Yayar, 2012). The maximum preference of branded milk was found common to the people who were below 30 years in age. A steady reduction was found in preference of branded milk with the increase in age of the respondents. 28.26% of the respondents who were below 30 years in age preferred branded milk, 21.05% of the respondents who were in between the age group of 30-50 years preferred branded milk and 13.5% of the respondents who were above 50 years in age preferred branded milk. This is consistent with the finding of Yayar, (2012), Kilic et al. (2009) and Akbay and Yildiz, (2008) who reported that unbranded milk preference is positively related to increasing age of the household head.

From the study it was observed that males had higher preference to branded milk than females. 22.80% of the male respondents preferred branded milk whereas only 17.78% of the female respondents preferred branded milk. The similar result with males having higher brand preference was reported by Pirlympou (2017).

Education was found to be one of the major factors behind the preference of branded milk. Education of the respondents was categorized under five levels, namely: primary level, secondary level, higher secondary level, graduate and post graduate level. The preference of branded milk was found to be increasing with the increase on the education level. 14.50% of the respondents who attained education till primary level preferred branded milk. The percentage of the respondents who preferred branded milk and attained the education till secondary, higher secondary, graduate and post graduate level were 23.40%, 26.92%, 30.07% and 50% respectively. These findings are in line with the findings of Yayar (2012); Rauniker and Huang (1984) and Watanabe et al. (1998).

Occupation wise classification showed revealed that 59.119% of the respondents were employed and rest 40.880% were unemployed. Branded milk preference was found much likely in the employed respondents than unemployed because of the higher income factor of employed respondents. 25.53% of the employed respondents preferred branded milk and 15.38% of the unemployed respondents preferred the same.

The taste and preference of the consumer gets more conspicuous with the increase in wealth. Branded milk preference was found to be more likely to the respondents with higher income. The preference of branded milk was found to increase with the increasing family income. 19.02% of the responded who had the income of below Rs. 20,000 preferred branded milk. The percentage of the respondents who preferred branded milk and had the income of Rs. 20,000-Rs. 40,000, Rs. 40,000-Rs. 60,000, Rs. 60,000-Rs. 80,000, Rs. 80,000-Rs. 1,00,000 and above Rs. 1,00,000 were 20%, 23.80%, 28.57%, 50% and 50% respectively. This was consistent with the finding of Mila and Raha, (2012), who reported the positive relation between the preference of processed milk and monthly income of the family. Furthermore, the study was also consistent with the study of Akbay and Jones, (2005) who documented lower-income consumers have higher preferences for the lower-priced produced. Likewise, this is consistent with the findings of Bus and Worsley (2003), Watanabe et al. (1998), Dong and Kaiser (2001), Celik et al., (2006) and Yayar, (2012), who reported that the household consumption of fluid milk is positively influenced by income.

It was also found that, the respondent family who spent more on milk were likely to prefer branded milk over the unbranded one. 16.12% of the respondents who spent up to Rs. 1,000 per month for milk preferred branded milk, 20.33% of the respondents who spent Rs. 1000-Rs. 2000 per month for milk preferred branded milk and 14.63% of the respondent who spent above Rs. 2,000 per month for milk were found to prefer branded milk.

The analysis of branded milk preference suggests that the household preference for branded milk is conditioned by the

socio-economic and demographic variables such as age, gender, occupation, price etc. Similar result was obtained by Santhi, (2016), Alwis and Athauda (2009) and Yayar (2012).

Reasons for preference of fluid milk by sample households

A list of reasons was provided to the consumers in order to rank. The reasons were nutritive value, taste, satisfaction, price, availability, and quality. The similar dimensions were observed by Ratnam and Spielmann (1972).

The order of scores given by the respondents was converted into ranks by using the formula. The percentage position thus obtained was converted into score. Based on the total scores obtained for each reason, they were ranked and the results are presented in Table 3. The results revealed that nutritive value and taste were considered as the important reason for dairy product preference by household consumers in Province no. 2. Similar result was reported by and (Bhanu et al., 2017).

In case of fluid milk, nutritive value was found to be the first important reason purchase, as it is rich source of various nutrients and minerals that satisfies the nutritional requirement of households irrespective their age groups (Peng et al., 2006; Wham and Worsley, 2003). The other most important reason for the purchase of fluid milk was found to be "taste". Taste as a major determinant of food choice was observed by Grunert et al. (2000) and Wham (2000). The other reasons for the purchase of fluid milk were quality, availability, price and satisfaction. This was consistent with the finding of Pangborn et al. (1985) which showed the preference of high fat milk over low fat by the consumers.

Conclusion

The study on consumer preference for dairy products in Province no. 2 of Nepal revealed that almost all the sample households, irrespective of income level and occupation preferred fluid milk. In case of fluid milk, nutritive value of milk was the first important reason for preference by the household consumers. The other reasons for preference were taste, satisfaction, quality, availability and price. Socio-economic profile of the customers influences buying decisions. The household preference for branded milk was influenced by age, gender and education attainment of the respondents and house hold consumption expenditure.

The unorganized sector's milk trade needs to be regulated and brought under formal channel in order to achieve better advantages as the majority of milk trade is accounted from them. All the milk processors, suppliers and distributors should be brought under the control of Quality Control Officer of the province. The dairy industries marketing pasteurized branded milk need to target the market based on the above variables of the socio-economic characteristics. Adequate information should be provided to the people regarding the choice of pasteurized chilled milk, milk processing, and understanding the label via awareness campaigns. Uninterrupted supply of branded milk in the retail stores should be made available as well.

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