

## MARKETING OF MILK BY DAIRY FARM PRODUCERS IN KHARTOUM STATE

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### المستخلص

يهدف هذا البحث لدراسة تسويق الالبان بواسطة مشاركة قطاع منتجي الالبان في ولاية الخرطوم - السودان وتنبع اهمية البحث من اهمية تطبيق استراتيجيات التسويق الحديث في مجال التسويق الزراعي التقليدي وخاصة قطاع انتاج الالبان. ولتحقيق أهداف البحث، تم جمع البيانات الأولية من خلال استبيانات تم توزيعها على عدد 60 منتج في مزارع الالبان في ولاية الخرطوم، والذين تم اختيارهم عن طريق العينات الطبقية ومن ثم تم اجراء طرق التحليل الاحصائي وقد توصلت الدراسة الى عدد من النتائج اهمها:

- 1 يحدد معظم منتجي الالبان الاسعار وفقا للعرض والطلب.
- 2 يولي المنتجون اهتماما كبيرا بجودة المنتجات لكسب ثقة المستهلكين والمحافظة عليهم.
- 3 معظم المنتجين لا يستخدمون الترويج كاستراتيجية لزيادة المبيعات مما يدل على ضعف مشاركة المزارعين في الجهود التسويقية.

وقد اختتمت الدراسة بعدد من التوصيات اهمها:

- 1- على المنتجين انشاء نقاط بيع خاصة بهم لزيادة ارباحهم والمساعدة في خفض سعر الالبان المستهلك .
- 2- زيادة الاهتمام بالتسويق في قطاع منتجي الالبان من خلال الورش الارشادية والسمنارات مع تكثيف الابحاث في مجال تسويق الالبان.

### Abstract

This research aimed at studying the marketing of milk by dairy farm producers in Khartoum state , Sudan. The importance of the research evolves from the importance of implementing modern marketing strategies in the conventional agricultural marketing especially the dairy sector. To achieve the objectives of the research, primary data was collected through distributing questionnaires to 60 dairy farm producers in Khartoum state, who had been selected by a stratified quota sampling procedure. After using descriptive statistical methods of analysis, some results were reached most important of which were;

- 1- Most of the producers set price according to supply and demand.
- 2- Producers pay great attention to the quality of the products to gain and retain the consumers.

- 3- Most of the producers don't use promotion as a strategy to increase sales which indicates poor participation of farmers in marketing efforts.

The research was concluded with a number of recommendations that included:

- 1- Producers should establish their own sales points to assist lowering consumer milk price and increase their profit.
  - 2- Enhancing marketing awareness in the producers' sector through implementing extension workshops, seminars and, practicing more research in dairy marketing.
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**Keywords:** marketing; dairy farm producers; dairy products; Khartoum; Sudan.

## **Introduction**

Marketing in its general concept involves transferring the society's needs and demands into profits. Modern marketing have yet shifted this concept into a closer view focusing on the consumer demands, market research, promotion and market segmentation to gain more profitable chances and the dairy sector is in need of such intervention in marketing trends so as to shift it into a new era of commerce that is able to compete locally and worldwide. de Leeuw *et al* (1996) defined dairy production as a biological efficient system that converts large quantities of roughage , the most abundant feed in the tropics to milk the most nutritious food. The milk marketing system has been influenced by the characteristics of the production process and the products, the resources used in dairy farming are highly specialized with few alternatives uses, rather high capital costs and long biological lags involved in expanding or contracting the dairy cow herd, as a result farm recourses are somewhat slow in adjusting into and out of milk production, in the short run the marketing system and consumers must adjust to the available milk supply (Kohls & Uhl 2002). Dairy product markets typically differ in several key ways, by the types of products handled, the number of intermediaries involved, and the role each plays, these two aspects are often linked in that more processed and thus higher value products often involve more intermediaries, each of whom adds some delivery or transformation service to the product (Omore, 2004). Unlike most agricultural commodities milk is produced daily, and adjustments in production in response to changes in input prices as well as milk price take longer because of the high proportion of resources that are fixed over the short run, thus before the advent of policies and institutions designed to protect dairy farmers and before the development of technologies that made the shipment of milk relatively long distances possible, the balance of market power rested with milk handlers who are the first buyers of milk, because individual dairy farmers had a little choice other than to accept the handler's price or dump the milk (Suzuki & Kaiser, 2005). Milk production in the tropics has some continent-specific characteristics: in sub-Saharan Africa, three quarters of the milk is produced by cattle, by contrast in Asia, where cattle produce half of the milk, and most of the remainder comes from buffaloes, whereas in Latin America, most milk comes from cows grazing privately-owned planted pastures, over-riding

these characteristics of production systems are the effects of the market; throughout the tropics, with the exception of India and parts of Latin America, market-oriented smallholder and large scale dairy farms are concentrated near or within-urban consumption centers, less proximate production occurs only in those regions where there is an efficient market infrastructure, therefore, the potential to increase dairy production depends largely on the unit costs of collection and transport. (Walshe *et al.*, 1991). In the United States, the government programs assist with milk marketing through export enhancement, low income feeding programs, dairy research and advertising and promotion, Trade agreements have created markets for US dairy products and have opened the door to foreign competition, regardless of government involvement with international dairy trade, the amount of milk product traded remains relatively small compared with the domestic market (Stukenberg *et al.*, 2006). Weakness in physical and marketing links between rural producers and urban processors and consumers are among the major constraints to dairy development in developing countries (Jabbar *et al.*, 1997).

The lag in the domestic supply of milk relative to demand in the tropics has resulted from several factors, on the demand side, rapid increases in per caput income especially in Southeast Asia, urbanization and high income elasticities of demand have fuelled increases in per caput consumption, on the supply side, low animal productivity, inappropriate technologies, inadequate research and extension support poor infrastructure and unfavorable external conditions have contributed to the poor performance of the livestock sector in general, and of the dairy sub-sector in particular (Williams *et al.*, 1995). The increased demand for milk and dairy products in the tropics, where low-income groups dominate the market, is expected to favor the informal market, particularly where milk is produced primarily by small- and medium-scale producers, in all such regions, the success of the informal market is based on consumer reluctance to pay the extra costs of pasteurization and packaging (Anon, 1997). In a study performed in Shashemene – Dilla area, south Ethiopia by (Yigrem *et al.*, 2008) concluded that one of the constraints for dairy development in the area included discouraging marketing system. The dairy industry also occupies a special position among the other livestock sectors due to four interrelated features the first factor is related to the specific properties of milk in that it is bulky and heavy commodity which is produced on a daily basis, secondly, the socio- economic position of the

majority of the farmers involved is small- scale producers, with a weak and vulnerable position on the market, thirdly, dairy cooperatives hold a strong position in milk marketing and processing, the fourth and final is the fact that milk is a very valuable but an extremely raw material to make a wide range of products (Perera, 1999). Dairy farmers in the United States have been active in research, education, advertising and promotion programs to increase the demand for dairy products for over 70 years, most dairy farmers understand the need to educate the public on the nutritional value of dairy products and to promote their product (Bailey, 1997).

The objectives of this study were:

- 1- To study how the marketing system links with the whole dairy production system in order to reveal constrains.
- 2- To study the possibility of producer's contribution in enhancing the marketing of dairy products.
- 3- To analyze usage of the marketing mix in the dairy production sector.

### **Materials and Methods**

The study was carried in Khartoum state capital of the Sudan with a total population exceeding five million residents, it is considered a major consumption centre of milk and dairy products, and hence it represents a focal local market for milk producers and milk handlers.

#### **Population of the study and sample selection**

Milk farm owners in Khartoum state, who were the population of this study, vary in their socioeconomic characteristics; they also owned farms of different sizes in different locations of Khartoum state. Due to the heterogeneity among producers in different areas of Khartoum state and the unavailability of statistics portraying the size and distribution of the total milk producers in Khartoum state, a stratified quota sampling procedure was adopted to select 60 producers as a sample for this study. Khartoum state was divided into three major producing areas; Khartoum, Khartoum- North and Omdurman, to ensure the inclusion of a wide spectrum of farm and producers characteristics and due to unknown exact population frame of milk producers in Khartoum state, a quota sample (20 producers) from each of the three major areas were selected to obtain a total sample size of 60 producers.

### **Data collection and analysis**

The study was mainly based on primary data collected from the selected sample through a structured questionnaire where a pre survey test was made by a tentative questionnaire designed and distributed to a limited number of producers to get some useful data that can aid in designing the final intended questionnaire in the most possible optimum pattern. A structured questionnaire was then designed and distributed to the selected producers, after their feedback the distributed questionnaires were collected from respondents. The response rate was 100 %. The collected data was tackled with the aid of the computerized statistical package for social sciences (SPSS) to obtain the frequency distributions of the respondents with regard to the variables of the study.

### **Results and Discussion**

Table 1 shows that 36 producers under study with a percentage of (60%) are secondary level, graduates and post graduates while literate and primary education level are 24 producers with a percentage of (40%). This result reveals that the majority of producers are highly educated persons that can positively contribute in changing typical marketing into modern marketing trends.

Table 2 shows that 43 farms out of 60 with percentage (71.7%) raise cows while 16 farms with percentage (26.7%) have mixed herds, in comparison to only 1 farm with percentage (1.7%) raises goats. This result indicates dependence of most farms on cows as a major source of milk.

Table 3 shows that 43 farms out of 59 with percentage (71.6%) own a herd of 50 and less while 16 farms out of 59 with percentage (26.7%) own more than 50 heads, this result reveals that the conventional small- scale production pattern of dairy farms is the prevailing pattern.

**Table 1:** Dairy farm producer's education level

Item	Number	Percentage %
Illiterate	12	20.0
Primary education level	12	20.0
Secondary education level	19	31.7
Graduate	13	21.7
Postgraduate	4	6.7
Total	60	100.0

Source: research questionnaire 2010

**Table 2:** Types of lactating animals in the farm

Item	Number	Percentage %
Cows	43	71.7
Goats	1	1.7
Mixed	16	26.7
Total	60	100.0

Source: research questionnaire 2010

**Table 3:** Herd size in the dairy farm

Item	Number	Percentage %
Less than 20	17	28.3
20-50	26	43.3
More than 50	16	26.7
Total	59	98.3
No answer	1	1.7
Total	60	100.0

Source: research questionnaire 2010

Table 4 shows that 24 farms with percentage (40%) produce 100 Lb. of milk and less per day while a total of 36 farms with percentage (60%) produce more than 150 Lb. /day, this result indicates the high production level of milk in Khartoum state.

Table 5 indicates that 44 producers with a percentage of (73.3%) set their price in accordance to supply and demand, while 12 producers with a percentage of (20%) set price according to other producers prices, whilst 3 producers with a percentage of (5%) set price according to total expenses. These results show that milk price are influenced by relevant market price, due to milk been a seasonal perishable product.

Table 6 shows that 30 producers with a percentage of (50%) sell directly to consumers and 29 with a percentage of (48.3%) producers sell to retailers while only 1 producer with a percentage of (1.7%) sell to dairy plants.

**Table 4:** Milk production / day in dairy farms

Item	Number	Percentage %
Less than 50 Lb.	6	10.0
50- 100 Lb.	18	30.0
More than 150 Lb.	36	60.0
Total	60	100.0

Source: research questionnaire 2010

**Table 5:** how the producers set milk price

Item	Number	Percentage %
According to total expenses	03	5.0
According to supply and demand	44	73.3
According to other producers' price	12	20.0
Other	01	1.7
Total	60	100.0

Source: research questionnaire 2010

**Table 6:** Dairy farm distribution outlets

Item	Number	Percentage %
Direct to consumer	30	50.0
Direct to dairy plants	01	1.7
Direct to retailers	29	48.3
Total	60	100.0

Source: research questionnaire 2010

Table 7 shows that 29 producers with a percentage of (48.3%) preferred their distribution channel been easier for them, while 16 producers with a percentage of (26.7%) preferred it because it was easier and more profitable. This result shows absence of clear marketing strategies in dairy farms maybe due to lack of interest of producers in marketing.

Table 8 shows that 51 producers with a percentage of (85%) don't perform any promotion activities compared to 9 producers with a percentage (15%) indicating weak marketing efforts.

Table 9 shows that from a total of 9 producers performing promotion only 4 producers with a percentage of (6.7%) promote using direct sale while 1 producer with a percentage of (1.7%) use advertising as promotion, and 4 producers with a percentage of (6.7%) use other methods than indicated in questionnaire.

Table 10 shows that from a total of 50 producers who showed their reasons for not performing promotion activities; 29 producers out of the

50 with a percentage of (48.3%) indicated that their product gained consumer loyalty thus they have regular customers and are in no need for promotion, while 21 producer with a percentage of (35%) indicated that their product is on high demand. This result reveals that producers depend on a great extent on direct sale to consumers and retailers.

**Table 7:** Dairy farm preference to their distribution channels

Item	Number	Percentage %
Easy	29	48.3
More profitable	15	25.0
Both of the above	16	26.7
Total	60	100.0

Source: research questionnaire 2010

**Table 8:** Producers use of promotion to enhance milk selling.

Item	Number	Percentage %
Use promotion	09	15.0
Do not use promotion	51	85.0
Total	60	100.0

Source: research questionnaire 2010

**Table 9:** Dairy farm producer's milk promotion methods.

Item	Number	Percentage %
Direct sale	04	6.7
Advertising	01	1.7
Other	04	6.7
Total	09	15.0
No answer	51	85.0
Total	60	100.0

Source: research questionnaire 2010

**Table 10:** Dairy farm producers reasons for not performing promotion

Item	Number	Percentage %
Demand on their product already high no need for promotion	21	35.0
Their product already gained consumer loyalty ( regular consumers)	29	48.3
Other	0	0
Total	50	83.3
No answer	10	16.7
Total	60	100.0

Source: research questionnaire 2010

Table 11 shows that 46 producers with a percentage of (76.7%) have feedback from their customers in comparison to only 14 producers with a percentage of (23.3%) who don't get feedback, thus indicating that producers care for their customers.

Table 12 indicates that 50 producers with a percentage of (83.3%) do not lower their prices to gain consumers, in comparison to 10 producers with a percentage of 16.75 who lower their prices; this shows that price is a major factor in production that is difficult to change in order for the producer to gain more customers. The table also shows that 26 producer with a percentage of (43.3%) improve quality to gain consumers, in comparison to 34 with a percentage of (56.7%) producers not improving quality. The table also indicates that 53 producers with a percentage of (86.7%) don't modify distribution channels as a way to gain consumers, in comparison to 7 producers with a percentage of (11.7%). 52 producers with a percentage of (86.7%) don't perform promotion as a method of increasing product sale compared to 8 producers with a percentage of (13.3%). These results reveal the use of the market mix items in relation to the producer, the quality of the product being the most important item. Table 13 indicates that 58 producer with a percentage of (96.7%) care for sanitation procedures in the farm in comparison to only 1 producer with a percentage of (1.7%) , thus indicating the importance of product quality for the producer.

Table 14 indicates that 40 producers with a percentage of (66.7%) agree that profits from the dairy production is satisfying in comparison to 15 producer with a percentage of (25%) who do not agree,. this result shows that investment in the dairy production sector is an attractive and promising investment.

**Table 11:** Dairy farm producers feedback on customer's opinion

Item	Number	Percentage %
Yes	46	76.7
No	14	23.3
Total	60	100.0

Source: research questionnaire 2010

**Table 12:** the producers use of the marketing mix

Item	Lowering milk price to gain consumer		Improving quality to gain consumer		Modification of distribution channels to gain consumer		performing promotion to gain consumer	
	Number	Percenta ge %	Numbe r	Percenta ge %	Numb er	Percenta ge %	Numb er	Percenta ge %
Yes	10	16.75	26	43.3	07	11.7	08	13.3
No	50	83.25	34	56.7	53	88.3	52	86.7
Total	60	100.0	60	100.0	60	100.0	60	100.0

Source: research questionnaire 2010

**Table 13:** Dairy farm producers care about sanitation procedures.

Item	Number	Percentage %
Totally agree	51	85.0
Agree	07	11.7
No opinion	01	1.7
Don't agree	00	00
Totally don't agree	01	1.7
Total	60	100.0

Source: research questionnaire 2010

**Table 14:** Investment in dairy production is profitable

Item	Number	Percentage %
Totally agree	12	20.0
Agree	28	46.7
No opinion	05	08.3
Don't agree	10	16.7
Totally don't agree	05	08.3
Total	60	100.0

Source: research questionnaire 2010

## Conclusion

The study was concluded with a number of recommendations:

1. Farm producers should establish their own sales point in their farms or areas nearby thus assisting in lowering consumer product price, increasing their profit and insuring product quality.
2. Arising marketing awareness in the producers' sector through extensive workshops, seminars and research manuals.
3. Improving marketing opportunities for dairy farm producers through introducing research value- added dairy products.

4. Demonstrating new processing and marketing models for regional markets distribution systems.
5. More effort should be performed in market research in the dairy sector in the Sudan to reveal solutions that can hence be implemented by farm producers.
6. There is a need to differentiate and describe in detail the different types of dairy production and marketing systems that exist within the dairy sector so that research recommendations and technical assistance are tailored to the specific needs of farmers.

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