Global Veterinaria 9 (5): 642-647, 2012
ISSN 1992-6197

DOI: 10.5829/idosi.gv.2012.9.5.65157

A Study on the Production and Marketing of Dairy Products: A Case Study of Kombo North Cooperative Society of West Coast Region

[1]Momodou Darboe, [2]Ass Secka and [3]Saikou E. Sanyang

[1]Department of Agriculture, Veterinary Service Unit of North Bank Regional Agricultural Directorate, Kerewan
[2]International Trypanotolarance Centre, Kerr Serign Station
[3]Department of Agriculture, Regional Agricultural Directorate of North Bank Region, Kerewan

Abstract: In the Gambia small ruminant production contributes immensely to the socio-economic development of its inhabitants. A study was conducted on the production and marketing of dairy products in the West Coast Region of the Gambia. The method of data collection was the used of semi-structured questionnaire. The sampling method was random sampling and 37 respondents or 81% of the total were interviewed. One objective of this research finding was to determine consumers' preference and market ability of dairy products. The results showed that, volume of milk supply to the plant increased steadily from January to June as a result of higher supply of milk by vendors. The highest income generated from the sales of milk and it products by suppliers was in March with a total of D7, 687.00 or 154US$ and lowest income was in November respectively. However, constraints eluded by the respondents were inadequate market outlets and inadequate training on business management skills. Based on the research findings, we conclude that, the dairy cooperative enterprise has window of opportunity in generating income for farmers through process of value-chain approach. The finding recommends training in areas like, processing, marketing and business management skills.

Key words: Production · Cooperative Society · Marketing · Dairy Products · Gambia

INTRODUCTION

The livestock sub-sector contributes about 25% of annual agricultural Gross Demostic Product and 5% of national GDP of the Gambia. The livestock production is done by rural communities particularly women and youth who are the most vulnerable. Currently, the government with its new development policies for projects and programs has outlined livestock production as another source of income generation for grass-roots farmers. The main reason of boosting the livestock sub-sector is to meet the local demand of milk, improve income and increase food and nutrition security of the rural farmers. The ideas behind dairy cooperative is for farmers coming together and produce consumable such as butter, cream, cheese, ice cream and powdered milk. The issue of forming farmer cooperatives at rural communities is another area of concern in the agricultural sector of the Gambia. Farmer cooperatives would enable small producers to take collective action to reduce input costs and marketing risks [1]. In the wake of cooperative formation and development, the farmers can do collective bargaining or purchasing to get the best deals on production inputs and gain economic of scale. In addition, some of them are active in community development and education in areas of farming as well as primarily in the level of business management and government lobbying [1, 2].

According to literature, grouping together, farmers can build strong track records which can help them obtain financial support. Farmers' cooperatives can be instrumental in buying, selling and processing of agricultural products in bulk and in a sustainable manner. In the Gambia, farmers' cooperatives can play crucial roles in developing supply management schemes and various income generating programs [3]. Furthermore, farmers' can

Corresponding Author: Saikou E. Sanyang, Department of Agriculture, Regional Agricultural Directorate of North Bank Region, Kerewan.

learn from each other about production and marketing, learning and sharing of field experiences. Importantly, certain parts of West Africa, trypanosome-tolerant which is the Ndama cattle are milked for human consumption, but generally have low milk production potential [4]. However, N'Dama cattle, has been recognized as the most common trypanotolerant breed in the tsetse- infested zone of West Africa serving as an asset for small scale dairy producers whose income from milk. In The Gambia, predominant trypanotolerant N'dama breed can survive and still produce milk. However, the breed's potential for milk production is low, as it produces average milk intake of 1.2 litres per day/cow for human consumption [5]. Primarily, demand for dairy products in sub-Saharan Africa is projected to increase over the next 20 years, due to over population and income growth [6]. According to Fromm and Goff [6, 7] milk production and consumption of dairy products are expected to grow in the region by 4% annually in the year 2020. The smallholder farmers can also use the manure to improve the soil health of their farmlands. The demand for milk products in developing countries is expected to grow 60% over the next decades [4]. Notably, much of the growth will come from increasing urban dwellers with rising incomes that can purchase attractive and highly nutritive products. Therefore recognizing the need to increase milk production, international donors have started showing their willingness to invest in the dairy sub-sector of West Africa, empowering milk producers' along the value chain processes. In this respect, efforts have been directed to cross breed using artificial insemination techniques. The promotion of artificial insemination would provide new opportunities to increase domestic milk production and to reduce strain on foreign currency reserves caused by large imports of dairy products. Moreover Senegal, Guinea and The Gambia have opted for such technology and innovation. Furthermore, the justification of this research finding is to create market opportunities, increase income and reduce poverty. In the Gambia, organized milk production planning and coordination can create employment opportunities in rural areas directly or indirectly through the provision of production inputs, while improving the rural local economy.

Furthermore, the average amount of milk produced per person per year in developing countries is 37 litres compared to 300 litres in developed countries [8]. In the developing world consumption varies from country to country as a result of variations in income, food, livestock ownership and nutritional security. In the past two decades consumption of milk in the developing countries increases to 3.6% per annum, compared to an increased production by 2.8 %. According to literature, the process of pasteurizing milk, greatly improves milk quality by effectively destroying virtually most pathogenic microorganisms. This reduces spoilage and increases return from sales. It does not affect the quality or the quantity of calcium, protein, riboflavin and vitamins present in the fluid milk.

However, milk contains certain micro-organisms that can cause spoilage and bacteria can grow best at an optimum temperature of 10°C and 40°C. It is therefore important to cool milk as quickly as possible, but this is difficult in the tropics if there are no refrigerators. The most effective temperature depends on the heating time. Pasteurizing milk improves the safety and storage life of a product, while the loss of vitamin is minimal. There is much difference between low and high temperature pasteurization. In the process of low pasteurization, the substances which limits the growth of bacteria are naturally present in the milk remain and after high temperature pasteurization, those substances are no longer present.

Therefore, although high pasteurization initially kills more bacteria and usually the milk cannot serve for a long period of time. Pasteurized milk can be kept for about one week at 4-10°C if there is no re-occurrence of infestation [9]. Importantly, for any agro-enterprise development products and market opportunities are the most crucial indicators in selling your products to satisfy the consumers. As a result, market-out lets are vital for the producers. The exchange of goods started between the indigenous people on the farm and later extended to town markets. With the recent advancement in transportation and communication facilities, local markets where developed. The local dairy products tend to suffer from competition with imported products, because of the fact that the local dairy products lack proper packaging, transportation and adequate advertisement.

The idea of marketing agricultural commodities and products is challenging and needs serious attention to mitigate the problem. Primarily, small-scale processing of modicum quantity is a threat to access local markets because the market force which is demand and supply are parallel at some point of the season. Processing milk in the tropics can be affected by high temperatures and high relative humidity often found in the tropics. This present special problem in choosing the right dairy products in which the storage life must be taken into consideration. The quality of milk can rapidly deteriorate by transforming to sour milk that affects consumers' preference and taste.

Fig. 1: Map of The showing the study site

It is also very important that anyone who handles milk should pay special attention to the hygienic environment. Furthermore, lack of equipment, processing facilities and inadequate knowledge and skills was a major setback for the cottage industry.

These are all factors impeding the suppliers to have easy access to market opportunities to increase their rate of returns for better livelihood. In the Gambia, the possible market outlets are supermarkets in the urban centres and local markets in Brikama, Serrekunda, Bakau and weekly markets in the rural communities. Small scale milk producers in West Africa face hidden barriers making it difficult to benefit from market opportunities. One objective of this research finding was to determine consumers' preference and marketability of dairy products.

MATERIALS AND METHODS

Description of the Study Site: The study site is located at West Coast Region which is about 20 km away from the country's capital city of Banjul. It is the administrative head quarter of the Animal Health and Production Services (AHPS).

Survey Design: This section illustrates the research methodology for this study. This research finding formulated structural design like planning, organizing, designing, measuring and analyzing of data. The research work aims at providing information about dairy cooperative farmers in West Coast Region of The Gambia. A total of 25 questions were designed basing on the objectives of the study and divided into two sections. The questionnaire focuses on issues related to Abuko dairy plant and dairy farmers of Kombo North District. The questionnaires were administered to the dairy cooperative society and the management committee so as to avoid outside influence that might lead to biasness of data analysis and interpretation.

Data Collection: Questionnaires were designed serving as a tool for collect data. A pre-test was done to check the reliability and validity of the questionnaire. This research work has a wide range of semi-structured questions which includes close and open ended and multiple choices. The questions were easy and precise for the respondents to understand when answering the questions since they are illiterates. In the process of designing the questionnaire, the aim of the author was to maintain the interview process straightforward without ignoring the objectives. Moreover, data was generated through the use of primary and secondary information by interviewing staff personnel and association members.

RESULTS AND DISCUSSION

The cooperative dairy society of Abuko was registered officially in April, 2003 with the Department of Cooperative Development. The idea of forming dairy cooperative society is to enable the members organize themselves into production and marketing of milk and by- products. The production and marketing of milk started in November 2003 were group members paid a certain percentage of their returns for the upkeep and maintenance of their plant. Furthermore, the amount generated from their returns is kept for meeting transportation cost of processed products and other needs. The Kombo North cooperative society received assistance from Food and Agricultural Organization (FAO) and animal health and production services for its establishment. FAO provided financial support whilst AHPS supported in the provision of operational site, water and electricity facility. This is inline towards increasing farmer's income; create employment opportunities in the dairy sub-sector and to provide market opportunities for milk and by- products.

Small scale milk producers in West Africa face many hidden barriers making it daunting to benefit from market opportunities [10]. Among these are access to markets

Table 1: Ethnicity of the group members

Ethnic group	Men	Women	
Fulla	19	11	30
Jola	1	2	3
Serere	2	0	2
Manjago	0	1	1
Mandinka	1	-	1
Total	23	14	37

Table 2: Monthly supply and output of processed milk products in 2010

Month	Raw milk (litres)	Yoghurt (litres)	Pasteurized milk (litres)
January	185	128	57
February	278	208	70
March	371	268	103
April	269	139	130
May	315	198	117
June	322	197	125
July	201	60	141
August	173	82	91
September	139	59	80
October	184	123	61
November	114	28	86
December	119	40	79
Total	2670	1530	1140

Table 3:Farmer's income generated from the sale

Month	Pasteurized milk (Litres)	Income generated (Dalasis)	Yoghurt (Litres)	Income generated (Dalasis)
January	57	1881.00	128	2048.00
February	70	2310.00	208	3328.00
March	103	3399.00	268	4288.00
April	130	4290.00	139	2224.00
May	117	3861.00	198	3168.00
June	125	4124.00	197	3152.00
July	141	4653.00	60	960.00
August	91	3003.00	82	1312.00
September	80	2640.00	59	944.00
October	61	2013.00	123	1968.00
November	86	2038.00	28	448.00
December	79	2607.00	40	640.00
Total	1140	37620.00	1530	24480.00

and productive assets, high marketing costs for fresh milk and risk associated with marketing of perishables [11]. These constraints may negatively influence the outcomes of artificial insemination programmes. Moreover, the necessary changes in sector and macro-economic policies which should be effected are not currently sufficient to provide the required incentives for small holders. However, in The Gambia there is little or no attention in the production and marketing of dairy products. The paucity of information available on smallholder dairy production has led to inconsistent policy measures in the dairy sub-sector. Hence it is urgent to know whether a public or private sector intervention is required for the development and promotion of the dairy industry in the country. The research finding observed important parameters such as ethnicity, trend of demand and supply and income accrued from production and marketing of milk and its product.

The result f rom the research showed that Kombo North dairy cooperative has a total membership of 37 (14 women and 23 male), dominated by Fullas constituting 81% of the total. The higher number of male involvement (62%) is due to the fact that traditionally it is the male who own and rear cattle, extensively, a system

involving the movement of animals, an occupation not appropriate for the female folk. The higher male representation in the group is important for the group as most of the labour intensive activities can be carried out by the male partners.

The results from Table 2, shows that from January to July, the volume of milk supplied to the plant increased steadily, which was attributed to constant supply of raw milk to the processing plant by cooperative society/group members. The largest quantity of raw milk collected in the season for processing was in March, followed by May and the lowest collection was recorded in November respectively. In addition, milk supply declined as a result of inappropriate management of the cooperative society.

Importantly, the result shows monthly sales of milk and milk products by group members. The highest monthly sale of raw milk occurred in March (D7687.00) and the lowest was recorded in November respectively. However, monthly sales from pasteurized milk declined in November (D448.00) due to the fact that the dry season coincides with a period of low feed quality and feed deficit, which do not meet the nutrient requirement of lactating cows. Consequently, less quantity of pasteurized milk were produced compared to the amount produced in the rainy season and fluctuation in output influences farmer's income. The result indicates that, the highest volume of pasteurized milk was recorded in July with a total of one hundred and forty-one litres (141L). Furthermore, the table shows that the volume of yoghurt produced from January to June increased significantly compared to the other months and the highest volume of yoghurt produced was in March, followed by February. It also shows that more yoghurt was produced during the dry season than in the rainy season, which reflected to the supply side of the market. The result shows, marketing channels of different milk products and includes supermarkets and other commercial outlets interested in selling the products.

CONCLUSION

The results of this study show that Kombo north dairy cooperative society is an established enterprise with potentials of income generating activity all year round from production to marketing. The society comprises of many ethnic groups but the Fullas are the major players in the business. The results indicate that small holder cattle owners have window of opportunities to fully engage in agro-enterprise activities. Primarily, traditional farmers always utilized milk for domestic consumption and market, where there is high demand for milk and milk products in the urban centres. The industry created market for raw milk and employment opportunities in the growing areas, thus strengthening the revenue generation capacity of the farmers. However, transportation of products to the market is not cost effective because of soaring cost of hiring vehicles. The level of consumer demand for processed products is not very satisfactory, even though there are potentials for improvement through mass sensitization and media campaign about the products. There are all indications that the plant is making progress and this can be strengthened provided constraints highlighted are minimal. The study also analyzed the monthly output and revenue generated from the sales of raw milk, pasteurized milk and yoghurt based on one year period. The record shows that the volume of raw milk and consequently that of pasteurized milk and yoghurt produced during the dry season was higher than that of the rainy season.

REFERENCES

1. Sangang, S.E. and W.C. Huang, 2008. Green Cooperatives: A Strategic Approach Developing Women's Entrepreneurship in the Asian and Pacific Region. World Journal of Agricultural Sciences, 4(6): b674-683.
2. Wissman, R.A., 1997. Marketing Coordination in Agricultural Cooperatives, Rural Business-Cooperatives service, Research Report 159. USDA.
3. Farming Matters, 2012.Small-Scale Agriculture for a Sustainable Society 03-2012-28.1.
4. Agyemang, K., R.H. Dwinger, D.A. Little and G.J. Rowland, 1997. Village N'Dama Cattle Production in West Africa: Six years of research in the Gambia, Internal Livestock Research Institute, Nairobi, Keneya and International Trypanololance Centre, Banjul, The Gambia.
5. Agyemang, K., R.H. Dwinger, P. Jeanin, P. Leperre, A.S. Grieue and M.L. Bah, 1990 Biological and Economic Impact of Trypanosome Infection on Milk Production in N'Dama Cattle managed under village condition in the Gambia Animal Production.
6. Fromm, H.I. and K.J. Boor, 2004. Characterization of pasteurized fluid milk shelf-life attributes. J. Food Sci., 69: 207-214.
7. Goff, H.D. and M.W. Griffiths, 2006. Major advances in fresh milk and milk products. J. Dairy Sci., 89: 1163-1173.
8. Pauline, E. and R. Karim, 1996. Agrodock 36, Preparation of Dairy Products.

9. Robbins, P., 2000. Review of Market Information System, Technical Centre for agricultural Rural Cooperation (CTA).
10. Staal, S.J., C. Delgado and C. Nicholson, 1997. Smallholder dairying under transaction costs in East Africa. World Development, 25: 779-794.
11. Holloway, G., C. Nicholson, C. Delgado, S. Staal and S. Ehui, 2000. How to make a milk market: A case study from Ethiopian highlands. Socio-economic and Policy Research Working Paper 28. ILRI (International Livestock Research Institute), Nairobi, Kenya, pp: 28.