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**EFFECTS OF THE 2007/8 POST ELECTION VIOLENCE ON
MILK MARKETING SYSTEMS**

**A CASE OF SMALLHOLDER FARMERS IN UASIN GISHU
DISTRICT, KENYA**

**A Research Project Submitted to
Larenstein University of Applied Sciences
In Partial Fulfillment of the Requirements of Degree of Master in
Agricultural production Chain Management,
Specialization Livestock Production Systems**

**By:
Roselyne Atamba Shaba
September 2008**

Wageningen

The Netherlands

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ACKNOWLEDGEMENT

Writing of this paper has been achieved through a number of contributions from various organizations and persons who are acknowledged here:-

The Royal Dutch Government through Nuffic Program you provided me with a scholarship to undertake the masters' course. I say thank you very much.

The Van Hall Larenstein administration, your on- time communication to ensure that the scholarship is processed and the e- ticket is sent in time, is very much appreciated.

The coordinator of APCM masters class, Mr. Robert Baars; I am a proud beneficiary of your well arranged and coordinated courses. Your immense contribution on my research skills can not go without mentioning.

Mr. Frans Verweij, my supervisor, you worked relentlessly from the proposal to the very end of the report. You sacrificed your family time to read my drafts; I am an admirable product of your conceptualization and critique. Thank you very much.

Mr. Koen Jansen, I was able to use SPSS software for statistical analyses because you made the apparently complex statements simpler for me. I am grateful.

Not to forget the Kenyan Government that granted me the study leave and prepared my papers in good time so that I benefit from the scholarship. Special thanks to Madam Jane Aseka.

I am grateful to Mr. Langat, S.K DLPO Uasin Gishu, Mr. Anjela, Kibuba , Tanui, Eboya and madam Nekesa for your support during data collection. Not forgetting all the respondents for willing to give the information I requested. KARI, Kakamega, thank you for availing your vehicle and driver to take me to the field to collect data.

Much gratitude to my colleagues both in APCM class and outside for keeping my social emotions conducive till completion. Mr. Honore Biaou, you made me to manage my references well by installing and teaching me End Note; not forgetting the many trouble shootings from my computer that you fixed, I say thanks.

Last but not least, my family back at home. You endured the pain of staying without a wife and mother throughout the study period.

And to all, who in one way or the other contributed to my study, I say, May God Bless you.

DEDICATION

I dedicate this work to my husband Mr. Gabriel Ambani, who in my absence played a dual role of mother and father to our children Dennis, Vallary and Ian. To Dennis, despite doing without a loving mother, you went ahead and had an exemplary performance in your final year of primary examination. I therefore say, may you always shine the paths for your siblings to follow!!

To Vallary and Ian, I love you.

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LIST OF ABBREVIATIONS

AFC	-----	Agricultural Finance Corporation
ALSWG	-----	Agriculture and Livestock Sector Working Group
DLPO	-----	District Livestock Office
DVS	-----	Director of Veterinary Services
FAO	-----	Food and Agriculture Organization
FDCSs	-----	Farmers Dairy Co-operative Societies
GoK	-----	Government of Kenya
IDP	-----	Internally Displaced Persons
KCC	-----	Kenya Co-operative Creameries
KDB	-----	Kenya Dairy Board
KEBS	-----	Kenya Bureau of Standards
KFSSG	-----	Kenya Food Security Steering Group
Ksh	-----	Kenya Shilling (Kenya Currency)
MOA	-----	Ministry of Agriculture
MoCD	-----	Ministry of Co-operative Development
MoLD	-----	Ministry of Livestock Development
PEV	-----	Post Election Violence
SHG	-----	Self Help Group

ABSTRACT

The impact of post election violence at the end of 2007 and the beginning of 2008 on the performance of milk marketing systems in Uasin Gishu was assessed in July and August 2008.

Several measures are used to assess the performance of the marketing system. The measures include quantity of milk, price, source of credit, access to commercial feeds and access to breeding services. The study also considers the role of infrastructure component in enhancing the marketing system.

Data for the study came from both secondary and primary sources. Milk price and quantity data came from my survey and supplemented with data from the KDB and other published sources. The study interviewed 60 farmers (using a structured questionnaire), 29 from Kapsaret division and 31 from Turbo division who were not displaced. Three officials from different milk collecting centers and one processor were interviewed. Officials from the Kenya Dairy Board (KDB), Ministry of Livestock Development (MoLD) and Ministry of Cooperative development were also interviewed.

The study reveals an estimated loss of about 1.6 million liters (due to PEV) of milk worth Kshs 36.8 million per month (€368000); (€1= Kshs100 Aug 2008) delivered to the market between the months of January and March 2008. The study also found that the milk prices significantly went up after the post election violence both in formal and informal marketing systems with an average of 22% increase. Access to services like breeding (especially AI) and quality commercial feeds has been affected in that the services are hardly available and if they are, the price is extremely high. This study concludes that the PEV had diverse effects on the milk marketing system depending on the division.

To support the recovery of the dairy industry, recommendations to central and local government including the Non Governmental Organizations have been made in a number of areas.

Farmers need to organize themselves into groups to increase their bargaining power in the market place and to exploit economies of scale in acquiring the marketing inputs such as feeds, access to credit.

Both the government and NGOs could play a catalytic role in the formation of the organizations.

1.0 INTRODUCTION

1.1 Background

Kenya is located in the Eastern Africa, bordering the Indian Ocean, between Somalia and Tanzania. The country has a total land area of 582,650 km², the land occupies 569,250km² and water occupies 13, 400km² (CBS 1999)The country's population is 31 million people (CBS 2001)Sixteen percent of the country is High and Medium Potential Land (HMPL) which receives a bimodal rainfall which is favorable for agricultural production while 84% of the land is Arid and Semi Arid Land (ASAL). Kenya's climate varies from warm and humid in the coastal areas to cool temperate in the highlands. The annual rainfall ranges from less than 200 to over 2000 mm in some parts of the highlands.

Agriculture contributes 25% of Kenya's GDP, of which livestock contributes about half. About 80% of Kenya's people live in the rural areas and depend on agriculture for their livelihood and employment. In the drier parts of Kenya ruminant livestock for meat and subsistence milk production , are the main economic activity (Bebe et al. 2003)

Dairy production in Kenya plays a significant part in the rural areas, with medium and high potential for agricultural production. It accounts for about 33% of the agricultural GDP and is a major source of livelihood for the 625,000 smallholder farm families (Bebe 2003) The sector provides employment to about 365,000 farm labor and 29,000 people along the milk marketing chain (MOA 2007)

Marketing of milk is constrained by high transaction costs due to small quantities, product wastage and losses , wide marketing margins, poor market integration, limited access to finance and weak regulatory institutions(The World Bank 2008). The perishability of milk requires careful handling and special facilities and rapid delivery to consumers.

1.2 Problem Statement

Since the liberalization of the dairy industry in 1992, new institutional arrangements in milk collection, processing and marketing emerged. The smallholder farmers in Kenya supply over 80% of the marketed milk, of which 70% is unpasteurized or "raw milk" and only 30% pasteurized (. Although the informal marketing channel has offered expanded business opportunities and enhanced competition, it has offered challenges to the growth of the dairy sector).

On December 30, 2007, immediately after the announcement of the disputed presidential election results, violence erupted in five of the eight provinces of Kenya, namely Rift Valley, Nyanza, Western, Nairobi and Coast, and later spread to Central province. The violence caused human deaths and destruction of property. The worst-affected areas were the Rift Valley (also known as the bread basket of districts) and Nyanza provinces. The political unrest has had major economic and social impacts on Kenyans. The violence claimed more than 1,000 lives by early February, with more than 300,000 people displaced throughout the period of unrest, most in Rift Valley Province. (KFSSG and ALSWG 2008)

Livestock and milk production in the affected areas were also disrupted, causing a

reduction in milk income for dairy farmers and milk processors. Trade and marketing have been seriously affected with many shops, factories and stores set on fire and others losing revenue due to the disruption of the transportation system (rail and road) and increased insecurity. Agricultural perishables like milk and vegetables went to waste with milk factories closing temporarily or operating much below capacity.

1.3 Justification of the study

These disruptions in production, transportation, markets and incomes have serious implications for food security. According to the recent GoK/FAO rapid assessment report, reduced output of important foods including maize, wheat, beans and milk may result in relatively higher prices, compromising the ability of market dependent households in the country to purchase adequate amount of food.

Reduced staple food output from Kenya's bread-basket region (Western Kenya and Rift Valley highlands) may worsen the country's food security situation later in the year and early in 2009. Besides farm families, traders, service providers and wage earners will also be affected as their incomes will reduce and their expenses on food and other essentials will rise. The prospects of reduced food production and increasing prices will only worsen food access for the majority of Kenyans who are poor.

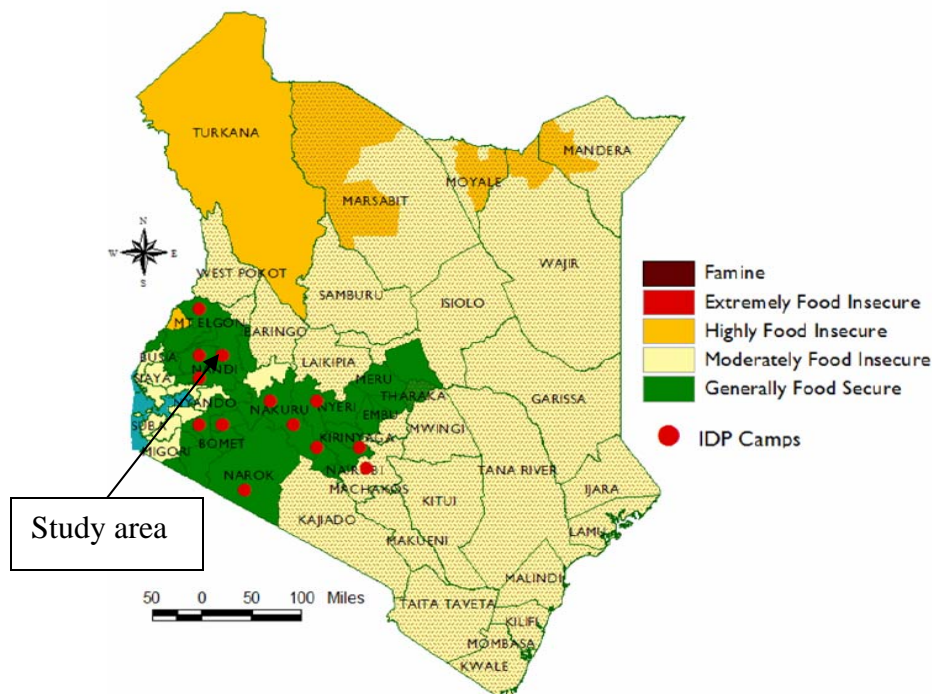


Figure 1 Map of Kenya showing the Internally Displaced People Camps (IDP) (Source: Mburu 2008)

1.4 Research objective

To assess the effects of Post Election Violence (PEV) on milk marketing systems used by smallholder farmers in Uasin Gishu District and come up with recommendations for the central and local governments including the Non Governmental Organizations aimed at improving the supply chain.

1.5 Main Research questions / Guiding questions

1) What is/was the situation of Dairy production in Uasin Gishu district before and after the Post Election Violence?

Sub questions

- 1.1 What factors affect the milk marketing channel choice?
- 1.2 What amount of milk was marketed through this channel before and after the violence?
- 1.3 What were/are the benefits of marketing milk through these channels?
- 1.4 What constraints were/are experienced by the farmers in the marketing of milk?

2) To what extent has the Post Election Violence (PEV) affected the milk marketing systems?

Sub questions

- 2.1 What is the effect of PEV on milk marketing at the district level?
- 2.2 How have the milk collecting centers been affected by the violence?
- 2.3 How has the PEV affected the formal and informal milk marketing?
- 2.4 What is the effect of PEV on access to services?
- 2.5 What is the impact of PEV on milk prices?

3) What interventions can help alleviate future milk marketing losses?

Sub questions

- 3.1 What is (should be) the role of the Kenya Dairy Board in the marketing of Milk?
- 3.2 What is the organization doing to strengthen the marketing of milk?
- 3.3 How can stakeholders coordinate to respond to the crisis?

1.6 STUDY AREA

The study was conducted in Uasin Gishu district. It is one of the districts in Kenya located in the Rift Valley province as shown in Annex 1- Map of Uasin Gishu district showing the study area. The districts' commercial and administrative centre is Eldoret. It has six divisions namely Kapsaret, Ainabkoi, Kesses, Turbo, Soi, and Moiben. The projected population of the district is 777,336 (district annual report 2007). The district covers 3,327 sq km of which 2,995 sq km is arable land, 23.4 sq km is water mass and urban areas cover 196 sq km. The average annual rainfall in the district is 900 to 1,200 mm per year.

According to the (MoLD 2007) the total milk production for the year 2007 was 127 million kg from the district. Eldoret town has readily available commercial feeds stockists and therefore the availability of the feeds is not a problem.

Table 1 Milk marketing study sites

Division	Zone	Study site
Kapsaret	Peri-urban	Simat, pioneer, Chepkatet, Kaplelach.
Turbo	Rural	Ng'enyilel, Tapsagoi, Kapsambeii, Sergeya

1.7 Limitations to the Study

Collecting this data required patience and flexibility especially at such a time when the nation was undergoing healing and reconciliation. The respondents were skeptical about any officers collecting information from them and they really wanted to be convinced what the data was going to be used for. Women in some areas were not free to disclose family information to outsiders and this reduced the number of potential respondents where the women were at home.

The livestock department had not done a preliminary survey due to lack of resources and therefore confirming this findings was not possible at this stage. Most private organizations that had done the survey had not published their findings so as to make a comparison. However despite these limitations, the author is confident that the findings presented in this report generally reflect the realities on the ground in relation to the impact of Post Election Violence on the milk marketing systems in Easing Gishu district.

2.0 DAIRY PRODUCTION IN KENYA

2.1 Introduction

Dairy production is one of major activities in the livestock sub-sector, and it is a major source of livelihood for the families of close to 1 million small scale farmers and 365,000 employed directly by the industry with another 500,000 employed in the service sector (MoLD 2004)

2.2 Cattle Feeds

(MoLD 2007) highlights a number of issues regarding the feeds sector in Kenya. The report indicates that there is less fodder production due to decreasing farm sizes and increasing competition for land between land enterprises. Most smallholder farms have seasonal fluctuations in feed quality and quantity. (Bebe et al. 2002)observed that smallholder farmers in Kenya continue to face the pressures of decreasing land holdings, worsening soil fertility and reduced access to input and output services.

(FAO 1993) reported that government agencies such as the Kenya Bureau of Standards have inadequate technical and human resources to enforce and monitor various requirements for feed standards. (MoLD 2007) report shows that the Kenya Bureau of Standards (KEBS), which is responsible for developing and enforcing quality standards lacks the capacity to do so.

2.3 Animal Health /Breeding Services

After 1986, the government moved gradually from subsidized services to eventual privatization of several veterinary services. The privatized or commercialized services in animal health include: clinical services, Artificial Insemination, management of cattle dips and distribution of drugs and vaccines.

However little progress has been made towards the provision of more efficient private veterinary services. The apparent slow progress has been attributed to the poor state of the economy, competition from the vets still working in the public sector and regulatory bottlenecks that affect the viability of private practice (Muriuki 2003)

The dairy breeding policy has focused on upgrading the local zebu through artificial insemination (AI), use of elite bulls or imported germplasm to increase milk production while controlling breeding diseases. AI has been privately operated in large-scale farms since 1935 and government provided to smallholders since 1966. Due to government financial constraints and withdrawal of donor support, AI services were privatized in 1991. Although the government has intensified the training of the inseminators; there is still a large gap in availability of the artificial insemination (AI) services in many areas. The breed improvements have been hampered by high charges levied by the government on imported semen and embryos.

2.4 Agricultural Credit Services.

Despite the recognition of the important role of credit input in farming, little has been done to promote the lending institutions for smallholders. Most formal credit currently available to smallholder farmers is provided through their own organization (cooperatives and self help groups), and increasingly through micro finance

institutions. Owango, Staal et al (1998) in her survey noted that co-operatives provide both services and credit to their members in an apparently cost-effective manner.

2.5 Dairy population

Kenya's national cattle population has experienced some growth over the last ten years. The growth has been attributed to the increase in demand for milk by consumers and milk processing plants. (Mbogoh and Ochuonyo 1990) reported that Kenya's dairy herd has been growing steadily over years despite droughts and diseases.

As has been found in other countries such as in Uganda (Staal and Kaguongo 2003) cattle density is typically closely and relatively correlated with human population density.

In its report the (Kenya Export Processing Zone 2005) reported that the country has about 3.3 billion livestock of milk producing ability and 70% of the total milk production comes from grade and zebu cattle. (MoLD 2004) indicate that the exotic dairy cattle and their crosses dominate the small scale systems. The system accounts for 61% of the total cattle population in the country. Rift Valley and Central Provinces are the main dairy zones accounting over 80% of the total dairy cattle population in the country. The Zebu cattle are widely distributed across all provinces and agro-ecological zones and are estimated to constitute about 70% of the total cattle population (Karanja 2003).

Diseases are a major cause of involuntary animal losses. Government policies in Kenya promote private sector participation in livestock health inputs and services, including advice on dairy production (Bebe et al. 2003) Efficient delivery of these private goods will be critical in enhancing the competitiveness of intensive smallholder dairying. This requires government support, because the private market is contingent upon the ability of the state in providing the public goods of infrastructure (e.g. rural access roads) and institutional support.

Table 2 Estimated Dairy cow population by Province in Kenya in '000.

Province	2001	2002	2003	2004	2005
R/Valley	1651.21	1834.2	1776.1	1806.3	1,859.0
Western	155.81	162.8	181.0	179.9	181.7
Nyanza	188.06	193.6	202.2	204.6	196.1
Central	877.62	903.6	901.2	864.8	849.0
Eastern	321.83	314.9	313.7	291.8	301.9
Coast	76.08	76.9	81.0	89.8	88.1
N/Eastern	0.21	0.1	0.1	0.1	-
Nairobi	17.51	19.5	18.2	12.0	21.8
Total	3,288.33	3505.7	3473.4	3448.3	3,497.6

Source: Ministry of livestock and Fisheries Development annual Report 2005

2.6 Milk Production

Farm-level milk production is influenced by a number of important variables including socio-economic factors, demographic variables, infrastructure, farming practices, factor markets, disease and parasite control, institutions of collective action (co-operatives),

biotechnology and policy factors (Omiti 2002) Through time, smallholder farmers have gradually increased their participation in market-oriented milk production through upgrading of their local dairy breeds. Smallholder farms average 2 ha and contribute to about 80% of marketed milk production (MOA 2007) Milk production is based on grade cattle (e.g. Friesians) and their crossbreeds, which numbered about 2.3 million in 1999. Over the years, there has been increased milk production despite periodic fluctuations, often associated with weather changes

The smallholder dairy production in the Kenya Highlands is marked by declining farm size, upgrading into dairy breeds and an increasing reliance on purchased feeds, both concentrates and forage (Bebe et al. 2002; Kenya Export Processing Zone 2005). According to (Kenya Export Processing Zone 2005) the Dutch government assisted in developing and disseminating zero-grazing (stall feeding) technologies to improve farm productivity in the land scarce farming areas. Zero-grazing technologies constitute an important strategy through which smallholders in the highlands intensify their farming systems, particularly as farm sizes decrease.

The milk production in the country stands at 3.3 billion liters with small scale farmers producing about 70% of the total milk (MoLD 2004). These small-scale farms are mainly mixed-crop and livestock family farms.

Table 3. Estimated Milk Production by breed/species and percentage contribution to annual milk production 2004

Type of Animal	Estimated yield per Animal (Kg)	Total Estimated Milk Production in Million Kg	% contribution to total milk production
Grade Cattle	1,500	2,327.8.	70.5
Zebu Cattle	250	502.1	15.1
Camels	1440	359.1	10.8
Dairy Goats	225	4.9	0.1
Indigenous goats	60	114.5	3.4
Total	-	3308.5	

Source: Provincial/Districts Animal Production Annual Reports 2004

2.7 Milk Collection and Processing

Fresh milk is highly perishable, there fore an efficient means of collection and processing is crucial in its viability. The processors play the role of transferring and transforming milk from rural production area to different consumer dairy products sold in urban centre or milk deficit areas. Poor infrastructure is the main constraint in milk collection and processing. Studies indicate that the impact of poor roads alone on milk prices is about Kshs 47 cents per liter per kilometer of bad road (Muriuki et al. 2003). A survey carried

out by (The World Bank 2008) showed that traders in Benin, Madagascar and Malawi incur transport costs of 50-60 percent of total marketing costs.

Despite the entry of many processors into the market since market liberalization, fewer remain in operation, and hardly any operates at full capacity. KDB records show that in 1997 there were some 45 registered private milk processors handling over 400 thousand liters of milk daily. However the number of operational processors has been fluctuating and by February 2003 there were less than 30 operational dairy processing plants (Ngurare 2003).

(Omoro et al. 2004) noted that despite efforts to promote this channel of milk marketing, the quantity of processed milk has remained the same for nearly a decade. Only 500 thousand liters per day go to the processor, leaving 80% of the volume of milk sales going directly to consumers or through raw milk intermediaries. The factors driving raw milk marketing are traditional preferences for fresh raw milk (which is boiled before consumption), the predominance of low income consumers unwilling to pay the extra cost of pasteurization and packaging, and the difficulty of accessing distant urban markets because of poorly developed road networks and inadequate facilities for collection and cooling in the production areas (Bebe et al. 2002; Nin Pratt et al. 2005)

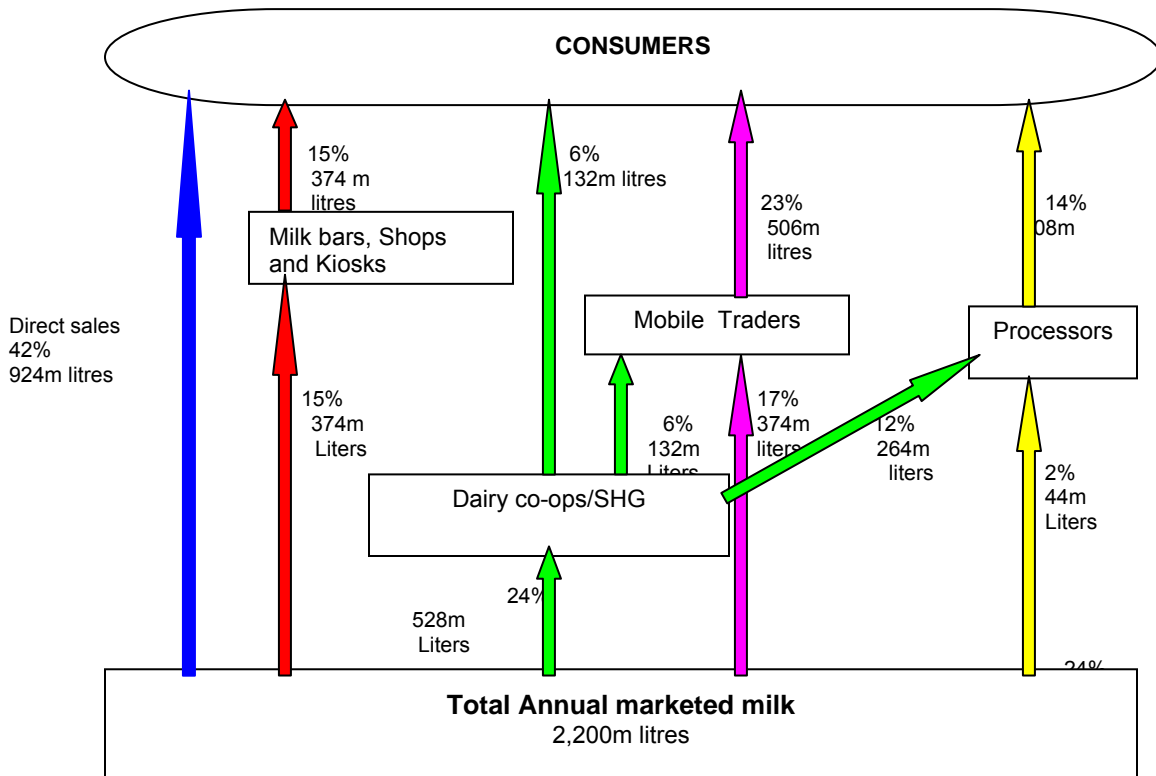


Figure 2: Milk Marketing Channels (Sources: Adopted from SDP Policy Brief # 4 (SDP, 2004c), Public Health Issues in Kenyan Milk Markets 2004 Notes: Percentage marketed flows are calculated on marketed milk, not on total production).

3.0 DAIRY MARKETING

In this chapter, the dairy marketing in Kenya is discussed with comparisons from other developing countries. Factors that affect marketing like supply, demand, Price (4Ps) etc have been explored.

3.1 Milk Demand in Kenya

Demand for cereals in Kenya takes the largest share in household budget closely followed by dairy products which take 17% of all food expenditures, Staal (2002). According to (FAOSTATS) estimates of per capita annual consumption of milk range 80 to 125kgs, depending on location, ethnicity and other socio economic characteristics. This places Kenya third after Mongolia and Mauritania among major milk consuming countries.

(KDB 2001) reports discrepancies in milk consumption between rural and urban populations and across income groups. The available statistics (1999) indicate that per capita consumption of milk in rural areas is 65 liters yearly for milk-producing households and 45 liters yearly for milk-purchasing households, while the urban per capita milk consumption is estimated at 125 liters per year.

The urban milk consumption is found to be highly skewed by income groups who consume about 45% of the milk sold in urban areas. Hence milk consumption appears to be highly income elastic and is expected to increase as the population grows and per capita incomes rise. Previous studies indicate that per capita milk consumption in Kenya is typically 45%-49% higher for urban consumers vis-à-vis rural consumers. Increased awareness of the benefits of milk consumption is further expected to increase consumption. The main usage for fresh and long-life milk and dairy products is in tea. Children are given milk in their homes. There is however an emerging trend to eat / drink fermented milk products such as yoghurt and mala.

3.2 Milk Supply

Kenya's dairy sector is predominantly run by smallholders. It is estimated that of the 3.3 million tons of milk produced annually from all species, cattle produce about 3 million tons, of which 2.0 million tons is mainly from the dairy herd of smallholders (Muriuki 2002). (Karanja 2003) observed that although smallholder dairy production contribute over 56% and 70% of total and marketed milk production, respectively the productivity per animal in these farms remains low. In Gambia previous studies have established that the potential for commercialization of milk in mixed crop-livestock production systems is limited by the low production per unit head and the high seasonality in production (Somda et al. 2005)

Dairy marketing in Kenya is mainly of liquid milk where over 80% is sold raw with the participation of itinerant milk traders (hawkers) who control about 28% of marketed milk (Staal et al. 1999). (Bebe et al. 2002) reported that out of the total milk produced by the smallholder farmers in Kenya, one third is consumed by the calves and two thirds goes to the market. He observed that 37% of the marketed milk goes to direct sale to the consumers, 19% traded through the smallholder cooperative societies, Self Help Groups and individual traders and 8% through the processor.

(Omore et al. 2004) reported that the movement of milk in Kenya bears close resemblance to that of Bangladesh in that producers are not much involved beyond production and farm gate sale of the milk. In Ghana however, stockmen and their

families also play a major role in milk processing and the sale of processed milk products.

Contrary to Ethiopia (Nin Pratt et al. 2005) where 78% of all the milk produced is consumed by the producing households and 22% goes to the market, in Kenya only a third of the total milk is left for the calves and family consumption while the rest of the milk is marketed (Bebe et al. 2003). However though, in both countries, consumption of liquid milk takes precedence over the other milk products. (Nin Pratt et al. 2005) reported that most of the milk produced in Ethiopia is processed by the producers themselves on-farm into butter and soft cheese (*ayib*) for home consumption and sale. Rural producers far away from urban markets usually process surplus milk into butter because of difficulties in selling fresh milk locally and the main butter markets are in the towns and cities.

3.3 Dairy supply chain

With liberalization, Kenya Cooperative Creameries (KCC) milk intake showed a downward trend that led to closure of most of its processing plants. New private processors, co-operative societies, and informal milk traders became major participants in milk marketing (Staal et al. 2005). There are some 45 licensed processors handling less than 20% of the total marketed milk, while informal traders account for an estimated 38% of marketed milk. (Thorpe et al. 2000) reported that less than 15 percent of marketed milk flows through milk processors. Currently, the dairy industry has a processing capacity of 2 million liters per day. The Kenya Co-operative Creameries is estimated to have a processing capacity of 1.2 million liters of milk per day and the other processors combined about 0.8 million liters of milk per day during flush seasons.

(KIT et al. 2006) noted that in order to get more profit, farmers should add value to their commodity or increase the number of activities in the chain. The strategy of vertically integrating farmers into processing and marketing aims at eliminating middlemen and increasing profitability of small scale farmers. In Ethiopia, Smallholder Dairy Development milk group added value to milk by processing into butter, local-type cheese (*ayib*) and yoghurt for more profit.

3.4 Pricing of milk and milk products

The price of a product in the market is an important factor influencing consumer demand. Hence to be marketable, a dairy product must be competitively priced. Generally the price of a dairy product involves the following costs: cost of raw milk, collection and transport, processing, packaging, marketing and distribution, taxes and licences.

Several studies have been carried out in different countries to find out the margins in the dairy chain i.e. from farmer to consumer. The margins from one litre of milk bought from the farmer by different channels were analysed for both formal and informal sector.

(Omore et al. 2004) carried out a study in both Ghana and Tanzania displaying a wide interaction between market agents and market channel.

Price variability among market agent is one indicator of market efficiency, although transport and transaction costs will create price differences. Output product differentiation, especially in terms of value added; create differences in margins. (Collinson et al. 2005) observed that milk prices paid by cooperatives were lower by 17% than the prices paid by local milk man. Farmers in peri urban and urban

preferred to sell their milk to the milkman whereas the farmers in the remote regions were forced to sell their milk to the formal chain at lower prices due to lack of access to urban markets.

(Omoro et al. 2004)observed that the producers received on average \$0.3 per liter in Kumasi compared to \$0.17 in Accra. This is due to general milk scarcity in Kumasi, a forested area which forced the producer prices up. Wholesalers in Kumasi received an average of \$0.37 per litre against \$0.29 in Accra. However the consumers in Accra paid more as retailers there, \$ 0.46 against \$0.44 per litre- likely the result of higher incomes and greater urbanization in Accra.

Wagashi and other products processors in Accra and Kumasi received the highest prices of all market agents. This was because these processors dealt in value added products which fetched higher prices.

Table 4: Producer prices , retail prices and market margins per litre of milk equivalent by milk agent in Ghana

	Accra			Kumasi		
	Purchase Price \$	Sale Price \$	Market margin \$	Purchase Price \$	Sale Price \$	Market margin \$
Coop/collection centre	0.17	0.22	0.05			
Producer-seller	NA	0.17	0.17	NA	0.30	0.30
Wagashi processor	0.18	0.65	0.47	0.19	0.42	0.23
Wholesaler	0.16	0.29	0.13	0.23	0.37	0.14
Retailer	0.27	0.46	0.19	0.22	0.44	0.22
Hawkers				0.09	0.29	0.20
Others				0.11	0.16	0.05

Source Omoro 2004

Table 5: Producer prices , retail prices and market margins per litre of milk equivalent by milk agent in Tanzania

	Dar-es-salaam			Mwanza		
	Purchase Price \$	Sale Price \$	Market margin \$	Purchase Price \$	Sale Price \$	Market margin \$
Coop/collection centre	0.22	0.28	0.06			
Producer-seller	NA	0.29	0.29	NA	0.23	0.23
Wholesaler	0.23	0.38	0.15			
Retailer	0.37	0.62	0.25	0.23	0.43	0.20
Hawkers	0.22	0.31	0.09	0.18	0.26	0.08
Others	0.40	0.61	0.21			

Source Omoro 2004

In Mwanza the prices received by retailers and mobile traders were \$ 0.43 and \$0.26 respectively. The prices received by milk producers also varied with districts ranging from \$0.23 to \$0.29 in Tanzania. Retailers in Dar es salaam display a margin \$0.25

against 0.20 in Mwanza. This might be due to higher labor costs Dar es salaam typical of large urban centers. The difference between producer prices and retail was higher in Dar es salaam milk shed than Mwanza due to lower marketing costs or close proximity of production and consumption compared to other areas of milk shed. In Dar es salaam retailers displayed the largest market margin (0.25) due to high costs while collection centers were observed to have the lowest margins, contributing to their lack of profitability. (Omoro et al. 2004)

	Farm level production	Transport	Bulking	Transport	Processing & packaging	Distribution	Retailing	TOTAL
Share of Revenue	27%	4%	4%	4%	41%	8%	12%	100%
Ksh/ltr	13.50	2.0	2.0	2.0	20.3	4.0	5.6	49.5
Post Election (Ksh/ltr)	17.28	2.56	2.56	2.56	26.24	5.12	7.68	64

Figure 3: Dairy Marketing Chain Players' Share of Revenue before and after January 2008 in Kenya. (Source Adopted from Mburu's survey 2008)

3.5 Market Information system

Information exchange between stakeholders is important between supply chain actors. Market information keeps farmers and traders attuned to the demands and changing preferences of the consumers, guiding farming, marketing and investing (World Bank 2008) Market information encompasses timely and accurate prices, buyer contacts, distribution channels, buyer and producer trends, post harvest handling advice and storage and transport recommendations.

The (World Bank 2008) argue that the public market information system have often been disappointing, with slow dissemination of information and in wrong form or too infrequent to be of real use to market participants.

The market information system in Kenya, Mozambique and Senegal also disseminate price information using a mix of internet, short message service (SMS), radio and market chalkboards. (Collinson et al. 2005) reported that in Uganda the market information is disseminated to clients across the country on a weekly 15-minute broadcast via 12 radio stations. The market information is also made available to clients by e-mail, fax, telephone, newspapers, regular aid project reports, and during regular meetings. Farmers have had a significant interest in the new system of information system i.e. the SMS and this is seen to have a potential reduction in the transaction costs.

3.6 Dairy cooperatives

A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (<http://www.ica.coop/coop/index.html>).

Small producers often lack access to market and technical information as well as sufficient resource to improve production quantity and quality. Cooperatives can address both these challenges, thus allowing producers the opportunity to improve their economic and social situations (Bijman 2007). (Muriuki 2002) reported that co-operatives and other farmer groups such as self-help groups (SHG) are formed to assist farmers to acquire credit and inputs and sell their produce such as milk in case of dairy co-operative societies. Dairy co-ops have in the past significantly contributed to the development of the smallholder milk marketing and provision of farm inputs and services at a relatively lower cost. (Omiti 2002; Staal et al. 2005) noted that dairy cooperatives have played a critical role in milk procurement systems in some areas of Kenya. Where there are significant local milk surpluses that small-scale informal milk markets cannot handle, farmers' dairy cooperative societies (FDCS) provide a functional means to access larger formal markets.

The structure of food markets is changing with the rise and consolidation of supermarkets, which affects both production and marketing conditions (Henson and Reardon 2005) Supermarkets generally have a higher quality requirements, prefer to deal with a limited number of suppliers and demand a homogenous products. The supermarkets as well as the processors and wholesalers have become more concentrated ,which affects the bargaining power of small producers World Bank (2008). For small producers to become and remain suppliers in this demanding supply chains; the significant answer is to join forces in a cooperative.

There are about 200 dairy cooperatives in Kenya, although only about 70% are functional (Staal and Kaguongo 2003)In recent years some members have abandoned their co-operative societies and opted to either operate independently or form Self-Help groups due to mismanagement and collapse of many cooperatives. Nearly all FDCSs sell raw milk locally at retail prices, and sell only the excess to processors, for which they receive a lower price. Some FDCS join the processors as cooperative members so that they can supply them with the excess milk that which they may find difficulty to market locally during the flush production periods. Thus, the formal and the informal marketing subsystems become intrinsically linked.

In comparison to other East African countries, farmer organizations and co-operatives in Kenya have played a critical role in assisting the participation of smallholder dairy producers in the market. Combining the roles of milk collection and service provision permits farmer groups to maintain an advantage over other actors in the milk market, principally because they offer producers the advantage of accessing distant markets at lower marketing costs per liter of milk due to bulk purchases and sales.

3.7 Transaction costs

Raw milk is a highly perishable and so it requires rapid transportation to consumption centers or for processing and into less perishable forms. This may limit marketing options for the small and remote dairy producers and implies greater losses due to spoilage than for commodities such as grains (Staal et al. 1997). The perishability of most high-value agricultural products requires careful handling, special facilities

(packhouses, cold storage, and refrigerated transport), and rapid delivery to consumers to maintain quality and reduce physical and nutritional losses. In many developing countries, the long supply chain, poor access to roads and electricity, and inadequate infrastructure and services in physical markets add to the transaction costs and cause quality deterioration and high spoilage losses World Bank (2008).

Because milk production typically is a year-round activity, dairy producers often must be concerned with maintaining outlets for their production. In principle, dairy cooperatives serve to reduce the transactions costs facing individual producers through pooling risk, lowering unit collection costs, and enhancing bargaining power.

Milk is delivered by the cooperative to the private buyers or collection centers or processing plants. (Bakucs et al. 2008) in his paper reported that price and input finance play less important role to sell to the cooperative. He reported that the most important reason why farmers join the cooperative is the farmer's link with the cooperative and the sales. (Thorpe et al. 2000) reported that in the more competitive and uncertain market post-liberalization, both individual producers and dairy farmer cooperatives have better opportunities for higher milk prices, but also face greater risks due to the uncertainties of relying on informal traders. As a consequence, more recent research has indicated that milk suppliers are returning to traditional outlets (the cooperatives and dairy processors) as costs and risks of dealing with informal intermediaries are found to be too high.

4.0 METHODS OF DATA COLLECTION

4.1 Research Strategy

The research project was carried out in one survey and one case study in order to gain an overview on the effect of the Post Election Violence on the marketing of the milk. The data was collected through purposive sampling of two divisions within the district then a random sampling of the dairy farmers in the two divisions (Kapsaret and Turbo) of Uasin Gishu District. Triangulations was done to examine the information gathered from three or more angles in order to get a general understanding of the situation in order to make a better analysis (Verschuren and Doorewaard 2005). Open observations at the study sites yielded more reliable information than other methods of data collection. This was more so because the topic on Post Election Violence was so sensitive at that time when people were still undergoing healing and reconciliation. The questionnaire offered to the farmer did not mention anything to do with the Post Election Violence, however my indirect conversation with the farmer yielded the responses I needed on the effects of the violence.

4.2 Sample Selection and size

Uasin Gishu district was the selected area of study. The district has six divisions which were virtually hit by the post election unrest. After consultation with the District Livestock Production officer and other staff in the ministry, we arrived on the decision of carrying out the survey in two divisions in the district i.e. Kapsaret division which is peri-urban and Turbo division which is rural. Both of these divisions were hard hit by the violence and it was expected that they would provide the desired information. Sixty farmers were randomly selected, thirty one from Turbo division and twenty nine from Kapsaret division for the questionnaire. The survey was done with an aim of finding out the effects of PEV on access to services, milk marketing channel (formal and informal) and constraints of milk marketing.

The second case study was mainly done to assess the impact of the violence on milk collecting centers and the processor.

4.3 Data collection

A structured questionnaire was developed and pre tested in order to gather quantifiable data from the respondents. The pre testing was to ensure that all the questions were clear and that all the interviewees will understand them the same way, as well the researcher would get the answers she was suspecting and which can be analyzed.

Data collection was carried out by the researcher with the assistance of the field officers from the ministry of livestock who introduced me to the farmers. The researcher did a lot of probing to dig out most of the information especially that which regards to election violence. The results were interpreted based on prior information collected in advance from the literature and the researchers' own experience and technical knowledge.

The survey and case study were to yield data in the following

- Background information of the dairy sector in Uasin Gishu district.
- Effects of PEV on milk marketing at district level.
- Effects of PEV on milk collection centers
- Effects of PEV on the marketing channels
- Constraints experienced in milk marketing in the district
- Opinion ranking of what needs to be done to strengthen the milk marketing

To supplement the information gathered, data from the district livestock offices and Kenya Dairy Board, on production and marketing were collected and analyzed.

4.4 Method of Data Analysis

Descriptive statistics were used to establish the socio-demographic status of the respondents.

Numerical data were analyzed using t-test analysis to compare the mean difference between the two divisions before and after Election Violence.

Cross tabulation including Chi square test was used to explore the relationship between categorical variable.

4.5 Conceptual Framework.

The research framework revolves around the theories of market function and market organization approaches (margins of market participants), producers organizations, supply chain management and my organization,

4.6 Definitions

Formal milk marketing: This involves the channel through which the farmer delivers milk directly to the milk processing plant or to a milk collecting center or to traders who buy milk from the farmer and sell it to the milk collecting center.

Informal milk marketing: this involves the direct delivery of fresh milk by the farmer to consumers or may pass through two or more milk vendors before reaching the consumer.

Dairy Cooperatives: are organizations registered with the Ministry of Co-operative Development, and is a combination of more than one Self Help Groups.

Self Help Groups (SHGs): These are groups registered with the Ministry of Culture and Social Services. Functionally, there are no differences between dairy co-ops and SHGs engaged in milk marketing.

5.0 RESULTS

In this chapter, data is recorded, analyzed and discussed. The data include that collected during the survey and case study and documented data from texts, journals, reports and internet search during literature review. Several methods and tools including graphs, charts, tables and models are used in the analysis and discussion depending on the type of data in question.

a) SURVEY RESULTS

5.1 Background Information of the Respondents

Sixty farmers (n=60) from the two divisions were randomly sampled. Thirty one from Turbo and twenty nine from Kapsaret division. Two households from Turbo division declined to give information about their household claiming that their husbands need to be around to give the information. However this, we replaced by choosing other households and thus didn't affect our study.

This section outlines the household characteristics namely: age, gender, off farm income and highest level of education of household head. These basic characteristics of the household are important in order to place in context the economic activities that impact dairy producing households in Kenya.

These are important considerations in small-scale dairy farming because they help to tailor interventions to match the circumstances of dairy farmers.

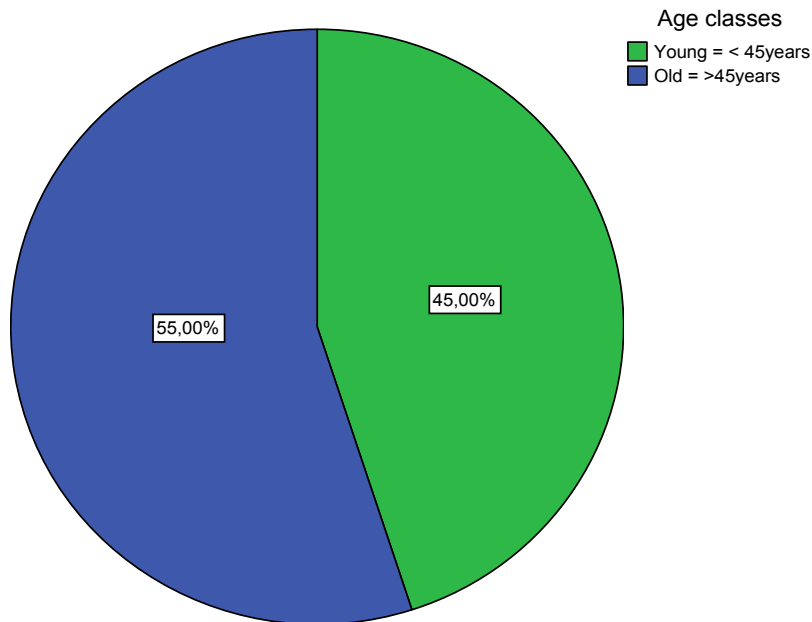


Figure 4: Proportion of age classes of farmers in Kapsaret and Turbo division.

More than half of the respondents from the two divisions were in the age bracket of more than forty five years. In Kapsaret division the proportion of those below forty five was more (over 65%) than in Turbo (less than (30%) whereas in Turbo the majority of the farmers were above forty five years (annex).

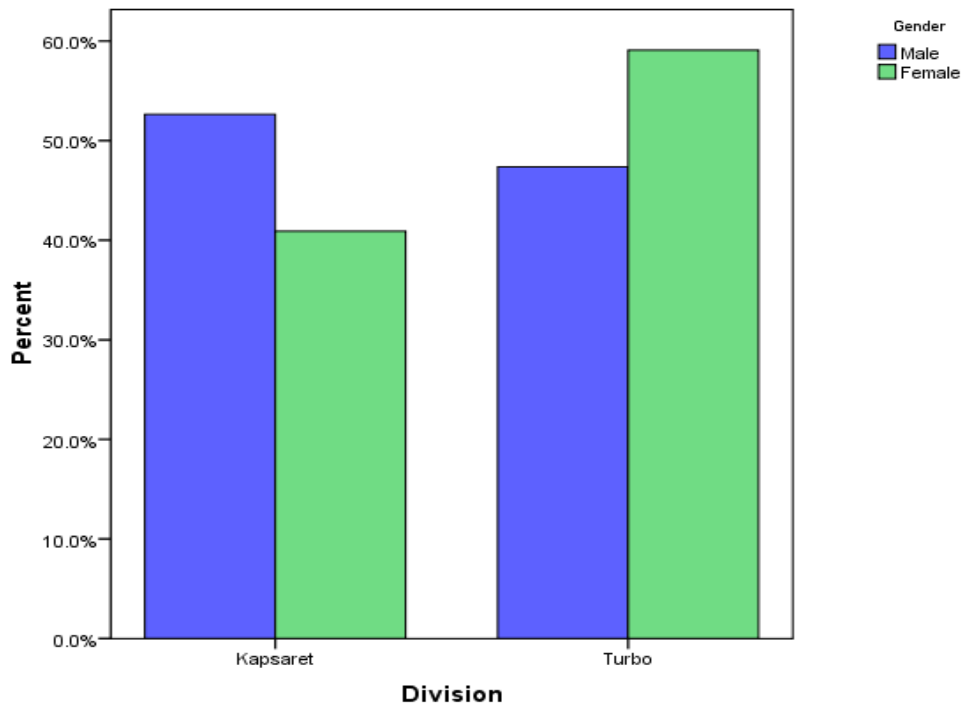


Figure 5: Proportion of male and Female farmers per division.

The survey results generally showed the proportion of male farmers were more (over 60%) while that of females was below 40%. (annex)

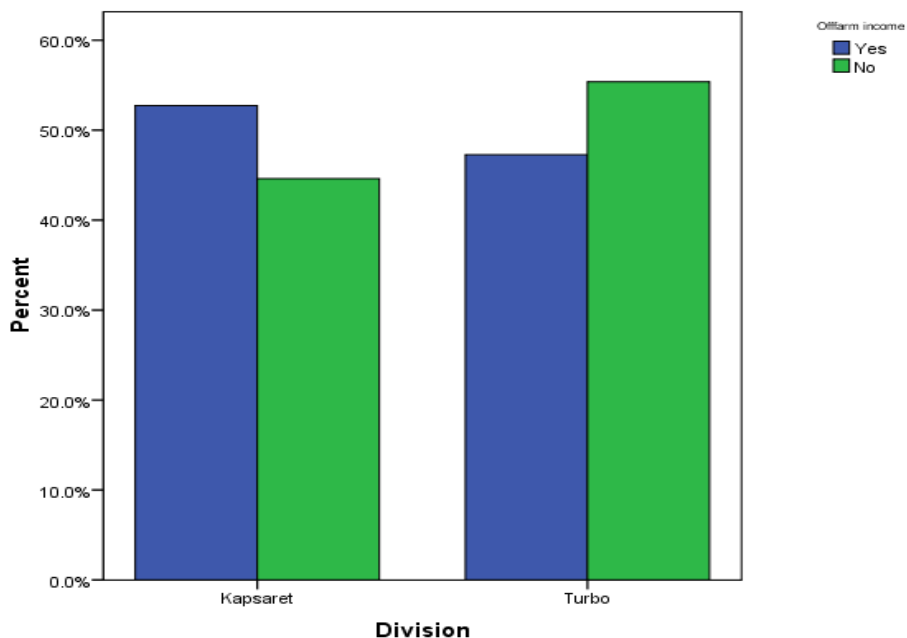


Figure 6: Percentage of farmers with off farm income in Uasin Gishu District.

As was observed from the survey results more than half of the respondents did not have an off farm income. They depended on dairy farming for their income. Only 45% (n=60) of the farmers had an off farm income (annex)

Table 6: Distribution table of Education level per Division

Education level	Kapsaret	Turbo	Total
Primary	7	18	25
Secondary	12	7	19
Post Secondary	10	6	16
Total	29	31	60

From the survey, 41% of the respondents from the two divisions have attained only up to primary level of education. Most of these come from Turbo division. Only 26% of the total respondents in the divisions have had a post secondary level of education.

5.2 Impact of PEV on milk marketing Channel choice

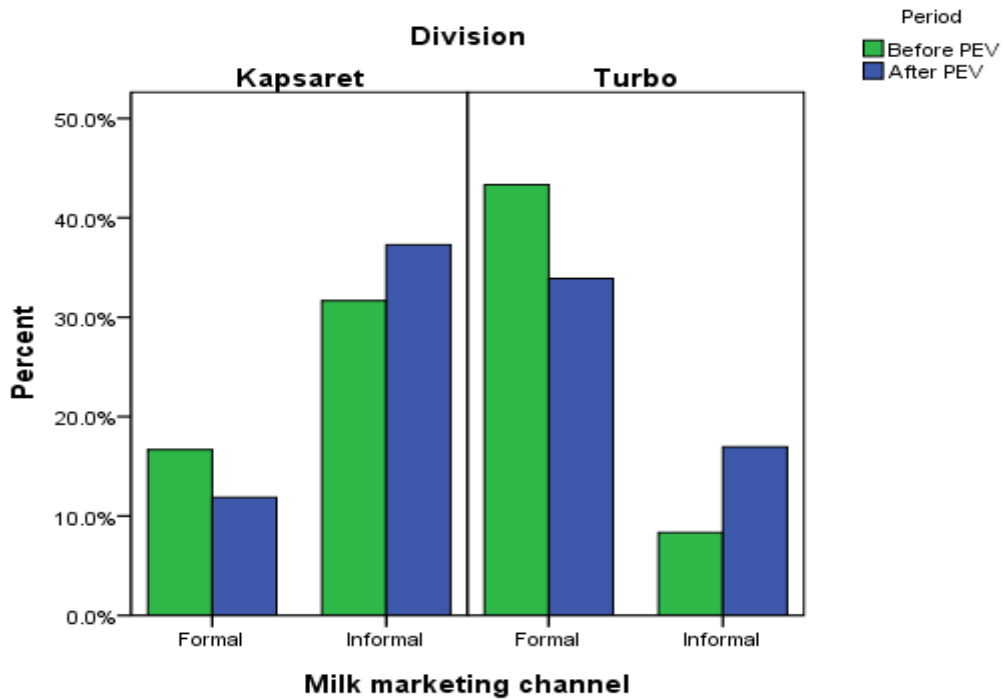


Figure 7: Impact of PEV on milk marketing channel choice per division.

In figure 7, results on the impact of PEV on milk marketing channel choice are shown. There is no significant difference between channel choices within the divisions.

Kapsaret ($P= 0.387$), Turbo ($P= 0.119$).

There is a significant difference between the divisions in their milk marketing channel choice ($P= 0.000$).

(SPSS output (annex))

5.3 Impact of PEV on milk prices

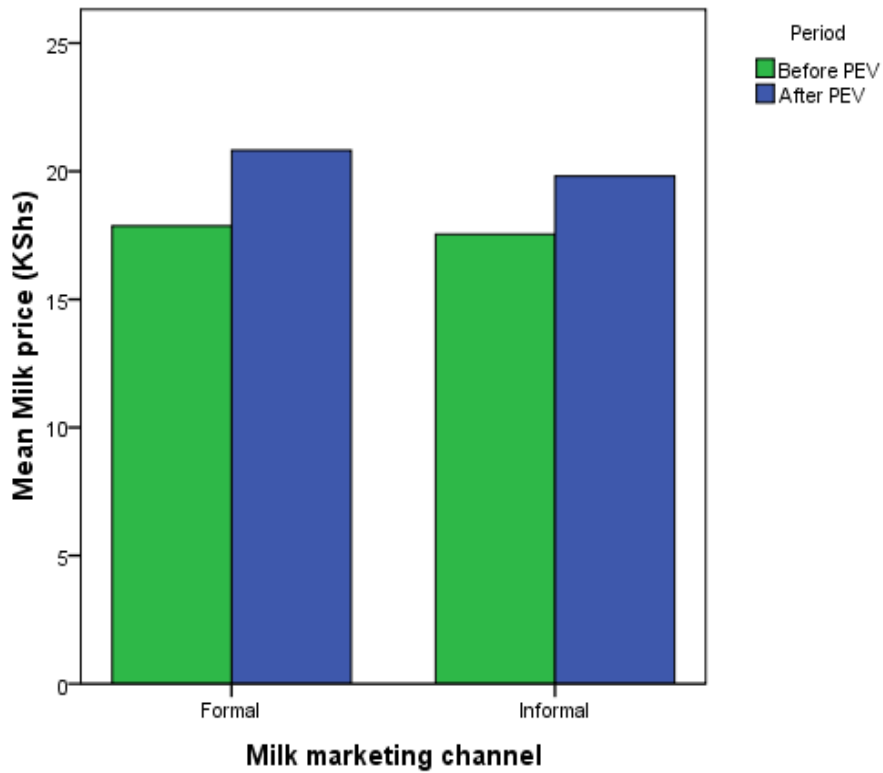


Figure 8: Mean prices offered before and after PEV.

Figure 8 shows results of the mean price offered before and after PEV in both formal and informal channels.

The difference in prices offered in both channels is significant ($P= 0.000$) (SPSS output (annex))

5.4 Impact of PEV on services

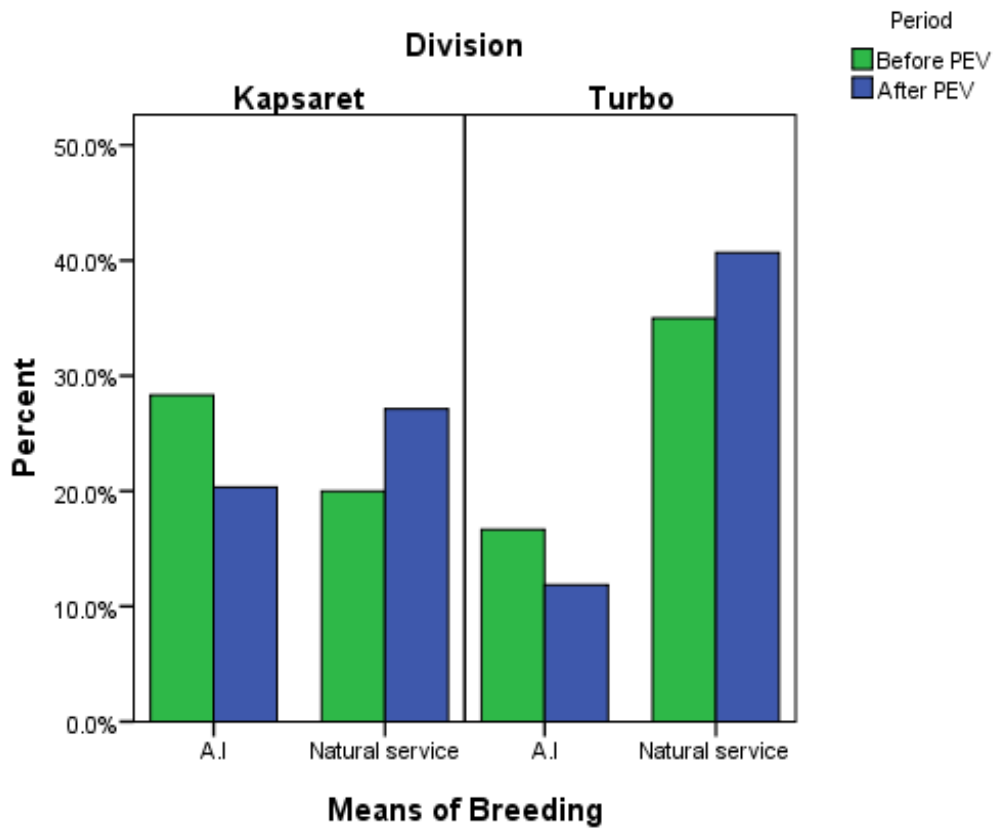


Figure 9: Accessibility of breeding services before and after the PEV.

In Figure 9, the means of breeding within each division before and after PEV did not significantly change. Kapsaret ($P= 0.234$), Turbo ($P= 0.393$). But there is a significant difference between the two divisions on their choice of breeding methods ($P= 0.009$). (SPSS output (annex))

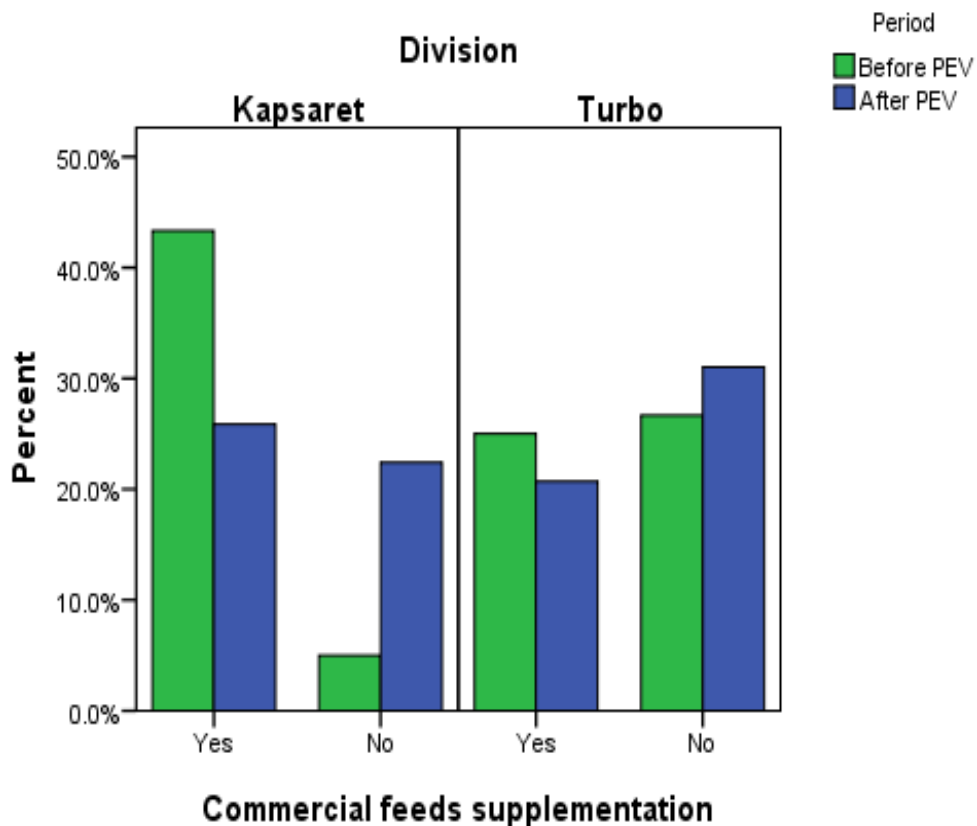


Figure 10: Level of commercial feeds supplementation before and after PEV

In figure 10, the level of commercial feeds supplementation is shown. In Kapsaret division there is a significant difference between those who supplemented commercial feeds before and after PEV and those who did not ($P= 0.002$). In Turbo division, there is no significant difference ($P= 0.510$)

When the two divisions are compared, there is significant difference ($P=0.002$) in there level of commercial feeds supplementation. Kapsaret division has a higher number of those using commercial feeds than Turbo. (SPSS output (annex))

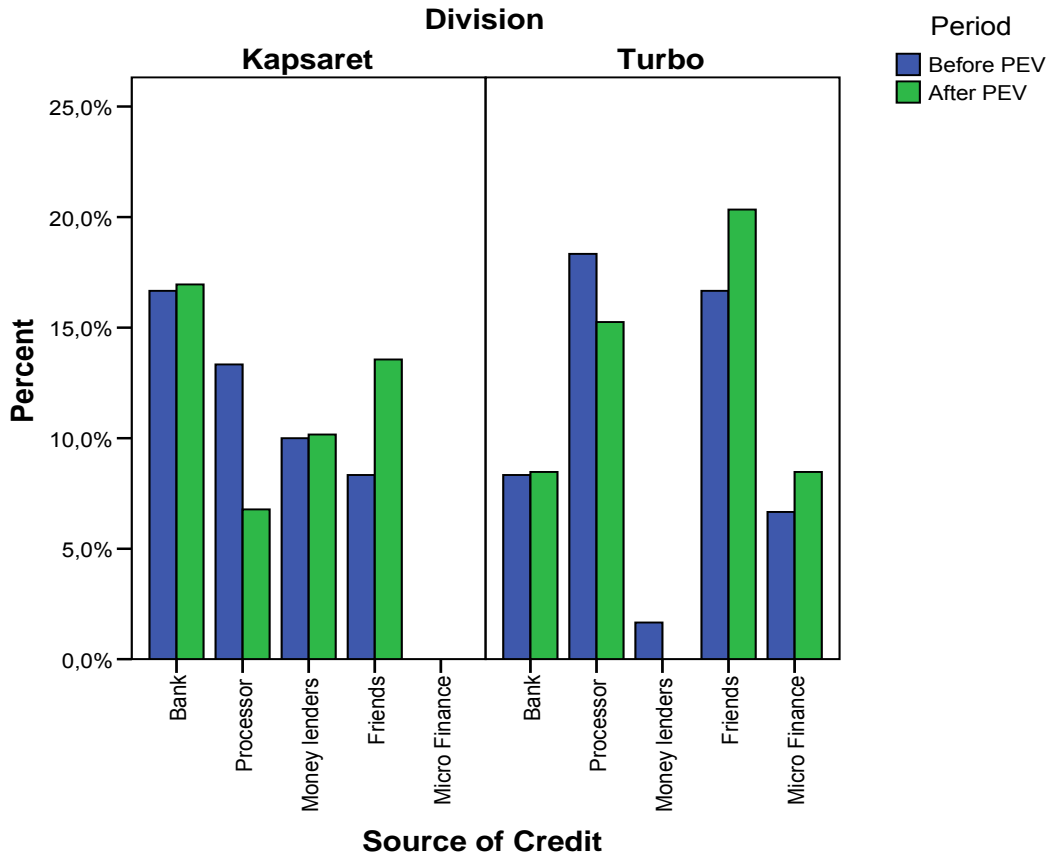


Figure 11: Access to agricultural credit.

Figure 11 shows results on access to credit within the two divisions before and after PEV. The difference between availability of credit before and after the PEV within the two divisions is not significant. Kapsaret ($P=0.571$) and Turbo ($P=0.828$). (SPSS output (annex))

5.5 Rank of problems faced in the marketing of milk

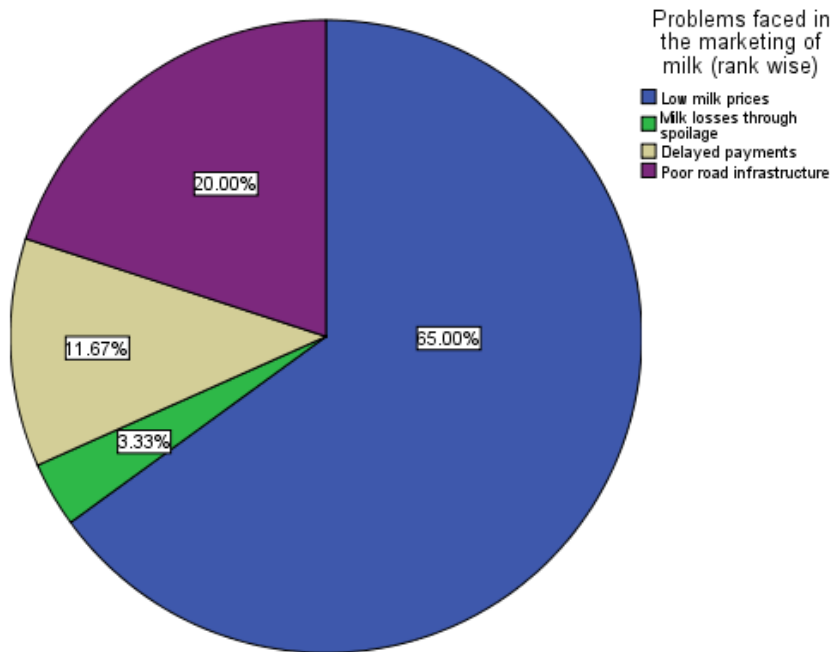


Figure 12: Rank of Problems faced in marketing of milk.

In figure 12 above, results on how respondents ranked the problems they are facing in milk marketing are shown. It is evident that low price of milk was the most experienced problem. Majority of the farmers (more than 80%) cited low milk prices and poor roads as their most important problems they are facing in the marketing of their milk respectively.

Poor roads infrastructure was mainly cited as a main problem by majority of the farmers in the rural areas.

5.6 Effects of Post Election Violence on the farmers

Table 7: Important effects of PEV on respondents

Important Effect of Post Election Violence * Division Crosstabulation

	Division		
	Kapsaret	Turbo	Total
Loss of livestock(Theft/death)	7	2	9
Less access to inputs	11	14	25
Poor Repayment of debts	4	4	8
Loss of Previous customers	7	2	9
Spoilage of milk	0	9	9
Total	29	31	60

Table 7 shows the distribution of the important effects of PEV on the farmers. Less access to inputs was sited as the important effect by respondents in the two divisions. Loss of livestock through death or theft mainly affected Kapsaret while milk spoilage due to non delivery to the market mainly affected Turbo.

b) CASE STUDY RESULTS

5.7 Effects of PEV on the District

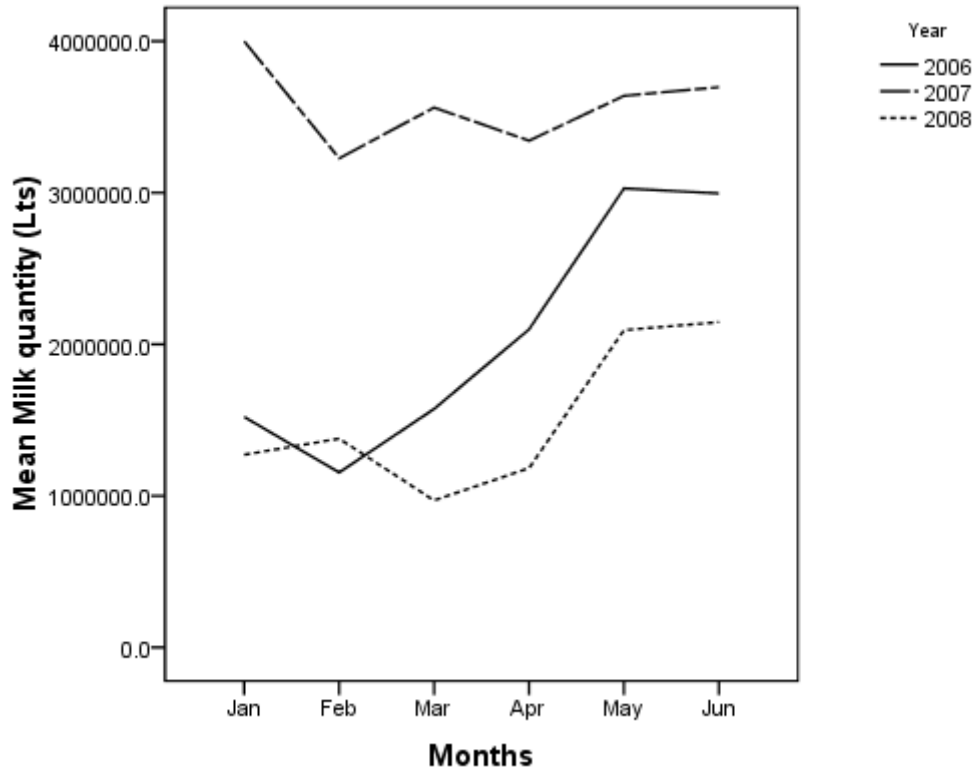


Figure 13: Comparison of means of milk Quantity before and after the Post Election Violence.

From the results it is clear that the amount of milk marketed in the month of January till March 2008 really dropped if compared with what was marketed the same time in the year 2007. The amount of milk dropped with an average percentage of over 65. In the three months the district lost an average of 2.4 million liters of milk per month. According to (Omore et al. 2004) an average of two people are employed for every 100 liters of milk traded. This implies that close to 50 thousand Kenyans who depended on milk trade in Uasin Gishu district missed a wage in the months of January till March.

5.8 Effects on Formal milk markets/collecting centers

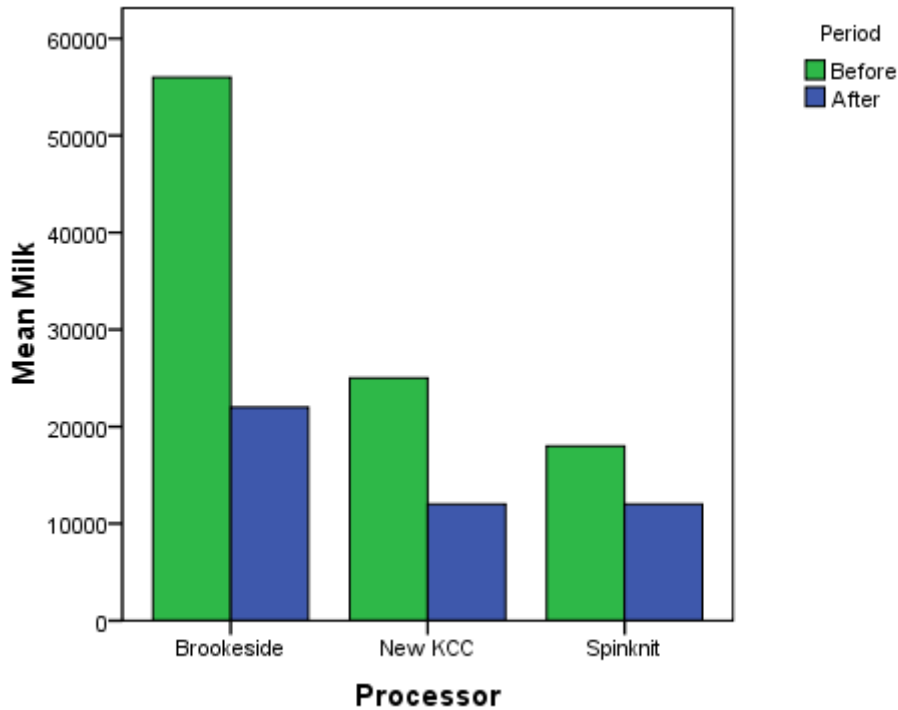


Figure 14: Impact of PEV on milk intake by leading processors in Uasin Gishu District
(Source: Computed by the author using data from KDB 2008)

Figure 14 above shows the how the different processors in the district were affected by the PEV.

Brookside Milk Collecting centre

This is the largest milk collecting centre located in the centre of Eldoret town. The centre has a capacity of 80,000 liters of milk and before the Post Election Violence during peak production the centre used to collect up to 70% of its capacity. The milk collected is transported some 400km in the central province where it is processed. After the PEV the centre was heavily affected. Out of the registered twenty thousand milk suppliers to the centre before the violence, only 8000 are active after the Post Election Violence. The amount of milk being delivered by the farmers has dropped drastically. Out of the 56,000 liters the centre used to receive during peak production per day, the amount reduced to 22,000 liters per day. The centre had to remain closed for the whole month of January leading to more losses. The centre has had to increase the amount they pay to farmers for 1kg of milk from Kshs 18 before the PEV to Kshs 22 after the violence. The processor is not making much profit since the amount of milk from the farmers has dropped.

The services (like feeds supply) which the collecting centre used to offer to farmers has reduced in that few farmers are able to afford. Brookside Dairies Ltd was targeted because opposition leaders had asked their supporters to boycott its products along with other companies owned by individuals who supported the government.

Kenya Cooperative Creameries (KCC) milk processing plant

This is the second largest milk processor after Brookside. Deliveries to the Eldoret factory of New KCC could only receive 11,000 liters of milk daily, down from 25,000 it was collecting before the elections.

The milk is collected and processed within the same district. Before the Violence the plant had one thousand eight hundred (1800) registered milk suppliers. After the Violence the number of active supplier dropped to eight hundred. The price offered for one kg of milk rose from Kshs 18 before the violence to 22 after violence. The Centre has a capacity of 380,000kg per day of which 120,000kg are processed as dry/ powdered milk, 10,000kg as long life milk and the rest as fresh milk.

KCC exports milk to Yemen but after the PEV, the quantity of milk received is not even enough to satisfy the local consumption and this has pushed the processor out of the export market until the supply steps up.

In addition, New KCC shut down its milk collection centers in Lessos and Kapsabet and laid off a number of workers.

Spin Knit Dairy

It is the third largest processor and was perceived to be politically neutral. The company had one thousand registered milk suppliers but after the violence the active members dropped to five hundred. The total amount of milk received dropped from a daily estimate of eighteen thousand liters to twelve thousand. The company used to export milk to Tanzania Rwanda Burundi and Ethiopia but after the violence, the production has dropped drastically forcing the company to stop the export business

The greatest impact felt by the company after the PEV is the postponement of plans to acquire the company by Parmalat, an Italian dairy processing company as it weighed the political risk of the investment.

5.9 How to Strengthen the Milk Marketing Chain

The survey revealed that associations and self help groups are already in place. They only need to work together and find ways of being integrated in the chain. Among the constraints sited by the respondents is low milk price which was the major problem, which needs a solution. Value addition is one way of improving the milk price and which may probably strengthen the milk chain. This can be done by working together as a group and sharing information, ideas and knowledge. Members can come out with a solution or bargain for milk price increases, so that they have a fair share. The members need trust building among each other, committed and also collaborate with other actors in the chain.

Table 8: Advantages of formal and informal milk marketing in Kenya

	Advantage	Disadvantage
Formal milk chain	<ul style="list-style-type: none"> - Easy access to market - Farmers are more organized and have more responsibility - Easy access to inputs and services (e.g. training) - With good management of cooperatives payments are Regular - Milk quality control 	<ul style="list-style-type: none"> - Low profit for farmer - Little benefit from adding value - High investment costs - Pricing system not transparent. - No transparency in pricing
Informal milk chain	<ul style="list-style-type: none"> - High profit for farmer - Sometimes there is direct contact with consumer - Simple decision making by farmers - Trust building among actors - Low investment costs - Employment for traders - High consumer demand because of low price 	<ul style="list-style-type: none"> - Risk for farmers and traders as well. - Dependence on trust among actors not contract - Less transparency in pricing - Loss of milk when imbalance demand/supply - Market is not reliable - Exploitation by middleman in times of surplus (unreliable payments) - No quality control

6.0 DISCUSSION

6.1 Background Information of the Respondents

From the survey it was observed that the category of farmers who are relatively old formed the majority of the respondents. These may be due to the fact that many young people would like to go to the urban centers in search of white color jobs. To many farming is regarded as a job for the old and those with less formal education. Female farmers are the majority in the rural as compared to the farmers in the urban despite the fact that some female farmers declined to divulge information to strangers especially in the rural area. However overall the male are the majority with over 60 percent.

More study needs to be done when conditions are more stable to ascertain the actual proportions since minority group of farmers had fled their homes for security reasons.

In Kapsaret division the number of farmers with off farm income is slightly more than the number in Turbo. However there is no significant difference between the farmers with off farm income and those without in the two divisions.

From the survey, the proportion of farmers with off farm income is only 45% (n=60) (annex). This means that to revive the dairy sector the governments needs to give a lot of support to the farmers since the majority do not have another source of income.

From the statistics there was a significant difference between the educational level in the two divisions ($P < 0.05$). $\alpha = 0.001$. Turbo division had the highest (30%) Percentage of primary level of education as compared to Kapsaret (11%).

This is expected in that Kapsaret is close to the urban centre and we expect to get many working class and job seekers living here and commuting to town. Their level of education is bound to be higher compared to that of the rural area.

6.2 Effects of Post Election Violence on milk marketing

After the Post Election Violence a number of respondents moved to the informal channel. The slight shift towards the informal channel of milk marketing after the PEV could be due to the fact that during the violence the milk processors, closed for a period ranging from three to six weeks. All this time the farmers who used to deliver milk to the processor had to pour out all the milk due to lack of market. Most of these farmers felt frustrated due to the losses they incurred and hence opted to sell to informal channel after the PEV since there was no form of compensation from the formal channel.

Another reason given by the farmers as to why they shifted from the formal means of milk marketing was that, most of them had either lost their milking cows or calves due to diseases as they could not get the veterinary services during the violence. Hence their quantity of milk reduced and all of it could be sold locally to the neighbors.

From the survey there is a significant difference between the channel of milk marketing and the division. Kapsaret division has preference for the informal channel while Turbo preferred the formal channel. These contradicts (Mburu et al. 2007) who argued that people with off farm income tend to prefer formal channel, but agrees with Staal (1998) who said that people in close proximity to an urban center tend to prefer the informal means of milk marketing.

In both channels the mean price offered for 1kg of milk increased with a significant margin in the two divisions. The PEV had consequent changes in the farmers' choice of market outlets and this led to changes in the prices paid by cooperatives to farmer

members. From the survey, it is observed that the mean price paid by the formal channel is slightly more than the mean price offered in the informal channel after the PEV. This findings contrast with that of (Staal and Shapiro 1994) who found that the prices offered on local markets was higher than that offered by the cooperatives, but is in line with (Owango et al. 1998) who reported a dramatic increase in price in the formal sector as a result of market liberalization. The dramatic increase in price is as a result of the PEV in the district. The formal markets had to offer competitive prices so that they attract the farmers to deliver their milk to the formal chain. The milk produced was little due to lack of adequate livestock feed and water. There was no adequate grazing area within the camps where farmers had taken their cows for security reasons. The PEV has had the intended effect of raising the producer prices but through the unintended mechanism of reduced milk production.

Use of AI within the divisions dropped by about 8% in both divisions after the PEV whereas the use of natural service increased. However the difference is not significant. But there is a significant difference between the two divisions on their choice of breeding methods. Turbo division preferred use of natural service compared to Kapsaret division.

This could be due to the fact that most of the service providers were from the minority group and had to vacate their premises in search of security. This has left most farmers to depend on natural service as the only means of breeding and especially so for the farmers who live in the rural areas.

As a result of the decline in government services, most AI was provided to smallholders by dairy cooperatives and private producers. Unsubsidized AI is expensive relative to natural service mainly because of poor state of rural roads and other transport costs.

Available evidence suggests that private veterinarians cannot profitably offer breeding services at current prices and conditions. This has serious technical and policy implications. First, most of the previous significant achievements in technology adoption (e.g. high milk yields) will be reversed, especially amongst the smallholders. Second, an increasing number of farmers are resorting to using inferior bulls. Third, there will be shortfalls in milk production in the medium term (i.e. 5–10 years) that have critical policy implications on food security, malnutrition and commercial dairy imports.

Post election violence had impact across the dairy value chain. Manufacturers of dairy feeds were unable to get raw materials especially maize jam, wheat bran and pollard due to illegal roadblocks in Nyanza, Western Kenya and in the Rift Valley. As a result, the retail price of feed concentrates especially dairy meal increased by a margin of between 24% and 35% (rapid assessment report 2008). Kapsaret division was hard hit when it came to feed supplementation since most of the farmers who live in the peri urban have small pieces of land of which is not enough to cater for growing feeds and therefore most farmers depend on commercial feed supplementation. After the PEV this feeds were not available which meant a serious drop in the milk production. (MOA 2007) reported that farmers always regard manufactured feeds as being too highly priced, which contributes to its limited use especially in the rural areas. Turbo division was not very much affected as the level of supplementation was not as high before the PEV. Most of what they use is home made ration.

To cope with the feed demand, with their limited supplies many farmers complained that feed manufacturers have reduced the quality of commercial feeds. Dairy cows that fed on these feeds reduced milk production in short and medium term.

In the rural areas milk production is mainly based on natural forages. In most cases, concentrate feeds are given to animals during a certain physiological stage.

(Bebe 2003) noted that access to feed is directly influenced by access to cash and source of supply. From the survey it's clear that most of the farmers in Kapsaret have an off farm income, which means that they are able to afford commercial feeds.

From my personal communication with cooperative officer, information obtained shows that the areas affected by post election violence had some fairly well established financial services provision mechanisms before the elections. These comprised of grassroots financial institutions such as informal savings and credit groupings as well as financial service associations and village banks; savings and credit cooperatives; microfinance institutions and even outlets of some of the major commercial banks in the country such as Equity, Cooperative bank, KCB and even the Agricultural Finance Corporation.

Like all other sectors however, services by most of these institutions were also disrupted during the post-election violence period and most have not yet resumed. Besides, many of the institutions have lost significant amounts of money and are now involved in recovery and consolidation of their portfolios. Many of the grass-roots institutions that are member-based and managed have been paralyzed and there are indications that some will not be able to re-open soon.

Within the context of the dairy industry, there is a great need for credit for smallholder dairy development in order to accelerate agricultural development. The demand for rural credit has outstripped the supply over time. The current annual demand is estimated at KSh 75 billion while the supply stands at KSh 18–22 billion (Omiti 2002). (Kimuyu and Omiti 2000) analyzed the agricultural credit situation and reported an overall decline in total advances given to the agricultural sector since 1980s.

Low milk prices and poor roads infrastructure have been ranked as the first and second most important problems being faced by the dairy farmers in the marketing of milk in Uasin Gishu district. Just as anywhere else in the developing countries, (Bandara 2002) observed that in Sri Lanka the pricing system that was prevailing was biased towards satisfying millions of consumers rather than consumers.

Infrastructure greatly facilitates marketing of high-value and perishable agricultural products such as milk. Improvements in infrastructure have immediate implications on marketing costs and farm incomes. Milk losses through spoilage was the least problem (3%) enumerated by the farmers. After the Violence the quantity of milk production went down forcing demand to be higher than supply. This means that almost all the milk taken to the market was sold.

6.3 Impact on the district

At the time of the post election violence, the industry was at the low season when producer prices are high to compensate for the higher production costs. Post election violence therefore aggravated the situation in the dairy industry in different ways. Figure 13 above shows the monthly milk intake by the major processors and licensed milk traders from January 2006 to June 2008. Changes in rainfall influence the availability of forages for dairy cattle. The season of peak milk production, or 'flush' season, is typically associated with the rainy season of April–June. During this period, increased supply tends to drive down prices received by farmers. This is especially in the Rift Valley with its predominant open grazing system. Dairy cows are therefore under-nourished during the dry season when the quantity and quality of available feed resources is limited. The low season runs from late November to mid March

To estimate the amount of milk wasted due to violence, the seasonal effect was disaggregated. Using delivery data from Kenya Dairy Board, between January 2001 and December 2007, on average, the seasonal variation in milk delivery between flush season and dry season was about 35%. For comparison purposes, data for 2007 and 2008 were compared. Between January 2008 and March 2008, the milk deliveries to both formal and informal markets dropped by an average of approximately 2.4 million liters if we compare with year 2007 same period.

If we assume that 35% of the decrease was due to season, then the amount of milk lost due to post election effect is about 1.6 million liters per month from January to March.

This suggests that farmers lost 1.6m liters of milk valued at Kshs 36.8m (€368000) that could have been delivered to the markets due to the post election violence in the month of January alone.

According to Human Rights Watch (2008) cattle losses through rustling in other districts was highest in Kericho district, followed by Nakuru then Lugari with 39,757, 35,033 and 2,343 respectively. According to the report the cattle rustling had a clear pattern which was targeting members from a certain ethnic group.

(Omiti 2002) reported that the smallholder farmers have gradually increased their participation in market oriented milk production through upgrading their local dairy breeds. (MOA 2007) in their annual report observed an increased milk production over years despite periodic fluctuations over time associated with weather. This implies that the total amount of milk produced should be higher than the previous years' production.

6.4 Impact on milk collecting centers

Post election violence in Eldoret affected milk deliveries as farmers and transporters feared for their security. The impact was particularly acute to the large milk processors namely Brookside Dairies, New Kenya Cooperative Creameries (KCC) and Spin Knit Dairy who have an extensive milk collection network in the Rift Valley. In all the processors the reduction in quantities delivered after the violence was significant.

(Mburu 2008) reported that throughout the country, New KCC was collecting 280,000 liters per day down from an average of 360,000 liters per day in December 2007. Based on an average price of Kshs 21 per liter, we estimate that New KCC could not collect milk worth Kshs 50.4m in January 2008.

The initial assessments carried out by Mburu (2008) show that Kericho and Kipkelion Districts experienced extensive arson, which stripped off dairy enterprises. For example Kabianga Dairy in Kericho was burnt down by arsonists. At the same time milk deliveries dropped from 2,000 liters per day to 800 liters. In Londiani, arsonists burnt down three milk collecting centers with coolers Mburu (2008)

As reported in the local newspaper, in Bungoma district, Kanduyi Dairy Farmers Association with a membership of 1200 lost all its property through arson. The association had secured loan from Agricultural Finance Cooperation of Kshs 1.5m (€ 15000) with which they bought 50 dairy cattle and distributed to the members in September 2007. The members were to pay back the loan by marketing the milk through the association's milk bar. In addition, 15 members who had acquired the dairy cows on loan, lost their animals during the violence from untreated cases of Ketosis and East Coast Fever. As a result, members are not able to repay the loan and in turn the association is unable to pay the AFC loan (Watoro and Njoki 2008)

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

Post Election Violence has had mixed effects on the performance of the milk marketing systems in Uasin Gishu district. Impacts on inputs (especially for feeds), breeding services (especially AI), and access to credit and milk prices has been diverse depending on the division.

Commercial feeds supplementation was significantly affected in Kapsaret division after the violence whereas in Turbo the amount of milk that was wasted due to lack of collection surpassed that of Kapsaret.

Access to credit especially where farmers depended on the processor or their own managed cooperatives, was affected more. Most farmers had less milk which could be used as security for the credit by the processor while own managed cooperatives had damaged portfolios.

The PEV had the intended effect of increasing the producer's price but through the unintended mechanism of reduced milk production.

Low milk prices and poor roads have been sited as some of the key impediments the farmers are facing in the marketing of their milk. The self help groups that are already in place need to work together and find ways of intergrading themselves in the chain.

As seen in the results of this paper all the leading processor and collection centers were negatively impacted by the violence. The impact of the violence was more on the companies that were more affiliated to the government.

7.2 Recommendations

Whereas this survey was carried out six months after the signing of the peace deal, it was observed that many people were still in the IDP camps. This indicates that the reconciliation was only at the top and did not trickle down to the grass roots. Issues that led to atrocities that were committed during the PEV had not been resolved and this led to insecurity. Therefore, early recovery of the dairy sector should be localized and targeted at: Internally Displaced Farming Families (IDFFs) and indirectly affected farmers; agricultural traders and government staff. However, these interventions must be security-sensitive because dairy cows represent a major investment.

The objective of the dairy recovery program is to support the re-emergence of dairy production to ensure minimum levels of income and food security to the communities in the areas affected by post election violence and the continued viability of the Kenya dairy industry at large.

Farmer Organizations

Dairy cooperatives and farmers organizations organize milk collection and facilitate milk marketing. Some cooperatives offer other services, like artificial insemination services and animal feeds on credit. But some areas lack these institutional organizations, either because they have never been created or because they collapsed following the post election violence and past poor management and financial problems. Availability of reliable marketing channels is thus expected to foster the adoption of the dairy cattle

technology. Following post election violence, farmer organizations in the most affected areas are no longer operational. An intervention to support initiatives to rebuild farmers' organizations to enable them to offer the services to their members and to become part of the healing and reconciliation process is needed. The process will involve both social and political interventions in order to rebuild trust among the communities that was compromised during the PEV.

Another obstacle affecting dairy co-operatives relate to the illiteracy of most farmers, the low level of educational or professional qualifications, and the lack of group dynamic skills among managers (MOA 2007). These and other related problems of governance demonstrate the need to improve the management of co-operatives in the collective interest of sectoral development. Policy should set minimum requirements for educational or professional qualifications for co-operative leaders in order to institutionalize good governance, corporate accounting and transparent leadership.

Training Inseminators and Community Animal Health Workers

This study found that many inseminators were displaced during the post election violence and farmers in the areas that were most affected are using bull service. To protect the future of the Kenyan dairy industry, it is necessary to train ordinary community members with genuine interest to provide AI services. To increase the number of inseminators and therefore availability of AI services, there is need to have accredited inseminators who submit service records to the DVS office and ear-tagging animals inseminated through coordinated animal recording traceability process. Finally, MoLD can convene a forum for the stakeholders in the provision of AI services in order to improve coordination between them and harmonize their strategies in the provision and availability of the service

Inputs Support Interventions

The study found that many of agro-vet businesses in the areas that were most affected by post election violence were no longer operational. It is essential to rebuild the distribution network of dairy inputs by establishing agro-vets in areas where they have closed as a result of post election violence. One way to do this is to create awareness of existing business opportunities in those areas and training those interested in getting into the business. Other interventions to complement the training are to link those businesses with financial institutions where they can access investment and working capital. Finally, there will be need to support such businesses for growth by creating linkages with other likeminded institutions.

Financial Service Interventions

From an analysis of the different types of interventions required to kick-start and sustain recovery of the dairy industry in areas most affected by the post-election, violence, it is clear that finance must constitute an essential cross-cutting component. At the production stage, the magnitude of resources required to rebuild stocks and strengthen the capacity of farmers to maintain quality herds is beyond the scope of hand-outs that may be necessary in some areas for basic kick-starting purposes. Sustained growth and vibrancy to the pre-election levels and higher can however, only be achieved if farmers have access to financial services through which they can borrow for re-stocking and meeting other requirements to increase productivity. Financial services will also be required for rebuilding an effective inputs supply network as well as milk distribution and marketing system.

This can be done by building the lending portfolios of existing institutions so as to access loans and other financial services to dairy farmers and other value chain players; b) Capacity development of financial institutions lending to the dairy industry and other enterprises in post-election violence areas to develop suitable products for dairy industry players operating in the still unstable conditions; c) Support for rebuilding farmer-level financial institutions destroyed during the post-election violence; and d) use of existing financial service outlets of existing financial institutions to enable an efficient and transparent payment system for any government or donor 'targeted' subsidies to support the most affected players in the dairy industry to kick-start their operations.

To help the smallholder farmers, the local government should build a fund (such as Micro Enterprises Support Programme Trust) for lending to financial institutions operating in the post-election violence areas, who already have some basic capacity to address financial needs of smallholder farmers and other value chain players.

Investment In Infrastructure

The poor state of rural infrastructure (e.g. roads, water and communications) still plagues the dairy industry. Infrastructure greatly facilitates marketing of high-value and perishable agricultural products such as milk. Improvements in infrastructure have immediate implications on marketing costs and farm incomes; farmers spend less time travelling to and from markets, human drudgery in marketing farm produce is reduced, and leisure and labor productivity is improved. Better infrastructure has implications for profitability of time-sensitive enterprises such as dairying. For vehicle operators, improvements in infrastructure lead to lower vehicle operating costs, and thus higher incomes in the transportation and distribution sectors. Reduced transportation costs for farmers also lead to direct income gains because of lower transport expenses and reduced transportation losses, and may result in general improvement in rural incomes and livelihoods. Greater policy support is required to strengthen inter-sectoral linkages with the ministries in charge of infrastructure in order to ensure rehabilitation and maintenance of rural access roads (especially feeder roads) and thereby assist in the timely and efficient delivery of inputs and marketing of farm produce.

A suggestion to manage future political risk by the Kenyan dairy processors would be to sell shares to cooperatives owned by the farmers in the areas that were affected by the post election violence. This is informed by the realization that companies such as New KCC suffered the least largely because it was considered to be a public company while private firms such as Brookside Dairies were heavily affected. Such an approach would give the local communities a stake in the future of the industry and the productive assets as well.

Regulatory and Policy Institutions

The lack of capacity to enforce regulations and implement development agenda by regulatory institutions as envisaged in their mandates will be a major constraint in the recovery of the dairy industry as exemplified by current concern over the variable and often poor quality of livestock feeds. Liberalization of the feed market has allowed many processors to enter the market, supplying the concentrate cattle feeds which in the intensive dairy production systems account for 40% of the production costs Mburu (2008). However, the Kenya Bureau of Standards and the DVS lack the resources and capacity to adequately monitor feed quality, creating loopholes for some feed manufacturers to reduce quality standards, especially when certain feed ingredients (such as oilseed cakes) are scarce. Policy support is required to facilitate the entry and active participation of private investors to offer breeding services in the broad context of

sectoral development. It is necessary to have regulatory mechanisms to maintain the quality of semen, and organize and monitor various breeding organizations so that they are managed efficiently and sustainably.

Effective regulatory services are a public good and there is need to support MoLD to strengthen the capacity of regulatory institutions especially KEBS, KDB and DVS through training and providing low cost testing kits to enforce regulations in the sector. There are also private service providers offering quality and real time testing services and public private partnerships with such organizations would increase efficiency of enforcing standards. In addition, support in MoLD could include decentralizing quality control/regulation to lower levels, including outside government, so that testing and complaints about poor quality can be addressed more effectively. Ultimately, this could contribute to creating a more predictable business environment. Another important intervention to improve the efficiency of regulating the dairy industry is to build a reliable database on service providers, cattle numbers, cattle identification and records. The challenges posed by the post election violence have underscored the need to urgently carry out a national livestock census as a basis to sharpen the policy instruments in the livestock sector.

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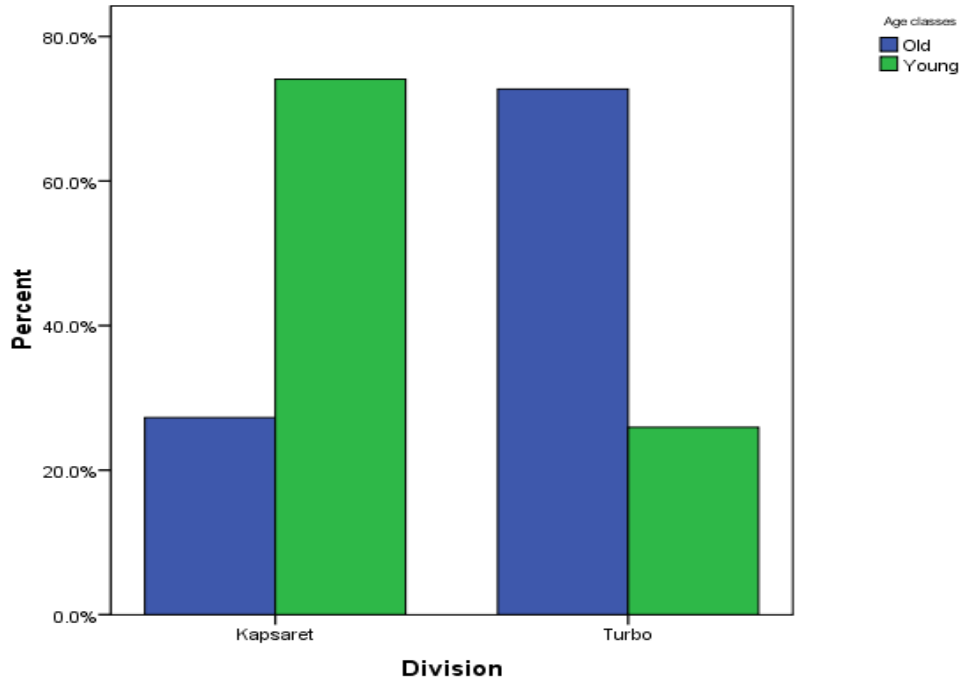
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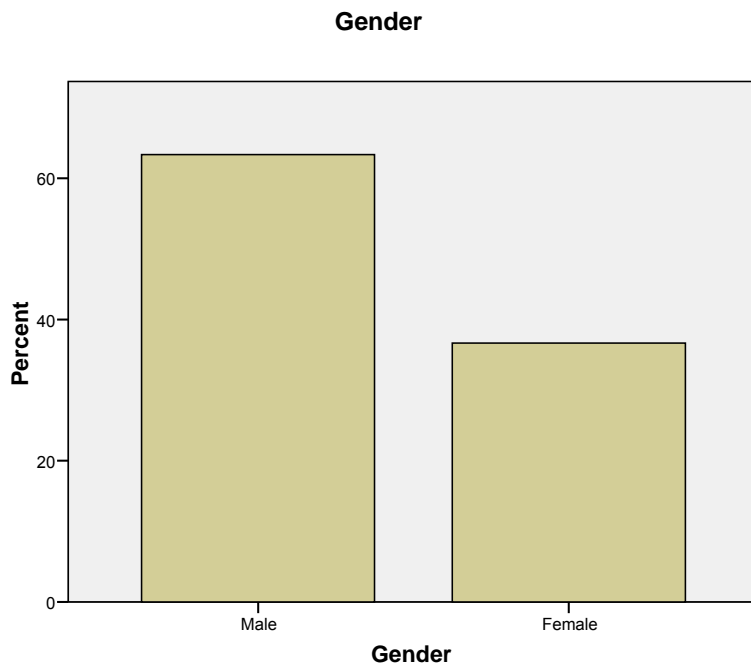
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APPENDIX

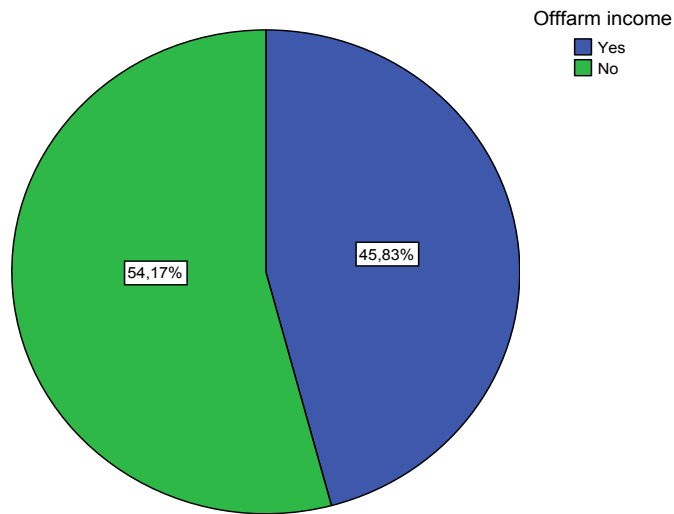
SPSS Output



Proportion of young versus old farmers per division



Proportion of Male and Female farmer



Proportion of farmers with off farm income

Milk marketing channel * Period Crosstabulation^a

Count		Period		
		After PEV	Before PEV	Total
Milk marketing channel	Formal	7	10	17
	Informal	22	19	41
	Total	29	29	58

a. Division = Kapsaret

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.749 ^a	1	.387		
Continuity Correction ^b	.333	1	.564		
Likelihood Ratio	.752	1	.386		
Fisher's Exact Test				.565	.282
N of Valid Cases	58				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.50.

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.749 ^a	1	.387		
Continuity Correction ^b	.333	1	.564		
Likelihood Ratio	.752	1	.386		
Fisher's Exact Test				.565	.282
N of Valid Cases	58				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.50.

b. Computed only for a 2x2 table

c. Division = Kapsaret

Milk marketing channel * Period Crosstabulation^a

Count		Period		
		After PEV	Before PEV	Total
		Milk marketing channel	Formal	20
	Informal	10	5	15
	Total	30	31	61

a. Division = Turbo

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.434 ^a	1	.119		
Continuity Correction ^b	1.594	1	.207		
Likelihood Ratio	2.467	1	.116		
Fisher's Exact Test				.146	.103
N of Valid Cases	61				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.38.

b. Computed only for a 2x2 table

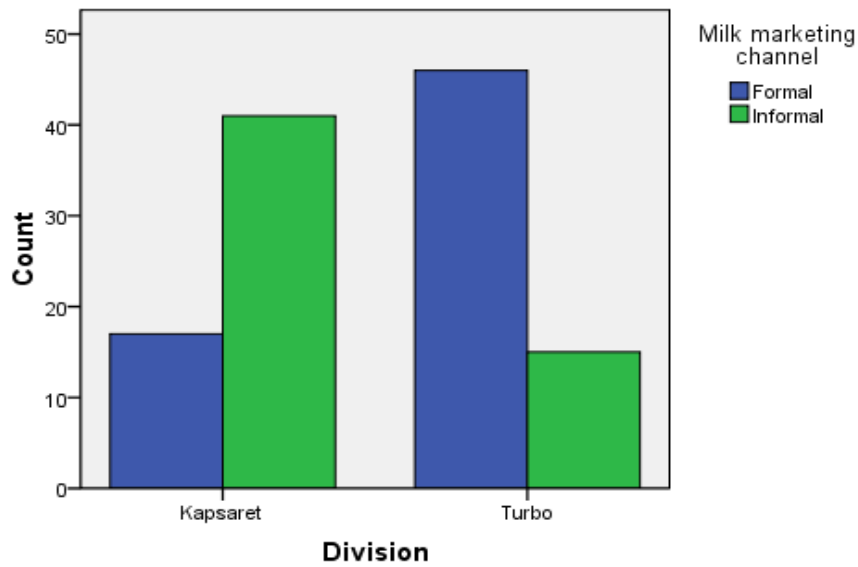
Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.434 ^a	1	.119		
Continuity Correction ^b	1.594	1	.207		
Likelihood Ratio	2.467	1	.116		
Fisher's Exact Test				.146	.103
N of Valid Cases	61				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.38.

c. Division = Turbo

Bar Chart



Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	price_1.1: Milk price (KShs)	17.73	60	2.074	.268
	price_1.2: Milk price (KShs)	20.27	60	2.875	.371

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	price_1.1: Milk price (KShs) & price_1.2: Milk price (KShs)	60	.683	.000

Period * Means of Breeding Crosstabulation^a

Count		Means of Breeding		
		A.I	Natural service	Total
Period	After PEV	12	16	28
	Before PEV	17	12	29
	Total	29	28	57

a. Division = Kapsaret

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.749 ^a	1	.387		
Continuity Correction ^b	.333	1	.564		
Likelihood Ratio	.752	1	.386		
Fisher's Exact Test				.565	.282
N of Valid Cases	58				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.50.

b. Computed only for a 2x2 table

c. Division = Kapsaret

Period * Means of Breeding Crosstabulation^a

Count				
		Means of Breeding		
		A.I	Natural service	Total
Period	After PEV	7	24	31
	Before PEV	10	21	31
	Total	17	45	62

a. Division = Turbo

Chi-Square Tests^c

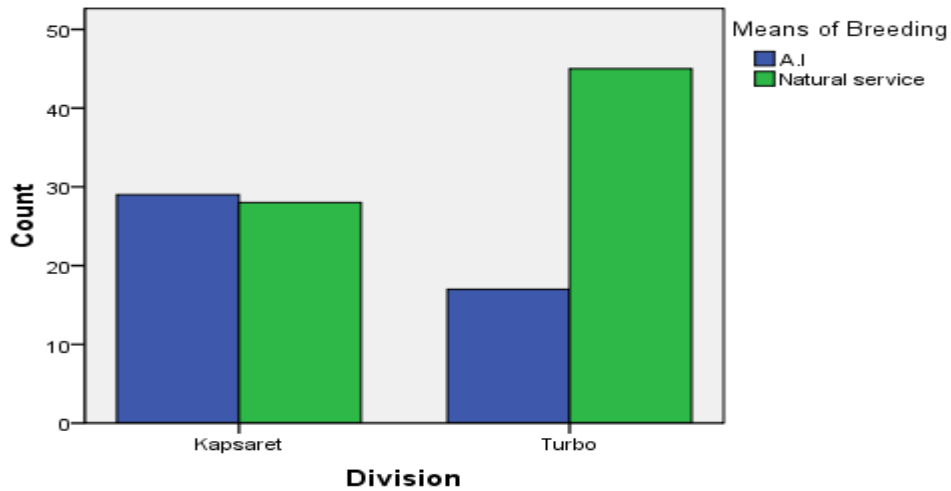
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.434 ^a	1	.119		
Continuity Correction ^b	1.594	1	.207		
Likelihood Ratio	2.467	1	.116		
Fisher's Exact Test				.146	.103
N of Valid Cases	61				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.38.

b. Computed only for a 2x2 table

c. Division = Turbo

Bar Chart



Period * Commercial feeds supplementation

Crosstabulation^a

Count		Commercial feeds supplementation		
		Yes	No	Total
		Period	After PEV	15
	Before PEV	26	3	29
	Total	41	16	57

a. Division = Kapsaret

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.187 ^a	1	.002		
Continuity Correction ^b	7.486	1	.006		
Likelihood Ratio	9.708	1	.002		
Fisher's Exact Test				.003	.003
N of Valid Cases	57				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.86.

b. Computed only for a 2x2 table

Chi-Square Tests^c

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.187 ^a	1	.002		
Continuity Correction ^b	7.486	1	.006		
Likelihood Ratio	9.708	1	.002		
Fisher's Exact Test				.003	.003
N of Valid Cases	57				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.86.

c. Division = Kapsaret

Period * Commercial feeds supplementation

Crosstabulation^a

Count				
		Commercial feeds supplementation		
		Yes	No	Total
Period	After PEV	12	18	30
	Before PEV	15	16	31
	Total	27	34	61

a. Division = Turbo

Chi-Square Tests^c

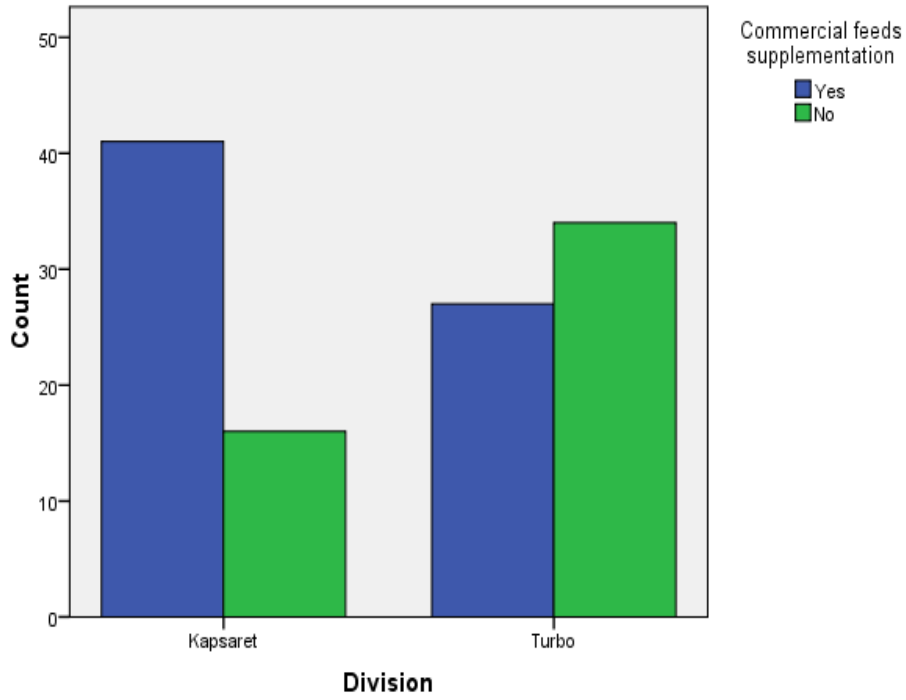
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.435 ^a	1	.510		
Continuity Correction ^b	.161	1	.688		
Likelihood Ratio	.435	1	.509		
Fisher's Exact Test				.609	.344
N of Valid Cases	61				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.28.

b. Computed only for a 2x2 table

c. Division = Turbo

Bar Chart



Source of Credit * Period Crosstabulation^a

Count		Period		
		After PEV	Before PEV	Total
Source of Credit	Bank	10	10	20
	Processor	4	8	12
	Money lenders	6	6	12
	Friends	8	5	13
	Total	28	29	57

a. Division = Kapsaret

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.009 ^a	3	.571
Likelihood Ratio	2.040	3	.564
N of Valid Cases	57		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.89.

b. Division = Kapsaret

Source of Credit * Period Crosstabulation^a

Count		Period		
		After PEV	Before PEV	Total
Source of Credit	Bank	5	5	10
	Processor	9	11	20
	Money lenders	0	1	1
	Friends	12	10	22
	Micro Finance	5	4	9
	Total	31	31	62

a. Division = Turbo

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.493 ^a	4	.828
Likelihood Ratio	1.880	4	.758
N of Valid Cases	62		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .50.

b. Division = Turbo

Division * Source of Credit Crosstabulation

Count

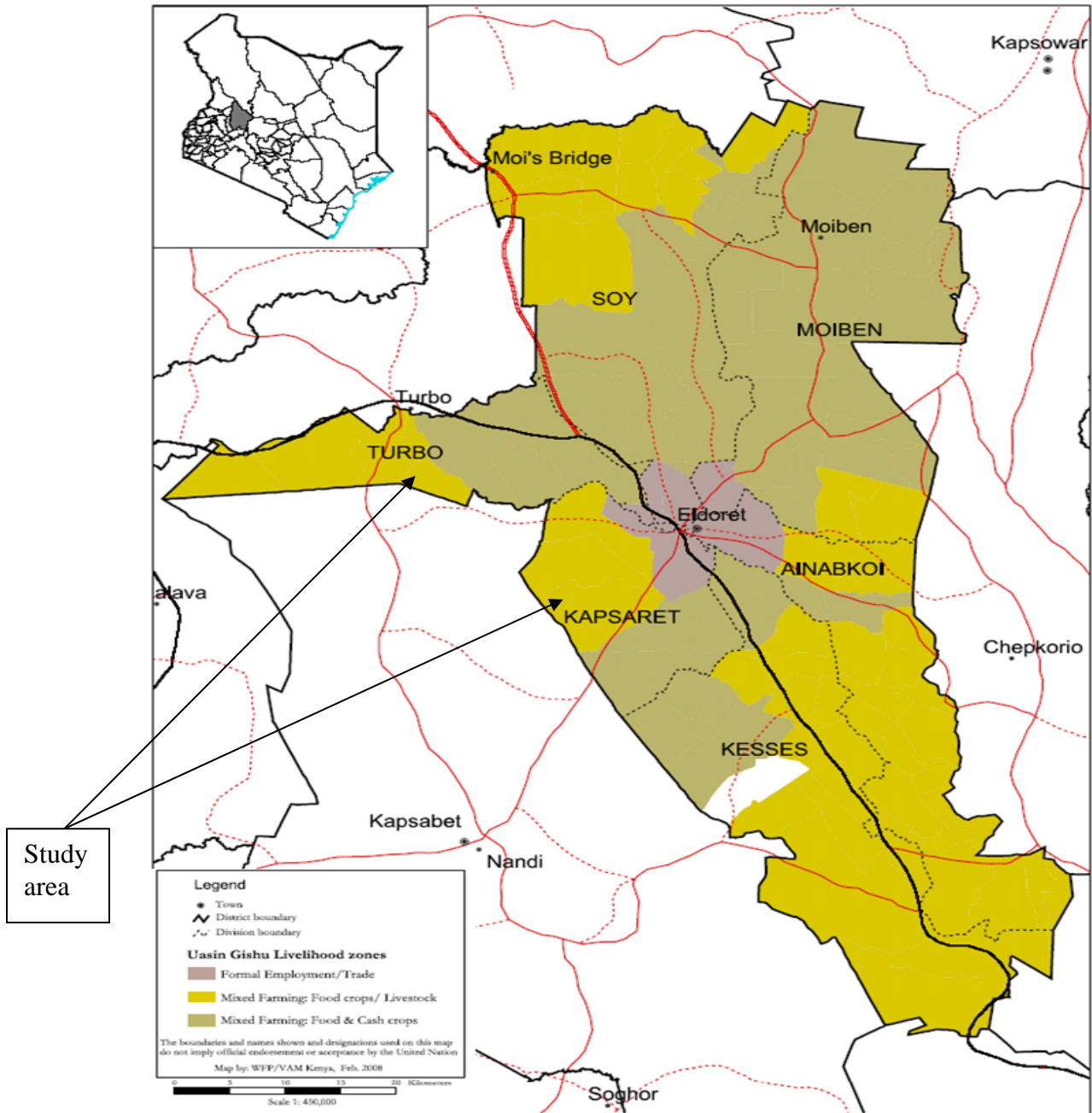
		Source of Credit					Total
		Bank	Processor	Money lenders	Friends	Micro Finance	
Division	Kapsaret	20	12	12	13	0	57
	Turbo	10	20	1	22	9	62
Total		30	32	13	35	9	119

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.791(a)	4	.000
Likelihood Ratio	30.997	4	.000
Linear-by-Linear Association	7.804	1	.005
N of Valid Cases	119		

a 2 cells (20.0%) have expected count less than 5. The minimum expected count is 4.31.

Map of Uasin Gishu District



Map of Uasin Gishu District showing the study area

Questionnaire and checklist

Questionnaire

Survey of effects of post election violence on milk marketing systems in Uasin Gishu District, Kenya

Farmers Questionnaire

Name of respondentDivision.....

Location.....Sub location.....

1) Age

2) Household Head works off farm.

(1) Yes (2) No

3) Household head educational level.

(1) Primary (2) Secondary (3) Post secondary (4) Vocational

4) Through what channel did you sell your milk before the violence?

(1) Formal (2) Informal

5) Through what channel do you sell your milk after the violence?

(1) Formal (2) Informal

6) What price was offered for 1kg of milk before and after violence?

(1) Formal before.....after

(2) Informal before.....after.....

7) How did you access credit before the violence?

(1) Bank (2) cooperatives (3) fellow traders (4) money lenders (5) relatives

8) How do you access the credit after the violence?

1) Bank (2) cooperatives (3) fellow traders (4) money lenders (5) relatives

9) How was breeding done on your farm before and after the PEV?

Before (1) Natural service (2) AI

After (1) Natural service (2) AI

10) Did you supplement the feeding of your cows before and after the PEV?

Before (1) yes (2) No

After (1) yes (2) No

11) What is the distance between your farm gate and the nearest market centre.....?

12) What problems do you face in the marketing of your milk?(Rank in order of priority)

- Low milk prices
- Milk losses through spoilage
- Delayed payments
- Poor road infrastructure
- Others (specify)

13) What is the most important effect of PEV on the marketing of your milk?(Rank in order of priority)

- Theft of livestock
- Less access to inputs and services
- Poor repayment of debt (in case of informal)
- Loss of previous customers
- Others (specify)

14) In your opinion, what needs to be done, by who, to strengthen the milk marketing system?

CHECKLIST

Milk collecting Centre

Name of collecting centre.....

Location

1) Distance from the trading centre.....km.

2) What is the registered number of milk suppliers

3) What is the active number of milk suppliers

4) What is the quantity of milk received per day **before**..... and **after**..... PEV

5) How many employees did you have **before** the violence..... and how do have after the violence you have **after** the violence.....?

6) At what price did you pay for 1kg of milk before..... and after..... the violence?

7) How has the PEV affected the profit margin.

Before.....

After

8) To whom did you sell your milk before the violence?

- (1) Processing plant (2) milk trader (3) consumers (4) process the product

- b) To whom did you sell your milk after the violence?
(1) Processing plant (2) milk trader (3) consumers (4) process the product
- 9) What kind of services did you offer to your customers before the violence?
- 10) How has PEV impacted on the services offered to the farmers?
- 11) In your opinion what needs to be done, by whom, to strengthen the milk marketing?

CHECKLIST

Kenya Dairy Board

- 1) What is the organizations role in the marketing of the milk?
- 2) What is the Quantity of milk marketed through the formal and informal chain?
- 3) What was the magnitude of milk losses due PEV?
- 4) What is the current situation of milk in the district?
- 5) What are the constraints experienced in the marketing of milk?
- 6) How can the organization best seize the opportunities in the marketing of the milk?
- 7) What are the strengths of dairy farming in the district?
- 8) In your opinion what needs to be done, by whom, to strengthen the milk marketing?