



**AGRICULTURE SECTOR DEVELOPMENT SUPPORT  
PROGRAMME (ASDSP)**

**NAIROBI COUNTY COORDINATING UNIT**



**REPORT ON COW MILK VALUE CHAIN PROJECT**

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## **Abbreviations**

<b>ASDSP</b>	Agriculture Sector Development Support Programme
<b>CCU</b>	County Coordinating Unit
<b>CG</b>	County Government
<b>CSC</b>	County Steering Committee
<b>D-VCP</b>	Dairy Value Chain Platform
<b>GDP</b>	Gross Domestic Product
<b>JKUAT</b>	Jomo Kenyatta University of Agriculture and Technology
<b>PMT</b>	Project Management Team
<b>SAT</b>	Social Audit Team
<b>SUB-SCS</b>	Sub County Steering Committee
<b>SDP</b>	Sector Development Program
<b>VC</b>	Value Chain

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# **CHAPTER ONE**

## **Dairy Industry in Kenya**



## **1.0 Overview of Dairy Industry in Kenya**

Kenya's economy is heavily dependent on agriculture. Generally 75% of Kenyans earn their living from farming either directly or indirectly. Agriculture contributes about 27% of GDP. The Kenya dairy sector plays a critical role in the livelihood of many Kenyans and contributes 4.5% of total country's GDP, making Kenya one of the largest producers of milk in Africa. The trends in estimates of milk production in Kenya currently indicate that small scale farmers are producing over 90% of the national milk while large scale dairy farmers accounts for less than 10 per cent of national milk production (Wambugu, et al, 2011; KDB, 2009; Government of Kenya 2006; Omiti et al, 2006; Muriuki, 2003). The informal milk market controls an estimated 80 percent of the total milk marketed in Kenya. The industry generates an estimated 1 million jobs at farm level and an additional 500,000 in direct waged employment and another 750,000 jobs in support services (USAID, 2013). The sector is vital in poverty alleviation in both the rural and urban areas as it contributes to food and nutritional security and increased household incomes and creates forward and backward linkages with the rest of the economy.

The dairy industry in Kenya is faced with various challenges such as the high cost of milk production, low quality of raw milk delivered at the factory gate, fragmentation of supply chains and seasonality of milk supply as well as expensive farm inputs, poor animal husbandry, cattle diseases as well as poor management of dairy marketing systems. Much of this is related to low skills of farmers in dairy husbandry and fodder management and preservation. However the smallholder system has inherent challenges due to inability to create economies of scale and high cost of collection per unit of milk and investments in the cold chain.

Despite these challenges, the industry has potential for spurring substantial growth in the economy, and there are various investment opportunities available including clinical services, artificial insemination services, disease control services, rearing of livestock for dairy products and milk processing for local and regional markets. These and other opportunities offer attractive incentives available to investors.

### **1.1 History of dairy industry in Kenya**

Kenya has one of the largest and oldest dairy industries in sub-Saharan Africa spanning over a period of 90 years. The industry was founded during the colonial era when commercialization of dairy production was initiated through a number of interventions such as importation of exotic dairy herd, upgrading of the local cattle herd and establishment of policy, regulatory and institutional framework among others. Key institutions such as the Veterinary Research Laboratory in Kabete and Animal Husbandry Research Station in Naivasha were established in 1903, Kenya Cooperative Creameries in 1925, Central Artificial Station in 1946 and Kenya Dairy Board in 1958 (Omoro et al, 1999) were developed to support the industry.

Over time, the industry has undergone various stages of evolution, starting with the first 60 years which were dominated by the large-scale farmers, while in the last 30 years smallholder farmers have increasingly dominated the sector, contributing over 80% of the total milk production. The country is largely self sufficient in milk production with a total production estimated to be about

5 billion litres annually. Though this is sufficient for domestic consumption, a lot more is required for the export market. Of the total milk produced, about 60% is marketed through traders, cooperatives, hotels and kiosks. An estimated 84% of the milk produced is sold in raw form to consumers ranging from rural to urban dwellers, according to the Regional Dairy Centre of Excellence (RDCoE) report.

The dairy industry is the most developed of the livestock subsectors and is comparatively well developed relative to the dairy industries of other countries in sub-Saharan Africa. This industry is dominated by small-scale farmers whose herds are mainly composed of purebred Friesian–Holstein, Ayrshire, Guernsey, Jersey and their crosses. The crosses constitute over 50% of the total herd while the Friesian–Holstein and Ayrshire dominate the pure breeds. The smallholder farmers own over 80% of the 3 million dairy cattle, producing 56% of the total milk production and contributing 80% of the marketed milk.

## **1.2 Milk production & processing**

The country has about 3.3 million livestock of milk producing potential and 70% of total milk production comes from exotic high grade and indigenous cattle. Milk production is in excess of 5 billion litres per year and the country is self reliant in milk and milk products except in years of drought.

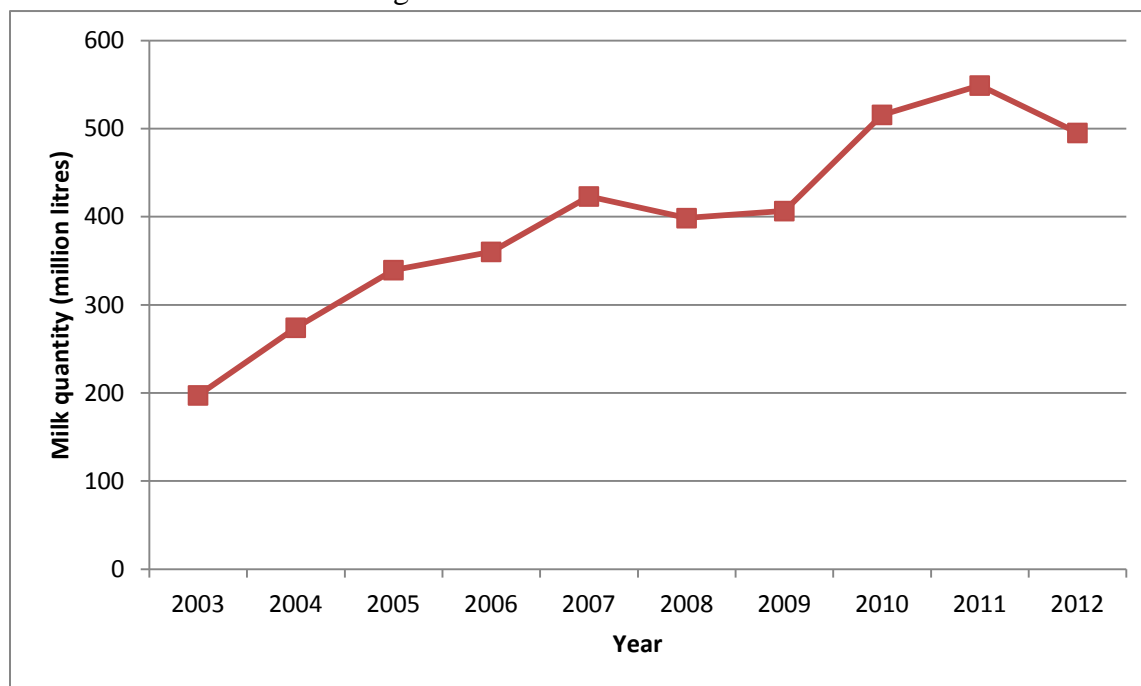
There are three main types of dairy production systems namely, zero-grazing (intensive), semi-grazing (semi-intensive) and open range (extensive). Zero grazing involves confining animals to a limited physical space where they are fed, watered and milked. Open range involves free grazing by the cattle, often with no supplemental feeds. Semi-grazing falls somewhere in the middle and involves the combination of the two approaches. While zero-grazing requires higher investment in fixed infrastructure and closer management of cattle, it normally produces higher yields per cow. Semi-grazing and open ranges are less labor and investment intensive, but normally produce lower yields. In the case of zero grazing in Kenya, the yields can be as low as 1-2 liters per day per cow, much lower than the 15-30 liters observed on farms practicing the other two systems in Kenya

## **1.3 Importance of the sector**

Kenya's 1 million stockholders keep the largest dairy herd in Africa (larger than South Africa). The industry contributes about USD 2 billion to the country's GDP (USAID,2013). Kenya has an estimated herd of 3.5 million improved dairy animals, 9 million zebus, 12 million goats, and 900,000 camels. Cattle account for 88% of the milk produced whereas camels and goats account for the rest. The country is unique in Africa, producing enough milk for local consumption and exporting some products to a number of countries.

The dairy sub-sector plays a critical role in the livelihood of many Kenyans and it is a significant contributor to the country's GDP. The dairy industry is the single largest agricultural sub-sector in Kenya, larger even than tea (Muriuki et al., 2004). The Government of Kenya (2008) reported that the dairy industry was contributing 14% of the agricultural GDP and 3.5% of total GDP. However, it is claimed by Kenya Dairy Board that the current annual contribution of the industry to the national GDP is estimated at 4.5% (KDB, 2014).

The volume of milk sold through the formal channels has increased by more than 150% in the decade to 2013 as shown in Figure 1.



**Figure 1: Kenya's volume of milk processed (2003-2012). Source: KDB**

#### 1.4 Consumption of milk and milk products

Dairy products contribute towards a healthy nation since they are rich in proteins, fat, mineral salt and vitamins which are essential for human health. The dairy sector has also aided the development of industries dealing in the manufacture of inputs such as animal feeds, milking cans and pesticides. Some of the products from the dairy industry e. g. cheese, butter and powdered milk have been exported to other countries and this has earned the country foreign exchange.

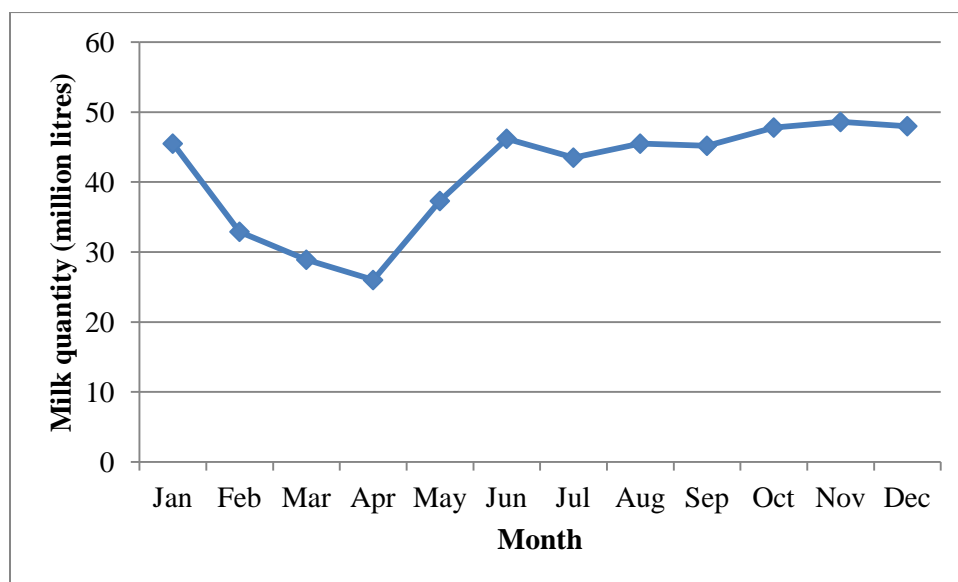
The Kenya Dairy Master Plan (KDMP) report, (1991), estimated the annual per capita consumption of marketed milk at 125 kg in urban and 19 kg in rural areas. The KDMP report indicates that districts with high per capita milk production also have high per capita home milk consumption. The estimated monthly per capita dairy consumption in Nairobi was found to be 4.8 litres, which translated to annual consumption per capita of 57.6kg, which is low compared to the average world milk consumption of 108kg per person per year (<http://chartsbin.com/view/1491>). Milk consumption levels in Kenya are among the highest in the developing world (SDP, 2004), with an average of 100 kg/year per capita. There are conflicting projections of the likely future of milk supply and demand in Kenya. Some predict a possible surplus that allows for exports, while others predict a deficit.

Kenya exports substantial quantities of milk and milk products to the region and intra-regional trade in dairy products in the East African Community has continued to gain momentum and benefits the Kenyan dairy industry. The main products exported are long life milk and powder milk. Dairy imports have gone down over time as Kenya becomes increasingly more self-sufficient in milk and milk products. However, specialized milk products are imported from New Zealand and the European Union.

## 1.5 Constraint in the Smallholder Dairy Sector

Despite the significant contribution of the dairy sector to the economy of Kenya, the industry is still besieged by a number of technical, economic, and institutional problems which lead to lowered incomes for small-scale farmers and poor livelihoods. Some of the challenges limiting the exploitation of the smallholder dairy sector potential include the following;

1. **Seasonal fluctuation of production** – The yield per cow fluctuates greatly during the year. This has a great effect on the processors’ ability to absorb all the milk availed to them at any time during the year, with a period of milk glut. The Feb/March to May/June months are usually periods of low production (Fig. 2). During periods of excess supply, milk wastage is commonly reported, with farmers experiencing significant loss of incomes.



**Figure 2: Monthly deliveries of milk to dairies in 2012. Source: KDB**

2. **Low milk productivity at farm level**–the productivity per animal has remained low at about 1300 litres per annum compared to the world best practice of about 4000-6000 litres (Karanja A. M., 2003; GOK, 2007). This is due to many challenges such as poor breeds, low use of breeding improvement techniques, poor husbandry practices and disease outbreaks.
3. **High costs of production**–the very nature of the dairy industry in Kenya, of which 70% is by small-scale producers, and a highly fragmented processing side, makes the cost of production at the farm and at the dairy plants to be higher than that in more formal markets. The cost of production is affected by high prices for animal feeds, inputs and electricity and due to poor infrastructure, poor animal husbandry practices, and lack of credit to farmers and processors.
4. **Poor quality of milk**–the quality of milk delivered to the processors is a big challenge for the dairy industry. Poor milking practices, a fragmented small-scale dairy farming system and lack of cooling and storage facilities at the farm provide huge challenges to the farmers’ ability to meet the specifications of the buyers resulting in poor prices.

Additionally, the poor quality milk reduces the acceptability, shelf life of the processed milk and has affected the ability of the dairies to export to some export markets. This is compounded by the problem of adulteration of milk by unscrupulous farmers and traders who add various chemicals and water to increase quantities. The cost of testing and associate quality control infrastructure is a costly undertaking taken by dairies to ensure they can receive clean milk.

5. **Poor infrastructure**-Generally, milk producing areas tend to have poor infrastructure in terms electricity and roads especially during the rainy season. The infrastructure challenge extends to the lack of milk handling and storage facilities at the farm level, leading to milk spoilage and loss at the farm. On the processing side, despite recent investments by the major dairies and co-operatives, infrastructural challenges to convert excess milk into long life products remain. storage at the dairies
6. **Informal milk trade**-According to RDCoE, 60% of the milk is marketed through traders, cooperatives, hotels and kiosks. An estimated 84% of the milk produced is sold in raw form to consumers, providing instant cash or higher prices to the farmer. This compromises product quality while offering direct competition to the dairy processing industry. Despite the Government actively discouraging selling of 'hawked' milk, the sector continues to grow portending serious consequences to the processing sector.

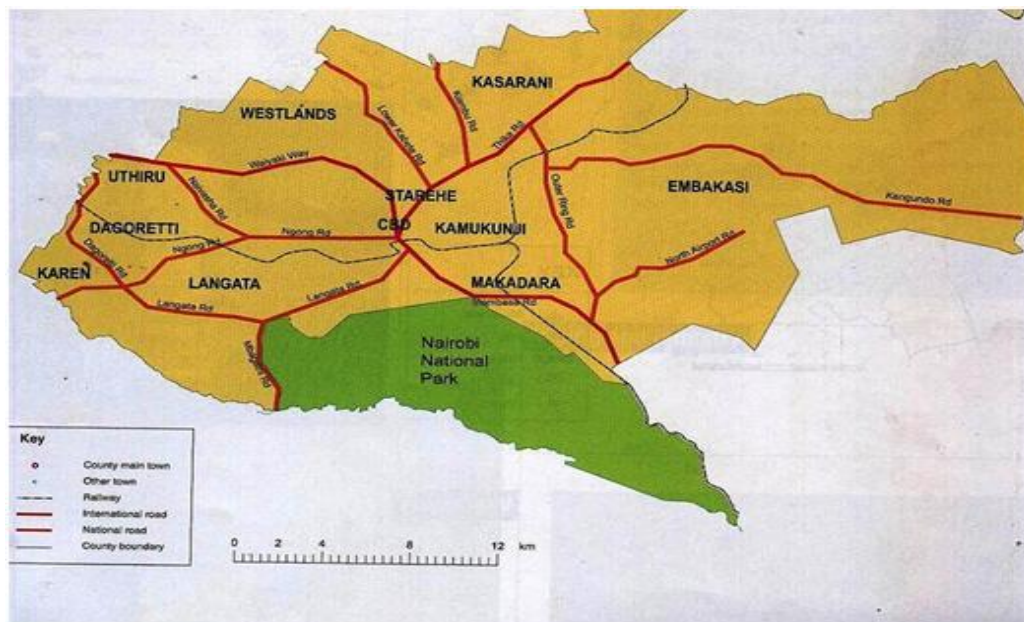
Despite these challenges the dairy industry in Kenya is the most sophisticated in sub-Saharan Africa, with a robust processing sector that continues to grow year by year, thereby providing fertile ground for investors, consumers and the growth of the economy.

## **1.6 Cow Milk Value Chain in Nairobi City County**

### **1.6.1 Geopolitical and location of Nairobi**

Nairobi County is one of Kenya's 47 counties and is the capital city of Kenya. It borders Kiambu County to the North and West, Kajiado to the South and Machakos to the East and lies at an altitude of 1,798 metres above sea level. The county has a total area of 696.1 Km<sup>2</sup> out of which 299.6 km<sup>2</sup> is arable. About 12,855 Ha of the county's 20,963Ha (299.6km<sup>2</sup>) arable land is cultivated.

Administratively, the county has nine sub-counties namely; Dagoretti, Kamukunji, Kasarani, Starehe, Westlands Embakasi, Makadara, Njiru, and Langata (Fig. 3). The county has 27 divisions, 64 locations and 135 sub-locations. The high potential areas receive an annual rainfall of 857.5mm; medium potential between 735mm & 857mm, while the low potential areas receive 612.5mm or less (Economic Survey, 2009). The county has favorable weather condition conducive for agriculture production.



**Figure 3: Administrative sub-counties of Nairobi**

Nairobi has a population of over 3,134,265 (National Census, 2009) people which is projected to rise to 4,247,770 by year 2017. This large population provides a good market for dairy products. This population has a high demand and consumption for the products and this has spurred production in the surrounding counties near Nairobi such as Kiambu, Murang'a and Machakos.

### **1.6.2 Challenges of dairy farming in Nairobi**

The county dairy's production has enormous challenges. Among them include limited acreage for pasture and fodder production, high cost of inputs, unreliable artificial insemination services and prohibition of animal rearing in Nairobi by the defunct city council by-laws. And just like in other countries, more than 90 percent of the urban dairy farmers in Nairobi live in the medium and low density areas and use their residential units as places where dairying is carried out (Shiferaw et al 2003, Mlozi 2005). The dairy farmers in these areas have little or no access to grazing land and they rely mainly on purchased feeds and communal grazing lands. This results into dairy cattle receiving sub optimal level of nutrition especially during the dry periods. Urban areas have limited space for dairying and due to small land holdings, zero grazing is common (Msangi et al 2005, Cole et al 2008).

### **1.6.3 Dairy cow population in Nairobi County**

According to the department of Livestock Production in the county of Nairobi, there are about 37,619 dairy cattle, producing a total of 39,486,340 litres of milk in the year 2013 (Annual report 2013), which was a decline of close to 2 million litres as compared to the previous year 2012 (Table 1).

**Table 1: Milk production in Nairobi County**

<b>Sub county</b>	<b>Dairy</b>	<b>Milk (kg)</b>
Dagoretti	3,965	4,868,870
Embakasi	1,850	2,044,630
Kamukuji	650	691,260
Kasarani	8,150	11,012,830
Langata	11,913	11,080,944
Makadara	570	977,616
Njiru	1,168	1,226,500
Starehe	623	812,740
Westlands	8,730	6,770,950
<b>Total, 2013</b>	<b>37,619</b>	<b>39,486,340</b>
<b>2012</b>	<b>35,322</b>	<b>41,479,967</b>
<b>2011</b>	<b>39,541</b>	<b>39,740,568</b>

*Source: Ministry of Agriculture Livestock and Fisheries*

#### **1.6.4 Milk production and revenues generated**

The level of milk production and reproduction of dairy cattle varies considerably within and between sub-counties and between production systems. The variations are mainly due to economic factors of the farmers, management factors and the type of breed reared (Table 2).

**Table 2: Milk production and revenues of dairy in Nairobi**

<b>Sub county</b>	<b>Amount from Zebus (Its)</b>	<b>Amount from Grade (Its)</b>	<b>Amount from Dairy Goats (Its)</b>	<b>Total milk produced (Its)</b>	<b>Revenue (Kshs.)</b>
Dagoretti	174,020	4,342,770	352,080	4,868,870	247,315,500
Embakasi	119,200	1,693,330	172,800	2,044,630	152,797,100
Kamukunji	0	673,440	17,820	691,260	25,988,600
Kasarani	1,090,500	9,445,240	385,840	11,012,830	588,746,500
Langata	434,400	10,240,314	62,370	11,080,944	339,912,720
Makadara	227,760	679,776	70,080	977,616	64,964,160
Njiru	85,960	1,068,720	71,820	1,226,500	68,507,000
Starehe	118,500	688,080	6,160	812,740	40,821.800
Westlands	15,400	6,739,890	15,660	6,770,950	307,746,450

<b>Total 2013</b>	<b>2,265,740</b>	<b>35,571,560</b>	<b>1,154,630</b>	39,486,340	<b>1,796,018,852</b>
Total 2012	4,496,826	54,046,610	1,557,135	41,353,761	2,251,105,090
Total 2011	3,404,156	37,654,286	560,515	41,827,832	1,879,980,490

*Source: Ministry of Agriculture Livestock and Fisheries*



# **CHAPTER TWO**

## **Cow Milk Value Chain**

## **2.0 Background information on cow milk value chain**

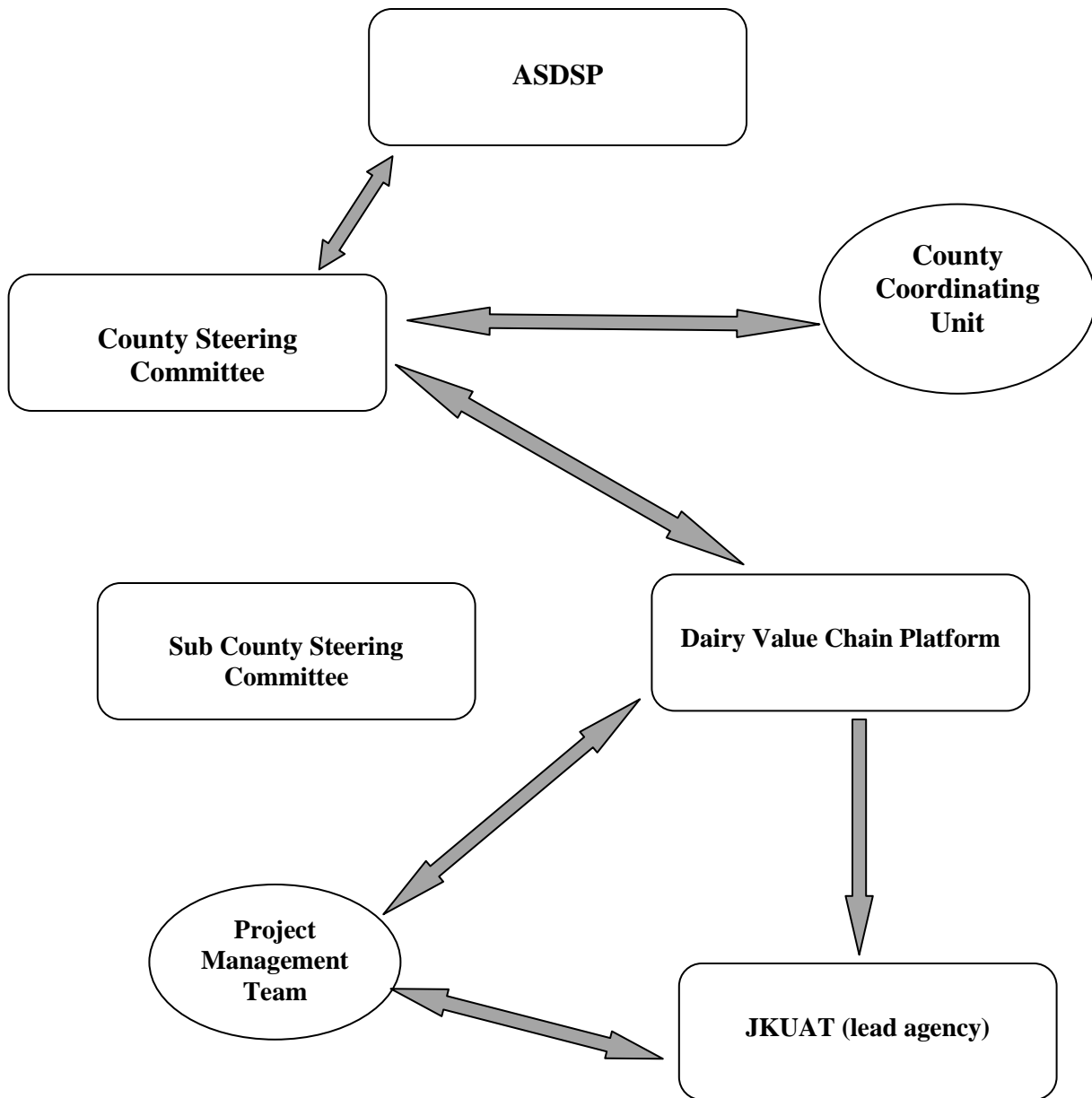
Kenya is implementing the Agricultural Sector Development Support Programme (ASDSP) whose purpose is to increase equitable income, employment and improved food security through improved production and productivity in the rural smallholder farm and off-farm sectors.

Building organizational capacity in commercialization of cow milk value chain in Nairobi City County is therefore one of the projects under this initiative and focuses on the milk value chain while the other two focus on kales and broiler chicken value chains. The three value chains were selected through a participatory stakeholder involvement process

The cow milk value chain project is a partnership between the ASDSP and JKUAT.

JKUAT is undertaking the Project as the lead agency and technology service provider while ASDSP is funding the project and providing backstopping partnership in Nairobi County. The project is to be done in 7 phases. The management structure of the implementing team comprises of the following: County Government, County Steering Committee, Sub County Steering Committee, County Coordinating Unit, Dairy Value Chain Platform, Project Management Team, Social Audit Team and JKUAT (Fig. 4).

**Management structure**



**Figure 4: Project implementation management structure**

## **2.1 Problem background**

During the preliminary and planning phase of the project, the following problems were identified leading to the development of cow milk value chain project:

1. Lack of organization structures in dairy value chain actors /groups which has contributed to low pricing of milk traded in the County.  
*Intervention:* mobilize value chain actors into groups and link them to each other and the VC.
2. Lack of formal structures in Dairy value chain groups  
*Intervention:* formalize/legalize dairy value chain groups
3. Poor management leading to lack of cohesiveness of the value chain groups  
*Intervention:* strengthen the existing Dairy VC groups in the county

## **2.2. Project objectives**

The overall general objective of the project was to build capacity of cow milk value chain actors in Nairobi City County for equitable commercialization through mobilization and formalization of the Dairy Value Chain.

### **2.2.1 Specific objectives**

- i. The specific objectives included:
- ii. To improve inclusive organizational structures in dairy value chain Actors/groups and link them to each other and to the VC in the County
- iii. To formalize/legalize dairy value chain groups to strengthen them
- iv. To increase participation of vulnerable actors/groups to viable opportunities in dairy production and marketing in the county
- v. To strengthen waste management groups
- vi. To form organized and structured dairy marketing groups

## **2.3 Expected outcomes**

At the end of phase I, the project anticipates the following outcomes:

- 200 dairy value chain actors mobilized into groups in Nairobi County and linked to each other and to the VC (horizontally and vertically) by 2015 (ratio by gender 40:30:30 of male to female to youth).
- 20 dairy value chain groups registered in Nairobi County by June 2015
- Participation of 10 vulnerable groups to viable opportunities in dairy production and marketing in the county
- 10 Waste management groups strengthened
- Organized and structured dairy marketing groups formed

## **CHAPTER THREE**

### **Methodology and Activities**

### **3.0 Approach and Methodology**

In carrying out this project, a component of understanding the baseline data in Nairobi was incorporated so as to give an indication of the cow milk value chain in Nairobi County. A participatory approach and methodology was adopted which involved desk study, field survey and case studies.

#### **3.1.1. Desk Study**

Numerous studies and reports have been documented and therefore a review of the literature and documents in the dairy sector was carried out to compare and contrast with what was happening in the county of Nairobi. Key players included the Ministry of Livestock and Fisheries Development, the Kenya Dairy Board and FAO, among others.

#### **3.1.2 Field Study**

Information and data from desk review was triangulated with interviews and discussions with key stakeholders who included small and medium scale farmers, Ministry of Livestock and Fisheries Development and county livestock officers.

#### **3.1.3 Case Study**

This involved collection of data on 64 of cases of dairy farming in the county.

# **CHAPTER FOUR**

## **Study Findings**

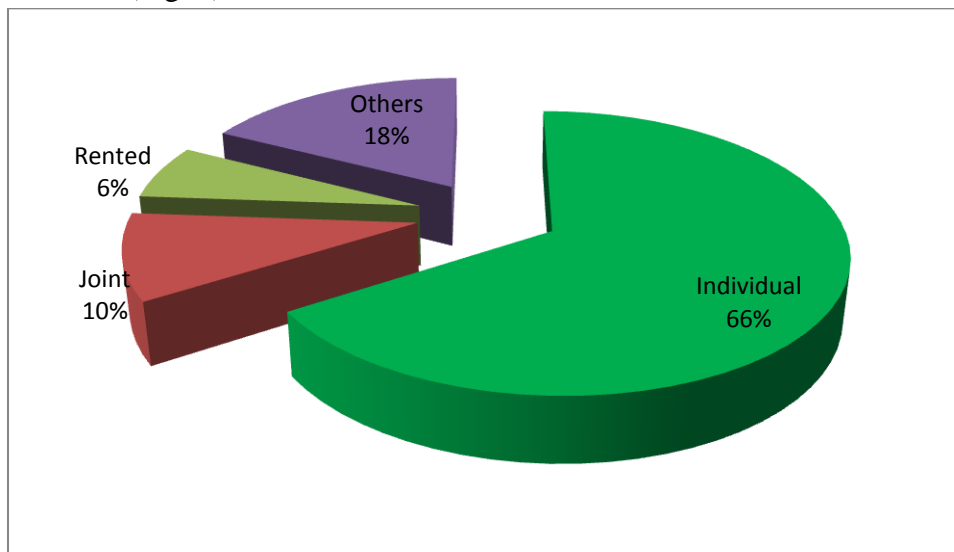
## 4.0 Detailed Findings of the Study

### 4.1 Preamble

Twenty nine (22) participants were drawn from Ministry of Agriculture, Livestock and Fisheries Development in Nairobi County, key actors in the dairy sector and those who play an active role in the industry. The participants were trained in a workshop organized by the lead agency team (JKUAT) where they were thoroughly taken through the project objectives, expected outputs and work plan of activities. A questionnaire which had been developed by the lead agency was adopted as a tool for data collection. The participants were guided on the data collection and case studies processes and the questionnaire validated by the mobilizers during the workshop. Other participants in the validation workshop included government officials in ministry of Agriculture, Livestock and Fisheries, Sub County Agricultural Production Officers, Sub County Veterinary Officers and the Lead agency experts. The data was subjected to descriptive analysis using SPSS statistical program and results are presented in graphs, tables and charts.

### 4.2 Land tenure system and cow ownership

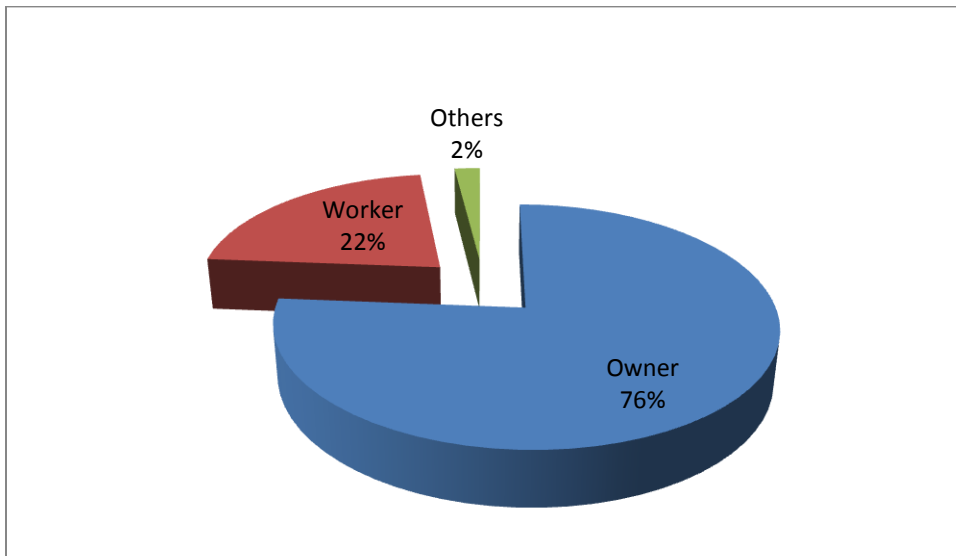
The main objective of the study was to establish the land tenure system in Nairobi County, an indicator dairy production system. It was established that 66% of the respondents owned the land with only 6% renting it where they were carrying out the cow rearing business among other activities (Fig. 5).



**Figure 5: Land tenure systems in Nairobi County**

Over 76% of the respondents were the owners of the animals, with 22% of the respondents being workers (Fig. 6).

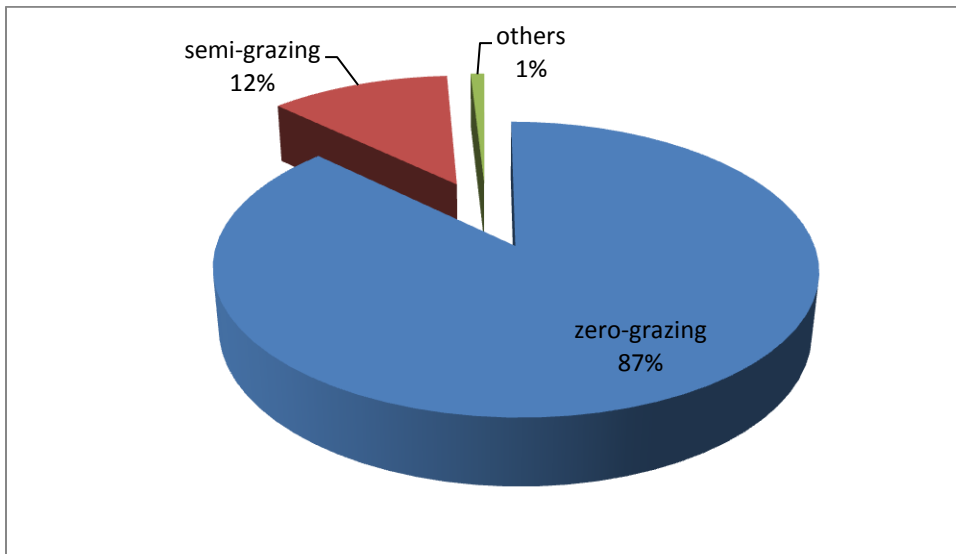




**Figure 6: Cattle ownership in Nairobi County**

#### 4.3 Grazing system

Majority of the grazing systems used were zero grazing (87%) and semi zero grazing (12%). Being in Nairobi County the zero grazing systems was the most practical considering that the farm sizes are remarkably small in size (Fig. 7).



**Figure 7: Grazing systems in Nairobi County**

#### 4.4. Breed types

Among the types of breeds the farmers reared, Friesian accounted for 52% followed by Aryshires (32%). Others were Jerseys and Guernseys with about 7% keeping crosses of the various breeds. Friesian was the preferred breed due to its high milk producing potential (Fig 8).

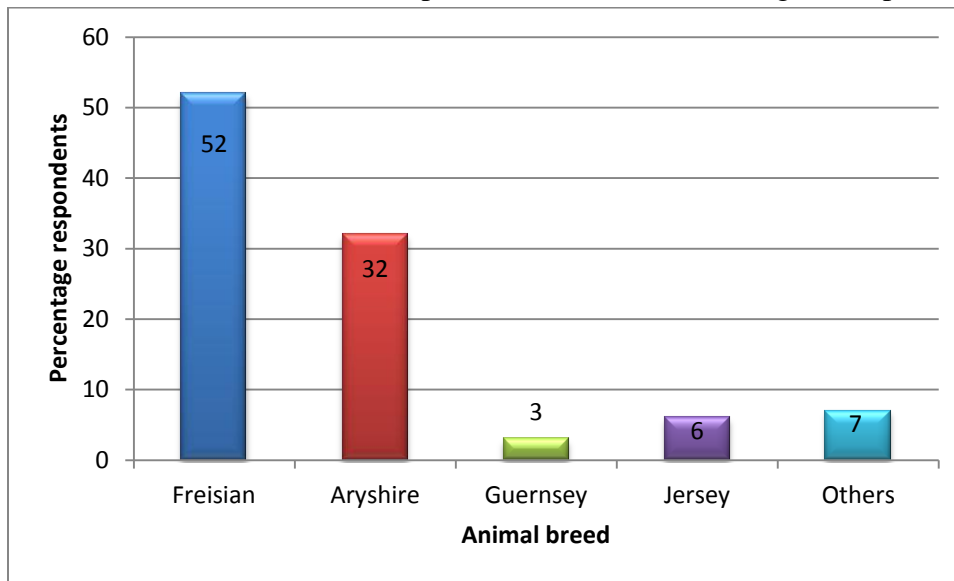


Figure 8: Main animal breeds in Nairobi County

#### 4.5 Number of cows kept

On average, farmers kept between 1 to 15 cows within their localities. A smaller proportion (15%) of the respondents was keeping more than 20 animals in their farms (Fig. 9).

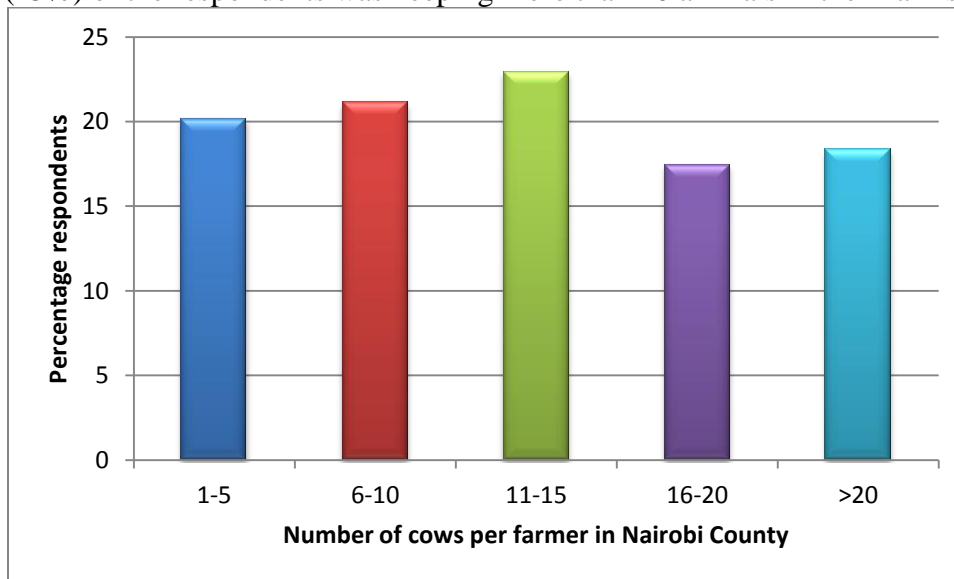
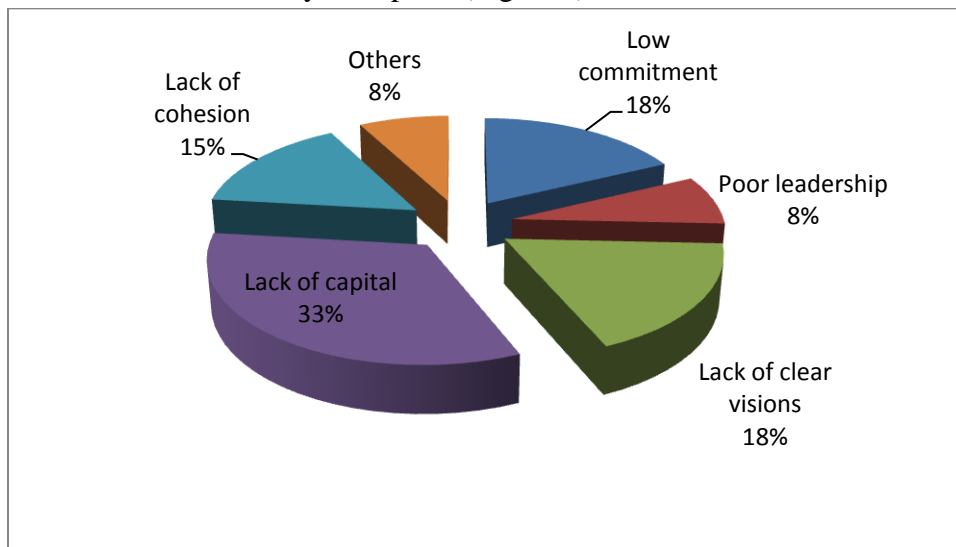


Figure 9: Number of cows kept by farmers in Nairobi County

#### 4.6 Challenges

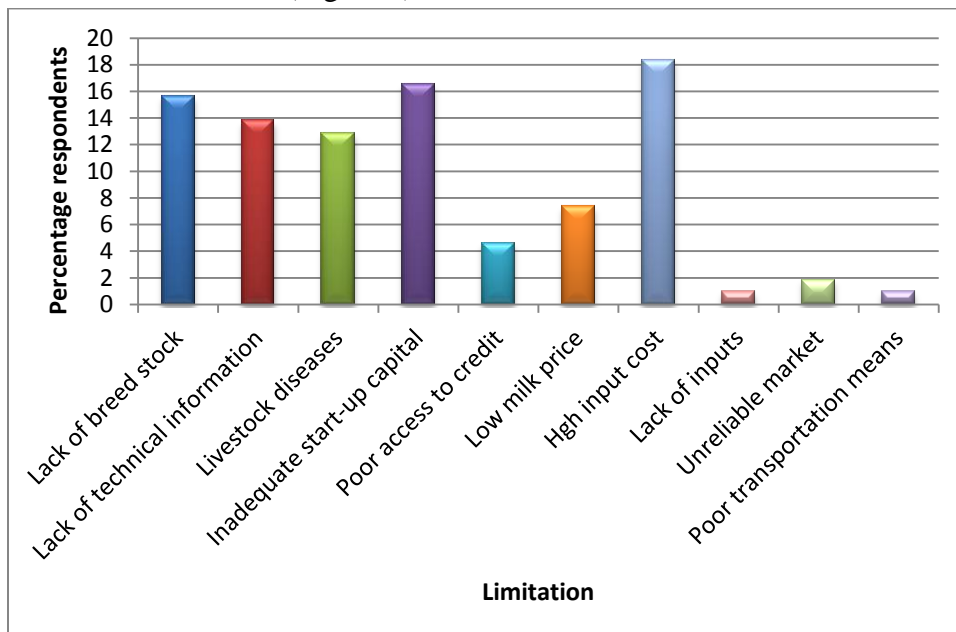
Among the major challenges encountered were lack of capital (33%), lack of a clear vision (18%) and lack of cohesion (15%). Other challenges included poor leadership skills and low commitment to the dairy enterprise (Fig. 10a).



**Figure 10a: Challenges facing dairy farmers in Nairobi County**

#### 4.6.1 Other farming limitations

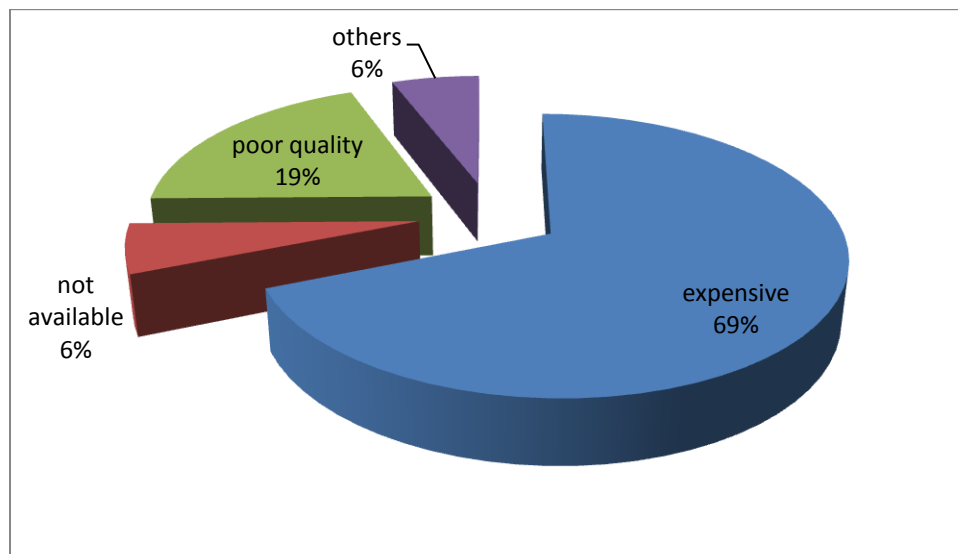
Other limitations which affect dairy enterprises include high cost of inputs which was ranked first, followed by livestock diseases, lack of breeding stock and lack of technical knowledge on cow milk value chain (Fig. 10b).



**Figure 10b: Other farming limitations facing dairy farmers in Nairobi County**

#### 4.7 Challenges in input acquisition

Majority of the farmers (70%) indicated that dairy farm inputs were expensive to buy especially feed concentrates. The quality of inputs was identified also as a challenge at 19%. However, their availability was not mentioned as a challenge (Fig. 11).



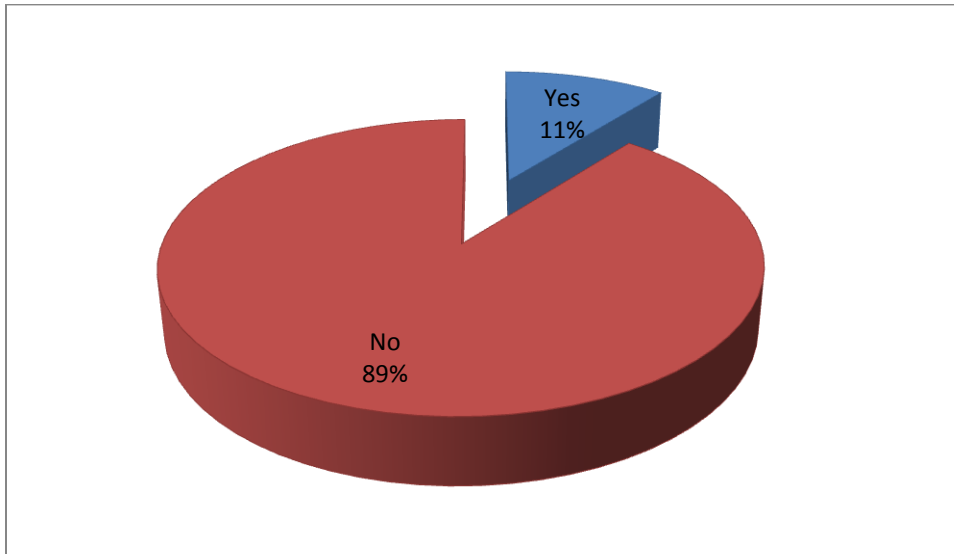
**Figure 11: Challenges in input acquisition**

#### 4.8 Milk sold per day

The farmers were asked about the amount of milk they sell per day in their farms, and slightly over 50 % sell up to 25 litres per day (Fig. 12). Those selling between 26 to 50 litres were about 20%. The indication is that the farmers are dealing with low milk volumes and possibly that's why they do not take the cow milk value chain as a business.

#### 4.9 Opinion on uptake of milk value chain

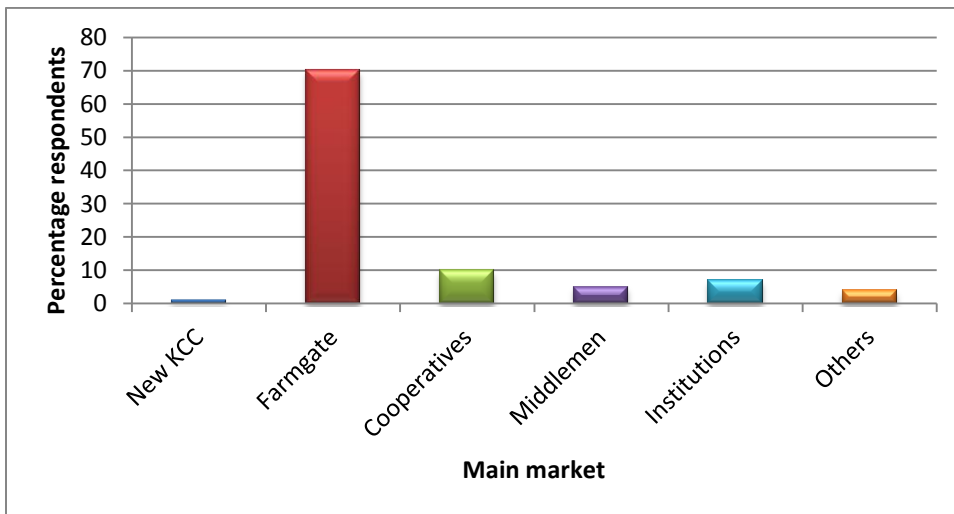
The farmers were asked whether they undertake cow milk value addition and it was surprising that only about 11% of the farmers were doing so (Fig. 13). This was a clear indication that the farmers just sell their milk raw at the farm gate. Of the 10% of those who do value addition to the milk products, just slightly 70% of them sell the products in the shops and and slightly over 20% using the value added products for home use.



**Figure 13: Uptake of milk value chain among farmers in Nairobi County**

**4.10 Main markets for the milk**

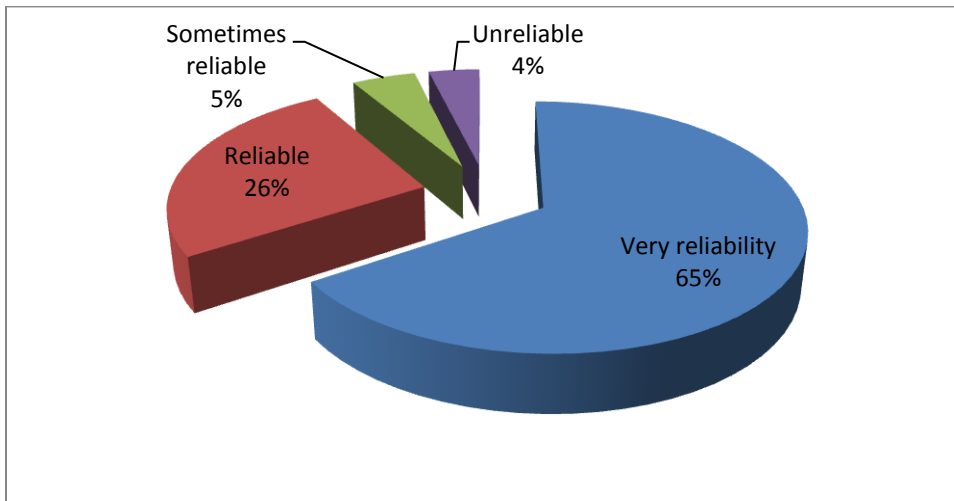
For the milk outlets 70% of farmers sell their milk at the farm gate with only 6% selling to the cooperatives (Fig. 14). This is as expected considering that the amount of milk produced per day is relatively in small quantities. Selling the milk to neighbours fetches more money compared to selling to a cooperative society. The few who sell to the cooperative societies or groups are likely to be the ones producing between 76 and over 100 litres of milk per day.



**Figure 14: Main markets for milk among farmers in Nairobi County**

**4.11 Reliability of the markets**

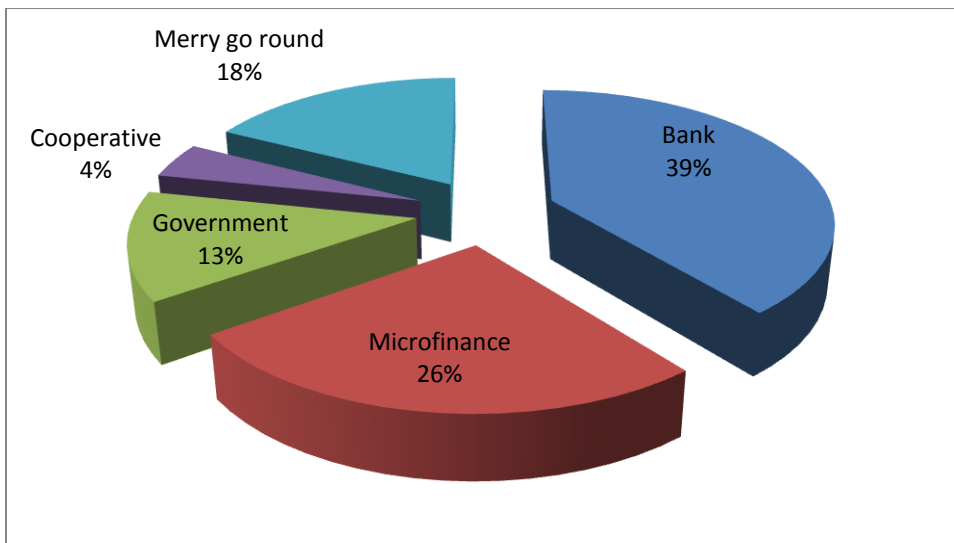
The market outlets for the categories described above was noted to be reliable, with 66% indicating that they were satisfied with their market outlets (Fig. 15). This was a very important indicator because it shows the importance of cow milk value chain in Nairobi.



**Figure 15: Reliability of milk markets in Nairobi County**

#### 4.12 Source of credit

The study established that most of farmers in Nairobi relied on both the banks and microfinance institution to get their credit facilities with about 65%. The Government contributes only 13%. It was important to note that in their small way 18% rely amongst themselves in their initiative of merry go round whereby the individuals assist one another to acquire credit (Fig. 16).

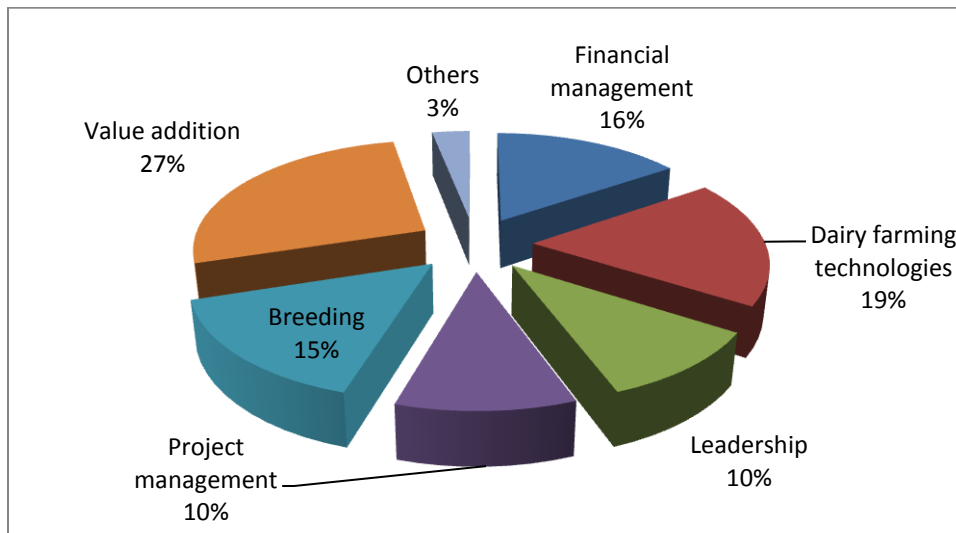


**Figure 16: Source of credit for dairy farmers in Nairobi County**

#### 4.13 Identified training needs

Before embarking on the mobilisation of the cow milk actors in Nairobi county, the study wanted to findout what the actors would propose to be trained on. This was necessary so that the lead agency could formulate a training program based on the needs assessment . It was clear that 27% wanted to understand value addition, 19% wanted to understand dairy farming technologies and

16% wanted to understand issues of financial management Fig. 17). This finding was critical because it informed the trainings which the project lead agency was to develop.



**Figure 17: Training needs proposed by dairy farmers of Nairobi County**

# **CHAPTER FIVE**

## **Case Studies**



## **5.0 Results of the Case Studies**

### **Preamble**

A total of 64 farmers were visited in their farms and Information about their farm activities was captured. These were farmers who kept cows, milk traders and marketers, those involved in value addition and those who dealing with cow waste management among others.

### **CASE STUDY 1: SANLA FARM 2**

**Activity:** dairy cow farming

**Started:** 2008

**Respondent:** Nancy Karanja, 0723318320

**Incentive:** alternative to job

**Animals:** 10; (4 lactating)

**Quantities:** 120kgs

**Sales:** farm-gate (milk glut in 24<sup>th</sup> Dec to 2<sup>rd</sup> Jan)

**Price/litre:** 50/= (wholesale), 60/= (retail)

**Feeding support:** advice from Githunguri dairy officers and farmers on feed ration, extension officers

**Financial support:** Equity (Wakulima loan; 14%)

**Insurance:** UAP (Livestock insurance)

**Challenges:** Disease treatment, lack of information relating to diseases, unreliable & expensive private A.I breeds and outdated city council by-laws.

**Improvements:** better breeds, quality feeds, standardized concentrates. Improve the biogas system (change tube biogas to pit biogas)

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** makes own dairy meal (advice from Githunguri officers); best farmer in 2012, water harvesting

**Other activities:** greenhouse farming (10), broilers, dairy goats, rabbit, sheep

### **CASE STUDY: 2**

**Activity:** dairy café (value addition)

**Started:** 2008

**Respondent:** Eunice Wanjiku Mwaragu

**Incentive:** as a source of living

**Quantities:** 30-50kgs

**Value addition:** boiled milk, milk tea, mala

**Price/cup:** 30/= (buys 50/= a litre)

**Financial support:** self

**Challenges:** adulterated milk, lack of screening equipments, high taxes and many licences from health inspection.

**Improvements:** make yoghurt, expand on space & capacity

**Other activities:** cooks dishes

### **CASE STUDY 3: MZUNGUS DAIREs**

**Activity:** dairy cow farming

**Started:** 2008 with 3 heifers; later added cows till they were 5

**Respondent:** Joseph Murote

**Incentive:** hobby

**Animals:** 72; (16 lactating; 30 in calf)

**Quantities:** 150-300kgs (calving & drying at the same period)

**Sales:** farm-gate; 1/2, 3/4, 1litre packing (no milk glut since milk is put in freezer & sold in mala)

**Price/litre:** 70/=

**Feeding support:** advice from Githunguri dairy farmers on feed ration

**Financial support:** self

**Insurance:** none

**Challenges:** finances, irresponsible workers, poor management by workers, unskilled labour, pocketing of sales by workers.

**Improvements:** yoghurt machine, packing machine, coolant& chillers, improve capacity by new construction (240 cows), 1000 litres of milk daily (target),open 3 milk bars

**Waste management:** biogas, manure for farming.

**Uniqueness:** high level of management, uses bull for A.I

**Other activities:** other constructions

#### **CASESTUDY 4: GOOD SAMARITAN-MAMA MERCY**

**Activity:** dairy cow farming (institution)

**Started:** 2005 (with 2 dairy cows)

**Respondent:** Mureithi Kamau 0724835024

**Incentive:** side hustle to feed the orphans

**Animals:** 27; (10 lactating;3 heifers;6 calves)

**Quantities:** 50-60kgs (no documented records)

**Sales:** farm-gate

**Price/litre:** 75/= (25/= per cup)

**Feeding support:** JKIA horticultural waste, nippier grass, hotel& groceries' waste, EABL waste

**Financial support:** none

**Insurance:** none

**Challenges:** lack of proper feeding, Disease treatment, poor dairy structures, poor breeds, low level of management, low mechanization (manual)

**Improvements:** better breeds, dairy structures, feeding, management

**Uniqueness:** an institution which feeds the orphans

**Other activities:** keeps sheep

#### **CASE STUDY 5: MIARE FARM**

**Activity:** dairy cow farming

**Started:** 2007

**Respondent:** Albert Waweru Miare

**Incentive:** intervention from livestock extension officers

**Animals:** 32;

**Quantities:** 350kgs

**Sales:** within radius of one kilometre

**Price/litre:** 70/=

**Challenges:** high cost of inputs, high cost of feeds, large competition against housing project, lack of govt incentives, unreliable & expensive private A.I breeds, and unfriendly& outdated city council by-laws.

**Improvements:** production, value addition, marketing strategies, quality control measures, business& finance management, introduction of biogas& its use, improvement on housing

**Waste management:** manure for farming in green houses

**Uniqueness:** water harvesting; best farmer in 2011

**Other activities:** greenhouse farming, local chicken

### **CASE STUDY: 6**

**Activity:** biogas production

**Started:** 2011

**Respondent:** Ann Njambi Mbuthia

**Quantities:** 4.3m<sup>3</sup> gas

**Sales:** home consumption

**Challenges:** breakdown of equipment, blocking due to addition of roughages of digester, unreliable technical expertise, lacks the required lamps for lighting

**Improvements:** she longs for a cooperative to buy milk for her to avoid hustling.

**Uniqueness:** biogas production.

**Other activities:** dairy farming

**Use:** cooking

## **CASE STUDY 7: NEW DAWN ACADEMY**

**Activity:** dairy cow farming

**Started:**

**Respondent:** New Dawn Academy

**Animals:** 2

**Quantities:** 25kgs

**Sales:** farm-gate

**Price/litre:** 50/=

**Feeding support:** advice from Githunguri dairy officers and farmers on feed ration

**Financial support:** funding

**Challenges:** inadequate land for expansion of the enterprise, unreliable & expensive private A.I breed

**Improvements:** increase fodder production, start value addition

**Waste management:** biogas, manure

**Uniqueness:** use biogas for cooking in the institution

## **CASE STUDY: 8**

**Activity:** yoghurt making (value addition)

**Started:** 2015

**Respondent:** Rose Wairimu

**Animals:** 3; (1 lactating)

**Quantities:** 17.5 kg

**Sales:** farm-gate

**Price/litre:** 60/= milk, yoghurt 100/=

**Challenges:** high input cost, inadequate technical support

**Improvements:** to increase herd size to increase yoghurt production

**Waste management:** manure

**Uniqueness:** done by aged woman over 70 yrs old

### **CASE STUDY 9: FLECKVIEH**

**Activity:** waste management

**Started:** 2014

**Use:** domestic purposes

**Support:** technicians from Flexi Biogas

**Improvements:** expand waste management to generate enough biogas for lighting.

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** keeps animals for semen production,

**Other activities:** fodder & crop production

### **CASE STUDY 10: GRAMATICAS JERSEY BREEDER**

**Activity:** milking processing

**Started:** 1970

**Respondent:**

**Incentive:** alternative to job

**Animals:** 31

**Quantities:** 146kgs

**Sales:** 1ltr, 2ltr, 5ltr

**Price/litre:** 90/= (processed), cream 500/= litre

**Support:** machines serviced by Coopers technicians; separators by Dairy system

**Market:** high class hotels in Karen, farm-gate

**Challenges:** inadequate market, high input cost, irrigating the paddock is expensive.

**Waste management:** biogas production, manure

**Uniqueness:** the farm has own A.I services, get semen from private importers

**Other activities:** nappier grass, maize fodder, lucern among other legumes

### **CASE STUDY 11: MUNDE DAIRIES**

**Activity:** value addition

**Started:** 2003

**Respondent:** Stella Gatere

**Animals:** own plus outsourced milk

**Quantities:** 800 litres

**Sales:** farm-gate

**Support:** machines are serviced by suppliers

**Financial support:** Agricultural Finance Cooperation helps by giving loans

**Challenges:** inadequate land for herd expansion for enough milk production, inefficient hygiene in milk handling which lead to spoilage.

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** Have machines that can process up to 2000 litres.

### **CASE STUDY 12: LENANA SCHOOL**

**Activity:** dairy cow farming

**Started:** 2009

**Animals:** 54; (26 lactating, 8 heifers, 15weaners, 5calves)

**Quantities:** 180kgs wet season 90kgs dry season

**Sales:** farm-gate (when the school is closed)

**Challenges:** tick infestation when animals are grazing repeated, unreliable & expensive private A.I breeds. High cost of feeds during dry season.

**Improvements:** better breeds.

### **CASE STUDY 13: AQUINAS BOYS**

**Activity:** dairy cow farming

**Started:** 2012

**Animals:** 6 (1 lactating, 2 heifers, 3 bulls)

**Quantities:** 21kgs

**Sales:** consumed by students (farm gate- when school is closed)

**Price/litre:** 60/=

**Challenges:** poor management, lack of quality feeds, unreliable & expensive A.I breeds, bulls bring a risk of in-breeding

**Improvements:** better breeds, right quality feeds, standardized concentrates.

**Waste management:** biogas, manure for farming in green houses

**Other activities:** greenhouse farming, pigs

### **CASE STUDY: 14**

**Activity:** biogas

**Started:** 2013

**Description:**

- Slurry from the zero grazing unit goes to the first manhole then to the 2<sup>nd</sup> which proceed to a pit of 12 \*12 feet.
- The opening is a furrow with a gate valve. The pipe is fitted which allows gas to pass.
- Along the pipe there is a gate valve which allows water in the gas to leave
- At the end of this pipe there is a burner fixed and the gas is ready to use.

### **MATERIALS USED**

- Pipes of different sizes are used
- Cement
- Stones
- Sand



- Gate valves.

**Support:** project funded enterprise

**Quantity produced:** The gas produced enough for hotel use and household

**Market:** home use

**Challenges:** city council opposes dairy farming

**Improvements:** better breeds, right quality feeds, standardized concentrates. Improve the biogas system (change tube biogas to pit biogas)

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** home made feeds, githeri stew used to increase milk production, made own chaff cutter.

**Other activities:** dairy farming

### **CASE STUDY 15: KWETU HOME FOR PEACE**

**Activity:** dairy cow farming

**Started:** 2012

**Incentive:** alternative to job

**Animals:** 5 cows, 4calves 3lactating

**Quantities:** 30kgs

**Sales:** farm-gate

**Financial support:** Patrician Brothers

**Challenges:** Disease treatment, unreliable & expensive private A.I breeds, feeding problems, theft (3 stolen in 2014)

**Improvements:** construct a better zero grazing unit.

**Uniqueness:** dam for water harvesting.

### **CASE STUDY 16: KASARANI DAIRY FARMERS SELF-HELP GROUP**

**Activity:** selling milk

**Started:** 2004

Activities: selling of milk to nearby customers, packing in polythene bags

Uses freezers and the fridge for milk storage,

**Value addition:** yoghurt, mala

**Quantities:** 710kgs

**Sales:** yoghurt 120/= per litre

**Financial support:** members

**Challenges:**

- Low commitment by members
- Lack of clear vision by some members especially in new projects
- Lack of cohesion
- Outdated county by-laws
- Unreliable milk supply especially during the dry season

**Improvements:** training on yoghurt making, cheese, geese and mala to maximise on product production; training on biogas installation

### **CASE STUDY: 17**

**Activity:** dairy cow farming

**Started:** 1970

**Respondent:** Jane waithira mwenje

**Market:** the milk is sold at kasarani dairy farmers (milk cafe), farmgate

**Quantities:** 110kgs

**Challenges:** outdated county by- laws, high cost of feeds and production,

**Improvements:** expansion of the herd.

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** the daughter was taken for A.I training and so does the insemination.

### **CASE STUDY: 18**

**Activity:** selling milk sourced from Nyeri

**Started:** Jan 2015

**Incentive:** alternative to job

**Quantities:** 20-30 kgs

**Sales:** locally

**Price/cup:** 30/=

**Challenges:** market fluctuation, inadequate finances, outdated by-laws by milk board of Kenya,

**Improvements:** expansion of enterprise, make own yoghurt

**Uniqueness:** sells boiled milk

**Other activities:** sells boiled milk, yoghurt, eggs, cakes and rice from Mwea

### **CASE STUDY 19: JENELD DEVELOPER LIMITED**

**Activity:** dairy cow farming

**Started:** 1990

**Incentive:** alternative to job

**Quantities:** 460kgs

**Sales:** Ndumberi dairy cooperative, institutions

**Feeding support:** grows own hay, nappier for her animals

**Challenges:** inadequate space for dairy farming, outdated by-laws of city council, harassment of dairy board due supplying milk to hospitals

**Improvements:** increase dairy cows to 100

**Waste management:** biogas, manure for farming in green houses, harassment by NEMA due to waste management concern

**Uniqueness:** high pedigree breeds, farm has a feed mixer, farm offer training and attachments to students, farm chills milk, best dairy cows countrywide

**Other activities:** grows nappier grass, broilers, piggery, makes her own hay

## **CASE STUDY: 20**

**Activity:** biogas production

**Started:** 2010

**Respondent:** Thomas Mirembo Afundi 0721814350

**Animals:** 9

**Description:**

- Digester is dome underground tank in a 14ft deep pit.

**Support:** project funded enterprise; Kenya National Domestic Biogas Programme (KENDBIP)

**Quantity produced:** The gas produced enough for three household

**Market:** home use

**Challenges:**

- Outdated county council by-laws
- Clogging of digester outlet reducing emission of gas
- Low gas production due to type of feed eaten
- High installation cost

**Improvements:**

- include diversified fodder crops especially legumes which produce flushy dung with less fibres
- Provide technical information for biogas production to owner and workers
- Improve drainage of water around the digester to avoid interruption of gas supply as is currently happening
- Get advice on current affordable device in the market that are used in lighting and cooking

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** offer community service, distributes biogas to nearby homes at favourable rates

**Other activities:** dairy farming

## **CASE STUDY: 21**

**Activity:** dairy farming

**Started:** 2005

**Respondent:** Thomas Mirembo Afundi 0721814350

**Animals:** 9

**Sales:** KCC

**Price/litre:** 30-35/=

**Feeding support:** nappier grass from other farms, grocery and hotels waste

**Financial support:** self

**Challenges:** Disease treatment, inadequate & high cost of fodder, concentrates and acaricides; unreliable & expensive private A.I breeds, outdated city council by-laws.

**Improvements:** better breeds, inadequate technical information relating to feeds standardized concentrates

**Waste management:** biogas, manure

## **CASE STUDY: 22**

**Activity:** selling milk (value addition)

**Started:** 2015

**Respondent:** Monicah Wangari Njoroge 0713479219

**Quantities:** 15kgs

**Sales:** farm-gate

**Price/litre:** 60/litre and 20/= per cup

**Challenges:** high cost of trading licences, county council harassments, ignorance on regulations and requirements of daily board of Kenya that qualify traders to obtain trading licence, lack of access to credit facilities for the beginners, high cost of business premises and equipments for operations.

**Improvements:** increase milk stock, diversify products (ice cream and yoghurt), and seek credit facility to buy more equipment, reach more consumers, and wish to source milk directly from producers, milk hygiene and handling.

**Other activities:** selling mala, boiled milk

### **CASE STUDY: 23**

**Activity:** dairy cow farming

**Started:** 1964

**Respondent:** Grace Wanjiru Mbugua

**Quantities:** 40kgs

**Sales:** kikuyu dairy (cooperative)

**Price/litre:** 35/=

**Challenges:** low prices

**Improvements:** increasing the herd

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** farming as a business

**Other activities:** greenhouse farming (10), broilers, dairy goats, rabbit, sheep

### **CASE STUDY: 24**

**Activity:** selling milk (value addition)

**Started:** 1985

**Respondent:** Hermes Dairies

**Animals:** 10; (4 lactating)

**Quantities:** 1600kgs (600kgs yoghurt, 1000 fresh milk)

**Sales:** local customers, institution and hotels

**Financial support:** Kenya Dairy Board

**Challenges:** inadequate capital for expansion, poor infrastructure and water, improper enterprise location (located in residential areas)

**Improvements:** increase capacity

**Uniqueness:** milk pasteurization,

### **CASE STUDY 25: DAGORETTI HIGH SCHOOL**

**Activity:** dairy cow farming

**Started:** 2005

**Quantities:** 40kgs

**Price/litre:** 50/= (wholesale), 60/= (retail)

**Feeding support:** advice from Githunguri dairy officers and farmers on feed ration, extension officers

**Challenges:** lack of accountability, high cost of concentrates, inadequate room for expansion

**Improvements:** better breeds (pedigrees)

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** makes own dairy meal (advice from Githunguri officers); best farmer in 2012, water harvesting

**Other activities:** pigs and rabbits.

### **CASE STUDY 26: (vulnerable group)**

**Activity:** dairy cow farming

**Started:** 2008

**Respondent:** Mary Wanjiku Njau

**Animals:** 5cows

**Quantities:** 20kgs

**Sales:** farm-gate

**Support:** ministry of agriculture

**Challenges:** expensive commercial feeds, drought and joint ownership problems (mother in-law)

**Improvements:** better breeds, standard zero-grazing unit

### **CASE STUDY: 27**

**Activity:** chilling and processing (value addition)

**Started:** 2010

**Respondent:** Este Enterprise

**Quantities:** 70kgs

**Sales:** local outlet (Umoja)

**Financial support:** Equity loan

**Challenges:** competition from cheaper products, lack of modern equipments to increase production

**Improvements:** support to increase capacity

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** packaging and branding

**Other activities:** greenhouse farming (10), broilers, dairy goats, rabbit, sheep

### **CASE STUDY: 28**

**Activity:** dairy cow farming

**Started:** 2005

**Respondent:** Peter Muturi

**Incentive:** alternative to job

**Animals:** 12; (4 lactating)

**Quantities:** 40-50kgs

**Sales:** farm-gate

**Price/litre:** 60/= litre

**Feeding support:** grocery and hotel waste

**Challenges:** inadequate feeds during the dry season, livestock diseases (lost 4 in last 2yrs), unreliable and expensive A.I services.

### **CASE STUDY: 29**

**Activity:** dairy cow farming (value addition)

**Started:** 2010



**Animals:** (2 lactating)

**Quantities:** 20kgs

**Sales:** farm-gate

**Feeding support:** groceries and hotel waste

**Challenges:** no documentation or unwillingness to share production information, long distance to source feeds, lack of payment for hiring donkey carts.

**Improvements:** better breeds, right quality feeds, standardized concentrates. Improve the biogas system (change tube biogas to pit biogas)

**Uniqueness:** use donkey carts to transport feeds

**Other activities:** rearing of donkeys

### **CASE STUDY: 30**

**Activity:** selling of milk (value addition)

**Started:** 2014

**Quantities:** 100kgs

**Sales:** locally sold raw and chilled.

**Challenges:** high cost of installation and chilling, inadequate milk.

**Uniqueness:** Use milk ATM machine

**Other activities:** chilling and dispensing milk.

### **CASE STUDY 31: WASTE MANAGEMENT GROUP OF MUKURU KWA NJENGA**

**Activity:** collection of waste from livestock and crops which composited to form manure.

**Started:** 2009

**Quantities:** 10-20 tonnes of compost

**Sales:** farming community locally

**Challenges:** lack of cooperation and coordination between group members, lack of financial support.

**Improvements:** plans to package and label, expand the distribution

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** use of vermi compost (worms) to digest and breakdown the waste

### **CASE STUDY: 32**

**Activity:** mala making (value addition)

**Started:** 2005

**Respondent:** Lucy Thiong'o

**Quantities:** 20kgs

**Sales:** locally

**Financial support:** group members

**Challenges:** inadequate capital, competition from other farmers, outbreak of diseases causing milk fluctuation.

**Improvements:** more milk, yoghurt making

### **CASE STUDY: 33**

**Activity:** dairy cow farming

**Started:** 1995(2 dairy cows)

**Respondent:** Peter Muturi

**Animals:** 10; (8 lactating, 2 in calf)

**Quantities:** 40kgs

**Sales:** within 2 kilometres

**Financial support:** group loans

**Challenges:** disease outbreak

**Improvements:** proper training on new technologies, good management

**Waste management:** connected to the sewer line

### **CASE STUDY: 34**

**Activity:** dairy cafe (sells fresh milk, makes mala & yoghurt)

**Started:** 2000

**Respondent:** Catherine Wangari (Wa Mike)

**Incentive:** passion

**Supplier:** Kiambu, Limuru and Kabete farmers

**Quantities:** 80kgs

**Sales:** locally; ½ fresh milk, ¼ yoghurt, ¼ mala

**Price/litre:** 50/= (wholesale), 60/= (retail)

**Financial support:** bank loan

**Improvements:** getting proper training

**Uniqueness:** making yoghurt and mala

### **CASE STUDY: 35**

**Activity:** dairy cow farming

**Started:** 1998

**Respondent:** Jacinta Kimani

**Quantities:** 10kgs

**Sales:** farm-gate

**Feeding support:** nearby farms, vegetable remains from groceries

**Financial support:** KWFT loan

**Challenges:** outbreak of disease, inadequate technical knowhow

**Improvements:** proper training from extension officers on management

**Waste management:** manure

### **CASE STUDY: 36**

**Activity:** dairy cow farming

**Started:** 1999

**Respondent:** Peter Kinuthia

**Animals:** (4 lactating)

**Quantities:** 20kgs

**Sales:** farm-gate

**Financial support:** group loan (self help group)

**Challenges:** cannot meet the demand of milk in the area

**Improvements:** proper training

**Waste management:** manure

**Uniqueness:** has a milk dispenser

**Other activities:** buys milk from other farmers

### **CASE STUDY: 37**

**Activity:** dairy cow farming

**Started:** 2004

**Respondent:** peter kimani

**Animals:** 4; (3 lactating)

**Quantities:** 40kgs

**Sales:** farm-gate

**Price/litre:** 50/= (wholesale), 60/= (retail)

**Challenges:** disease incidences,

**Improvements:** better breeds

**Waste management:** manure

**Uniqueness:** maximization of space (60\*80), high level of management and hygiene despite located in slum

### **CASE STUDY 38: ST BENEDICTA ACADEMY**

**Activity:** dairy cow farming

**Started:** 2009

**Respondent:** St Benedicta Academy

**Animals:** 4 lactating

**Quantities:** 36kgs

**Sales:** farm-gate (milk glut in 24<sup>th</sup> Dec to 2<sup>rd</sup> Jan)

**Price/litre:** 50/= (wholesale), 60/= (retail)

**Support:** technical support from extension and A. I services

**Challenges:** Disease incidences like mastitis, prolonged drought

**Improvements:** increase capacity of herd

**Other activities:** fodder production, learning,

### **CASE STUDY: 40**

**Activity:** milk processing; youghort, mala

**Started:** 2014

**Respondent:** St Peters Catholic Youth Group

**Incentive:** to fed church children

**Quantities:** 10kgs

**Sales:** farm-gate

**Challenges:** low economic unit thus low returns, lack cold storage facilities

### **CASE STUDY: 41**

**Activity:** buys (Muranga) and sells milk (Kayole)

**Started:** 2008

**Respondent:** Siche Dairies Kayole Patanisho

**Quantities:** 800kgs

**Sales:** Locally

**Financial support:** group funds

**Uniqueness:** has milk ATM for self servicing

#### **CASE STUDY: 42**

**Activity:** selling fresh milk, yoghurt, mala

**Started:** 1995

**Respondent:** Dairy Milk Terrace

**Quantities:** 25 kgs (10, mala; 5 yoghurt, 10 fresh)

**Sales:** locally

#### **CASE STUDY: 43**

**Activity:** dairy cow farming

**Started:** 2006

**Respondent:** Peter Muturi

**Quantities:** 42kgs

**Sales:** farm-gate

**Support:** Ministry Of Agriculture Livestock Development

**Challenges:** inadequate financial support, expensive feeds

**Improvements:** better breeds, construct modern zero-grazing unit

**Waste management:** manure

#### **CASE STUDY: 44**

**Activity:** dairy cow farming

**Started:** 2000

**Respondent:** Mary Muihaki Wambiri

**Quantities:** 60kgs

**Financial support:** Equity loan

**Challenges:** Unreliable workers, high cost of feeds, prolonged drought

**Waste management:** manure for farming (7 tonnes per 3 months)

**Uniqueness:** use manure for organic farming

#### **CASE STUDY: 46**

**Activity:** dairy farming (chilling and pasteurizing)

**Started:** 1989

**Respondent:** Lucy Kung'u

**Animals:** 7

**Quantities:** 10kgs

**Sales:** farm-gate

**Price/litre:** 60/= per litre

**Challenges:** city council by-laws.

**Improvements:** better breeds, get milking machine, enlarge land for the fodder, form a cooperative society.

#### **CASE STUDY 47: NAIROBI SCHOOL**

**Activity:** value addition

**Animals:** 13; (2 lactating)

**Quantities:** 33kgs

**Sales:** consumed by the students

**Challenges:** high input cost, lack of breeding stock, livestock diseases

**Improvements:** better breeds, establish more Napier grass

### **CASE STUDY: 48**

**Activity:** dairy cow farming

**Respondent:** k

**Incentive:** alternative to job

**Animals:** 4

**Quantities:** 50kgs

**Sales:** farm-gate

**Price/litre:** 60/=

**Financial support:** sharp capital guarantors

**Challenges:** disease control, general management, cow feeds, lack of milking machines

**Improvements:** better breeds

### **CASE STUDY 49: KENAWEST CBO**

**Activity:** value addition (yoghurt)

**Started:** 2012

**Quantities:** 300kgs

**Sales:** same locality

**Price/litre:** 200/=

**Challenges:** high cost of milk, milk hawking, adulterated milk.

**Improvements:** need milk dispensers

**Uniqueness:** high production

### **CAE STUDY 50: KENYA HIGH (INSTITUTION)**

**Activity:** dairy cow farming

**Started:** 2000

**Respondent:** Martin Ngugi Mutahi



**Animals:** 64; (15 lactating)

**Quantities:** 320kgs

**Sales:** N.K.C.C

**Price/litre:** 60/=

**Feeding support:** school farm

**Financial support:** government of Kenya

**Challenges:** poor breeds, high cost of feeds.

**Improvements:** better breeds, fully zero-graze, modernize systems (in progress), increase milk production

**Waste management:** uses manure for farming and fertilizing the fish ponds

**Uniqueness:** use manure to fertilize the fish pond.

### **STUDY 51: vulnerable group (25yrs)**

**Activity:** dairy cow farming

**Started:** 2009

**Respondent:** Kimani

**Animals:** 5; (3 lactating)

**Quantities:** 10kgs

**Sales:** farm-gate

**Price/litre:** 60/=

**Feeding support:** Napier

**Challenges:** inadequate technical knowhow, high cost of feeds unreliable & expensive private A.I breeds, city council by-laws.

**Improvements:** better breeds, a modern zero grazing unit.

**Waste management:** manure for farming

### **CASE STUDY: 52**

**Activity:** dairy cow farming

**Started:** 2011

**Respondent:** Leah Wambui Muthemba

**Animals:** 6; (4 lactating)

**Quantities:** 25kgs

**Sales:** farm-gate

**Price/litre:** 38/=

**Feeding support:** Napier

**Challenges:** inadequate information relating to dairy farming, unreliable & expensive private A.I breeds, market.

**Waste management:** biogas, manure for farming.

**Other activities:** greenhouse farming (10), broilers, dairy goats, rabbit, sheep

### **CASE STUDY 53: (ST. GEORGES PRIMARY BOARDING)**

**Activity:** dairy cow farming

**Started:** 2000

**Incentive:** alternative to job

**Animals:** 5

**Quantities:** 12kgs

**Sales:** school consumption

**Feeding support:** Napier

**Financial support:** G.O.K

**Challenges:** unreliable & expensive private A.I breeds, licensing by city council lack of A.I officer.

**Improvements:** construct a zero grazing unit, make biogas, good napier grass farming.

**Waste management:** manure for farming

## **CASE STUDY 54: STATE HOUSE GIRLS**

**Activity:** dairy cow farming

**Started:** 1999

**Animals:** 25; (18 lactating)

**Quantities:** 540kgs

**Sales:** school consumption

**Feeding support:** Napier

**Financial support:** G.O.K

**Challenges:** expensive private A.I breeds, high concentrates cost, small land for nappier grass growing

**Improvements:** milk processing, improve zero grazing unit.

**Waste management:** biogas, manure for farming in green houses

**Uniqueness:** use manure to fertilize the fish pond

**Other activities:** greenhouse farming

## **CASE STUDY 55: STRING FOR LIFE KENYA CBO**

**Activity:** dairy cow farming

**Started:** 2013

**Incentive:** alternative to job

**Animals:** 2; (1 lactating)

**Quantities:** 30kgs

**Sales:** farm-gate

**Price/litre:** 60/=

**Challenges:** funds, market, inadequate management knowledge, expensive private A.I breeds.

**Improvements:** expand the herd, joining a cooperative, and supplement dairy farming with other forms of farming.

**Waste management:** manure for farming

**Other activities:** poultry

**CASE STUDY 56: vulnerable group**

**Activity:** dairy cow farming

**Respondent:** Dominic Kariuki

**Incentive:** alternative to job

**Animals:** 4; (1 lactating, 1incalf)

**Quantities:** 18.5kgs

**Sales:** farm-gate

**Price/litre:** 50/=

**Feeding support:** silage, nappier grass

**Financial support:** self

**Challenges:** Disease treatment, lack of information relating to diseases, unreliable & expensive private A.I breeds, inadequate and expensive feed.

**Improvements:** better breeds, right quality feeds,

**Waste management:** manure for farming

**Uniqueness:** makes silage

**Other activities:** local chicken, goats, sheep

**CASE STUDY: 57**

**Activity:** dairy cow farming

**Respondent:** Wilfred Ng'ang'a

**Incentive:** alternative to job

**Animals:** 17; (6 lactating, 4incalf, 5 calves)

**Quantities:** 102kgs

**Sales:** farm-gate

**Price/litre:** 60/=

**Feeding support:** EABL waste, hay, nappier grass

**Financial support:** self

**Challenges:** lack of milking machines, lack of information relating to diseases, unreliable & expensive private A.I breeds.

**Improvements:** knowledge on dairy management

**Waste management:** sells manure

**Uniqueness:** Have many animals within a slum. Good milk production in the same place.

**Other activities:** local chicken, dairy goats, merino sheep

### **CASE STUDY: 58**

**Activity:** dairy cow farming

**Started:** 2001

**Respondent:** Wilfred Ng'ang'a 0722909034

**Incentive:** alternative to job

**Animals:** 17; (10 lactating, 5 calves)

**Quantities:** 102kgs

**Sales:** through a milk bar

**Price/litre:** 60/=

**Support:** ministry of agriculture livestock and development

**Challenges:** outdated city council by-laws, dishonest workers

### **CASE STUDY 58: MOSS HEART MILK & SNACK BAR**

**Activity:** sell fresh milk, yoghurt, mala & tea

**Started:** 2000

**Source:** milk from outside the county (Kiambu)

**Quantities:** 290kgs

**Sales:** 200fresh, 30 yoghurt, 30 mala, 30 tea

**Price/litre:** 100/= (yoghurt), 60/= (fresh), 80/= (mala), 30/= (tea)

**Feeding support:** Kenya dairy board

**Challenges:** milk going bad.

**Improvements:** buys a cooler in near future

### **CASE STUDY 59: MOI FORCES ACADEMY**

**Activity:** dairy cow farming

**Started:** 1986

**Respondent:** Benard 0701315888, Madam Njagi 0722224845

**Animals:** 32; (10 lactating)

**Quantities:** 73kgs

**Sales:** school & staff

**Price/litre:** 60/=

**Feeding support:** ministry of agriculture livestock and development

**Challenges:** poor management, unreliable & expensive private A.I breeds, improper feeding

**Improvements:** improve on management

### **CASE STUDY: 60**

**Activity:** biogas production

**Started:** 2005

**Respondent:** Mr Kiragu

**Animals:** 16; (10 lactating)

**Quantities:** 52kg

**Uses:** domestic use

**Challenges:** unreliable water from Nairobi water & Sewage Company

**Uniqueness:** uses water from Nairobi water and sewerage

## **CASE STUDY 61: SOS CHILDREN VILLAGE**

**Activity:** dairy cow farming

**Started:** June 2014

**Respondent:** Nancy Karanja 0723318320

**Incentive:** alternative to job

**Animals:** 1; (1 calf)

**Quantities:** 26kgs

**Sales:** for the children, orphans and destitutes

**Price/litre:** 60/=

**Feeding support:** ministry extension officers

**Challenges:** high price of inputs, poor and inefficient zero-grazing unit

**Improvements:** increase breeds, through construction of zero-grazing units

**Waste management:** biogas, manure

## **CASE STUDY: 62**

**Activity:** milk trader

**Started:** 2012

**Respondent:** Virginia njeri

**Quantities:** 60kgs

**Sales:** locally

**Price/litre:** 50/=

**Challenges:** debts, adulterated milk, low volumes, price variations, high transport costs, some people prefer processed milk

**Improvements:** cooling facility, value addition

## **CASE STUDY 63: OUTERING MILK TRADERS**

**Activity:** milk traders (licenced by KDB)

**Started:** 2008

**Respondent:** group (50 members)

**Quantities:** 15000kgs

**Source:** Nyahururu, Muranga, Nyeri, Kiambu

**Price/litre:** 55/=

**Sales:** locally

**Challenges:** debts, adulterated milk, tiresome

**Improvements:** storage infrastructure, cooling facilities, equipments, packaging

**Uniqueness:** handling large volumes of milk

#### **CASE STUDY 64: RYAN AND TROY INVESTMENTS**

**Activity:** milk traders

**Started:** 2014

**Respondent:** Paul Gichohi

**Quantities:** 2000kgs

**Sales:** fresh milk, yoghurt, mala

**Price/litre:** 70/= (fresh milk), 120/= (yoghurt), 90/= (mala)

**Source:** Highlands dairy from Embu

**Technical support:** Kenya Dairy Board staff on yoghurt and mala making

**Challenges:** inadequate finances, cooling facilities, power failure, milk fluctuation, adulterated milk,



## **CHAPTER SIX**

### **Conclusion and Recommendations**

## **6.0 Conclusions**

Potential for higher milk production exists in Nairobi County depending on factors such as pricing levels, good animal husbandry practices, attractive county laws, reliability of payments and market accessibility by the farmers among others. Inadequate forages both in terms of qualities and quantities, dairy marketing and processing problems and diseases constitute other constraints to capturing the available opportunities to dairying. The price differential between the various buyers is marginal but the volumes and number of farmers preferring different market channels is significant. This presents opportunities processors to understand why farmers prefer traders and therefore capitalize on this strategy.

## **6.1 Recommendations**

There is need for a purposeful detailed national framework for data collection on milk production with provision for independent monitoring and evaluation mechanisms.

The government and Kenya Dairy Board needs to put more stringent control on traders that are taking the bulk of the milk to ensure good quality milk gets to consumers. There is also need to explore marketing models that can include traders as marketing channels for farmers so as to improve milk quality sold.

A more detailed study is highly recommended to inform this cow milk sector in Nairobi considering that there is now a bill which is recognizing the urban agriculture.

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## Appendix

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